



Method Statement

Title:	Acoustic Assessment Method Statement - EAF Project		
Client:	TATA Steel Limited		
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1 Introduction

1.1 Scope

This method statement describes the approach and methodology proposed for the collection of baseline data and the acoustic assessment of the EAF Project.

In preparing this method statement, we have assumed that the EAF Project is understood by those reading this document. If further information is required relating to the background or the requirement for the environmental assessment, we would be happy to provide further information.

1.2 Consultation

Consultation relating to noise and vibration has occurred in the form of meetings between RSK Acoustics, Council and Natural Resource Wales (NRW). Following the meetings held with either Council or NRW, the document has been updated based on the points raised relating to the noise and vibration assessment of the EAF project.

2 Baseline Survey (off-site) Methodology

2.1 Previous Baseline Measurements

Baseline monitoring was undertaken at various Noise Sensitive Receptors (NSRs) locations during 2018, 2019, and most recently in 2022.

Based on the assumption that noticeable changes to the acoustic environment have not occurred in the area since the previous baseline measurements were completed, it is considered likely that the data collected during 2022 is representative of the existing acoustic environment at nearby NSRs.

We understand that the Coke ovens (part of the TATA Steel UK Ltd site have been switched off since the previous 2022 baseline measurements. The overall contribution to the baseline environment from the Coke ovens is considered to be unlikely to play a significant role in the measured levels. This is based on the relative

distance to the coke ovens (in the order of 1800 m from Brynhyfryd Road), compared with the other closer industrial processes such as the blast furnaces (1200 m from Brynhyfryd Road) continuous casting plant (1000 m distance to Brynhyfryd Road) or the Hot mill (500 m from Brynhyfryd Road).

Based on the above, we consider that the data collected during 2022 is representative of the existing acoustic environment at nearby NSRs.

2.2 Residential Noise Sensitive Receptors (NSRs)

The nearest residential NSRs to the development site are identified in **Table 1**.

NSR Ref.	Description	Type of Receptor	Easting	Northing
R1	Residential properties at West End	Residential	277127	188899
R2	Residential properties at Prince Street	Residential	277641	188331
R3	Residential properties at Brynhyfryd Road	Residential	278365	187088
R4	Residential properties at Longland Lane	Residential	279273	186115
R5	Residential properties at Eglwys Nunydd	Residential	280190	184858

Table 1 NSR Monitoring Locations

2.3 2022 Baseline Data Summary

A summary of the previous data collected in 2022 is provided below.

At R1 NSR in Taibach off West End has been provided in **Table 2** for information.

Date	Time Period	Measured noise levels, dB		
		L _{Aeq, T}	L _{Afmax, 15min}	L _{A90, T}
23 March 2022	23:00-07:00	54	80	51
24 March 2022	07:00-23:00	52	82	48
	23:00-07:00	46	79	49
25 March 2022	07:00-23:00	51	82	47
	23:00-07:00	56	78	43
26 March 2022	07:00-23:00	53	82	47
	23:00-07:00	56	78	45
27 March 2022	07:00-23:00	53	85	47
	23:00-07:00	57	80	46

Table 2 R1 Baseline Data Summary March 2022

At R2 NSR on Prince Street has been provided in **Table 3** for information.

Date	Time Period	Measured noise levels, dB		
		L _{Aeq, T}	L _{Afmax, 15min}	L _{A90, T}
23 March 2022	23:00-07:00	56	87	51
24 March 2022	07:00-23:00	55	85	48



Date	Time Period	Measured noise levels, dB		
		L _{Aeq, T}	L _{Afmax, 15min}	L _{A90, T}
	23:00-07:00	55	80	51
25 March 2022	07:00-23:00	52	82	47
	23:00-07:00	52	93	43
26 March 2022	07:00-23:00	52	85	47
	23:00-07:00	51	77	45
27 March 2022	07:00-23:00	51	78	47
	23:00-07:00	53	80	48

Table 3 R2 Baseline Data Summary March 2022

At R3 NSR in Margam off Brynhyfryd Road has been provided in **Table 4** for information.

Date	Time Period	Measured noise levels, dB		
		L _{Aeq, T}	L _{Afmax, 15min}	L _{A90, T}
23 March 2022	23:00-07:00	52	74	48
24 March 2022	07:00-23:00	52	77	47
	23:00-07:00	53	86	49
25 March 2022	07:00-23:00	53	84	48
	23:00-07:00	48	76	43
26 March 2022	07:00-23:00	59	89	48
	23:00-07:00	48	73	44
27 March 2022	07:00-23:00	53	87	48

Table 4 R3 Baseline Data Summary March 2022

At R4 NSR at Longland Lane has been provided in **Table 5** for information.

Date	Time Period	Measured noise levels, dB		
		L _{Aeq, T}	L _{Afmax, 15min}	L _{A90, T}
23 March 2022	23:00-07:00	58	82	55
24 March 2022	07:00-23:00	59	94	54
	23:00-07:00	57	83	54
25 March 2022	07:00-23:00	58	86	53
	23:00-07:00	54	81	49
26 March 2022	07:00-23:00	58	92	54
	23:00-07:00	54	83	50
27 March 2022	07:00-23:00	53	87	48

Table 5 R4 Baseline Data Summary March 2022

At R5 NSR at Longland Lane has been provided in **Table 6** for information.



Date	Time Period	Measured noise levels, dB		
		L _{Aeq, T}	L _{Afmax, 15min}	L _{A90, T}
23 March 2022	23:00-07:00	61	83	52
24 March 2022	07:00-23:00	66	89	59
	23:00-07:00	61	83	52
25 March 2022	07:00-23:00	66	99	52
	23:00-07:00	56	82	43
26 March 2022	07:00-23:00	65	99	49
	23:00-07:00	56	82	41

Table 6 R5 Baseline Data Summary March 2022

2.4 Sites of Special Scientific Interest (SSSIs)

Baseline monitoring (2024) is proposed at 'non-residential' NSRs; these are listed below:

- Margam Moors SSSI is the last remaining example of the coastal levels in West Glamorgan; and
- Eglwys Nunydd reservoir SSSI is designated for its bird interest.

The proposed baseline monitoring locations associated with the SSSI are identified in **Table 7**.

NSR Ref.	Description	Type of Receptor	Easting	Northing
R6	Margam Moors	SSSI	278040	185241
R7	Eglwys Nunydd reservoir	SSSI	279744	184949

Table 7 SSSI Monitoring Locations

2.5 Quiet Areas

Two quiet areas have been identified in the Port Talbot area, these are listed in **Table 8** below:

NSR Ref.	Description	Type of Receptor	Easting	Northing
R8	Vivian Park	Quiet Area	275023	190020
R9	Talbot Memorial Park / Parc Coffa Talbot	Quiet Area	277393	189282

Table 8 Quiet Areas Locations

Baseline monitoring at these locations is expected to consist of short-term attended measurements.

2.6 Proxy Background Sound Level Monitoring Location (dB L_{A90})

As the existing site operation was present during the previous baseline monitoring / during the proposed baseline monitoring, it is not possible to measure the true background sound level without contribution from the site. Our intention is to measure background sound levels at a proxy location in order to determine a representative background sound level in the absence of the specific sounds from the site.



Based on the above, a proxy monitoring location is proposed where the residual sound is comparable to the assessment location(s). The proxy monitoring location is proposed at a similar distance from the M4 motorway to the Margam / Port Talbot residential dwellings but will be located approximately 3 km south of the EAF Project site.

The proposed baseline monitoring locations for the proxy location is identified in **Table 9**. Additional attended night-time monitoring is also planned in order to observe the potential for contamination of the dataset from the existing site.

NSR Ref.	Description	Type of Receptor	Easting	Northing
R10	Proxy location approximately 300m west of the motorway (M4)	Proxy	279770	184019

Table 9 Proxy Background Sound Monitoring Location

2.7 Site Boundary Measurements

It is proposed that monitoring is undertaken at intermediate distances from the site whilst the existing site is in operation (e.g. at the site boundary). The measurements will allow for observation and clarification of the dominant sources associated with the existing site activities and how these contribute to the existing acoustic environment.

Based on the site boundary monitoring positions selected (locations only selected if both safe and accessible to the public), the results from any monitoring collected from the existing operation can be compared with activities in future operational years. Allowing for a like for like comparison of the existing activity with the future operation of the EAF Project.

Site boundary measurements are proposed to be undertaken during both the day and night-time. However, it is expected that measurements during the night-time will provide the best data to understand the noise contribution from site.

A suitably qualified acoustician should be involved in the site boundary measurements associated with the measurement of the existing and future operation of the site e.g. an individual who holds a recognised acoustic qualification and membership of an appropriate professional body. The primary professional body for acoustics in the UK is the Institute of Acoustics.

2.8 Instrumentation

Any sound level meters used as part of the off-site survey will conform to BS EN 61672-1¹, Class 1, for free-field application. Any filters, where used, will conform to BS EN 61260², Class 1, and sound calibrators to BS EN 60942³, Class 1.

Any equipment used as part of the site survey will have a calibration history that is traceable to a certified calibration institution. Calibration certificates can be provided on request.

All measurements will be undertaken in accordance with BS 4142:2014+A1:2019 Section 6 (Measurement procedure).

¹ BS EN 61672-1, Electroacoustics — Sound level meters — Part 1: Specifications

² BS EN 61260, Electroacoustics — Octave-band and fractional-octave-band filters

³ BS EN 60942, Electroacoustics — Sound calibrators



2.9 Meteorological Conditions

Metrological conditions will be measured using a weather station to determine conditions throughout the 2024 survey. The weather information will be summarised in the ES chapter with the full dataset provided in an Appendix.

Weather data for the 2022 survey is to be taken from a local weather station, with the data being provided by Council.

3 Assessment Methodology

The below sections discusses the proposed methodology for the assessment of noise impacts from the EAF Project.

3.1 Assessment Scope

The elements shown in **Table 10** are considered as having the potential to give rise to likely significant effects as a result of the EAF Project and are therefore considered within this assessment.

Element	Detail
Noise and vibration from the construction activities	Temporary noise and vibration effects associated with construction activities.
Noise and vibration from heavy vehicle movements associated with construction activities	Temporary noise effects associated with construction traffic on the public highway.
Noise from road traffic vehicle movements associated with the operation of the EAF Project	Noise generated by operational traffic (heavy good vehicles and passenger vehicle movements etc.) on existing local routes, potentially affecting existing noise sensitive receptors.
Noise from rail traffic vehicle movements associated with the operation of the EAF Project	Noise generated by operational rail traffic on existing and proposed rail line local routes, potentially affecting existing noise sensitive receptors.
Noise from the operation of the EAF Project	Noise from the operation of the modified P EAF Project including noise arising from the existing unchanged processes on site, as well as the new or altered noise generating equipment associated with the EAF Project.

Table 10 Elements considered within the assessment

3.2 Study Area

The study area for the assessment varies depending on the effect under assessment, and in accordance with the relevant standards and guidance. A summary of the study areas adopted for the assessment is provided below.

- Construction Noise: The Study Area considered for the construction phase is 300 m from the Red Line Boundary. BS 5228:2009+A1:2014 states that at distances over 300 m noise predictions have to be treated with caution;



- Construction Vibration: The Study Area considered for the construction phase is 100 m from the closest construction activity with the potential to generate vibration, in line with guidance from DMRB⁴;
- Rail Noise: The Study Area considered for the railway noise is up to 300 m from the rail movements within the Red Line Boundary, in line with the quoted ranges within CRN⁵;
- Road Traffic Noise: Off-site receptors within 50m of any potentially affected route (defined as any route potentially experiencing a road traffic noise level change of +/-1 dB Short Term. Affected routes have been considered within a radius of 1 km from the Site's redline boundary; and
- Operational Noise: Noise effects arising from the operation of EAF Project, will be limited to 1000 m from the Red Line Boundary.

3.3 Identification of Noise Sensitive Receptors (NSRs)

Receptor sensitivity has been categorised based on professional judgement for a range of receptor types as set out in **Table 11**.

Receptor Sensitivity	Type of Receptor
High	Residential properties (including gardens), educational establishments, hospitals, places of worship, hotels, children's nurseries, nursing homes, quiet areas (designated under noise and soundscape plan 2023-2028).
Medium	Commercial premises, halls, public municipal areas, bars and restaurants, SSSI.
Low	Industrial premises.
Very low	All other areas such as those used primarily for agricultural purposes.

Table 11 Receptor sensitivity

3.4 Construction Noise – Assessment Methodology

Construction noise levels are predicted based on sound pressure levels at 10 m for items of plant items expected to be used during the construction phase. Noise emissions are calculated at each NSR within the study area and averaged over a 12-hour working day to account for plant use over a full working day, the final value is provided as an $L_{Aeq,12h}$.

Construction levels at NSRs are to be assessed using the methods provided in BS5228-1:2009+A1:2014⁶ to determine the significance of effect at each receptor.

3.5 Construction and Operation Phase Traffic Noise – Assessment Methodology

Traffic noise will be generated through construction vehicle movements associated with the EAF Project. Vehicle movements on publicly accessible roads are to be considered within the construction traffic noise assessment, as the activity has the potential to impact NSRs.

⁴ The Highways Agency, Scottish Government, Welsh Assembly Government and the Department for Regional Development Northern Ireland (2011). Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7, HD 213/11 revision 1. Noise and Vibration (February 2020).

⁵ Department of Transport (1995). Calculation of Railway Noise. HMS

⁶ The British Standards Institution (2009). Code of practice for noise and vibration control on construction and open sites – Part 1: Noise BS 5228-1: 2009 + A1:2014



Construction traffic noise will be assessed through consideration of the potential increases in traffic flows, in line with principles from the CRTN and DMRB. The calculation undertaken is a comparison of Basic Noise Level (BNL).

3.6 Construction Vibration – Assessment Methodology

Construction vibration is expected to be generated during piling and other construction activities. BS 5228 - 2⁷ assessment methods are to be used to predict the propagation of vibration from construction activities related to the EAF Project.

3.7 Operation Rail Movements – Assessment Methodology

Rail noise will be assessed through consideration of the potential increases in rail traffic flows, in line with principles from the CRN.

3.8 Construction and Operational Phase – SSSI Assessment Methodology

We understand that the reservoir attracts large numbers of wintering waterfowl and passage migrants. Notable species including Great Crested and Little Grebes, Mallard, Gadwall and Coot.

The assessment will address potential noise effects from the EAF project at the SSSI, incorporating guidance from Institute of Estuarine and Coastal Studies⁸ and Natural England⁹ relating to disturbance on bird populations.

3.9 Operational Phase – Assessment Methodology

The assessment of operational noise will be undertaken in reference to the below documents:

- The British Standards Institution. Methods for Rating and Assessing Industrial and Commercial Sound (BS4142:2014+A1 2019);
- Institute of Environmental Management & Assessment. Guidelines for Environmental Noise Impact Assessment (2014);
- World Health Organisation WHO 'Guidelines for Community Noise' (1999); and
- The British Standards Institution. Guidance on sound insulation and noise reduction for buildings (BS 8233:2014).

3.9.1 Context

The significance of the sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs.

An acoustic assessment cannot be conducted without an understanding of the context in which the sound occurs. As such, it is essential to place the sound in context.

⁷ The British Standards Institution (2009). Code of practice for noise and vibration control on construction and open sites –Part 2: Vibration (BS 5228-2: 2009 + A1:2014)

⁸ Cutts, N., Phelps, A. and Burdon, D. 2009. 'Construction and waterfowl: Defining Sensitivity, Response, Impacts and Guidance'. Report to Humber INCA, Institute of Estuarine and Coastal Studies, University of Hull.

⁹ Drewitt, A., Hawthorne, E., Sauders, R. and Anthony, S. 2018. 'A Review of the Effects of Noise on Birds – Version 1'. Natural England



As the area surrounding the site includes a number of different existing industrial activities (including that of the existing site), the final assessment of adverse impacts, and subsequent determination of the significance of effect as part of the Environmental Impact Assessment (EIA), will require consideration of context.

In order to inform the discussion surrounding the context of the site and nearby NSRs, we expect to include consideration of the following in the acoustic assessment:

- The absolute sound levels at nearby NSRs (both existing and predicted);
- The character of the sound at nearby NSRs;
- Relative changes in ambient sound levels due to the EAF project at nearby NSRs; and
- Aspects of the receptor, including physical measures designed to reduce noise.

3.9.2 Assessment of impact and context

The results obtained from the noise model of the EAF Project (discussed in Section 4) will be compared with the measured results from both the baseline survey data and site boundary measurements to determine whether the EAF Project is likely to cause significant impacts. Part of the determination of significance will be informed by a contextual discussion (as discussed in Section 3.9.1 above).

To inform the contextual discussion of the assessment, a comparison of an assessment of the existing ambient sound levels and the predicted levels from the EAF project will be undertaken. The discussion will detail any potential benefit or adverse impacts associated with the EAF project, in relation to absolute sound level.

The assessment will consider both average emissions ($L_{Aeq,T}$) and short term (L_{AFmax}) events.

Where predictions from the EAF Project noise model indicate that EAF Project noise emissions are below those measured during the previous baseline monitoring or site boundary measurements this will indicate a low impact (not significant).

A qualitative assessment of the potential impact from future changes in baseline will be provided with specific consideration to the decommissioning of the heavy end of the TATA Steel UK Ltd steel works. This qualitative assessment will provide an overview of the potential impacts from the interim baseline and EAF operations. However the noise environment during the interim baseline will be influenced by construction of the EAF project and as such this will be accounted for. The main design of any noise control will be based on the assessment of future operational noise against existing baseline (not interim baseline).

3.10 Cumulative Effects

As with the rest of the EAF Project, cumulative effects will be considered with reference to Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (version 2)¹⁰

We are awaiting confirmation of other developments that will be considered within the assessment. We understand the long and short lists will be confirmed with Council prior to proceeding with any cumulative assessment.

¹⁰ Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (version 2) August 2019. Available at: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seventeen-cumulative-effects-assessment-relevant-to-nationally-significant-infrastructure/nationally-significant-infrastructure-projects-advice-note-seventeen-cumulative-effects-assessment-relevant-to-nationally-significant-infrastructure#overview-of-the-cea-process-for-nsips>



3.11 Determination of significance

The below summarises the discussions had relating to the definition and evaluation of the significance of the effect of changes in noise levels (where the assessment is undertaken within an EIA).

The significance criteria attributed to each potential effect is assessed based on the sensitivity of the affected receptor(s) and the magnitude of impact arising from the EAF Project, as well as a number of other factors that will be outlined in more detail in the main EIA.

Effect	Significance Criteria			
	Very low/negligible	Low	Medium	High
Construction – Noise (core hours^{1, 2})	Less than 55 dB L _{Aeq,T}	Between 55 & 65 dB L _{Aeq,T}	Between 65 & 75 dB L _{Aeq,T}	Greater than 75 dB L _{Aeq,T}
Construction – Noise (beyond core hours^{1, 2})	Less than 40 dB L _{Aeq,T}	Between 40 & 45 dB L _{Aeq,T}	Between 45 & 55 dB L _{Aeq,T}	Greater than 55 dB L _{Aeq,T}
Construction – Road traffic noise	Less than 1 dB increase in road traffic noise	1.0 to 2.9 dB increase in road traffic noise	3.0 to 4.9 dB increase in road traffic noise	Greater than or equal to 5 dB increase
Construction Vibration²	0.3 mm/s ⁻¹	0.3 mm/s ⁻¹ to 1.0 mm/s ⁻¹	1.0 mm/s ⁻¹ to 10 mm/s ⁻¹	Above 10 mm/s ⁻¹
Operation - Noise	Project rating level results in no increase in ambient sound level, or equal to existing background	Project rating level results in less than 3 dB increase in ambient sound level, or less than 5 dB increase in existing background	Project rating level results in less than 5-10 dB increase in ambient sound level, or less than 5-10 dB increase in existing background	Project rating level results in more than 10 dB increase in ambient sound level, or more than 10 dB increase in existing background
Operation – Road traffic noise (short-term)³	Road traffic noise – short term(e)	< 1 dB change	1.0 - 2.9 dB change	3.0 - 4.9 dB change
Operation – Road traffic noise (long-term)³	Road traffic noise – long term(e)	< 3 dB change	3.0 - 4.9 dB change	5.0 - 9.9 dB change
Notes: 1 Construction phase noise levels are based on a time period 'T' which equates to the duration of a working day on site. 2 Construction noise, construction traffic noise and construction vibration shall constitute a likely significant effect where it is determined that a high or medium effect will occur for a duration exceeding 10 or more days or nights in any 15 consecutive days or nights; or a total number of days exceeding 40 in any 6 consecutive months. 3 Where roadside receptors with a high sensitivity to noise will experience high façade noise levels (> 68 dB L _{A10,18hr}), a noise change of 1.0 dB or greater will constitute a significant effect.				

Table 12 Significance Criteria



4 Modelling Methodology

To determine the specific sound level at the nearest NSRs, a noise model will be prepared for the EAF Project operational scenarios.

Due to the complexity of the existing site operation and contribution of other industrial and/or commercial activities within the area, it will not be possible to develop a noise model for the entire existing site activity. The predicted specific sound levels from the EAF Project will be compared with the existing baseline data and site boundary measurements to determine potential adverse impact and provide additional contextual analysis at nearby NSRs (as discussed in Section 2.1.10).

All propagation predictions will be carried out using Soundplan. Typical model scenarios will be prepared to assess both daytime (0700 to 2300 hours) and night-time (2300 to 0700 hours) operations.

An overview of the modelling parameters is given in **Table 13**.

Item	Setting
Algorithms	International Standard: ISO 9613-2
Frequency Content	ISO-9613-2 consists specifically of octave-band algorithms (with nominal midband frequencies from 63 Hz to 8 kHz) for calculating the attenuation of sound.
Ground Absorption	Within the site boundary - absorption coefficient of 0.0, representing hard surfaces. Beyond the site boundary, ground absorption settings will be determined through observation and a desktop review of the ground conditions.
Meteorological Conditions (ISO 9613-2)	10 degrees Celsius; 70 % humidity; and Wind from source to receiver.
Receptor Height	Ground Floor level set at 1.5m above external ground level. First Floor level set at 4m above external ground level and floors above are repeated at 2.5m
Source Modelling	LAF _{max} events for material drops will be all assessed in all locations where it is deemed likely these events will occur following the site visit and through discussion with TATA to confirm the activity locations and operation. Either source simulation data, manufactures data or source assumptions will be used to determine the source sound emissions.
Terrain	LiDAR DTM with a 1-metre resolution has been imported into the model.
Site Layout	Site layout according to future drawings provided by the project team.

Table 13 Modelling Parameters



5 Legislation, Standards and Guidance

The following legislation, policy, standards and guidance are to be considered as part of the baseline survey and subsequent assessment:

National Legislation	Description
UK Government (1974). The Control of Pollution Act 1974.	Part III of Control of Pollution Act (CoPA) 1974 gives local authorities powers to control construction site noise and vibration. Best Practicable Means (BPM) is defined in Section 72 of CoPA.
UK Government (1990). Environmental Protection Act 1990.	This Act introduced integrated pollution control to prevent pollution arising as a result of emissions to air, land or water. The Act empowers local authorities to address noise pollution, classifying excessive noise as a statutory nuisance.
The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 ("the 2017 Regulations")	The 2017 regulations transpose the amendments made to the Environmental Impact Assessment (EIA) Directive 2011/92/EU by Directive 2014/52/EU and make a number of significant changes to the EIA regime in Wales. Changes to the EIA regime in Wales mirror those in England and Scotland closely.
The Environment (Air Quality and Soundscapes) (Wales) Act 2024	The Act make provision for improving air quality in Wales; for a national strategy for assessing and managing soundscapes in Wales.
National Policy and Guidance	Description
Planning Policy Wales (PPW)	Sets out the land use planning policies of the Welsh Government. PPW is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales.
Future Wales: the National Plan 2040	Sets the national vision and direction for development in Wales to 2040. It is a development plan and proposed development should, as appropriate, consider all its policies. In addition to Policies 17 and 18 extracted above, Policy 9 Resilient Ecological Networks and Green Infrastructure will be important in the planning for renewable energy infrastructure, in recognition of the nature as well as climate emergency and the need for a balanced approach.
Noise and Soundscape Action Plan, 2023-2028, Welsh Government	Noise and soundscape action plan is the Welsh Government's central noise policy document. It outlines the Welsh public sector's strategic policy direction in relation to noise and soundscape management for the next 5 years
Technical Advice Note (TAN) 11: Noise (October 1997)	Provides advice on how to use the planning system to reduce the adverse impact of noise.
CL-01-15 Updates to Tan 11 Noise - Noise Action Plan (2013-18) Commitments	Provides updates to TAN 11: Noise in relation to environmental permitting and the publication of revised policy and British Standards such as BS 4142: 2014.
Institute of Environmental Management & Assessment (2014). Guidelines for Environmental Noise Impact Assessment.	The document address the key principles of noise impact assessment and are applicable to all development proposals. The document describes the process of assessing noise by identifying 'Sensitive Receptors' and determining a 'Magnitude of Impact' for each of the identified receptors. The process by which magnitude of impact is identified includes assessment of noise level change with 'context' being provided by absolute noise levels.



	The process detailed within the guidelines also gives consideration to numerous other relevant factors including: time of day; averaging time period; nature of source; frequency of occurrence; spectral characteristics; and noise indicators (the measurement parameters used within the assessment).
Design Manual for Roads and Bridges, LA 111 Noise and Vibration revision 2 (May 2020). Highways England, Transport Scotland, Welsh Government and the Department for Infrastructure.	DMRB advises that the Calculation of Road Traffic Noise (CRTN) method should be used to model road noise emissions. DMRB also provides additional procedural guidance on the use of CRTN that reflects more recent developments in understanding of road noise prediction. The CRTN method has been used to predict road noise emissions, as described below. The additional procedures recommended in DMRB have also been adopted. DMRB requires noise-sensitive receptors (NSRs) within the study area to be classified as 'residential' and 'other sensitive'. In addition to dwellings, receptors with the possibility of night-time rest (e.g. hotels, guest houses, prisons) have been identified as residential. Other sensitive receptors include educational establishments, nurseries, community facilities, medical centres, etc.
Calculation of Road Traffic Noise (CRTN), 1988	The CRTN memorandum describes the methodology for calculating noise from road traffic at a given distance from the highway.
Calculation of Rail Noise, 1995 Department of Transport (DoT)	The DoT Memorandum sets out a method for calculating noise from moving railway vehicles.
British Standards	Description
BS 7445 Description and measurement of environmental noise – Part 1, 2 and 3	Procedures for environmental noise monitoring. This document states that noise measurements should be undertaken 'under selected meteorological conditions which (...) correspond to quite stable propagation conditions.' Noise measurements should therefore be undertaken under stable weather conditions, avoiding periods of strong temperature inversions, strong winds or heavy precipitation
BS 8233: 2014 'Guidance on sound insulation and noise reduction for buildings'	To determine the suitability of the existing internal acoustic environment within residential dwellings, with reference to desirable internal ambient noise levels.
BS 5228-1 2009 + A1: 2014 'Code of Practice for noise and vibration control on construction and open sites. Noise'	Provides recommendations for noise control on construction sites, including civil engineering works among other processes that generate significant noise levels. It also details predictive methods and sets out methodology to measure and assess the noise impact of construction activities. Provides a database on the noise emission values for different plant and activities.
BS 5228-2 2009 'Code of Practice for noise and vibration control on construction and open sites. Vibration'	Refers to the need for the protection against noise and vibration of persons living and working in the vicinity of, and those working on, construction and open sites. It recommends procedures for measuring and assessing vibration in respect of construction operations. Details predictive methods to estimate vibration from compaction, and piling operations.
BS 4142: 2014 'Methods for Rating and Assessing Industrial and Commercial Sound'	To determine the impact from commercial and industrial noise sources and fixed plant. The impact assessment procedure described in BS 4142 is based on a comparison of rating level from the noise source with the background sound level prevailing at the receptor locations.

Table 14 **Legislation, Policy and Guidance Documents**



Glossary

Terms	Definitions
Ambient Noise Level $L_{Aeq,T}$: dB	Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far. Note: The ambient sound comprises the residual sound and the specific sound when present.
dB (decibel)	A unit of level derived from the logarithm of the ratio between the value of a quantity and a reference value and the scale on which sound pressure level is expressed. Sound pressure level is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and a reference pressure (2×10^{-5} Pa).
dB(A)	A-weighted decibel. This is a measure of the overall level of sound across the audible spectrum with a frequency weighting (i.e. 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.
Background Sound Level $L_{A90,T}$: dB	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels.
Rating Level, $L_{Ar,Tr}$	Specific sound level plus any adjustment for the characteristic features of the sound.
Residual Sound:	Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.
Residual Sound Level $L_r = L_{Aeq,T}$: dB	Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T.
Sound pressure level L_p dB	Sound pressure level is given by the formula $L_p = 10 \log \left(\frac{p}{p_0} \right)^2$ where p is the root mean square sound pressure, in pascals (Pa); p_0 is the reference sound pressure (20 μ Pa)
Specific sound source	sound source being assessed.
Specific sound level $L_s = L_{Aeq,Tr}$ dB	Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, Tr.

Table A15 Glossary of Terms





Air Quality Assessment Technical Note: EAF Project, Port Talbot Steelworks

1. Introduction

Temple Group Limited (Temple) has been commissioned to undertake an air quality assessment of the Proposed Development (the 'EAF Project') at Port Talbot Steelworks, in support of the Planning Application and associated Environmental Impact Assessment (EIA). The planning application comprises the following:

- *"Hybrid planning application: full planning permission for the demolition of existing buildings and structures, partial infill of the BOS lagoon, and construction of a new electric arc furnace (EAF)- based steel production facility (1 no. arc furnace, 2 no. ladle furnaces). The development includes an upgraded slag processing facility, chemical/material storage and transfer infrastructure and pipework and cabling (above and below ground), buildings, fume and dust treatment plant, water treatment facility and material handling systems. Electrical control rooms and power infrastructure. Offices and ancillary facilities together with new and amended transport infrastructure, landscaping and green infrastructure, and associated development.*
- *Outline planning permission (with all matters reserved) for demolition and the construction of a scrap metal handling facility and associated scrap yards, scrap processing facility, underground and overground electrical infrastructure, and new and amended transport infrastructure, landscaping, and associated development".*

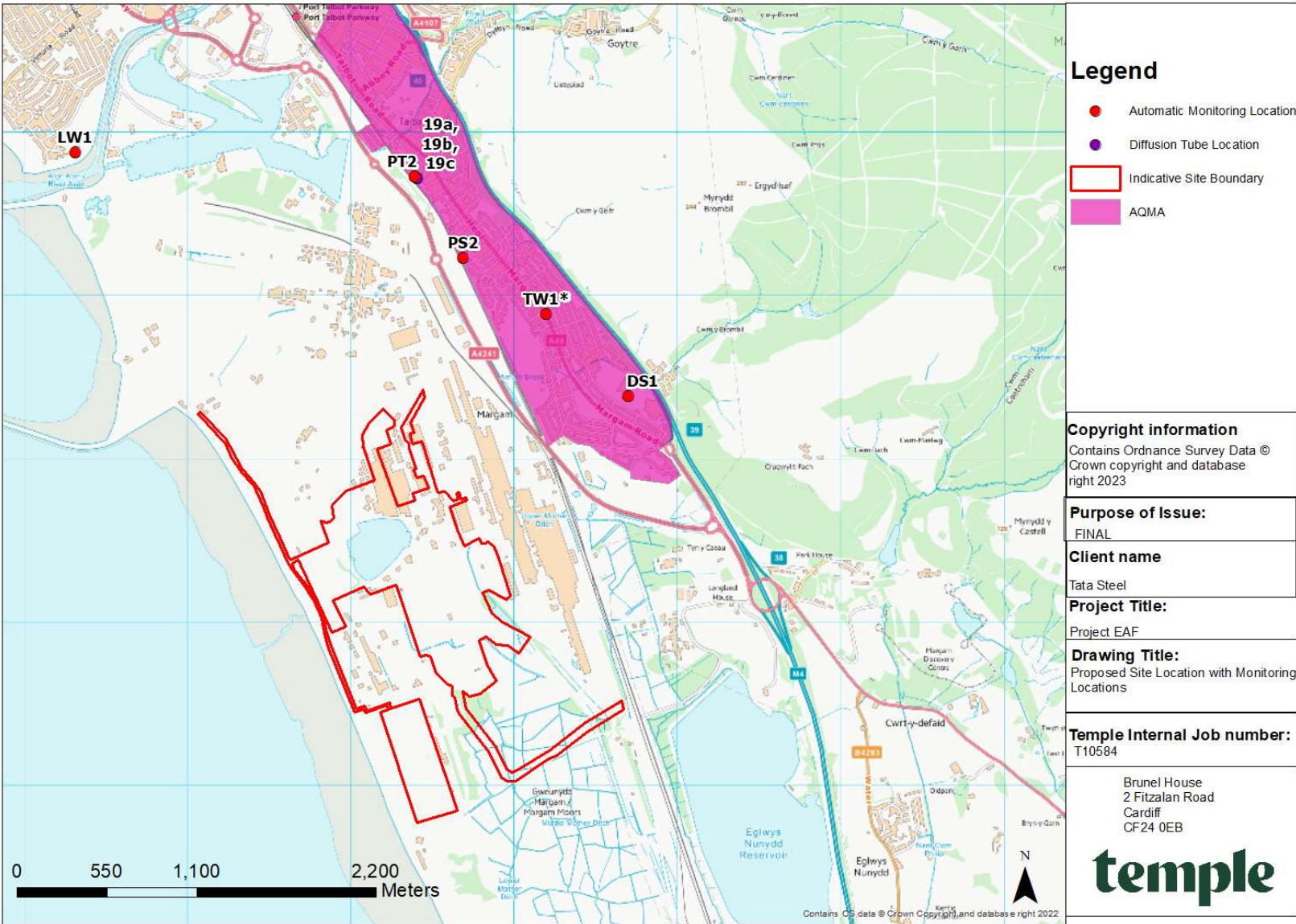
The Proposed Development is located in the Neath Port Talbot County Borough Council (NPT) area and will be constructed within the existing Port Talbot Steelworks site. A plan showing the development boundary, local air quality management areas (AQMA) and monitoring locations is presented below (see Figure 1).

The Proposed Development will result in a significant reduction in industrial emissions, as many current emission sources will be removed. The site is not located within AQMA of NPT.

This Technical Note describes the scope of the air quality assessment, outlines the baseline status of air quality, the likely effects on air quality, and an early indication of mitigation measures deemed necessary.



Figure 1: Proposed Location Plan including AQMA and Local Authority Monitoring



*It should be noted that Monitoring at Twll-yn-y-Wal Park (TW1) was discontinued in March 2021.

2. Overview of Assessment Method and Receptors considered

The assessment will consider potential effects associated with the release of dust, emissions from industrial sources, road traffic, and other plant during both the construction (inclusive of demolition) and operational phases of the project.

Baseline Air Quality

Baseline air quality refers to the concentrations of relevant substances that are already present in ambient air, including from road traffic and industrial sources. Baseline air quality has been characterised in **Appendix A**.

Construction Dust

The 'Guidance of the Assessment of dust from demolition and construction' (Institute of Air Quality Management, 2024) ('the IAQM 2024 guidance') will be used as the basis for assessing potential effects from the Proposed Development.

Sensitive receptors will include ecological sites which may contain features sensitive to dust deposition, as well as human receptors which may experience disamenity (including residences, shops, etc.) and locations where human health may be impacted by fine particulate matter (PM₁₀ or PM_{2.5}).

Emissions from Industrial Sources and Road Traffic

A detailed quantitative assessment involving air dispersion modelling of emissions to air from industrial emission sources is proposed. The emissions will be assessed for their potential effects on the concentrations of pollutants affecting human health (affecting 'human receptors') and on sensitive features within designated ecosystems (affecting 'ecological receptors'), accounting for dispersion along the pathway connecting the sources and receptors.

The scenarios which will be accounted for in the air quality assessment are outlined in Table 1 below. Further details on how these sources will be modelled, and how the need to model vehicle emissions will be determined, are described in Section 4.

The scenarios should be read in conjunction with the 'EAF: EIA Methodology Technical Note – Proposed Approach to Baseline and Cumulative Assessment' (RSK, 2024) document which explains how scenarios will be accounted for across the Environmental Statement.

Table 1: Scenarios included in the dispersion modelling assessment, contextualised by the activities occurring on Site

Scenario	Description of how the scenario will be modelled
1. Established baseline	<i>Industrial Emissions:</i> the steelworks with 'heavy end' as operating in early 2024 and for the majority of the preceding 50+ years <i>Road transport emissions:</i> An established base case scenario will be modelled (for model verification purposes). This will use 2022 road transport data and 2023 air quality monitoring data from appropriate NPT monitoring locations.
2. Interim baseline	<i>Industrial Emissions:</i> the steelworks as they will operate at the time of planning determination with closure of the 'heavy end'. <i>Road transport emissions:</i> An interim baseline scenario (i.e. established baseline traffic + cumulative development traffic – traffic from heavy end plant).
3. EAF construction (Interim baseline + construction)	<i>Industrial Emissions:</i> The sources which will be present during the construction phase (i.e. excluding the heavy end, as per the interim baseline scenario). <i>Road transport emissions:</i> An interim baseline + EAF construction traffic.
4. EAF operation (Interim baseline + operation)	<i>Industrial Emissions:</i> The sources which will be present once the Proposed Development is operational. <i>Road transport emissions:</i> An interim baseline + EAF operation traffic.

The Proposed Development is expected to import scrap metal by rail, rather than road or shipping. In the absence of any screening criteria used to assess emissions from rail from Proposed Developments, those from the 'Local Air Quality Management Technical Guidance (TG22)' (Department for Environment, Food and Rural Affairs, 2022) will be used. The assessment will also consider:

- Number of additional rail journeys (average daily flow);
- Routes where these will be made;
- Fuel type (e.g. electric, diesel).

It is not expected that the EAF will result in a substantial rise in train movements (which may anyway be electric) such that they are not currently expected to be modelled.

The number of movements by ship is expected to decrease, as movements by vessel are made to transport raw materials for the heavy end infrastructure such as iron ore and not for

the scrap metal which will be used in the EAF or rolling processes. On this basis, modelling of shipping emissions are screened out from further assessment.

To determine the 'significance of effect' and overall impact on human receptors, both at the baseline / construction / and operational phases, and assess magnitude of change, the following guidance will be applied: 'Land-Use Planning & Development Control: Planning for Air Quality' guidance (Environmental Protection UK & Institute of Air Quality Management, 2017) ('the EPUK-IAQM guidance').

The impact assessment will compare the effects of the Development to both the Established Baseline and the Interim Baseline.

The significance of effects will be determined using professional judgement and with reference to relevant air quality thresholds, such as the air quality standards (AQSS) and air quality objectives (AQOs). The air quality thresholds are presented in **Table 2**, below. The assessment will additionally consider the impact which the Proposed Development has on compliance with critical loads for eutrophication and acidification. No other air pollutants are expected to be generated by the sources present in scenarios 2 – 4 so their removal in the established baseline will naturally result in improvement. Consequently, concentrations of other air pollutants will improve and thus are not proposed to be modelled.

Where regulations are adopted which prescribe a new target in relation to fine particulate matter (PM_{2.5}) and any other relevant pollutants in accordance with the Environment (Air Quality and Soundscapes) (Wales) Act 2024, this will also be considered appropriately in the assessment. The timescales over which this will be achieved will also be accounted for.

The potential for significant impact on ecological receptors will be triggered when process contributions exceed 1% of the critical loads or levels, as described in 'A guide to the assessment of air quality impacts on designated nature conservation sites' ('the IAQM 2020 guidance') and the 'Air emissions risk assessment for your environmental permit' guidance (Environment Agency and the Department for Environment, Food and Rural Affairs, 2023). Where the potential for significant impact cannot be ruled out, the results will be reviewed further by the nominated Technical Lead for Ecology.

The critical levels are also cited in these two guidance documents.

Table 2: Air quality thresholds to be considered in the assessment¹

Pollutant	Limit value	Measured as	Receptors to which threshold will be applied	Type of threshold
Oxides of nitrogen (NO _x)	30 µg/m ³	Annual mean	Ecological receptors	AQS
	75 micrograms per cubic metre; or 200 micrograms per cubic meter but only for detailed assessments where the ozone is below the AOT40 critical level and sulphur dioxide is below the lower critical level of 10 micrograms per cubic metre	Daily mean	Ecological receptors	Critical level
Nitrogen dioxide (NO ₂)	200 µg/m ³ , not to be exceeded more than 18 times per year	One-hour mean	Anywhere where a member of the public may spend one hour or longer	AQO and AQS
	40 µg/m ³	Annual mean	Human residences, schools and hospitals	AQO and AQS
Particles (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times per year	24-hour mean	Human residences, schools and hospitals and private gardens	AQO and AQS
	40 µg/m ³	Annual mean	Human residences, schools and hospitals	AQO and AQS
Particles (PM _{2.5})	20 µg/m ³	Annual mean	Human residences, schools and hospitals	AQO and AQS
	10 µg/m ³	Annual mean	Human residences, schools and hospitals	Potential legally binding target

¹ Table 2 excludes critical loads, against which an assessment will also be undertaken as is applicable for the types of habitat present at each ecological receptor to be considered. The critical loads will relate to nitrogen deposition and acid deposition (nitrogen and sulphur).

Pollutant	Limit value	Measured as	Receptors to which threshold will be applied	Type of threshold
Sulphur dioxide (SO ₂)	20 µg/m ³	Annual mean Winter (1 st October – 31 st March)	Ecological receptors	AQS
	266 µg/m ³ not to be exceeded more than 35 times a year	15-minute mean	Human residences, schools and hospitals	AQO and AQS
	350 µg/m ³ not to be exceeded more than 24 times a year	1-hour mean	Human residences, schools and hospitals	AQO and AQS
	125 µg/m ³ not to be exceeded more than 3 times a year	24-hour mean	Human residences, schools and hospitals	AQO and AQS
	10 micrograms per cubic metre where lichens or bryophytes are present, 20 micrograms per cubic metre where they're not present	Annual mean	Ecological receptors	Critical level
Ammonia (NH ₃)	3 µg/m ³ , or 1 µg/m ³ where lichens and bryophytes are present	Annual mean	Ecological receptors	Critical level

Fugitive Dust Emissions from development proposal activities including scrap metal processing

Many activities on Site will be regulated under the Environmental Permitting Regulations, for which an Environmental Permit will be required and Best Available Techniques (BAT) will be implemented.

To determine the potential sources of dust emissions, a review of the development proposals will be undertaken along with any associated mitigation. Where they can be screened out from further assessment (i.e. where mitigation is applied), further assessment will not be required as the Environmental Permitting regime will be assumed to be effective. Otherwise, further assessment and mitigation measures will be recommended to accord with the 'Guidance on the Assessment of Mineral Dust Impacts for Planning' (Institute of Air Quality

Management, 2016). This involves a similar source-pathway-receptor approach and will consider receptors similarly to the construction dust assessment.

Fugitive Odour Emissions from the Proposed Development

Similarly to the fugitive dust, many activities on Site will be regulated under the Environmental Permitting Regulations, for which an Environmental Permit will be required and BAT will be implemented.

It is considered that the likelihood of odour impacts from the Proposed Development will be minor and therefore can be screened out.

Assessment Methodology and Receptors Considered

Industrial Emissions

Dispersion Modelling Software

The point source dispersion modelling to be undertaken for the industrial emissions generated by the Site will use ADMS software (version 6.0.0, March 2023), supplied by Cambridge Environmental Research Consultants (CERC). ADMS is a short-range, new generation, Gaussian plume air dispersion model. The model enables the characterisation of the atmospheric boundary layer properties by the boundary layer depth and the Monin-Obukhov length. Dispersion under convective meteorological conditions uses a skewed Gaussian concentration distribution (shown by validation studies to be a better representation than a symmetrical Gaussian distribution).

ADMS has been used in previous studies to model the air quality impact of existing and proposed industrial installations, both in the UK and abroad, and is considered fit for the purposes of this assessment. The model has been extensively validated and a list of references is available on the supplier's website.

Source Emissions Parameters

For each industrial source modelled, the following parameters will be accounted for:

- Source type (point, line or area)
- Grid reference of stack location or vertices of line or area sources
- Stack exit diameter
- Release height
- Release temperature
- Efflux velocity
- Pollutant emission rates for each scenario

Mean molecular weight and specific heat capacity are proposed to be set at the default values. Where pollutant emission rates vary significantly, the annual average emission rate

will be used to determine annual mean impacts and a realistic worst-case set of emission rates will be used to determine short-term impacts. A diurnal profile or hypergeometric distribution, etc. may be used to facilitate the modelling of realistic worst-case impacts.

An appropriate percentile will be used where a short-term AQO allows for a certain number of breaches per annum (for example, the 99.79th percentile of hourly mean NO₂ concentrations will allow for NO_x or NO₂ concentrations in the model to exclude the 18 hours resulting in the highest pollutant concentrations, thus reporting whether the 19th most polluting hour could result in breaches of the AQO).

Meteorological Data

Dispersion models require meteorological data to predict the concentrations of pollutants in ambient air from point source emissions under particular weather conditions local to the study area.

It is noted that the nearest meteorological station to the Proposed Development, Mumbles Head, is located approximately 13km west of the site. However, this station does not record cloud cover data and is therefore not optimal for use in conjunction with dispersion modelling, as this an important parameter to be accounted for.

Data will therefore be generated by deriving from weather forecasting models as a proxy dataset (Numerical Weather Prediction, or NWP), which includes all the data required for dispersion modelling. Therefore, NWP data is proposed to be used for this assessment, and obtained for the grid square centred at 277277, 187009, represents the site. They are based on NMM (Nonhydrostatic Meso-Scale Modelling). Its spatial resolution is ~4 km for the location used. Five years will be used to account for the range of likely meteorological conditions experienced at Port Talbot.

Meteorological data captured at the Port Talbot Margam air quality monitoring location from NPT over the same time period would also be used, to sensitivity test the results. Where data are unavailable, it is proposed to be supplemented by data from the St Asaph meteorological monitoring station.

Surface Characteristics

Dispersion of pollutants can be affected by the characteristics of the surface that the wind blows across, both upwind and downwind of the emission sources. The most important parameter is the surface roughness, which is determined by the mean height of obstacles in the area of interest.

For areas of sea included within the dispersion modelling study area, a surface roughness of 0.0001 metres will be used. On land, there are a variety of different land uses in the dispersion modelling study area. This includes principally low-rise residential areas, the larger but more widely spaced buildings at the Site, as well as the woodlands and grasslands on the hills to east of the Site. A surface roughness of 0.5 metres will be used to be broadly representative of all of these within the assessment.

A minimum Monin-Obukhov length of 30 metres (which is representative of mixed urban and industrial areas) will be used across the dispersion modelling study area. The latitude of Port Talbot is 51.6°N and the ADMS default values will be used for surface albedo (default value = 0.23) and the Priestley-Taylor parameter (default value = 1).

Terrain

Since slopes exceeding a 10% gradient are situated within a few kilometres of the Port Talbot Steelworks, the ADMS complex terrain module will be used. A digital terrain file covering all the receptors (64 grid points in each direction, with a spacing of 300 metres) will be created from Ordnance Survey data using the "Create terrain file" utility within the ADMS model.

Buildings

Buildings which are considered likely to affect the dispersion of pollutants due to 'downwash' from nearby stacks, primarily due to the entrainment of pollutants into the cavity region in the immediate leeward side of the building, will be added to the dispersion model. Given that several of the buildings within the site are tall enough to affect dispersion, the ADMS buildings module will also be used for the modelling exercise.

Coastline

ADMS includes a coastline module which allows for the modelling of a convective boundary layer to represent a scenario where there is a stable boundary layer over the sea and the land is warmer than the sea. However, the ADMS coastline module is not proposed to be included within the modelling exercise. This is because the coastline module cannot be combined with either the complex terrain module or the buildings module, with terrain and buildings considered to have a greater impact on pollutant concentrations than the coastline module.

Additionally, the hourly sequential data on sea temperature are required for the module, which are not available for this area. Limited data on water temperature is available for Swansea Bay although this would not capture hourly variation.

Receptor Locations

Ecological Receptors

Impacts will be assessed at ecological receptors at the following locations:

- Sites of Special Scientific Interest (SSSI) and locally designated ecological sites (ancient woodlands, local wildlife sites and national and local nature reserves) within 2 km of the Site; and
- Special Areas of Conservation, Special Protection Areas and Ramsar sites within 10 km of the Site.

These screening criteria are larger than those recommended in the Natural Resources Wales guidance as it applies to Sites with a capacity 20 – 50MW once operational and for plant operated by Natural Gas. Such an approach is considered conservative and reflects that the

established scenario will contain sources which use monitoring over a greater area. Ecological receptors within 2km of the site are presented in Table 3 below.

Table 3: Protected Ecological Sites within 2km of Project EAF Site Boundary

Site Name	Designation
Neath Port Talbot Watercourses	Site of Interest for Nature Conservation (SINC)
Margam Moors	Site of Special Scientific Interest (SSSI)
Eglwys Nunydd	Site of Interest for Nature Conservation (SINC)
Eglwys Nunydd Reservoir	Site of Special Scientific Interest (SSSI)
Junction 38 Wetland Complex	Site of Interest for Nature Conservation (SINC)
Kenfig/ Cynffig	Site of Special Scientific Interest (SSSI) / Special Area of Conservation (SAC)
Kenfig Pool and Dunes	Nature Reserve (NNR) / Local Nature Reserve (LNR)
Unnamed Ancient Woodlands Located East and South of the Site	Ancient Woodland

There are two further Special Areas of Conservation (SACs) within 10km of the site:

- Cefn Cribwr Grasslands – located approximately 6.4km south-east of the site
- Crymlyn Bog - located approximately 8.4km north-west of the site.

Specified receptor points for ecological sites are included in Table 4 below. These points will be included in the modelling assessment to adequately represent the respective designated ecological sites in Table 3 and also the two additional SACs within 10km of the site.

Table 4: Initially suggested ecological receptor locations to be included within dispersion modelling assessment (to be confirmed as modelling progresses)

Receptor ID	Type/Description	Approximate Distance from Site (m)	X	Y
E1	Margam Moors	75	278509	185287
E2	Margam Moors	19	277997	185011
E3	Margam Moors	143	277571	184676
E4	Eglwys Nunydd	725	279360	185703
E5	Eglwys Nunydd	333	278971	185332
E6	Eglwys Nunydd	995	279152	184601
E7	Eglwys Nunydd	1454	279347	184181
E8	Kenfig/Cynffig	1854	278911	183412

Receptor ID	Type/Description	Approximate Distance from Site (m)	X	Y
E9	Kenfig/Cynffig	1811	278578	183294
E10	Kenfig/Cynffig	1446	277947	183429
E11	Kenfig/Cynffig	1569	277366	183205
E12	Kenfig/Cynffig	3015	280023	182746
E13	Kenfig/Cynffig	3011	280246	182907
E14	Junction 38 Wetland Complex	1034	279049	186481
E15	Junction 38 Wetland Complex	561	278474	186441
E16	Junction 38 Wetland Complex	543	278507	186263
E17	Junction 38 Wetland Complex	507	278578	186056
E18	Kenfig/Cynffig	9679	283734	177209
E19	Kenfig/Cynffig	9767	284363	177536
E20	Cefn Cribwr Grasslands	6425	284078	182005
E21	Cefn Cribwr Grasslands	7672	285458	181900
E22	Cefn Cribwr Grasslands	8316	272000	194540
E23	Crymlyn Bog	8197	271205	193885
E24	Crymlyn Bog	8201	271148	193847
E25	Crymlyn Bog	8446	270537	193669
E26	Crymlyn Bog	9836	268207	193203
E27	Unnamed Ancient Woodland	786	278654	186618
E28	Unnamed Ancient Woodland	1080	278959	186629
E29	Unnamed Ancient Woodland	1173	279486	186354
E30	Unnamed Ancient Woodland	1216	279716	186123
E31	Unnamed Ancient Woodland	1562	280228	185547
E32	Unnamed Ancient Woodland	1610	280266	185669
E33	Unnamed Ancient Woodland	1254	279353	186567
E34	Unnamed Ancient Woodland	1297	279215	186696
E35	Unnamed Ancient Woodland	1324	279167	186779
E36	Unnamed Ancient Woodland	1338	279171	186813
E37	Unnamed Ancient Woodland	1280	279073	186908
E38	Unnamed Ancient Woodland	1471	278973	187505

Receptor ID	Type/Description	Approximate Distance from Site (m)	X	Y
E39	Unnamed Ancient Woodland	1372	278982	187276
E40	Unnamed Ancient Woodland	1522	278958	187625
E41	Unnamed Ancient Woodland	1131	277867	188475
E42	Unnamed Ancient Woodland	1113	277958	188412
E43	Eglwys Nunydd	605	279181	185826
E44	Eglwys Nunydd	313	278929	185677
E45	Eglwys Nunydd	119	278768	185405
E46	Eglwys Nunydd	1473	279236	184084
E47	Margam Country Park	1451	280113	185600
E48	Margam Country Park	1714	280381	185503
E49	Margam Country Park	2675	281283	184909
E50	Margam Country Park	3069	281594	184546
E51	Unnamed Ancient Woodland	1249	279743	186141
E52	Unnamed Ancient Woodland	1219	279683	186182
E53	Unnamed Ancient Woodland	1429	279837	186331
E54	Unnamed Ancient Woodland	1385	278952	187363
E55	NPT Watercourse	1830	274727	188533

Human Receptors

Locations of the receptors proposed to be included within the air quality assessment are presented in Table 5 below. A representative selection of receptors “representative of relevant exposure”, both annual and short-term, will be included, especially at locations where impacts would expectedly be the most adverse.

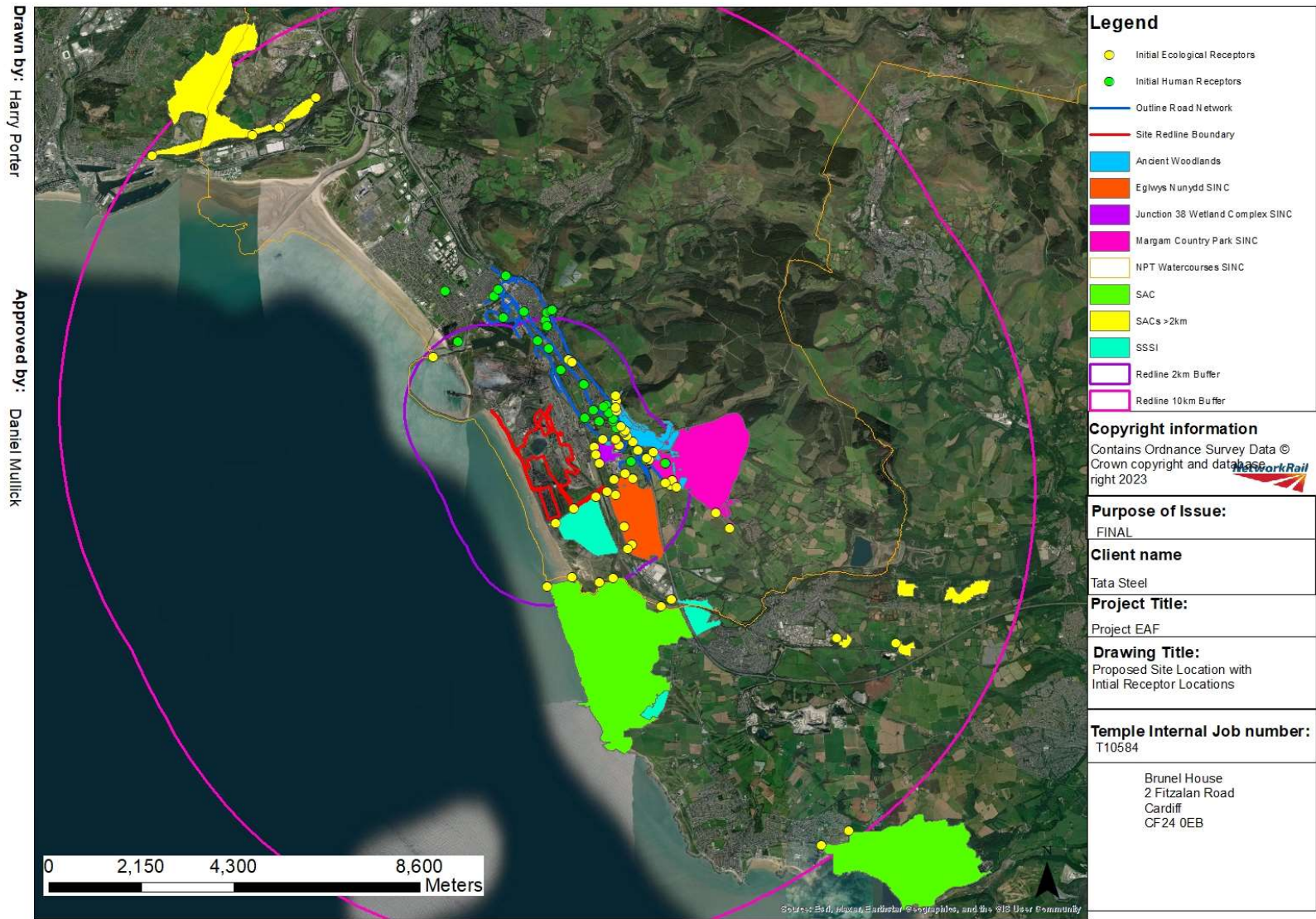
Table 5: Human receptor locations to be included within dispersion modelling assessment

Receptor ID	Type	Name	X	Y
R1	Residential	Margam Fire Station	277406	188719
R2	Residential	Prince Street	277690	188227
R3	Residential	Twll-yn-y-Wal Park	278205	187890
R4	Residential	Dyffryn School	278742	187405
R5	Residential	Little Warren	275313	188879

Receptor ID	Type	Name	X	Y
R6	Residential	Port Talbot Docks	276368	189443
R7	Residential	Talbot Road	276846	189570
R8	Residential	Theodore Road	277340	189387
R9	Residential	Old Fire Station	276140	189929
R10	Residential	Abbots Close	278981	186879
R11	Residential	Abbots Mews	278577	187028
R12	Residential	Byass Street	278255	187114
R13	Residential	Lower West End	277147	188900
R14	Residential	Longland Ln	279324	279324
R15	Residential	Old Post Office	279684	279684
R16	Residential	A48 Slip Road	279692	279692
R17	Residential	Abbots Close	278901	278901
R18	Residential	Tygroes Drive	278911	278911
R19	Residential	Castle Street	276236	276236
R20	Residential	Springfield Terrace	276410	276410
R21	Residential	Tanygroes Street	277378	277378
R22	Residential	Tanygroes Street	277449	277449
R23	Residential	College Green	278793	278793
R24	Education Facility	Ysgol Cwm Brombil School	278685	278685
P1	Parks & Gardens	Vivian Memorial Park	275001	190048
P2	Parks & Gardens	Talbot Memorial Park	277364	189246
P3	Parks & Gardens	Tollgate Park	278441	187300
P4	Parks & Gardens	Pen Y Cae Gardens	277491	189620
P5	Parks & Gardens	Twll-yn-y-Wal Garden	278221	187899
P6	Parks & Gardens	Margam Country Park	280122	186058

The human and ecological receptors which will be included within the dispersion modelling assessment are presented in Figure 2 overleaf.

Figure 2: Map of Human and Ecological Receptor Locations to be included in the dispersion modelling assessment



Deposition

For the protected conservation sites in the vicinity of the Proposed Development, the impact of nutrient nitrogen and acid deposition will be calculated in accordance with the methods established in the Environment Agency 2014 guidance². Background pollutant deposition (kg/ha/yr) and critical loads will be obtained from the Air Pollution Information System (APIS) website.

Road Traffic Emissions

The method proposed to be used to undertake dispersion modelling of construction phase impacts is described in Appendix B.

An additional screen will be undertaken to determine the potential for impacts on designated ecological sites (as appropriate)³, in accordance with the 'guide to the assessment of air quality impacts on designated nature conservation sites' (IAQM, 2020) ('the IAQM 2020 guidance').

Total Pollutant Concentrations

The modelling will consider background conditions, industrial emissions contributions, and road traffic emissions.

The only monitor in the vicinity of the Site which measures pollutants other than PM₁₀ and PM_{2.5} is the Port Talbot Margam (Fire Station) AURN monitoring Site.

The measured concentrations at this location will therefore subtract the contribution from the 'heavy end' production and road traffic. The concentrations monitored at this location are therefore likely to be representative of background pollutant concentrations, considering it is not in the vicinity of any major roads.

The ratio between monitored concentrations and those mapped by Defra for the 1km² grid square within which the monitor is located will be obtained. The Defra mapped background applicable at each modelled receptor will then be multiplied by this ratio, to account for spatial and year-to-year variation in pollutant concentrations.

² AQTAG06, 2014. *Technical guidance on detailed modelling approach for an appropriate assessment for emissions to air*.

³ These are assumed to include all those listed in the IAQM 2020 guidance as follows: Ramsar site; Special Area of Conservation (SAC); Special Protection Area (SPA); Site of Special Scientific Interest (SSSI); Local Wildlife Site (LWS); National Nature Reserves (NNR); Local Nature Reserves (LNR); and Ancient Woodland (AW).

3. Mitigation

The existing environmental permit and air quality management plan contain measures which will mitigate impacts on air quality and amenity.

Additional measures, such as a Construction Logistics Plan, Construction Environmental Management Plan and Construction Phase Travel Plan, may be implemented to reduce emissions from road vehicle movements. We will make appropriate recommendations for consideration.

Best Available Techniques will also be implemented for proposed industrial sources.

4. Concluding Remarks

The findings from the air quality assessment will be reported within an air quality chapter of the Environmental Statement and Non-Technical Summary.

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Appendix A: Baseline Characterisation of Air Quality

As referred to above, baseline air quality has been characterised by reviewing whether receptors are located within air quality management areas (AQMAs), and by reviewing monitored and modelled ambient air quality data from the UK-AIR website.

Air Quality Management Area

Many of the closest residences are located to the east of the Site, within the AQMA located approximately 550m east of the site boundary. The AQMA is situated west of the M4 Motorway and was designated in June 2000 due to the risk of exceeding the 24-hour mean for PM₁₀, in relation to industrial emissions from the Site. The extent of the AQMA is shown in Figure 1.

Local Air Quality Monitoring

According to the NPTs most recent Air Quality Annual Status Report (2023 Air Quality Annual Status Report, containing 2022 monitoring data), there were five automatic air quality monitoring stations operated by NPT during 2022. The nearest monitoring station to the application site is located 0.85 km from its boundary (PS2 - Prince Street). There were no NO₂ diffusion tubes in proximity to the Site at this time. The Annual Status Report indicated that there were a total of four automatic monitoring stations within 2 km of the Site.

The data from these stations is summarised in Table B.1 below. No breach of the AQO was identified.

Table A.1: Annual mean NO₂ concentrations monitored by NPT at locations within 2km of the Proposed Development site

Site ID	Site Name	Site Type	Distance from Proposed Devt. site (km)	Annual mean NO ₂ concentration (µg/m ³)					
				2018	2019	2020	2021	2022	2023
PS2	Prince Street	Industrial	0.85	-	-	-	-	-	-
TW1	Twll-yn-y Wal Park	Industrial	0.89	-	-	-	-	-	-
DS1	Dyffryn School	Industrial	1.19	-	-	-	-	-	-
PT2	Margam (Fire Station) AURN	Industrial	1.32	15	15	12	13	12	11

Site ID	Site Name	Site Type	Distance from Proposed Devt. site (km)	Annual mean NO ₂ concentration (µg/m ³)					
				2018	2019	2020	2021	2022	2023
LW1	Talbot Little Warren	Industrial	1.76	-	-	-	-	-	-
Objective				40					

Annual mean PM₁₀ concentrations monitored by NPTBC from 2018 to 2023 are also outlined in Table A.2 below. No breach of the AQO was identified.

Breaches of the 24-hour mean PM₁₀ AQO were not identified at any of the monitoring locations during 2018 to 2022. However, during 2023, the 24-hour mean PM₁₀ AQO was breached at PS2, where 48 days exceeded the 50µg/m³ AQO were identified, 13 more days than is permissible during each calendar year.

Table A.2: Annual mean PM₁₀ concentrations monitored by NPT at locations within 2km of the Proposed Development site

Site ID	Site Name	Site Type	Distance from Proposed Devt. site (km)	Annual mean PM ₁₀ concentration (µg/m ³)					
				2018	2019	2020	2021	2022	2023
PS2	Prince Street	Industrial	0.85	23	20	24	20	27	29
TW1	Twll-yn-y Wal Park	Industrial	0.89	21	21	20	-	-	-
DS1	Dyffryn School	Industrial	1.19	-	22	23	25	17	19
PT2	Port Talbot Margam (Fire Station) AURN	Industrial	1.32	23	21	21	25	26	26
LW1	Talbot Little Warren	Industrial	1.76	21	20	21	18	19	21

PM_{2.5} was also monitored at locations PT2, DS1, LW1 and PS2 between 2018 and 2023. The annual mean PM_{2.5} concentrations were well below the AQO for all years of available monitoring data at these locations.

Table A.3: Annual mean PM_{2.5} concentrations monitored by NPT at locations within 2km of the Proposed Development site

Site ID	Site Name	Site Type	Distance from Proposed Devt. site (km)	Annual mean PM _{2.5} concentration (µg/m ³)					
				2018	2019	2020	2021	2022	2023
PS2	Prince Street	Industrial	0.85	10	9	9	9	10	10
TW1	Twll-yn-y Wal Park	Industrial	0.89	-	-	-	~	-	10
DS1	Dyffryn School	Industrial	1.19	-	-	-	-	6	8
PT2	Port Talbot Margam (Fire Station) AURN	Industrial	1.32	10	11	11	9	8	8
LW1	Little Warren	Industrial	1.76	-	-	-	-	7	7
# Monitoring undertaken until March 2021 only. Data before this time not publicly available.									

Monitoring station PT2 (Port Talbot Margam (Fire Station) AURN) also monitors the air pollutants sulphur dioxide (SO₂) ozone (O₃) and carbon monoxide (CO). During 2022, there were no exceedances of the 8-hour maximum daily running average of 10 mg/m³ for CO, nor were there any exceedances of the 15-minute, 1-hour, or 24-hour maximum means for SO₂.

Background Pollutant Concentrations

Background concentrations of NO₂, PM₁₀ and PM_{2.5} were obtained from maps downloaded from the UK-AIR website⁴ maintained by Defra. The maps present annual mean pollutant concentrations on a 1km² basis for the years 2018 (the base mapping year) to 2030. The concentrations for the 1km x 1km grid square centred on OS coordinates 277277, 187009, corresponding to the location of the Site, for 2022, 2025 (the year in which construction activities are expected to commence) and 2027 (the year the Proposed Development is expected to be operational) are shown in Table A.3. The data show that annual mean pollutant concentrations are not expected to exceed the annual mean NO₂, PM₁₀ or PM_{2.5} AQOs in any of the presented years.

⁴ Department for Environment, Food and Rural Affairs, 2020. UK Air Information Resource. [online] Available at: <http://uk-air.defra.gov.uk>

Table A.4: Background pollutant concentrations at the Proposed Development from the UK-AIR website

Pollutant	2022 ($\mu\text{g}/\text{m}^3$)	2025 ($\mu\text{g}/\text{m}^3$)	2027 ($\mu\text{g}/\text{m}^3$)	Objective
NO ₂	8.58	7.93	7.67	40.0
PM ₁₀	12.98	12.64	12.63	40.0
PM _{2.5}	7.43	7.14	7.14	20.0

Summary of Existing Baseline at Site

Other than in relation to the 24-hour mean PM₁₀ AQO, all other AQOs and AQSs have been met in recent years, according to monitoring and mapped data.

Due to the contribution from the existing industrial sources, PM₁₀ and PM_{2.5} concentrations monitored at Dryffn School and Little Warren may be more representative of ambient background concentrations.

Dust

In relation to monitoring data for dust, by its nature is to be addressed in accordance with best practice. Dust is typically assessed to determine the potential effects on amenity i.e. the potential to lead to complaints. Dust monitoring (other than for finer fractions - PM₁₀ and PM_{2.5}) is not routinely undertaken by local authorities, neither is it required for potentially dusty construction sites (it is through management that it is addressed).

Background dust monitoring is not proposed to be undertaken for this assessment and this is standard. This is because it is the loss of amenity that determines the need for assessment and the loss of amenity from dust attributable to background sources such as vegetation, disturbance of dusty ground and industry is widespread (in the absence of mitigation) and varies substantially with time and space and is only identified when a receptor makes a complaint.

A complaints history for Port Talbot has been obtained from Tata Steel, detailing local complaints relating to dust nuisance between November 2020 and September 2023. This data will be used to help inform the existing baseline conditions in relation to dust emissions.

Appendix B: Dispersion Modelling Assessment Method (Roads)

Should modelling of road traffic be required (i.e. where it is inappropriate to screen out), the ADMS-Roads detailed dispersion model will be used to assess effects from the additional vehicles on local air quality at discrete receptor locations where air quality effects are possible. Roads and other information influencing pollutant dispersion such as meteorological data are input to the model to predict pollutant concentrations at specific receptors.

Traffic data will be obtained for the roads expected to carry large traffic volumes within 200 metres of receptors where the greatest impacts can be expected, which will be in locations closest to roads where one or more of the screening criteria are breached or where industrial emissions will be greatest.

Each road drawn will be assigned an 'emissions factor'⁵ reflecting the characteristics of traffic expected to use the road, including vehicle speeds which account for the impact of junctions. Ammonia emissions factors will also be used. The impact of the Proposed Development will be determined by assessing the differences in pollutant concentrations. Base case emissions factors will be used to enable comparisons between scenarios.

Model verification and adjustment will be undertaken in a base case scenario at NPTBC monitoring points for pollutants where sufficient data are available. This will accord with the Local Air Quality Management Technical Guidance (2022).

In general, the other modelling parameters used to assess air quality will match the industrial source modelling, except that building effects will not be captured and the NO_x to NO₂ calculator would be used in place of the NO_x to NO₂ ratio.

⁵ Defra, 2023. Emissions Factors Toolkit version 12.0.1.



PROJECT EAF

Cultural Heritage and Archaeology Scoping Note

for Tata Steel UK Limited

09/04/2024

DRAFT: STRICTLY PRIVATE & CONFIDENTIAL

PROJECT EAF

Cultural Heritage and Archaeology Scoping Note

for Tata Steel UK Limited

CONFIDENTIAL

May 2024

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PROJECT INFORMATION:

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PROJECT TEAM:

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TABLE OF CONTENTS

1. INTRODUCTION	1
2. BASELINE CONDITIONS	1
3. POTENTIAL IMPACTS	3
4. PROPOSED SCOPE AND METHODOLOGY OF ASSESSMENT	3
4.2. <i>DESK-BASED ASSESSMENT</i>	4
4.3. <i>ENVIRONMENTAL IMPACT ASSESSMENT</i>	5
5. POSSIBLE MITIGATION AND ENHANCEMENT	5
6. REFERENCES	6

LIST OF ILLUSTRATIONS

Illus 1. Site location	7
Illus 2. Heritage constraints	8
Illus 3. Previous archaeological events	9

CULTURAL HERITAGE AND ARCHAEOLOGY SCOPING NOTE

1. Introduction

- 1.1.1. The cultural heritage of an area comprises archaeological sites, historic buildings, gardens and designed landscapes, historic battlefields and other sites, features or places in the landscape that have the capacity to provide information about past human activity, or which have cultural relevance due to associations with folklore or historic events. Sites of cultural heritage interest may also derive some, or all, of that interest from their setting within the wider landscape.
- 1.1.2. This Cultural Heritage Scoping Briefing Note is intended to present a methodology for the identification of likely significant environmental effects of the proposed development upon the physical fabric and settings of historic assets within the Proposed Development Area (PDA), and potential effects on the settings of assets within the wider landscape, which would need detailed consideration through Environmental Impact Assessment (EIA).
- 1.1.3. Direct effects involve physical alteration or destruction of historic assets. They could result from any intrusive ground works associated with the proposed work.
- 1.1.4. Effects on the setting of historic assets can arise due to the relative scale of the proposed development, its potential to detract from understanding of key views from/towards an asset, or a change resulting in an adverse experience of a historic asset.
- 1.1.5. Cultural significance is a quality that applies to all historic assets and relates to the ways in which a historic asset is valued both by specialists and the general public; it may derive from factors including the asset's fabric, setting, context and associations, as outlined in Cadw's *Setting of Historic Assets in Wales* (2017). The analysis of a historic asset's cultural significance aims to identify its 'special characteristics' which should be protected, conserved or enhanced as outlined in Cadw's *Conservation Principles for the sustainable management of the historic environment in Wales* (2011). Such characteristics may include elements of the asset's setting.
- 1.1.6. This use of the word cultural 'significance', referring to the range of values or interest attached to an asset, should not be confused with the unrelated usage in EIA where the 'significance of an effect' reflects the weight that should be attached to it in a planning decision.
- 1.1.7. The paragraphs below will characterise the historic environment within the PDA and in the wider study area. It will use the results of consultation, desk-based research, walkover surveys and setting visits to define a study area and to assemble a baseline of designated and non-designated historic assets within it, and to assess the potential direct, indirect, and setting effects of the proposed development on that baseline. Where potential effects are identified, mitigation measures will be identified.

2. Baseline Conditions

- 2.1.1. There are no designated assets located within the site boundary. There are no World Heritage Sites, or Conservation Areas within the study area.
- 2.1.2. Within 1km of the PDA there are two grade II* listed buildings:
 - Beulah Chapel (14172), 965m to the north east of the PDA; and
 - Margam Crematorium (87732), 969m to the east of the PDA.
- 2.1.3. There are also three grade II Listed Buildings within 1km of the PDA:
 - The vestry at Beulah Chapel (23282), 968m north east of the PDA;
 - Gates, piers and railings at Beulah Chapel (23283) 956m north east of the PDA; and
 - A milepost at Tollgate Park (23284), 851m north east of the PDA.

- 2.1.4. There are two non-designated historic assets located within the PDA:
- Morfa Colliery (6119628); and
 - Theodric Grange (6054206).
- 2.1.5. There are a number of Scheduled Monuments and a Registered Park and Garden located outside the 1km study area, but which may have intervisibility with the PDA:
- Margam Park Garden (265727), 1340m east of the PDA;
 - Margam Medieval bath house (GM545), 2394m east of the PDA;
 - Half Moon Camp (GM477), a Prehistoric enclosure 1971m east of the PDA;
 - Hen Eghwys (GM163), a Medieval chapel 1942m east of the PDA;
 - Margam inscribed and sculptured stones (GM011), 1900m east of the PDA;
 - Margam Abbey (GM005), 1879m east of the PDA;
 - Mynydd y Castell Camp (GM162), 2315m east of the PDA; and
 - Chain Home Low radar station (GM488), 1507m east of the PDA.
- 2.1.6. There are a further 17 non-designated assets located within the 1km study area. Of these, one dates to the Roman period, three date to the Medieval period, seven date to the Post-Medieval period, five date to the modern period, one has evidence dating from the Bronze Age through to the Post-Medieval period and one is of unknown date. The Post-Medieval and Modern assets within the study area largely reflect the area's industrial usage throughout these periods.
- 2.1.7. The location of the heritage assets within the PDA and study area are shown on Illus 2.
- 2.1.8. Historic Landscape Characterisation of the study area defines the southern part of the PDA as: HLCA002 Margam Moors. This is reclaimed and enclosed salt marsh wetland pasture. There are Medieval and Post-Medieval fields and former Medieval monastic grange land with varied field patterns with typical ridge and furrow, earth bank and drainage features.
- 2.1.9. A single previous archaeological event is recorded within the PDA: the site has been covered by the GGAT150: Rapid Coastline Zone Assessment. GGAT undertook a scoping exercise in 2016—2017 to define a coastal zone area in relation to currently mapped risks associated with climate change and determined what work should be done to bring the quality and scope of data on the coast of Glamorgan and Gwent up to present standards.
- 2.1.10. A further seven previous archaeological events are recorded within the study area:
- An evaluation on land at Margam, West Glamorgan (E005024) was carried out by Wessex Archaeology in 2004 which found no significant archaeological finds;
 - An archaeology and cultural heritage chapter was produced as part of an Environmental Statement for a sustainable energy plant at Port Talbot (E000937) was carried out by RPS in 2008. No impact upon the archaeological resource was identified;
 - A partial excavation was carried out on a site suspected to be Theodric's Hermitage in 1903 by T. Gray (E000456). A building found three years prior was cleaned back and a piscina was found amongst the ruins indicating the location of a chapel;
 - An archaeological watching brief was carried out by GGAT during groundworks for the Marlas-Raos sewage pipeline (E003718). No artefacts were recorded however it was noted that the potential for the preservation of archaeological remains, particularly from the prehistoric period, was high;
 - An archaeological watching brief was carried out by GGAT during phase I phase II of VHP 14, Nantgarw, Margam in 1994 (E003784). A hoard of 1300 Roman coins was found, five flints at Mynydd-y-Gaer, 21 flints from south of Margam Park and a small assemblage of Medieval, Post-Medieval and Modern ceramics;
 - An archaeological desk-based assessment (DBA) was undertaken by CGMS in 2009 on the proposed site of a new substation (E003222). The assessment established that no known archaeological sites

lay within the area covered by the DBA. The potential for buried remains dating to the prehistoric period was considered moderate, and for all other periods low;

- An archaeological desk-based assessment was carried out by Archaeoleg Cambria in 2000 for the proposed development off junction 38 of the M4 near Margam (E002654). The assessment concluded that though there were no individual archaeological sites in the area, the area was of high archaeological importance and one of the only undeveloped sites in the region. The assessment recommended the digging of 5 trial trenches and also that a programme of paleoenvironmental sampling of alluvial deposits.

2.1.11. The location of previous archaeological events within the PDA and study area are shown on Illus 3.

3. Potential Impacts

- 3.1.1. Effects on the historic environment can arise through direct physical effects, effects on setting or indirect effects:
- 3.1.2. Direct physical effects describe those development activities that directly cause damage to the fabric of a historic asset. Typically, these activities are related to construction works and will only occur within the PDA.
- 3.1.3. An effect on the setting of a historic asset occurs when the presence of a development changes the surroundings of a historic asset in such a way that it affects (positively or negatively) the understanding or appreciation of the cultural significance of that asset. Visual effects are most commonly encountered but other environmental factors such as noise, light or air quality can be relevant in some cases. Impacts may be encountered at all stages in the life cycle of a development from construction to decommissioning, but they are only likely to lead to significant effects during the prolonged operational life of the development.
- 3.1.4. Indirect effects describe secondary processes, triggered by the development, that lead to the degradation or preservation of historic assets. For example, changes to hydrology may affect archaeological preservation; or changes to the setting of a building may affect the viability of its current use and thus lead to dereliction.
- 3.1.5. Cultural heritage constraint areas will, where necessary, be defined to include an appropriate buffer around known historic assets. Constraint areas can be treated as a 'trigger' for the identification of potential direct effects: they represent areas within which works may lead to direct effects of more than negligible effect significance on known historic assets.
- 3.1.6. Potential effects on unknown historic assets will be discussed in terms of the risk that a significant effect could occur. The level of risk depends on the level of archaeological potential combined with the nature and scale of disturbance associated with construction activities and may vary between high and negligible for different elements or activities associated with a development, or for the development as a whole.

4. Proposed Scope and Methodology of Assessment

- 4.1.1. The significance of potential effects is determined by integrating the importance of historic assets and assessed magnitude of impact upon cultural significance using a reasoned matrix-style approach.
- 4.1.2. Subject to this informal scope discussion, an environmental statement chapter will be produced, which will address built heritage, archaeological and historic landscape sub-topics. This will be supported by a combined archaeological and built heritage baseline study as a standalone appendix.
- 4.1.3. Both the DBA and EIA, and any ensuing historic environment mitigation works must be carried out by a Registered Organisation with the Chartered Institute for Archaeologists (CIfA).
- 4.1.4. Headland Archaeology is a Registered Organisation with the CIfA, an audited status which confirms that all work is carried out in accordance with the highest standards of the profession.
- 4.1.5. Headland Archaeology, as part of the RSK Group, is recognised by the Institute of Historic Building Conservation (IHBC) under their 'Historic Environment Service Provider Recognition' scheme. This quality assurance standard acknowledges that RSK works to the conservation standards of the IHBC, the UK's lead body for built and historic environment practitioners and specialists.
- 4.1.6. Headland Archaeology operates a quality management system to help ensure all projects are managed in a professional and transparent manner, which enables it to qualify for ISO 9001.

4.2. Desk-based Assessment

- 4.2.1. A baseline Desk-based Assessment (DBA) to identify potential constraints and to assess the potential cultural heritage sensitivity of the PDA and study area will be conducted to establish the baseline condition. The principal sources of information will be data held by Cadw, the Royal Commission of Ancient and Historic Monuments Wales (RCAHMW) and the Gwent Glamorgan Archaeological Trust (GGAT) Historic Environment Record (HER) supplemented by relevant published documentary and cartographic material including the IFA Wales/Cymru's *Research Framework for the Archaeology of Wales* (2017) and LIDAR data where available.
- 4.2.2. Due to a boundary update since the production of an initial scoping report updated data searches will be required. A study area of 1km from the site boundary in its entirety will be implemented, with the exception of statutorily protected areas and features, i.e. Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, and Registered Landscapes, which will be assessed within 5km from the site boundary.
- 4.2.3. The ClfA's *Standard and Guidance for Historic Environment Desk-Based Assessment* (2020¹) defines a DBA as '*...a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the Study Area, including appropriate consideration of the settings of heritage assets and, in England, the nature, extent and quality of the known or potential archaeological, historic, architectural and artistic interest. Significance is to be judged in a local, regional, national or international context as appropriate.*'
- 4.2.4. The DBA will be prepared with reference to the ClfA's *Standard and Guidance for Historic Environment Desk-Based Assessment* (2020) and *Code of Conduct* (2022), *The Planning Act (Wales)* (2015), *The Historic Environment (Wales) Act* (2023), *Planning Policy Wales Edition 12* (2024), *Technical Advice Note 24: The Historic Environment* (2017), and Cadw's guidance on *Heritage Impact Assessment in Wales* (2017) and *Setting of Historic Assets in Wales* (2017).
- 4.2.5. The report will be prepared to the standards outlined in *RCAHMW Guidelines for Digital Archives Version 1* (2015) and National Panel for Archaeological Archives in Wales' (NPAAW) *National Standard and Guidance to Best Practice for Collecting and Deposition of Archaeological Archives in Wales* (2017). Any data submitted to the HER will conform to standards set out in the Welsh Archaeological Trusts' *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs) Version 2* (2022), including requirements for bilingual summary descriptions, a summary of new heritage assets and a summary of each piece of archaeological work carried out.
- 4.2.6. The assessment will consider historic assets outside the PDA and study area that may be potentially affected by the proposed development as necessary.
- 4.2.7. A site visit will be undertaken to record site characteristics, any visible archaeology and geographical/geological features which may have a bearing on previous land use and archaeological survival, as well as those which may constrain subsequent archaeological investigation. The baseline assessment will include up-to-date records of known extant earthworks or structural remains or below-ground archaeological remains, local topography and aspect, exposed geology, soils, watercourses, health and safety considerations, surface finds, and any other relevant information.
- 4.2.8. Consultation with national and regional curators (Cadw and GGAT) will be undertaken to agree the assessment methodology and historic assets of sufficient importance to be considered in the EIA.

¹https://www.archaeologists.net/sites/default/files/ClfAS%26GDBA_4.pdf

4.3. Environmental Impact Assessment

- 4.3.1. Potential effects on the settings of historic assets will be identified from an initial desk-based appraisal of data from Cadw, the Royal Commission of Ancient and Historic Monuments Wales (RCAHMW) and the Gwent Glamorgan Archaeological Trust (GGAT) Historic Environment Record (HER), the IFA Wales/Cymru's *Research Framework for the Archaeology of Wales* (2017), and consideration of current maps and aerial images available via online sources. The methodology adopted for the identification and assessment of potential adverse effects on setting follows the approach set out in Cadw's *Setting of Historic Assets in Wales* (2017) and *Conservation Principles for the sustainable management of the historic environment in Wales* (2011). The guidance sets out four stages in assessing the impact of development on the setting of a historic asset or place as follows:
- “Stage 1: Identify the historic assets that might be affected by a proposed change or development.
 - Stage 2: Define and analyse the settings to understand how they contribute to the significance of the historic assets and, in particular, the ways in which the assets are understood, appreciated and experienced.
 - Stage 3: Evaluate the potential impact of a proposed change or development on that significance.
 - Stage 4: If necessary, consider options to mitigate or improve the potential impact of a proposed change or development on that significance.
- 4.3.2. Each historic asset in the study area will be assessed in turn to identify those which have a wider landscape setting that contribute to their cultural significance and whether it is likely that cultural significance would be harmed by the proposed development. Where historic assets are located outside of the study area, but which may be affected a third-party viewpoint may be chosen to assess the likely effect of the proposed development.
- 4.3.3. Where this initial appraisal identifies the potential for a significant effect, the asset will be visited to define baseline conditions and identify key viewpoints.
- 4.3.4. To assess the impact of the proposed development upon cultural heritage, the significance of any effect is calculated through comparison of the importance of each historic asset against the potential magnitude of change upon it. Effects from cumulative developments will also be considered.

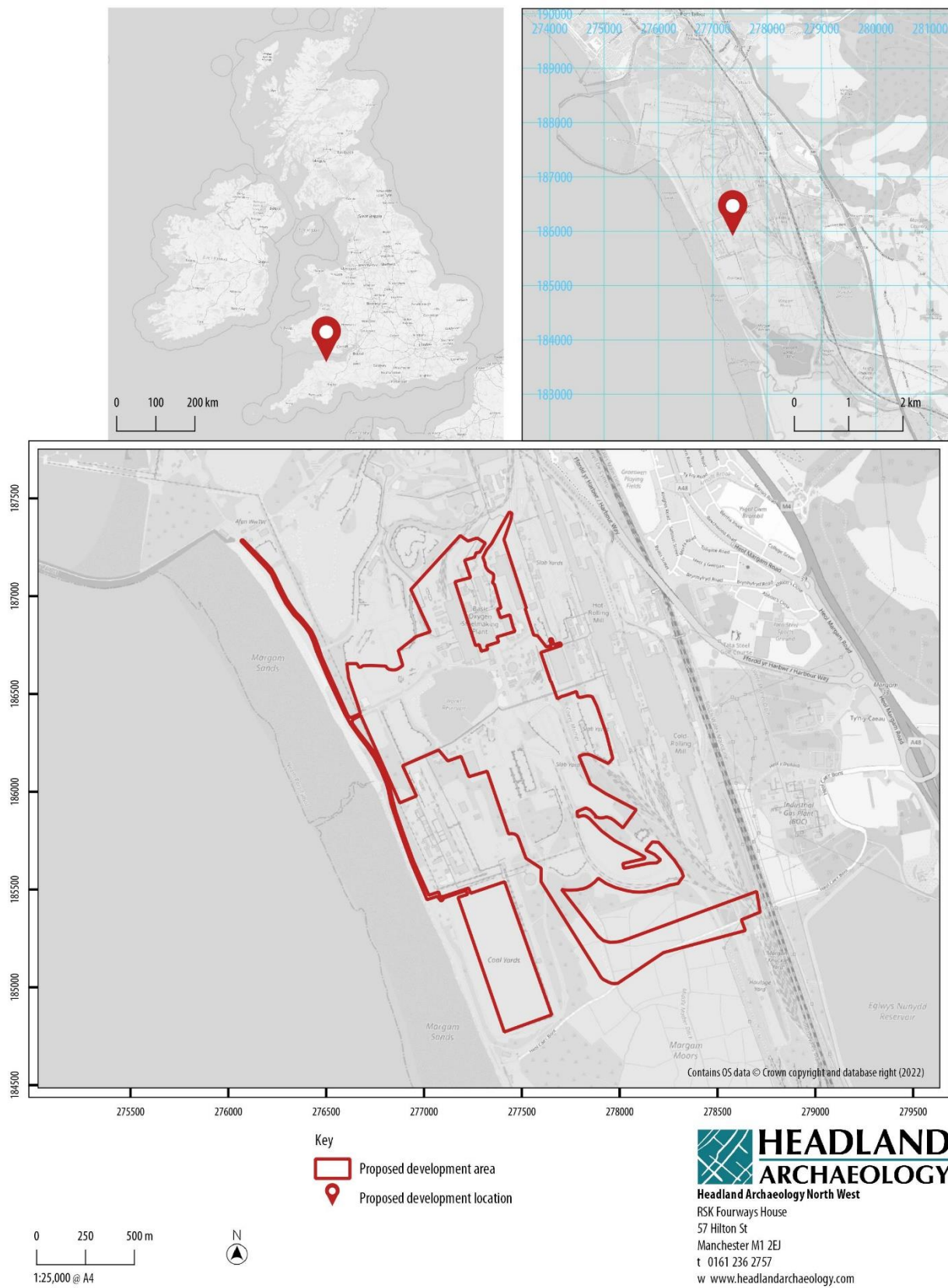
5. Possible Mitigation and Enhancement

- 5.1.1. Where effects are identified, further evaluation methodologies may be employed (such as archaeological monitoring, geophysical survey or intrusive works) to better understand the cultural significance of extant and archaeological remains.
- 5.1.2. Where potentially significant effects are identified, mitigation measures will be proposed. The preferred mitigation option is always to avoid or reduce impacts through design, or through precautionary measures such as fencing off historic assets during construction works. Effects which cannot be eliminated in these ways will lead to residual effects.
- 5.1.3. Adverse effects may be mitigated by an appropriate level of survey, excavation, recording, analysis and publication of the results, in accordance with a Written Scheme of Investigation (WSI). Archaeological investigation can have a beneficial effect of increasing knowledge and understanding of an asset, thereby enhancing its archaeological and historical interest and offsetting adverse effects.
- 5.1.4. Primary mitigation measures for built historic assets will comprise design responses to the possible effects identified in the iterative design process. These mitigation measures will seek to avoid significant adverse effects through careful planning, siting, access, layout and scale of buildings and landscaping in consultation with the heritage advisors to Neath Port Talbot Council.

- 5.1.5. For archaeological assets, recommendations for further works will be based on the findings of the EIA and may include but not be limited to:
- Archaeological investigations to identify and characterise known and unknown remains;
 - Design solutions to avoid or reduce effects (preservation in situ);
 - Targeted excavation and recording in advance of construction;
 - Archaeological observation and construction-integrated recording; and
 - Appropriate archiving and publication of findings.
- 5.1.6. A method statement will be produced prior to the commencement of any mitigation work that may be necessary; to include detail of specialists and archive locations, appropriate insurances (public liability and professional indemnity), staffing and experience, QA, arbitration, contingencies, and legal transfer of any artefacts.

6. References

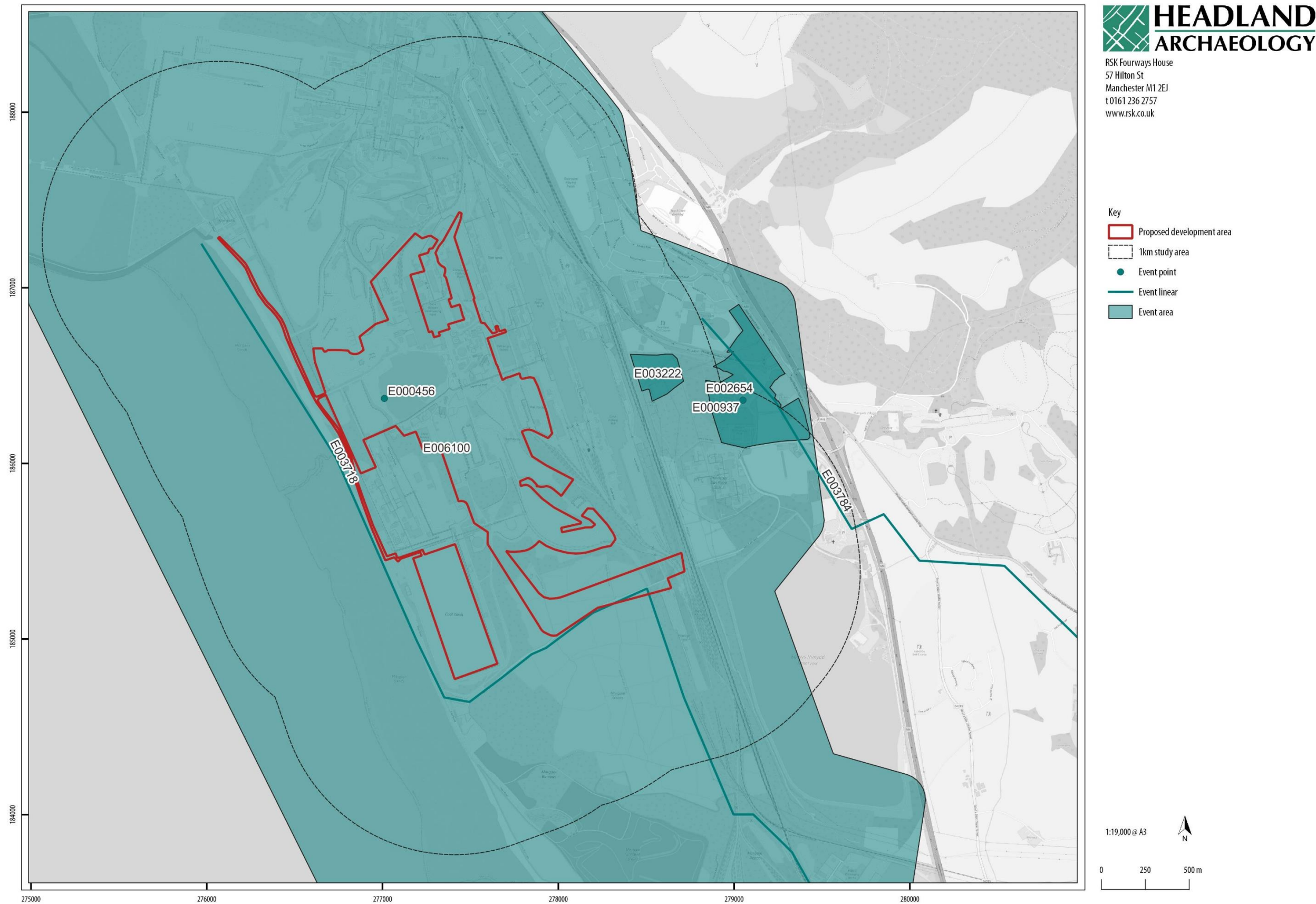
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- Welsh Government (2017) *Technical Advice Note 24: The Historic Environment*.
- Welsh Government (2024) *Planning Policy Wales Edition 12*.



Illus 1. Site location



Illus 2. Heritage constraints



Illus 3. Previous archaeological events



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Technical Note



Ref. ST20879-0001

CLIENT:	TATA Steel UK
PROJECT:	Project EAF
SUBJECT:	Coal Mining Risk Assessment
JOB NO.:	ST20879
DATE:	12 April 2024
PREPARED BY:	Adam Clarke, Engineering Technician
APPROVED BY:	Rebecca Marvell, Technical Director

Introduction

The British Geological Survey (BGS) data indicates that the land beneath the Port Talbot Steel Works site is located on Coal Measures geological formation. A part of the site proposed for redevelopment is described by the Coal Authority (statutory planning consultee for land containing coal) as being a Development High Risk Area. This designation highlights a potential for ground instability, resulting from legacy coal mining operations. A Coal Mining Risk Assessment (CMRA) is a requirement for any planning consultation with such a designation. The CMRA will provide a deeper understanding of the below ground hazards and to allow any proposed redevelopment of the site to be designed in such a way to mitigate against any risk that might be identified.

Coal Measures Summary

The site is underlain by Carboniferous age, Lower and Middle Coal Measures deposits, which range in age from approximately 300 to 360 million years old. These deposits consist primarily of mudstones, siltstones and sandstones, interspersed with bands of coal dipping in a north - east direction. The thickest and most valuable of these coal seams have been given names to help reference and map their mineral value. There are as many as 15 named coal seams which are indicated to subcrop (outcrop beneath soil deposits) within the planning boundary. These named seams are likely to be of mineable thickness, and at least four of these seams are known to have been mined beneath the site. Additional unnamed coal seams are thought to be present but are unlikely to be of sufficient thickness or mineral value to have been mined.

Technical Note

Ref. ST20879-0001

Several geological faults subdivide the stratigraphy at the site. The Kenfig-Tytlwyn Thrust Fault crosses through the site in an approximate east-west direction and offsets (throws) the geological sequence. The offset is such that several named coal seams are thought to subcrop within the site on both sides of the fault. BGS records also describe additional faulting (Giant's Grave fault and Morfa fault) at the site; but without detailed investigation, the conjectured position, and throw of these faults cannot be accurately determined.

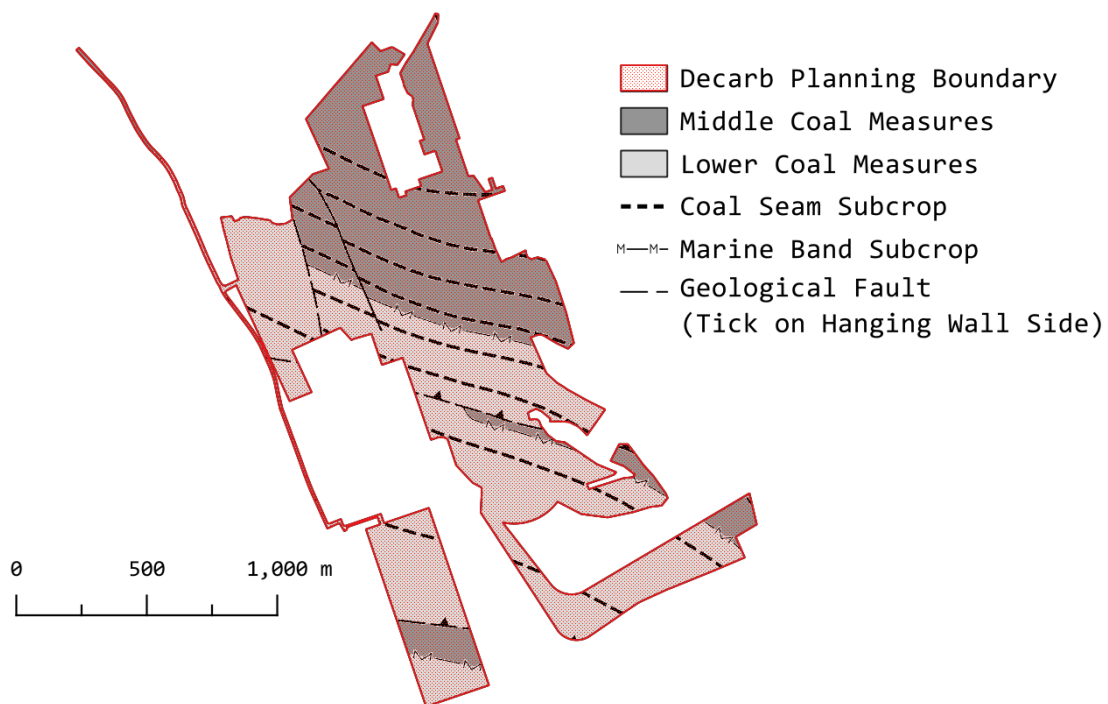


Figure 1 Geological structure within Planning Boundary. Contains British Geological Survey materials © UKRI 2024

Coal mining is known to have historically occurred at the site, most notably associated with the former Morfa Colliery, formerly located at the site. Wardell Armstrong has previously carried out a CMRA on part of the site, identifying only a low to moderate risk to any future development.

Three mine entries are recorded by the Coal Authority within the provided Planning Boundary. Wardell Armstrong has previously carried out physical searches for the three mine entries, physically proving the position of one shaft and providing search records for the other two.

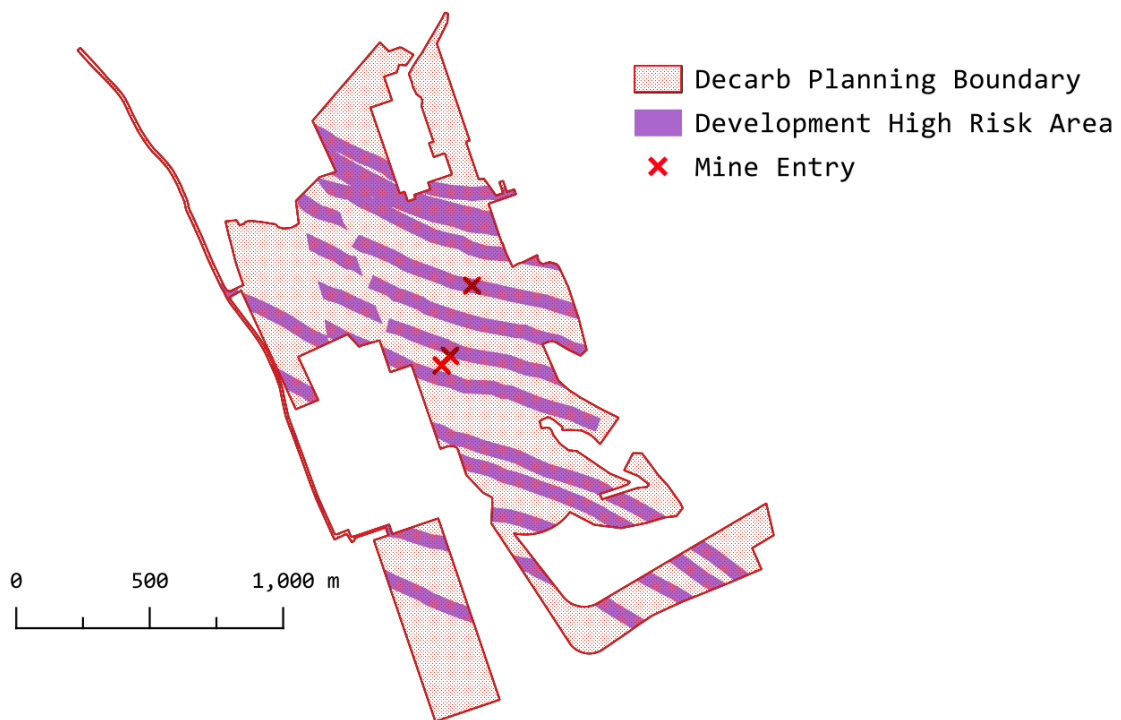


Figure 2 Development High Risk Areas to be revised following CMRA and ground investigation. Coal Authority information © The Coal Authority, 2023

Evidence of possible coal mine workings exists for up to eight of the coal seams beneath the site, and is summarised by each source of the information below:

1. The Coal Authority Consultant Mining Report records workings in the Five Foot, Gellideg, Lower Nine Foot Top Leaf and Garw Vein coal seams.
2. Available Morfa Colliery abandoned mine plans describe workings in the Four Feet (L 4 FT) and Nine Feet (U 9 FT and/or L 9 FT).
3. The North of England Institute of Mining and Mechanical Engineers - Forster Collection, records workings in the Nine Feet (U 9 FT and/or L 9 FT) and Garw Vein.
4. The Northern Mining Research Society website reports the “Morfa colliery worked the North Fawr, South Fawr, Six-Feet, Three-Feet, Nine-Feet, Five-Quarter and Cribbwr seams; and worked the Clay seam between 1854 and 1865”.

Several of the seam names can be corroborated between sources, with evidence for the Nine Feet and Gawr Vein seams reported as worked in three of the above searches. The most recent date of recorded mine workings at the site is 1913, in the Gawr Vein seam, from the

Coal Authority Consultant Mining Report. The likelihood of subsidence or significant ground collapse resulting from recorded mine workings of this age and at the depths is very low. The possibility for historical unrecorded workings at a shallower depth cannot be discounted. Further understanding of the location of any workings, and the depth, age and mineable thickness of each of the coal seam contributions to site risk will be determined by the Coal Mining Risk Assessment.

Coal Mining Risk Assessment

The CMRA as a planning document is divided into sections to reflect each hazard and typically presented in a tabular format with risks, potential consequences and mitigations measures discussed. The specific hazards considered are as follows:

- Past recorded underground mining;
- Past unrecorded underground mining;
- Present and future surface mining;
- Present and future underground mining;
- Mine entries;
- Mine gases; and,
- Geological features – Faults, fissures and breaklines.

Risk Assessment Conclusions

Based on available data, there are coal mining related hazards at the Project EAF development site. A series of coal seams from the Lower and Middle Coal Measures; geological faulting of the Coal Measures; recorded mine workings within several coal seams; and three mine entries are the identified hazards within the site. The current proposed layout for the site redevelopment is understood to have taken into consideration the position of the known mine entries and any sensitive plant and built structures have been kept away from these positions. While scale of the risk has yet to be fully determined, the outline understanding is that the risks to any proposed development are low to moderate. None of the risks identified thus far are considered unsurmountable by design or remediation techniques, in line with the recommendations of the Coal Authority, and industry standard guidance (CIRIA C758 – Abandoned Mine Workings Manual). Pending detailed review of the background information, the CMRA will likely recommend that a phase of ground investigation be carried out to help further quantify the risks.

From: Alexandra Ellis <Alexandra.Ellis@rskbiocensus.com >
 Sent: 22 April 2024 10:57
 To: Laura Palmer
 Subject: P&C EAF - NPT and NRW meeting follow up

Hi Laura,

Hope you are well, following on from our meeting on 28th March 2024 I have compiled a list of the complete suite of ecology surveys we have completed at Port Talbot, together with the methodology used and the dates. I just wanted to check that you are in agreement and happy with our approach before I send it across to NRW.

Ecological Survey Type	Methodology	Survey Timings
Preliminary Ecological Appraisal (Original project boundary)	UK Habs survey methodology.	Initial survey 2021 Update survey August 2023
Preliminary Ecological Appraisal (2023 Update)		November / December 2023
Preliminary Ecological Appraisal (2024 project boundary)		April / May 2024
NVC Survey	44 quadrats at 5 locations. Early and mid-successional grassland on ballast and rail verges at 'PField' (centroid: SS 78174 85824) storage area; Coastal and Floodplain Grazing Marsh and shallow ditch communities at 'the Moors' (centroid: SS 78101 85270); Ephemeral communities on well-drained skeletal soils comprised of pulverised fuel ash at 'Gas Holder' (centroid: SS 77671 85431); Ephemeral communities on well-drained skeletal soils comprised of slag and pulverised fuel ash at 'Regen' (centroid: SS 77576 85803), and; Fixed dune communities on land west of Margam Moors SSSI (centroid: SS 77707 84490). This area is outside of the red linesite boundary provided.	June 2022
Invertebrate Surveys	Scoping Survey – November 2021 Sweep Netting; spot sampling; grubbing; beating; pitfall trapping and vacuum sampling. The site was visited on five occasions spread throughout the peak flight period of most groups of invertebrates. Each visit consisted of two consecutive days. 25-26 April 2022 – sun and cloud – 14-16°C 30-31 May 2022 – sun – 15-16°C 19-20 June 2022 – sunny - 23-28°C	25-26 April 2022 30-31 May 2022 19-20 June 2022 20-21 July 2022

	20-21 July 2022 – sunny – 20-22 °C 05-06 September 2022 – sunny – 19-22 °C	05-06 September 2022																												
Badger Walkover	An initial assessment was carried out to identify areas that might be used by badger for commuting, foraging and sett-building within 30 m of all areas potentially affected by works (where access was possible). The area was systematically searched for signs of Badger including setts, foraging signs, paths (runs) and latrines. The one outlier sett identified was then monitored during subsequent site visits to complete reptile surveys.	between April and August 2022 Update checks November 2023																												
Wintering Bird Surveys	Four visits from November to February were made to record wintering birds. Surveys took approximately two and a quarter hours. <table><tr><th>Visit</th><th>Date</th></tr><tr><td>Visit 1</td><td>18.11.21</td></tr><tr><td>Visit 2</td><td>15.12.21</td></tr><tr><td>Visit 3</td><td>17.01.22</td></tr><tr><td>Visit 4</td><td>28.02.22</td></tr><tr><td>Visit 5</td><td>13.12.23</td></tr><tr><td>Visit 6</td><td>05.02.24</td></tr></table>	Visit	Date	Visit 1	18.11.21	Visit 2	15.12.21	Visit 3	17.01.22	Visit 4	28.02.22	Visit 5	13.12.23	Visit 6	05.02.24	Initial survey 2021 – 2022 Update visits 2023 – 2024														
Visit	Date																													
Visit 1	18.11.21																													
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Visit 3	17.01.22																													
Visit 4	28.02.22																													
Visit 5	13.12.23																													
Visit 6	05.02.24																													
Breeding Bird Surveys	Surveys were undertaken early in the morning just after sunrise and on one occasion in the evening to coincide with the period of peak bird activity, alternating the direction of the transect route. The surveys were completed each month between April and June 2022 to coincide with the peak breeding period. <table><tr><th>Visit</th><th>Date</th></tr><tr><td>Visit 1</td><td>08.04.22</td></tr><tr><td>Visit 2</td><td>10.05.22</td></tr><tr><td>Visit 3</td><td>24.05.22</td></tr><tr><td>Visit 4</td><td>07.06.22</td></tr></table>	Visit	Date	Visit 1	08.04.22	Visit 2	10.05.22	Visit 3	24.05.22	Visit 4	07.06.22	08/04/2022 10/05/2022 24/05/2022 07/06/2022																		
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Visit 1	08.04.22																													
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Visit 3	24.05.22																													
Visit 4	07.06.22																													
Bat Activity Surveys	One survey visit per month, April to October. Transect surveys commenced at sunset, lasted two hours and covered all suitable habitats for foraging and/or commuting bats, with a focus on boundary features. <table><tr><th colspan="2">Transect Route</th></tr><tr><th>Month</th><th>Date</th></tr><tr><td>September</td><td>21/09/2021</td></tr><tr><td>October</td><td>No suitable weather</td></tr><tr><td>April</td><td>21/04/2022</td></tr><tr><td>May</td><td>03/05/2022</td></tr><tr><td>June</td><td>01/06/2022</td></tr><tr><td>July</td><td>05/07/2022</td></tr><tr><td>August</td><td>11/08/2022 12/08/2022</td></tr></table> Five original static locations (Moderate Potential) <table><tr><th>Month</th><th>Start Date</th><th>End Date</th><th>N. of Nights</th><th>5 Consecutive Nights Analysed</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table>	Transect Route		Month	Date	September	21/09/2021	October	No suitable weather	April	21/04/2022	May	03/05/2022	June	01/06/2022	July	05/07/2022	August	11/08/2022 12/08/2022	Month	Start Date	End Date	N. of Nights	5 Consecutive Nights Analysed						Original surveys – 2022 Lagoon Surveys – 2023 – 24
Transect Route																														
Month	Date																													
September	21/09/2021																													
October	No suitable weather																													
April	21/04/2022																													
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August	11/08/2022 12/08/2022																													
Month	Start Date	End Date	N. of Nights	5 Consecutive Nights Analysed																										

					(chosen on weather)				
	April	06/04/2022	20/04/2022	15	12/04/2022 – 16/04/2022				
	May	03/05/2022	10/05/2022	7	03/05/2022 – 07/05/2022				
	June	01/06/2022	08/06/2022	7	01/06/2022 – 05/06/2022				
	June * additional deployment for Laneside location due to detector error	17/06/2022	22/06/2022	5	17/06/2022 – 22/06/2022				
	July	05/07/2022	12/07/2022	7	05/07/2022 – 09/07/2022				
	August	12/08/2022	18/08/2022	6	12/08/2022 – 16/08/2022				
	September	01/09/2022	09/09/2022	8	02/09/2022 – 06/09/2022				
	Lagoon Static (Low Potential)								
							Month	Start Date	End Date
August / September							29/08/2023	19/09/2023	21
September / October							19/09/2023	18/10/2023	29
	April/ May	29/04/2024	07/05/2024	8					
Bat Roost Assessment Surveys - Buildings	The preliminary bat roost assessment was carried out on 14 January 2022 by Alexandra Ellis (senior ecologist) and Kailey O'Brien (ecologist). Alexandra holds a bat survey licence (2018-35858-CLS-CLS). A total of thirteen buildings were surveyed for features that may be used by roosting bats. Potential access points into the buildings were noted as well as crevices and voids in the external structure.						2022		
	Preliminary bat roost assessment of additional buildings identified are planned to be undertaken on 29 th April 2024.								
Bat emergence surveys	Building	Date	Survey Type	Temperature (°C)	Wind (Beaufort)	Cloud (Octas)	Precipitation	2022	
	B2	04/05/2022	Emergence	14	3	2	None		
	B5	12/05/2022	Emergence	13	5	1	None		
	B10	17/05/2022	Emergence	14	4	1	None		
		16/06/2022	Emergence	17	1	1	None		
Bat Roost Assessment Surveys - Trees	GLTA - There are scattered trees within the site and small woodland areas primarily to the south of the site.						18/01/2022		
	An initial inspection of each tree for their potential to support roosting bats was undertaken. This involved the inspection of trees from ground-level using binoculars and a torch to identify any features which were considered to have potential as a bat roost and for any evidence of bats such as scratch marks, oil stains and droppings.						17/05/2022		
	Tree climbing – the ground inspection identified ten trees which required further inspection using climbing inspection methods. PRFs with low were checked once; PRFs with moderate were checked twice, PRFs with high were checked three times.						18/05/2022		
	Visits completed on:18/01/2022; 17/05/2022; 18/05/2022; 10/06/2022; 14/07/2022.						10/06/2022		
							14/07/2022		
Great Crested	Twelve waterbodies were identified within the steelworks. Eleven of them are within the red-line boundary. Pond 2 is over 500 m from the red line boundary but has been included in the assessments as a potential translocation pond, if a population of GCN is identified within the site.						2022		

Newt Surveys	HSI - 17 March 2022 eDNA - 27th and 28th April 2022, with a repeat visit to one pond after an inconclusive result on 7th June 2022. Those ponds found to have HSI scores of 'Below Average' or 'Average' were subject to population estimate survey techniques including torching, egg searches and bottle trapping. A series of six survey visits (night and morning) were conducted. Traditional Techniques <table><tr><td>Check 1</td><td>Check 2</td><td>Check 3</td><td>Check 4</td><td>Check 5</td><td>Check 6</td></tr><tr><td>13.04.22</td><td>05.05.22</td><td>11.05.22</td><td>19.05.22</td><td>08.06.22</td><td>14.06.22</td></tr></table>	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6	13.04.22	05.05.22	11.05.22	19.05.22	08.06.22	14.06.22																													
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13.04.22	05.05.22	11.05.22	19.05.22	08.06.22	14.06.22																																					
Reptile Surveys	Reptile survey visits using 184 refuges were carried out between April and June 2022 <table><tr><td>Check 1</td><td>Check 2</td><td>Check 3</td><td>Check 4</td><td>Check 5</td><td>Check 6</td><td>Check 7</td></tr><tr><td>07.04.22</td><td>26.04.22</td><td>03.05.22</td><td>23.05.22</td><td>17.06.22</td><td>22.06.22</td><td>01.07.22</td></tr></table>	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6	Check 7	07.04.22	26.04.22	03.05.22	23.05.22	17.06.22	22.06.22	01.07.22	2022																										
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07.04.22	26.04.22	03.05.22	23.05.22	17.06.22	22.06.22	01.07.22																																				
Otter and Water vole Surveys	The habitat suitability of the ditches and a search for field signs - including droppings (the principal evidence required), feeding remains, burrows and footprints were surveyed between 1 and 8 October 2021 and 25th and 26th April. The water vole rafts were checked monthly during dormouse / reptile surveys. RSK Biocensus were commissioned to undertake water vole surveys at the end of September 2021. The first survey could not take place within the traditional survey period (April to September inclusive). It was considered unlikely that field signs would have decreased significantly in number since the end of September (excluding other factors below) so a survey was undertaken in early October. Raft Checks <table><tr><td>Check 1</td><td>Check 2</td><td>Check 3</td><td>Check 4</td><td>Check 5</td><td>Check 6</td><td>Check 7</td><td>Check 8</td><td>Check 9</td><td>Check 10</td></tr><tr><td>07.04.22</td><td>20.04.22</td><td>26.04.22</td><td>09.05.22</td><td>18.05.22</td><td>29.05.22</td><td>06.06.22</td><td>17.06.22</td><td>22.06.22</td><td>01.07.22</td></tr><tr><td>Check 11</td><td>Check 12</td><td>Check 13</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>12.07.22</td><td>03.08.22</td><td>03.09.22</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>	Check 1	Check 2	Check 3	Check 4	Check 5	Check 6	Check 7	Check 8	Check 9	Check 10	07.04.22	20.04.22	26.04.22	09.05.22	18.05.22	29.05.22	06.06.22	17.06.22	22.06.22	01.07.22	Check 11	Check 12	Check 13								12.07.22	03.08.22	03.09.22								
Check 1	Check 2	Check 3	Check 4	Check 5	Check 6	Check 7	Check 8	Check 9	Check 10																																	
07.04.22	20.04.22	26.04.22	09.05.22	18.05.22	29.05.22	06.06.22	17.06.22	22.06.22	01.07.22																																	
Check 11	Check 12	Check 13																																								
12.07.22	03.08.22	03.09.22																																								
Dormouse Surveys	Nest-tube survey is used to confirm presence or likely absence and gain an understanding of distribution across the site. <table><tr><th>Month</th><th>Date</th></tr><tr><td>October</td><td>05.11.2021</td></tr><tr><td>November</td><td>24.11.2021</td></tr><tr><td>April</td><td>20.04.2022</td></tr><tr><td>May</td><td>10.05.2022</td></tr><tr><td>June</td><td>08.06.2022</td></tr><tr><td>July</td><td>12.07.2022</td></tr><tr><td>August</td><td>09.08.2022</td></tr><tr><td>September</td><td>08.09.2022</td></tr></table>	Month	Date	October	05.11.2021	November	24.11.2021	April	20.04.2022	May	10.05.2022	June	08.06.2022	July	12.07.2022	August	09.08.2022	September	08.09.2022																							
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One question I do have is that in several NRW scoping responses recently we have seen that Phase 1 methodology is specifically mentioned. Are you happy to accept the newer UK Habs survey methodology or would you want the mapping converted into the Phase 1 key?

Quick question unrelated to this project that I'm hoping you may know the answer to (it may be a silly one ☹️). With the new PPW green infrastructure requirements would they still be applicable to permitted development projects?

Kind Regards,

Alex

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Client
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Author
Reviewer / Sign-off
Subject

2024s0432
Tata Steel Planning Support
Tata Steel UK Ltd
4th April 2024
Charlotte Lickman & Faye Tomalin
John Panesar
Flood Risk and Drainage Briefing Note – EAF Project –
TATT3054 - Rev A - 5 April 2024

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1 Introduction

This briefing note has been developed to facilitate discussions regarding proposed development to Land at Port Talbot Steelworks. This note summarises work undertaken to date on flood risk and surface water drainage, along with outlining the general principles to which the surface water drainage scheme means to comply.

1.1 Understanding of Development Proposals

The development proposals are for:

"Hybrid planning application: full planning permission for the demolition of existing buildings and structures, partial infill of the BOS lagoon, and construction of a new electric arc furnace-based steel production facility (1 no. arc furnace, 2 no. ladle furnaces). The development includes an upgraded slag processing facility, chemical/material storage and transfer infrastructure and pipework and cabling (above and below ground), buildings, fume and dust treatment plant, water treatment facility and material handling systems. Electrical control rooms and power infrastructure. Offices and ancillary facilities together with new and amended transport infrastructure, landscaping and green infrastructure, and associated development.

Outline planning permission (with all matters reserved) for demolition and the construction of a scrap metal handling facility and associated scrap yards, scrap processing facility, underground and overground electrical infrastructure, and new and amended transport infrastructure, landscaping, and associated development".

2 Current Understanding of Flood Risk

An update for TAN-15 was released in October 2021. However Welsh Government subsequently suspended this, and it is not currently known when the new TAN-15 will be published in its final form and implemented. Although the new TAN-15 is not a material consideration, Welsh Government and NRW advise that some consideration is given to the Flood Map for Planning (FMfP) as best available information. Therefore, where a site is located in a FMfP flood risk zone it is recommended that a Flood Consequences Assessment (FCA) is carried out.

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Rivers

A small proportion of the south of the site is located within Flood Zones 2 and 3 of the Flood Map for Planning – Rivers, as shown in Figure 2-1. Flood Zone 3 is defined as a greater than 1 in 100 (1% AEP) chance of flooding in any given year, including climate change.

As a result of the above, an FCA for the site is required, and shall be completed in due course.

The extent of the site located within Flood Zones 2 and 3 comprises the area for National Grid cable routing only. It is currently assumed that all cables shall be underground, and consequently shall have no impact on flood risk.

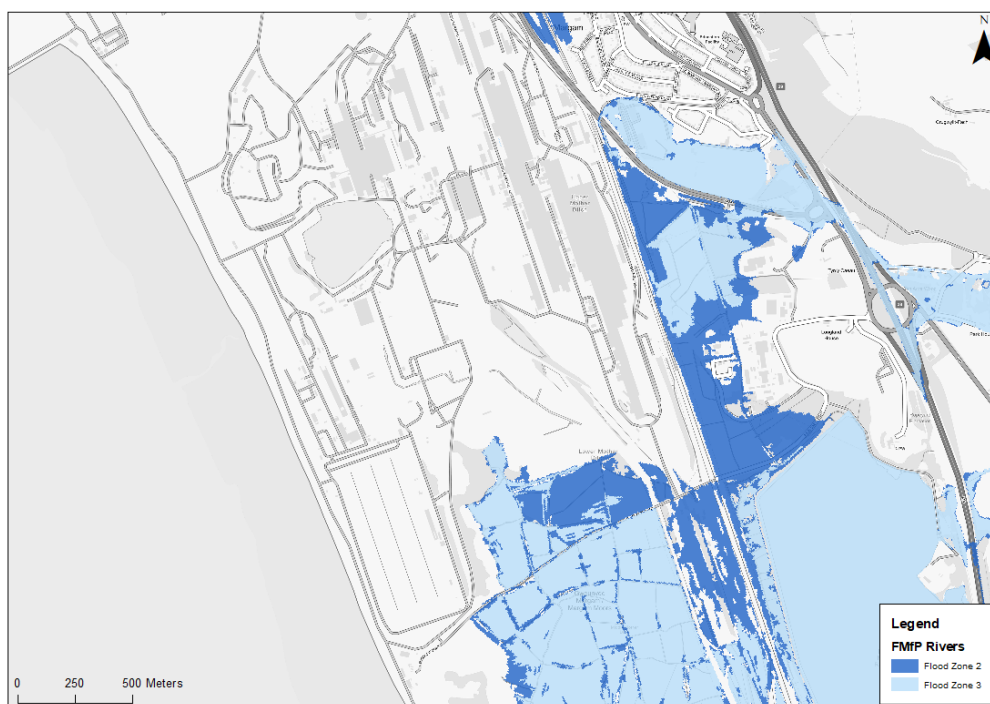


Figure 2-1 Flood Map for Planning – Rivers (extract from NRW Webportal)

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Sea

The site is shown to be located outside of the mapped flood zone extents for the Flood Map for Planning flood risk from the Sea, as shown in Figure 2-2. This means the site has a less than 1 in 1000 (0.1% AEP) (plus climate change) chance of flooding in a given year.



Figure 2-2 Flood Map for Planning – Sea (extract from NRW Webportal)

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Surface Water and Small Watercourses

There are areas at risk of surface water and small watercourses flooding, as shown in Figure 2-3. Flood Zone 3 shows areas which have a greater than 1 in 100 (1% AEP) chance of flooding in any given year, including climate change. However, it is envisaged that these areas located within Flood Zones 2 and 3 of the Flood Map for Planning shall be managed by SuDS features across the site.

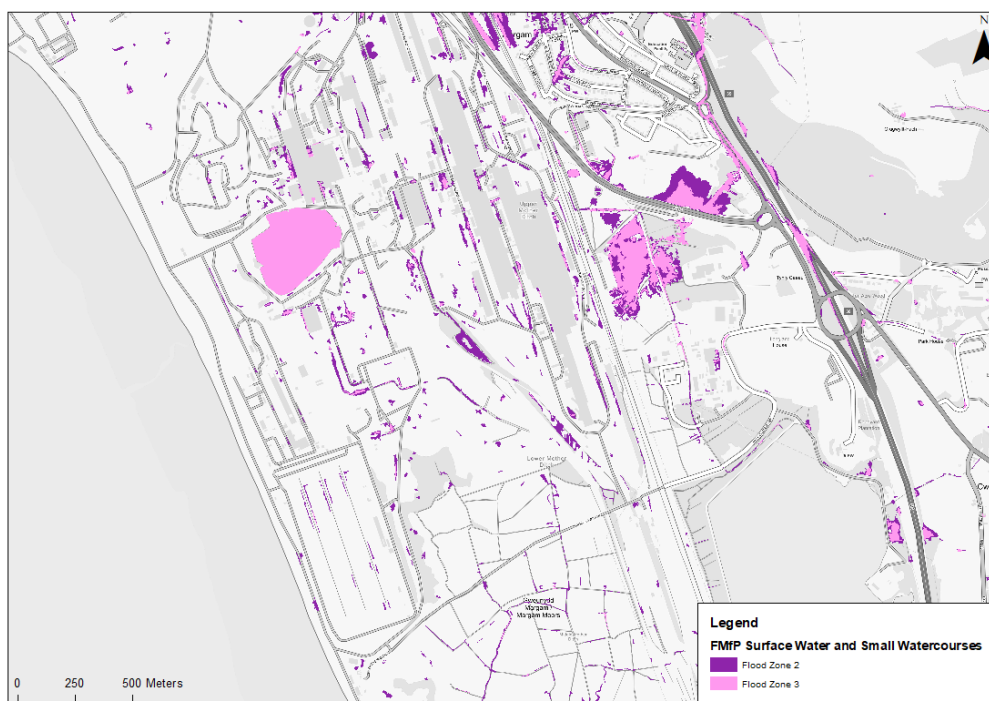


Figure 2-3 Flood Map for Planning - Surface Water and Small Watercourses (extract from NRW Webportal)

2.1 Watercourses

The Port Talbot Tata Steel site contains an extensive drainage and watercourse network. The watercourse network is located predominantly to the southern extent of the Tata Steel site, comprising the Lower Mother Ditch, and a reed network within Margam Moors. A number of land drainage ditches also form part of this network.

At this preliminary stage of design, discussions are ongoing as to the impact of the development on the watercourse network, which are anticipated to be minimal with appropriate mitigation provided, if required.

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3 Surface Water Management Approach

A conceptual surface water drainage proposal for the site is being developed which will aim to control surface water runoff without increasing flood risk or impacting on water quality downstream. Sustainable Drainage Systems (SuDS) aim to mimic the natural processes of Greenfield surface water drainage by allowing water to flow along natural flow routes, and also aims to reduce the runoff rates and volumes during storm events, whilst providing water treatment benefits.

Schedule 3 of the Flood and Water Management Act 2010 was enacted in Wales in January 2019, leading to the requirement for all new developments to incorporate the four pillars of SuDS design.

3.1 Conceptual Drainage Strategy

The proposed development site is highly industrial, with the nature of the processes on site leading to a high potential for contamination. The development use / processes shall result in requirements to manage the potential for contamination prior to discharge of all surface water to its ultimate discharge location; The Bristol Channel.

Consequently, it is proposed to have two main surface water systems across the site: the contaminated stream and the clean water stream. In areas where no contamination is anticipated, surface water shall be permitted to flow within the 'clean water stream' to the SuDS system and be discharged directly into designated on site surface water bodies (e.g. Lower Mother Ditch), where it is able. Across the 'contaminated stream', surface water shall be directed within a piped system to the on-site wastewater treatment works. Both streams shall be ultimately pumped to an outfall within the Bristol Channel.

3.2 SuDS Implementation

The proposed development is to be incorporated into the existing Tata Steel works, with a number of existing buildings to be demolished as part of the proposals. Consequently, some areas of the development shall be undertaken on areas of existing impermeable surfacing. As a result, these areas shall not have drainage implications, and new facilities are proposed to be drained via the existing systems towards the onsite wastewater treatment works and ultimately pumped to the Bristol Channel.

Where existing roads are proposed to be widened, the re-use of existing drainage infrastructure serving these highways shall be investigated further.

For areas of new development, the use of SuDS techniques shall be investigated for their suitability. In areas of high risk of contamination, a piped network (the contaminated stream) shall drain surface water to the on-site wastewater treatment works.

It is anticipated that the proposed highways, offices, car parks and other low risk process units shall drain to the 'clean water stream'. This stream shall be drained via above ground SuDS wherever possible, acknowledging the associated space constraints on site. SuDS features shall likely comprise of channel drains, gravel based rain gardens and swales. Opportunities may arise to discharge of surface water to the existing watercourse network to the southern extent of the site.

TECHNICAL NOTE

JBA Project Code
Contract
Client
Day, Date and Time
Author
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2024s0432
Tata Steel Planning Support
Tata Steel UK Ltd
4th April 2024
Charlotte Lickman & Faye Tomalin
John Panesar
Flood Risk and Drainage Briefing Note – EAF Project –
TATT3054 - Rev A - 5 April 2024



SuDS Water Runoff Destination

Given the historic industrial nature of the site, and the potential for contaminated ground, it is unlikely that discharge of surface water via infiltration shall be a viable means of surface water disposal across the site. Further ground investigation work is proposed, and the outputs shall support the full SuDS Approval Body (SAB) submission.

It is therefore proposed to discharge surface water, where appropriate, into surface waterbodies that are located within the southern extent of the site. These watercourses are ultimately pumped to the Bristol Channel. This is likely to support the areas of the outline planning application.

The main construction area (full application area) shall ultimately drain to the onsite pump station, with water discharged to the Bristol Channel.

Surface Water Runoff Hydraulic Control

As the Bristol Channel is tidally influenced there is no requirement to attenuate flows from the development site, this is in line with Standard G2.1 of the Statutory Standards for SuDS

"Where the surface water body is unaffected by either the discharge rate or volume of runoff (e.g. an estuary, the sea or a water body identified in the Local Flood Risk Management Strategy [LFRMS] as not needing hydraulic control or runoff to it), the hydraulic management control requirements are limited to the drainage service provisions for the site and adjacent areas that could be affected by the performance of the drainage system."

As a result, there is no requirement to limit runoff from the proposed development as a consequence of discharging surface water directly into tidal waters (Bristol Channel) or in order to mitigate fluvial flood risk.

Water Quality

In order to establish the contaminated and clean water streams across the site, the proposals shall be reviewed and evaluated to determine their risk of contamination to the surface water system.

The proposed development results in surface water draining from various sources. Surface water from areas of industrial roofs which are considered to be clean would be categorised as having a Low Pollution hazard, in line with Table 26.2 of the SuDS Manual. Highways within the development site are also categorised as having a Low Pollution Hazard, whilst high contaminated roofs and areas (i.e. those with fume exhausts etc with the potential for a high hydrocarbon loading) would be categorized as a High Pollution Hazard.

Whilst ordinarily the highest pollution hazard level would be considered for the entirety of a site, it is considered appropriate to manage surface water in line with catchments in accordance with contaminant levels given the high pollution hazard for some areas of the site. Further detail shall be provided with a formal SAB pre-application request to outline key areas of the site, along with the designated pollution hazard for each area and subsequent pollution hazard indices. Surface water draining from high hazard areas will comprise the 'contaminated stream'. Surface water draining from Medium and Low Hazard areas shall comprise the 'clean water stream'.

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The Simple Index Approach shall be utilised to determine a suitable treatment train across the 'clean water stream' to manage water quality.

Amenity and Biodiversity

The design of the surface water management system should maximise amenity and biodiversity benefits across the site. SuDS components can enhance the provision of high-quality, attractive space which can help to provide health and well-being benefits, improve employee welfare and can contribute to improving the climate resilience of new developments. The ecological potential of a SuDS scheme can be maximised by utilising local planting and providing measures to enhance the existing ecosystem and/or work to mitigate against the impact of the development to its surroundings.

The proposed site use, layout and space constraints across the site makes the use of conventional SuDS assets difficult. However, opportunities will be explored wherever possible to maximise their use and keep surface water as close to the surface as possible.

A holistic approach to ecology, landscape and SuDS will be undertaken to maximise the potential for SuDS, biodiversity and landscape across the development. The approach will also be discussed collaboratively with Neath Port Talbot Council throughout the planning stage with both the SAB and ecologists, incorporating, where possible, site specific information and authority-wide requirements for SuDS and biodiversity enhancements.

Design for Construction, Maintenance, and Structural Integrity

Schedule 3 of the Flood and Water Management Act was implemented in Wales on the 7th January 2019. Under this legislation, SuDS that serve multiple properties must be approved and adopted by the SAB – a function performed by the Lead Local Flood Authority at Neath Port Talbot County Council.

In the case of the proposed heavy industrial use of the site, the SuDS will serve a single curtilage and therefore the Client shall have the management and maintenance responsibilities for the proposed surface water drainage system. A detailed management and maintenance plan for the proposed system shall be provided at detailed design stage.

14 HUMAN HEALTH

Introduction

- 14.1 Regulation 4(2) of the Town & Country Planning EIA (Wales) Regulations 2017 requires that the EIA 'must identify, describe and assess... the direct and indirect significant effects of the Proposed Development on [inter alia]... population and Human Health...'. The Regulation goes on to set out the other factors, and that the EIA must include 'the interaction between the factors'..
- 14.2 The purpose of this scoping note is to set out the proposed methodology for the assessment of potential Human Health effects resulting from the Proposed Development.
- 14.3 'Human Health' as an EIA factor concerns the likely significant health outcomes by evaluating the positive and negative health impacts of a Proposed Development against relevant local health determinants (IEMA, 2017). The World Health Organisation (WHO) defines health as "...a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".
- 14.4 'Population' is also a factor within the EIA Regulations, and may be assessed separately or in combination with 'Human Health' factors. Where Population is assessed separately as a factor, there is greater emphasis on socioeconomic impacts, such as employment, education or crime. Where Population is assessed in combination with Human Health factors, this concerns the impact on health outcomes of the population as a group sharing certain characteristics, including their distribution.
- 14.5 A separate assessment focusing on Socio-economic impacts is being prepared in relation to the Proposed Development, therefore Human Health is interpreted here as not relating to impacts associated with socio-economics or changes in population in the strict sense. Nevertheless Human Health is being presented alongside Socio-economics in a Socio-economics and Health Environmental Statement (ES) chapter, so there will be some overlap in the baseline.
- 14.6 Given also that other factors of EIA being assessed elsewhere within the ES already cover aspects of Human Health, for example Landscape and Visual Impact, Air Quality and Odour, Noise and Vibration, Surface Water, Flood Risk and Drainage, Ground Conditions, Material Assets and Waste and Traffic and Transport, reference to these ES chapters is made where relevant in determining the scope of Human Health as an EIA factor.

Legislation and Policy context

- 14.7 There is no statutory guidance setting out how to assess potential health impacts of a development. The assessment will therefore be based on nationally recognised best practice and guidance from a number of sources. This includes the Wales Health Impact Assessment Support Unit practical guide to Health Impact Assessment (HIA) and the London Healthy Urban Development Unit (HUDU) HIA guidance. The Institute for Environmental Management and Assessment (IEMA) has recently produced a best

practice guide to Effective Scoping of Human Health in Environmental Impact Assessment (IEMA, 2022), which has been used herein for defining the scope of Human Health as an EIA factor.

- 14.8 In addition, reference is made to relevant national and local legislation and policy relating to Human Health and development, including:
- Future Wales: The National Plan 2040 published by Welsh Government in February 2021 (FW).
 - Neath Port Talbot County Borough Council Local Development Plan 2011-2026 adopted in January 2016 (LDP).
 - Planning Policy Wales Edition 11 published by Welsh Government in February 2021 (PPW).

Preliminary Baseline Conditions

Existing health profile

- 14.9 The existing population health of the local area surrounding the Proposed Development is profiled using publicly available local health data. This provides a baseline of the health of the local population against which the potential for significant health impacts can be assessed.
- 14.10 The baseline data takes account of relevant local (Wales 2011 Census data Output Areas), regional and national statistics. Lower Layer Super Output Areas (LSOA) are the lowest geographical level at which statistical estimates are provided in England and Wales.
- 14.11 In defining an appropriate study area to determine the extent of the community profile, consideration is given to the geographical scale of publicly available health statistics. The study area therefore focuses on the LSOA of Margam 2 with the wider areas of Neath Port Talbot and Wales.
- 14.12 Relevant data sources to the baseline include:
- Local authority/ward statistics
 - Health and Wellbeing Board publications
 - Annual Public Health Reports
 - Extant and emerging local plans and any associated 'health and wellbeing' evidence base documents and/or 'topic papers'
 - Indices of Multiple Deprivation
 - Public Health Wales health profiles
 - Clinical Commissioning Group (CCG) statistics
 - Office for National Statistics (ONS)
 - Public Health Outcome Framework Indicators

Wider Determinants of Health

- 14.13 Determinants of health are the range of interacting factors that shape the health and well-being in a population. These include individual behaviours (such as diet or level of physical activity) and biological factors (such as age or genetic inheritance), but also the wider social, economic and physical environmental conditions in which people live their lives.
- 14.14 The relationship between these wider social, economic and physical environmental determinants of health was conceptually modelled in research undertaken by Dahlgren and Whitehead (1991) (Figure 14.1a below). The model suggested that the health of individuals within a population (with fixed age, sex and hereditary determinants), at the centre of the model, is influenced by a number of modifiable determinants. The modifiable determinants are illustrated in the model as a series of 'ecosystem spheres' on the basis of their scale of their influence. The first sphere concerns personal behaviour and ways of living that could promote or damage health. The second sphere relates to social and community influences, which could provide mutual support for members of the community in unfavourable conditions. The third sphere relates structural factors such as housing, working conditions, access to services and provision of essential facilities.
- 14.15 Building on the Dahlgren and Whitehead model, Barton and Grant (2006) later developed a health map for urban planners, which emphasised the geo-spatial hierarchy of determinants of health (Figure 14.1b below). Recognising that interdisciplinary collaboration is required to address health inequalities at a range of scales, their model elaborated on the relationship between social, economic and environmental determinants. The model relates to a settlement, that is set within a wider bio-region and ultimately the global ecosystem upon which human existence depends. The resulting health map provides a framework for planning Human Health within which different specialisations (planners, architects, ecologists, air quality specialists, social scientists, etc) can relate. The model therefore provides a unified approach to planning from the neighbourhood upwards, which aims to put health and wellbeing of people at the centre of decision making.

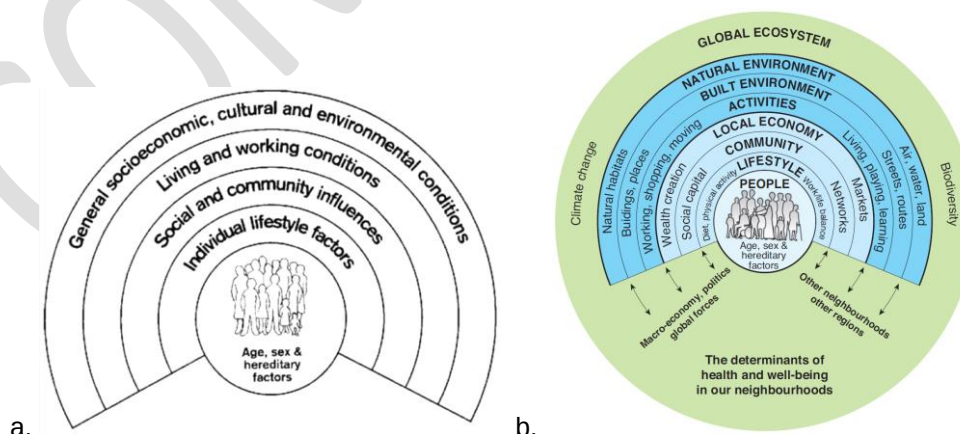


Figure 14.1a. The Dahlgren and Whitehead determinants of health model; **b.** The Barton and Grant health map for urban planners.

- 14.16 IEMA (2022) provides guidance on applying wider determinants of health to EIA scoping. The guidance identifies five main categories of wider determinants: health related behaviours; social environment; economic environment; bio-physical environment; and institutional and built environment. It is useful to judge the wider determinant of health against the emerging development proposals at the scoping stage of an EIA, as this helps to refine the need for and scope of a detailed Human Health impact assessment.
- 14.17 Potential for impacts on Human Health are assessed by judging likely health outcomes with respect to a relevant determinant of health together with the site-specific and local conditions where relevant to health and wellbeing. This judgement applies the source ⇒ pathway ⇒ receptor model. Only where there is potential for a pathway between an impact (a change in baseline conditions/ determinants of health) and a likely health outcome (on the local population), will an impact pathway be considered possible.
- 14.18 It is important to recognise that individual decisions on determinants of health do not always have a direct effect on health and wellbeing (Barton and Grant, 2006). There are various pathways to impacts on health outcomes which may be controlled or influenced by other factors or decisions made, alas the impact pathway may be indirect or complex. Nevertheless for the purpose of EIA a judgment of the potential of individual impact pathways is useful as it helps to break down some of the complexity and allows for a proportionate assessment of the likelihood of significant effects as required by the EIA Regulations.

Proposed Scope and Methodology of Assessment

Local Impact Area

- 14.19 The health baseline as described above is based on a defined area termed a Local Impact Area (LIA). The LIA is based on the Margam 2 LSOA and extends outwards to include all adjacent Lower Super Output Areas. This is in order to identify the potential health impacts occurring closest to the site. This baseline is then used to identify and assess impact pathways as a result of the development proposals on local health outcomes.
- 14.20 There is a focus on the potential impacts to vulnerable groups as a result of the Proposed Development. Health impacts are often spread unevenly across different groups in a population with vulnerable groups often disproportionately affected. As such it is important to determine what proportion of the local population are classed as vulnerable and the level of impacts will be considered against those identified.

Consultation

- 14.21 The Welsh Health Impact Assessment Unit guide to undertaking Health Impact Assessment discusses the importance of undertaking proportional and meaningful consultation with local health representatives to inform the scope of the assessment. A consultation meeting has taken place with NPTCBC informed by this scoping note to confirm the scope of the health impact assessment and ES chapter. It has not been possible to consult with other potential stakeholders due to confidentiality of the emerging proposals.

Describing health impacts

- 14.22 As noted above IEMA (2022) provides useful guidance on applying the wider determinants of health to EIA scoping, and is used to judge whether individual wider determinants of health need to be scoped into a detailed Human Health assessment as part of the EIA.
- 14.23 In determining the potential for impact pathways, this judgement has been undertaken with regard to the following criteria:
- The nature of the impact – how will the Proposed Development affect health and will the impact be positive or negative?
 - The likelihood of the impact – is the likelihood of the impact of the proposal definite, probable or speculative?
 - The scale and significance of the impact – what proportion of the population is likely to be affected? How severe or beneficial will the impact be?
 - The timing of the impact – will the impact be in weeks, months, years? In some instances the short-term risks to health may be worth the long-term benefits.
 - The distribution of effects – will the Proposed Development affect different groups of people in different ways? A proposal that is likely to benefit one section of the population may not benefit others. In some cases, the assessment will identify ways in which members of the least healthy or most disadvantaged populations could be helped. This can be an important contribution to reducing the health inequalities that exist between some communities.
 - The magnitude of effect – will the Proposed Development lead to a perceptible difference compared with that identified in the baseline and if so will this be a small, medium or large change?

Limitations and Assumptions

- 14.24 The health impact assessment is based entirely on secondary data i.e. no new primary health data will be collected in relation to the Proposed Development. This data is therefore based on the information as recorded for each respective source at a point in time that might not reflect the exact environmental baseline situation at the time of writing the EIA chapter.

Potential impacts

- 14.25 Table 14.1 below considers the potential for impact pathways on health outcomes associated with the Proposed Development, based on the wider determinants of health for EIA as set out in IEMA (2022).

Table 14.1. Potential for impact pathways on health outcomes associated with the Proposed Development.

Categories	Wider determinants of health (from IEMA, 2022)	Potential impact pathway	Justification
Health related behaviours	physical activity	N/a	The Proposed Development site is not publicly accessible and therefore not open to physical activity.
	risk taking behaviour	N/a	The Proposed Development site is not publicly accessible. During construction security fencing will be erected to ensure that the site is not publicly accessible.
	diet and nutrition	N/a	The Proposed Development does not include any provision for the production or sale of food.
Social environment	housing	N/a	No housing provision is included in the Proposed Development.
	relocation	N/a	No accommodation provision is included in the Proposed Development.
	open space, leisure and play	N/a	The Proposed Development site is not publicly accessible. No public open space, amenity or play space provision is included in the Proposed Development.
	transport modes, access and connections	N/a	The impact of transport modes, access and connections will be assessed in detailed in the traffic and transport assessment.
	community safety	N/a	The Proposed Development site is not publicly accessible. During construction security fencing will be erected to ensure that the site is not publicly accessible.
	community identity, culture, resilience and influence	N/a	The Proposed Development would allow steel to be continue to be produced within the Port Talbot Steelworks. The steelworks is considered synonymous with the identity of Port Talbot.
	social participation, interaction and support	N/a	The Proposed Development site is not publicly accessible and there are no provisions for social participation or interaction on the site.
Economic environment	education and training	N/a	No educational and training is provision is included in the Proposed Development.
	employment and income	N/a	The impact of the Proposed Development on employment and income will be assessed in detail in the socio-economic assessment.
Bio-physical environment	climate change mitigation and adaptation	N/a	The potential for impacts on the Proposed Development arising from climate change will be assessed in detail in the climate change assessment.

Categories	Wider determinants of health (from IEMA, 2022)	Potential impact pathway	Justification
	air quality	N/a	The impact of the Proposed Development on air quality will be assessed in detail in the air quality assessment.
	water quality or availability	N/a	The impact of the Proposed Development on water quality or availability will be assessed in detail in the surface water, flood risk and drainage assessment.
	land quality	N/a	The impact of the Proposed Development on land quality/contaminated land will be assessed in detail in the ground conditions assessment.
	noise and vibration	N/a	The impact of the Proposed Development on noise and vibration will be assessed in detail in the noise assessment.
	radiation	N/a	No impacts associated with radiation are envisaged as a result of the Proposed Development.
Institutional and built environment	health and social care services	N/a	No health and social care provision is included in the Proposed Development and no impacts on existing health and social care provision is envisaged as a result of the Proposed Development.
	built environment	N/a	Given the existing industrialised land use of the existing steelworks site, it is not envisaged that the Proposed Development would alter the built form of the site and surroundings. The landscape and visual impacts of the Proposed Development will be assessed in detail in the landscape assessment.
	wider societal infrastructure and resources	N/a	The Proposed Development site is not publicly accessible and is therefore unlikely to impact on wider societal infrastructure and resources in the vicinity of Neath Port Talbot.

Summary

- 14.26 As noted above, potential impacts relating to all of the environmental disciplines referenced will be assessed in detail elsewhere in the ES/ planning application. Given that no other impact pathways on health outcomes for the LIA have been identified, it is recommended that Human Health is scoped out of the EIA as a standalone ES chapter. Instead Human Health is being presented alongside Socio-economics in a Socio-economics and Health ES chapter. Impacts relating to health assessed in detail elsewhere in the ES/ planning application will be summarised within the Socio-economics & Health ES chapter.

References

- Barton, H. & Grant, M. (2006). A health map for the local human habitat. *The Journal of the Royal Society for the Promotion of Health*, 126(6), 252-253. <https://doi.org/10.1177/1466424006070466>
- Dahlgren, C. & Whitehead, M. (1991). What can we do about inequalities in health? *The Lancet*, 338(8778), 1059-1063.
- Institute for Environmental Management and Assessment (IEMA) (2017) *Health in Environmental Impact Assessment. A Primer for a Proportionate Approach*.
- Institute for Environmental Management and Assessment (IEMA) (2022) *Effective Scoping of Human Health in Environmental Impact Assessment*.

ELECTRIC ARC FURNACE, PORT TALBOT

LANDSCAPE STRATEGY APPROACH

April 2024

Document history

	Name	Date
Author	Daniel Leaver	17.04.2024
Technical Reviewer	Hannah Low	17.04.2024
Approved	Lynne Houlbrooke	17.04.2024

1 LANDSCAPE STRATEGY

- 1.1.1 The extent of the landscape mitigation will be fully developed in response to the assessment of impacts. However, the potential mitigation measures are focused on restoring and enhancing retained areas of habitat including brownfield habitat, greenfield habitat, and coastal floodplain areas outside of the EAF development footprint. This will result in the overall improved quality of the green and blue infrastructure than is currently present on site.
- 1.1.2 The initial design approach considers existing green and blue infrastructure features within (and surrounding) the site, particularly the meadows and ditches to the south which form the basis of the Margam Moors; inputs from ecology and hydrology are therefore integral to developing the initial landscape strategy.
- 1.1.3 The laying of cabling within the southern grassland will require excavation and restoration once completed. Important green and blue infrastructure will be protected as best as practicable during this time, albeit it is understood there may be some temporary adverse effects on soils which will require remediation. It is envisaged that any surplus dug material will be carefully stored and used within the landscape/ecological enhancements.

2 LANDSCAPE CHARACTER

- 2.1.1 The landscape of the site is predominantly industrial in character, consisting largely of extant steel works with only the proposed route of new cabling connecting to the Margam Substation within the grazing marshland to the south of the main site.
- 2.1.2 The Margam Moors SSSI lies to the south of the site and consists of further grazing meadow. Trees and shrubs, although present as linear features or clumps, are not a defining characteristic of the landscape which is generally quite open.
- 2.1.3 In ecological terms there is some benefit in providing shelter and possible nesting roosts, but it is the open field and ditch network that is of primary importance. It is not deemed appropriate to therefore attempt to 'screen' the new development and buildings with large scale tree planting. However, there is still potential to introduce tree and shrub species in certain areas, such as providing some filtering of views from the PRoW to the south towards the scrap facility.

3 LANDSCAPE ZONES

- 3.1.1 The landscape strategy for the site is to create two different zones which are appropriate for their setting, usage, ecology and hydrology.
- 3.1.2 **Internal site ecology/SuDS** - the majority of internal spaces, where available, within the site are given over to ecological and SuDS function, using the principles outlined below, using existing substrates creatively to allow regenerating landscapes to maximise ecological potential. Excess soils retained following restoration of cabling excavations may be available to add further interest.

- 3.1.3 **Public facing ecology/SuDS**– the somewhat degraded moorland area to the south of the scrap metal site will be improved for ecology and in terms of its visual appearance. This will include the management of the existing fields to be improved by ditch clearance and introduction of cattle grazing which will create a better managed appearance. It is proposed that a wildlife tower is installed within the southern fields and an information board located along the PRow to provide information on the surrounding ecology and perhaps history of the site.

4 DESIGN PRINCIPLES

- 4.1.1 The design principles currently include the following:
- The floodplain grassland could be enhanced with improved management including low level cattle grazing to diversify and open up existing vegetation. The associated ditches could be enhanced to ensure they qualify at SINC status and provide connectivity to the Margam Moors SSSI to the south.
 - Where amendments to existing channels/watercourses are required, the potential for their enhancement through differentiated bank profiles, wet grassland, reed and woodland will be explored to create beneficial SuDS features.
 - Existing deciduous woodland could be cleared of dense scrub understorey to promote tree health and potential for further planting explored.
 - Mixed native hedge to be planted to provide additional habitat and to break up massing of buildings.
 - Potential for artificial drystone walling within southern fields using gabion baskets filled with ballast / slag from the site to create connectivity and additional topographical interest.
 - Existing scrub could be managed to not encroach significantly within meadows, similar to the existing sea buckthorn management, to help maintain structural diversity.
 - Existing substrate from excavated material within the site could be used to create additional natural mosaic landscape alongside SuDS design to incl. minor variations in topography to create different habitat types.
 - Some brownfield areas of the site to be retained/recreated and allowed to naturally colonise to encourage diverse flora/fauna within the site.
 - Potential import of limited amount of spoil, crushed slag and railway ballast to form small number of 'mini dunes' to create additional topographical interest.
 - New railway lines and internal roads will have extended ballast either side to provide greater opportunity for development of open mosaic habitat.
 - Landscape management to promote biodiversity throughout the site.

5 SUMMARY

- 5.1.1 The proposed landscape strategy as set out above would help restore and enhance multiple high-quality habitats particularly within the coastal flood plain area, with opportunities for a wide-ranging selection of species. There would also be the opportunity for species populations in the wider area (including the SSSI sites) to expand into this area over time.

ELECTRIC ARC FURNACE, PORT TALBOT

LVIA TECHNICAL NOTE

May 2024

Document history

	Name	Date
Author	Daniel Leaver	16.05.2024
Technical Reviewer	Zachary Ford	16.05.2024
Approved	Zachary Ford	16.05.2024

1 2022 SCOPING REPORT

- 1.1 A Scoping Report was submitted by RSK in June 2022 which provided details of the methodology and approach to the proposed Landscape and Visual Impact Assessment (LVIA) for the Cronus project at Port Talbot. The scoping report, including the selection of landscape and visual receptors and assessment approach, was developed with input from White Associates, who represented Neath Port Talbot Council (NPTC) with regard to landscape and visual matters.

2 THE PROPOSED EAF

- 2.1 The proposed Electric Arc Furnace (EAF) facility has been relocated circa 250m north of the original Cronus scheme, with all above ground facilities now located in the existing industrialised part of the Port Talbot works. The scrap component part of the development extends southwards from the EAF but will not result in the loss of existing floodplain grassland, as was the case previously. The detailed design is advanced and approaching design fix, with the operational above ground works for the proposed EAF and associated scrap facility now more focussed towards the existing industrialised areas of the works and generally excluded from the undeveloped southern extents of the site in contrast to the original Cronus scheme.

3 STUDY AREA

- 3.1 Considering the EAF is proposed to be of a similar scale and location overall to the previous Cronus project, it appears reasonable that the extent of the scope for the LVIA will be very similar. Previously a 17km search area was adopted based on National Resource Wales (NRW) Guidance Note 46 for structures of between 80-108m height as per the table below. It is proposed that this initial search area again be adopted as there would be no structures which exceed the maximum 108m height parameter. An updated ZTV (Figure 1) has been prepared which incorporates the maximum heights (mAOD) of the proposed infrastructure as follows:

- Stack 83.2m;
- Emergency tank 62.2m;
- HBI, dolo and lime bunkers 51.2m.

- 3.2 Based on Table from NRW Guidance Note 46:

Height structure (metres)	<25	26 to 49	50 to 79	80 to 108	109 to 145	146 to 175
Search area (km)	3	4 to 8	8 to 12	12 to 17	17 to 23	23 to 26
Study area (km)	2	2 to 5	5 to 8	8 to 11	11 to 20	20 to 24

- 3.3 The remainder of the EAF has been modelled at a height of 42.2m whilst the scrap facility has been modelled at 25m. This approach therefore provides a very robust baseline review which can be refined as the LVIA process progresses.

- 3.4 The study area of the Cronus scheme extended further than the NRW recommended 11km area so that the Gower AONB and viewpoints at Mumbles could be incorporated into the assessment. It is again proposed that the study area be extended to include these sensitive landscape and visual receptors. The proposed study area will therefore extend up to 17km to the west based on the updated 'worst-case' parameters which have been established for the scheme.

4 LANDSCAPE ASSESSMENT

- 4.1 As per the scoping report, the Neath Port Talbot Landscape Assessment (December 2004), undertaken by White Consultants, provides a framework for landscape planning in the region. The study is based on the LANDMAP process and will require updating in accordance with latest LANDMAP data, however, it still provides an appropriate level of detail to form a starting point for further assessment. The LVIA would include landscape datasets in accordance with LANDMAP Guidance Note 46: Using LANDMAP in Landscape and Visual Impact Assessments.
- 4.2 The Carmarthen Bay, Gower and Swansea Bay Local Seascape Character Assessment (November 2017), also prepared by White Consultants, again provides an appropriate level of detail to form a starting point for further assessment of the effects of the Proposed Development on local seascape areas.
- 4.3 The inclusion of previously identified designated/sensitive landscape receptors which fall within the updated ZTV will be included for the updated EAF scheme.

5 VISUAL ASSESSMENT

- 5.1 Again, it is noted that a rigorous viewpoint selection process was undertaken for the previous Cronus project with input from landscape consultants, White Associates. A site visit was undertaken in March 2024 to check whether these views remained relevant and/or whether the existing photography could be made use of. Following the site visit it was concluded that all previous viewpoints remained relevant, albeit 6 of the 21 views should be retaken to test whether updated views were required to illustrate a worst-case scenario. Five out of the six views were repositioned due to the moving of the EAF further north in the site, whilst one was retaken due to the addition of a new wind turbine. The views retaken are as follows:
- Vp 2 Tata recreation ground – due to EAF moving to the north of the works;
 - Vp 3 Morfa Avenue/LDW – due to EAF moving to the north of the works;
 - Vp 8 Margam House – due to EAF moving to the north of the works;
 - Vp 9 Broomhill – due to EAF moving to the north of the works;
 - Vp 12 M4 overbridge – due to new wind turbine;
 - Vp 15 A48 – due to EAF moving to the north of the works.
- 5.2 In each case, the viewpoint photography will be reviewed in terms of the extent of visibility of

the proposed EAF and the most appropriate viewpoint selected to illustrate the worst-case scenario.

- 5.3 Following an initial meeting with NPTC on 28 March a further four viewpoints have been added to ensure that receptors, particularly residential receptors to the north of the site, are fully represented now that the EAF has moved somewhat north within the steel works. These 4 viewpoints are shown within the table below and on the updated Figures 2, 3 and 4 as viewpoints 22-25. During a second meeting with NPTC it was suggested that views from Inkerman Row be reviewed for the same reason and to provide an approximation of views from the motorway. However, this location has been discounted, as it was for the Cronus scheme, on the basis that it is at a higher elevation than the motorway (there would be no/negligible views of the proposed development at this location from the latter) and that views from the street and residential properties would be extremely limited by existing vegetation and by the location of the EAF within and behind existing site structures. A new viewpoint has been selected, (viewpoint 23, Wales Coastal Path near Mynydd Brombil) that is close to, and accessible from, Inkerman Row, but is more elevated and therefore with a better view of the site. The final 25 viewpoints for assessment are identified in the table below:

No.	Name	Distance	Receptor type
1	Public footpath close to Margam Sands	Site boundary	Outdoor recreation, users of public footpath network
2	Tata Steel Recreation Ground/Abbotts Close	1 km	Residents users of recreation ground
3	Morfa Avenue, Margam	1.4 km	Residents and road users, walkers on WCP (PRoW 5/93.PT/1) & cyclists on NCR4
4	Eglwys Nynydd Reservoir (M4)	1.5 km	Outdoor recreation and equivalent from M4
5	Kenfig Burrows	1.9 km	Outdoor recreation at Kenfig NNR, users of WCP, SLA6
6	Porthcawl Coast	7.5 km	Recreational users of footpaths, WCP within SLA8
7	Wales Coastal Path, Braided Route	2.3 km	Recreational users of footpaths, WCP
8	Margam Country Park	2.2 km	Visitors to the registered park, within an HLA & SLA 4
9	Broomhill at Pen-y-cae	3.2 km	Residents
10	Aberavon Sands, Port Talbot	3.5 km	Outdoor recreation, resident, tourist
11	Ogwr Ridgeway Walk,	3.8 km	Recreational users of footpaths, SLA4

No.	Name	Distance	Receptor type
12	M4 overbridge	3.9 km	Local road users, M4
13	Kenfig NNR, visitor centre	4.5 km	Outdoor recreation, users of public footpath network, within an SLA6 and HLA
14	High Street, Kenfig Hill	6.2 km	Residents and road users on B4281
15	A48	6.5 km	Road users
16	Cairn at Foel Fynyddau	6.9 km	Recreational users of footpaths within Open Country
17	Porthcawl Coast	7.5 km	Recreational users of footpaths, WCP within SLA8
18	Swansea Parade, Blackpill	15.1 km	Outdoor recreation, walkers and local residents
19	Nicander Parade, Swansea	13.4 km	Residential area within Swansea
20	Swansea Parade, Swansea Cenotaph	13.7 km	Outdoor recreation, walkers and local residents
21	Mumbles Hill Information Point	14.2 km	Outdoor recreation, tourists within Gower AONB
22	Harbour Way	2.7 km	Road users
23	Wales Coastal Path near Mynydd Brombil	2.3 km	Recreational users of footpaths, WCP
24	Wales Coastal Path at Mariner's Point	2.9 km	Residents, road users and outdoor recreation
25	Cwmavon Road	3.7 km	Road users

6 CONCLUSION

- 6.1 The study area, methodology and selection of landscape and visual receptors for the previous Cronus project were agreed following a rigorous process of desktop analysis, fieldwork and input from NPTC and their landscape consultants. The proposed extent of the revised EAF application will be more focussed to within the existing industrialised area of the Port Talbot works. The revised ZTV demonstrates that the visible extents of the scheme will be very similar to that of the previous scheme. It is therefore considered that a very robust approach would be for the EAF scheme to adopt the same extents of study area and key landscape and visual receptors previously identified together with the four additional viewpoints to the north of the scheme as noted above.