

3rd September 2021

Sasha and Richard Ayres
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Dear Sasha and Richard

This letter sets out our responses to the rebuttal of our review of the DCO noise assessment and our comments on the noise mitigation measures proposed in the letter from Tom McGarry of the 20th of August.

It is intended to form an appendix to your submission for Deadline 7 on the 3rd of September. It is understood that discussion on noise mitigation is still ongoing, and the conclusions of those discussions may provide further information relevant to the topics discussed below.

Applicant's rebuttals of ACC Review

The results of the Acoustical Control Consultants' review of the noise assessment for Mollett's Farm submitted as part of the DCO application was presented in document B5393 2021-05-11 R, the conclusions of which stated:

- 9.1 The baseline sound levels used to represent Mollett's Farm are not adequate for a proper assessment. The measurement durations were too short, the location was unrepresentative, one of the key indicators was not reported and the absence of weather data in the survey report means the validity and relevance of the results cannot be determined.*
- 9.2 The methodology of the noise assessment follows established practice for this type of assessment, but this does not adequately evaluate the specific impact on the tranquility of Mollett's Farm.*
- 9.3 Wind direction has a significant effect on sound propagation. The assessment methodology is based on a comparison of predicted levels for the existing and proposed routes that assume downwind propagation to the farm from both. This is unrepresentative as the farm is located between the two routes. The prevailing wind direction is such that sound from the proposed route will have favorable propagation conditions to the farm much more often than the existing route.*
- 9.4 As a result, occasions when road noise is audible and intrusive at the farm are likely to be more frequent, and its impact and effect will be greater than predicted by the methodology used.*

- 9.5 *The assessment predicts adverse impacts at several stages of the road construction process. It is vital that the Construction Noise Management Plan for the road scheme includes monitoring of noise levels and extensive liaison with residents about the location and duration of high noise activities.*

These conclusions were based upon a detailed review and analysis of the contents of the submission, the acoustic context of Mollett's Farm and an indicative noise and soundscape survey at the site.

In their Comments on Submissions from Earlier Deadlines (Deadlines 2-4) [REP5-119], SZC responded to the contents of the ACC report with the following comments.

f) Noise assessment

14.2.14 *SZC Co. has responded in detail to the Mollett's Farm written representations within SZC Co.'s comments on responses to ExQ1 at SE.1.12 submitted at Deadline 5 (Doc Ref. 9.46).*

14.2.15 *SZC Co. does not accept that the noise assessment for Mollett's Farm is 'faulty'. The main criticisms in the Mollett's Farm written representation [REP2-380] relate to the differences between measurements and calculations, with a claim that the assessment underestimates the potential impacts.*

14.2.16 *While measurements can be used to inform the calculation of road traffic noise, primarily through a process of validation, the assessment of road traffic noise is based on the predicted levels. This is consistent with assessment method set out in the Design Manual for Roads and Bridges LA111⁵.*

The requirements for noise assessment within the Design Manual for Roads and Bridges are indeed set out in document LA 111 Noise and Vibration (Revision 2 May 2020) and the standard methodology is based upon comparison of calculated 'before and after' sound levels. This is the "established practice" mentioned in ACC conclusion 9.2.

However, response 14.2.15 is not correct when it states that the main criticism of the ACC analysis was the differences between measurements and calculations. The LA 111 section on Baseline states:

3.45.1 *Noise monitoring should be used to inform baseline noise modelling results and to provide data for public consultation purposes.*

NOTE *Validation of baseline can be undertaken by comparing modelled noise levels to measured noise levels, using corrections to take account of expected changes in traffic levels between the date of monitoring and the date of the baseline.*

3.47 *Noise monitoring data shall only be valid when it is undertaken during periods when:*

- 1) wind speed is less than 5m/s;*
- 2) there is no precipitation and road surfaces are dry.*

The noise chapter of the submission does not mention an attempt to validate the calculated baseline against the measured values as suggested in the Note above, which could have improved the quality of the assessment.

The main criticism described within the ACC review is not related to the baseline monitoring but that the methodology used “does not adequately evaluate the specific impact on the tranquillity of Mollett’s Farm”; the word “faulty” was not used. The section of LA 111 which sets out the determination of the significance of impacts and effects does include tables of the likely impacts and effects of specific values of absolute sound levels and level differences resulting from a road development. However, it also states that these values should be modified to reflect the specific circumstances of each receptor, as follows:

3.50 LOAELs and SOAELs shall be modified where it is proportionate and merited by local circumstances which can include, but are not limited to:

- 1) noise sensitive receptors that have reduced sensitivity to noise or vibration e.g., sensitivity to noise is reduced if receptors have good noise insulation;*
- 2) noise sensitive receptors that have an increased sensitivity to noise or vibration e.g., if a building is regularly used by people with hearing impairments, it is likely to be more sensitive to the users, as noise affects speech intelligibility at lower levels than it would for those with non-impaired hearing.*

NOTE 1 Modification can be proportionate where it has the potential to change the assessment of likely significant effects.

and:

3.60 For noise sensitive receptors where the magnitude of change in the short term is minor, moderate or major at noise sensitive buildings, Table 3.60 shall be used, together with the output of Table 3.58 to determine final significance.

Table 3.60 contains the following:

Local circumstance	Influence on significance judgement
<i>Acoustic context</i>	<i>1) If a project changes the acoustic character of an area, it can be appropriate to conclude a minor magnitude of change in the short term and/or long term is a likely significant effect.</i>
<i>Likely perception of change by residents</i>	<i>1) If the project results in obvious changes to the landscape or setting of a receptor, it is likely that noise level changes will be more acutely perceived by the noise sensitive receptors. In these cases it can be appropriate to conclude that a minor change</i>

	<i>in the short term and/or long term is a likely significant effect.</i>
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The document also states:

3.63 The assessment report shall include justification for determination of significance for each noise sensitive receptor in the study area.

As might be expected the examples mentioned in the LA 111 text do not refer to the specific circumstances of Mollett's Farm, but the intention of the section is clear. The assessment of the significance of effects at the receptors should be modified as appropriate to take account of the specific context in each case.

The ACC review sets out several aspects of the scheme within the specific context of Mollett's Farm which would lead to a modification in the determination of significance. As a business trading, in part, on the tranquillity of its location, Mollett's Farm can be considered to have "*an increased sensitivity to noise*". Tents in the camp site will have very low sound insulation properties which would indicate that they have increased sensitivity to noise at night.

The principal issue raised by ACC is the relocation of the road from the general north of the property to the general south. The layout of the business is oriented to take advantage of the acoustic and landscape conditions to the south of the buildings, which will be significantly changed by the relocation of the road. Therefore, the simple act of moving the road to the south of the property has an acoustic impact regardless of the predicted levels.

The ACC review also explains how the standard LA 111 methodology, which compares worst case (downwind) predictions for the before and after situations, does not adequately evaluate the significance of impact at Mollett's Farm. The worst case condition is likely to occur much more often with the road to the south of the house than to the north. This again is a significant change to the acoustic character of the area.

Additional Mitigation Measures Proposed August 2021

The ACC analysis indicates that the assessment underestimates the impact of the scheme on Mollett's Farm by more than 5 dB due to the specific context of the location and land use.

SZC have responded by offering additional landscaping to provide additional noise mitigation. The current proposals are set out in a letter from Tom McGarry of SZC to Mollett's Farm dated 20th August 2021 and presented at a meeting at Mollett's Farm on 2nd September 2021. In response to a request from Mollett's Farm the letter also includes predictions for a new assessment location in the camping area to the south-east of the buildings.

The proposals include a landscaped bund/barrier along the north-western edge of the cutting in which the road sits, and the use of a quiet road surface. The bund/barrier is comprised of a dedicated 2 m bund along the section of proposed road closest to Mollett's Farm and the access ramps to the proposed pedestrian footbridge. However, gaps have been left in the bund at critical locations to the south and east of the farm. These gaps will significantly degrade the sound reduction performance of the barrier. At the meeting it was stated that these gaps were to facilitate various footpaths and accesses. Following discussion, it was accepted that, as the purpose of the barrier is to control sound, its completeness should take precedence over the convenience of the path routing and SZC undertook to review accordingly.

Predictions are given for the noise reduction that could be achieved by the suggested mitigations both individually and in combination and for the actual expected noise levels with mitigation at the two assessment locations. These latter predictions are based on the same methodology as the original assessment. The predicted levels are compared with the calculated reference case as before, so the previous ACC comments about wind directions and the basic methodology apply to these comparisons.

The reductions predicted do not give the full 5 dB indicated as likely to be necessary by the ACC analysis but are not insignificant, particularly at the camp site. However, the camp site is closer to the new road and further from the old road than the house and holiday accommodation. Therefore, even though the reductions offered by the proposed mitigations are greater at the camp site, the actual increase in noise levels in the camp site resulting from the new road are much greater than those at the house. As mentioned above, this increase is based upon comparison of two incompatible worst cases.

The contribution of the bunding is more significant in the camp site than at the house and holiday accommodation. This is as would be expected as the camp site assessment location is very close to it. The benefit of a 2 m high fence on top of the 2 m high bund is predicted to be very small, which is what would be expected based on the geometry of the road and site.

The use of a fence on top of the bund would be expected to give a bigger benefit than increasing the bund height to a similar level. This is because the top of the bund would necessarily be further from the roadway, which would undermine its effect and the 'sharp' edge of the top of a fence is understood to have greater screening benefits than the smooth top of a bund. However, as the additional benefit of the fence itself is predicted to be very small, this difference is of little importance.

As mentioned above the effectiveness of the proposed 2 m bund/barrier is compromised by the detail of its design, which includes several gaps at critical locations. Two of these gaps are close to the point in line with the section of road which runs almost radially from Mollett's Farm, where the effect of the barrier would be expected to be compromised by the additional effective source barrier separation. It is likely that closing these gaps will give a small additional benefit, but it is unlikely that this additional benefit will meet the 5 dB requirement. Significant further improvements could only be made with a larger and reconfigured structure, which itself could have a significant impact

on the landscape around Mollett's Farm. At the meeting Mollett's Farm stated that they feel that a properly landscaped large barrier would have less of an impact on their business than the potential noise and road vehicle visibility issues associated with a smaller barrier.

The quiet road surface gives a bigger theoretical reduction than the proposed bund/barrier and is responsible for almost all of the reduction predicted at the house. The reductions predicted are certainly significant and worthwhile. It is our understanding that there are longevity and maintenance issues associated with these low noise surfaces in addition to their higher initial costs. Clarification should therefore be sought about how these issues will be addressed and how deterioration of the surface would affect the noise produced.

It is therefore recommended that SZC use the existing project noise model to determine the size and configuration of landscaped barrier necessary to achieve a reduction in noise levels at Mollett's Farm that will result in a suitable acoustic environment considering its specific context.

Construction Noise

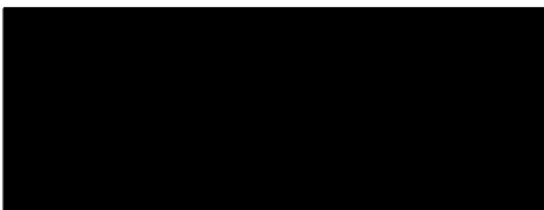
At the meeting on the 2nd September Mollett's Farm explained that the impact of construction operations, including the impacts of the noise that it will generate, are of very significant concern to them because of the expected detrimental impact on their business.

The proposals include a 2 m bund around the two sides of the contractors' compound closest to the business, though, from the shape of the topography in the area, it is not clear what, if any, acoustic benefit this will have.

Therefore, it is recommended that SZC are asked to explain what the impacts of noise from the compound are expected to be over the duration of the project and how this proposed bund will reduce those impacts.

As ever, if you would like to discuss any aspects in greater detail or have any questions you would like me to answer, I will be delighted to do so.

Yours sincerely



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Acoustical Control Consultants