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Proposed Helipad, Mill Gate, Whaplode
Noise Impact Assessment

REPORT REFERENCE NO. J005977-9268-RDC-01

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This report has been prepared based upon a scope of works and associated resources agreed between the client and Philip Dunbavin Acoustics Ltd (PDA). This report has been prepared with all reasonable skill, care and diligence and has been based upon the interpretation of data collected. This has been accepted in good faith as being accurate and valid at the time of the collection. This report has been based solely on the specific design assumptions and criteria stated herein.

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1.0 SUMMARY

At the request of Mr V Mustafa, PDA has carried out a noise impact assessment in relation to the proposed new helipad to land off Mill Gate, Whaplode.

Sound levels due to operation of the proposed helipad have been predicted at nearby noise sensitive properties. These have been compared to appropriate criteria of the Air Navigation Guidance (ANG) 2017 and to the pre-existing sound levels in the vicinity of the nearby noise sensitive properties.

In general the noise levels are below the proposed LOAL criterion of the Air Navigation Guidance (ANG) 2017 and are similar to sound levels already incident on the proposed noise sensitive properties. However, there are exceedances at two residential locations where the proposed Approach Paths fly close to residential dwellings at reduced altitude during the descent to the helipad. It is noted that the area surrounding the helipad is relatively sparsely populated and we are of the opinion that a small change to the flight paths would allow the proposed LOAL to be achieved at all of the nearby noise sensitive residences, and therefore the proposed helipad would have a low impact at all of the nearby residential locations. It is noted that for properties further from the helipad where the helicopter is at normal altitude the impact is likely to be low irrespective of the flight path.

2.0 SITE DESCRIPTION

A new helipad is proposed within the curtilage of Home Farm, Mill Gate, Whaplode, PE12 6RY.

An overview of the proposed site and development is provided below:



Figure 1: Site Overview

(The nearest noise sensitive receivers to the proposed site are detailed in Figure 2, Section 4)

3.0 ASSESSMENT CRITERIA

3.1 National Planning Policy Framework

National Planning Policy is guided by the National Planning Policy Framework (NPPF) updated in February 2025. With regard to Noise the Framework states the following;

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 of soil, air, water or noise pollution or land instability.*

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- *mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – 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.*

The terms '*significant adverse impact*' and '*adverse impact*' are defined in the explanatory notes of the 'Noise Policy Statement for England (NPSE) which states;

There are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organisation. They are:

NOEL – No Observed Effect Level

This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.

LOAEL – Lowest Observed Adverse Effect Level

This is the level above which adverse effects on health and quality of life can be detected.

Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed adverse effect level.

SOAEL – Significant Observed Adverse Effect Level

This is the level above which significant adverse effects on health and quality of life occur.

The notes also offer an explanation of the term 'adverse impacts' as follows;

… refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such adverse effects cannot occur.

Although no specific noise limits for LOAEL and SOAEL have been defined, in 2014 the UK Government published a planning practice guidance document for noise which indicates where these limits fall with

relation to the perception of noise. A summary is reproduced in Section 4.2 below, and the full document is published at https://www.gov.uk/guidance/noise--2. It is considered that guidance from other acoustic standards may be employed to determine suitable levels within the overall principal of the National Planning Policy Framework.

The National Planning Policy Framework also states:

> *Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed.*
>
> *The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.*

3.2 Planning Practice Guidance – Noise

In March 2014 (updated July 2019) the UK Government published further guidance on the assessment of noise for planning purposes in the form of the on-line publication, Planning Practice Guidance on noise (http://www.gov.uk/guidance/noise--2). This document offers further guidance on the typical levels which constitute the NOEL, LOAEL and SOAEL. The relevant section is reproduced in the table below;

Table 1. Planning Practice noise level guidance

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. 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 small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. 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.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

It is notable from the above planning guidance that development should not normally be permitted above Significant Observed Adverse Effect Levels, and should aim to minimise Other Adverse Effect Levels (below SOAEL but above LOAEL). However, it is clear that noise is permitted to approach and/or exceed the Lowest Observed Adverse Effect Level, providing that noise is mitigated and reduced to a minimum.

3.3 Aviation Policy Framework (March 2013)

The Aviation Policy Framework (APF) sets out the Government's high level objectives and policy on aviation. Predominantly the APF sets out policy more applicable to airports and larger scale developments than the development considered by this report. However in regards to planning and smaller developments the APF states:

The planning system also has a bearing on the operation of small and medium-sized aerodromes. The National Planning Policy Framework (NPPF) is intended to simplify the Government's overarching planning policy, but the underlying planning principles in respect of airfields remain unaltered. The NPPF states "when planning for ports, airports and airfields that are not subject to a separate national policy statement, plans should take account of their growth and role in serving business, leisure, training and emergency service need. Plans should take account of this framework as well as the principles set out in the relevant national policy statements and the Government Framework for UK Aviation"

In regards to noise the APF states:

The Government's overall policy on aviation noise is to limit and, where possible, reduce the number of people in the UK significantly affected by aircraft noise, as part of a policy of sharing benefits of noise reduction with industry.

This is consistent with the Government's Noise Policy, as set out in the Noise Policy Statement for England (NPSE)which aims to avoid significant adverse impacts on health and quality of life.

In line with the Government's noise policy, the Government's National Planning Policy Framework (NPPF) says that planning policies and decisions should aim to avoid a situation where noise gives rise to significant adverse impacts on health and quality of life as a result of new development, and to mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions.

In regards to general aviation and helicopters, the APF states:

The Government recognises that aviation noise is not confined to large commercial airports and that annoyance can also be caused by smaller aerodromes used for business and general aviation (GA) purposes, especially at times of intensive activity. However, it would not be appropriate for the Government to intervene by exercising powers under section 78 of the Civil Aviation Act 1982 to set noise controls at small aerodromes. Industry has developed codes of practice and the CAA has produced guidance. We would encourage the GA sector and the CAA to review their respective best practice and guidance to reflect the policy adopted in this Policy Framework.

Noise from helicopters is perceived as a problem in certain areas, such as routes used intensively by helicopters. The Government commends the British Helicopter Association's Code of Conduct for Pilots, which is designed to avoid unnecessary noise intrusion, and urges helicopter operators to promote this as widely as possible. Helicopters must meet internationally agreed noise standards prior to the issue of a Certificate of Airworthiness. Helicopters are also subject to Rules of the Air Regulations, which require minimum heights to be maintained. Whilst this is for safety reasons, these Regulations also offer some noise benefits.

3.4 Department for Transport, Air Navigation Guidance 2017

The Air Navigation Guidance (ANG) 2017 as produced by the Department for Transport (DoT) is intended to guide the Civil Aviation Authority (CAA) and industry on how the decisions they make can best give effect to the government's Key Environmental Objectives.

It should be noted that the proposed development does not involve a change to the existing airspace at site which is understood to be an uncontrolled airspace. However the ANG provides the following guidance noise levels when considering changes to existing airspace.

In regards to assessing the noise implications of proposed airspace changes ANG states:

For the purpose of assessing airspace changes, the government wishes the CAA to interpret this objective to mean that the total adverse effects on people as a result of aviation noise should be limited and, where possible, reduced, rather than the absolute number of people in any particular noise contour. Adverse effects are considered to be those related to health and quality of life. There is no one threshold at which all individuals are considered to be significantly adversely affected by noise. It is possible to set a Lowest Observed Adverse Effect Level (LOAEL) that is regarded as the point at which adverse effects begin to be seen on a community basis. As noise exposure increases above this level, so will the likelihood of experiencing an adverse effect. In line with this increase in risk, the proportion of the population likely to be significantly affected can be expected to grow as the noise level increases over the LOAEL. For the purposes of assessing and comparing the noise impacts of airspace changes, the government has set a LOAEL of 51dB $L_{Aeq16hr}$ for daytime noise and 45dB L_{Aeq8hr} for night time noise and the CAA should ensure that these metrics are considered.

In regards to helicopters and changes to airspace the ANG states:

The CAA should take into account the unique noise characteristics of helicopters, which can hover for a period of time at low level over the same area, and their consequent environmental impact. This should occur when a change to airspace is proposed under the CAA's Airspace Change Process, and where significant helicopter activity is involved. In such cases, where either the proposal concerns the amendment to formally established helicopter routes within controlled airspace, or where helicopters movements are a predominant factor, the CAA should encourage sponsors, where operationally practicable, to consider options that minimise the environmental impact of helicopter activity and take account of that impact when assessing options to meet their objectives.

Where the CAA is aware that airport/aircraft operators are considering local changes that may result in changes to the location of where light aircraft or helicopters overfly, but which fall outside of the Airspace Change Process, the CAA is encouraged to promote the use of voluntary local noise abatement procedures which are designed to minimise noise disturbance where practicable.

3.5 BS 8233:2014 Guidance on Sound Insulation and Noise reduction for Buildings

Dwelling houses, flats and rooms in residential use

British Standard 8233:2014, Guidance on Sound Insulation and noise reduction for buildings, gives guidance on internal noise levels within dwellings, flats and rooms in residential use when unoccupied. The following criteria are for Living and Dining Rooms for daytime use and Bedrooms for night time.

Table 2. BS 8233 Recommended Indoor Ambient Noise Levels (daytime)

Activity	Location	07:00 to 23:00
Resting	Living room	35 $L_{Aeq,16hour}$
Dining	Dining room/area	40 $L_{Aeq,16hour}$
Sleeping (daytime resting)	Bedrooms	35 $L_{Aeq,16hour}$

3.6 WHO Guidelines for Community Noise

In 1999, the WHO (World Health Organisation) published Guidelines for Community Noise, stating the following noise levels are applicable to residential dwellings (with relation to daytime sound levels).

Table 3. WHO Guidelines for Community Noise Criteria

Specific Environment	Critical Health Effect(s)	L_{Aeq} dB	Time Base (hours) *
Dwelling, indoors	Speech intelligibility & moderate annoyance, daytime & evening	35	16
Outdoor living areas	Few people moderately annoyed	50	16
Outdoor living areas	Few people seriously annoyed	55	16

* Typically taken to be daytime/evening - 07:00 – 23:00 hours.

4.0 NOISE SURVEY

4.1 Helicopter Operation

Noise levels for typical helicopter operations were taken from a previous measurement of the operation of a Helipad undertaken by PDA at another site.

During the helipad survey a H125 type helicopter was used to land and take-off from a proposed helipad site. Sound levels were measured in free field at a distance of approximately 200m from the helipad during a helicopter approach and landing at the helipad, and subsequently taking off again and leaving. The sound levels in terms of 1 second L_{Aeqs} were recorded and the peak sound level during the landing and take off were assessed. During the manoeuvres the location and altitude of the helicopter were measured by telemetry, and this data was used to reproduce the path of the helicopter as a line-source in SoundPlan noise propagation prediction software. The SoundPlan model was subsequently calibrated such that the predicted sound levels (in octave frequency bands) matched the measured sound levels to within 0.5 dB in each frequency band. This model was then used to determine the sound power per m of the helicopter path and speed of travel during both the landing and taking off phases of operation. It was found that the overall impact of the helicopter due to noise was greater during the landing phase as the helicopter would manoeuvre more slowly when coming in to land, and consequently would pass by more slowly resulting in an increase sound power per m of travelled path. When taking off, once airborne, the helicopter would rapidly reach its normal flight speed and therefore would be present in the location of the receiver for a shorter period thus resulting in a shorter duration of elevated sound levels.

For the purposes of this assessment we have used the worst case landing sound levels for all helicopter movements.

4.2 Ambient sound level survey

In order to characterise the existing ambient sound level in the area an environmental noise survey has been carried out. The survey was conducted from 13:45 on 11/12/2025 until 11:45 on 12/12/2025.

4.2.1 Measurement Procedure

The survey was carried out by installing a sound level meter in a weatherproof enclosure at the location of the proposed helicopter pad at Home Farm off Mill Gate. The location was a similar distance to the road (Mill Gate) as the residential properties in the vicinity, and in the absence of other prominent local sound sources this was judged to be suitably representative of the typical sound level incident on the residential receivers in the area.

The sound level meter used was a RION NL-52 sound level meter, in a weather proof enclosure fitted with an 'all weather' windshield, set up by Sky Hawkins MSc MIOA of PDA Ltd. The sound level meter was a Class 1 sound level meter in accordance with IEC 61672-1:2002 capable of operating as an integrating sound level meter. The meter was set to measure broadband sound pressure levels and statistical parameters.

The sound level meter was calibrated within the previous 2 years and calibration certificates are available on request. A field calibration check was carried out at the start and end of the measurement during which no significant drift occurred.

4.2.2 Weather

During the survey the weather was dry with temperatures between 8 and 11°C and windspeeds between 4 and 5 m/s from the South / South-west.

4.2.3 Results

The results of the daytime ambient sound level survey are shown in Figure 2 below:



Figure 2 – Ambient sound level survey in the vicinity of nearby noise sensitive recievers

5.0 NOISE IMPACT ASSESSMENT

It is understood that the proposed helipad will only be used during the daytime for the use of residents of the adjacent residence using a single helicopter.

For the purposes of assessment we have assumed that for a personal use helicopter typical usage would not likely be greater than 4 movements per day (where a movement is either the helicopter landing at the helipad, or the helicopter leaving the helipad.

In order to predict the noise level due to the helipad operation we have taken the proposed approach paths to the helipad from the Helipad Flight Plan document ref JDA/2024/885/FLIGHT/A2.001.

The paths and heights indicated have been modelled as line sources in SoundPlan noise propagation software, and the sound power of the sources has been derived from the measurement of similar helicopter operations from another helipad. Worst case approach levels have been assumed for all movements, and the on-times have been adjusted to give the LAeq,16h level for the helipad operation assuming 4 helicopter movements per day.

Receiver sound levels have been calculated for nearby noise sensitive dwellings.

The results of the model are indicated in Figures 3 to 5 below:

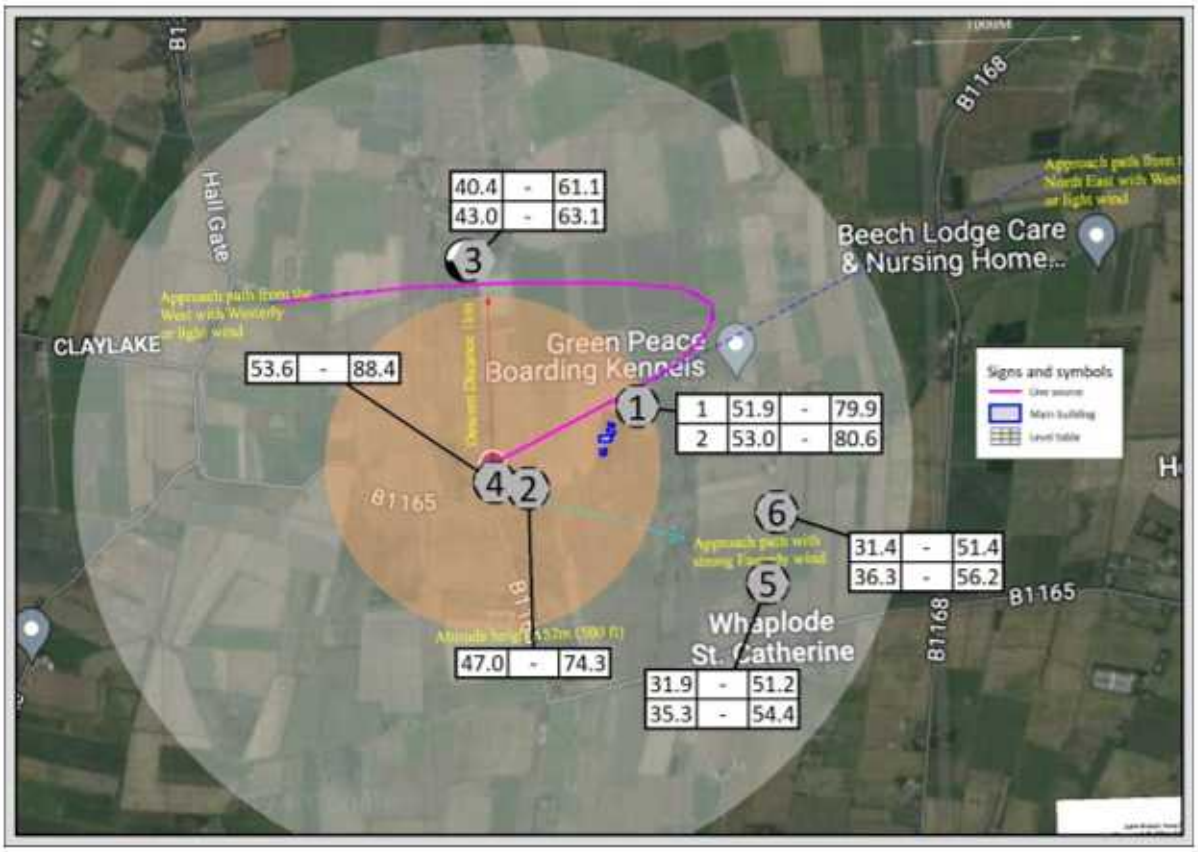


Figure 3 – Sound levels at nearby noise sensitive residences for movements on the western approach

Note: key for table values: $|L_{Aeq}| - |L_{Amax}|$. Where tables include two rows these represent the ground and first floor sound levels.

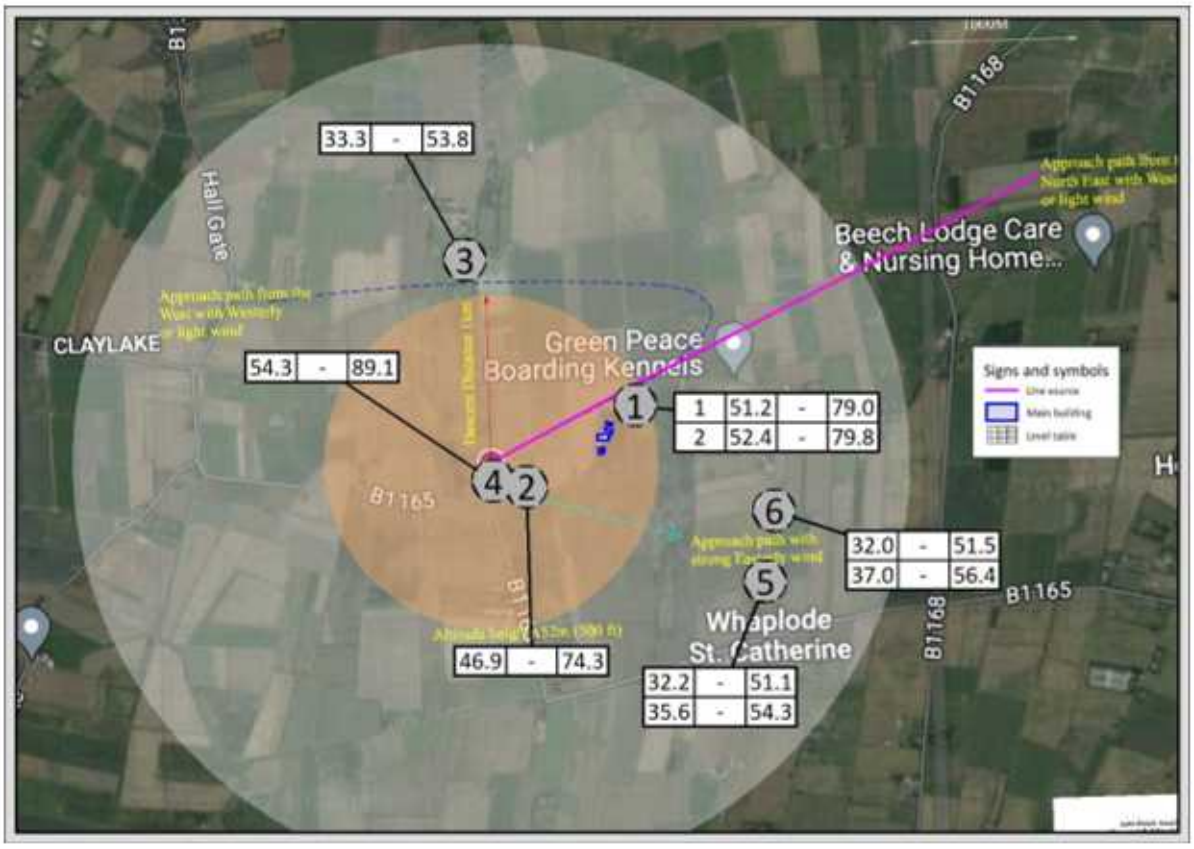


Figure 4 – Sound levels at nearby noise sensitive residences for movements on the north-eastern approach

Note: key for table values: $|L_{Aeq}| - |L_{Amax}|$. Where tables include two rows these represent the ground and first floor sound levels.

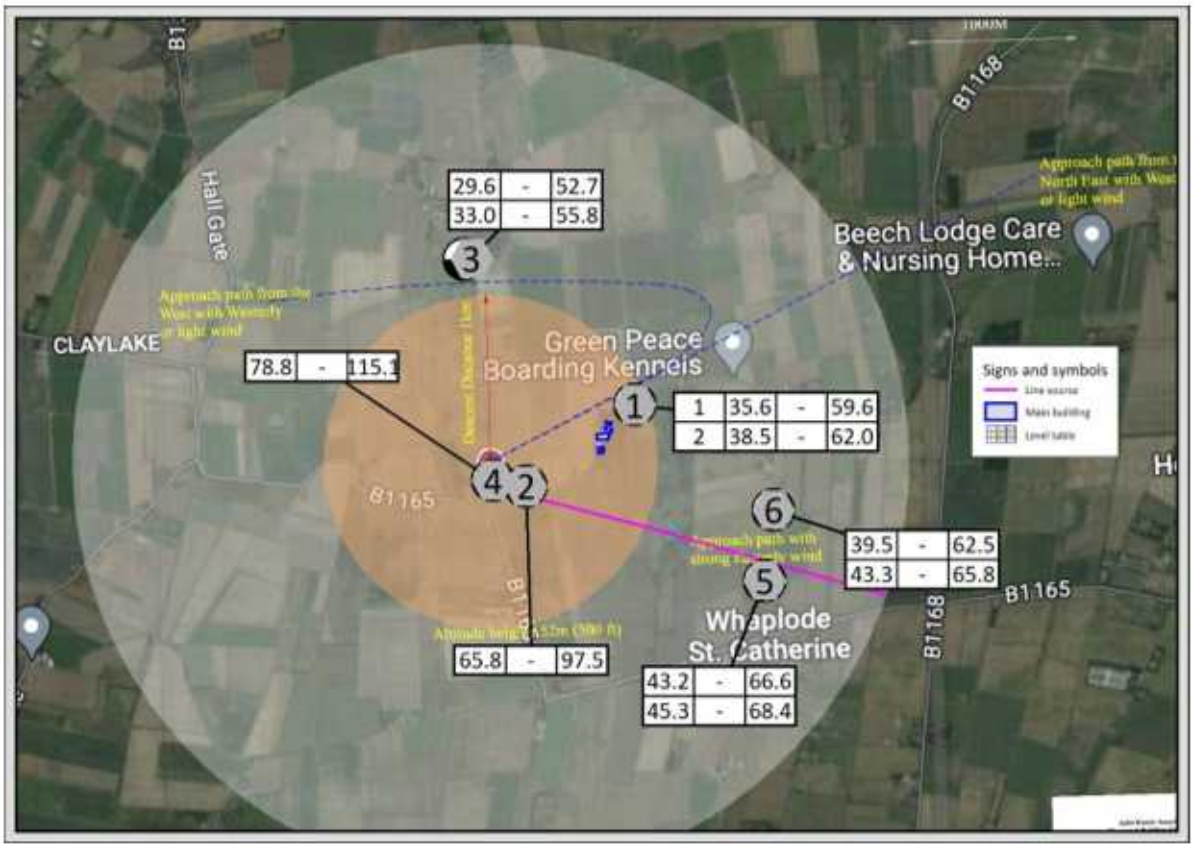


Figure 5 – Sound levels at nearby noise sensitive residences for movements on the proposed approach path for strong easterly winds

Note: key for table values: $|L_{Aeq}| - |L_{Amax}|$. Where tables include two rows these represent the ground and first floor sound levels.

6.0 DISCUSSION AND ASSESSMENT

Reviewing the predicted sound levels of Figures 3-5 above we note that in general terms sound levels at the nearby noise sensitive dwellings due to the Helipad do not exceed the 51 dB proposed LOAEL value of The Air Navigation Guidance (ANG) 2017 for the majority of properties for each approach direction.

Referring to Figure 3 we note that (excluding Home Farm itself) the only properties exceeding the 51 dB criterion are those properties at location 1, north east of the site, due to the approach path flying close to these properties during the descent (or ascent) when the helicopter is at a reduced altitude.

Similarly in Figure 4 we note that the same properties are the only exceedances of the 51 dB criterion, again due to the flight path being close to these properties at reduced altitude.

In Figure 5 we note that the only exceedance with the exception of Home Farm is the nearby receiver at Crossways to the east of Mill Gate, however in this case the sound levels are relatively high as the flight path is indicated as directly above the residence. However, we also note that this approach path is only indicated for strong easterly winds, and hence it is likely that this approach would be used only relatively infrequently due to prevailing wind conditions.

Although daytime noise levels are typically assessed in terms of L_{Aeq}, we note that the L_{Amax} levels predicted at the properties are not dissimilar to those already present in the vicinity as recorded in the survey reported in Figure 2. (The exception being at Location 2 for the Strong Easterly Wind Approach, where the path passes directly over the property at a low altitude, see discussion below). Note also, that with the assumed use frequency of the helipad, these L_{Amax} values would only occur for a maximum of 4 times per day, during the daytime period.

Given that there are currently only the two properties above which exceed the proposed ANG 2017 LOAEL criterion we are of the opinion that with a suitable adjustment to the North-East Approach path to travel further north of the properties at location 1, plus an adjustment to the Strong Easterly Wind Approach path so that it does not directly overfly the property at location 2, the proposed Helipad would generally not result in sound levels at residences above the ANG 2017 LOAL value, and hence is likely to have a low impact with regard to noise.

7.0 CONCLUSION

At the request of Mr V Mustafa, PDA has carried out a noise impact assessment in relation to the proposed new helipad to land off Mill Gate, Whaplode.

Sound levels due to operation of the proposed helipad have been predicted at nearby noise sensitive properties. These have been compared to appropriate criteria of the Air Navigation Guidance (ANG) 2017 and to the pre-existing sound levels in the vicinity of the nearby noise sensitive properties.

In general the noise levels are below the proposed LOAL criterion of the Air Navigation Guidance (ANG) 2017 and are similar to sound levels already incident on the proposed noise sensitive properties. However, there are exceedances at two residential locations where the proposed Approach Paths fly close to residential dwellings at reduced altitude during the descent to the helipad. It is noted that the area surrounding the helipad is relatively sparsely populated and we are of the opinion that a small change to the flight paths would allow the proposed LOAL to be achieved at all of the nearby noise sensitive residences, and therefore the proposed helipad would have a low impact at all of the nearby residential locations. It is noted that for properties further from the helipad where the helicopter is at normal altitude the impact is likely to be low irrespective of the flight path.

APPENDIX I – DEFINITION OF ACOUSTIC TERMS

The decibel

This is the basic unit of noise, denoted dB.

A Weighting

This is a weighting process which simulates the human ear's different sensitivity at different frequencies. A weighting can be shown two typical ways, 50 dB(A) L_{eq} or 50 dB L_{Aeq}. Both mean the same thing. (See below for a definition of L_{eq}). The dB(A) level can be regarded as the overall level perceived by human beings.

L_{eq} and $L_{eq(s)}$

This is the equivalent continuous noise level which contains the same acoustic energy as the actual time-varying sound. In other words it is a kind of average noise level. It is denoted dB L_{eq} or, for A-weighted figures dB(A) L_{eq} or dB L_{Aeq}. It can also be expressed in terms of frequency analysis (see later). $L_{eq(s)}$ is the sample L_{eq} level.

L_n

This is the level exceeded for n% of the time. It is denoted dB L_n or, for A-weighted figures dB(A) L_n or dB L_{An}. It can be expressed in terms of frequency analysis (see later). L_{90} is the level exceeded for 90% of the time and is a measure of the lowest level typically reached. L_{10} is the level exceeded for 10% of the time and is the highest level typically reached. L_{50} is the level exceeded for 50% of the time and, mathematically, it is the median.

L_{max}

This is the maximum level reached during a measurement period. The "time constant", or the ability of the equipment to respond to impulses is usually expressed along with it, e.g. "Fast", "Slow", etc. It is denoted dB L_{max} or, for A-weighted figures dB(A) L_{max}, dB L_{Amax}, etc. It can also be expressed in terms of frequency analysis.

Frequency Analysis

Whereas dB(A) gives a very useful overall figure, it has its limitations in that it cannot be used to model or predict the effect of noise control and mitigation as this nearly always has radically different performance at different frequencies.

Frequency analysis expresses an overall noise level at each frequency or band of frequencies in the audible range. Octave band analysis divides the audible range into 10 bands from 31.5 Hz to 16 kHz and the noise level in each band can be expressed in any form e.g. L_{eq}, L_{90}, L_{max} etc. One third octave band analysis uses 30 bands.

Narrow band analysis takes the process to resolutions of less than 1 Hz. This is useful for identifying the existence of tones (whines, hums, etc.) and in pin-pointing the sources.