

El406, Technical Note: Site at White Ox Farm, Greengill, Penrith, CA11 8SE

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Technical Note

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Introduction

It is proposed to develop at site at White Ox Farm, Greengill, Penrith CA11 8SE for housing. It is affected by transportation noise from M6, A6 and West Coast Mail Line [WCML] trains, and possibly industrial noise from a unit adjacent to the west/lower end of the site – The Black Barn.

Martec were instructed to make noise measurements on the site and to prepare a preliminary assessment as to whether a detailed analysis of the results is likely to be worthwhile.

From experience of other sites within Eden's area the main issue is likely to be whether daytime noise levels in external garden areas achieve "appropriate" levels. Usually it is possible to achieve appropriate internal noise levels by means of acoustic glazing and ventilation, albeit that Eden currently require "noise protecting" windows to be non-opening. So for this preliminary assessment, only daytime external levels have been considered.

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Criteria for External Noise - Transportation

Eden Environmental Health wish to restrict external noise levels in garden areas to 50 LAeq,16hr or less; however, BS8233:2014 whilst endorsing the level of 50 LAeq,16hr also sets out *“an upper guideline value of 55 LAeq,16hr which would be acceptable in noisier environments.”*

The noise impact assessment for this site could be affected depending on the outcomes of the following matters,

1. Eden are currently determining Planning Application 14/0405 for the Raiselands site, immediately opposite the White Ox site. Here the noise in garden levels cannot universally achieve the 50 LAeq,16hr required by Eden EH Dept, but can achieve the 55 LAeq,16hr criterion set out in BS8233:2014. It is understood that despite strong objections from the environmental health department, the Raiselands site is recommended for approval, but presumably could still be refused on noise grounds.
2. The Professional body for Environmental Health Officers [naturally including those at Eden] and both of my own professional bodies, will be publishing a joint Professional Practice Guidance Note on the assessment of noise; the document is scheduled for launch on 22nd June. This document is likely to be authoritative. Currently it is not known where this document stands on the matter of when 55 or 50 LAeq,16hr would be appropriate for external garden areas.

In my view, we must show compliance with the 55 LAeq,16hr criterion, and ideally we would be able to show compliance with the lower 50 LAeq,16hr criterion in garden areas.

Criteria for External Noise – Industrial Noise

There is a small industrial unit at the bottom end of the site [The Black Barn] which contains a light engineering workshop operated by Labquip Ltd. From a preliminary analysis of the results, noise from this facility does not appear to be a significant issue; so for now this source has not been considered further; however, in the final report it will

probably be necessary to perform some “what if” style calculations, and use BS4142:2014 to assess the impact.

Discussion of Noise Measurements

Measurements were made from Thursday 6th to Thursday 13th April 2017 at two locations; the lower one corresponded to the side garden of Plot 48, and the upper one to the front garden of Plot 17 of the Proposed site plan [Drawing No.10-1-012 P4].

From the reports of a nearby met station [Southwaite to the north], the weather conditions were westerly winds throughout the period, except for Saturday when winds blew from either the north or south. Westerly winds would increase M6, A6 and WCML noise levels on the site; northerly/southerly winds are broadly neutral.

The average weekday noise levels were 60 LAeq,16hr at the lower measurement position and 59 LAeq,16hr at the upper.

From an analysis of the results, the daytime measurements are likely to be dominated by road traffic noise, ie. for the White Ox site noise from WCML is not likely to be significant in comparison with the road traffic noise levels.

A simple traffic noise prediction model has been used and preliminary calculations of road traffic noise have been performed which indicate that at the lower end of the site, daytime noise levels are controlled by the M6 with some contribution from the A6; higher up the site the M6 is the dominant noise source.

The above preliminary findings accord with my observations on site.

Clearly daytime levels of 59 & 60 LAeq,16hr are too high and need to be reduced. The usual method would be to face the properties towards the noise source, build high properties with their roof ridges full width and parallel to the road and pack them as close together as possible to form a continuous barrier; such that the rear gardens are further from the roads and screened by the properties themselves.

Comments on Acoustic Validation

Given the above strategy, the lowest plots [P48-41 Drawing No.10-1-012 P4] which are bungalows, backing onto the roads with their roof ridges perpendicular to the road should be removed from the scheme.

Also Plots 37 to 47 [Drawing No.10-1-012 P4] should be made as high as possible.

[2.5 stories?], be as closely packed as possible [preferably terraced] and with all the ridge lines parallel to the road.

Based on the above and using the same simple/preliminary prediction model, it should be possible to meet the 55 LAeq,16hr criterion in the rear gardens, and it may even be possible to meet the 50 LAeq,16hr if the development is constructed in terraces, ie. the rear gardens are at the same elevation as the base of the houses, as opposed to being “uphill” from the houses.

Conclusion

Based on the above, it is considered that a detailed analysis and report should be prepared.

Please note that the results of a detailed analysis and the outcomes of the two pending events [see above] could change the conclusions of this preliminary report.