

A7.3 Noise and Vibration: Briefing Note

A7.3.1 Scope of assessment and methodology

The noise and vibration impact assessment identifies any potential adverse noise and vibration impacts that would arise from the construction and operation of the new EAF facility.

The scope of the assessment included comprehensive baseline noise surveys, accounting for existing noise in and around the area surrounding the Site. The results of these surveys have informed the assessment. The methodology for the surveys was agreed in consultation with Neath Port Talbot Council (NPT) and Natural Resource Wales (NRW).

The study areas included receptors representative of humans (residential properties, and designated 'Quiet Areas') and ecology (Margam Moors SSSI and Eglwys Nunydd Reservoir Nature Reserve), with a particular focus on those areas closest to the application boundary.

The technical noise and vibration impact assessments for the EAF and scrap processing are detailed in reports presented in the Appendices of the Environmental Statement (Volume 3).

A7.3.2 Baseline

This section provides a brief description of how the baseline noise environment has been quantified, and basic qualification of the noise sources present in the area surrounding the Site. A 'soundscape' study, which looks at the subjective and non-quantifiable impacts is summarised in Section A7.3.4.

Baseline noise surveys were conducted to establish the existing baseline ambient noise experienced within the Site and the surrounding area (both human and ecological receptors). The surveys served to provide a reference point against which the potential noise impacts from the EAF could be assessed.

The surveys were carried out at representative locations to capture the typical noise levels at residential areas and ecological sites. Receptors nearest to the Site, and those considered to be most affected, that have been surveyed include:

- Residential areas: Properties at West End, Prince Street, Brynhyfryd Road, Longland Lane, and Eglwys Nunydd.
- Ecological sites: SSSIs (Margam Moors, and Eglwys Nunydd Reservoir) and quiet areas (Vivian Park, and Talbot Memorial Park).

Single point measurements are considered to be suitably representative of receptors in the surrounding area.

The established baseline noise levels were revealed to be mostly influenced by the ongoing industrial activities in and around Port Talbot, particularly those associated with 'heavy end' infrastructure of the Port Talbot steelworks.

Measurements were also undertaken at a location away from the influence of noise from the Port Talbot steelworks, this is known as a 'proxy'. This measurement gives us a hypothetical view of noise from the Proposed Development in the absence of any Port Talbot steelworks noise. This hypothetical scenario is required to be quantified in accordance with relevant guidelines, but it would never be there in practice (i.e. because the Port Talbot steelworks is operational). As such the established baseline noise levels provide the key indicator of impact.

A7.3.3 Predicted impacts – Quantitative

The noise and vibration impact assessment presents a prediction and assessment of the likely construction, and operational noise levels.

Construction phase

Construction noise, construction vibration and construction traffic noise resulting from the Proposed Development were not found to be significant enough to disturb residential areas. Noise levels are predicted to increase temporarily, particularly during periods of high and intensive construction activity. However, these increases are predicted to remain within acceptable noise limits.

Vibration associated with the construction phase is not predicted to be felt beyond the immediate vicinity of construction plant, and therefore will not travel beyond the Site boundary.

Residual effects of noise and vibration during construction are determined as not significant.

Operational phase

Following the implementation of noise control through the design of the Proposed Development, predictions of operational noise, resulting from scrap material handling, plant activities, and operational traffic are not found to be significant. The embedded noise control measures are considered to be Best Available Technique (BAT¹) in accordance with relevant sector specific guidelines (BREF Documents²). In simple terms, the Proposed Development has considered and embedded noise barriers, and/or enclosures as part of the design. The predictions account for characteristics corrections (i.e. impulsive noise) to the magnitude of +6 dB at receptors.

Noise levels in residential areas are not predicted to discernibly increase from those already experienced under current operations, with a reduction in operational noise expected at most residential receptors. This means residents will not experience a change to what is audible in the existing environment during both day (07:00-23:00) and night time (23:00-07:00) periods. Individual area noise experiences are presented below, with a figure displaying these levels presented in **Figure A7.3.1**.

Residential properties at and around 'West End' (R1)

<i>Period</i>	³ <i>Proxy Background, L_{A90} dB</i>	⁴ <i>Receptor Background L_{A90} dB</i>	⁵ <i>Receptor Ambient L_{Aeq} dB</i>	⁶ <i>EAF Contribution L_{Aeq} dB</i>
<i>Day</i>	51	47	51	34
<i>Night</i>	38	42	47	34

Table 1 Residential properties at and around 'West End' (R1)

This urban location is dominated by sounds generated by human activity, specifically noise from nearby industrial sites (predominantly the existing Port Talbot steelworks). Towards the end of West End, road traffic noise from A4241 becomes dominant. Occasional railway noise due to nearby line is also audible during train movements. Sounds from nature include bird calls and some noise from foliage moving in the wind.

Existing average ambient noise levels are in the order of 51 dB(A) during the day, and 47 dB(A) during the night. This includes noise from the Port Talbot steelworks 'heavy end'.

Following the construction and operation of the EAF, residents in and around West End will experience similar sounds to those they experience now, with actual noise from industry expected to be perceptibly lower during many periods (especially once the heavy end ceases operation). The noise from the EAF is predicted to be 34 dB(A), which is at least 13 dB lower than the existing ambient noise environment during day and night time periods.

¹ Guidance Noise and vibration management: environmental permits (As prepared by environment Agency England, and adopted by Wales)

² BREF Ferrous Metals Processing Industry, 2.3 (a,c) and 2.6 of Annex I to the Industrial Emissions Directive 2010/75/EU. BREF Iron and Steel Production

³ Modal background noise (experienced for 90% of the time) at a substitute (proxy) location with no noise from the Port Talbot steelworks.

⁴ Modal background noise (experienced for 90% of the time) at the receptor including existing noise from Port Talbot steelworks.

⁵ Modal Average' noise across the environment at the receptor accounting for all sources.

⁶ The predicted, unrated contribution of noise from the Proposed Development at the receptor

Residential properties at 'Prince Street' (R2)

<i>Period</i>	⁷ <i>Proxy Background, L_{A90} dB</i>	⁸ <i>Receptor Background L_{A90} dB</i>	⁹ <i>Receptor Ambient L_{Aeq} dB</i>	¹⁰ <i>EAF Contribution L_{Aeq} dB</i>
Day	51	47	53	37
Night	38	42	48	37

Table 2 Residential properties at and around 'Prince Street' (R2)

This urban location is dominated by sounds generated by human activity, specifically noise from nearby industrial sites (predominantly the existing Port Talbot steelworks). Road noise from the A4241 road is also prominent. Sounds from nature include occasional bird calls and foliage moving in the wind.

Existing average ambient noise levels are in the order of 53 dB(A) during the day, and 48 dB(A) during the night. This includes noise from the Port Talbot steelworks 'heavy end'.

Following the construction and operation of the EAF, residents in and around Prince Street will experience similar sounds to which they experience now, with actual noise from industry expected to be perceptibly lower during many periods (especially once the heavy end ceases operation). The noise from the EAF is predicted to be 37 dB(A), which is at least 11 dB lower than the existing ambient noise environment during day and night time periods.

Residential properties at 'Brynhyfryd Road' (R3)

<i>Period</i>	⁷ <i>Proxy Background, L_{A90} dB</i>	⁸ <i>Receptor Background L_{A90} dB</i>	⁹ <i>Receptor Ambient L_{Aeq} dB</i>	¹⁰ <i>EAF Contribution L_{Aeq} dB</i>
Day	51	44	52	36
Night	38	42	48	36

Table 3 Residential properties at and around 'Brynhyfryd Road' (R3)

This urban location is dominated by sounds generated through human activity, specifically noise from nearby industrial site (predominantly the existing Port Talbot steelworks) and roadway traffic from the A4241 and A48. Sounds from nature include bird calls and some noise from foliage moving in the wind.

Existing ambient noise levels are in the order of 52 dB(A) during the day, and 48 dB(A) during the night. This includes noise from the existing Port Talbot steelworks 'heavy end'.

Following the construction and operation of the EAF, residents in and around Brynhyfryd Road will experience similar sounds to which they experience now, with actual noise from industry expected to be perceptibly lower during many periods (especially once the heavy end ceases operation). The noise from the EAF is predicted to be 36 dB(A), which is over 12 dB lower than the existing ambient noise environment during day and night time periods.

Residential properties at 'Longland Lane' (R4)

<i>Period</i>	⁷ <i>Proxy Background, L_{A90} dB</i>	⁸ <i>Receptor Background L_{A90} dB</i>	⁹ <i>Receptor Ambient L_{Aeq} dB</i>	¹⁰ <i>EAF Contribution L_{Aeq} dB</i>
Day	51	52	57	33
Night	38	47	54	33

⁷ Modal background noise (experienced for 90% of the time) at a substitute (proxy) location with no noise from the Port Talbot steelworks.

⁸ Modal background noise (experienced for 90% of the time) at the receptor including existing noise from Port Talbot steelworks.

⁹ Modal Average' noise across the environment at the receptor accounting for all sources.

¹⁰ The predicted, unrated contribution of noise from the Proposed Development at the receptor

Table 4 Residential properties at and around 'Longland Lane' (R4)

This urban location is dominated by sounds generated by human activity, specifically noise from the nearby industrial site (BOC and the Port Talbot steelworks) and roadway traffic from the A48 and M4 motorway. Sounds from nature include bird calls and some noise from foliage moving in the wind.

Existing average ambient noise levels are in the order of 57 dB(A) during the day, and 54 dB(A) during the night. This includes noise from the Port Talbot steelworks 'heavy end'.

Following the construction and operation of the EAF, residents in and around Longland Lane will experience similar sounds to which they experience now. Actual noise from industry is expected to be perceptibly lower during many periods (especially once the heavy end ceases operation). The noise from the EAF is predicted to be 33 dB(A), which is over 21 dB lower than the existing ambient noise environment during day and night time periods.

Residential properties at 'Eglwys Nunydd' (R5)

<i>Period</i>	⁷ <i>Proxy Background, L_{A90} dB</i>	⁸ <i>Receptor Background L_{A90} dB</i>	⁹ <i>Receptor Ambient L_{Aeq} dB</i>	¹⁰ <i>EAF Contribution L_{Aeq} dB</i>
<i>Day</i>	51	47	66	28
<i>Night</i>	38	39	57	28

Table 5 Residential properties at and around 'Eglwys Nunydd' (R5)

This urban location is dominated by noise from motorised traffic on the nearby motorway (M4) which is approximately 200 m west of the location and the B4283. There is also a distant industrial 'hum', believed to be from the Port Talbot steelworks, and other industry such as BOC. Sounds from nature included occasional bird calls.

Existing average ambient noise levels are in the order of 66 dB(A) during the day, and 57 dB(A) during the night. This is likely to include a small contribution of noise from the Port Talbot steelworks 'heavy end'.

Following the construction and operation of the EAF, residents in and around Eglwys Nunydd area will experience similar noise sources to which they experience now, with actual noise from industry expected to be perceptibly lower during many periods, once the heavy end ceases operation. The noise from the EAF is predicted to be 28 dB(A), which is over 29 dB lower than the existing noise environment during day and night time periods.

Ecological Receptors

At ecological receptors (the SSSI and the Nature Reserve to the south, south-east), operational noise levels are unlikely to change the character or magnitude of the existing noise climate, therefore resulting in no impact.

A7.3.4 Mitigation, Soundscape and Residual Effects

Soundscape

Soundscape refers to the qualitative look at a noise environment a receptor is exposed to, and the potential for change (either positively, negatively or no change). This is not just about the magnitude of noise but the character of noise, and how the noise is perceived.

Soundscape is specifically addressed in Appendix A7.4 of the ES Noise Chapter, however a summary is presented below.

The following topics were considered as part of the study:

- Study Area (Stakeholder and Community Identification)
- Monitoring and Engagement (Understanding the Context, Collaboration and Local Perception) – Studies undertaken
- Monitoring and Engagement (Understanding the Context, Collaboration and Local Perception) – Findings
- Impacts on Soundscape
- Acoustic Design (Soundscape through Design)
- Residual Impacts on Soundscape

The soundscape across the study area comprises a combination of natural, and anthropogenic sources. In general anthropogenic sources are more significant across the area than natural sources of sound. These are considered to be subjectively, and objectively more dominant in their contribution to a soundscape than natural sounds. The dominance of any single source, at any one location in the study area is dependent on distance from source, dominance of other sources, time of day, weather conditions and time of year. However in all locations distant and local road traffic was clearly distinguishable, as well as some form of industrial noise.

Subjectively through observational visits, the soundscape at each location was not considered to be of natural content, even those within the SSSI. The SSSI has less local anthropogenic noise influences, but still a general background ‘hum’ of industry and traffic, and intermittent anthropogenic disturbances. None of the locations would be considered to be ‘tranquil¹¹’ from a sound perspective, although many locations within the SSSI could be considered tranquil from a visual perspective. Actual tranquility will be determined by an individual, and is highly subjective.

There were no specific responses from the community to the subjective feeling or opinion on the current soundscape across the study area, with the exception of a minor comment around how the environment is likely to change from a Tata Steel UK Limited (Tata Steel) operations point of view. The main noise chapter in the ES provides the quantitative predictions on how noise will change in the area as a result of the Proposed Development, whereas the section below discusses the likely changes to the soundscape from a non quantitative perspective.

The soundscape study indicates that the Proposed Development will have either a slight **positive impact** on the soundscape across the area, in the form of a **quieter noise** contribution from industry, or no impact at all due to the distances involved (between the Site and receptors). At locations where there is likely to be a positive impact, the character of noise within the soundscape (i.e. types of sounds audible) will be similar between those experienced at baseline, interim and the future. Tata Steel UK Limited (Tata Steel), through the Proposed Development, does not have control over external sources in the baseline soundscape to change the character of sound experienced at baseline, however they have looked to reduce the magnitude through design.

Construction phase

The construction phase will follow best practice to mitigate construction noise. Examples of such measures include prior consent agreement for any works outside weekdays and Saturday core hours, where there is potential for significant adverse effects. Quiet and low noise equipment will be prioritised and located where required to minimise noise disturbance at nearby residential areas. Mitigation measures during construction would be implemented through a Noise and Vibration Management Plan (NVMP) in accordance with commitments made in the outline Construction Environmental Management Plan (CEMP) to control any significant effects. This plan would be submitted for approval by the regulatory authority.

¹¹ The Welsh Government (The State of Natural Resources Report (SoNaRR): Assessment of the Sustainable Management of Natural Resources, 2012) provides an expanded definition of Tranquility: provides ‘An untroubled state, which is peaceful, calm and free from unwanted disturbances. This can refer to a state of mind or a particular environment. Tranquillity can be measured in terms of the absence of unwanted intrusions, or by a balancing of positive and negative factors. These include the presence of nature, feeling safe, visually pleasing surroundings and a relaxing atmosphere.’



Operational phase

The Proposed Development has been designed sympathetically with noise emissions taken into consideration, and has embedded noise control measures, in accordance Best Available Technique (BAT¹²) and with relevant sector specific guidelines (BREF Documents¹³). In simple terms, the Proposed Development has considered and embedded noise barriers, and/or enclosures as part of the design.

Therefore, no additional mitigation measures to those embedded in the design are required, and as such residual effects remain the same as those predicted during the impact assessment, i.e. not significant.

As part of the detailed design phase of the Proposed Development, the operational phase noise assessment will be refined to ensure those embedded noise controls remain effective and efficient to meet the conclusions presented here.

¹² Guidance Noise and vibration management: environmental permits (As prepared by environment Agency England, and adopted by Wales)

¹³ BREF Ferrous Metals Processing Industry, 2.3 (a,c) and 2.6 of Annex I to the Industrial Emissions Directive 2010/75/EU. BREF Iron and Steel Production



