



LAND AT
SCOTLAND FARM



Preliminary Noise and Air Assessment

Prepared on behalf of:

Dry Drayton Estate Ltd & Hallam Land Management

By:

Brookbanks

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10744 Scotland Farm, Cambridgeshire

Technical Note no2: Preliminary Noise and Air Quality Assessment

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1 Introduction

- 1.1 Brookbanks Consulting Limited are appointed to complete a Preliminary Noise and Air Quality Assessment at Scotland Farm in Cambridgeshire.
- 1.2 The objective of the study is to demonstrate that the development proposals are acceptable.

2 Background

Location and Details

- 2.1 The development site is located to the west of the city of Cambridge. The site bounds to the north, east and west with agricultural land with Madingley Road (A428) to the south. Scotland Road bisects the site on north to south orientation. The development site lies on undeveloped agricultural land.
- 2.2 The site location is shown in **Figure 2-1**.

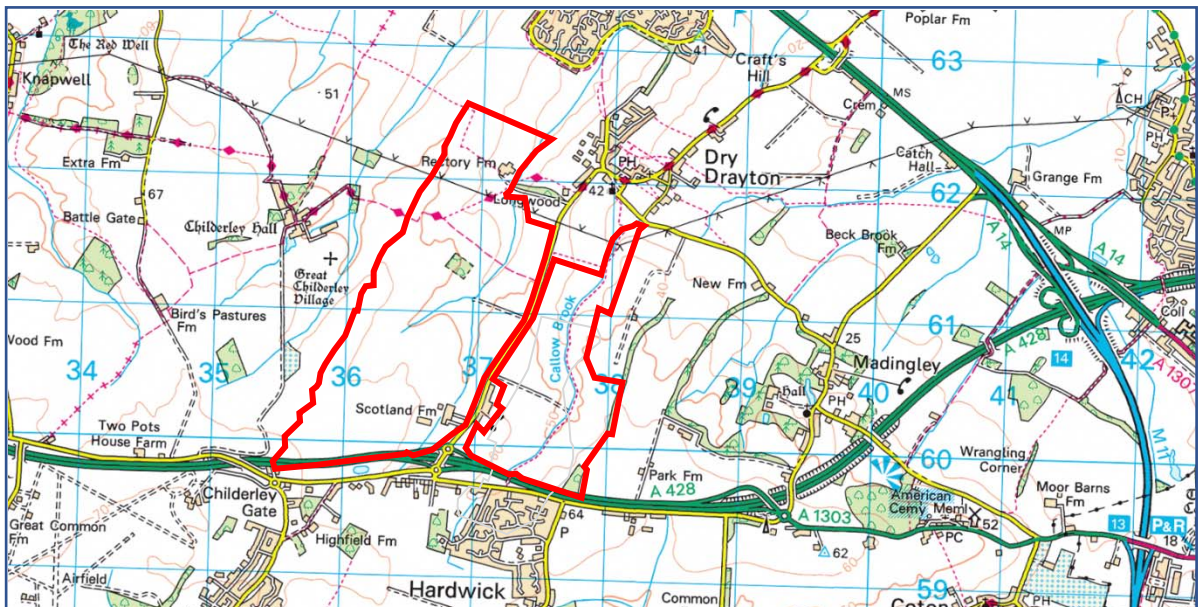


Figure 2-1: Development Site

Development Criteria

- 2.3** The site is proposed to be developed in mixed use, commercial and residential including green spaces.

3 Noise Environment

- 3.1** Environmental noise rarely reaches the sound pressure levels associated with hearing impairment. However, noise can cause annoyance; it is commonly blamed for sleep disturbance and has been linked by researchers to less obvious effects, such as cardiovascular and mental health problems and reduced performance at work or school.
- 3.2** The Proposed Development has the potential for noise impacts associated with operational traffic movements and also during the construction phase. On this basis it is typical to carry out an assessment against the British Standard 8233:2014 - Sound Insulation and Noise Reduction for Buildings.
- 3.3** BS8233:2014 gives recommendations for the control of noise in and around buildings and suggests appropriate criteria and internal and external noise limits for habitable rooms of residential dwellings. The identified standards are reported below:
- 35dB LAeq (16 hour) during the daytime in living rooms
 - 30dB LAeq (8 hour) during the night time in bedroom areas
 - 55dB LAeq for external areas
- 3.4** An initial review of the existing noise environment across the site has been carried out. This has been based on initial review of the dominant noise source which is expected to be traffic noise generated along the A428. There is unlikely to be any significant prevailing noise sources.
- 3.5** To provide an understanding of the noise environment across the site, a 3D noise model has been set up using the SoundPlan software package. Background traffic levels have been extracted from data available on the Cambridgeshire County Council (CCC) and combined with traffic predictions for the development provided by the transport consultant. The ground profile across the site has been established. The noise environment across the site is indicated below.

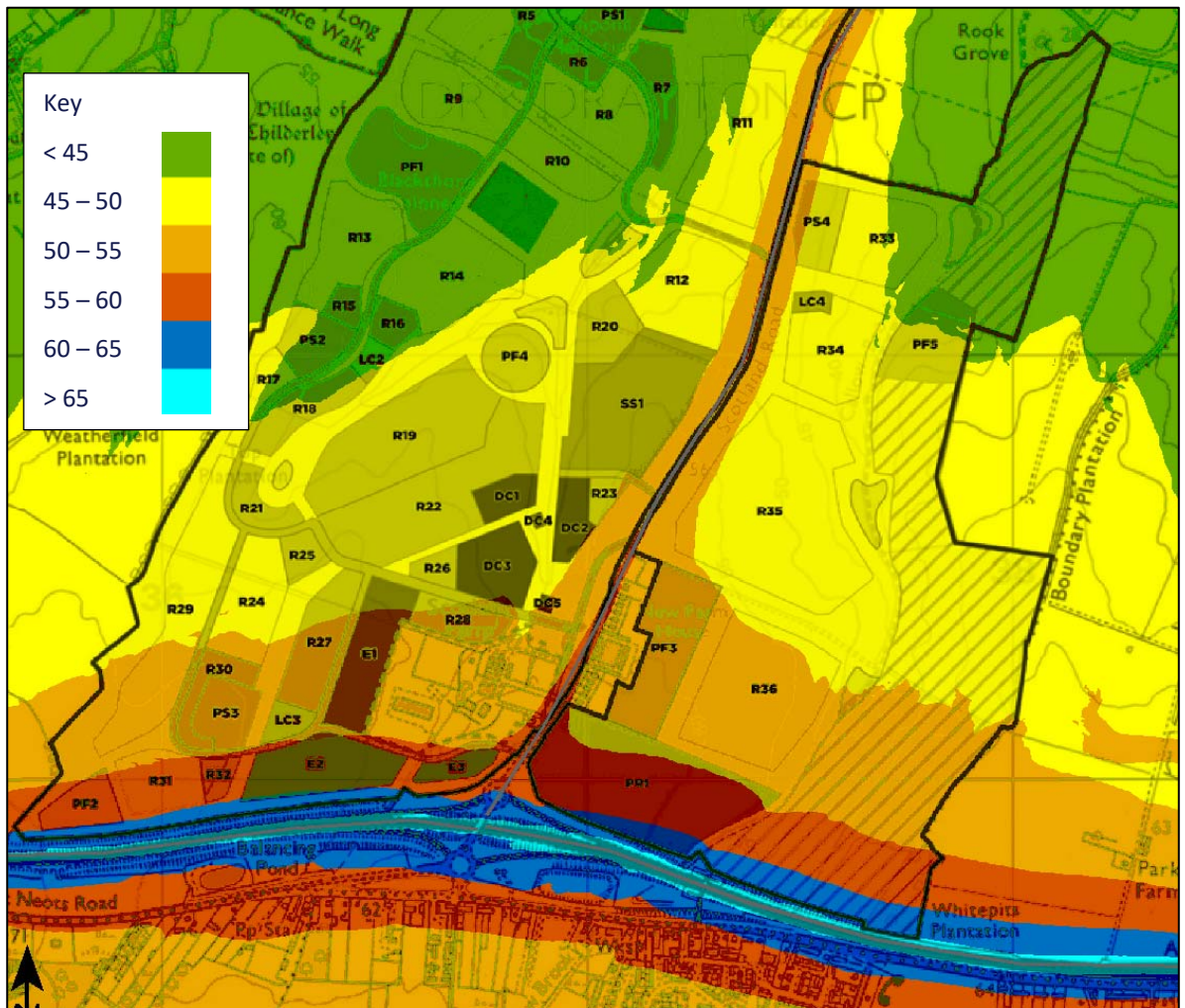


Figure 3-1: Future Predicted Onsite Noise Levels

- 3.6 **Figure 3-1** indicates the 5dB noise contours across the site, demonstrating that the noise levels around the A428 are in excess of 65dB. The noise levels decrease moving north into the site, with noise levels predicted to be circa 60dB at the southern edge. The edge of the 55dB contour, considered as the acceptable external noise level for residential areas, is located circa 170m from the A428. These contours will need to be reviewed in more detail, following confirmation of the development and future year traffic levels.
- 3.7 Any residential properties that are located towards the southern boundary of the site are likely to experience external noise levels in excess of 55dB. Should this occur, noise screening would ordinarily be anticipated or alternately orientate garden space such that the buildings provide natural shielding from traffic noise. Noise screening typically would consist of a noise bund or fence, or a combination of these depending on the height of the screening that is necessary to achieve acceptable standards.
- 3.8 The initial masterplan identifies the areas of employment that are likely to be located towards the southern boundary of the site. The external areas adjacent to employment uses are not considered noise sensitive areas and as such do not have noise limits. Therefore, it is considered appropriate to locate employment areas to extend across the southern boundary of the site. Any buildings within the employment area will then provide natural noise screening to the remaining areas of the development.

3.9 After considering the benefits of the noise screen that will be provided by the employment buildings, this will significantly reduce the noise levels experienced throughout the main areas off the site. Standard double glazing provides a noise attenuation benefit of 33dB. The majority of the housing is located in areas that are predicted to experience noise levels below 55dB. This demonstrates that internal noise levels are likely to be achieved through the use of standard double glazing.

4 Air Quality

4.1 There are no air quality monitoring sites in the vicinity of the proposed development to provide an indication of existing air quality in the area. However, the Defra pollutant maps indicate that background concentrations of NO₂, PM₁₀ and PM_{2.5} are well within the relevant air quality objectives. Emissions from vehicles on the A428 are likely to be the primary source of pollution at the proposed development. The impact of vehicle emissions on pollutant concentrations declines rapidly from the kerbside and is negligible by 200m from the road. On this basis it is likely that existing concentrations over a large proportion of the site will be at background level. Detailed dispersion modelling of vehicle emissions on the local road network will be required to determine whether future occupants of the proposed development in closer proximity to the A428 will be exposed to poor air quality. However, it should be noted that the proposed development is not within a designated Air Quality Management Area (AQMA) indicating that existing concentrations are unlikely to be exceeding the air quality objectives at any location on site.

4.2 A review of the LPA Air Quality Management Area (AQMA) map indicates that the surrounding environment are subject to an AQMA, as indicated below.

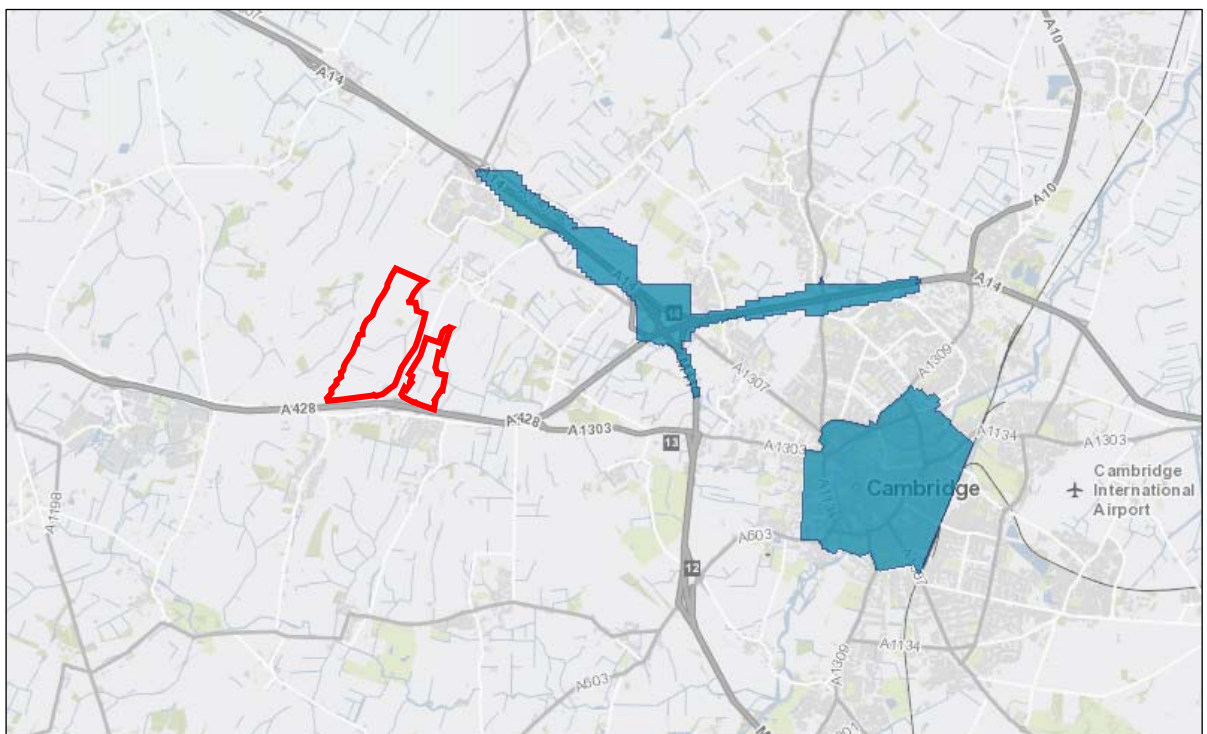


Figure 4-1: AQMA Location Plan

4.3 The A14 Corridor AQMA lies between Bar Hill and Milton was declared by South Cambridgeshire District Council on the 01/08/2007 in relation to nitrogen dioxide (NO₂) and amended 31/07/2008 to include particulate matter (as PM₁₀). In addition, an area encompassing the inner ring road and all the land within it forms the Cambridge AQMA which was declared by Cambridge City Council on 01/04/2005 in relation to Annual Mean NO₂.

- 4.4** The traffic figures provided by the traffic consultant indicate that development trips are expected to be assigned through both of the identified AQMA. The impact of the development will need to be assessed following confirmation of both the baseline traffic levels and the development traffic flows.
- 4.5** A mitigation strategy should be considered that aims to minimise the impact on the AQMA. Fundamentally, consideration should be given to reducing the number of external trips in the first instance. The development should deliver a range of complementary land uses that reduces the need to travel outside the boundary of the development. Those trips that are external to the development, there should be opportunities to complete trips by sustainable modes including walking, cycling and public transport. The site location suggests that a park and ride might have benefit to reduce existing trips in the road network, which will reduce the net impact of the development.

5 Conclusions

- 5.1** The purpose of this note is to review the noise and air quality environment adjacent to the proposed site.
- 5.2** The dominant noise source adjacent to site is traffic noise from the A428. Based on the preliminary review, noise levels to the south of the site are likely to exceed the 55dB threshold, suggesting that residential areas should be located further north into the site. The southern extremities of the site are more suitable for employment areas. It is anticipated that internal noise levels can be achieved through the use of standard double glazing.
- 5.3** A review of the quality environment has identified two AQMA located to the east of the site. Based on the initial traffic figures provided it is likely an assessment of both of these areas will be necessary. A strategy to mitigate the impact will need to be considered at the appropriate time.

6 Limitations

- 6.1** The conclusions and recommendations contained herein are limited to those given the general availability of background information and the planned usage of the site.
- 6.2** Third party information has been used in the preparation of this report, which Brookbanks Consulting Ltd, by necessity assumes is correct at the time of writing. While all reasonable checks have been made on data sources and the accuracy of data, Brookbanks Consulting Ltd accepts no liability.
- 6.3** The benefits of this report are provided to Hallam Land Management, for the proposed development on land at Scotland Farm only.
- 6.4** Brookbanks Consulting Ltd excludes third party rights for the information contained in the report.



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