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Our ref: 22104.1/1

10 January 2014

Mrs J Egan
Parish Clerk
Hale Bank Parish Council

via email only to: julieshan@blueyonder.co.uk

Dear Mrs Egan,

Re: Proposed Single Rail Served Building for Storage and Distribution Purposes at HBC Field, Hale Bank Road, Hale Bank, Widnes (Application No. 11/00269/FULEIA)

You have commissioned Hepworth Acoustics Ltd to carry out an independent 'desk top' review of the noise assessment work that has been carried out by Amec and which forms part of the Environmental Statement that was prepared for the proposed warehouse development at Hale Bank. The purpose of our commission is to check that the correct approach, standards, etc have been used; that the conclusions made are well founded; and that any recommendations for noise mitigation are appropriate and adequate to protect the amenity of local residents.

Our review has focussed on the operational phase of the development rather than the construction phase.

As well as relevant plans of the proposed development, the following documents have been studied:-

1. Chapter 11 'Noise and Vibration' of the Environmental Statement (2011) and Appendices – prepared by Amec.
2. ES Noise Assessment Addendum (February 2013) - prepared by Amec.
3. Letter from Glyn Bridge on behalf of the Parish Council (23 July 2013).
4. Technical Note re. additional noise assessment work (November 2013) - prepared by Amec.
5. Appendix Two of Response to Glyn Bridge July letter (November 2013) - prepared by Amec.

Rather than describe each separate document we have provided an overview and only referred to specific parts of the individual documents when necessary. Our findings are set out below and aspects requiring clarification have been underlined.

Qualifications

The author of this report has the following qualifications:- BSc(Hons.) in Environmental Science; the Institute of Acoustics' 'Diploma in Acoustics and Noise Control'; and a MSc in Environmental Acoustics. He has over 25 years experience in the monitoring, assessment and control of environmental noise. He has been employed for the last 20 years by Hepworth Acoustics and now holds the position of Technical Director. Hepworth Acoustics is an independent acoustics consultancy, which is engaged by a range of private companies, local authorities and government departments to provide independent advice on environmental noise matters. Prior to this he gained several years local authority experience as a specialist environmental noise control officer. He is a Fellow of the Institute of Acoustics.

Proposed Site Layout of Development

The proposed development involves a large warehouse/distribution building of 16m in height.

A rail freight loading/unloading facility is proposed to the north of the building. As noise from the loading/unloading area would be screened from the nearest dwellings by the building itself, it was agreed with the Council that this aspect did not need to be considered in the Environmental Statement. This is a reasonable approach.

Lorry loading bays are proposed in the north (rear) and south (front) elevations of the building with a large car park to the front. It is stated that the north side bays will be used for 'goods out', and the south elevation bays will be used for 'goods in'. The loading bays to the rear will be screened by the building itself. Therefore it is the front area that is of interest in terms of potential noise impact.

However, as is discussed later, in the noise chapter Amec have stated that the southern elevation loading bays will not be used at night. If this is the case, this would certainly help to limit noise impact on the amenity of local residents. However, in the latest Amec report, an assessment of lorries being loaded by fork-lift trucks at night outside the southern elevation is included – clarification should be sought on the anticipated type and extent of lorry loading/unloading at night outside the southern elevation.

An access road is proposed which will run to the rear of the Linner Farm area. It is understood that this access road already has planning permission.

Areas of bunding/acoustic fencing are proposed to reduce noise emissions from the site and access road.

General Approach of the Amec Noise Assessment

Each chapter of an Environmental Statement must follow a prescribed procedure and reporting structure that includes an assessment method, a baseline study, assessment of impacts, mitigation of impacts, and assessment of residual impacts. The Amec noise chapter follows this procedure in the correct manner.

In the UK different assessment methods/standards have been established for different types of noise. This means that different types (sources) of noise associated with the proposed development at Hale Bank have to be assessed using a number of different approaches and standards. Amec have used appropriate approaches and standards for the relevant types of noise.

Details of actual numbers of lorry movements on the proposed development site are not known at this stage. Therefore Amec have had to devise, and agree with the Environmental Health Department, 'worst case' scenarios for noise calculation and assessment purposes. This is a standard procedure.

However, as sometimes happens, a considerable length of time has elapsed from submission of the application in July 2011 which has resulted in two subsequent additional noise reports being prepared by Amec - an addendum report in February 2013 and a Technical Note in November 2013. The most recent report attempts to update and summarise information from the previous reports but refers back to various sections of both the 2011 chapter and the February 2013 report, so there is no single 'stand alone' noise assessment document. It is difficult enough for a lay person to understand a noise chapter of an Environmental Statement or technical noise report, however having 3 noise reports to refer to makes it virtually impossible.

Baseline Noise Survey

Measurement of existing noise levels in the area has been carried out by installing automatic noise meters for 5-7 days in June 2011 at each of 3 residential locations. The locations were (1) Clap Gate Crescent, (2) Heath View, and (3) Linner Farm Cottages. The results are shown in chart form in Appendix 11.1 and average daytime and night-time values are shown in Table 11.9 of the noise chapter.

The daytime background noise levels are quite low and the late night background noise levels are particularly low. From Appendix 11.1, the background noise levels at night can be as low as 30 dBL_{A90(5 min)} at Locations 1 and 3, and below 30 dBL_{A90(5 min)} at Location 2. Although the results are set out in the Appendix, the fact that the background noise climate of the area is so low at night is not highlighted in the noise chapter, nor in the subsequent two reports.

This aspect is important because the lower the level of the prevailing background noise, the greater the potential noise impact from any operations taking place at night at the development site.

Where considered appropriate Amec have assessed noise impact by comparing predicted noise levels from the development with “representative” existing night-time L_{A90} background noise levels. However, in their assessment the background levels used by Amec are not the lowest 5-minute values measured, nor the lowest whole night value averaged over an 8 hour night-time period. It is not clear how the background values used for assessment purposes in the reports have been derived, but they appear to be equivalent to ‘averages of average values’. If so, such an approach may underestimate the potential environmental noise impact of the proposed development. Clarification should be sought on how background noise levels in the assessment of impact tables have been derived, and if necessary the tables revised to provide a more accurate evaluation of potential noise impact.

In Table 1 below I compare the night-time background noise values adopted by Amec for assessment purposes with values extracted from the results of the Amec baseline noise survey.

Table 1: Background Noise Levels At Night

Location	Lowest 5-minute value measured L_{A90(5 min.)}	Lowest whole night Average value L_{A90(5 min.)}	Background Noise Level used by Amec for Assessment L_{A90(5 min.)}
Clap Gate Crescent	31 dB(A)	35 dB(A)	42 dB(A)
Heathview Road	27 dB(A)	34 dB(A)	36 dB(A)
Linner Farm Cottages	31 dB(A)	35 dB(A)	38 dB(A)

It would be unreasonable to assess the noise impact of a major development proposal on the basis of the very lowest single L_{A90} 5-minute value measured at night. However, from examination of the noise survey results charts in Appendix 11.1 of the Environmental Statement, it appears to me that the background noise levels used by Amec for assessment purposes are on the high side. For assessment purposes, I would recommend the values shown in Table 2 as being more representative of late night background noise at the 3 residential locations.

Table 2: Recommended Background Noise Levels At Night For Assessment Purposes

Location	Representative Night-time Background Noise Level L_{A90(5 min.)}
Clap Gate Crescent	35 dB(A)
Heathview Road	34 dB(A)
Linner Farm Cottages	35 dB(A)

Noise from On-Site HGV Movements/Operations

The layout drawing shows articulated lorries backed in to the loading areas of the warehouse. There are loading doors proposed along virtually the whole length of the rear and front elevations, so this will be a large capacity site. There is reference to these being 'dock loading bays' such that loading/unloading is carried out via the rear of the lorry from within the building such that there will be no fork-lift truck activity outside the building. However, the latest Amec report does include an assessment of lorries being loaded by fork-lift trucks at night outside the southern elevation – as stated previously clarification should be sought on this aspect.

At some distribution warehouse sites refrigerated lorry trailers are used which generate noise from the on-vehicle chiller equipment. However, there is no mention of such trailers in the noise reports and it is therefore assumed that refrigerated vehicles will not be used at this site. This could be addressed by a suitably worded planning condition that prohibits use of refrigerated vehicles.

At some distribution warehouse sites lorry trailers are moved around the site using 'shunters'. These are non-road going diesel tractor units which may be noisier than standard road-going lorries. However, there is no mention of such shunters in the noise reports and it is therefore assumed that shunters will not be used at this site. This could be addressed by a suitably worded planning condition that prohibits use of shunters.

Therefore, from the above, the main source of noise from the development site would be associated with movements of heavy goods vehicles (HGVs) to and from the loading bays.

Amec have assumed a 3 shift system with 'goods out' loading bays in the rear elevation and 'goods in' loading bays in the front elevation. In the 2011 noise chapter it is stated that "there will be minimal HGV traffic between the hours of 21:00 and 07:00 using the inbound docking bays on the south side of the proposed warehouse building" and later in the same report that use of the bays on the south side of the building will be "restricted to between 07:00 and 21:00" hours only (clarification required on this).

The noise chapter of the Environmental Statement does not include a quantitative assessment of noise from on-site vehicle movements, but the November 2013 Technical Note does. Section 2.5 of the November report describes a method to assess noise impact of on-site vehicle movements which was agreed with the Environmental Health Department. Essentially the agreed methodology is a 'worst case' BS4142 assessment with the aim of controlling noise from the on-site vehicle movements to 10dB(A) *below* the existing background noise climate at night at each of the 3 residential locations used for the baseline noise survey. This is an exacting design standard to adopt and agree with the Council, but one which I agree would fully protect the amenity of local residents.

Three different scenarios for on-site vehicle movements were assessed for a worst case 5 minute period. I have seen concern raised by the Parish Council about use of a 5-minute period when operations could take place throughout the night. However, use of a worst case 5-minute period (i.e. late at night when background noise levels are at their lowest) is a standard approach and indeed a 5 minute assessment period for night-time noise is specifically recommended in BS4142. In terms of safeguarding the amenity of local residents, a worst case 5-minute assessment is actually better than an assessment of noise levels averaged over the whole of the night.

The predicted noise levels from the site are then compared with the night-time background noise level and evaluated by determining whether or not the site noise levels are 10dB(A) below the background noise level i.e. the 'yardstick' agreed with the Council. At Locations 1 and 2 Amec conclude that the noise levels do comply with the 'background minus 10 dB(A)' noise criterion. However it is clear that the predicted noise levels at Location 3 (Linner Farm Cottages) do not meet the criterion.

Amec go on to investigate noise levels from HGVs waiting at the entrance gate and loading of HGVs by fork-lift trucks outside the southern elevation. However, the same conclusion is reached in that the predicted noise levels from the site do not comply with the ‘background minus 10 dB(A)’ noise criterion at Linner Farm Cottages.

It is not clear to what extent audible reversing signals of reversing lorries has been taken into account in the Amec calculations.

Finally, Amec consider the combined noise impact of 1 HGV accessing the site, 1 HGV at a loading bay and 1 HGV waiting at the site entrance within the same 5 minute period. Again the conclusion is that the predicted noise levels comply with the ‘background minus 10 dB(A)’ noise criterion at only 2 of 3 assessment locations. Amec state that the predicted cumulative noise level of up to 43 dBL_{Aeq}(5 min.) at Linner Farm Cottages “is at most 5dB above the background noise level” and therefore, as defined in BS4142, is ‘of marginal significance’. However this depends on what background noise level is used and whether or not the 5 dB acoustic feature correction has been applied. In Table 3 below I have carried out a BS 4142 assessment on the basis of the background noise level that I recommended in Table 2.

Table 3: BS 4142 Assessment for Location 3 at Night

Location	Amec Predicted Noise Level $L_{Aeq}(5 \text{ min.})$	Background Noise Level $L_{A90}(5 \text{ min.})$	Difference
Linner Farm Cottages	43 dB(A)	35 dB(A)	+ 8 dB(A)

In terms of the likelihood of complaints about the noise, a difference of 8 dB(A) amounts to more than ‘of marginal significance’. If the predicted noise level does not already include the 5dB acoustic feature correction (clarification on this required from Amec), the Rating Level would be 48 dB which would exceed the background noise level by 13 dB(A) i.e. complaints likely. Applying the 5dB penalty would take into account the irregular character of HGV movements/loading operations which was raised as a concern by the Parish Council in the July letter. On any basis, the predicted noise impact is a long way from the criterion of being 10 dB(A) below the background noise level that was agreed with the Council. (Note the noise barrier in the Linner Farm area has since been improved – as discussed later).

In Section 4.10 of the November Report Amec rather abandon the BS 4142 approach which they recommended, in favour of absolute noise level criteria that are set out in British Standard 8233. It is stated that to achieve the ‘good’ standard of noise climate inside bedrooms would require an external noise level of no more than 40 dBL_{Aeq}(8 hours). Based on the external level of 43 dBL_{Aeq}(5 min.) predicted at Linner Farm Cottages, to meet the 40 dB(A) criterion would require there to be no noise from the site for half of the 8 hour night-time period.

Amec state that maximum noise levels are expected to be no more than 10-15 dB above the L_{Aeq} values for the HGV movements and that, on this basis, L_{Amax} levels would not exceed the L_{Amax} criterion of 45 dB(A) that is recommended in BS 8233 for bedrooms.

However, whilst reference to BS 8233 is useful, it should be borne in mind that the noise levels recommended in the standard apply only to ‘anonymous’ sources of noise such as general traffic noise rather than noise from specific premises/developments.

Noise from External Fixed Plant

Noise from outdoor mechanical services equipment is assessed in the Amec November 2013 Technical Note. This equipment comprises 13 heat pump units which would be located at low level outside the southern elevation of the warehouse building. Noise impact has been assessed to British Standard 4142

which is the correct approach. The Amec calculations take into account the distance to the nearest dwellings, the effect of the proposed acoustic screening measures, etc.

It is stated that the heat pumps will operate continuously and therefore the 5dB 'acoustic feature correction' as defined in BS4142 has not been applied. However Amec state that they have no information on the frequency spectra of the equipment and so it is not known whether or not the equipment generates any 'tonal' noise components. In such cases it would be good practice to include the 5dB acoustic feature correction.

Nevertheless, the plant noise emission values quoted by the manufacturer are modest. Therefore, based on the Amec noise calculation results, even if the 5dB correction was applied, the predicted noise rating levels at the nearest dwellings would be extremely low and well below the prevailing background noise climate of the area. This was confirmed by Amec in their response to the July letter submitted on behalf of the Parish Council.

Therefore noise from operation of fixed plant would not affect the living conditions of local residents.

Mention is made of a diesel powered pump for the warehouse sprinkler which can be expected to emit higher noise levels. However, I agree with Amec in that since the diesel engine would only be operated in an emergency situation, and during occasional testing (in the daytime), it should not be included in the BS 4142 noise assessment.

Noise from Off-Site Traffic

Amec have considered the noise impact associated with changes of traffic flows on the local highways network. The correct standard calculation and assessment procedure has been used.

The greatest impact can be expected to occur from the new access road to the site from the Newstead Road roundabout. The only traffic on this road will be that associated with the proposed development. The traffic noise calculations have assumed that the new road would have a specialist 'low noise' road surface.

The calculations take into account noise mitigation measures (noise screening) proposed for this road. We understand that planning permission for the access road has already been granted and there are planning conditions requiring certain noise barriers to be installed. However it appears that, over time, Amec have proposed various changes to the barriers. The latest changes proposed in the November report, including a 5 metres high acoustic fence in the area near Linner Farm, have been taken into account in the latest off-site traffic noise calculations. On this basis, the calculated 18-hour traffic noise level increases are low and would not significantly affect living conditions of local residents.

However I note that in the original 2011 noise chapter Amec included a separate assessment for the early morning period between 05:00 and 06:00 hours because this was considered to be the 'most sensitive' time as cars associated with a shift changeover will be using the road, as well as HGVs carrying outbound goods. I also note that the Parish Council raised a concern about traffic noise during this early morning period in the July letter. Amec concluded that at Linner Farm Cottage the 05:00-06:00 traffic noise would result in major adverse impact. No such assessment is included in the latest (i.e. November) report. Given the concern of the Parish Council about this issue we recommend that Amec are requested to review and update the assessment for this early morning period taking into account the improved noise barrier provision.

Noise Mitigation Measures

The noise chapter and subsequent noise reports make reference to a number of noise mitigation measures that have already been incorporated into the proposed development, or assumed by Amec, or recommended by Amec.

The latest noise mitigation measures proposed in the November report include raising the height of the acoustic fencing in the Linner Farm area to 5 metres. This would provide greater noise protection. From

the report, Amec calculate an improvement in noise reduction of 4 – 5 dB(A) which would reduce the noise from the site shown in my Table 3 above. I agree that an acoustic fence of this height is necessary in order to minimise noise impact as far as is practicable. Nevertheless, it is still the case that Amec target of achieving noise levels from the site 10dB below the late night background noise would not be achieved. Since this aim was agreed with the Environmental; Health Officer, clarification should be sought from the Council that they are happy with this situation.

The November Amec report usefully includes two cross sections which show the heights of the proposed noise barriers in relation to the bedroom windows of Smithy House and Linner Farm. It would be helpful if Amec could extend these sections to show the warehouse building and also to provide similar cross sections for their assessment locations R1 and R2, and if possible to one of the dwellings in Hale Bank Road e.g. No. 60.

Installation of the noise barriers, and provision of some of the other noise mitigation measures, can be ensured by appropriately worded planning conditions. Other measures would have to be the subject of a comprehensive Noise Management Plan which would have to be drawn up by the developer/operator and agreed with the Council. The purpose of the Noise Management Plan would be to minimise noise impact of the site operations on the amenity of local residents as far as is practicable.

The following issues need to be addressed by planning conditions or the Noise Management Plan:-

- Provision of Acoustic Barriers in accordance with the latest Amec recommendations, including the 5m high acoustic fencing.
- No use of the loading/unloading areas in the southern elevation of the warehouse building between 21:00 – 07:00 hours.
- Vehicles on the site to be fitted with ‘broadband’ white noise reverse warning systems rather than ‘bleepers’.
- No use of the site by refrigerated vehicles.
- No use of the site by lorry trailer ‘shunters’.
- Method to be deployed to avoid, or minimise impact noise from, drop down dock levellers at loading bays.
- Use of loading dock shelters/seals to minimise breakout of noise from within warehouse.
- General management measures to prevent unnecessary revving or idling of HGV engines, unnecessary use of horns, shouting of drivers/staff, etc.
- Access road to have specialist ‘low noise’ road surface.
- Environmental noise limits for mechanical services equipment.

Conclusion

The three noise reports prepared by Amec have been studied. As one would expect, for a professional organisation, we confirm that Amec have used the appropriate guidance documents in their assessment and have applied due diligence.

The proposal is for a major storage and distribution facility with associated comings and goings of delivery vehicles. Clearly, the amenity of local residents needs to be protected, but the access road already has planning approval and presumably this was envisaged to serve an employment land use. A development such as the one proposed will always have a degree of noise impact, in planning terms it is a question of whether or not that noise impact is reasonable i.e. within levels recommended in relevant

British Standards. To this end Amec have recommended a number of measures to mitigate the potential noise impact and recently the acoustic screening proposed in the south-west area has been significantly improved. Nevertheless, from the analysis provided to date by Amec, at one of the 3 assessment locations the predicted noise from the HGV operations does not achieve the noise control standard that was agreed with the Environmental Health Department.

We have identified a number of points which are important and require clarification or further assessment. We therefore recommend that the Parish Council seek a commitment from the Council to defer any planning decision until these points of clarification, which are important in terms of the potential noise impact on people living nearby, have been provided for consideration by the Council and the Parish Council.

For Hepworth Acoustics Ltd.
Yours sincerely,

A handwritten signature in black ink, appearing to read 'P. T. Bassett', written in a cursive style.

Paul Bassett BSc MSc FIOA
Technical Director