

STRATEGIC INFRASTRUCTURE DEVELOPMENT
APPLICATION TO AN BORD PLEANÁLA
(REG NO. PL04.PA0045)

ORAL HEARING

RINGASKIDDY RESOURCE RECOVERY CENTRE,
RINGASKIDDY, COUNTY CORK

WITNESS STATEMENT OF JENNIFER HARMON

NOISE AND VIBRATION

1. Qualifications and Experience

My name is Jennifer Harmon and I hold a Bachelor of Science Honours Degree in Environmental Science (1999) from University of Ulster and a post graduate Diploma in Acoustics and Noise Control (2001) from the Institute of Acoustics of which I am a full member and a tutor for the Irish Branch.

I am employed as a senior acoustic consultant with AWN Consulting with over 15 years' experience in the field of acoustic consultancy. My main areas of expertise are in environmental noise impact assessment, regulation and assessment, modelling and mitigation design. I have been involved in the compilation of numerous noise impact assessments for a wide range of industrial, commercial, transport and leisure developments throughout Ireland and the UK. I have prepared noise and vibration impact statements and provided expert witness evidence for a wide range of project types, some of which are listed below.

- Dublin Waste to Energy
- Ringaskiddy Waste Management Facility
- College Proteins Meat & Bone Meal CHP
- Dart Underground
- Luas A1 Belgard to Citywest
- Kildare Route Project
- M17 Tuam to Galway
- M11 Enniscorthy Bypass
- M7 Johnstown to Newbridge Upgrade
- Osberstown Interchange and R407 Sallins Bypass
- N17 Tuam to Galway
- NRA Service Areas
- Galway City Outer Bypass

2. Role in the Project

My role in the project involved undertaking the noise and vibration appraisal of the proposed development. I prepared the Noise and Vibration Chapter (Chapter 10) and of the Environmental Impact Statement [EIS]. The EIS was submitted to An Bord Pleanála [the Board] with the application for planning permission in January 2016.

In assessing the noise and vibration impacts of the proposed development the following methodology was adopted:

- The receiving environment was characterised by baseline noise surveys both attended and unattended at the nearest noise sensitive locations and within the bounds of the development site;
- The most appropriate criteria for both the construction and operational phases of the development were established with reference to both national and international best practice guidance documents and standards.
- An assessment of the potential impact of the proposed development during both the construction and operational phases were assessed using best practice assessment and calculation procedures, and;
- Mitigation measures are set out within the report in order to reduce any identified potential impacts to within the recommended criteria, where applicable.
- The residual and cumulative noise impact of the proposed development on its surrounding environment has been presented within Chapter 10 of the EIS.

2.1 Conclusion of The Noise and Vibration Impact Assessment

The conclusions of Chapter 10 of the EIS may be summarised as follows:

- A review of baseline noise monitoring data has found that ambient noise levels in the surrounding environment are influenced predominately by passing traffic in addition to adjacent industrial, port, and commercial activities. The steady-state background noise levels were found to be relatively low, i.e. in the absence of traffic and other intermittent industrial sources.
- Construction noise and vibration limits have been established with reference to the baseline environment and in accordance with best practice guidance documents in order to avoid any significant impacts at the nearest noise sensitive locations.
- Noise and vibration levels have been assessed during the key construction phases of the development. The assessment has determined that the noise and vibration criteria can be complied with taking account of the likely on-site activities, proposed hours of operation, distances to the nearest sensitive locations and through incorporating best practice mitigation measures.
- Construction traffic has been assessed taking account of the expected peak hour flows accessing the site. During the proposed morning peak hour (06:00 to 07:00hrs), a moderate to major increase in traffic noise is expected along the N28 to the east of the ferry port. The increase in noise levels is due to the low base levels of existing traffic during this specific time period along this road. The actual calculated noise levels associated with passing construction traffic along this road is, however, in line with noise levels experienced during the normal morning peak hour and hence is not out of line with the existing environment.
- During off-peak hours, traffic volumes and associated impacts are significantly reduced.
- Operational noise limits have been established taking account of the baseline noise environment and making reference to the EPA's guidance note for noise for licenced facilities. In order to ensure impacts are minimised as far as practicable, the low background noise limits specified by the EPA have been applied to the noise sensitive locations.
- The results of the modelling exercise for the operational phase has determined that the facility can operate within the more stringent EPA noise limits due to the site orientation, location of noise sources and distances to the nearest sensitive properties. Noise impacts during the operational phase of process plant and mechanical services of the development will be of minor to negligible impact.
- The operational traffic assessment has determined that increases in traffic noise in the vicinity of the proposed development during the proposed peak hour flows are categorised as minor noise impact when compared against base traffic flows. Similar to the construction phase, outside of the proposed early morning peak hour, the associated noise impacts are further reduced.

3. Submissions and Responses

In preparing this witness statement, I have considered each of the observations submitted to An Bord Pleanála by various parties in relation to the noise and vibration impact appraisal of the Ringaskiddy Resource Recovery Centre. I have addressed any submissions of relevance below.

Environmental Noise Impact

The environmental impacts, including potential noise impact has been queried in broad terms in a small number of submissions. These are addressed below.

3.1.1 Issue # 1 General Noise Impacts

- Submission 002: Kevin and Margaret Mulcahy and Paul and Sally Hudson, Diamond Hill, Monkstown.

The environmental implications, particularly for local residents, of yet further noise, dirt, light and traffic pollution

- *Submission 065 J and A Hutchinson*
Submission 066: Simon Coveney TD

Both submissions quote comments from the inspectors report relating to the 2009 oral hearing relating to the proposed waste to energy facility. Point 8 notes that ...' *the resultant noise and disturbance arising from its construction and operation, would be seriously injurious to residential amenity..'*

Issue # 1 Response:

The nearest residential buildings to the proposed waste to energy facility are in excess of 400m from the operational facility, the nearest occupied residence being a further 600m. Chapter 10 of the EIS contains a full assessment of the operational noise impacts associated with the facility taking into account the operational process and building services plant and on-site traffic using detailed noise modelling.

The assessment has concluded that the facility can operate comfortably below the adopted stringent noise limits due to the distance to the nearest sensitive buildings, the site orientation, the enclosure of on-site operations and the location and shielding of external noise sources on-site. The assessment has concluded that the operation of the facility will have a negligible to minor impact on the surrounding environment when added to existing baseline noise levels.

The operational traffic assessment has determined that increases in traffic noise in the vicinity of the proposed development during peak hour flows are of minor noise impact, when added to the existing environment and when compared against traffic noise levels during normal peak periods.

During the construction phase of the development, noise levels will be increased temporarily at the closest noise sensitive buildings in line with any construction project. A detailed noise assessment of the construction phase within Chapter 10 has determined that the noise impact of the proposed facility can operate within the adopted best practice construction noise criteria due to the distance between the nearest sensitive buildings and the construction works.

On consideration of the noise impact assessment, the operation and construction of the facility is not considered to pose an injurious noise impact to the surrounding environment.

3.1.2 Issue # 2 Specific Noise Impacts to Residence

- Submission 119: Liam and Joesphine Hughes, Copperfields, Rushbrooke, Cobh

Our home faces onto the development, and thus we have a major concern with the potential for increased and more frequent noise levels emanating from the operation of such a large installation, particularly at night-time.Noise will be a problem during construction and operation.

Issue # 2 Response:

Noise modelling has been undertaken for both the construction and operational phases of the proposed development to determine the potential noise impacts on the surrounding environment for both day and night-time periods, where applicable. The location of the residence under consideration is some 2.4km to the north of the proposed development site and therefore is at a significant distance from the facility.

The modelled results at the closest residential buildings, as presented within Chapter 10 of the EIS, are calculated at or below 35dB L_{Aeq} during night-time periods. At the residential location under consideration here, noise levels are calculated to be below 20dB L_{Aeq}. An operational noise level of this magnitude will be negligible over and above the existing noise environment and hence will not result in increased noise levels, during day, evening or night-time periods.

During the construction phase, noise levels will be restricted to the construction noise limits set at the nearest noise sensitive locations to the development. The results of the modelling assessment has confirmed that these limits can be complied with at the closest noise sensitive locations and hence, similar to the operational phase, will be significantly reduced at the property under consideration some 2.4km away.

In summary, the construction and operational phases of the proposed development will result in an insignificant noise impact at the residential property under consideration here.

Traffic Noise

Four submissions, #043, # 047, #059 and #172 make reference to the potential for increased noise as a result of increased traffic volumes.

Response:

The specific assessments relating to both construction and operational traffic noise impacts are discussed in Detail in Chapter 10 of the EIS (Sections 10.5.2.3 and 10.5.2.7). Detailed traffic analysis is presented in Chapter 7 of the EIS.

The highest traffic volumes will be experienced during the construction phase, particularly during the site preparation and earthworks phases. Analysis of the traffic volumes along the haul routes indicate that due to the existing high volumes of traffic along the N28 west of the ferry port, the addition of construction traffic to this section of road will result in a minor change in traffic noise levels.

The greatest increase in traffic noise will be experienced along the N28 to the east of the ferry port where all construction traffic must pass. Due to the relatively low volumes of traffic along this section of road during the proposed AM construction peak hour (i.e. 06:00 to 07:00hrs), increases in traffic noise levels will be experienced at the small number of properties along this road.

Specific noise calculations along this section of road were undertaken for the proposed peak morning hour during which the highest volumes of traffic will occur, in order to assess a worst case scenario. The calculations take account of the contribution of traffic accessing/egressing the Port of Cork junction, existing traffic along the N28 and the worst case peak hour construction flows. The associated increase in traffic noise is categorised as moderate to major, depending on the proximity to the traffic sources. As noted in previous sections and the traffic impact analysis, the relative increase noted along this section of road is due to the low baseline traffic volumes during the proposed morning peak hour and hence the relative increase is higher for this period. Outside of the proposed morning peak hour, the impact from construction traffic volumes is further reduced.

The assessment has noted that where a 'major' noise impact has been determined, the specific calculated noise level is broadly in line noise levels during the normal morning peak hour when traffic is accessing the industrial, educational and commercial facilities along this section of road.

During the operational phase, the traffic noise impact along the local access road have been assessed within Chapter 10 of the EIS. The assessment has concluded that increases in noise levels are categorised as minor along the N28 to the east of the ferry port during the morning peak period. During all other times, the impact will be further reduced.

4. SUGGESSTED FURTHER INFORMATION BY CORK COUNTY COUNCIL

4.1 Suggested Further Information

Appendix A of Cork County Council's submission contains suggested further information/clarification relating to the application.

Item 11 of Environmental Issues states the following with respect to noise

- (i) A suitably scaled map/details should be submitted identifying and quantifying the number and location of all noise sensitive receptors in the vicinity of the site boundary during the construction phase and the location of all noise monitoring points relative to same.
- (ii) The following should be commented and clarified with respect to the noise monitoring locations selected during the construction phase for the purpose of the characterisation of the current prevailing noise environment:
 - Why no attended survey was conducted with respect to monitoring location ref N1
 - Why no weekend monitoring was conducted

4.2 Response

4.2.1 Item 11(i)

A scaled noise contour plot has been calculated and is included within the EIS relating to the construction phase activities. Six no. noise contour plots are presented in Figures 10.3 to 10.8 of the EIS relating to the key identified construction phases. The noise contour plots identify the location of the closest noise sensitive buildings / locations by way of specific receiver locations (identified as R1 to R8). The assessment locations R1 to R8 represent individual properties or groups of properties, where applicable, and other noise sensitive locations including the NMCI, Martello Tower and the coastal area. The noise contour plots are calculated over a 1300m x 900m area encompassing the location of the most sensitive areas beyond the construction site boundaries. Beyond this distance, the construction noise levels are well below the construction noise criteria and hence are not considered further.

The baseline noise monitoring locations are displayed in Figure 10.1 of the EIS. The baseline data is used only to inform the relevant noise category to which a site falls and hence to select appropriate criteria.

The procedure for selecting appropriate construction noise criteria is taken from BS 5228 (2009 + A1 2014) using the 'ABC method' as described in Section 10.5.1.2 of the EIS. Depending on the range of baseline noise levels, a lower (Category A) or a higher (Category B or C) range of criteria are applied to noise sensitive areas.

In this instance, based on a review of the baseline monitoring results, the

construction noise criteria within 'Category A' has been applied to all noise sensitive locations during all construction periods (i.e. weekdays, weekends, evenings and night-time). The construction noise criteria in Category A are the lowest values applicable to construction noise and hence places a highly onerous criteria on the construction project with respect to noise control compared to other more standard criteria typically applied to other projects. In summary, the following noise criteria, as included in Section 10.5.1.2 of the EIS are applied to any noise sensitive location outside of the site boundary, irrespective of its distance from the works:

- | | |
|--|-------------------------------------|
| • Weekdays (07:00 – 19:00hrs): | 65dB L _{Aeq, 1hour} |
| • Saturday (07:00 to 13:00hrs): | 65dB L _{Aeq, 1hour} |
| • Evenings and weekends (outside 'normal hours') | 55dB L _{Aeq, 1hour} |
| • Night-time (23:00 to 07:00hrs) | 45dB L _{Aeq, 1hour} |

It is important to note that the construction noise criteria relates specifically to the construction activity only. The calculated noise levels presented in the contours plots (Figures 10.3 to 10.8) and in the related Table of the EIS (Table 10.15) relate to the *specific construction noise level* in order to compare against the *specific construction noise criteria* in line with this best practice. Baseline noise levels are therefore not included within the calculations.

4.2.2 Item 11 (ii)

- *Why no attended survey was conducted with respect to monitoring location ref N1*

Response

Attended noise monitoring was not conducted at monitoring ref N1 as an unattended survey was conducted at this location over a 24 hour period. The results of the unattended survey therefore provided continuous monitoring data over day, evening and night-time periods and hence provided the sufficient level of information for this location for the project. Attended surveys were conducted at locations where unattended monitoring was not undertaken.

- *Why no weekend monitoring was conducted*

Response

As noted in Section 4.2.1 above, the baseline data is used only to inform the noise category in which a site falls and hence to determine the relevant noise criteria for both the construction and operational phases.

The monitoring survey is dictated by the guidance from the EPA (NG4 2012) for licenced facilities (EPA NG4 2012) which does not include a specific requirement for

weekend monitoring. This monitoring methodology is also appropriate for determining the appropriate noise criteria for construction noise.

In terms of the construction noise criteria, Category A from BS 5228 has been applied to all noise sensitive receptors for all construction periods including weekends. In this instance, the information gathered during weekday periods has been used to apply the lowest construction noise criteria for both weekday and weekend periods. Specific weekend noise monitoring data is not considered necessary in this instance as the noise category and relevant criteria are already the lowest permissible in line with the relevant guidance document.