APPENDIX THREEE

Noise Considerations

Introduction

1.1.1 A noise assessment has been carried out to determine whether noise levels meet appropriate guidance standards. This is presented at Appendix C to this planning statement. The approach to the noise assessment was agreed in advance with Flintshire County Council's EHO.

1.1.2 Background sound measurements have been undertaken at the nearest residential boundaries during a Sunday morning period to establish the lowest likely background sound levels.

1.1.3 Measurements undertaken at similar sites operating in the UK have been referred to for information on typical site operational noise levels during peak noise events.

1.1.4 The empirical measurements of existing HRC facilities in operation have enabled the determination of the noise contribution from the proposed site at the nearest residential properties and the Dee Estuary SSSI/SAC/SPA/Ramsar site for comparison with background sound measurements.

1.1.5 The most appropriate noise criteria for this type of development would be BS4142: 2014 which assesses the likely impact from the site relative to the nearest residential properties. Following consultation with Flintshire County Council Pollution Control Officer the site rating noise levels should ideally not exceed background sound levels.

Existing Noise Climate

1.1.6 The results of the background sound measurements indicate that representative Sunday morning levels (in terms of LA90) are shown to vary between 50dB and 56dB. Residual sound levels are typically between 54dB to *68dB LAeq*.

Typical Peak Noise from Similar HRC

1.1.7 The recorded noise levels at 10-metre distance from peak noise events at a similar site, varied from 58dB to 69dB LAeq. The corresponding maximum (Lmax) levels correspond typically between 67dB to 87dB LAmax. The Compactors would typically operate on occasions at a level of 76dB(A) to 82dB(A) at 1m.

Conclusions

1.1.8 The results of these measurements and detailed analysis have shown the following:

1.1.9 Predicted noise contribution from the HRC is shown to be between 37dB to 42dB $LAeq_{1hr}$. This is lower than existing residual and Sunday morning background sound levels (at the nearest receptor position). However, when taking into account a 'worst case' noise character correction according to BS4142: 2014, the resultant rating level is between -9dB and -13dB below the noise criteria assuming a pessimistic noise generation on site.

1.1.10 Noise prediction calculations of LAmax levels for impact events (e.g. movement of waste on HRC site) show a resultant level at the most sensitive receptor of 42dB to 62dB LAmax. This compares with the existing ambient measured LAmax levels at the nearest residential property of 61dB to 85dB LAmax during a Sunday morning period (i.e. lowest likely).

1.1.11 Noise levels are shown to be below recommended internal noise levels according to BS8233: 2014 with an open window for daytime resting (i.e. below 35dB $LAeq_{16hrs}$) assuming a reduction of -15dB for an open window.

1.1.12 The third octave band frequency spectra recorded at similar sites shows a relatively flat frequency response curve. The resultant comparison of site predicted noise and existing residual noise shows site noise below existing levels in terms of frequency content based on the application of the proposed location and layout.

1.1.13 Noise levels at the Dee Estuary SSSI/SAC/SPA/Ramsar site are shown to vary between 30dB to 44dB LAeq1hr, which is not deemed to be significant (refer to the Ecology Assessment for impacts).

1.1.14 With the proposed development in operation, the assessment indicates that noise levels are unlikely to be significant at the nearest residential receptors when considering the context of the existing acoustic environment and mitigation proposed.

1.1.15 Taking into account the operational times of the HRC activities, proposed layout, subjective observations at other HRC sites in the UK, measured noise levels and the relative position of the nearest residential properties to proposed noise sources, it can be concluded that the resultant noise levels would fall within appropriate guidance and standards to protect residential amenity.