Mr G Watson
Northamptonshire County Council
Development Control, Planning Services
Floor 3, Guildhall Road Block
County Hall
Northampton
NN1 1DN

19th February 2016

Dear Mr Watson,

Wakerley Quarry (Consent No 08/00026/MIN and EN.97.522C)
Non-Material Amendment Application for Revised Sequence of Working

1. In respect of the approved quarry development at Wakerley Quarry (Consent No 08/00026/MIN and EN.97.522C), Mick George Ltd wish to amend the sequence of working which is considered will provide significant environmental improvements to the project and substantially reduce the extent of land disturbed during the initial phases of working the quarry.

2. This potential revision was explained and discussed at the recent Wakerley Quarry Liaison meeting (held on 11th February) at which Harringworth, Laxton and Barrowden and Wakerley Parish Council representatives were present. At that meeting, a request was made for a supplementary noise appraisal to be included in respect of The Bungalows which lies 1.3km to the west of the site. Furthermore, a request was made to include an additional screening mound along the western boundary which is now incorporated within the revised proposals (Bund 4a).

3. After carefully considering the original detail submitted as part of the ROMP scheme, we feel that the operational sequence can be improved and the potential impacts remarkably reduced by working from the western boundary of the site (in what is currently "Phase 2") then progressing eastwards. Operations from "Phase 3" onwards of the quarry development would essentially remain unchanged from that originally envisaged.

4. "Phase 1" as identified on the approved plans would have excavated the deepest mineral with the greatest depth of overburden with the result that over 1.5 million m$^3$ of overburden material and soils is no longer required to be stockpiled. By commencing mineral extraction on the western-most boundary of the site there is only limited overburden to cater for and as such Bunds 1, 2, 3, 4, and 6 of the original scheme would NOT be required to be constructed.
5. Bund 5 (providing a topsoil screening mound along the southern boundary of the site) would still be constructed and an additional sub-soil mound (new Bund 4) is now proposed to the north of the original “Phase 2” along with a smaller mound along the western boundary of the site (Bund 4a). In essence overburden, subsoil and topsoil within existing storage mounds 1, 2, 3, 4 and 6 will not be required to be stored enabling over 30ha of land that can remain in productive agricultural use that would otherwise form part of the operational quarry.

6. The mounds that are now proposed not to be constructed were located on some of the highest ground within the site and variously range between 7m and 10m in height. Accordingly, for reasonably obvious environmental reasons we would like to amend the operational sequence of the site to that shown on the attached Drg No W4/16/601. We have referred to these alternative phases as A, B, C etc to differentiate from the original scheme of working (1, 2, 3 etc.).

7. Operations would commence in the newly identified “Phase A”, with topsoil placed to the south to establish screening bund number 5 (as originally envisaged) whilst subsoils would be placed within the landscaped screening mound to the north and west (Bunds 4 and 4a as shown on Drg No W4/16/601).

8. The limestone at the western extremity of Phase A will be processed using mobile plant as originally envisaged in the original Environmental Statement. As workings progress eastwards through the remainder of Phase A and into Phase B, the deeper overburden (overlying the limestone) will progressively be removed and placed below ground level in the worked out sectors of the quarry without any requirement to stockpile such material. Following the extraction of limestone from within Phase B, workings will progress in a north-easterly direction into Phase C which is identical to the original “Phase 3” area.

9. The sequence of drawings (Plan 3 (Phase 1), Plan 4 (Phase 2), Plan 5 (Phase 3), Plan 6 (Phase 4) and Plan 7 (Phase 5)) as contained within the original Environmental Statement have been modified to reflect this revised sequence and consent is being sought to substitute these drawings. The proposed revision will not effect the duration of the quarry development but will significantly reduce the amount of material stockpiled above ground level thereby substantially reducing visual amenity and ensure that some 30ha (or over 72 acres) of prime agricultural land is not unnecessarily disturbed out of sequence.

10. Accordingly, we wish to substitute the attached drawings Plan 3 (Rev A), Plan 4 (Rev A), Plan 5 (Rev A), Plan 6 (Rev A) and Plan 7 (Rev A) for the original drawings contained within the Environmental Statement (and referred to in various planning conditions) and replace Section 3.2 of the original Environmental Statement with the attached text (which explains the minor variation to the sequence). Set out below is the wording of Condition No’s 2, 7, 8, 23, 26, 28, 37, 56, 58 which Mick George Ltd are applying to vary by simply substituting the plans listed above. The proposed amended text is shown in bold for ease of reference.
Condition 2 (Approved Documents):

"Except as otherwise required by conditions attached to this planning permission the development hereby approved shall be carried out in accordance with the documents and plans submitted as part of the application, including the following:
Application forms dated 27 March 2008
Written Statement (dated 13 March 2008) – Sections 7 and 8
Drawings:
   a) Location Plan (Plan 1 ref WK530-D19v3) – except as amended by Proposed Access Road Revised Route (Plan 2c)
   b) Detailed Location Plan (Plan 1b ref WK530-D19v3) – except as amended by Proposed Access Road Revised Route (Plan 2c)
   c) Detailed Location Plan (Plan 1c ref WK530-D19v3 except as amended by Proposed Access Road Revised Route (Plan 2c)
   d) Proposed Access Road (Revised Route) (Plan 2c ref WK530-D13v7
   e) Phase A (Plan 3a)
   f) Phase B (Plan 4a)
   g) Phase C (Plan 5a)
   h) Phase D (Plan 6a)
   i) Phase E (Plan 7a)
   j) Proposed Restoration Scheme (Plan 8 ref WK530-D12v8)
   k) Restoration Cross Sections (Plan 9 ref WK530-D20v2)
Environmental Statement (Version 2 dated 13 March 2008)
Section 3 – Details of Proposed Development (Revised Section 3.2 February 2016)............................"

Condition 7 (Method of Working):

"Mineral extraction shall be confined to the areas shown on Plans 3a to 7a for consecutive respective phases of operations (Phases A to E)."

Condition 8 (Method of Working):

"The site shall be worked and restored in a phase manner in accordance with the approved phasing drawings and the details contained in Section 3.2 (Revised February 2016) of the Environmental Statement."

Condition 23 (Groundwater Protection/Water Resources):

"With the exception of extraction in the northern quarry section during Phase E workings, mineral extraction shall not be undertaken.............."

Condition 26 (Items of Archaeological or Scientific Interest):

"No development, including soil stripping, within any individual phase of working as shown on Plans 2c, 3a, 4a, 5a, 6a and 7a shall take place until the applicant, or their agents........"
**Condition 28 (Ecology and Biodiversity);**

“Six months prior to the commencement of development including soil stripping or vegetation clearance, within any individual phase of working as shown on Plans 2c, 3a, 4a, 5a, 6a and 7a shall take place until a survey has been submitted.........”

**Condition 37 (Noise and Dust);**

“Notwithstanding details of soil storage mounds on the submitted plans showing phasing of working as listed in condition 2, no development within any individual phase of working as shown on Plans 2c, 3a, 4a, 5a, 6a and 7a shall take place until a scheme for the location of soil storage mounds.......”

**Condition 56 (Restoration and Habitat Creation);**

“Six months prior to the commencement of restoration of any identified phase of the development as shown on Plans 3a, 4a, 5a, 6a and 7a, a detailed scheme for the restoration of the given phase.......”

**Condition 58 (Restoration and Habitat Creation);**

“All planting associated with each respective phase of operations shown on Plans 2c, 3a, 4a, 5a, 6a, 7a and Plan 8 shall be undertaken in the first available planting season following restoration of that phase.”

We trust this minor amendment to the initial phasing sequence and relevant plans can be approved which will enable the various pre-commencement planning conditions to be formally submitted to enable operations to progress on site.

Yours sincerely,

John Gough
Planning Manager

Enc.
Application forms x2
Plans:
Drg No W4/16/601 – Revised Phasing Plan x2
Plan 3a – Phase A x2
Plan 4a – Phase B x2
Plan 5a – Phase C x2
Plan 6a – Phase D x2
Plan 7a – Phase E x2
Revised text of Environmental Statement (Section 3.2) x2
Supplementary Noise Appraisal x2
Cheque to the value of £195 x2
Section 3.2 (Revised)

3.2 Method and Sequence of Mineral Extraction (Revised)

3.2.1 The sequence of the proposed working involves the progressive removal of limestone both within the existing consented area and the proposed extension area. The mineral being extracted in a “dry state” and the general phasing of development is shown on the detailed working plans on Plan No’s 3a, 4a, 5a, 6a and 7a (The phasing sequence has changed slightly to reduce the total amount of overburden and soils being stored and the subsequent reduction in the area required to stockpile such material). To differentiate the modified scheme, the phases are now identified as A, B, C etc.

3.2.2 It is proposed that the limestone will be removed down to the proposed limits of working, generally lying above the local water table, by hydraulic excavator and delivered to the receiving hopper within the semi-mobile processing plant.

3.2.3 The proposed working depth is between approximately 5 to 20 metres and the working area is divided into five phases of working. Workings will commence at the western extremity of the site (Phase A) and progress eastwards (into Phase B). Any overburden encountered can be incorporated into the worked out sector of the quarry without any requirement to stockpile the material. Working will then turn in a northerly direction into Phase C (formally Phase 3), and turn north-east moving through Phases D and E (formally 4 and 5). Soils and overburden stripped from the working area will be used to form peripheral screening bunds to reduce the impact of the workings upon residential properties within Wakerley and its immediate surrounds.

3.2.4 Suitable margins of support will be left at the perimeters of the excavations to ensure support to adjoining unworked land and to protect retained peripheral boundary features, hedgerows and fencing.
NOISE ASSESSMENT ASSOCIATED WITH
THE REVISED SEQUENCE OF WORKING

WAKERLEY QUARRY, WAKERLEY,
NORTHAMPTONSHIRE

MICK GEORGE LTD

FEBRUARY 2016
NOISE ASSESSMENT ASSOCIATED WITH THE REVISED SEQUENCE OF WORKING

WAKERLEY QUARRY, WAKERLEY, NORTHAMPTONSHIRE

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FEBRUARY 2016

This report has been prepared using all reasonable skill and care within the resources and brief agreed with the client. LF Acoustics Ltd accept no responsibility for matters outside the terms of the brief or for use of this report, wholly or in part, by third parties.
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Appendices
1. **Introduction**

1.1. Mick George Ltd (MGL) wish to amend the previously approved sequence of working at the Wakerley Quarry site (Consent 08/00026/MIN) to provide enhanced environmental improvements to the project which can be reduced by working from the western boundary of the quarry (in what is currently referred to as “Phase 2”) then progressing eastwards. This revised proposal will ensure the extent of land disturbed during the initial phases of working would be substantially reduced by some 30ha. The currently approved sequence of working would have excavated the deepest mineral with the greatest depth of overlying overburden with the result that a significant volume of overburden material and soils is no longer required to be stockpiled (estimated to be in the region of 1.5 million cubic meters in mounds up to 10m in height).

1.2. The revised sequence is shown on Figure 1.

1.3. Screening mound Bund 5 would still be constructed along the southern margin of Phase A and an additional subsoil mound (numbered Bund 4) is now proposed to the north of Phase A and a further 5m high mound constructed along part of the western boundary of the site (Bund 4a). Operations would commence in the newly identified “Phase A”, with topsoil placed to the south in bund number 5 (as originally envisaged) whilst subsoils would be placed within the other landscaped screening mounds to the north and west. The limestone at the western extremity of Phase will be processed using mobile plant as originally envisaged in the original Environmental Statement. As workings progress eastwards through the remainder of Phase A and into Phase B, the deeper overburden (overlying the limestone) will progressively be removed and placed below ground level in the worked out sectors of the quarry. Following the extraction of limestone from within Phase B, workings will progress in a north-easterly direction into Phase C which is identical to the original “Phase 3” area. The soil screening mounds (Bunds 4, 4a and 5) will be removed when no longer required for any screening provision.

1.4. This supplementary report assesses the noise impacts of the revision to the initial sequence of working explained above upon The Bungalows and Town Wood Farm, which are the properties most likely to be affected by the revised sequencing.
2. **Applicable Standards and Guidance**

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

2.1. **National Planning Policy Framework**

2.1.1. The previous noise assessment was carried out in accordance with the requirements of Minerals Planning Statement (MPS) 2, which was replaced by the guidance contained in the National Planning Policy Framework [1] in 2012. At the heart of the NPPF is a presumption in favour of sustainable development, although environmental criteria should be set out to ensure that the permitted operations do not have unacceptable adverse impacts, with appropriate noise limits adopted to control noise.

2.1.2. The current technical guidance attached to the NPPF relating to noise was updated in March 2014 [2], which covers mineral extraction and related processes, including aggregate recycling, restoration and the disposal of construction waste, provides guidance and advises upon acceptable levels of noise from this type of operations. The limits proposed in the current guidance are equivalent to those contained within the previous MPS 2 guidelines, as follows.

2.1.3. 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).

2.1.4. 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 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).

2.1.5. 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.

2.1.6. In addition to the general daytime works, the guidance advises that all mineral extraction and associated operations will have some particularly noisy short-term activities that cannot meet the limits set for normal operations. These include the 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.
3. Planning Conditions

3.1. It is anticipated that the planning conditions attached to the current planning permission relating to noise would be adopted for the amended working scheme, given that consent has only recently been granted.

3.2. The principal planning conditions relevant to noise are reproduced below, for information.

**Noise and Dust**

31. No vehicles and mobile plant used exclusively on site shall be operated unless they have been fitted with and use white noise alarms.

32. No vehicle, plant, equipment or machinery used exclusively on site shall be operated at the site unless it has been fitted with and uses an effective silencer. All vehicles, plant, equipment and machinery shall be maintained in accordance with the manufacturer’s specification.

33. Traffic management operations at the site shall be controlled to ensure that all Heavy Goods Vehicles are routed to minimise reversing manoeuvres.

34. The site shall be worked in accordance with the measures set out in Part 1 (Noise), Section 8 of British Standard 5228: 2009 “Noise and Vibration Control on Construction and Open Sites or subsequent edition thereof. The equivalent sound level \( L_{Aeq} \), measured over any 1 hour time period, attributable to the normal operations on site, as measured free field shall not exceed the following limits at the potentially noise sensitive locations listed:

1) Oak Farm, Wakerley Village \( 49 \text{ dBA (1hrL}_{Aeq} \) 
2) Wakerley Church \( 45 \text{ dBA (1hrL}_{Aeq} \) 
3) Laxton Hall \( 45 \text{ dBA (1hrL}_{Aeq} \) 
4) Town Wood Farm \( 45 \text{ dBA (1hrL}_{Aeq} \) 
5) The Bungalows, Shotley \( 45 \text{ dBA (1hrL}_{Aeq} \) 

35. Monitoring of noise from the mineral extraction operations shall be undertaken at the sites listed in condition 34 at intervals to be agreed in writing with the Mineral Planning Authority prior to the commencement of mineral extraction. The monitoring shall be undertaken for a period of 1 hour during operational phases.

36. The results of the noise monitoring shall be submitted to the Mineral Planning Authority within 2 weeks of monitoring taking place and shall include the following information:

a) The measured \( L_{Aeq} \) (free field) level in \( \text{dB(A)} \)
b) Date and time of measurement
c) Description of site activity
d) Details of measuring equipment
e) Weather conditions, including wind speed and direction

37. Notwithstanding details of soil storage mounds on the submitted plans showing phasing of working as listed in condition 2, no development within any individual phase of working as shown on Plans 2C, 3, 4, 5, 6 and 7 shall take place until a scheme for the location of soil storage mounds to secure noise and dust screening mitigation at the boundaries of the working area has been submitted in writing and approved by the Mineral Planning Authority. The scheme as approved shall be implemented thereafter.
3.3. On this basis given that consent was only granted in December 2015, it is considered that the noise limits specified in Condition 34 remain valid and it has not been considered necessary to undertake any further baseline noise monitoring for the purposes of this assessment.

3.4. It should be noted that the BS 5228 guidance was also updated in 2014, with Amendment A1. The principal methodologies adopted remain unchanged from the 2009 revision, although it is advised that the condition be updated should a new consent be granted to reflect the up-to-date British Standard.
4. **Calculations and Assessment**

4.1. **Proposed Operations**

4.1.1. The quarry would be worked using conventional plant and methods for the extraction and processing of mineral, although as indicated in the introduction, the initial two phases of working are to be amended to reduce the amount of overburden, which would have previously had to have been stockpiled and have been considered within this assessment.

4.1.2. To provide additional protection to the occupants of The Bungalow, a new bund (Bund 4a) would be constructed to a height of 5 metres at the commencement of works within Phase A.

4.2. **Source Term Information**

4.2.1. The source term noise information for plant to be used on the site has been updated to that assumed previously, to take account of the plant likely to be used by Mick George, which would be more modern than that assumed for the previous assessment in 2007.

4.2.2. To provide a worst case assessment, it has been assumed that the plant would be operational 100% of the time.

4.2.3. The noise source terms which have been assumed for this assessment are provided below.

<table>
<thead>
<tr>
<th>Source</th>
<th>SEL at 10m</th>
<th>L_{Aeq} at 10m</th>
<th>Number</th>
<th>% On-Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavator</td>
<td>-</td>
<td>75.0</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>Articulated Dump Truck</td>
<td>84.9</td>
<td>-</td>
<td>12-30 movements / hr</td>
<td>-</td>
</tr>
<tr>
<td>Dozer</td>
<td>-</td>
<td>79.3</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Loading Shovel</td>
<td>-</td>
<td>75.0</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Processing Plant</td>
<td>-</td>
<td>86.8</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>Unladen HGV Movement</td>
<td>84.8</td>
<td>-</td>
<td>5 / hr</td>
<td>-</td>
</tr>
<tr>
<td>Laden HGV Movement</td>
<td>79.3</td>
<td>-</td>
<td>5 / hr</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 4.1 Source Term Noise Levels
4.3. **Criteria to be Adopted for the Assessment**

4.3.1. Based upon the requirements of Condition 34 of the current planning consent, the following freefield normal daytime working limits have been adopted for this assessment, which are in accordance with the requirements of the current planning guidance.

<table>
<thead>
<tr>
<th>Location</th>
<th>Proposed Freefield Normal Working Limit [dB $L_{Aeq, 1\text{ hour}}$]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town Wood Farm</td>
<td>45</td>
</tr>
<tr>
<td>The Bungalows, Shotley</td>
<td>45</td>
</tr>
</tbody>
</table>

*Table 4.2 Proposed Normal Working Limits*

4.3.2. For any temporary operations, which may include the removal of temporary soils storage mounds, carried out over a duration of not more than 8 weeks per year, a temporary noise working limit of 70 dB $L_{Aeq, 1\text{ hour}}$ would be adopted in accordance with the current planning guidance. Given the large distances to the surrounding properties, it is, however, be unlikely that noise levels would exceed the normal working limits, even during temporary works.

4.4. **Calculation Methodology**

4.4.1. The calculations of the noise levels from the restoration and limited extraction operations at the closest properties have been made using the methodology contained within BS 5228-1 [3]. Where barrier corrections have been calculated, the algorithm used within a Calculation of Road Traffic Noise [4] has been used.

4.4.2. Calculations have been made at positions representative of the likely closest operations to the properties. For the purposes of the calculations, it has been generally assumed that all plant would be working at the same distance from the properties.

4.4.3. The calculations associated with the infilling and restoration have assumed that the plant would be operational close to the final restoration level. This assumption does not account for any attenuation afforded by the sides of the quarry during the initial stages of the restoration when the plant would be working at the base of the quarry and thus effectively screened. The calculations are therefore a worst case at each position.

4.4.4. The details of the calculations are provided in Appendix B.
4.5. **Assessment of Noise Levels at Town Wood Farm**

4.5.1. This property is located approximately 800 metres from the southern boundary of the quarry.

4.5.2. It is proposed to construct bunding along the southern boundary of the site prior to commencement of working of Phases A and B, which would remain in place until the final restoration of these phases. During the short period whilst the bund is constructed, given the large distance between the working area and property, noise levels would be low and of the order of 35 dB $L_{Aeq, 1 \, hr}$.

4.5.3. With the bunding in place, worst case noise levels during operations in Phases A and B are anticipated to be between 38 – 40 dB $L_{Aeq, 1 \, hr}$, thus remaining substantially below the imposed working limit of 45 dB $L_{Aeq, 1 \, hr}$ at this property for “normal” operations and would be unchanged from the noise levels calculated on the basis of the original phasing of the quarry.

4.5.4. Noise levels will generally decrease as the extraction progressed into the later phases and site noise levels remaining below 40 dB $L_{Aeq, 1 \, hr}$ during the working of Phases C to E.

4.5.5. With the provision of the boundary bunding during Phases A and B, noise levels at this location would be acceptable throughout the working life of the quarry.

4.6. **Assessment of Noise Levels at The Bungalows**

4.6.1. These properties are located to the west of the quarry, approximately 1300 metres from the closest working area during Phase A.

4.6.2. The calculations indicated that, at worst, site noise levels during the working of this Phase, would remain below 40 dB $L_{Aeq, 1 \, hr}$ at these dwellings, thus remaining substantially below the 45 dB $L_{Aeq, 1 \, hr}$ working limit proposed at this location. The revised phasing with the proposed bunding constructed along the western boundary of Phase A would seek a further slight reduction in noise levels compared to the original phasing assessed previously.

4.6.3. Noise levels would remain considerably below the noise limits for “normal” operations at these properties and no additional mitigation has therefore been recommended to further protect the occupants from noise from the operation of the quarry.
5. **Requirement for Noise Monitoring, Additional Mitigation and Control Measures**

5.1. The assessment within Section 4 indicates that noise levels associated with working of Wakerley Quarry would be acceptable with appropriate working methods adopted.

5.2. In addition to any mitigation measures incorporated into the design and working method, in accordance with Conditions 31 – 33 of the current consent, appropriate noise control measures would be adopted to ensure noise associated with the operation of the quarry was minimised and would include:

- Ensuring all plant is kept well maintained;
- Ensuring silencers on plant are effective;
- Ensuring loads are tipped carefully to minimise tailgates banging as the tippers are lowered;
- Turning off plant when not in use; and
- Using alternative non tonal reversing signals on mobile plant, which are background noise tracking if permitted on health and safety grounds;
- Minimise the requirements for HGVs to reverse whilst on site.

5.3. Vehicles travelling on the access have potential to cause disturbance even at low noise levels. To ensure potential disturbance is minimised, the access roads should be inspected at regular intervals (at least once every week) to ensure that the surface remains in good condition. Where defects are identified, these should be rectified immediately. This action seeks to ensure that empty vehicles travelling on the haul roads and passing over the defect do not give rise to body slap, which is potentially disturbing. Furthermore, the speed limit on the access road should be well enforced, this measure also seeks to minimise the likelihood of body slap from empty vehicles.

5.4. Condition 35 and current planning guidance advises that noise monitoring should be carried out periodically to ensure that noise levels associated with site operations remain within acceptable limits.

5.5. Given the large distances between the site and surrounding properties and the fact that the calculated noise levels were substantially below the appropriate normal working limits and existing ambient noise levels, subject to agreement with the Mineral Planning Authority, it is not considered that regular noise monitoring would be required to demonstrate compliance. Monitoring has therefore only been proposed at the commencement of each main phase of work, when the plant is working closest to the surface or following receipt of any justified complaints.

5.6. 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 facade or other reflecting surface other than the ground).

5.7. Measurements should be taken over a minimum duration of 15 minutes at each location whilst the quarry is fully operational. A 15 minute monitoring period is normally sufficient to provide a good indication of the 1 hour noise levels. Any extraneous noise sources, such as aircraft flying overhead, should be paused out of the measurements, to ensure the levels recorded are representative of the current noise environment. Where noise levels are above the limits, but not attributable to quarry operations, a second measurement should be obtained during a break period for comparative purposes.
5.8. The results of the monitoring exercise should be compared to the proposed operating limits specified in Condition 34. Should the results indicate that the limits are being exceeded, further mitigation measures, such as additional temporary storage mounds, should be considered and implemented, where appropriate.
6. **Summary**

6.1. Mick George Ltd (MGL) wish to amend the previously approved sequence of working at the Wakerley Quarry site (Consent 08/00026/MIN) to provide enhanced environmental improvements to the project which can be reduced by working from the western boundary of the quarry (in what is currently referred to as “Phase 2”) then progressing eastwards. This revised proposal will ensure the extent of land disturbed during the initial phases of working would be substantially reduced.

6.2. To further protect the occupants of The Bungalows to the west associated with the revised working, it is proposed to construct additional bunding along the western boundary of the quarry prior to commencement of extraction within Phase A.

6.3. Calculations of the noise levels and assessment of the working of the revised Phases A and B has been undertaken. The assessment concluded that the proposed minor amendment to the initial phasing would not make any noticeable difference to the noise levels at surrounding noise sensitive receptors, with noise levels associated with site operations remaining substantially below the permitted limits.
References


Appendix A

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.
## Calculated Noise Levels

### Receptor:
- **Location**: 4 - Town Wood Farm, Uxwa BS5228
- **Height**: 100 m

### Predicted Freefield Noise Levels

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### Wakerley Phasing Noise 160216.docx

#### Mick George
**Wakerley Quarry, Northamptonshire**

**Calculated Noise Levels**

**15-Feb-2016**

**Receptor:** 5 - The Bungalows  
**Uses BS5228**  
**Height:** 80 m

### Predicted Freefield Noise Levels

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**LF Acoustics consulting engineers**

**February 2016**