MICK GEORGE

ENVIRONMENTAL PERMIT VARIATION APPLICATION SUPPORTING STATEMENT

CROSS LEYS QUARRY
LEICESTER ROAD
THORNHAUGH
PETERBOROUGH
PE8 6NH

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ENVIRONMENTAL PERMIT VARIATION APPLICATION - SUPPORTING STATEMENT
CROSS LEYS QUARRY, LEICESTER ROAD, THORNHAUGH, PETERBOROUGH, PE8 6NH

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1.0 INTRODUCTION

1.1 Scope & Background

1.1.1 Sirius Environmental Limited (Sirius) have been commissioned by Mick George Limited to prepare of an application to vary Environmental Permit EPR/DB3132AZ currently held for Cross Leys Quarry. This Supporting Statement provides details in relation to the changes to the existing permit waste recovery operations.

1.1.2 Mick George Limited's Cross Leys Quarry site is located off the A47 in Thornhaugh, Peterborough, PE8 6NH (National Grid Reference TF 02900 00536). The site received its Environmental Permit (EPR/DB3132AZ) in February 2012. The site was worked for minerals from the 1960's, originally by Peterborough Quarries Limited, followed by Aggregates Industries Ltd. The site was mothballed in 2012 following the exhaustion of the permitted limestone reserve. Restoration is now being undertaken as a recovery activity by Mick George Ltd.

1.1.3 The northern sections of the north-western area of the quarry have been partially restored under Paragraph 9 waste exemptions. Restoration activities subsequently re-focused to the south-eastern area of the quarry and stabilising the sidewalls of the aviation fuel pipeline corridor that bisects the site under the current Environmental Permit under through the permanent deposit of waste as recovery.

1.1.4 Permitted activities on site comprise the storage of wastes pending recycling/reclamation of organic substances which are not used as solvents and other organic materials. The activities are limited to the restoration and improvement of land and are to be carried out in line with the approved waste recovery plan. The wastes permitted for deposit with the view of land reclamation include wastes resulting from mineral, construction, demolition and excavation activities. There are not currently monitoring or reporting requirements at the site owing to the quantity and inert nature of the waste.

1.2 Variation Overview

1.2.1 Mick George Ltd now wish to vary the Environmental Permit for Cross Leys Quarry. The recovery operations are currently permitted to be undertaken in the south-eastern section of the former mineral working. However, in line with a revised scheme of restoration approved by the Mineral Planning Authority, the operator now wishes to focus the waste operations to support the restoration of the north-western section of the quarry, including the areas partially restored via Paragraph 9 exemptions.

1.2.2 The revised scheme of restoration has been largely enforced due to the presence of Great Crested Newts (GCNs) in the waterbodies located in the south-eastern area of the quarry. The revised scheme of restoration has been designed in order to preserve and enhance biodiversity and habitats within the in the south-eastern of the quarry. The revised plans would still retain an element of the approved scheme, with the northern area remaining agricultural.

1.2.3 To achieve restoration to agriculture in the northern section of the site, the proposal seeks to utilised site-won materials and ~395,000m^3 of suitable import inert restoration materials to raise the levels within the quarry void to create a gentle domed profile which would improve the surface water drainage and resultantly provide a superior quality of agricultural grazing land.

1.2.4 This application therefore seeks the following key changes to the current permit:-

- Approval of a revised Waste Recovery Plan (pre-approved as part of pre-application consultation)
- Extension of the permit boundary to enable to permanent deposit of wastes within the north-western section of the site
- Increase in the quantity of controlled wastes imported to restore the north-western section of the quarry by a further 395,000m^3 (c, 790,000 tonnes)
- Increase maximum quantity of waste received/deposited each year to 400,000 tonnes
- Removal of waste codes 17 05 06 and 19 13 02

1.2.5 The EA have confirmed during a pre-application consultation that the application to vary the Environmental Permit and restoration works will be classed as a Substantial Variation. The application fee will also include additional charges for assessments of a Waste Recovery Plan (WRP), Habitats Assessment and Dust Emissions Management Plan (DEMP). In total, the application fee equates to £11,537. The WRP assessment is already complete and the fee of £1,231 paid as part of the pre-application assessment. Therefore, the total amount to be paid as part of this application equates to £10,306.

1.2.6 This application consists of the following documents:

- Application Forms and Fee
- Non-Technical Summary
- Supporting Statement
- Environmental Site Setting Design (ESSD) Report
- Waste Recovery Plan (WMP)
- Hydrogeological Risk Assessment (HRA)
- Stability Risk Assessment (SRA)
- Environmental & Accidents Risk Assessment (EARA)
- Dust Emissions Management Plan (DEMP)
- Supporting Drawings

1.3 Site Setting

1.3.1 The site to which this application relates is Cross Leys Quarry, located adjacent to the A47 and largely surrounded by agricultural land. The National Grid Reference (NGR) for the site is TF 02900 00536 (location depicted in **Drawing No.: MG1002/14/01**). Overall, the quarry extends to around 28.4 hectares (ha) and is broadly triangular in shape.

1.3.2 Entrance to and exit from the site is undertaken from the main access road (A47) (at NGR TF03114 00707) which runs adjacent to the northern site boundary. This access point was built in accordance with the provisions of a planning permission granted in 1981 (ref. P1166/80). It is aligned at approximately 45 degrees to the carriageway of the A47 (in the direction of Peterborough to the east). Visibility splays at the junction are provided. The access is currently blocked by large concrete blocks, beyond which is a secured metal gate.

1.3.3 The operational boundaries are depicted in **Drawing No.: MG1002/14/02**. The site is bounded to the east and southeast by agricultural land and to the southwest and west by Wittering Coppice Woodland. The village of Wittering is

located 2.8 km to the northeast of the site boundary. Peterborough city centre is situated approximately 16km east southeast of the site boundary.

1.3.4 The site is bisected by a northeast to southwest aligned pipeline (and associated corridor) which supplies aviation fuel to RAF Wittering. To the northwest of this pipeline, the site contains the remnants of the processing plant, roadways and numerous stockpiles of both soils and mineral wastes. This area extends to ~14 ha. The northern areas of the workings have been largely backfilled whilst along the western boundary (adjacent to Wittering Coppice) the quarry face is still visible, at the foot of which is a narrow water body which expands adjacent to the pipeline. The area along the northern side of the pipeline has also been backfilled. To the southeast of the pipeline are a number of large waterbodies, along with visible rock faces, further stockpiles of soils and an area along the southern boundary that has been restored. The southern part of the quarry extends to around 13ha. Planning documents for the site indicate that Cross Leys Quarry has a void capacity of 433,333m^3, of which 395,000m^3 will be filled using imported wastes. Some restoration operations have been undertaken within the site, particularly along the southern boundary and the northwestern corner.

1.3.5 The East Northants Resource Management Facility (ENRMF) is located ~1.3km to the southwest of the quarry, which incorporates a hazardous landfill and soil treatment centre. The ENRMF handles various hazardous waste streams, including ash residues from EfW and Biomass Plants, dredgings, contaminated soil and low-level radioactive waste. This site has been operational since 2009. Also, Thornhaugh Landfill Site (a non-hazardous and stable non-reactive hazardous waste landfill) lies ~ 1.25km to the southeast of the quarry and has been operational since 2005. Both ENRMF and Thornhaugh Landfill site are operated by Augean South Limited.

1.3.6 There are limited number of residential properties within 2km of the site, together with several designated conservation area. Collyweston Great Wood and Easton Hornstocks SSSI, National Nature Reserve (NNR) and ancient woodlands extend across an area of for a distance of over 2.5km to the west of the quarry. Bonemills Hollow SSSI extents ~1.5km to the northwest from immediately beyond the A47 to the north of the quarry. Bedford Purlieus Woods SSSI is located ~460m to the east of the future waste operations boundary. There are no RAMSAR sites, Special Areas of Conservation (SACs) or Special Protected Areas (SPAs) located within 2 km of the site boundary. Additionally, Cross Leys Quarry does not lie within an Air Quality Management Area (AQMA) or a Source Protection Zone (SPZ). Wittering Coppice Woodland is a protected habitat, namely a deciduous Ancient Woodland and lies adjacent to the site's western boundary.

1.3.7 The RAF Wittering Airfield, is situated approximately 1.6km to the north of the site. Businesses within 2km of the site include the aforementioned East Northants Resource Management Facility (situated c. 1.3km southwest of the site) and the Thornhaugh Landfill site (1.25km to the southeast), as well as Silo Services Ltd steel fabricator.

1.3.8 DEFRA's "Magic Map" Application indicates that the historic land use in the area (250m grid) primarily consists of Enclosed Agriculture (including ancient, pre-modern and modern forms), with patches of woodland and forestry. This is interspersed with settlements, unimproved land and areas of Industry. For example, the area upon which the site lies is shown as having historic landscape classifications of both enclosed agriculture and industry (which is a reference to the presence of the quarry.

1.3.9 The site is within a Flood Zone 1, which means that the land has been assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).

1.3.10 The site overlies a principle bedrock Aquifer which is classified as being of high vulnerability owing to soluble rock risk. The Bedrock geology over the western section of the site comprises Lower Lincolnshire Limestone, while the bedrock geology of the eastern section of the quarry comprising Upper Lincolnshire Limestone.

1.4 Risk Assessments

1.4.1 Due to scope of the variations proposed under this application, the following risk assessments have been included:-

- Environmental and Accidents Risk Assessment *(Doc. Ref.: MG1002/07)*
- Hydrogeological Risk Assessment *(Doc. Ref.: MG1002/09)*
- Stability Risk Assessment *(Doc. Ref.: MG1002/10)*

2.0 VARIATION PROPOSALS

2.1 Proposed Development

2.1.1 The Environmental Permit current authorises waste recovery operation to be carried out in the south-eastern section of the former mineral working. The revised scheme of restoration consists of focussing the recovery operations to the area to the northwest of the current operations (this includes the areas partially restored via a Paragraph 9 Exemption).

2.1.2 The infilling/restoration of the site will require the deposit ~395,000m^3 (c. 790,000 tonnes) of inert material over an anticipated period of between 2 and 10 years as a rate of up to 400,000tpa, subject to material availability.

2.2 Waste Types

2.2.1 Waste codes 17 05 06 and 19 13 02 are to be removed from the current list of wastes currently permitted for deposit at the site.

2.2.2 The waste codes to remain on the permit include inert wastes deriving from mineral/mining, construction, demolition and excavation activities and are presented in **Appendix SS5**.

2.3 Phasing

2.3.1 Restoration of the quarry will be carried out in phased manner, as shown in **Drawing Series C5/1-5/5**. The restoration works will include a preliminary material movement phase, which will include the use of site-won materials to infill the groundwater flooded section of the site along the western edge of the quarry and form a temporary screening bund along eastern edge of operational area. For the avoidance of doubt, the handling and deposit of these materials constitute mineral activities that will be regulated by the Mineral Planning Authority Consents held for the site.

2.3.2 Areas along the north part of the quarry that have already received wastes will be regraded and the final restoration soil profile formed using existing stockpiles of site-won sub-soil and topsoil, supplement with imported waste soils as necessary.

2.3.3 Basal areas of the quarry within the central and southern areas and the slope of the existing deposits will be infilled using imported inert wastes from west to east. The basal areas will also be engineered with an Artificial Established Geological Barrier (AEGB). The final 0.7m soil profile will be mainly formed using the stockpiles of site-won soils formed materials, supplemented by imported soils as necessary.

2.4 Hydrogeological Risk Screening

2.4.1 Schedule 22 from The Environmental Permitting (England and Wales) Regulations 2016 covers all aspects in relation to groundwater activities. The regulations provide a consolidated system of environmental permitting relating to the relevant functions, granting of an environmental permit as well as the groundwater activities for which a permit may be granted.

2.4.2 The waste operations at Cross Leys Quarry constitute a Groundwater Activity under Schedule 22 of EPR2016 on the basis that it has the potential to lead to the direct and indirect discharge of pollutants to groundwater. Due to the Principal Aquifer status of the underlying Limestone aquifer a Hydrogeological

Risk Assessment (Doc. Ref.: MG1002/09) has therefore been prepared in support of the application.

2.5 Final Landform and After-Use

2.5.1 The final landform for the restored quarry area is presented in **Drawing No. CL5/5.** It comprises land restored to agriculture, areas of woodland, shrubs and hedgerows, ripped soils and earth mounds to be seeded with species-rich grassland and retained existing waterbodies / ponds as well as a proposed GCN pond with surrounding wetland areas. The final restored levels tie in with those of the surrounding land which will support long-term surface water management requirements for the site.

3.0 ENVIRONMENTAL MANAGEMENT SYSTEM SUMMARY

3.1 Waste Acceptance Procedures

3.1.1 Mick George has defined procedures for the acceptance of waste at its sites which are set out in accordance with the relevant EA guidance. This is to ensure that waste material received is acceptable for deposit at the permitted facility. A written summary which acts as an appropriate aid to personnel in terms of material assessment and acceptability is presented in **Appendix SS1.**

3.1.2 The acceptance procedures ensure compliance with the requirement implicit under Duty of Care when dealing with waste materials, particularly the need to assess the material from initial customer enquiry to when it is deposited on site. The phases are divided into 'Pre-acceptance' and 'Acceptance' measures.

Pre-Acceptance

3.1.3 No 'on-spec' waste deliveries will be accepted onto the site. Prior to acceptance of waste at Cross Leys Quarry, a basic waste characterisation procedure must be undertaken by the waste producer to ensure that the waste does not display any hazardous characteristics and meets with the site leachable and total concentrations. This should be by means of a unique Waste Assessment Form, or similar document that include following information as a minimum:-

- The source and origin of the waste;
- The process producing the waste (including a description of the process, its SIC code and characteristics of its raw materials and products which may affect its behaviour under landfill conditions);
- Confirmation of whether the waste requires testing;
- Determination if the waste has any hazardous properties as per WM3.
- In the case of hazardous waste, the properties which render it hazardous;
- The waste treatment applied, or a statement of why treatment is not considered necessary;
- Testing data on the composition of the waste and its leaching behaviour, where relevant;
- A description of the appearance of the waste – including smell, colour and physical form;
- The appropriate European Waste Catalogue (EWC) code;
- Confirmation that the waste is not a banned waste (for example liquid waste and whole used tyres);
- The landfill class at which the waste may be accepted; and
- If necessary, additional precautions to be taken at the landfill.

3.1.4 No hazardous waste will be accepted at the site.

3.1.5 The wastes identified in **Table SS1** 'Inert wastes' may be accepted for deposit at the site without being subject to any additional testing provided:

- The waste must be a single stream and single source material. Different wastes contained in **Table SS1** may be accepted together, provided they are from the same source.

- They are not contaminated[1] & do not contain other material or substances to an extent which increases the risk associated with it deposit at the site.

Table SS1: Inert Wastes that do not require additional testing

EWC Code	Description	Restrictions
17 01 01	Concrete	Selected Construction and Demolition Waste only
17 01 02	Bricks	Selected Construction and Demolition Waste only
17 01 03	Tiles and ceramics	Selected Construction and Demolition Waste only
17 01 07	Mixtures of concrete, bricks, tile sand ceramics	Selected Construction and Demolition Waste only
17 05 04	Soil and stones	Excluding topsoil, peat; excluding soil sand stones from contaminated sites
20 02 02	Soil and stones	Only garden and parks waste; Excluding topsoil, peat

3.1.6 Wastes not included in **Table MP1** may not be accepted unless representative samples of the waste have been submitted for compliance leaching testing at a solid to liquid ratio (L/S) of 10l/kg by a suitable laboratory, in accordance with BS EN 12457:2002. The wastes must not exceed the limit values provided in **Table SS2**.

Table SS2: Proposed Leaching Limit Values for waste acceptable for deposit at Cross Leys Quarry

Substance	L/S = 10l/kg Limit Value (mg/kg)
As	1.5
Cd	0.04
Cr	0.5
Cu	2
Ni	1.2
Pb	0.5
Se	0.3
Zn	12
Cl	2400
F	30
SO4	3,000
Total Dissolved Solids (TDS)	4,000
DOC	500

** This limit value for sulphate may be increased to 6,000, provided that the value of C0 from a percolation test does not exceed 1,500 mg/l at L/S = 0.1 l/kg. It will be necessary to use a percolation test to determine the limit value at L/S = 0.1 l/kg under initial equilibrium conditions (C0 is the concentration at L/S = 0.1 l/kg).*
*** The value for total dissolved solids (TDS) can be used as an alternative to the values for sulphate and chloride.*
**** If the waste does not meet this value for dissolved organic carbon (DOC) at its own pH value, it may alternatively be tested at L/S = 10 l/kg and a pH between 7.5 and 8.0. The waste may be considered as complying with the acceptance criteria for DOC, if the result of this determination does not exceed 500 mg/kg.*

[1] *In case of suspicion of contamination (either visual or from knowledge of the origin of the waste), testing should be applied against the criteria given in Table MP2 prior to delivery to the quarry, otherwise the waste must be rejected.*

3.1.7 On top of the leaching limit values above, inert wastes must meet the additional limit values provided in **Table SS3.**

3.1.8 Further information on waste characterisation requirements can be found in Environment Agency guidance *"Waste acceptance at landfills"* and *"Waste Sampling and Testing for Disposal to Landfill".*

Table SS3: Limits values for total content of organic parameters for inert waste

Parameter	Limit Value (mg/kg)
TOC*	30,000 or 3%w/w
BTEX	6
PCBs	1
Mineral Oil (C10 to C40)	500
PAHs	100

** - In the case of soils a higher limit value may be admitted by the Environment Agency, provided that the Dissolved Organic Carbon value of 500 mg/kg is achieved at L/S 10 l/kg at the pH of the soil or at a pH. The TOC limit does not apply to restoration soil materials*

Waste Acceptance

3.1.9 Once the acceptable material arrives at site, as arranged during the Pre-acceptance measures, it will be subjected to the appropriate on-site compliance 'Acceptance' checks. A record is kept of the:

- Date and time of waste deliveries;
- Quantities and the nature of the waste deposited at the site; and
- Name of the company and their representation delivering (if applicable) each load of waste and vehicle registration number.

3.1.10 All waste delivery vehicles will arrive at the site via the access road off the A47. Waste vehicles will be directed towards the entrance weighbridge where waste acceptance checks will be completed, and the waste delivery vehicle is directed to the correct staging area.

3.1.11 Where safe, deliveries will be visually inspected at the weighbridge by a trained staff person to determine the basic characteristics of the waste and ensure it accords with the pre-acceptance paperwork. Waste will only be accepted if it is in accordance with the provisions laid down in the Environmental Protection (Duty of Care) Regulations 1991 (and subsequent amendment in 2003), and in accordance with the site's Environmental Permit and associated Schedule of Tonnages and EWC codes. All operatives on site will have knowledge of the Environmental Permit and of the types and forms of waste accepted and prohibited at the facility.

3.1.12 If waste is found to be unsuitable, the load will remain on the vehicle for immediate off-site transfer. Any such events will be recorded in the site diary and the Regulator informed where necessary.

3.1.13 Where visual inspection at the weighbridge is not possible, waste will be visually inspected at the tipping face and the machine operator informed via radio of this action.

3.1.14 Should a load be deposited within the landfill site and found to be non-compliant by machine operatives, the material will be immediately reloaded and rejected off-site, having given consideration for the relevant Duty of Care requirements. Should the producer/carrier have left the site, this load will be placed in a

quarantine area awaiting collection for delivery to a suitably permitted facility. Such events will be recorded in the site diary.

Verification Testing

3.1.15 In additional to basic visual inspection of the wastes, if the total quantity of waste to be received from a single source or carrier is to exceed 2,000 tonnes in any single project or year at least one sample will be retrieved from each homogenous waste source transferred to the site for deposit and subjected to testing as per the parameters specified in **Table SS2** and **Table SS3** at a UKAS accredited laboratory (or equivalent). If the waste source is deemed heterogenous in nature then the same verification testing procedure will be followed, however, due to the heterogeneity, a minimum of 3 samples will be retrieved.

Waste Acceptance Reviews

3.1.16 To support future surrender of the Environmental Permit, a review of the waste acceptance records will be carried out at set intervals. This review will consider the application of the wastes acceptance checks and an assessment of the waste analysis results for relevant wastes streams.

3.2 Waste Storage

3.2.1 As previously indicated, all waste deliveries by road will be logged in at the weighbridge prior to direction to the active tipping area.

3.2.2 Following the successful completion of the waste-acceptance checks, incoming inert waste will be directed to the tipping face for immediate deposition. It is unlikely that there will be any operational constraints that will prevent inert wastes being deposited directly in the active tipping area.

3.2.3 In the event that any wastes need further verification tests to be carried out before being deposited at the site, any deliveries will be temporarily stockpiled within the quarry pending the receipt of any further data/information.

3.3 Site Engineering Proposals

Basal and Side Slope/Wall Engineering

3.3.1 It is not proposed to deposit imported waste directly over exposed limestone bedrock.

3.3.2 The northern sidewalls of the quarry have already been restored under the Paragraph 9 waste exemptions previously held for the site. The western edge of the site will be filled inline with the preliminary phase of restoration (refer to **Drawing No. CL5/1**) using site-won materials. The southern edge of the future operational area has also been over tipped with site-won and imported materials. Imported waste fill materials will be deposited against these existing deposits.

3.3.3 The basal areas of the quarry over which previous restoration material has not been placed will be engineered with a 500mm thick Artificially Established Geological Barrier to achieve a maximum permeability of $1x10^{-7}$m/s.

3.3.4 The construction of the AEGB will be supported by CQA protocols that will be approved by the Environment Agency.

3.3.5 Outline details of the basal and sidewall AEGB are presented in **Drawing No. MG1002/14/03.**

Capping

3.3.6 No low permeability capping system is required for the site.

3.4 Water Management

3.4.1 As per the current situation, all precipitation falling onto unfilled areas of the site will infiltrate into the underlying bedrock. As restoration activities progress across the site, run-off from engineered and wastes filled areas will be collected and directed to the surface infiltration ponds located in the northwestern and southwestern corners of the site (refer to **Drawing No Series CL5/1-CL5/5**). These ponds will be in hydraulic continuity with the underlying limestone aquifer.

3.4.2 Waters within these ponds and those in the southwestern section of the quarry will comprise the primary water supply to support dust suppression operations associated with the restoration activities.

3.5 Amenity Management & Monitoring

Operation and Maintenance Daily Checks

3.5.1 As part of ongoing environmental monitoring and amenity management, site inspections shall be undertaken daily by either the Site Manager, Technically Competent Manager (TCM) or nominated deputy. These inspections will examine the permitted site for defects in plant, equipment or structure or in any working practice that may affect satisfactory compliance with the Environmental Permit. Daily site inspections will be recorded on an Operation and Maintenance Daily Check Sheet (**Appendix SS2**) and will include the following aspects:

- Waste storage levels;
- Waste type storage area separation;
- Site Cleanliness (including litter, mud and debris on internal access routes);
- Site Emissions (Including dust, noise and odour);
- Leakages/Spillages;
- Monitoring data (where relevant);
- Plant Condition; and
- Integrity of site surfacing, drainage systems and security provisions.

3.5.2 Should a problem be identified, the Site Manager will arrange immediate repair or other appropriate remedial action.

3.5.3 Records shall be kept of daily inspections and shall be made available for inspection as reasonably required by authorised officers of the EA. Any defects shall be rectified promptly.

3.5.4 In addition, weekly checks of working procedures will be conducted internally to identify non-compliance and monitor progress of corrective action. Written records of these checks will be kept in both the site and head offices.

Dust/Particulate Matter

3.5.5 It is appreciated that due to the nature of the received waste have the potential to produce fugitive dust emissions. Coupled with the proximity of Wittering Lodge and designated conservation areas to future operational areas could

result in significant levels to these receptors if left unmitigated. Therefore, to ensure that all relevant risks have been identified and addressed a separate Dust Emissions Management Plan *(Doc Ref: MG1002/11*) has been prepared.

Odour

3.5.6 Due to the inert properties of the waste accepted the odour generation potential of the restoration is negligible. Odour management will therefore be limited to the assurance that only specific waste is accepted and deposited at the facility, through visual inspection of waste as they are delivery to and discharged at the site. Olfactory monitoring will also be carried out daily to identify if the waste operations are generating significant odours.

Dirt and Mud

3.5.7 The dispersal of dirt and mud originating at the site onto public roads and the surrounding land will be controlled.

3.5.8 The following operational procedures will be implemented to ensure that dirt and mud do not reach the public highways and surrounding land:

- All deliveries of waste to be sheeted or enclosed;
- All vehicles to be inspected prior to leaving the site. Wheel cleansing facilities to be provided / utilised as appropriate;
- Where possible, internal site roads will comprise hard surfacing to minimise tracking of mud and debris onto public roads. Where public roads will be monitored daily and more frequently during adverse weather conditions;
- The site access road is metalled for ~150m from its junction with the A47.
- The site entrance will be inspected daily for evidence of mud and debris;
- Plant and machinery will be thoroughly cleaned before leaving the site
- Mechanical sweeper to be deployed to remediate any mud and debris that has been deposited on to the public highway or metalled access road.

3.5.9 The Site Manager or nominated deputy will regularly inspect the entrance areas for evidence of mud and debris that has been trafficked.

Litter

3.5.10 The wastes to be deposited at the quarry will not contain any significant quantity of light fractions. All loads will be inspected upon delivery and/or discharge at the site to ensure contaminated wastes are not accepted.

3.5.11 The site will be inspected daily for evidence of litter, with litter picking undertaken as necessary.

Birds, Vermin and Insects

3.5.12 Due to the inert properties of the waste that will be accepted there is a low potential to attract birds, vermin and insects. No specific measures are therefore required; however, visual inspections of incoming inert wastes will be carried out by the weighbridge clerk at the point of acceptance with further assessment by site operatives when the waste is deposited. Daily site inspections will also be undertaken to identify any potential issues that may arise.

Noise & Vibration

3.5.13 An assessment of potential noise impacts associated with future permitted waste operations at neighbouring noise sensitive receptor has been carried out and is included in **Appendix SS6**. The noise assessment demonstrated that the waste recovery operations to support the restoration of Cross Leys quarry will not result in significant noise levels at the nearest sensitive receptors. As a result of this, it has been determined that a Noise Management Plan is not required to support the permitted operations.

3.5.14 This assessment only considers the main infilling activities using imported material and excluded any preliminary works and placement of site-won quarry materials (e.g. overburden, quarry fines/wastes etc), which will be regulated by the Mineral Planning Consents held for the site.

3.5.15 The preliminary restoration works will include for the construction of an environmental screening bund along the northern flank of the pipeline corridor using site-won materials, as shown in **Drawing No. CL5/1.** This bund will provide adequate attenuation to potential noise levels at Wittering Lodge.

3.5.16 Moreover, to ensure that no significant adverse impact occurs from noise, Mick George will implement a series of appropriate measures to minimise noise levels generated by all mineral and waste related activities carried out. These include:-

- Ensuring all plant is kept well maintained;
- Ensuring silencers on plant are effective;
- Turning off plant when not in use; and
- Using alternative non-tonal reversing signals on mobile plant.
- Regular inspection and maintenance of internal haul roads to ensure that that the surface remain in good condition.
- Carry out noise monitoring with a period of 1 month of commencement working in each phase area and at subsequent intervals not exceeding 6 months during working in the quarry.
- Site operational hours will ensure that works carried out at the site will not continue into unsociable hours. Working hours are restricted to:
  - *Monday to Friday* *0600 – 1900hrs*
  - *Saturdays* *0600 – 1300hrs*
  - *Sunday/Public Bank Holidays* *Closed*

3.6 Management Systems

Environment, Health, Safety and Quality System

3.6.1 The landfill operations at Cross Leys Quarry will operate under the effective system of management procedures already developed on a national basis by the operator, Mick George Limited. Mick George operates in accordance with the following externally accredited standards:-

- BS EN ISO14001 – Environmental Standard Certification (see **Appendix SS3**)
- ISO9001 – Quality Management System Certification
- ISO45001 – Occupational Health & Safety Management System Certification

3.6.2 Audits and inspections will be conducted to the suitably accredited standard to meet the requirements of the management system and performance will be

reported annually to the EA as per the requirements of the Environmental Permit.

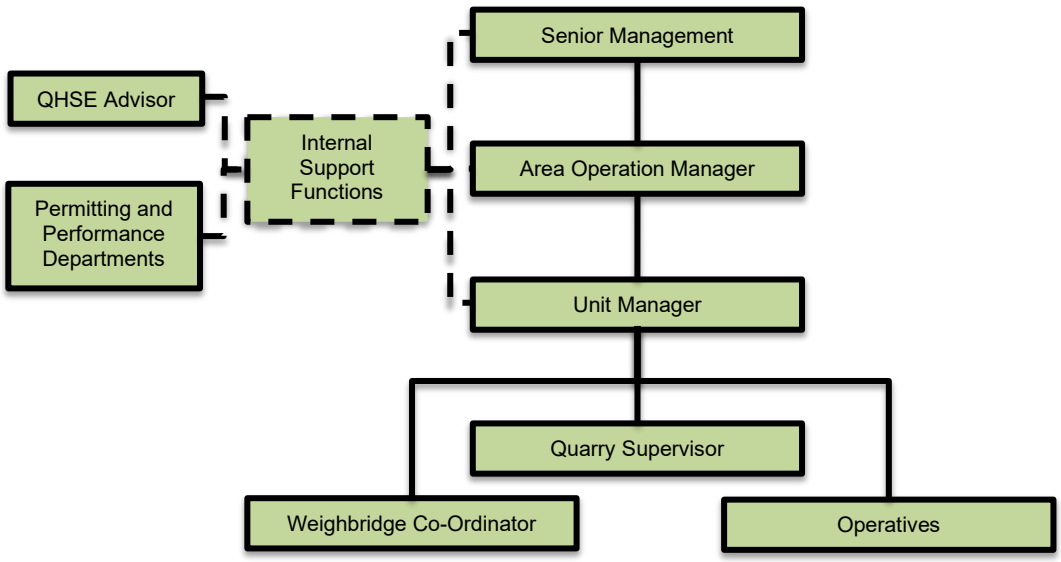
3.6.3 Environmental issues will be considered when purchasing items of plant and when design changes are being undertaken at the facility.

3.6.4 Records will be kept of all items required by the Environmental Permit, other legislation and operating procedures.

Management Structure

3.6.5 **Figure SS1** illustrates the typical management structure that is utilised in relation to the waste operations on site.

Figure SS1: Management Structure



Environmental Permit and Management Plan

3.6.6 The original Environmental Permit, Environmental Permit Application and associated Management Plan and supporting documents will be kept within the site office at Cross Leys Quarry, and/or online in the Site's intranet system.

Technical Competence

3.6.7 Technical competence for the landfill operation at Cross Leys Quarry will be provided via the WAMITAB scheme. Evidence of the qualifications of the Technically Competent Manager (TCM) is presented in **Appendix SS4.**

3.6.8 General Training and development for operational staff will be undertaken in accordance with Mick George's general policy on staff training and development and investment in people. Full time employees are selected based upon relevant experience within the minerals, waste management and recycling industry.

Staffing

3.6.9 The staffing arrangements are outlined in the relevant organogram as shown in **Figure SS1.**

Training

3.6.10 All new employees are given full induction training by the Site Manager or other appropriately qualified person(s) as appointed by the Site Manager.

3.6.11 The assessment of competences of staff will be made by the Site Manager or other appropriately qualified person(s) on an ongoing basis and will be recorded in the Site Diary. All staff will be trained to ensure that they are competent to undertake their respective duties. Particular attention will be given to familiarisation of staff with the Environmental Permit for the site, the potential emissions from the site and the prevention of accidental emissions. Training will be tailored to individual requirements.

3.6.12 An induction and personal training plan will be developed for each individual and will be regularly updated to reflect staff needs and skills.

Operating Procedures

3.6.13 A number of operating procedures have been developed and documented for onsite activities. Where procedures do not already exist, it is anticipated to create a full draft of working procedures for all activities within one year of receiving the Environmental Permit.

Maintenance Procedures

3.6.14 A documented maintenance schedule will be developed in accordance with manufacturer's recommendations. The maintenance plan will identify individual items of process equipment and specify maintenance requirements. An inspection regime will also be developed for each piece of plant in order to visually inspect condition and immediate repair requirements. Maintenance procedures will be included in the Site Management System.

Records

3.6.15 A record of the types and quantities (in tonnes) of inert wastes received for deposit and non-compliant wastes removed from Cross Leys Quarry will be maintained within the site office. A summary of the types and quantities of wastes placed at the site and removed from the site will be provided to the EA quarterly in an agreed format. All Duty of Care documentation in relation to waste movements will be kept for 2 years, prior to archiving until the Permit is surrendered.

3.6.16 The following significant events at the facility will be recorded, as detailed below:

- The start and finish of any construction/engineering works undertaken at the inert landfill site;
- Maintenance;
- Breakdowns;
- Emergencies;
- Problems with waste received and action taken;
- Inert Landfill site inspections;
- Attendance of technically competent management at the inert landfill site;
- Despatch of records to the Agency;
- Severe weather conditions;
- Complaints received;
- Visitors to the facility;

- Pest or vermin incidents; and
- Rejected loads and the reason for rejecting the load.

3.6.17 The Site Manager or nominated person will maintain a record of all the above information in the site log or on inspection forms, as appropriate. Records relating to significant events will be kept for up to 6 years, or where involving off site environmental effects or pollution of land or groundwater until permit surrender.

3.6.18 All records and copies of inspection forms will be uploaded to the Site's Intranet System and will be available for inspection at all reasonable times by any authorised officer of the EA.

3.6.19 The facility records may be kept either as:

- Hand generated log;
- Computer generated hard copies; or
- Computer permanent storage media.

3.6.20 To ensure the security of records they will be housed in either locked containers or kept in offices that shall be locked when not attended.

3.6.21 Records will be disposed of in accordance with company policy, which shall ensure an appropriately secure method e.g., shredding and recycling, where feasible.

Visitors

3.6.22 Persons visiting the site will be required to report to the main site office. A record of the time and reason for their visit will be logged in the signing-in book. Visitors entering the working areas will be briefed and inducted with respect to facility safety and accompanied where necessary.

3.6.23 All visitors will be made aware of the requirement for Personal Protective Equipment (PPE). No person will be allowed entry to the operational site without the correct protective equipment. The facility employees are responsible for the Health and Safety of all visitors and will ensure that they are given sight of a copy of the Health and Safety Plan and are made aware of any potential threats to their safety or welfare.

3.6.24 There will be additional induction requirements for contractors visiting site that are providing a service or undertaking works such as maintenance. A permit to work system will be employed for more hazardous maintenance activities to ensure compliance with company health and safety requirements.

Site Inspections and Audit

3.6.25 Daily site inspections will be conducted of the deposit of waste for recovery operations and associated boundary. The facility shall be inspected daily by the Site Manager or other nominated representatives of the Environmental Permit holder for defects in plant, equipment or structure or in any working practice that may affect satisfactory compliance with the Environmental Permit. Inspections shall be undertaken by staff suitably qualified and/or experienced in the day-to-day operation of the site. The main points of inspection shall include:

- Waste storage levels;
- Waste type storage area separation;
- Cleanliness;

- Site emissions;
- Leakages/Spillages;
- Monitoring data (where relevant);
- Plant condition; and
- Integrity of wider associated buildings, site surfacing, drainage systems and security provisions, where applicable.

3.6.26 Should a problem be identified, the Site Manager will arrange repair or other appropriate remedial action as soon as is feasibly possible.

3.6.27 Records shall be kept of daily inspections and shall be made available for inspection as reasonably required by authorised officers of the EA. Any defects shall be rectified promptly.

3.6.28 In addition, a review of working procedures will be conducted internally at pre-determined intervals. The reviews will be used to identify non-compliance and monitor progress of corrective action.

Site Security

3.6.29 All reasonable precautions are taken to prevent unauthorised access to the site. The site has only one access point, from the A47, with all other boundaries being bordered by thick hedgerows and treelines. The main access gate is kept secure out of hours. During operational hours, the main access gate to the site is kept open for Mick George staff, customers and visitors.

3.6.30 The integrity of the wider site boundary, entrance gate and perimeter structures are inspected on a weekly basis. Any damage to the integrity of the gates or any other security structure, where practicable, will be repaired by the end of the working day. If it is not possible to make repairs within a working day, temporary repair measures will be implemented. Final repairs are carried out within 7 days of the damage being detected or any other such period as agreed in writing with the EA. All damage and repairs (temporary or permanent) are recorded in the Site Diary.

3.6.31 All static and mobile plant, offices and relevant infrastructure will be kept locked down and secure during out of hours periods.

Complaints

3.6.32 Any complaints relating to the facility will be managed as follows:

- Details of the complaint and the complainant will be logged in the Site Diary;
- The complaint will be investigated. Corrective actions and preventative actions will be undertaken where the source of the complaint can be identified and is attributable to activities undertaken at the facility;
- The details of the action taken will be reported back to the complainant. This will include cases where the complaint is unsubstantiated, i.e. the complaint fails to be linked to any activity occurring at the facility. All investigative works and compliant outcomes will be recorded in the Site Diary.

Staff Welfare Facilities

3.6.33 Site welfare facilities will be located at the site reception area.

Non-Compliances

3.6.34 Any non-compliances identified onsite will be reported to the EA within 24 hours where appropriate. Details of the non-compliance and corrective actions will be recorded on appropriate recording forms and held on the Site's intranet system for a period no less than two years. Any records of non-compliances will be archived until Environmental Permit surrender.

Health and Safety

3.6.35 The company recognises the importance of Health and Safety for both its staff and visitors to its facility. The company will therefore continue to monitor Health and Safety in accordance with its ISO45001 procedures to ensure the well-being of all who visit the site. The procedures outline the Health and Safety policies and practices to be adopted on site at all times.

3.7 Accident Management

Emergency Planning

3.7.1 An Environmental and Accidents Risk Assessment (Doc Ref: MG1002/08) has been prepared in accordance with EA guidance to support this application submission. The assessment matrix identifies potential hazards associated with waste operations, the likelihood and consequence of an accident or emergency relating to hazards, and the risk management measures that will be put in place to ensure that risks are acceptable.

Emergency Contact

3.7.2 In the event of any significant environmental emergency/incident, a representative of Mick George will notify the EA by telephone immediately, but first having due regard for the incident at hand and any remediation actions required to ensure the safety of site personnel and the immediate environment.

3.7.3 Details of any environmental incident will be confirmed to the EA in writing, on the next working day after identification of the incident. This confirmation will include: the time and duration of the incident, the receiving environmental medium or media where there has been any emission as a result of the incident, an initial estimate of the quantity and composition of any emission, the measures taken to prevent or minimise any further emission and a preliminary assessment of the cause of the incident.

3.7.4 Any incident notified to the EA will be investigated, and a report of the investigation sent to the EA. The report will detail, as a minimum, the circumstances of the incident, an assessment of any harm to the environment and the steps taken to bring the incident to an end. The report will also set out proposals for remediation and for preventing a repetition of the incident.

Contact Information for the Public

3.7.5 A notice board will be displayed at the site entrance in order to inform the public about the site and to provide relevant contact information to the public in case of an emergency. This information will include:

- The permit holder's name (Mick George Limited);
- Emergency contact name and telephone number;
- A statement that the site is permitted by the Environment Agency;
- The permit number (EPR/DB3132AZ);

- Environment Agency telephone number (03708 506506) and the incident hotline (0800 807060)

Control of Fires

3.7.6 As part of the ongoing operations, arrangements will be made, as necessary, with the local fire liaison officer to visit the site and discuss the relevant operations with the client. Any specific advice given by the fire liaison officer can then be incorporated into the site's management plan as appropriate.

3.7.7 No waste will be burned within the confines of the site boundary. Due to the nature of waste stored in other areas of the site, all fires within the facility will be treated as a potential emergency and dealt with accordingly. Fires may occur in relation to:

- Plant failure – fixed or mobile plant fires; and
- Within non-conforming waste loads awaiting removal from the site.

3.7.8 In the event that a fire occurs at the facility, the following actions would be undertaken:

- Person(s) discovering a fire will raise the alarm;
- Report the incident to the Site Manager / nominated person;
- All site personnel and visitors will be accounted for and evacuated to a safe location;
- Contact the emergency services and state the nature of the incident;
- Follow all instructions given by the emergency services;
- If the fire can be controlled without endangering operatives, appropriate actions will be undertaken using available firefighting equipment. Fires will be tackled by a minimum of two site operatives;
- Ensure access is clear for the emergency services but prevent access to the facility from anyone else until the emergency is over; and
- The EA will be informed forthwith of any fires that occur at the facility.

3.7.9 Firefighting equipment will be available at the facility and will be clearly marked and tested, at appropriate intervals, to confirm their suitability and functionality. Site personnel will be made aware of the locations of all firefighting equipment and will be trained in their correct use.

3.7.10 A record of the occurrence of a fire will be maintained in the site log, along with any actions taken. An Incident and Accident Report will be completed by the Site Manager.

3.7.11 Following approval by the fire services and/or facility manager the residues from the fire will be disposed of accordingly at a suitable permitted waste management facility.

Explosions

3.7.12 Due to the nature of the wastes accepted at the facility, the likelihood of the materials containing explosive elements is highly unlikely. However, awareness and caution will be practised with all staff and to ensure no other waste is accepted that has explosive properties, the waste acceptance procedures identified in **Section 3.1** will ensure that unauthorised waste types are prevented from entering the facility.

3.7.13 In the unlikely event that materials with explosive elements are discovered within a waste delivery that has already been accepted, the following action would be taken:

- Contact the Site Manager or in his absence the Site Supervisor;
- Check that all site personnel and visitors are accounted for and are moved to a safe location;
- Contact the emergency services and state the nature of the incident (including whether any fires have occurred);
- Follow all instructions given by the emergency services;
- If injuries have occurred medical assistance will be called;
- No further wastes will be accepted at the facility until the Site Manager has given authority; and
- The EA will be informed forthwith of any arisings of explosive materials or any explosions that occur.

3.7.14 Once the emergency is over and the emergency services have declared that the area is made safe, an incident/accident report shall be completed. A written account of the incident will also be forwarded to the EA no later than 14 days after the incident.

Flooding

3.7.15 The site is located in Flood Zone 1 (annual flood probability of less than 0.1%), as defined by the Environment Agency flood zone map. Flood maps show historic Flood Zone 3 zones within the base of the quarry, which relate to deeper sections of the quarry and areas that have since been infilled. The risk from flooding of the quarry from surface waters is low.

Control of Leaks and Spillages

3.7.16 Daily visual inspections of the operational and processing surfaces will be conducted. In the event of a spillage, facility operatives will inform the Site Manager or Supervisor who is responsible for assessing the situation and deciding on the most appropriate actions to be undertaken.

3.7.17 All necessary measures will be taken to contain any spillage or discharge by means of suitable material and equipment. The actions undertaken will depend on the size of the spillage, the location of the spillage in relation to sensitive receptors and the nature of the spilled material.

3.7.18 Where spillages of dry wastes occur, these will be cleared by either manual or mechanical means, for example handpicking, sweeping or shovelling, dependant on the size and location of the spillage.

3.7.19 Minor spillages of liquid will be contained using spillage kits or any suitable readily available absorbent material. This material will be disposed of in a manner appropriate to the type of material absorbed. Spill kits will be maintained on site in an easily accessible location in the event of a spillage.

3.7.20 If a major spillage of liquid occurs, such as heavy plant oil/fuel, the following actions will be undertaken, where appropriate:

- Ensure no risk of off-site transfer;
- Report the occurrence to the Site Manager/Supervisor immediately;
- Trained facility operatives will take immediate action to try and contain the leak where it is safe to do so;

- If it is safe to do so, the cause of the spill or leak will be isolated and/or moved to a bunded area;
- If the liquid spillage is large, inert low permeability material such as clay will be used to make a temporary containment bund to prevent further transfer of the spillage. The Site Manager or designated person will contact the EA to discuss best practicable disposal options;
- Access to the immediate area should be restricted until a disposal/clean up solution is implemented;
- If the spillage cannot be contained using approved methods, senior management will be contacted immediately, and specialist advice and help will be sought; and
- If a vehicle or item of plant is identified as leaking, wherever practicable, it will be stored on an impermeable pavement (at the site offices/garages) / highly compacted made ground within a bunded area, where the spillage can be contained until such time as a repair is affected.

3.7.21 The Environment Agency will also be informed immediately of major spillages, having due regard to first take appropriate measures to deal with any emergency in hand.

Investigation of Accidents and Incidents

3.7.22 For any accident, incident or dangerous occurrence, an incident and Accident Report will be completed by the Site Manager. All relevant details of the accident, incident or dangerous occurrence will be recorded, together with any additional statement, photographs, logs or records that may assist in the full investigation of the accident, incident or dangerous occurrence.

3.7.23 After an Environmental Incident or Emergency has been made safe, an investigation will be conducted, if necessary, by the Site Manager and other Company Personnel as appropriate.

3.8 Climate Change

3.8.1 The quarry restoration activity is proposed to be completed within 5 years. Adaption for climate change predictions by 2050 and beyond is therefore not considered further in the management system.

4.0 REPORT CLOSURE

4.1.1 Following a request by Mick George Limited, after the granting of the Environmental Permit EPR/DB3132AZ in February 2012, this application seeks to vary the permit to account for the extension of the site's permit boundary to allow to restoration of the quarry void in the northern region of the site. Furthermore, while the waste codes currently permitted will not alter in any way, the tonnage of wastes required to fill the void in the northern region of the site will be 395,000m^3.

4.1.2 This supporting statement and its associated drawings and supporting documents provide the required level of information to enable determination of the application.

DRAWINGS

APPENDICES

APPENDIX ESSD1

Waste Acceptance Procedures

INERT WASTE ACCEPTANCE PROCEDURE

The Technical and Waste Compliance Team assess waste enquires against current and relevant guidance and legislation. The process starts with the Environment Agency guidance document Technical Guidance WM3 (1st edition v 1.1) and if relevant based on the identified waste streams, waste classifications and intended disposal / treatment routes the Council Decision (2003/33/EC). Other guidance and legislation documents may also be used such Environmental Protection Act 1990, EA Dispose of Waste to Landfill (01/30/20), EA Landfill Operators: Environmental Permits (01/30/20) and LFT1 (this is not an exhaustive list).

Depending on the unique waste acceptance criteria detailed within a sites permit and operating techniques, soils may be classified as inert in some circumstances in which we may not have been supplied with a WAC test. This will be in line with Council Decision (2003/33/EC) section 2.1.1. Otherwise the leaching limit values and limit values for total content of organic parameters for inert WAC (Council Decision (2003/33/EC) section 2.1.2.1 and 2.1.2.2) will be followed unless a site-specific WAC limit has been agreed with the Environment Agency.

A unique Waste Assessment Form (WAF) number is then assigned to the enquiry which will include the site-specific information provided by the waste producer along with the waste classification identified from the above assessment process. The unique WAF number is then approved into an internal disposal or treatment site on the site acceptance worksheet for which the site manager, weighbridge operatives and transport coordinators are able to check to ensure that only the approved waste types are routed to and accepted at the correct sites. This will be based on the site-specific waste acceptance criteria as identified within the specific permits.

All vehicles delivering waste will stop at the weighbridge and will not be allowed to proceed to the active disposal area (landfill) or storage / treatment area (transfer station) without having been subjected to a visual inspection and documentation check.

Each load of waste arriving at site must be accompanied by a relevant waste transfer note unless the delivery is made under an annual waste transfer note (multiple waste transfers for up to a 12-month period for inert and non-hazardous wastes only). The waste transfer note should be consistent with fulfilling the company's responsibilities under the provisions of the Duty of Care Code of Practice.

The Weighbridge Operator shall review the accompanying paperwork for all loads. The EWC code and the waste type should be double checked against the sites permit. The weighbridge operative should also look for the presence of a valid WAF number by cross referencing against the 'Site Acceptance Workbook'. If the spread sheet doesn't contain the WAF number they must seek advice from the Waste and Technical Compliance Team (Ext. 7610). No vehicle shall proceed for tipping without a permitted EWC code and a valid WAF number.

Every waste load must be delivered in by a registered waste carrier and the waste carriers' number must be displayed on the paperwork accompanying the load.

Once accompanying paperwork has been reviewed, the weighbridge operative shall undertake as far as practicable a visual inspection of the waste load to establish load compliance and safety.

If the waste is suitable for acceptance to site, the load shall be weighed in on the site weighbridge and directed to the active tipping area or off-load point. The accompanying paperwork will be held at the weighbridge pending the vehicles exit from site.

Copies of the waste transfer note will be kept by the transferee (accepting site, MG) and the transferor (previous waste holder, customer). The weighbridge clerk will file a copy of the waste transfer note in the site office, electronic copies are saved via Elemos or RoadRunner on the server. Copies will be retained securely for a minimum period of two years and made available for inspection by the Environment Agency upon request.

In normal circumstances once the vehicle has deposited its load it shall proceed back to the weighbridge so that a tare weight can be recorded. The weighbridge operative shall then enter the corresponding weights for the load into the Elemos or RoadRunners systems and formally accept the waste on the waste transfer note.

In the following circumstances the load must be held at the weighbridge and advice sought from the Waste and Technical Compliance Team as soon as practicable so as not to unnecessarily delay the customer:

- Absent, incorrect or incomplete accompanying paperwork
- Wrong waste description or non-permitted EWC
- Absence or incorrect WAF number
- Suspicion over the load compliance
- Unsafe load

Where an issue cannot be resolved within an acceptable time frame the load will not be permitted to discharge and will be rejected from site. If there is issue with the waste acceptance take a photograph and send it to the Waste and Technical Compliance Team to seek advice.

WASTE REJECTION

- Always contact your site manager and the Waste and Technical Compliance Team before rejecting waste.
- Rejection from site of non-hazardous material will be recorded in the site diary and a photocopy of the paperwork taken by the Weighbridge operator. The original paperwork should be handed back to the driver of the load.
- Rejection from site of hazardous material is more complex and care should be taken by the Weighbridge Operator to ensure that all necessary Consignment Note Procedures are followed. Guidance on how to reject a load of hazardous waste is provided in the Consignment Note section of the Weighbridge Manual.
- The Weighbridge Operator shall record the rejection of hazardous waste in the site diary.

NON-CONFORMANCE AT OFF-LOADING

The load shall be visually inspected at either the tipping face or at the off load point. If it becomes evident during this inspection that the load is non-conforming (i.e. not as described, unsafe, non-compliant) the following actions will take place immediately:

- If the load is still within the vehicle body or container the driver shall be instructed to cease off-loading immediately. The Site Manager shall be called and advice sought from the Waste and Technical Compliance Team if necessary. The Site Manager will decide whether to continue offloading the waste or reject the waste from site.

- If the waste has been deposited or offloaded, the area around the waste will be cordoned off and the Site Manager contacted. The driver of the vehicle will be instructed not to leave site. If safe and practical to do so the waste shall be loaded back on to the vehicle / container it arrived within and rejected it from site.

- Where it is not safe to reload the waste into the vehicle / container the area of deposit shall remain cordoned off from other vehicles and site users and the Site Manager shall seek advice

from the Waste and Technical Compliance Team. It may be necessary to take immediate action to make the deposited load safe, particularly in the case of hazardous waste, such as dampen down or cover with inert material. This shall be done at the discretion and direction of the Site Manager.

- If for any reason the driver of the vehicles has left site and it is safe to remove waste to a non-operational area this shall be done at the discretion and direction of the Site Manager. In all such circumstances the waste shall be moved to the site quarantine area only.

- If the load is non-conforming the banksman should follow the WASPRO001 document (Waste Acceptance Document) in Appendix 3. The BF67 form (Non-Conforming Waste Form) should be filled, and the weighbridge operator should email it to intskip@mickgeorge.co.uk and compliance@mickgeorge.co.uk as soon as possible.

- Where waste has been placed within quarantine it must either be proven suitable for acceptance to site or removed from site with 5 working days. Any waste in quarantine in exceedance of 5 days must be notified to the Environment Agency with a clear explanation of why this is the case.

Verification Testing

Samples of incoming waste streams will be taken for Level 3 verification testing as per the Environment Agency guidance Landfill operators: environmental permits. The sample suites chosen will be based on the site history of the incoming wastes as well as the wastes' physical and chemical properties and basic characterisation. This will typically include a combination of the following:

- As received chemical analysis and WAC testing by MCERTS certified laboratories;
- Rapid Method Techniques (RMT) such as the QED hydrocarbon analyser from QROS and a handheld Vanta XRF analyser from Olympus to check and corroborate the waste classifications.

APPENDIX ESSD2

Operational and Maintenance Daily Check Sheet

MICK GEORGE

Operation and Maintenance Daily Check Sheet Aggregate Industries UK Limited					
TCM		**Date**		**Time**	
Weather					

Site Wide Inspections	**Condition**		**Comments and Corrective Action**
	Last check	**This check**	
	☐	☐/☐	
Dust Visually inspect the site for evidence of dust accumulation (on surfaces/plant) and generation (from vehicle/waste movements) Is there any visible evidence of dust buildup on vehicle/hard standing surfaces?			
Odour Undertake olfactory monitoring (sniff test) for odour around the site boundary, at surface water discharge point and next to waste stockpiles. Record any identified odours, their intensity, their location on-site and their source ***Note: Odour monitoring procedure and Odour intensity scale are included overleaf for reference***			
Litter Inspect the site for evidence of litter (operational areas and surrounding fence line)			

Site Wide Inspections	Condition		Comments and Corrective Action
	Last check	This check	
	☐	☐/☐	
Noise During site inspection listen for any elevated/unusual noises Record any identified noises above background levels, their location on site and their source			
Scavengers, Insects and Other Pests Inspect the site for signs of infestation or attracting scavengers			

NOTE:

ODOUR AND NOISE MONITORING PROCEDURES, INTENSITY SCALES AND CHARACTERISTICS DESCRIPTORS ARE PRESENTED ON PAGE 5.

Area Inspected	Condition		Comments and Corrective Action
	Last check	This check	
	□	□/□	
Internal Access Routes Inspect access routes for wear and cracks. Also inspect for litter and dust.			
Weighbridge Check for wear.			
Concrete, Tarmac and Hardstanding Surfacing Inspect impermeable surfaces for wear and cracks.			
General Drainage Check for wear and blockages.			
Quarantine Area Check for wear and cracks.			
Materials Storage Areas Check bays for wear and damage. Check not overfilled.			
Container Storage (if appropriate)			
Waste Vehicle Parking Inspect impermeable surfaces for wear and cracks.			
Mobile (Materials Handling) and Static Plant Inspect for damage/leaks before and after use.			
Fuel Storage Tanks and Bunding Systems Check for potential leaks, cracks and holes.			

Area Inspected	Condition		Comments and Corrective Action
	Last check	This check	
	□	□/□	
Weighbridge Office Check for defects.			
Staff Vehicle Parking Inspect impermeable surfaces for wear and cracks.			
General Tools/Equipment Inspect for defects before and after use			
Safety Equipment Check for defects.			
Security – Fence line, CCTV and access gates Check for damages			

Odour Monitoring Procedure:

1. The duration spent at each monitoring location should be a minimum of 1 minute;
2. Continue to breathe normally during inspection;
3. During this time undertaken assessments for the other listed site wide inspection aspects (dust, litter, noise and scavenger, insects and other pests) and record any comments.

Odour Intensity Scale:

0. No detectable odour
1. Very faint odour (only just detectable)
2. Faint odour (barely detectable, need to stand still and inhale facing into the wind)
3. Distinct odour (detected while walking and breathing normally)
4. Strong odour (easily detected while walking and breathing normally, possibly offensive)
5. Very strong odour (bearable, but offensive)
6. Extremely strong odour (not bearable)

Noise Monitoring Procedure:

1. The duration spent at each monitoring location should be a minimum of 1 minute;
2. Continue to undertake inspection activities as normal;
3. During this time undertake assessments for the other listed site wide inspection aspects (incl. dust, litter, odour, and scavenger, insects and other pests) and record and comments.

Noise Intensity Scale:

0. No detectable noise
1. Very faint noise (only just detectable)
2. Faint noise (barely audible above background activities)
3. Distinct noise (audible above background activities)
4. Strong noise (easily audible above background activities)
5. Very strong noise (bearable, but distracting)
6. Extremely strong noise (not bearable)

Noise Characterisation Descriptors:

Constant	High Frequency	Impulsive	Metal on metal
Intermittent	Low Frequency	Tonal	Distinctive

APPENDIX ESSD3

EMS Certification

Certificate of Registration

This is to certify that the Management System of:

Mick George Group

6 Lancaster Way, Ermine Business Park, Huntingdon, Cambridgeshire, PE29 6XU

And as detailed on the annex to this certificate

has been approved by Alcumus ISOQAR and is compliant with the requirements of:

ISO 14001: 2015

Certificate Number:	**23037-EMS-001**
Initial Registration Date:	10/11/2022
Re-issue Date:	19/05/2023
Current Expiry Date:	09/11/2025

Scope of Registration:

Contracting (including civil engineering, groundworks, demolition and asbestos management), processing and supply of aggregates, waste management, recycling and ready-mix concrete production.

Signed:
Alyn Franklin, Chief Executive Officer
(on behalf of Alcumus ISOQAR)

This certificate will remain current subject to the company maintaining its system to the required standard. This will be monitored regularly by Alcumus ISOQAR. Further clarification regarding the scope of this certificate and the applicability of the relevant standards' requirement may be obtained by consulting Alcumus ISOQAR

Alcumus ISOQAR Limited, Cobra Court, 1 Blackmore Road, Stretford, Manchester M32 0QY.
T: 0161 865 3699 **E**: isoqarenquiries@alcumus.com **W**: alcumus.com/isoqar

APPENDIX ESSD4

Evidence of Technical Competence

CIWM

Qualification Title:

CIWM (WAMITAB) Level 4 High Risk Operator Competence for Managing Hazardous Open Landfill

Qualification Accreditation Number:

601/8500/4

This Certificate is awarded to

Mark Deadman

Verification date: 14/09/2023

Authorised:

Learner ID: 24883

Certificate No.: 5234373

Date of Issue: 15/09/2023

Katie Cockburn
Professional Services Director

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CIWM

Units achieved by

Mark Deadman

Units gained:

		Level
A/508/0756	Maintain health and safety in the waste resource management industry	L4
F/508/0757	Manage the environmental impact of work activities	L4
L/508/0759	Provide leadership and management in the workplace	L4
F/508/0760	Manage the movement, sorting and storage of waste	L4
K/508/0882	Identify and implement improvements to waste management operations	L4
M/508/0883	Control maintenance and other engineering operations	L4
T/508/0884	Procedural Compliance	L4
A/508/0885	Manage and maintain systems for responding to emergencies	L4
F/508/0886	Manage the reception of hazardous waste	L4
J/508/1005	Managing disposal operations of hazardous waste to land	L4

Verification date: 14/09/2023

Authorised:

Learner ID: 24883

Certificate No.: 5234373

Date of Issue: 15/09/2023

Katie Cockburn
Professional Services Director

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Corff dyfarnu cydnabyddedig Cymwysterau Cymru Qualifications Wales Recognised awarding body

CEA Regulation

The qualifications regulators logos on this certificate indicate that the qualification is accredited only for England and Wales. Qualifications Wales regulates this qualification where it is awarded to learners assessed wholly or mainly in Wales.

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CIWM

Mark Deadman

Units gained:

		Level
Y/508/0974	Manage an inspection visit at your site from regulatory bodies	L4
T/508/1016	Prepare landfill sites for the acceptance of hazardous waste	L4

Verification date: 14/09/2023

Authorised:

Katie Cockburn
Professional Services Director

Learner ID: 24883

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The qualifications regulators logos on this certificate indicate that the qualification is accredited only for England and Wales. Qualifications Wales regulates this qualification where it is awarded to learners assessed wholly or mainly in Wales.

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CIWM

Operator Competence Certificate

Title:

Hazardous Open Landfill

This Certificate is awarded to

Mark Deadman

Verification date: 14/09/2023

Authorised:

Katie Cockburn
Professional Services Director

Learner ID: 24883

Certificate No.: 5234373

Date of Issue: 15/09/2023

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

This certificate is awarded by the Chartered Institution of Wastes Management (CIWM) and provides evidence to meet the Operator Competence requirements of the Environmental Permitting (EP) Regulations, which came into force on 6 April 2008.

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CIWM

CERTIFICATE OF TECHNICAL COMPETENCE

This Certificate confirms that

Mark Deadman

Has demonstrated the standard of technical competence required for the management of a facility of the type set out below

Facility Type

Level 4 in Waste Management Operations -

Managing Landfill Hazardous Waste (4LH)

Authorising Signatures:

Chief Executive Officer:

Director:

Date of Issue: 15/09/2023

Certificate No: 5234373

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APPENDIX ESSD5

Revised List of Wastes

LIST OF PERMITTED WASTES

EWC Code	Description
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07.
01 04 09	Waste sand and clays.
17 01 01	Concrete.
17 01 02	Bricks.
17 01 03	Tiles and Ceramics.
17 01 07	Mixtures of concrete, bricks, tiles, and ceramics other than those mentioned in 17 01 06.
17 05 04	Soil and stones other than those mentioned in 17 05 03.
19 12 09	Minerals (for example sand, stones).
20 02 02	Soil and stones.

APPENDIX ESSD6

Noise Impact Assessment

LFAcoustics
consulting engineers

NOISE ASSESSMENT

RESTORATION OF CROSS LEYS QUARRY

MICK GEORGE LTD

OCTOBER 2024

LF Acoustics Ltd
Pond Farm
7 High Street
Pulloxhill, Beds
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Registered in England
Company Reg: 8434608

NOISE ASSESSMENT

RESTORATION OF CROSS LEYS QUARRY

MICK GEORGE LTD

OCTOBER 2024

Revision	Prepared By	Date
1.0	L Jephson BEng (Hons) MIOA	7/10/24

Contents

1. Introduction

1.1. LF Acoustics Limited have been appointed by Mick George Ltd to undertake a noise assessment to support a permit application for the import of materials to infill and restore Cross Leys Quarry.

1.2. Cross Leys Quarry has been dormant for a number of years. The eastern part of the quarry has been previously restored to create a wetlands area and new habitat. It is now proposed to restore the western part of the quarry, which will require the importation of inert materials to raise the ground levels back up to near the original levels for agricultural use.

1.3. There are a small number of noise sensitive properties within the vicinity of the quarry, which may be affected by noise from the site operations. Noise levels at these properties have been assessed to demonstrate that, with appropriate mitigation and control measures, noise levels would remain acceptable.

1.4. This report presents an assessment of the noise levels generated at surrounding noise sensitive receptors during the operation of the site. Section 2 provides a summary of the applicable standards and guidelines. Section 3 provides the results of a baseline noise monitoring exercise undertaken to determine the existing background noise levels at properties potentially most affected by the proposed operations upon which appropriate noise limits have been derived. Section 4 discusses the proposed operations to be carried out within the quarry. Calculations and an assessment of the noise generated by the proposed operations are provided in Section 5, with recommendations for any additional mitigation or control measures provided in Section 6. Finally, Section 7 presents a summary of this report.

1.5. This assessment has been prepared by L Jephson, BEng(Hons) MIOA, Director of LF Acoustics Ltd. A copy of his CV is provided in Appendix A.

2. Applicable Standards and Guidance

2.1.1. A description of the noise units referred to within this report is provided in Appendix B.

2.2. National Planning Policy Framework

2.2.1. The National Planning Policy Framework (NPPF), revised in December 2023 [1], sets out the Government's planning policies for England and how these should be applied. It provides a framework upon which locally-prepared plans for housing and other development can be produced.

2.2.2. The purpose of the planning system is to contribute to the achievement of sustainable development and at the heart of the Framework is a presumption in favour of sustainable development.

2.2.3. With regards noise, the NPPF advises that local planning policies and decisions should contribute to and enhance the natural and local environment by:

- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels noise pollution;
- mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development (including cumulative effects) – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

2.2.4. Paragraphs 215 – 223 provide specific guidance in relation to minerals operations, with Paragraph 217 providing guidance in relation to noise, as follows:

217. When determining planning applications, great weight should be given to the benefits of mineral extraction, including to the economy. In considering proposals for mineral extraction, minerals planning authorities should:

(c) ensure that any unavoidable noise, dust and particle emissions and any blasting vibrations are controlled, mitigated or removed at source, and establish appropriate noise limits for extraction in proximity to noise sensitive properties.

2.2.5. The Planning Policy Guidance note on noise, published in March 2014 and updated July 2019 [2], defines potential adverse effects and the required mitigation, as follows:

No Observed Adverse Effect

Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life (no specific measured required to mitigate noise).

Observed Adverse Effect

Noise can be heard and causes small changes in behaviour and/or attitude, eg turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life (mitigate and reduce noise levels to a minimum).

Significant Observed Adverse Effect

The noise causes a material change in behaviour and/or attitude, eg avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area (avoid).

2.2.6. The minerals planning guidance attached to the NPPF relating to noise was updated in March 2014 [3], which covers mineral extraction and related processes, provides guidance and advises upon acceptable levels of noise from site operations.

2.2.7. For normal daytime works the guidance seeks to ensure that the operations do not result in significant adverse effects and advises for normal daytime operations that the following limits should not exceed:

- 10 dB above the background (L_{A90}) noise level; subject to
- a maximum value of 55 dB $L_{Aeq,\ 1\ hour}$ (free field).

2.2.8. Where background noise levels are low, the guidance accepts that it may be very difficult to achieve a limit based upon background + 10 dB(A) without imposing unreasonable burdens on the mineral operator. In such cases, the government guidance clearly advises the limit set should be as near that level as practicable during normal working hours and should not exceed 55 dB $L_{Aeq,\ 1\ hour}$ (free field).

2.2.9. The guidance suggests that in the evening (19:00 – 22:00) $L_{Aeq,\ 1\ hour}$ noise levels should not exceed the background (L_{A90}) noise level by more than 10 dB and during the night-time a limit of 42 dB $L_{Aeq,\ 1\ hour}$ should be adopted.

2.2.10. In addition to the general daytime works, the guidance advises that all mineral operations will have some particularly noisy short-term activities that cannot meet the limits set for normal operations. These include soil-stripping, construction or removal of bunding or spoil heaps and construction of new permanent landforms. A level of 70 dB $L_{Aeq,\ 1\ hour}$ is suggested as a limit for these activities for periods of up to eight weeks in any one year. Where the duration of temporary works may exceed eight weeks it can be appropriate to apply a lower limit for a longer period. The guidance also recognises that, in wholly exceptional cases, where there is no viable alternative, a limit of more than 70 dB $L_{Aeq,\ 1\ hour}$ may be appropriate in order to obtain other environmental benefits.

2.3. British Standard BS 4142

BS 4142 [4] is the British Standard for rating and assessing noise of a commercial or industrial nature upon occupants of existing or proposed residential premises.

BS 4142 is a comparative standard in which the estimated noise levels from the proposed development are compared to the representative / typical background noise level from existing uses.

BS 4142 relates the likelihood of adverse impacts to the difference between the Rating Level of the noise being assessed and the background noise level.

The background noise level is the L_{A90} noise level, usually measured in the absence of noise from the source being assessed, but may include other existing industrial or commercial sounds. The background noise levels should generally be obtained from a series of measurements each of not less than 15 minute duration.

The Rating Level of the noise being assessed is defined as its L_{Aeq} noise level (the 'specific noise level'), with the addition of appropriate acoustic corrections should the noise exhibit a marked impulsive and/or tonal component, or should the noise be irregular enough in character to attract attention. The extent of the correction is dependent upon the degree of tonality or character in the noise and is determined either by professional judgement, where the plant is not operational at present, or by measurement.

During the daytime, the specified noise levels are determined over a reference time interval of 1 hour.

If the Rating Level of the noise being assessed exceeds the background level by 10 dB or more BS 4142 advises that there is likely to be an indication of a significant adverse impact, depending upon context. A difference between background level and Rating Level of around 5 dB is likely to be an indication of an adverse impact, depending upon context. The lower the Rating Level is, relative to the background noise level, the less likely the specific source will have an adverse or significant adverse impact. Where the Rating Level does not exceed the background noise level is an indication of a low impact, depending upon context.

The assessment method outlined above is intended for the assessment of external noise levels and is not intended to assess the extent of impact at internal locations.

Where the initial assessment of impact, based upon and assessment of the external noise levels, needs to be modified due to the context, all pertinent factors should be taken into account, including:

- The absolute level of sound;
- Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background; and
- The sensitivity of the receptor and whether the premises will already incorporate measures to ensure good internal and/or external acoustic conditions.

2.4. Environment Agency Guidelines

An Environmental Permit will be required for the proposed operations.

The Environment Agency (EA) have published guidance on the requirements for noise assessments for permit applications [5] and require an assessment of the noise levels associated with the proposed permitted operations.

The guidance requires the use of BS 4142 to quantify the level of environmental noise impact from industrial processes.

Whilst the guidance requires the use of BS 4142 to assess potential impacts, the EA assessment methodology differs from that within BS 4142 and following criteria to be considered:

Unacceptable level of audible or detectable noise

This level of noise means that significant pollution is being, or is likely to be, caused at a receptor (regardless of whether you are taking appropriate measures).

You must take further action or you may have to reduce or stop operations. The environment agencies will not issue a permit if you are likely to be operating at this level.

The closest corresponding BS 4142 descriptor is 'significant adverse impact' (following consideration of the context).

Audible or detectable noise

This level of noise means that noise pollution is being (or is likely to be) caused at a receptor.

Your duty is to use appropriate measures to prevent or, where that is not practicable, minimise noise. You are not in breach if you are using appropriate measures. But you will need to rigorously demonstrate that you are using appropriate measures.

The closest corresponding BS 4142 descriptor is 'adverse impact' (following consideration of the context).

No noise, or barely audible or detectable noise

This level of noise means that no action is needed beyond basic appropriate measures or BAT.

The closest corresponding BS 4142 descriptor is 'low impact or no impact' (following consideration of context).

Low impact does not mean there is no pollution. However, if you have correctly assessed it as low impact under BS 4142, the environment agencies may decide that taking action to minimise noise is a low priority. Note that BS 4142 is unlikely to be the appropriate methodology on its own to assess low frequency noise.

In undertaking the assessment and deriving the rating level of noise, the EA guidance specifies "where the sound is neither impulsive nor tonal, but you can readily distinguish it against the usual residual acoustic environment, the environment agencies will expect you to apply a minimum character correction of +3 decibels (dB) 'other'. This is unless you can robustly justify that you do not need such a correction."

3. Baseline Noise Monitoring

3.1. Identification of Noise Sensitive Receptors

3.1.1. There is a small number of properties surrounding the quarry, as indicated on Figure 1.

3.1.2. The closest property is Wittering Lodge, located adjacent to the A47 and to the east of the quarry entrance. This property would be approximately 160 metres from the closest operational area.

3.1.3. Cross Leys Farm and Cottages are located to the south of the quarry and are approximately 480 metres from the southern operational boundary.

3.2. Unattended Noise Surveys

3.2.1. In order to establish the current background at the properties potentially most likely to be affected by noise from the operation of the quarry, unattended noise surveys were carried out at positions representative of the properties identified above between Thursday 5th and Wednesday 11th September 2024.

3.2.2. Rion NL-52 Class 1 Sound Level Meters were used for the exercise. The meters had Rion WS-15 microphone protection fitted, which maintains Class 1 performance during a wide range of weather conditions. The instruments were also fitted with audio recording capability to record snapshots of audio throughout the survey period to enable the principal sources of noise to be identified.

3.2.3. The meters were calibrated before and after the exercise using a Rion NC-75 Class 1 Acoustic Calibrator, reading 94.0 dB on each occasion. All the monitoring equipment had been calibrated within the past 12/24 months in accordance with national standards, with the details of the calibration dates provided below. Copies of the calibration certificates can be provided on request.

Instrument	Serial No.	Calibration Date	Laboratory / Certificate No.
Rion NL-52 Class 1 SLM (Wittering Lodge)	00965155	25/9/23	AcSoft – 1506621-3
Rion NL-52 Class 1 SLM (Cross Leys Farm)	00464685	25/9/23	AcSoft – 1506621-2
Rion NC-75 Class 1 Acoustic Calibrator	35270123	9/11/23	AcSoft – 1507075-1

Table 3.1 Instrumentation Details for Unattended Noise Survey

3.2.4. At each location, the meter was positioned in free-field conditions, with the microphone set at a height of 1.3 metres above the ground. They were configured to record over 15-minute periods throughout the duration of the survey. This time period was considered sufficient to provide representative background noise levels.

3.2.5. Weather monitoring was carried out throughout the duration of the survey using a Davis Vantage Vue weather station. The weather station was positioned within the northern area of the quarry. The weather conditions are summarised in Table 3.2 below, with the detailed weather data provided in Appendix C.

Date		Conditions	Wind Strength	Wind Direction
Thursday	5/9/24	Dry	0 – 2 m/s	NE
Friday	6/9/24	Dry	0 – 2 m/s	NE
Saturday	7/9/24	Mainly Dry	Calm	-
Sunday	8/9/24	Mainly Dry	0 – 1 m/s	SW
Monday	9/9/24	Dry	0 – 2 m/s	SW
Tuesday	10/9/24	Rain pm	1 – 4 m/s	SW
Wednesday	11/9/24	Dry	1 – 3 m/s	SW

Table 3.2 Summary of Weather Conditions

3.2.6. As indicated above, weather conditions throughout the survey were good, with generally light winds remaining below 5m/s, and dry throughout, thus suitable for undertaking an environmental noise survey.

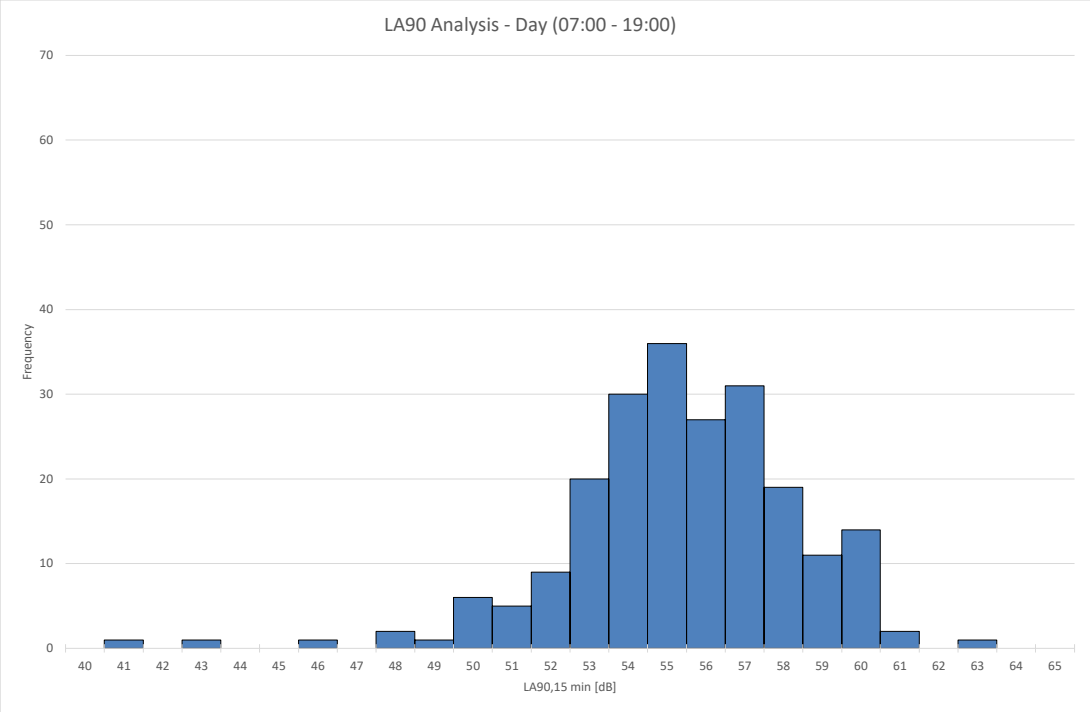
3.3. Results and Analysis of Unattended Noise Survey at Wittering Lodge

3.3.1. The noise monitor was positioned at a representative location within Cross Leys Quarry, to the west of the property. The monitor was positioned at an equivalent distance back from the A47 as the property. The monitoring position is indicated on Figure 1.

3.3.2. The results of the noise survey are provided graphically in Appendix D.

3.3.3. Noise levels monitored at this location were observed to be principally influenced by road traffic travelling along the A47, which was noted to be relatively constant throughout the day.

3.3.4. Typical background noise levels (L_{A90}) obtained during the survey have been subsequently analysed using statistical analysis based upon the most frequently occurring value, to determine the typical levels during the operational periods for the quarry, between 07:00 – 19:00 Monday to Friday and 07:00 – 13:00 Saturday. The results of the analysis are provided below.



3.3.5. The modal analysis above, based upon the most frequently occurring value, indicates a typical background noise level of 55 dB L_{A90}. Further analysis based upon an average and median background level indicates levels of 55 dB L_{A90}, thus providing confidence that a typical background level of 55 dB L_{A90} is appropriate at this location.

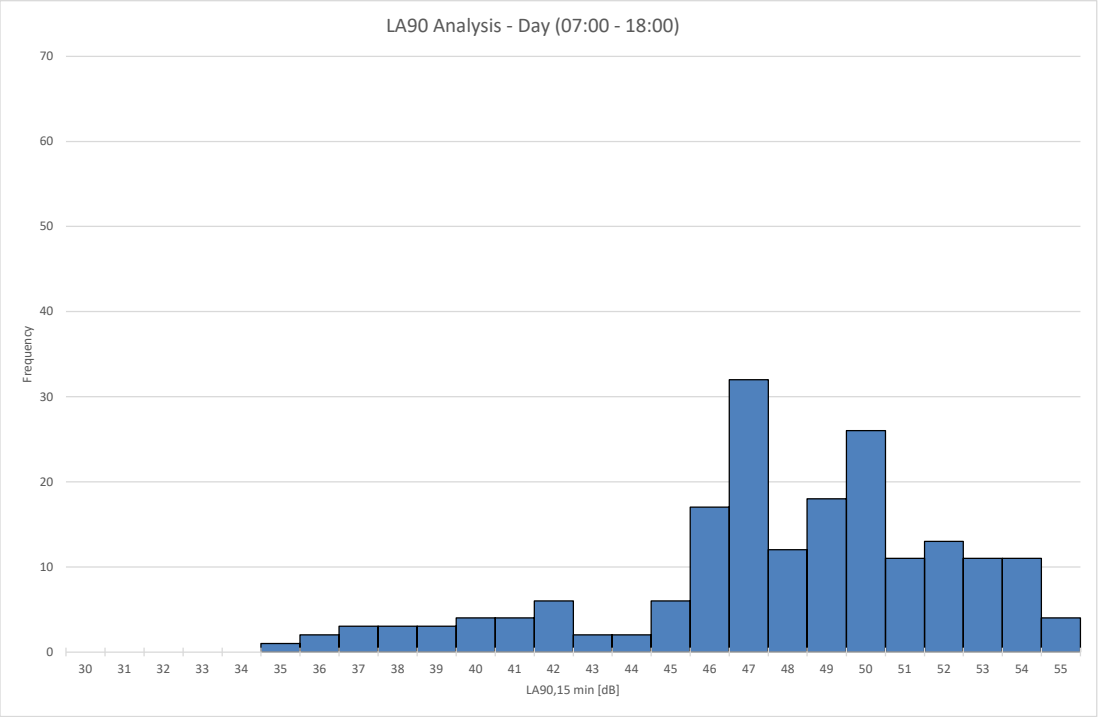
3.4. Results and Analysis of Unattended Noise Survey at Cross Leys Farm

3.4.1. The noise monitor was positioned in the field to the north of the farmyard, as indicated on Figure 1. The location was selected as it was away from the activities being carried out within the farm, with the noise levels from the other surrounding noise sources observed to be representative of those at the properties.

3.4.2. The results of the noise survey are provided graphically in Appendix D.

3.4.3. Noise levels observed at this location were noted to be influenced by the traffic travelling along the A47, leaves rustling in the trees which surround the farm and farming activities being carried out within the farmyard, which included the use of tractors.

3.4.4. Typical background noise levels (L_{A90}) obtained during the survey have been subsequently analysed using statistical analysis based upon the most frequently occurring value, to determine the typical levels during the operational periods for the quarry, between 07:00 – 19:00 Monday to Friday and 07:00 – 13:00 Saturday. The results of the analysis are provided below.



3.4.5. The modal analysis above, based upon the most frequently occurring value, indicates a typical background noise level of 47 dB L_{A90}. Further analysis based upon an average and median background level indicates levels of 48 dB L_{A90}, thus providing confidence that a typical background level of 47 dB L_{A90} is appropriate at this location.

4. Proposed Operations

4.1. The quarry would be restored over three main phases, as indicated on the drawings which have accompanied the application.

4.2. The maximum amount of plant would be required to operate on site to create a new cell taking around 2 weeks per year to complete. During these periods the plant requirements would include a dozer, an excavator, two articulated dump trucks and a roller.

4.3. Generally, only a dozer would be required to operate on site associated with the infilling operations. This would operate periodically during the day to spread the imported materials.

4.4. Vehicle movements bringing inert materials to the site would be spread throughout the day. It is anticipated that there would be 50 loads per day, which would equate to around 5 loads per hour.

4.5. The normal working hours for the site would be typical of daytime operational hours for a quarry, between 07:00 – 19:00 hours Mondays to Fridays and between 07:00 – 13:00 hours on Saturdays.

5. Calculations and Assessment

5.1. Criteria to be Adopted for the Assessment

5.1.1. Appropriate limits for the normal operations within the quarry have been derived based on the current MPPG guidelines, which advises for normal daytime operations that noise limits should not exceed a level of more than 10 dB above the background (L_{A90}) noise level, subject to a maximum value of 55 dB $L_{Aeq,\ 1\ hour}$ (free-field). Where background noise levels are low, the guidance accepts that it may be very difficult to achieve a limit based upon background +10 dB(A) without imposing unreasonable burdens on the mineral operator. In such cases, the government guidance clearly advises the limit set should be as near that level as practicable during normal working hours and should not exceed 55 dB $L_{Aeq,\ 1\ hour}$ (free field).

5.1.2. The guidance also advises that a limit of 70 dB $L_{Aeq,\ 1\ hour}$ may be applicable for temporary operations, such as soils stripping or the formation of bunding, carried out for periods of up to 8 weeks per year. The creation of the cells would also constitute a temporary operation.

5.1.3. Utilising the results of the baseline noise surveys, the following free-field noise limits have been derived at the surrounding properties attributable to the normal operation of the quarry:

- Wittering Lodge – 55 dB $L_{Aeq,\ 1\ hour}$; and
- Cross Leys Farm – 55 dB $L_{Aeq,\ 1\ hour}$.

5.1.4. Consideration has also been given to the specific EA guidance within the assessment to ensure that the operations do not result in a potential for unacceptable levels of noise at the surrounding properties. Consideration has also been given within the assessment to account for the 3 dB *other character* correction, which effectively reduces the operational noise limits at the properties.

5.2. Source Term Information

5.2.1. Source term noise levels which have been adopted for the purposes of the calculations have been obtained adjacent to existing plant operating within similar sites, which are representative of the plant proposed to be used on site.

5.2.2. Octave band noise source terms have been utilised within the calculations for the plant assumed for this assessment. The overall A-weighted source term data used within the calculations provided in Table 5.1.

Source	L_{Aeq} [dB]	Equivalent SWL [dB(A)]	Number	% On-Time
Cell Creation				
Excavator Digging & Loading	75.6 (@10m)	103.6	1	100
ADT Movements	-	109.0	24 movements per hour @ 15km/h	-
ADT Tipping	-	106.9	12 tips per hour	10
Dozer	79.5 (@10m)	107.5	1	100
Roller	79.5 (@10m)	107.5	1	100
Infilling and Restoration				
Dozer	79.5 (@10m)	107.5	1	75
HGV Movements	-	101.2	5 loads per hour@ 15km/h	-
HGV Tipping	-	106.9	5 tips per hour	5

Table 5.1 Source Term Noise Levels

5.3. Calculation Methodology

5.3.1. Calculations of the noise levels associated with the infilling and restoration operations have been made for operations carried out within each main phase.

5.3.2. The calculations have been made using the SoundPlan computer modelling software. This software implements the calculation methodology from ISO 9613-2 [6].

5.3.3. Existing ground levels have been obtained from LiDAR Mapping, 50% soft ground has been assumed for previously restored area, which contains areas of wetland, with soft ground assumed for the surrounding fields.

5.3.4. The calculation methodology predicts the noise levels for meteorological conditions which are favourable for the propagation from the sound source to that receiver, which is considered to be the appropriate condition for meeting a specific community noise limit, i.e. a level which is seldom exceeded. The modelled conditions assume positive wind, blowing from source to receiver.

5.3.5. Calculations have been prepared associated with the cell creation operations and for the general infilling operations for each phase. To provide worst-case conditions, it has been assumed that the plant would all be operating along the closest boundary to the two properties (i.e. closest to Wittering Lodge and Cross Leys Farm).

5.3.6. The detailed SoundPlan modelling results for the proposed operations are provided in Appendix F and summarised below.

5.4. Uncertainties

5.4.1. Uncertainties within the calculations and assessment have been minimised.

5.4.2. The baseline noise surveys were carried out over a period of several days, which was considered sufficient to ensure representative conditions were observed and appropriate background levels established.

5.4.3. The calculated noise levels have been based upon worst-case conditions, with all plant operating close to the boundary with the neighbouring properties. This is an unlikely scenario and will have resulted in an overestimate of the predicted noise levels, to ensure the assessment is prepared under worst-case conditions.

5.5. Results and Assessment of Noise Levels at Wittering Lodge

5.5.1. This property is located to the east of the quarry and to the south of the A47.

5.5.2. The closest operational areas to this property would be during the restoration operations within Phase 3, which would be those closest to the property.

5.5.3. The calculation results and assessment of the noise levels against the MPPG criterion for each main phase identified above are summarised in the following table.

Scenario	Calculated Worst Case $L_{Aeq, 1\ hr}$ [dB]		MPPG Noise Limit $L_{Aeq, 1\ hr}$ [dB]	Difference
	Cell Preparation	General Operations		
Phase 1	43	39	55	-12 / -16
Phase 2A	47	42	55	-8 / -13
Phase 2B	44	40	55	-11 / -15
Phase 3	54	49	55	-1 / -6

Table 5.2 Calculated Noise Levels and MPPG Assessment – Wittering Lodge

5.5.4. The calculations above indicate that the noise levels attributable to the proposed operations would remain below the normal working limit at this property based upon the MPPG guidance.

5.5.5. The highest noise levels are anticipated during the preparation of the cell within Phase 3, when plant was working closest to the property. These works are only anticipated to take around 2 weeks to complete and, on that basis, the operations would be unlikely to result in adverse noise impacts.

5.5.6. The calculated noise levels have also been assessed against the specific EA guidance, based upon an assessment against the requirements of BS 4142. The assessment is provided below.

	Phase			
	Phase 1	Phase 2A	Phase 2B	Phase 3
	Cell Preparation / General Ops	Cell Preparation / General Ops	Cell Preparation / General Ops	Cell Preparation / General Ops
Specific Noise Level	43 / 39	47 / 42	44 / 40	54 / 49
Acoustic Feature Correction	+3	+3	+3	+3
Rating Level	46 / 42	50 / 45	47 / 43	57 / 52
Background Noise Level [dB L_{A90}]	55	55	55	55
Excess of Rating Over Background Level	-9 / -13	-5 / -10	-8 / -12	+2 / -3
Likelihood of Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact

Table 5.3 Initial BS 4142 Assessment – Wittering Lodge

5.5.7. The assessment above indicates that the noise levels resulting from the proposed operations would result in a low potential for adverse impacts when assessed against the requirements of BS 4142.

5.5.8. Considering the specific EA guidance, the noise levels would be representative of *barely audible or detectable noise*, particularly when considering the existing road traffic noise from the A47. Noise levels at this property would therefore remain acceptable. Measures would, however, be adopted to minimise noise and these are discussed in the following section.

5.6. Results and Assessment of Noise Levels at Cross Leys Farmhouse

5.6.1. This property is located to the south-east of the quarry and to the east of Cross Leys Farm.

5.6.2. The calculation results and assessment of the noise levels against the MPPG criterion for each main phase identified above are summarised in the following table.

Scenario	Calculated Worst Case $L_{Aeq, 1\,hr}$ [dB]		MPPG Noise Limit $L_{Aeq, 1\,hr}$ [dB]	Difference
	Cell Preparation	General Operations		
Phase 1	40	35	55	-15 / -20
Phase 2A	38	34	55	-17 / -21
Phase 2B	41	37	55	-14 / -18
Phase 3	41	37	55	-14 / - 18

Table 5.4 Calculated Noise Levels and MPPG Assessment – Cross Leys Farmhouse

5.6.3. The calculations above indicate that the noise levels attributable to the proposed operations would remain below the normal working limit at this property based upon the MPPG guidance. No adverse impacts have been identified on the basis of the assessment against the MPPG.

5.6.4. The calculated noise levels have also been assessed against the specific EA guidance, based upon an assessment against the requirements of BS 4142. The assessment is provided below.

	Phase			
	Phase 1	Phase 2A	Phase 2B	Phase 3
	Cell Preparation / General Ops	Cell Preparation / General Ops	Cell Preparation / General Ops	Cell Preparation / General Ops
Specific Noise Level	40 / 35	38 / 34	41 / 37	41 / 37
Acoustic Feature Correction	+3	+3	+3	+3
Rating Level	43 / 38	41 / 37	44 / 40	44 / 40
Background Noise Level [dB L_{A90}]	47	47	47	47
Excess of Rating Over Background Level	-4 / -9	-6 / -10	-3 / -7	-3 / -7
Likelihood of Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact

Table 5.5 Initial BS 4142 Assessment – Cross Leys Farmhouse

5.6.5. The assessment above indicates that the noise levels resulting from the proposed operations would result in a low potential for adverse impacts when assessed against the requirements of BS 4142.

5.6.6. Considering the specific EA guidance, the noise levels would be representative of *barely audible or detectable noise*, particularly when considering the existing noise levels at the property. Noise levels at this property would therefore remain acceptable. Measures would, however, be adopted to minimise noise and these are discussed in the following section.

5.7. Results and Assessment of Noise Levels at Cross Leys Farm Cottages

5.7.1. These properties are located to the south of the quarry and to the south of Cross Leys Farm. The majority of the site operations would be screened from the properties by the farm buildings. To provide a worst-case assessment, however, the attenuation from the farm buildings was not included within the modelling.

5.7.2. The calculation results and assessment of the noise levels against the MPPG criterion for each main phase identified above are summarised in the following table.

Scenario	Calculated Worst Case $L_{Aeq,\ 1\ hr}$ [dB]		MPPG Noise Limit $L_{Aeq,\ 1\ hr}$ [dB]	Difference
	Cell Preparation	General Operations		
Phase 1	40	36	55	-15 / -19
Phase 2A	38	34	55	-17 / -21
Phase 2B	42	38	55	-13 / -17
Phase 3	41	36	55	-14 / - 19

Table 5.6 Calculated Noise Levels and MPPG Assessment – Cross Leys Farm Cottages

5.7.3. The calculations above indicate that the noise levels attributable to the proposed operations would remain below the normal working limit at this property based upon the MPPG guidance. No adverse impacts have been identified on the basis of the assessment against the MPPG.

5.7.4. The calculated noise levels have also been assessed against the specific EA guidance, based upon an assessment against the requirements of BS 4142. The assessment is provided below.

	Phase			
	Phase 1	Phase 2A	Phase 2B	Phase 3
	Cell Preparation / General Ops	Cell Preparation / General Ops	Cell Preparation / General Ops	Cell Preparation / General Ops
Specific Noise Level	40 / 36	38 / 34	42 / 38	41 / 36
Acoustic Feature Correction	+3	+3	+3	+3
Rating Level	43 / 39	41 / 37	45 / 41	44 / 39
Background Noise Level [dB L_{A90}]	47	47	47	47
Excess of Rating Over Background Level	-4 / -8	-6 / -10	-2 / -6	-3 / -8
Likelihood of Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact	Indication of Low Impact

Table 5.7 Initial BS 4142 Assessment – Cross Leys Farm Cottages

5.7.5. The assessment above indicates that the noise levels resulting from the proposed operations would result in a low potential for adverse impacts when assessed against the requirements of BS 4142.

5.7.6. Considering the specific EA guidance, the noise levels would be representative of *barely audible or detectable noise*, particularly when considering the existing noise levels at these properties. Noise levels at these properties would therefore remain acceptable. Measures would, however, be adopted to minimise noise and these are discussed in the following section.

6. Periodic Noise Monitoring and Control Measures

6.1. The assessment within Section 5 indicates that noise levels associated with the proposed operations would remain below the proposed noise limits and not result in any adverse noise effects upon on the occupants of surrounding properties. Noise levels would also remain within the *barely audible or detectable noise* when assessed against the EA guidance.

6.2. In general, to ensure noise levels associated with the operations would be minimised, appropriate on-site controls would be maintained, including:

- Ensuring all plant is kept well maintained;
- Ensuring silencers on plant are effective;
- Turning off plant when not in use;
- Ensuring plant is effectively screened, where applicable; and
- Using alternative non tonal reversing signals on mobile plant.

6.3. Vehicles travelling along the access roads within the quarry have potential to cause disturbance even at low noise levels. To ensure potential disturbance is minimised, the routes would be inspected at regular intervals to ensure that the surfaces remain in good condition. Where defects are identified, these should be rectified immediately. This action seeks to ensure that empty vehicles travelling on the access and passing over the defect do not give rise to body rattle, which can be potentially disturbing even at low noise levels. Furthermore, the speed limit on the access road should be well enforced, with drivers maintaining low engine speeds.

6.4. Given the low noise levels predicted at the surrounding properties initially, it is not anticipated that regular noise monitoring would be required during restoration operations.

6.5. Should a complaint be received in relation to noise from site operations, the site manager or other appointed representative would visit the complainant's property within a period of 24 hours of the complaint being received. The manager would undertake a subjective assessment of the noise giving rise to the complaint and undertake remedial action where necessary to reduce the noise.

6.6. Should the representative consider the complaint to be justified, a noise monitoring exercise would be carried out in accordance with the following scheme, within a period of two weeks of the complaint. If the noise levels monitored were found to be above the noise limit at the property, additional noise mitigation and control measures would be identified. The proposed measures would be presented to the MPA / EA within a further week of the monitoring exercise for their approval, if required.

6.7. A suitably trained and competent person would undertake the noise monitoring exercises.

6.8. For any measurements made, a meter conforming to at least Class 2 standards should be used, which should be calibrated before and after the exercise. The meter should be positioned at a height of 1.2 metres above the ground and at a free-field location (i.e. at least 3.5 metres from a building façade or other reflecting surface other than the ground).

6.9. The surveys would be carried out during dry conditions and when wind speeds averaged less than 5 m/s.

6.10. Two separate measurements, each over a duration of at least 15 minutes would be made at each position, during a period when the site is fully operational Notes should be taken identifying the main sources of noise during the monitoring period. Should the results of the monitoring indicate an exceedance of the site noise limits specified within Section 5.1, with the site operations not clearly audible, a second measurement should be obtained whilst the site is stood (e.g. during a break period) to enable a comparison to be made.

6.11. For each measurement, the following parameters would be recorded:

- measurement position;
- $L_{Aeq,\ 15\ minute}$ L_{A90} and L_{AmaxF} noise levels;
- weather conditions, wind speeds and direction;
- activities being carried out on site; and
- other influences on noise levels.

6.12. Where the measurements obtained were clearly influenced by noise from other sources (eg local road traffic or aircraft flying overhead), if possible, the extraneous noise would be paused out of the measurement using the pause function on the sound level meter and a note made, or a note made to the effect that the other sources of noise were identified to be the principal noise source. If the latter were the case, calculations based upon source term noise levels obtained from the operational plant would be made to demonstrate compliance with the noise limits.

6.13. The measured noise levels would be assessed against the noise limits specified within Section 5.1.

6.14. Where the measurements indicate that the noise limits were exceeded from site operations, the source of the noise should be identified and the operator should seek to minimise noise from that source, using Best Practicable Means, to reduce noise levels below the limits specified above.

6.15. The mitigation, which could include reduction at source or by additional bunding for example, should be agreed in writing with the MPA / EA and implemented within a period of three months of the monitoring exercise. Following completion of the works, the measurement exercise would be repeated to ensure that the limits are achieved, and further works carried out if required.

6.16. Records of each noise monitoring exercise would be made available within 14 days of the monitoring exercise to the Minerals Planning Authority.

7. Summary

7.1. LF Acoustics Limited have been appointed by Mick George Ltd to undertake a noise assessment to support a permit application for the import of materials to infill and restore Cross Leys Quarry.

7.2. Cross Leys Quarry has been dormant for a number of years. The eastern part of the quarry has been previously restored to create a wetlands area and new habitat. It is now proposed to restore the western part of the quarry, which will require the importation of inert materials to raise the ground levels back up to near the original levels for agricultural use.

7.3. There are a small number of noise sensitive properties within the vicinity of the quarry, which may be affected by noise from the operation. Noise levels at these properties have been assessed to demonstrate that, with appropriate mitigation and control measures, noise levels would remain acceptable.

7.4. A noise monitoring exercise was carried out to establish typical background noise levels upon which appropriate noise limits have been proposed in accordance with the MPPG, which ensure that potential adverse impacts would be minimised.

7.5. Calculations and an assessment of the noise levels based upon the use of the proposed plant have been made, which indicate that the noise levels at the properties, with the proposed mitigation and control measures implemented would remain below the proposed limits.

7.6. An assessment has additionally been prepared in accordance with the requirements of BS 4142 and the EA guidance. The assessment concluded that the noise attributable to the site operations at the surrounding properties would be commensurate with "*barely audible or detectable noise"* when assessed against the EA guidance. Noise levels of this order of magnitude are considered to be acceptable, although measures would be adopted on site to ensure noise levels were minimised.

References

1. Ministry of Housing, Communities and Local Government. National Planning Policy Framework. December 2023.

2. Department for Communities and Local Government. Planning Practice Guidance. Noise. 6 March 2014, last updated 22 July 2019.

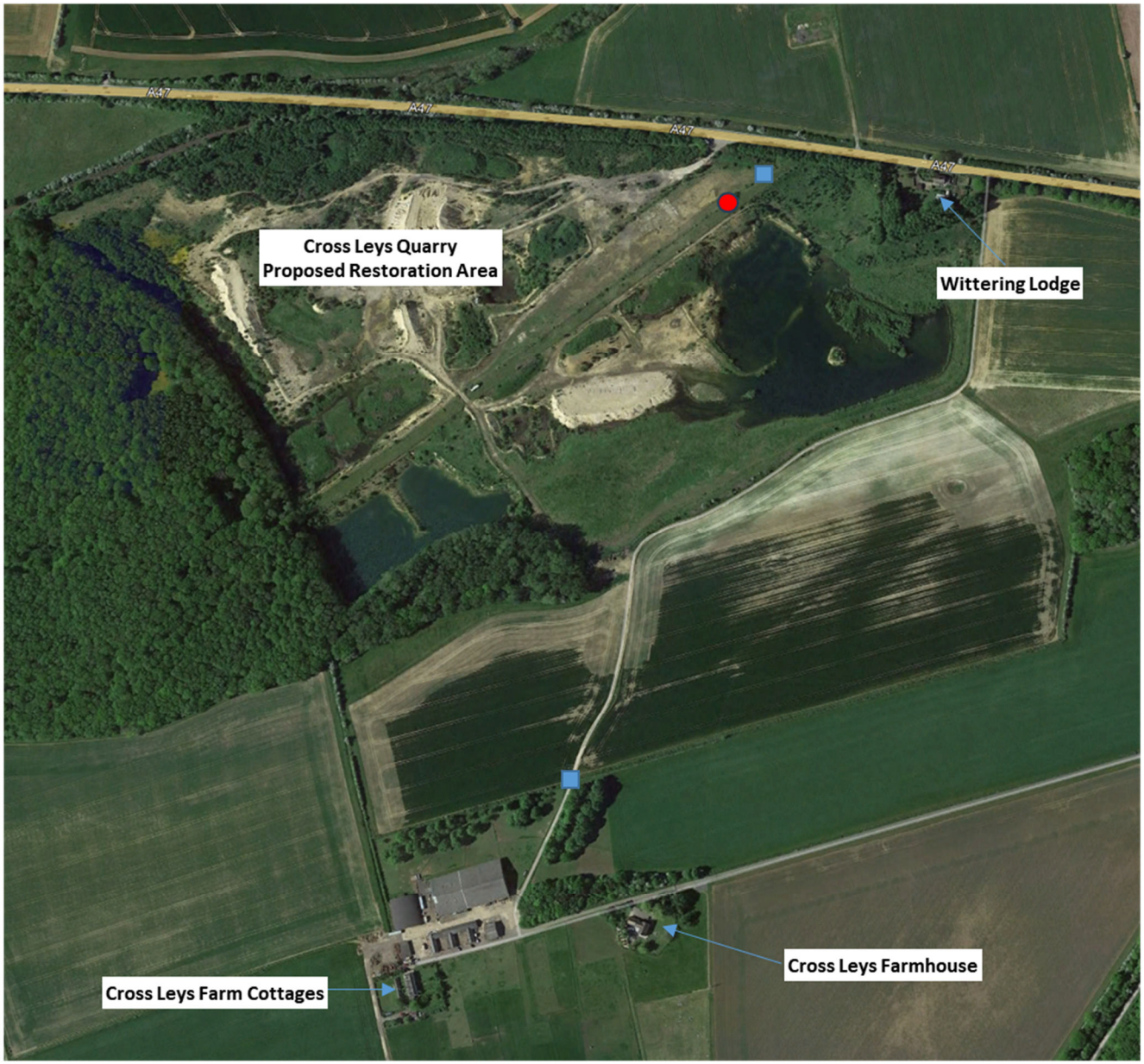
3. Department for Communities and Local Government. Planning Practice Guidance. Assessing Environmental Impacts from Minerals Extraction. Revision Date 6 March 2014.

4. British Standards Institute. Methods for Rating and Assessing Industrial and Commercial Sound. BS 4142:2014 + A1:2019.

5. Environment Agency. Noise and Vibration Management: Environmental Permits. Updated 31 January 2022.

6. Bsi. Acoustics – Attenuation of Sound During Propagation Outdoors – Part 2: Engineering Method for the Prediction of Sound Pressure Levels Outdoors. BS ISO 9613-2. 2024.

Figure



Key

Noise Survey Position

Weather Station Location

Figure 1:
Site Location and
Noise Monitoring Locations

LFAcoustics
consulting engineers

Appendix A
CV of L Jephson

Personal Details and Qualifications

Full Name	Leslie Peter Jephson
Qualifications	BEng (Hons) in Electroacoustics (1993) University of Salford
Professional Bodies	Member, Institute of Acoustics
Nationality	British
Year of Birth	1970
Country Experience	UK, France and Germany

Career History

2013 to Present	**Director, LF Acoustics Limited**
1998 - 2013	Principal, Acoustics Noise and Vibration (ANV) & Director Acoustics Noise and Vibration Ltd (instrumentation supplier)
1997 – 1998	Acoustic Consultant, Arup Acoustics, Ove Arup Partnership
1996 - 1997	Research Assistant at the Institute of Sound and Vibration Research, University of Southampton
1993 - 1996	Acoustic and Senior Acoustic Consultant, Ashdown Environmental Ltd
1991 - 1992	Assistant Consultant, Ashdown Environmental Ltd

Key Experience

- extensive experience in the assessment and management of noise from minerals operations;
- expert witness, providing evidence in support of a variety of projects including minerals operations; solar farms and residential developments;
- management of noise and vibration from major construction sites;
- proven expertise and experience in providing practical noise and vibration advice to engineering teams working on major transportation and construction projects;
- measurement, evaluation, assessment and mitigation of operational noise and vibration impacts;
- negotiation and liaison with local authority officers in respect of planning applications, mitigation measures and monitoring regimes;
- assessment of noise and vibration impacts from construction activities and development of mitigation measures.

Selected Project Experience

Pave Lane Quarry, Telford
Undertook noise assessment in support of a planning application for a proposed sand and gravel quarry. Duties included liaison with local authority officers, consultation with local residents and development of appropriate noise mitigation measures to meet the requirements of both the NPPF and local policies. Expert witness providing evidence in support of development at Public Inquiry.

Gorse Lane Quarry, Lincolnshire
Prepared the noise assessment to support a planning application for a new quarry. Undertake baseline noise monitoring, calculations and assessment and made recommendations for appropriate noise mitigation measures. Attended Public Inquiry to present technical evidence in relation to noise.

Ware Park Quarry, Hertfordshire
Undertook the noise assessment for a proposed sand and gravel quarry, which included monitoring, calculations, assessment and development of noise mitigation proposals. Provided expert testimony to support the proposed development through a Public Inquiry.

Paternoster Square, London
Carried out regular noise and vibration monitoring during the redevelopment of Paternoster Square, London. Liaison with contractors to ensure that the Best Practicable Means were being employed to reduce noise and vibration levels from activities on site.

Bloomberg Place
Noise and vibration specialist during construction of new Bloomberg HQ, London. Duties include monitoring and control of noise and vibration during the construction works, which has involved innovative solutions to monitor vibration levels on a main Thames Water sewer, which runs beneath the site and within St Stephens Church, Walbrook. Regular liaison with contractors, the surrounding community and officers at the CoL, to ensure noise and vibration associated with site operations are maintained at acceptable levels.

Docklands Light Railway Ltd - Docklands Light Railway
Project manager responsible for undertaking the annual noise and vibration monitoring contract between 1999 to the present date. Measurements and analysis of the measured data to identify any exceedences of the relevant DLR criteria arising from the operation of the railway due to track or train defects.

Provide specialist advice to the engineering teams on noise issues to both assist on dealing with complaints and developing additional noise mitigation measures to meet the requirements of their Noise and Vibration Policy. Assisted TfL with an update to the Noise and Vibration Policy, to reflect current Standards and requirements for the railway.

Assessed acoustic performance of several types of low level noise barrier designs proposed for sections of the DLR route, which have since been implemented on the route.

Seconded to the engineering and acoustic department to provide technical support, specific duties included the following.

- Development of an operational noise prediction model to calculate noise levels from both moving trains and trains stationary at platforms. The model was a hybrid developed from the current Government methodology and empirical models derived from measurements obtained from DLR trains.

- Measurements and analysis of a newly installed public address system to assess the coverage of the system over the specified area and ensure that there were no quiet zones.
- Measurement and assessment of structureborne noise generated by DLR trains operating over thin concrete slab viaducts.
- Undertook operational noise calculations using developed methodology to calculate the noise barriers required adjacent to properties where current noise levels exceeded the limits defined in DLR's noise policy.

Crossrail
Member of the Noise and Vibration Team appointed to carry out the environmental assessment of the proposed Crossrail line during the Parliamentary process to secure the powers to construct the line. Duties include management of the baseline noise monitoring exercise, which covers over 150 locations, liaison with the engineering team on design issues and consultation with Local Authorities.

Carried out modelling of the construction vibration levels within adjacent noise sensitive premises for the contractors working adjacent to Paddington Station.

Assisted the demolition contractors working at Bond Street Station with a monitoring and control regime to minimise vibration levels within a listed building during the demolition of the adjacent property.

Noise and Vibration Specialist for C503 Liverpool Street. Main responsibilities include preparation of calculations and mitigation measures for the s61 consents, liaison with Contractors and Local Authority.

Rail Link Engineering – High Speed 1
A key member of the team who worked on the operational noise and vibration assessment for HS1. Main duties included the following.

- Attendance at consultation events, liaison with members of the public to advise them on potential noise and vibration effects.
- Measurement and analysis of noise generated by rolling stock used within the UK. Subsequent use of the data to validate the operational noise prediction model used for the impact assessment.
- Development of digital vibration monitoring system to record simultaneously at up to sixteen locations. Developed software to subsequently analyse the recorded data to provide vibration indices required by existing Standards.
- Measurement of groundborne noise and vibration generated by trains travelling in tunnels and on surface sections of lines. Measurements undertaken in Germany, France and the UK and included an extensive exercise conducted over the Channel tunnel.
- Developed empirical calculation methodologies to predict groundborne noise and vibration from trains travelling in tunnels and on surface sections of railway. The methodology was capable of predicting vibration for a variety of train types operating over varying ground and track formations and at differing speed.
- Undertook both the construction and operational vibration calculations for the environmental assessment.
- Author of technical reports to support the vibration specialist study and Environmental Statement.
- Prepared supporting information and undertook additional assessments for use during Government Select Committee.

Seconded to Rail Link Engineering as Noise and Vibration Specialist during the detailed design of the HS1. Main Duties included the following.

- Responsible for undertaking operational noise modelling to ensure that the proposed mitigation achieved the projects commitments at minimum costs. Achieved by the use of combined fence and earthworks solutions, this involved extensive liaison with both the design engineers and landscape architects.
- Construction noise and vibration modelling to ensure the Project's design was compliant with Commitments. Involved with the development of alternative construction methods where these were unlikely to be met.
- Preparation of noise and vibration information and requirements to be included in the tender documentation for Contractors.
- Negotiation and consultation with Local Authorities in support of CTRL Act 1996 Schedule 6 Planning Applications for the permanent works.
- Provided information to Project Representative in support of proposed amendments to Assurances given during Select Committee hearings.
- Review of planning applications likely to be affected by the construction and operation of the CTRL.

Burford Quarry, Oxfordshire
Provided specialist advise to the minerals operator for over 10 years in respect of the control of noise and vibration from limestone extraction and processing operations. Duties included regular monitoring of noise levels, assessment of noise from proposed extension areas and liaison with local residents.

Ardleigh Reservoir, Essex
Provide specialist advice in respect of noise during the construction of a new reservoir. Carried out assessments of noise levels in respect of changes to operations within the site and periodic monitoring of noise levels at surrounding properties.

Cobbs Farm, Essex
Undertook assessment of noise levels associated with the use of a sand washing plant during the construction of an agricultural reservoir on farmland. Liaison with local authority officers in respect of ensuring the construction operations did not adversely impact occupants of surrounding properties in a rural location.

Zig Zag Quarry, Devon
Undertook periodic noise monitoring exercises to demonstrate compliance with planning condition limits. Evaluated employees exposure to noise and advised on measures to minimise risk to hearing in accordance with Noise at Work Regulations.

Highland Spring Group
Preparation of noise assessments to support planning applications for a proposed factory extension and rail terminal at their headquarters in Perthshire. Duties included monitoring and assessment of noise levels from proposed operation of the two facilities, liaison with the project team to develop extensive noise mitigation measures, required to ensure acceptable noise levels at surrounding properties in a remote location. Worked alongside a potential crane supplier to assist in the development of complex noise mitigation measures required for a gantry crane.

Isle of Man Government
Conducted noise and vibration monitoring on a new type of waste vehicle to be used in order to assess the potential impact of introducing a higher gross weight limit onto the island. This involved liaison and consultation with local residents during the measurement exercise to explain any potential affect the vehicles may have on properties.

Riverside EfW
Preparation of a s61 application to support a prior works application for the ground works phase of a major energy from waste plant. The project included monitoring of proposed plant noise and vibration levels, liaison with the contractors and local authority personnel.

Preparation of Noise and Vibration Assessments to Support Planning Applications
for major projects including:

Gill Mill Quarry Extension, Oxfordshire
Burford Quarry Extension, Burford
Wakerley Quarry, Lincolnshire
Watlington Quarry Extension, Norfolk
Mayton Woods, Quarry, Norfolk
Wennington Quarry, Thurrock
Willow Hall Quarry, Peterborough
Energy from Waste Centre, Castle Bromwich
Proposed Downton Distribution Centre, Luton
Residential Development Little Linford, Milton Keynes
The Ram Brewery Redevelopment, Wandsworth
British Museum North Western Extension, London
Areas 10 and 11, Milton Keynes

Preparation & Presentation of Evidence at Public Inquiries
for projects including:

Pave Lane Quarry, Telford
Gorse Lane Quarry, Lincolnshire
Ware Park, Hertford
Broad Green Quarry, Hertfordshire
Valley Farm Solar Park, Suffolk
Lots Road Power Station, London
Isle of Man Broadcasting Company
Castle Frome Potato Processing
Land Rover, Chipperfield

Appendix B
Noise Units

Decibels (dB)

Noise can be considered as 'unwanted sound'. Sound in air can be considered as the propagation of energy through the air in the form of oscillatory changes in pressure. The size of the pressure changes in acoustic waves is quantified on a logarithmic decibel (dB) scale firstly because the range of audible sound pressures is very great, and secondly because the loudness function of the human auditory system is approximately logarithmic.

The dynamic range of the auditory system is generally taken to be 0 dB to 140 dB. Generally, the addition of noise from two sources producing the same sound pressure level will lead to an increase in sound pressure level of 3 dB. A 3 dB noise change is generally considered to be just noticeable, a 5 dB change is generally considered to be clearly discernible and a 10 dB change is generally accepted as leading to the subjective impression of a doubling or halving of loudness.

A-Weighting

The bandwidth of the frequency response of the ear is usually taken to be from about 18 Hz to 18,000 Hz. The auditory system is not equally sensitive throughout this frequency range. This is taken into account when making acoustic measurements by the use of A-weighting, a filter circuit that has a frequency response similar to the human auditory system. All the measurement results referred to in this report are A-weighted.

Units Used to Describe Time-Varying Noise Sources (L_{Aeq}, L_{Amax}, L_{A10}, and L_{A90})

Instantaneous A-weighted sound pressure level is not generally considered as an adequate indicator of subjective response to noise because levels of noise usually vary with time.

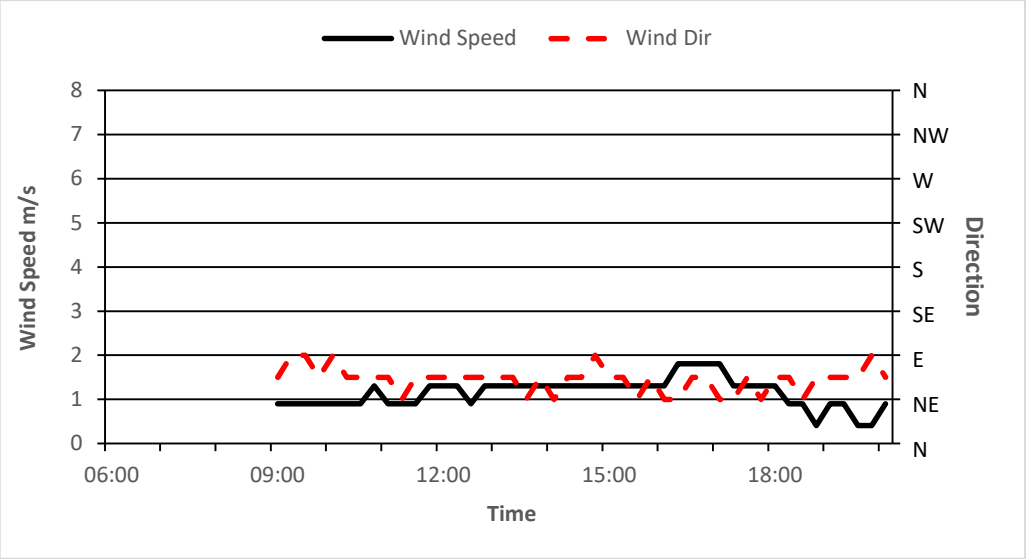
For many types of noise the Equivalent Continuous A-Weighted Sound Pressure Level ($L_{Aeq,T}$) is used as the basis of determining community response. The $L_{Aeq,T}$ is defined as the A-weighted sound pressure level of the steady sound which contains the same acoustic energy as the noise being assessed over a specific time period, T.

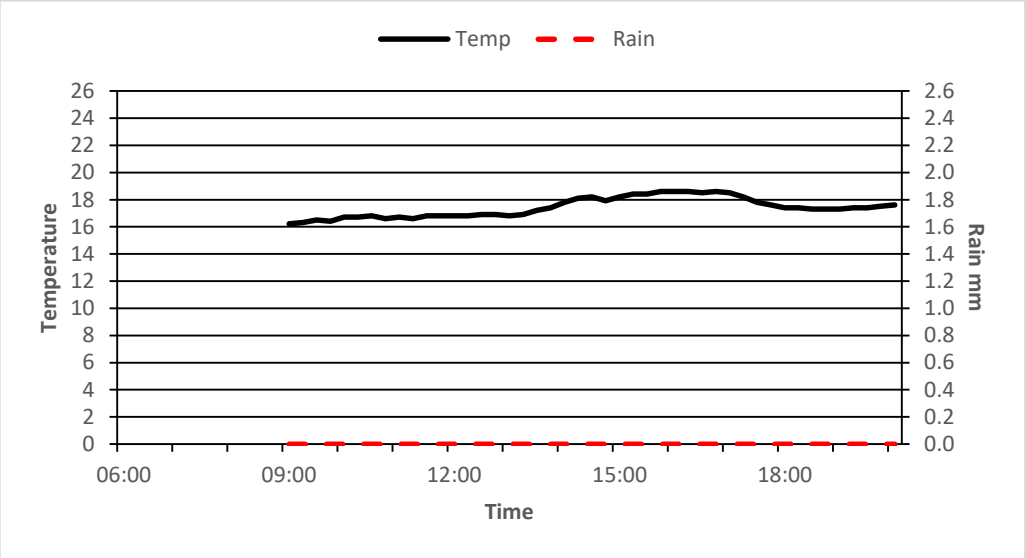
The L_{Amax} is the maximum value that the A-weighted sound pressure level reaches during a measurement period. $L_{Amax\,F}$, or Fast, is averaged over 0.125 of a second and $L_{Amax\,S}$, or Slow, is averaged over 1 second. All L_{Amax} values referred to in this report are Fast.

The L_{A90} is the noise level exceeded for 90% of the measurement period. It is generally used to quantify the background noise level, the underlying level of noise that is present even during the quieter parts of measurement period.

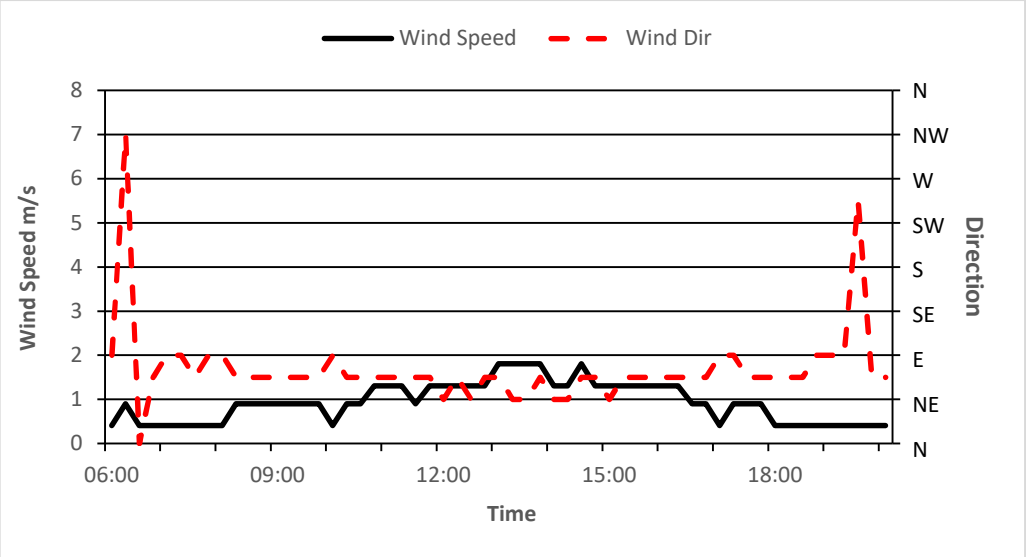
Appendix C
Weather Data

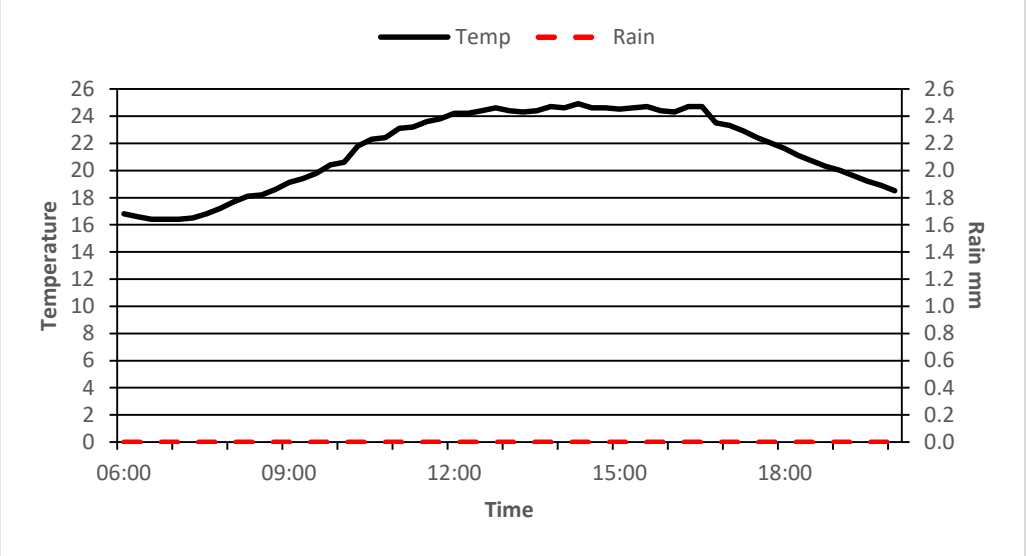
Cross Leys Quarry
Weather Data
05/09/2024



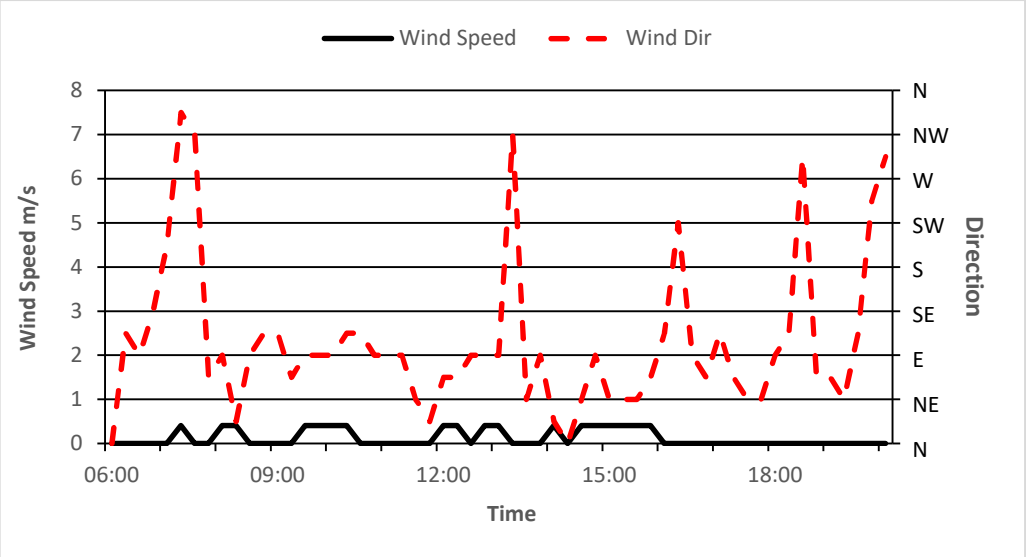


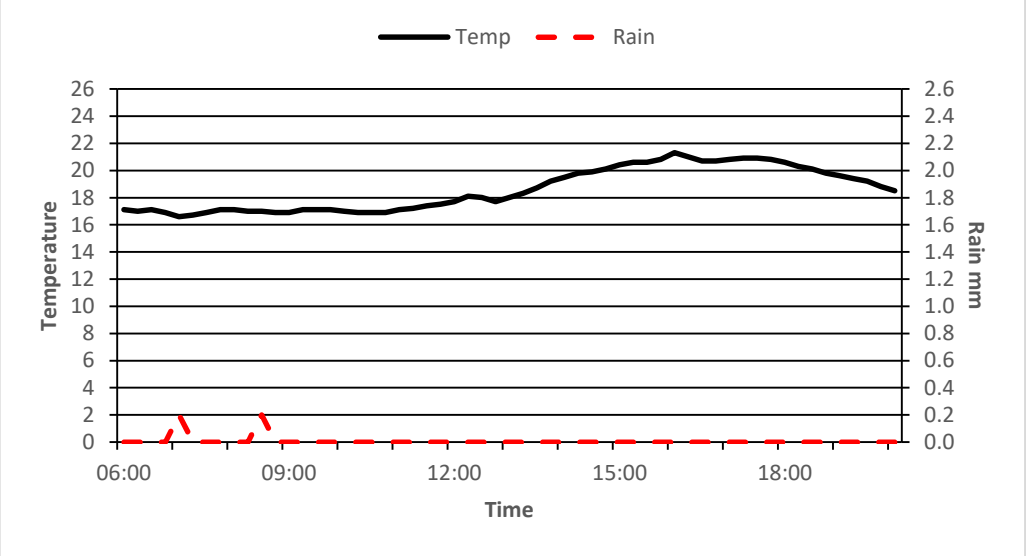
Cross Leys Quarry
Weather Data
06/09/2024



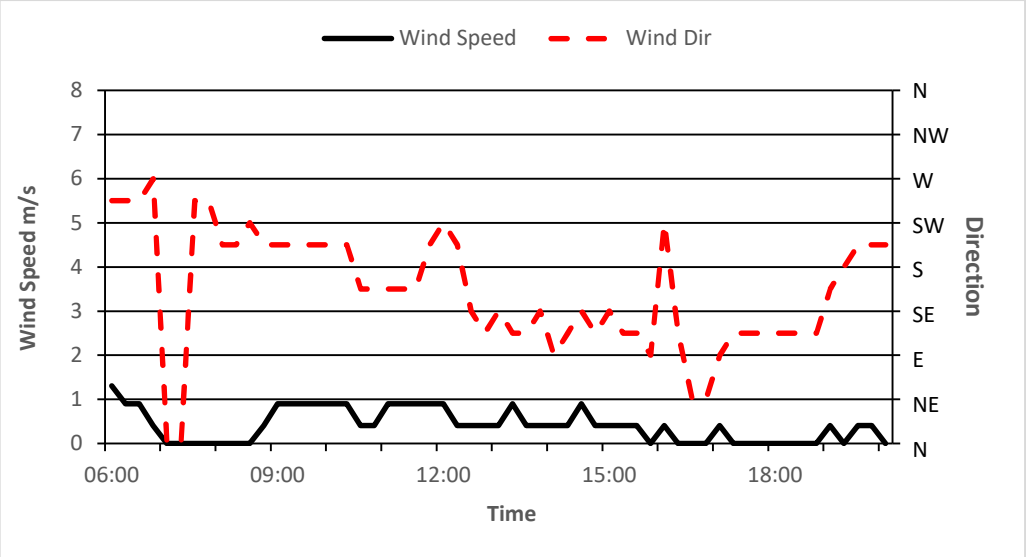


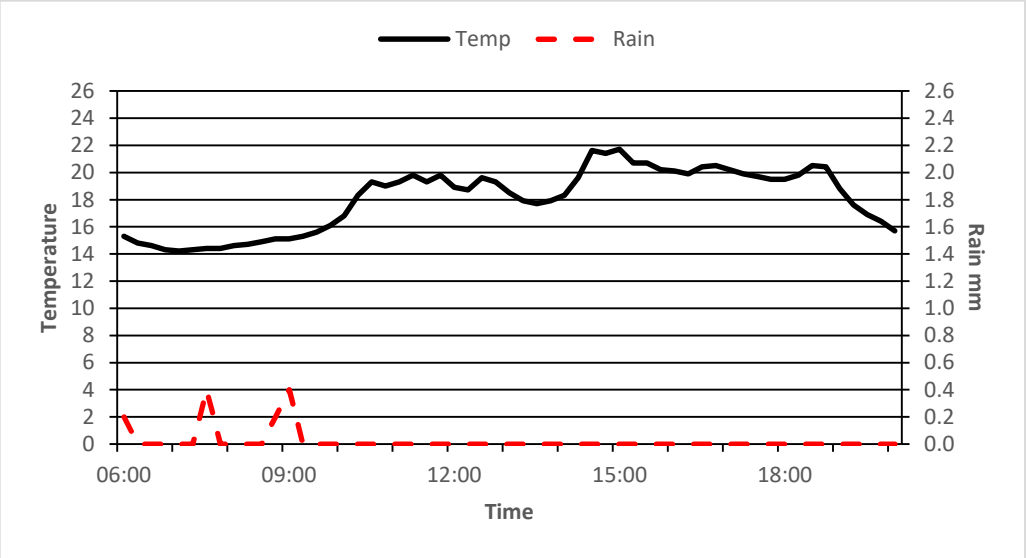
Cross Leys Quarry
Weather Data
07/09/2024



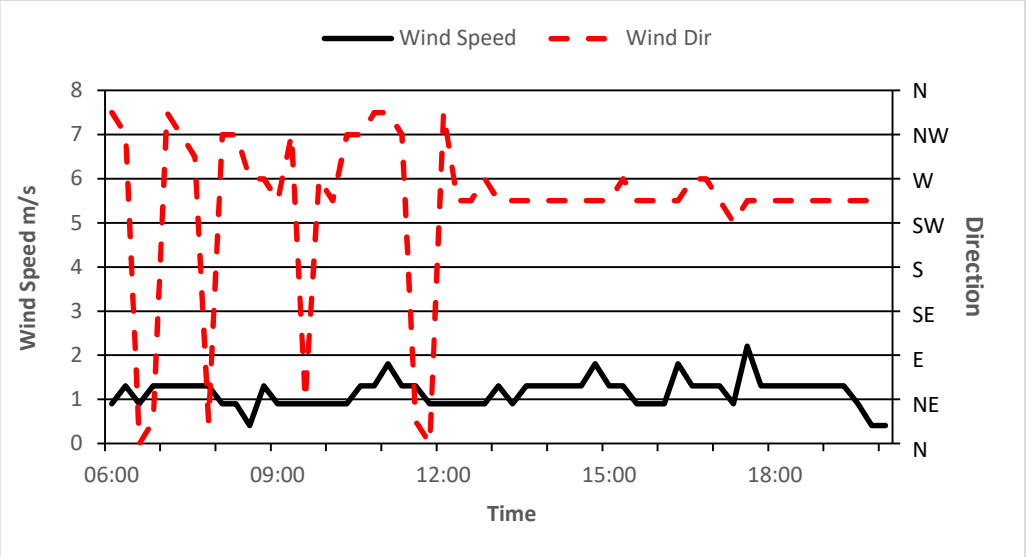


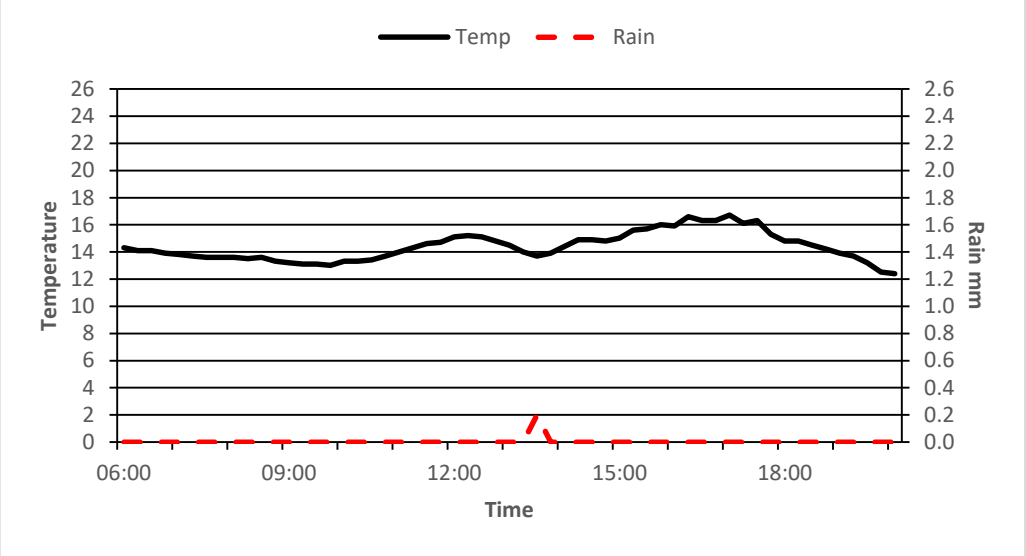
Cross Leys Quarry
Weather Data
08/09/2024



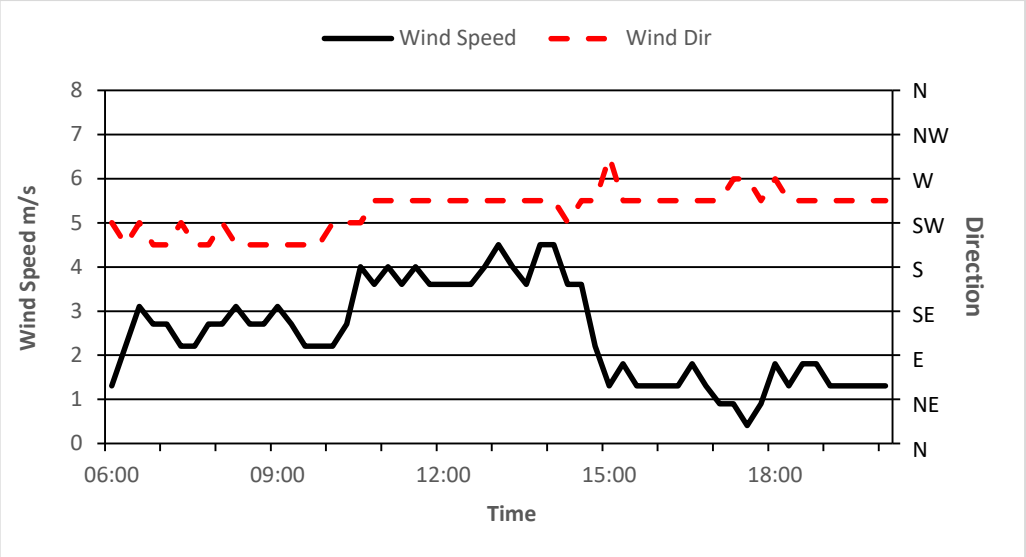


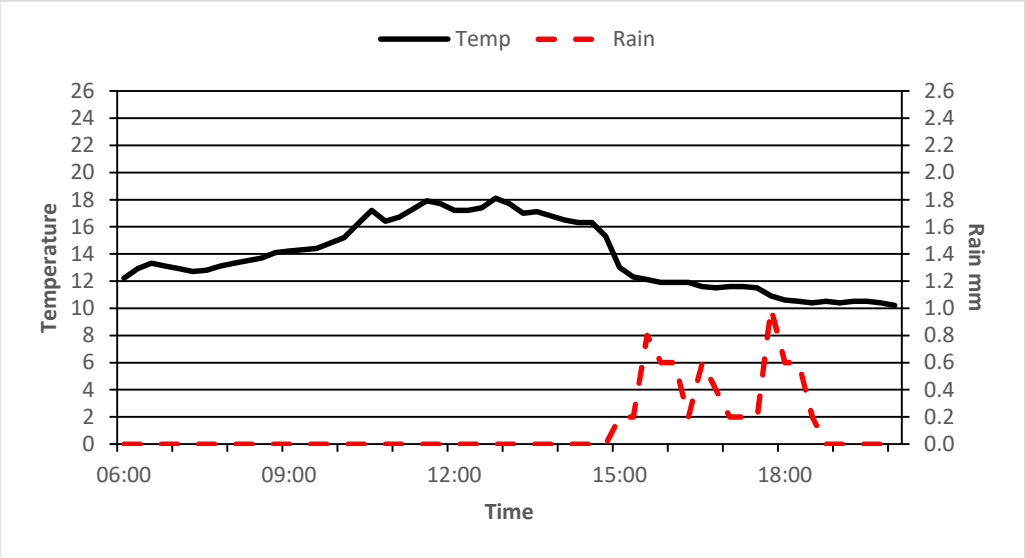
Cross Leys Quarry
Weather Data
09/09/2024



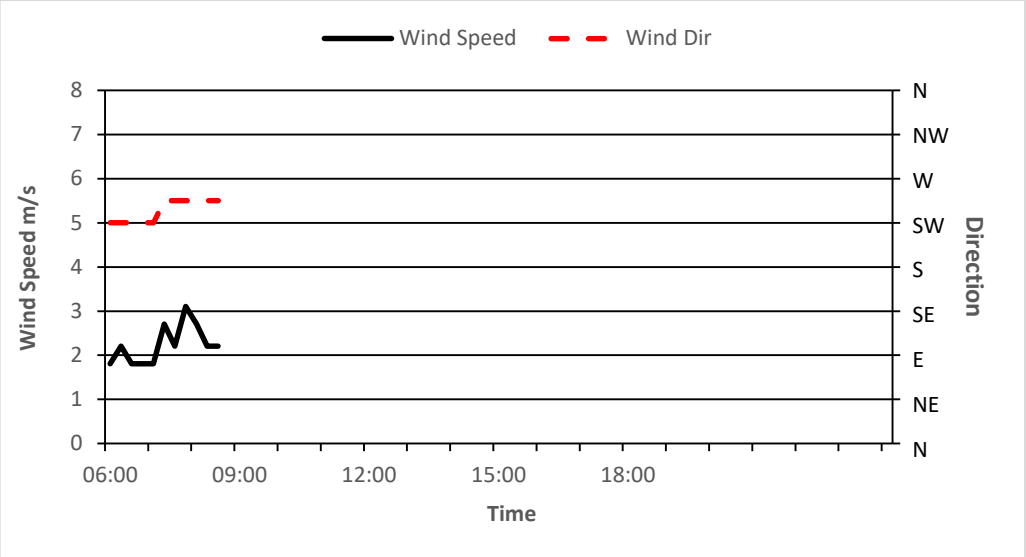


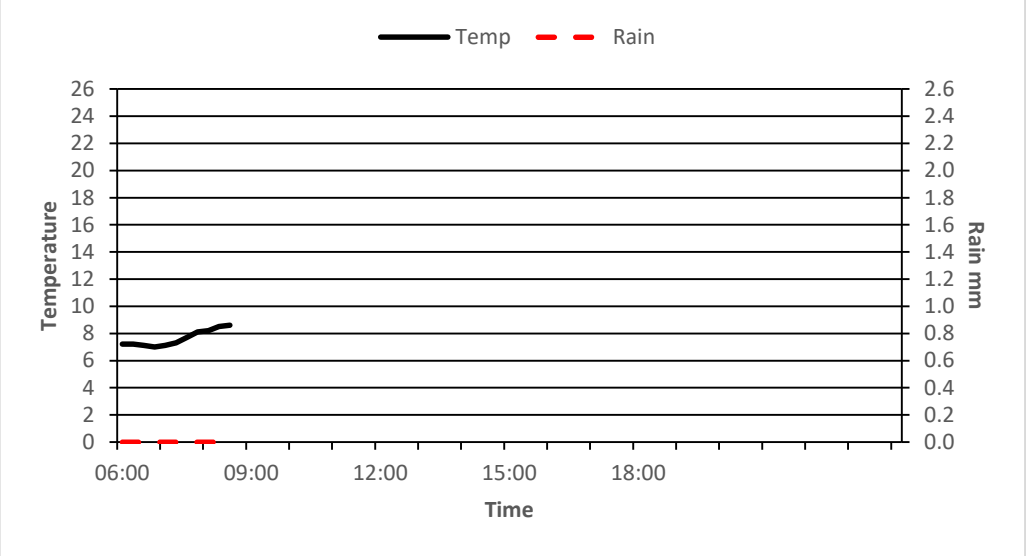
Cross Leys Quarry
Weather Data
10/09/2024



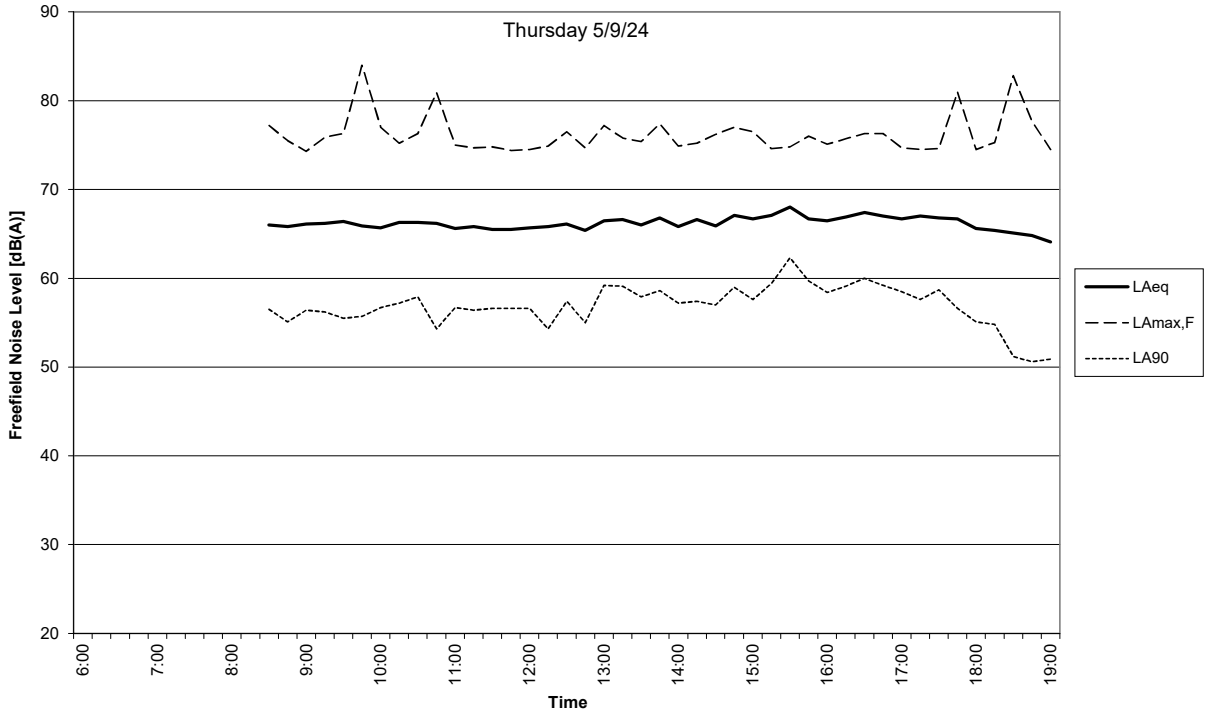


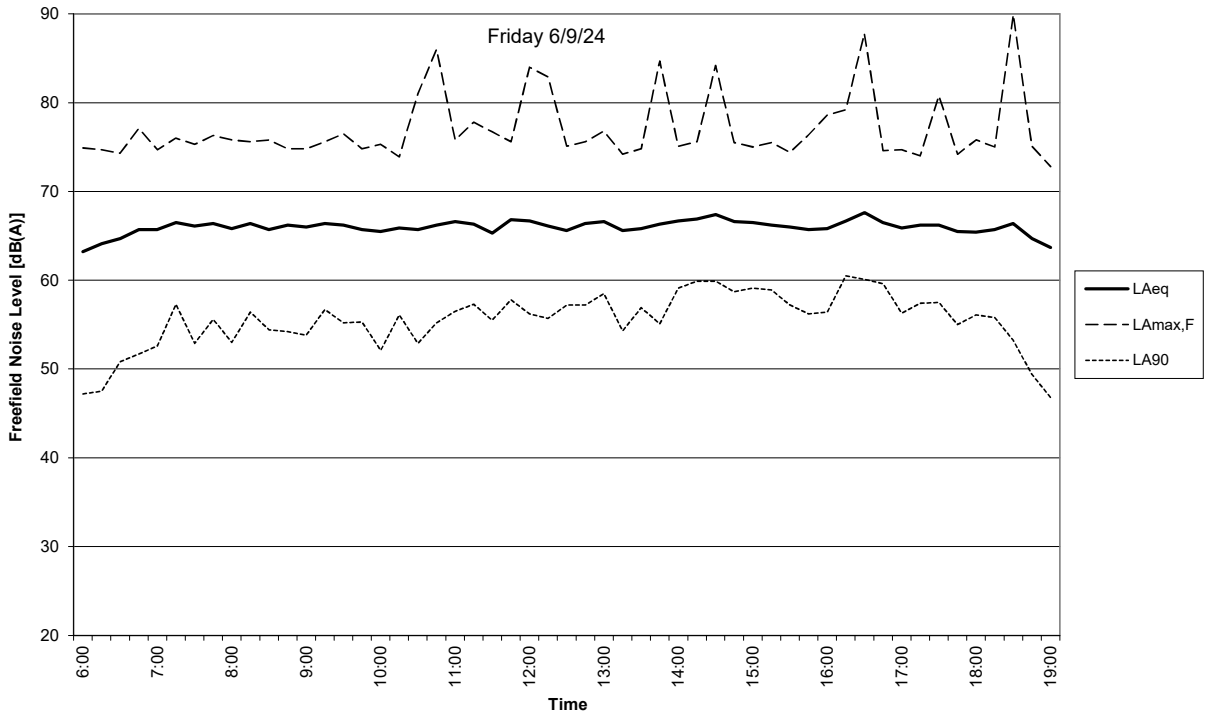
Cross Leys Quarry
Weather Data
11/09/2024

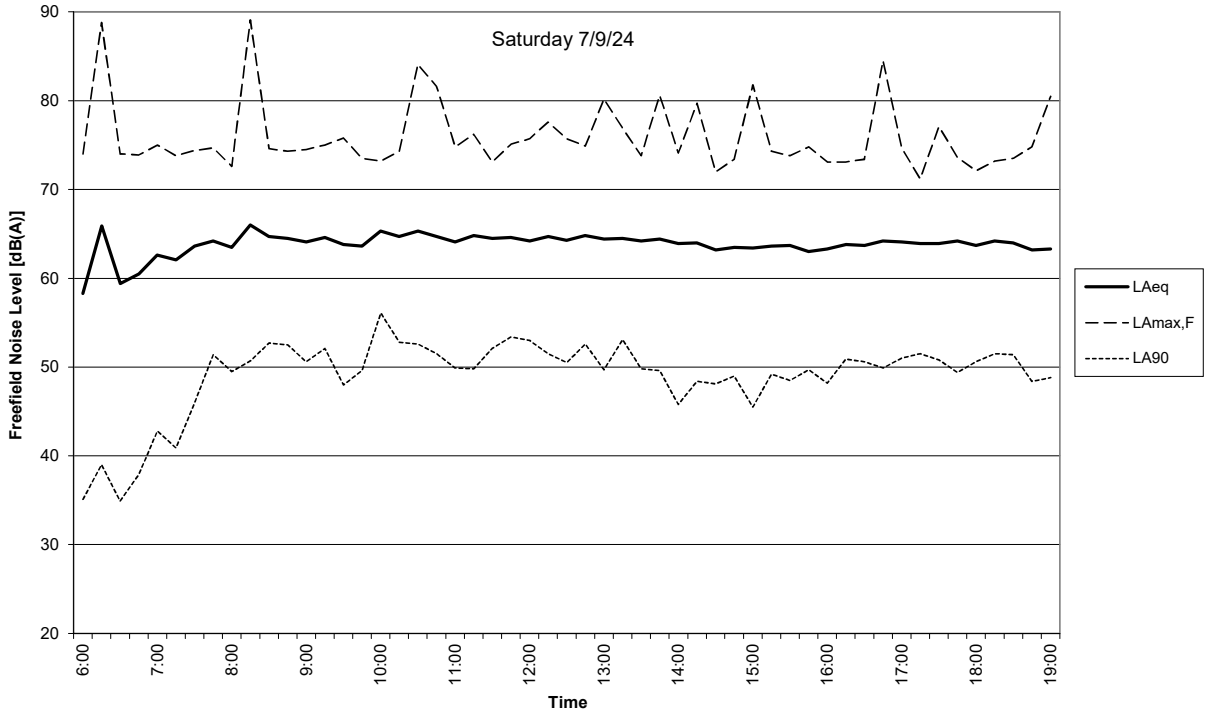


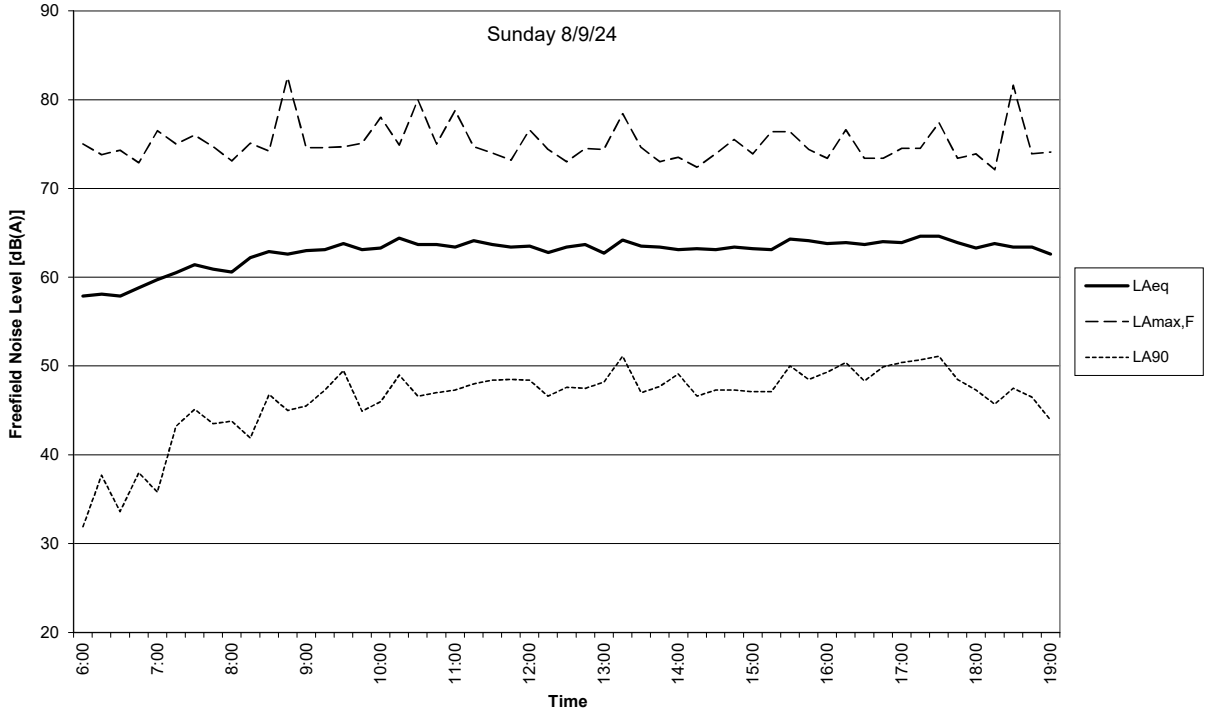


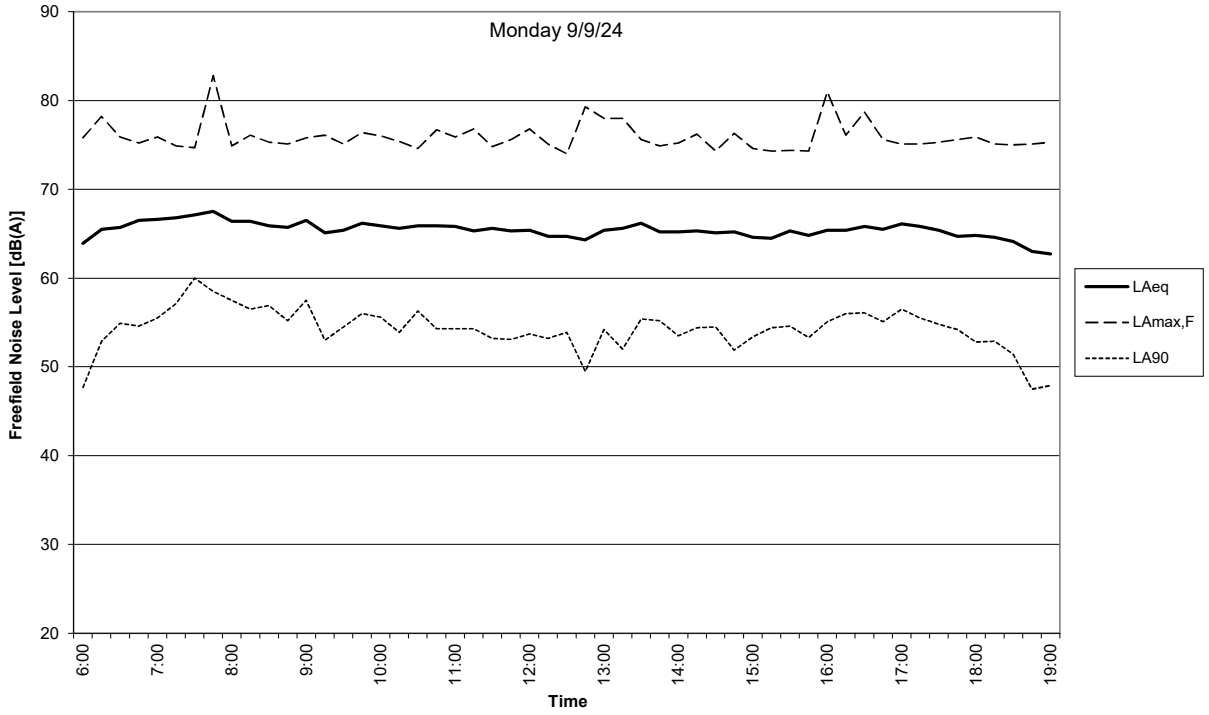
Appendix D
Results of Unattended Noise Survey
At Wittering Lodge

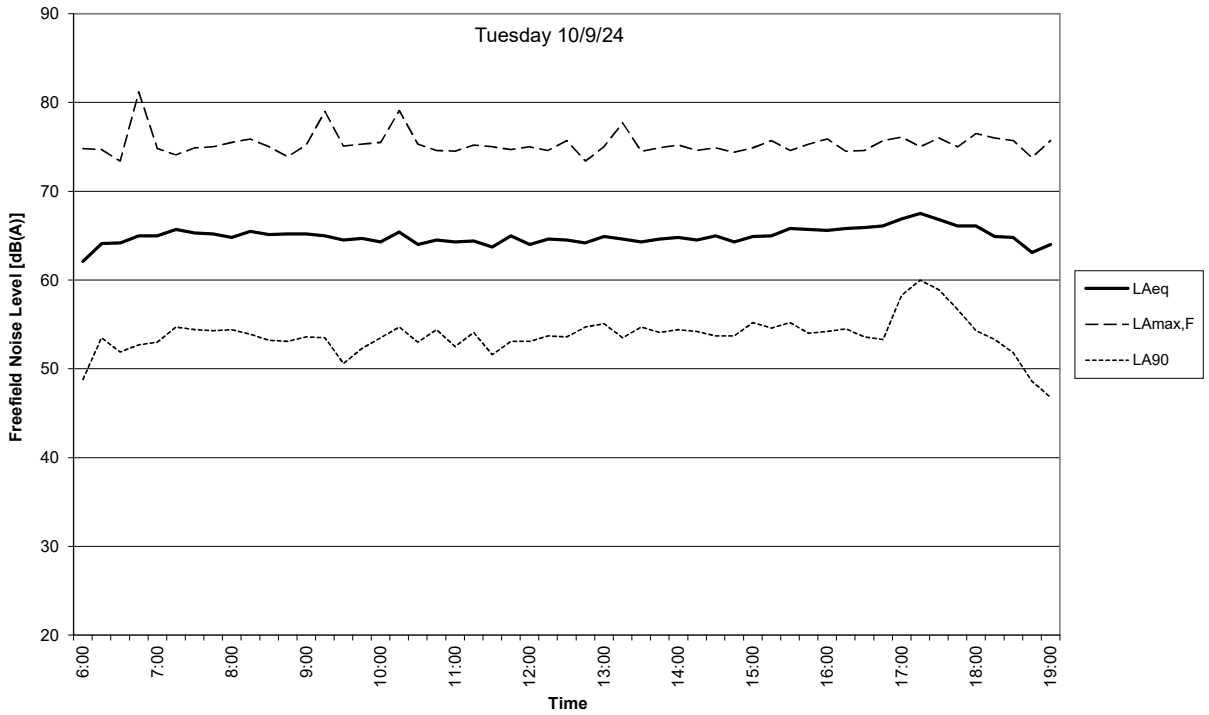

Thursday 5/9/24
Freefield Noise Level [dB(A)]
90
80
70
60
50
40
30
20
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90

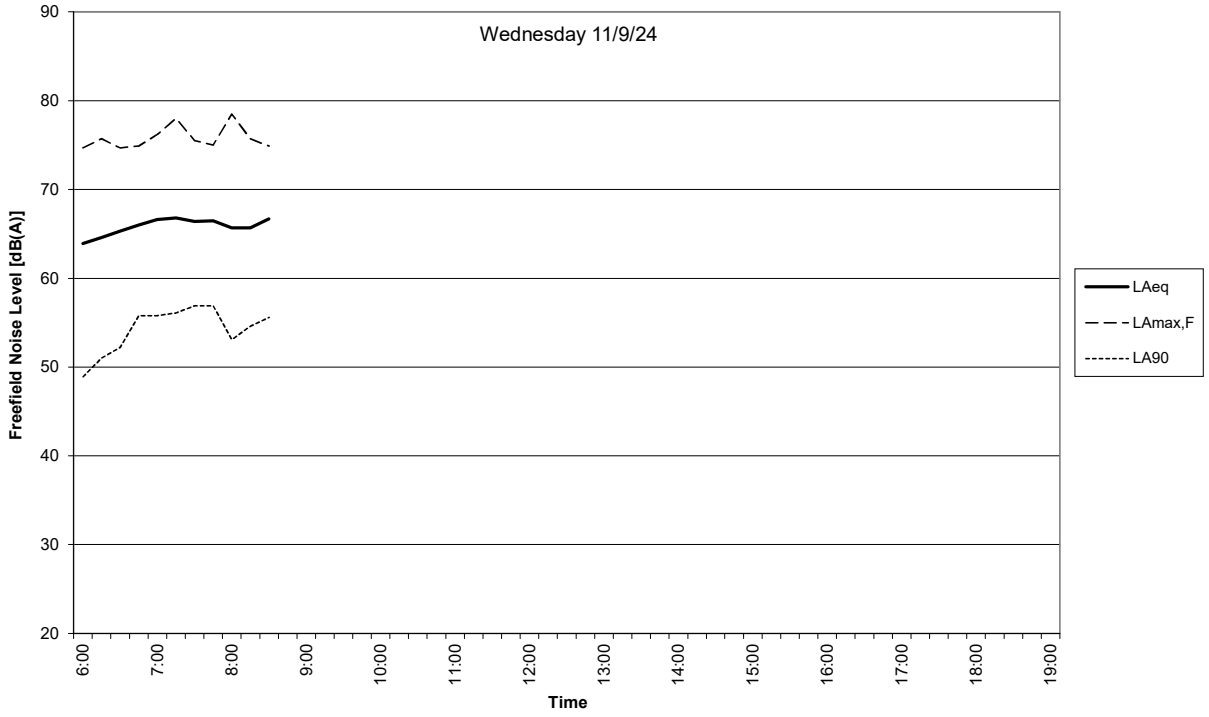

Friday 6/9/24
Freefield Noise Level [dB(A)]
90
80
70
60
50
40
30
20
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90


Saturday 7/9/24
Freefield Noise Level [dB(A)]
90
80
70
60
50
40
30
20
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90

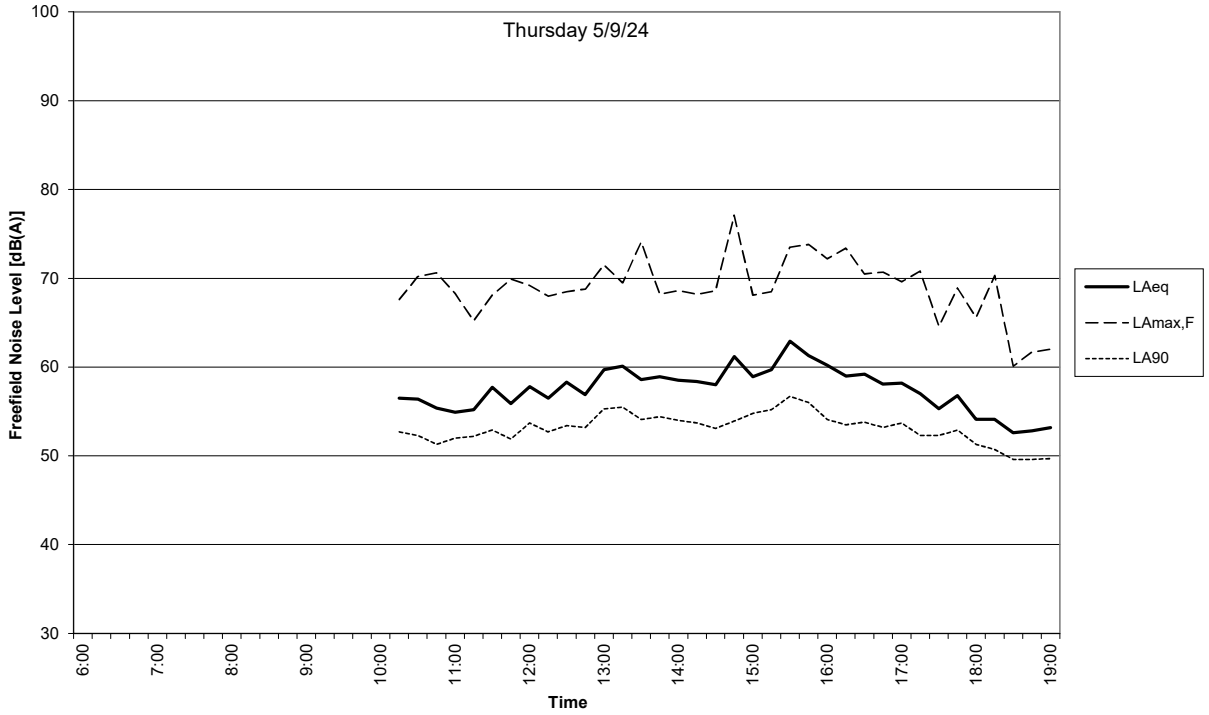

Sunday 8/9/24
Freefield Noise Level [dB(A)]
90
80
70
60
50
40
30
20
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90

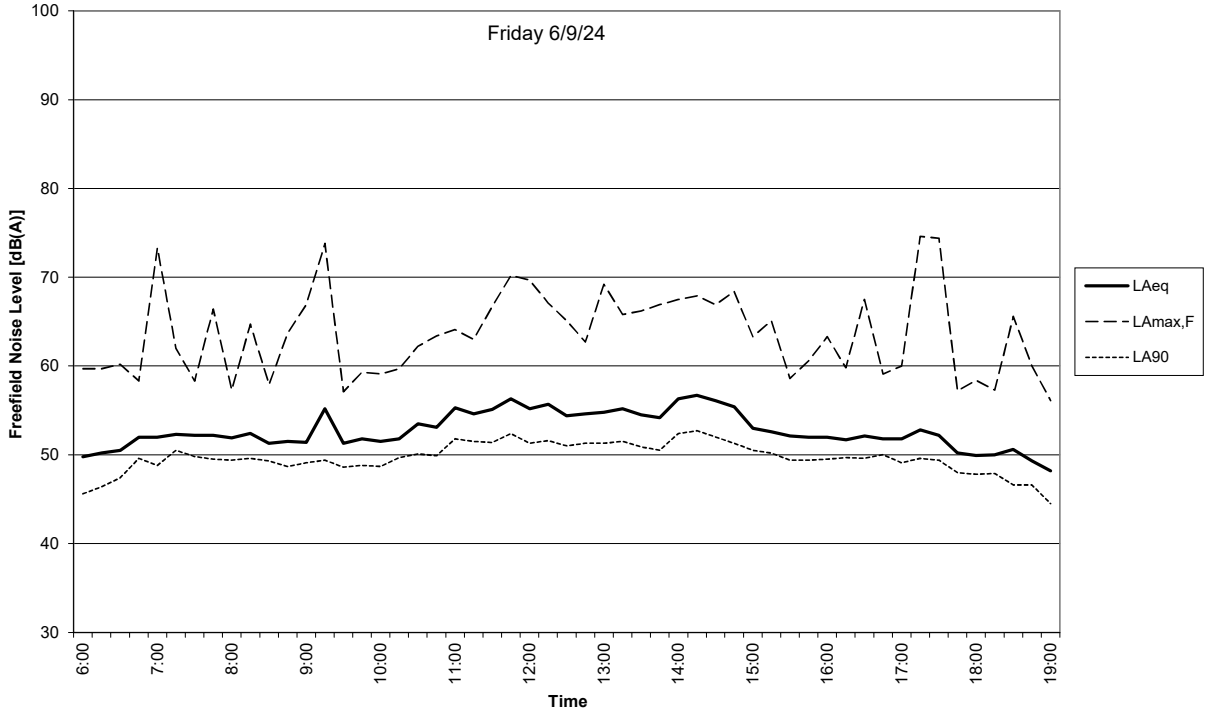

Monday 9/9/24
Freefield Noise Level [dB(A)]
90
80
70
60
50
40
30
20
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90

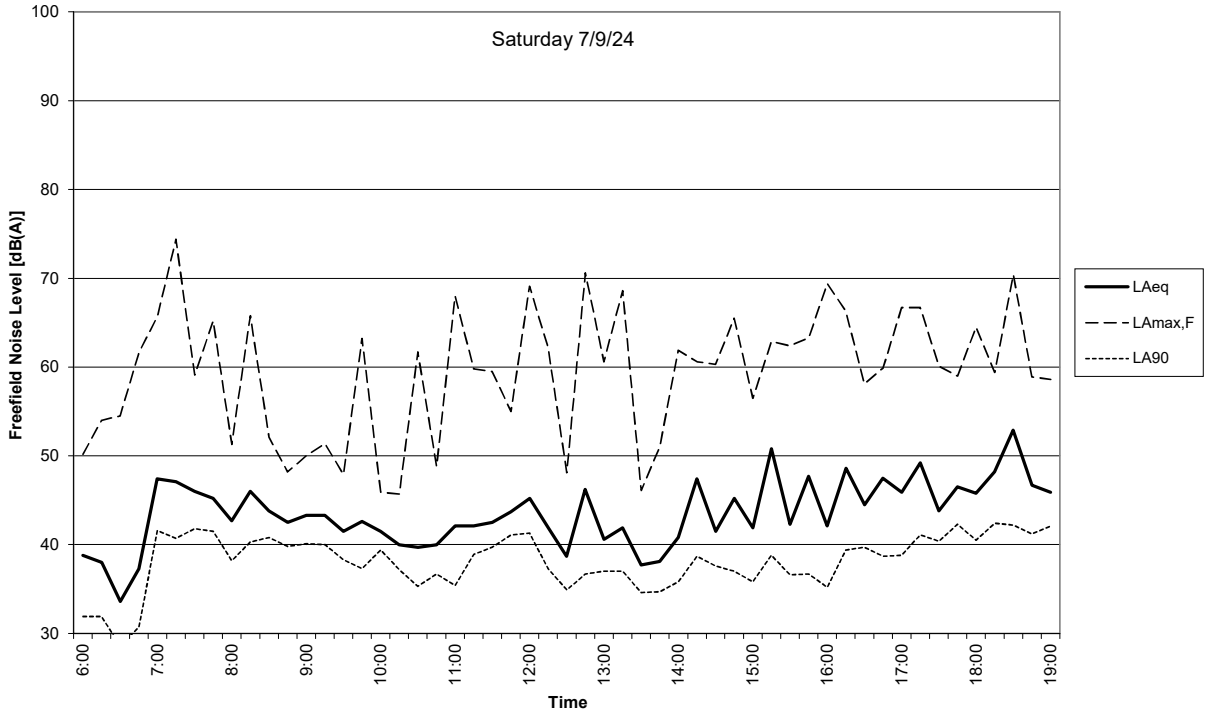

Tuesday 10/9/24
Freefield Noise Level [dB(A)]
90
80
70
60
50
40
30
20
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90

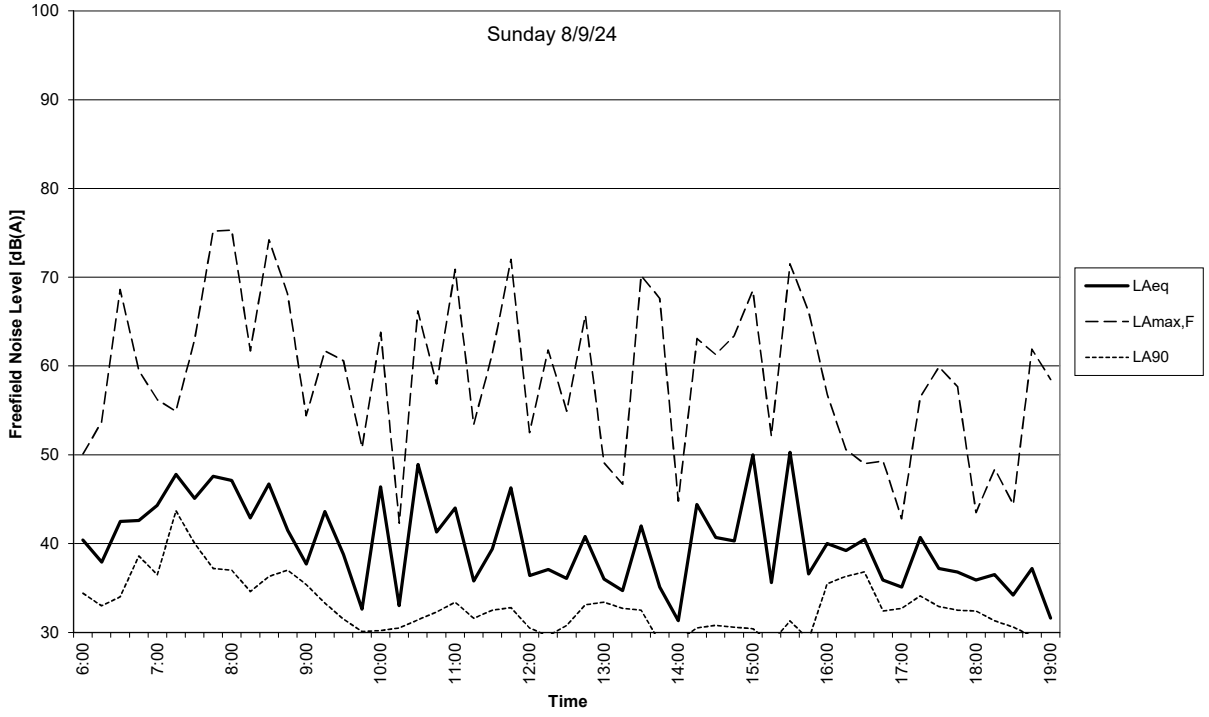

Wednesday 11/9/24
Freefield Noise Level [dB(A)]
90
80
70
60
50
40
30
20
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90

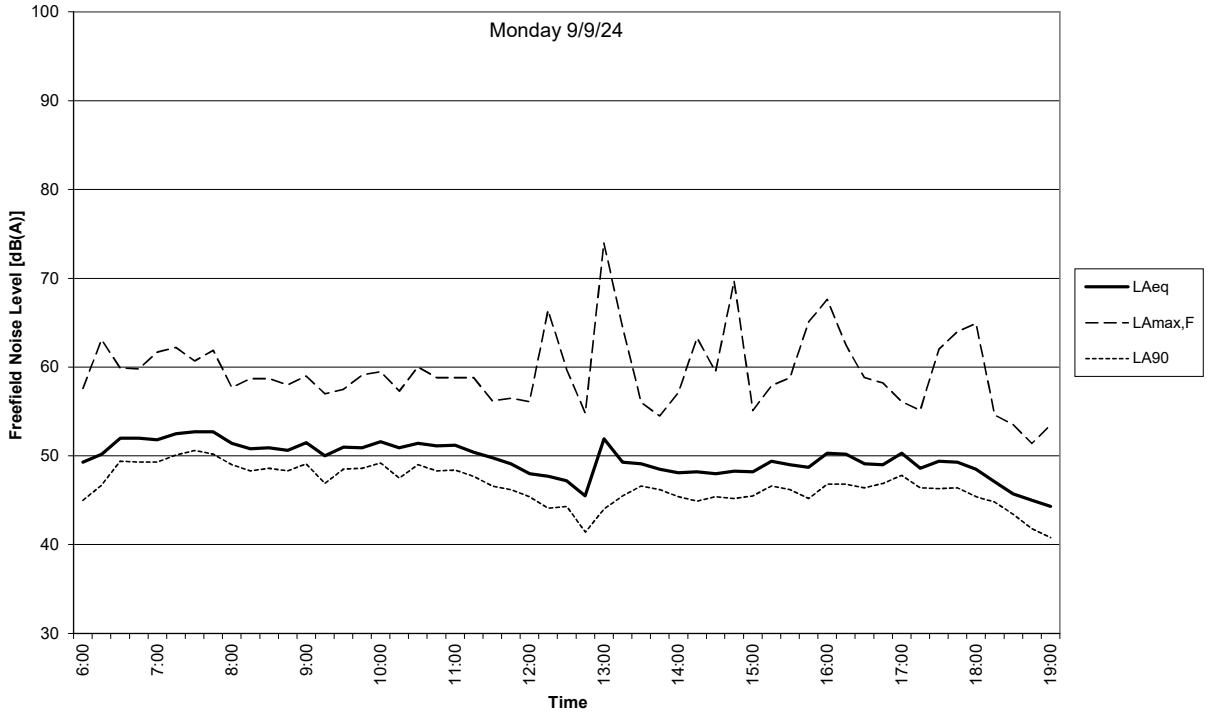
Appendix E
Results of Unattended Noise Survey
At Cross Leys Farm

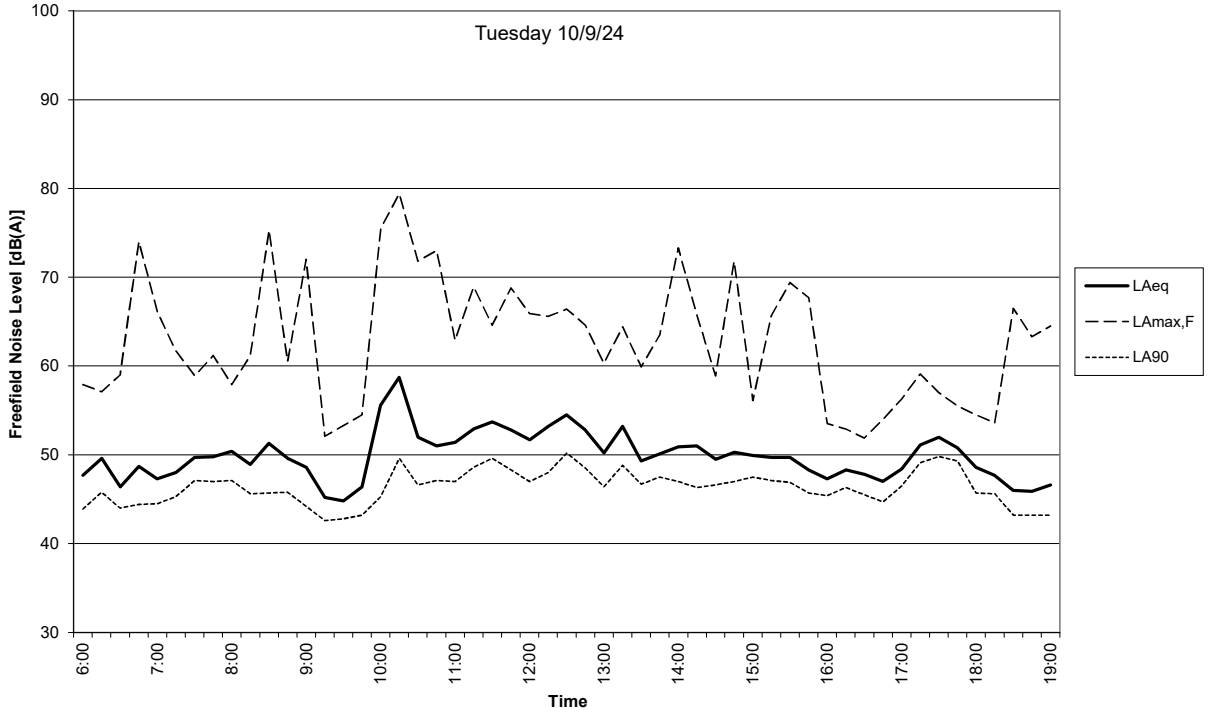

Thursday 5/9/24
Freefield Noise Level [dB(A)]
100
90
80
70
60
50
40
30
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90

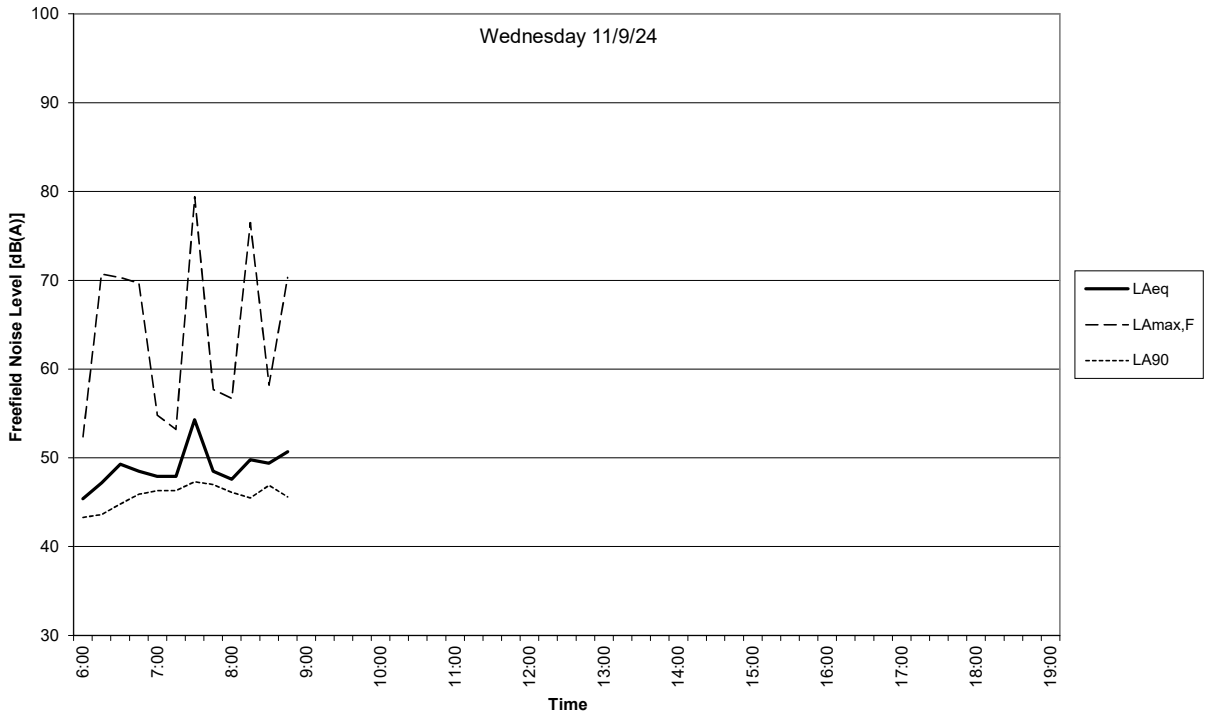

Friday 6/9/24
Freefield Noise Level [dB(A)]
100
90
80
70
60
50
40
30
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90


Saturday 7/9/24
Freefield Noise Level [dB(A)]
100
90
80
70
60
50
40
30
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90


Sunday 8/9/24
Freefield Noise Level [dB(A)]
100
90
80
70
60
50
40
30
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90


Monday 9/9/24
Freefield Noise Level [dB(A)]
100
90
80
70
60
50
40
30
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90


Tuesday 10/9/24
Freefield Noise Level [dB(A)]
100
90
80
70
60
50
40
30
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90


Wednesday 11/9/24
Freefield Noise Level [dB(A)]
100
90
80
70
60
50
40
30
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
Time
LAeq
LAmax,F
LA90

Appendix F
Calculation Results

Cross Leys Quarry
Mean propagation Leq - Phase 1

Legend

Source		Source name
Source type		Type of source (point, line, area)
Time slice		Name of time slice
L'w	dB(A)	Sound power level per m, m²
Lw	dB(A)	Sound power level per unit
l or A	m,m²	Size of source (length or area)
S	m	Distance source - receiver
Adiv	dB	Mean attenuation due to geometrical spreading
Agr	dB	Mean attenuation due to ground effect
Abar	dB	Mean attenuation due to screening
Aatm	dB	Mean attenuation due to air absorption
Ls	dB(A)	Unassessed sound pressure level at receiver
Ls=Lw+Ko+ADI+Adiv+Agr+Abar+Aatm+Afol_site_house+Awind+dLrefl		
dLw	dB	Correction due to source operation time
Lr	dB(A)	Assessed level of time slice

Cross Leys Quarry
Calculated Noise Levels from Infill / Restoration Operations
Prepared By: L Jephson - 7/10/24

Phase 1

Phase	Overall LAeq,T	Source	Source type	L'w dB(A)	Lw dB(A)	l or A m,m²	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Ls dB(A)	dLw dB	Lr dB(A)
Cross Leys Farm														
Cell Formation	39.8	ADT / HGV Tipping South	Point	106.2	106.2		613.0	-66.7	-0.4	0.0	-5.3	33.7	-10.0	23.7
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	631.4	-67.0	-7.1	0.0	-3.0	7.2	13.8	21.0
		Dozer South	Point	107.5	107.5		616.9	-66.8	-1.0	0.0	-3.7	36.0	0.0	36.0
		Excavator South	Point	103.6	103.6		663.7	-67.4	-1.1	0.0	-2.9	32.2	0.0	32.2
		HGV Movement South	Line	60.1	87.3	525.6	663.4	-67.4	-1.6	0.0	-4.0	14.3	10.0	24.3
		Roller South	Point	107.5	107.5		644.4	-67.2	-2.1	0.0	-2.9	35.3	0.0	35.3
Infill Operations	35.3	ADT / HGV Tipping South	Point	106.2	106.2		613.0	-66.7	-0.4	0.0	-5.3	33.7	-13.0	20.7
Southern Boundary		Dozer South	Point	107.5	107.5		616.9	-66.8	-1.0	0.0	-3.7	36.0	-1.2	34.8
		HGV Movement South	Line	60.1	87.3	525.6	663.4	-67.4	-1.6	0.0	-4.0	14.3	10.0	24.3
Cell Formation	39.6	ADT / HGV Tipping East	Point	106.2	106.2		623.5	-66.9	-0.6	0.0	-5.5	33.2	-10.0	23.2
Eastern Boundary		ADT Movement East	Line	67.3	84.8	56.0	638.2	-67.1	-6.6	0.0	-2.8	8.3	13.8	22.1
		Dozer East	Point	107.5	107.5		611.8	-66.7	-1.1	0.0	-3.8	35.9	0.0	35.9
		Excavator East	Point	103.6	103.6		663.7	-67.4	-1.1	-0.1	-3.0	31.9	0.0	31.9
		HGV Movement East	Line	60.1	86.0	387.7	685.9	-67.7	-1.6	-0.4	-4.0	12.3	10.0	22.3
		Roller East	Point	107.5	107.5		632.6	-67.0	-2.5	0.0	-3.1	34.9	0.0	34.9
Infill Operations	35.0	ADT / HGV Tipping East	Point	106.2	106.2		623.5	-66.9	-0.6	0.0	-5.5	33.2	-13.0	20.2
Eastern Boundary		Dozer East	Point	107.5	107.5		611.8	-66.7	-1.1	0.0	-3.8	35.9	-1.2	34.6
		HGV Movement East	Line	60.1	86.0	387.7	685.9	-67.7	-1.6	-0.4	-4.0	12.3	10.0	22.3
Cross Leys Farm Cottages														
Cell Formation	40.3	ADT / HGV Tipping South	Point	106.2	106.2		574.3	-66.2	-0.5	0.0	-5.1	34.3	-10.0	24.3
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	592.1	-66.4	-7.3	0.0	-2.9	7.7	13.8	21.5
		Dozer South	Point	107.5	107.5		573.3	-66.2	-1.3	0.0	-3.5	36.5	0.0	36.5
		Excavator South	Point	103.6	103.6		618.6	-66.8	-1.4	0.0	-2.7	32.7	0.0	32.7
		HGV Movement South	Line	60.1	87.3	525.6	692.4	-67.8	-1.7	0.0	-4.1	13.7	10.0	23.7
		Roller South	Point	107.5	107.5		599.8	-66.6	-2.5	0.0	-2.7	35.8	0.0	35.8
Infill Operations	35.7	ADT / HGV Tipping South	Point	106.2	106.2		574.3	-66.2	-0.5	0.0	-5.1	34.3	-13.0	21.3
Southern Boundary		Dozer South	Point	107.5	107.5		573.3	-66.2	-1.3	0.0	-3.5	36.5	-1.2	35.3
		HGV Movement South	Line	60.1	87.3	525.6	692.4	-67.8	-1.7	0.0	-4.1	13.7	10.0	23.7
Cell Formation	39.4	ADT / HGV Tipping East	Point	106.2	106.2		631.7	-67.0	-0.5	0.0	-5.6	33.0	-10.0	23.0
Eastern Boundary		ADT Movement East	Line	67.3	84.8	56.0	645.3	-67.2	-6.6	0.0	-2.8	8.2	13.8	22.0
		Dozer East	Point	107.5	107.5		619.7	-66.8	-1.1	0.0	-3.8	35.7	0.0	35.7
		Excavator East	Point	103.6	103.6		674.0	-67.6	-1.1	-0.1	-3.0	31.8	0.0	31.8
		HGV Movement East	Line	60.1	86.0	387.7	739.0	-68.4	-1.7	-0.4	-4.2	11.4	10.0	21.4
		Roller East	Point	107.5	107.5		641.5	-67.1	-2.5	0.0	-3.1	34.7	0.0	34.7
Infill Operations	34.9	ADT / HGV Tipping East	Point	106.2	106.2		631.7	-67.0	-0.5	0.0	-5.6	33.0	-13.0	20.0
Eastern Boundary		Dozer East	Point	107.5	107.5		619.7	-66.8	-1.1	0.0	-3.8	35.7	-1.2	34.5
		HGV Movement East	Line	60.1	86.0	387.7	739.0	-68.4	-1.7	-0.4	-4.2	11.4	10.0	21.4
Wittering Lodge														
Cell Formation	41.3	ADT / HGV Tipping South	Point	106.2	106.2		677.4	-67.6	0.6	0.0	-5.8	33.3	-10.0	23.3
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	681.1	-67.7	-4.8	0.0	-2.5	9.3	13.8	23.1
		Dozer South	Point	107.5	107.5		691.2	-67.8	0.4	0.0	-3.7	36.4	0.0	36.4
		Excavator South	Point	103.6	103.6		703.8	-67.9	0.3	-0.1	-2.9	33.1	0.0	33.1
		HGV Movement South	Line	60.1	87.3	525.6	356.5	-62.0	-0.3	-0.2	-2.1	22.7	10.0	32.7
		Roller South	Point	107.5	107.5		698.6	-67.9	-0.2	0.0	-2.6	36.7	0.0	36.7
Infill Operations	37.2	ADT / HGV Tipping South	Point	106.2	106.2		677.4	-67.6	0.6	0.0	-5.8	33.3	-13.0	20.3
Southern Boundary		Dozer South	Point	107.5	107.5		691.2	-67.8	0.4	0.0	-3.7	36.4	-1.2	35.2
		HGV Movement South	Line	60.1	87.3	525.6	356.5	-62.0	-0.3	-0.2	-2.1	22.7	10.0	32.7
Cell Formation	43.2	ADT / HGV Tipping East	Point	106.2	106.2		544.0	-65.7	0.4	-12.8	-1.3	26.8	-10.0	16.8
Eastern Boundary		ADT Movement East	Line	67.3	84.8	56.0	546.5	-65.7	-4.2	-3.3	-0.7	10.8	13.8	24.6
		Dozer East	Point	107.5	107.5		545.4	-65.7	0.3	0.0	-3.2	38.8	0.0	38.8
		Excavator East	Point	103.6	103.6		537.5	-65.6	0.3	0.0	-2.4	35.9	0.0	35.9
		HGV Movement East	Line	60.1	86.0	387.7	322.2	-61.2	-0.1	-0.3	-2.0	22.5	10.0	32.5
		Roller East	Point	107.5	107.5		541.5	-65.7	-0.8	0.0	-2.4	38.6	0.0	38.6
Infill Operations	38.8	ADT / HGV Tipping East	Point	106.2	106.2		544.0	-65.7	0.4	-12.8	-1.3	26.8	-13.0	13.8
Eastern Boundary		Dozer East	Point	107.5	107.5		545.4	-65.7	0.3	0.0	-3.2	38.8	-1.2	37.6
		HGV Movement East	Line	60.1	86.0	387.7	322.2	-61.2	-0.1	-0.3	-2.0	22.5	10.0	32.5

Cross Leys Quarry
Calculated Noise Levels from Infill / Restoration Operations
Prepared By: L Jephson - 7/10/24

Phase 2A

Phase	Overall LAeq,T	Source	Source type	L'w dB(A)	Lw dB(A)	l or A m,m²	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Ls dB(A)	dLw dB	Lr dB(A)
Cross Leys Farm														
Cell Formation	38.3	ADT / HGV Tipping South	Point	106.2	106.2		704.9	-68.0	-0.1	0.0	-5.5	32.7	-10.0	22.7
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	723.3	-68.2	-5.8	0.0	-2.6	7.8	13.8	21.6
		Dozer South	Point	107.5	107.5		705.1	-68.0	-1.0	0.0	-4.0	34.5	0.0	34.5
		Excavator South	Point	103.6	103.6		751.3	-68.5	-1.2	0.0	-3.2	30.7	0.0	30.7
		HGV Movement South	Line	60.1	85.9	380.0	696.8	-67.9	-1.6	-0.3	-4.0	12.1	10.0	22.1
		Roller South	Point	107.5	107.5		732.2	-68.3	-2.3	0.0	-3.3	33.6	0.0	33.6
Infill Operations	33.7	ADT / HGV Tipping South	Point	106.2	106.2		704.9	-68.0	-0.1	0.0	-5.5	32.7	-13.0	19.7
Southern Boundary		Dozer South	Point	107.5	107.5		705.1	-68.0	-1.0	0.0	-4.0	34.5	-1.2	33.2
		HGV Movement South	Line	60.1	85.9	380.0	696.8	-67.9	-1.6	-0.3	-4.0	12.1	10.0	22.1
Cell Formation	38.1	ADT / HGV Tipping East	Point	106.2	106.2		727.2	-68.2	0.1	-0.1	-5.7	32.2	-10.0	22.2
Eastern Boundary		ADT Movement East	Line	67.3	84.8	56.0	741.3	-68.4	-6.7	0.0	-3.3	6.4	13.8	20.2
		Dozer East	Point	107.5	107.5		715.2	-68.1	-0.9	0.0	-4.2	34.2	0.0	34.2
		Excavator East	Point	103.6	103.6		769.6	-68.7	-1.4	0.0	-3.4	30.1	0.0	30.1
		HGV Movement East	Line	60.1	83.1	199.6	729.9	-68.3	-1.4	0.0	-4.2	9.2	10.0	19.2
		Roller East	Point	107.5	107.5		737.0	-68.3	-2.0	0.0	-3.2	33.9	0.0	33.9
Infill Operations	33.3	ADT / HGV Tipping East	Point	106.2	106.2		727.2	-68.2	0.1	-0.1	-5.7	32.2	-13.0	19.2
Eastern Boundary		Dozer East	Point	107.5	107.5		715.2	-68.1	-0.9	0.0	-4.2	34.2	-1.2	33.0
		HGV Movement East	Line	60.1	83.1	199.6	729.9	-68.3	-1.4	0.0	-4.2	9.2	10.0	19.2
Cross Leys Farm Cottages														
Cell Formation	38.1	ADT / HGV Tipping South	Point	106.2	106.2		717.8	-68.1	-0.1	0.0	-5.5	32.5	-10.0	22.5
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	734.7	-68.3	-5.8	0.0	-2.6	7.6	13.8	21.4
		Dozer South	Point	107.5	107.5		714.0	-68.1	-1.0	0.0	-4.1	34.3	0.0	34.3
		Excavator South	Point	103.6	103.6		755.6	-68.6	-1.2	0.0	-3.2	30.6	0.0	30.6
		HGV Movement South	Line	60.1	85.9	380.0	752.7	-68.5	-1.7	-0.3	-4.2	11.2	10.0	21.2
		Roller South	Point	107.5	107.5		738.2	-68.4	-2.3	0.0	-3.3	33.5	0.0	33.5
Infill Operations	33.5	ADT / HGV Tipping South	Point	106.2	106.2		717.8	-68.1	-0.1	0.0	-5.5	32.5	-13.0	19.5
Southern Boundary		Dozer South	Point	107.5	107.5		714.0	-68.1	-1.0	0.0	-4.1	34.3	-1.2	33.1
		HGV Movement South	Line	60.1	85.9	380.0	752.7	-68.5	-1.7	-0.3	-4.2	11.2	10.0	21.2
Cell Formation	37.1	ADT / HGV Tipping East	Point	106.2	106.2		787.3	-68.9	-0.1	0.0	-5.9	31.2	-10.0	21.2
Eastern Boundary		ADT Movement East	Line	67.3	84.8	56.0	799.8	-69.1	-6.8	0.0	-3.5	5.4	13.8	19.2
		Dozer East	Point	107.5	107.5		775.8	-68.8	-1.1	0.0	-4.5	33.1	0.0	33.1
		Excavator East	Point	103.6	103.6		828.7	-69.4	-1.5	0.0	-3.6	29.1	0.0	29.1
		HGV Movement East	Line	60.1	83.1	199.6	806.3	-69.1	-1.5	0.0	-4.5	8.0	10.0	18.0
		Roller East	Point	107.5	107.5		797.1	-69.0	-2.2	0.0	-3.4	32.9	0.0	32.9
Infill Operations	32.2	ADT / HGV Tipping East	Point	106.2	106.2		787.3	-68.9	-0.1	0.0	-5.9	31.2	-13.0	18.2
Eastern Boundary		Dozer East	Point	107.5	107.5		775.8	-68.8	-1.1	0.0	-4.5	33.1	-1.2	31.9
		HGV Movement East	Line	60.1	83.1	199.6	806.3	-69.1	-1.5	0.0	-4.5	8.0	10.0	18.0
Wittering Lodge														
Cell Formation	40.4	ADT / HGV Tipping South	Point	106.2	106.2		531.9	-65.5	0.9	0.0	-4.5	37.0	-10.0	27.0
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	539.6	-65.6	-3.0	-13.7	-0.7	1.3	13.8	15.1
		Dozer South	Point	107.5	107.5		545.3	-65.7	0.3	0.0	-3.0	39.1	0.0	39.1
		Excavator South	Point	103.6	103.6		567.5	-66.1	0.0	-11.7	-0.8	25.0	0.0	25.0
		HGV Movement South	Line	60.1	85.9	380.0	320.0	-61.1	-0.2	-0.3	-1.9	22.4	10.0	32.4
		Roller South	Point	107.5	107.5		558.3	-65.9	-0.6	-15.4	-1.1	24.5	0.0	24.5
Infill Operations	39.0	ADT / HGV Tipping South	Point	106.2	106.2		531.9	-65.5	0.9	0.0	-4.5	37.0	-13.0	24.0
Southern Boundary		Dozer South	Point	107.5	107.5		545.3	-65.7	0.3	0.0	-3.0	39.1	-1.2	37.8
		HGV Movement South	Line	60.1	85.9	380.0	320.0	-61.1	-0.2	-0.3	-1.9	22.4	10.0	32.4
Cell Formation	47.1	ADT / HGV Tipping East	Point	106.2	106.2		369.0	-62.3	0.8	0.0	-3.6	41.1	-10.0	31.1
Eastern Boundary		ADT Movement East	Line	67.3	84.8	56.0	376.1	-62.5	-5.7	0.0	-1.7	14.8	13.8	28.6
		Dozer East	Point	107.5	107.5		367.2	-62.3	0.2	0.0	-2.4	43.0	0.0	43.0
		Excavator East	Point	103.6	103.6		375.1	-62.5	-0.4	-0.1	-1.9	38.7	0.0	38.7
		HGV Movement East	Line	60.1	83.1	199.6	267.1	-59.5	-0.1	0.0	-1.8	21.7	10.0	31.7
		Roller East	Point	107.5	107.5		369.3	-62.3	-0.4	0.0	-1.6	43.2	0.0	43.2
Infill Operations	42.4	ADT / HGV Tipping East	Point	106.2	106.2		369.0	-62.3	0.8	0.0	-3.6	41.1	-13.0	28.1
Eastern Boundary		Dozer East	Point	107.5	107.5		367.2	-62.3	0.2	0.0	-2.4	43.0	-1.2	41.8
		HGV Movement East	Line	60.1	83.1	199.6	267.1	-59.5	-0.1	0.0	-1.8	21.7	10.0	31.7

Cross Leys Quarry
Calculated Noise Levels from Infill / Restoration Operations
Prepared By: L Jephson - 7/10/24

Phase 2B

Phase	Overall LAeq,T	Source	Source type	L'w dB(A)	Lw dB(A)	l or A m,m²	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Ls dB(A)	dLw dB	Lr dB(A)
Cross Leys Farm														
Cell Formation	41.1	ADT / HGV Tipping South	Point	106.2	106.2		518.6	-65.3	0.3	-1.6	-4.5	35.1	-10.0	25.1
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	536.7	-65.6	-5.8	0.0	-2.2	10.8	13.8	24.6
		Dozer South	Point	107.5	107.5		522.9	-65.4	-0.9	0.0	-3.2	38.0	0.0	38.0
		Excavator South	Point	103.6	103.6		569.5	-66.1	-1.0	0.0	-2.6	33.9	0.0	33.9
		HGV Movement South	Line	60.1	87.6	553.0	631.4	-67.0	-1.7	-1.2	-3.9	13.8	10.0	23.8
		Roller South	Point	107.5	107.5		550.4	-65.8	-2.3	-2.1	-2.2	35.2	0.0	35.2
Infill Operations	37.1	ADT / HGV Tipping South	Point	106.2	106.2		518.6	-65.3	0.3	-1.6	-4.5	35.1	-13.0	22.0
Southern Boundary		Dozer South	Point	107.5	107.5		522.9	-65.4	-0.9	0.0	-3.2	38.0	-1.2	36.7
		HGV Movement South	Line	60.1	87.6	553.0	631.4	-67.0	-1.7	-1.2	-3.9	13.8	10.0	23.8
Cell Formation	41.3	ADT / HGV Tipping East	Point	106.2	106.2		552.1	-65.8	0.2	-0.2	-5.0	35.4	-10.0	25.4
Eastern Boundary		ADT Movement East	Line	67.3	84.2	49.1	563.9	-66.0	-5.8	0.0	-2.3	10.0	13.8	23.8
		Dozer East	Point	107.5	107.5		540.3	-65.6	-0.7	0.0	-3.3	37.8	0.0	37.8
		Excavator East	Point	103.6	103.6		593.0	-66.5	-1.3	0.0	-2.7	33.1	0.0	33.1
		HGV Movement East	Line	60.1	86.4	421.3	668.6	-67.5	-1.7	0.0	-4.1	13.1	10.0	23.1
		Roller East	Point	107.5	107.5		565.8	-66.0	-2.0	0.0	-2.7	36.7	0.0	36.7
Infill Operations	36.9	ADT / HGV Tipping East	Point	106.2	106.2		552.1	-65.8	0.2	-0.2	-5.0	35.4	-13.0	22.4
Eastern Boundary		Dozer East	Point	107.5	107.5		540.3	-65.6	-0.7	0.0	-3.3	37.8	-1.2	36.6
		HGV Movement East	Line	60.1	86.4	421.3	668.6	-67.5	-1.7	0.0	-4.1	13.1	10.0	23.1
Cross Leys Farm Cottages														
Cell Formation	41.7	ADT / HGV Tipping South	Point	106.2	106.2		479.2	-64.6	0.3	-2.9	-3.9	35.0	-10.0	25.0
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	496.7	-64.9	-5.7	0.0	-2.1	11.6	13.8	25.4
		Dozer South	Point	107.5	107.5		477.8	-64.6	-0.9	0.0	-3.0	38.9	0.0	38.9
		Excavator South	Point	103.6	103.6		522.8	-65.4	-1.4	0.0	-2.4	34.5	0.0	34.5
		HGV Movement South	Line	60.1	87.6	553.0	655.9	-67.3	-1.5	-1.0	-3.8	13.9	10.0	23.9
		Roller South	Point	107.5	107.5		504.2	-65.0	-2.6	-2.9	-1.8	35.1	0.0	35.1
Infill Operations	38.0	ADT / HGV Tipping South	Point	106.2	106.2		479.2	-64.6	0.3	-2.9	-3.9	35.0	-13.0	22.0
Southern Boundary		Dozer South	Point	107.5	107.5		477.8	-64.6	-0.9	0.0	-3.0	38.9	-1.2	37.7
		HGV Movement South	Line	60.1	87.6	553.0	655.9	-67.3	-1.5	-1.0	-3.8	13.9	10.0	23.9
Cell Formation	41.1	ADT / HGV Tipping East	Point	106.2	106.2		566.5	-66.1	0.2	-0.1	-4.9	35.4	-10.0	25.4
Eastern Boundary		ADT Movement East	Line	67.3	84.2	49.1	570.9	-66.1	-5.9	0.0	-2.3	9.8	13.8	23.6
		Dozer East	Point	107.5	107.5		554.5	-65.9	-0.6	0.0	-3.4	37.5	0.0	37.5
		Excavator East	Point	103.6	103.6		599.3	-66.5	-1.3	0.0	-2.8	33.0	0.0	33.0
		HGV Movement East	Line	60.1	86.4	421.3	719.6	-68.1	-1.7	0.0	-4.3	12.2	10.0	22.2
		Roller East	Point	107.5	107.5		577.3	-66.2	-2.1	0.0	-2.7	36.5	0.0	36.5
Infill Operations	36.6	ADT / HGV Tipping East	Point	106.2	106.2		566.5	-66.1	0.2	-0.1	-4.9	35.4	-13.0	22.3
Eastern Boundary		Dozer East	Point	107.5	107.5		554.5	-65.9	-0.6	0.0	-3.4	37.5	-1.2	36.3
		HGV Movement East	Line	60.1	86.4	421.3	719.6	-68.1	-1.7	0.0	-4.3	12.2	10.0	22.2
Wittering Lodge														
Cell Formation	41.2	ADT / HGV Tipping South	Point	106.2	106.2		674.5	-67.6	1.5	-0.1	-5.4	34.6	-10.0	24.6
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	675.3	-67.6	-3.8	0.0	-2.3	10.7	13.8	24.5
		Dozer South	Point	107.5	107.5		688.2	-67.7	1.1	0.0	-3.6	37.2	0.0	37.2
		Excavator South	Point	103.6	103.6		694.4	-67.8	0.6	0.0	-2.8	33.6	0.0	33.6
		HGV Movement South	Line	60.1	87.6	553.0	361.6	-62.2	-0.3	-0.6	-2.0	22.5	10.0	32.5
		Roller South	Point	107.5	107.5		691.8	-67.8	-0.4	-2.0	-2.3	35.0	0.0	35.0
Infill Operations	37.6	ADT / HGV Tipping South	Point	106.2	106.2		674.5	-67.6	1.5	-0.1	-5.4	34.6	-13.0	21.5
Southern Boundary		Dozer South	Point	107.5	107.5		688.2	-67.7	1.1	0.0	-3.6	37.2	-1.2	35.9
		HGV Movement South	Line	60.1	87.6	553.0	361.6	-62.2	-0.3	-0.6	-2.0	22.5	10.0	32.5
Cell Formation	43.8	ADT / HGV Tipping East	Point	106.2	106.2		534.7	-65.6	1.4	-0.7	-4.6	36.7	-10.0	26.7
Eastern Boundary		ADT Movement East	Line	67.3	84.2	49.1	553.1	-65.8	-3.5	0.0	-1.8	13.1	13.8	26.9
		Dozer East	Point	107.5	107.5		537.7	-65.6	0.9	0.0	-3.1	39.7	0.0	39.7
		Excavator East	Point	103.6	103.6		551.3	-65.8	0.2	-0.1	-2.5	35.4	0.0	35.4
		HGV Movement East	Line	60.1	86.4	421.3	329.8	-61.4	-0.2	-0.3	-2.0	22.5	10.0	32.5
		Roller East	Point	107.5	107.5		540.1	-65.6	-0.2	-0.3	-2.2	39.2	0.0	39.2
Infill Operations	39.5	ADT / HGV Tipping East	Point	106.2	106.2		534.7	-65.6	1.4	-0.7	-4.6	36.7	-13.0	23.6
Eastern Boundary		Dozer East	Point	107.5	107.5		537.7	-65.6	0.9	0.0	-3.1	39.7	-1.2	38.4
		HGV Movement East	Line	60.1	86.4	421.3	329.8	-61.4	-0.2	-0.3	-2.0	22.5	10.0	32.5

Cross Leys Quarry
Calculated Noise Levels from Infill / Restoration Operations
Prepared By: L Jephson - 7/10/24

Phase 3

Phase	Overall LAeq,T	Source	Source type	L'w dB(A)	Lw dB(A)	l or A m,m²	S m	Adiv dB	Agr dB	Abar dB	Aatm dB	Ls dB(A)	dLw dB	Lr dB(A)
Cross Leys Farm														
Cell Formation	41.1	ADT / HGV Tipping South	Point	106.2	106.2		548.0	-65.8	0.3	0.0	-4.7	36.0	-10.0	26.0
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	566.1	-66.0	-6.0	0.0	-2.4	9.9	13.8	23.7
		Dozer South	Point	107.5	107.5		547.9	-65.8	-0.9	0.0	-3.3	37.4	0.0	37.4
		Excavator South	Point	103.6	103.6		593.8	-66.5	-1.0	0.0	-2.7	33.5	0.0	33.5
		HGV Movement South	Line	60.1	86.1	390.1	673.2	-67.6	-1.6	-0.4	-4.0	12.5	10.0	22.5
		Roller South	Point	107.5	107.5		574.8	-66.2	-2.2	0.0	-2.7	36.4	0.0	36.4
Infill Operations	36.6	ADT / HGV Tipping South	Point	106.2	106.2		548.0	-65.8	0.3	0.0	-4.7	36.0	-13.0	23.0
Southern Boundary		Dozer South	Point	107.5	107.5		547.9	-65.8	-0.9	0.0	-3.3	37.4	-1.2	36.2
		HGV Movement South	Line	60.1	86.1	390.1	673.2	-67.6	-1.6	-0.4	-4.0	12.5	10.0	22.5
Cell Formation	39.1	ADT / HGV Tipping East	Point	106.2	106.2		706.5	-68.0	0.6	0.0	-5.5	33.3	-10.0	23.3
Eastern Boundary		ADT Movement East	Line	67.3	84.8	56.0	719.1	-68.1	-4.6	0.0	-2.3	9.8	13.8	23.6
		Dozer East	Point	107.5	107.5		694.9	-67.8	-0.3	0.0	-4.1	35.3	0.0	35.3
		Excavator East	Point	103.6	103.6		748.1	-68.5	-1.1	0.0	-3.3	30.8	0.0	30.8
		HGV Movement East	Line	60.1	82.5	173.4	719.2	-68.1	-1.2	0.0	-4.1	9.1	10.0	19.1
		Roller East	Point	107.5	107.5		716.3	-68.1	-1.6	0.0	-3.2	34.7	0.0	34.7
Infill Operations	34.4	ADT / HGV Tipping East	Point	106.2	106.2		706.5	-68.0	0.6	0.0	-5.5	33.3	-13.0	20.3
Eastern Boundary		Dozer East	Point	107.5	107.5		694.9	-67.8	-0.3	0.0	-4.1	35.3	-1.2	34.1
		HGV Movement East	Line	60.1	82.5	173.4	719.2	-68.1	-1.2	0.0	-4.1	9.1	10.0	19.1
Cross Leys Farm Cottages														
Cell Formation	40.7	ADT / HGV Tipping South	Point	106.2	106.2		575.3	-66.2	0.3	0.0	-4.8	35.5	-10.0	25.5
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	591.1	-66.4	-6.1	0.0	-2.5	9.2	13.8	23.1
		Dozer South	Point	107.5	107.5		570.1	-66.1	-0.9	0.0	-3.4	37.0	0.0	37.0
		Excavator South	Point	103.6	103.6		609.6	-66.7	-1.0	0.0	-2.8	33.2	0.0	33.2
		HGV Movement South	Line	60.1	86.1	390.1	728.2	-68.2	-1.7	-0.4	-4.2	11.5	10.0	21.5
		Roller South	Point	107.5	107.5		592.9	-66.5	-2.2	0.0	-2.8	36.0	0.0	36.0
Infill Operations	36.2	ADT / HGV Tipping South	Point	106.2	106.2		575.3	-66.2	0.3	0.0	-4.8	35.5	-13.0	22.5
Southern Boundary		Dozer South	Point	107.5	107.5		570.1	-66.1	-0.9	0.0	-3.4	37.0	-1.2	35.8
		HGV Movement South	Line	60.1	86.1	390.1	728.2	-68.2	-1.7	-0.4	-4.2	11.5	10.0	21.5
Cell Formation	37.4	ADT / HGV Tipping East	Point	106.2	106.2		810.3	-69.2	0.6	0.0	-5.9	31.7	-10.0	21.7
Eastern Boundary		ADT Movement East	Line	67.3	84.8	56.0	820.8	-69.3	-4.7	0.0	-2.5	8.3	13.8	22.1
		Dozer East	Point	107.5	107.5		799.8	-69.1	-0.3	0.0	-4.5	33.6	0.0	33.6
		Excavator East	Point	103.6	103.6		848.9	-69.6	-1.1	0.0	-3.6	29.3	0.0	29.3
		HGV Movement East	Line	60.1	82.5	173.4	812.4	-69.2	-1.3	0.0	-4.5	7.6	10.0	17.6
		Roller East	Point	107.5	107.5		819.5	-69.3	-1.6	0.0	-3.5	33.1	0.0	33.1
Infill Operations	32.7	ADT / HGV Tipping East	Point	106.2	106.2		810.3	-69.2	0.6	0.0	-5.9	31.7	-13.0	18.7
Eastern Boundary		Dozer East	Point	107.5	107.5		799.8	-69.1	-0.3	0.0	-4.5	33.6	-1.2	32.4
		HGV Movement East	Line	60.1	82.5	173.4	812.4	-69.2	-1.3	0.0	-4.5	7.6	10.0	17.6
Wittering Lodge														
Cell Formation	44.3	ADT / HGV Tipping South	Point	106.2	106.2		500.9	-65.0	1.5	0.0	-4.3	38.4	-10.0	28.4
Southern Boundary		ADT Movement South	Line	67.3	84.3	50.7	503.1	-65.0	-3.7	0.0	-1.8	13.8	13.8	27.6
		Dozer South	Point	107.5	107.5		514.7	-65.2	0.9	0.0	-2.9	40.3	0.0	40.3
		Excavator South	Point	103.6	103.6		524.3	-65.4	0.5	-0.1	-2.3	36.2	0.0	36.2
		HGV Movement South	Line	60.1	86.1	390.1	321.2	-61.1	-0.2	-0.2	-2.0	22.5	10.0	32.5
		Roller South	Point	107.5	107.5		520.2	-65.3	-0.3	0.0	-2.2	39.6	0.0	39.6
Infill Operations	40.0	ADT / HGV Tipping South	Point	106.2	106.2		500.9	-65.0	1.5	0.0	-4.3	38.4	-13.0	25.4
Southern Boundary		Dozer South	Point	107.5	107.5		514.7	-65.2	0.9	0.0	-2.9	40.3	-1.2	39.0
		HGV Movement South	Line	60.1	86.1	390.1	321.2	-61.1	-0.2	-0.2	-2.0	22.5	10.0	32.5
Cell Formation	53.7	ADT / HGV Tipping East	Point	106.2	106.2		202.1	-57.1	1.3	0.0	-2.3	48.1	-10.0	38.1
Eastern Boundary		ADT Movement East	Line	67.3	84.8	56.0	208.5	-57.4	-2.2	0.0	-0.6	24.5	13.8	38.3
		Dozer East	Point	107.5	107.5		201.5	-57.1	0.9	0.0	-1.4	49.9	0.0	49.9
		Excavator East	Point	103.6	103.6		206.5	-57.3	0.1	0.0	-1.1	45.4	0.0	45.4
		HGV Movement East	Line	60.1	82.5	173.4	236.1	-58.5	0.0	0.0	-1.6	22.5	10.0	32.5
		Roller East	Point	107.5	107.5		201.7	-57.1	-0.2	0.0	-0.9	49.3	0.0	49.3
Infill Operations	49.0	ADT / HGV Tipping East	Point	106.2	106.2		202.1	-57.1	1.3	0.0	-2.3	48.1	-13.0	35.1
Eastern Boundary		Dozer East	Point	107.5	107.5		201.5	-57.1	0.9	0.0	-1.4	49.9	-1.2	48.7
		HGV Movement East	Line	60.1	82.5	173.4	236.1	-58.5	0.0	0.0	-1.6	22.5	10.0	32.5