8 BIODIVERSITY

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8.1 Introduction

8.1.1 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]… biodiversity…'.

8.1.2 This Chapter, its associated **Appendices 8.1 to 8.11** (provided in **ES Volume 3**) and **Figures 8.1 to 8.3** (provided in **ES Volume 4**) are intended to be read as part of the wider ES with particular reference to **ES Chapters 1 to 4**, as well as **Chapter: 6 Air Quality**, **Chapter 7: Noise and Vibration**, **Chapter 15: Cumulative Effects** and the lighting assessment provided in **Appendix 5.5**.

8.1.3 This chapter should also be read in conjunction with the Information to Inform – Habitats Regulations Assessment Report submitted as part of the Planning Application for the Proposed Development.

8.2 Statutory and planning context

Legislative framework, policy, and guidance

8.2.1 The following legislation and policy have informed the assessment of effects set out within this Chapter and is detailed further in **Appendix 8.1 to 8.11**:

- The Conservation of Habitats and Species Regulations 2017 (as amended);
- The Wildlife and Countryside Act (W&CA) 1981 (as amended);
- The Environment (Wales) Act 2016;
- The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1979);
- Ramsar Convention 1971;
- The Natural Environment and Rural Communities (NERC) Act 2006; and
- The Countryside and Rights of Way Act 2000.

8.2.2 The following guidance has informed the assessment of effects within this Chapter and is detailed further in **Appendix 8.1**:

- The Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine (2018); and
- British Standard 42020:2013 British Standard Institution: Biodiversity Code of Practice for Planning and Development.

8.3 Consultation undertaken

8.3.1 **Table 8.1** provides an overview of the consultation that has been undertaken, including the consideration of likely significant effects and the methodology for assessment.

Table 8.1: Summary of consultation

Body / organisation	Contact	Date and form of consultation	Summary
Neath Port Talbot Council and Natural Resources Wales	Laura Palmer and Jane Garner	29.03.2024 Online Meeting	Meeting to discuss the progress of the ecology surveys and to confirm with Neath Port Talbot Council and Natural Resources Wales that they are considered sufficient for the assessment. The proposed biodiversity benefit design was also presented.
Neath Port Talbot Council	Laura Palmer	22.04.2024 Email correspondence (provided in ES **Appendix 4.1**)	Email from RSK Biocensus to Neath Port Talbot Council to confirm scope of ecology surveys and assessment. Positive response received from Neath Port Talbot Council – agreement on the scope and validity of the ecology surveys completed given the passage of time and change in site boundary.
Neath Port Talbot Council	Laura Palmer	22.04.2024 Email correspondence (provided in ES **Appendix 4.1**)	Clarifying that the NVC survey completed is sufficient for the lower plant information requested by the council. Positive response received from Neath Port Talbot Council.

8.4 Approach to the assessment

Scope of the assessment

The loss or modification of habitats

8.4.1 As the following habitat types support negligible biodiversity/have limited ecological value, these have been 'scoped out' from further assessment within this Chapter:

- Developed land; sealed surface (UK habitat code[1] u1b);
- Artificial unvegetated, unsealed surface (UK habitat code u1c);
- Buildings (UK habitat code u1b5) (when considered as a habitat in their own right); and
- Built linear features (UK habitat code u1e).

Effects likely/significant or are subject to change

8.4.2 **Table 8.2** outlines the potential effects that were considered likely to be significant, have been subject to assessment (scoped in) and are reported within this Chapter.

[1] UK Habitat classification is a method of habitat identification outlined in Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2023), UK Habitat Classification – Habitat Definitions V2.0 at http://ukhab.org [Accessed Jan 2024].

Table 8.2: Potential effects likely to be significant

Potential effect	Receptors	Applicable stage
Degradation of statutorily designated sites and locally designated sites through changes in air quality and water quality	Internationally designated sites within 10 km of the Site and nationally and locally designated sites within 2 km of the red-line boundary.	Construction and operation
Loss of habitat	On-site habitats in particular open mosaic habitat.	Construction
Habitat change causing a change in the suitability of the habitat to support species	Breeding birds, wintering birds, roosting and foraging bats, badger, reptiles, great crested newts, invertebrates, otter, water vole and dormice.	Construction and operation
Killing or injury, and disturbance from noise, light, and human activity.	Breeding birds, wintering birds, roosting and foraging bats, badger, reptiles, great crested newts, invertebrates, otter, water vole and dormice.	Construction and operation

Assessment methodology

8.4.3 The assessment detailed in this Chapter has been undertaken in accordance with best practice guidance for EcIA, issued by the CIEEM entitled 'Guidelines for Ecological Impact Assessment in the UK and Ireland Terrestrial, Freshwater, Coastal and Marine' (the 'CIEEM Guidelines') as summarised below. The aims of the assessment are to:

- Identify relevant ecological features (e.g. designated sites, habitats, species or ecosystems) which may be impacted;
- Provide a scientifically rigorous and transparent assessment of the likely ecological impacts and resultant effects of the Residual Development Plots (and the wider proposed development, where relevant). Impacts and effects may be positive (beneficial) or negative (adverse);
- Facilitate scientifically rigorous and transparent determination of the consequences of the Residual Development Plots (and the wider proposed development, where relevant) in terms of national, regional, and local policies relevant to nature conservation and biodiversity, where the level of detail provided is proportionate to the scale of the development and the complexity of its potential impacts; and
- Set out what steps would be taken to adhere to legal requirements concerning the relevant ecological features.

Defining the study area

8.4.4 The ecological baseline information presented within this Chapter is focused on a study area as illustrated in **Figure 8.1**. This study area is based on the Site together with the 2021/2022 survey area, which is the survey boundary for the previous iteration of the project. The study area additionally encompasses a zone of influence, which is defined within the CIEEM Guidance as '*the area over which ecological features may be affected by biophysical changes as a result of the proposed development and associated activities'*.

8.4.5 The zone of influence extends beyond the Site due to ecological and hydrological links beyond. Additionally, it encompasses different areas/extents in respect of each ecological feature depending on its location and sensitivity and the spatial extent of the relevant biophysical change. These biophysical changes also differ depending on the relevant stage (i.e. construction or operation) and their associated activities and subsequent impacts.

8.4.6 In order to determine the zone of influence, the spatial and temporal extents of biophysical changes likely to be generated during the different stages with the potential to lead to effects upon ecological features were predicted and are shown in **Table 8.3.** However, the majority of the activities and resultant biophysical changes listed in **Table 8.3** are unlikely to have an effect beyond the Site and the immediate surrounding area.

Table 8.3: Activities likely to generate ecological effects

Activity	Potential effect
Construction phase	
Site clearance and demolition	• Possible loss of roost sites for bats following demolition or renovation of buildings; • Loss of on-site habitats; • Noise/lighting disturbance to vulnerable species; • Individual mortality/injury to species; and • Dust and other pollutants.
Assembly and storage of machines and materials	• Loss of on-site habitats; • Noise/lighting disturbance to vulnerable species; and • Water-borne pollution including the risk of chemical and fuel spills.
Movement of construction vehicles	• Noise/lighting disturbance to vulnerable species; and • Individual mortality/injury to species.
Lighting of works area	• Disturbance to and displacement of vulnerable species.
Drainage	• Change in water quality of existing drainage network.
Earthworks, excavation and piling	• Noise disturbance to vulnerable species.
Erection of new buildings	• Potential disturbance to vulnerable species
Operational phase	
Drainage	• Change in water quality of existing drainage network.
Lighting	• Disturbance to vulnerable species.

Activity	Potential effect
Noise	• Disturbance to vulnerable species.
Habitat creation	• Potential positive biodiversity benefit.

Background studies/surveys/analysis/evaluations to inform the ES

8.4.7 **Table 8.4** summarises all studies/surveys/analysis/evaluations that have been undertaken to inform the assessment presented within this Chapter.

Table 8.4: Background studies/surveys/analysis/evaluations

Study/survey/analysis/evaluation	Overview	Date of completion
Desk based study (**Appendix 8.1**)	A background data search was undertaken to ascertain the presence and extent of protected, notable, and Invasive species within and around the Site. This extended to locations of statutory and non-statutory designated sites that fell within 10 km and 2 km of the Site respectively.	August 2021
Preliminary ecological appraisal (**Appendix 8.1**)	Consisted of a background data search, UK Hab/JNCC Phase 1 habitat survey and protected species walkover survey of the 2021/2022 survey area in August 2021 and the remainder of the red-line boundary in 2023/2024.	August 2021, August 2023, November/December 2023 and April/May 2024
National vegetative classification survey (**Appendix 8.2**)	National vegetative classification survey completed in June 2022. 44 quadrats completed at five locations.	June 2022
Invertebrate surveys (**Appendix 8.3**)	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.	November 2021 April – September 2022
Badger walkover survey (**Appendix 8.4**)	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	April – August 2022 November 2023

Study/survey/analysis/evaluation	Overview	Date of completion
	of Badger including setts, foraging signs, paths (runs) and latrines.	
Breeding birds surveys (**Appendix 8.5**)	Breeding bird monitoring surveys were undertaken within the Site in 2022 in line with best practice survey guidelines.	April – June 2022
Wintering birds survey (**Appendix 8.5**)	Wintering bird monitoring surveys have been undertaken at the 2021/2022 survey area in November 2021 – February 2022. Update surveys were undertaken in the remainder of the Site in December 2023 and February 2024. These surveys were conducted in line with best practice survey guidelines.	November 2021 – February 2022 December 2023 February 2024
Bats – preliminary roost assessment – trees (**Appendix 8.6**)	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. Tree climbing – the ground inspection identified ten trees which required further inspection using climbing inspection methods. Potential roost features (PRFs) with low were checked once; PRFs with moderate were checked twice, PRFs with high potential were checked three times.	January – July 2022
Bats - preliminary roost assessment – buildings (**Appendix 8.6**)	All buildings within the Site were assessed externally and internally for their suitability to be used by roosting bats in line with best practice bat survey guidelines.	January 2022 and April 2024
Bats – emergence surveys (**Appendix 8.6**)	Emergence surveys were completed on all buildings assessed as offering potential to support roosting bats in line with best practice bat survey guidelines.	May – June 2022
Bats – activity surveys (**Appendix 8.6**)	Static bat detectors were deployed in key areas of habitat within the 2021/2022 survey boundary, monthly during September 2021 and April – August 2022. Transect	September 2021 April – August 2022

Study/survey/analysis/evaluation	Overview	Date of completion
	walkovers were also completed on a monthly basis. An additional static was deployed at the lagoon in August/ September 2023, September/ October 2023 and April/ May 2024. All surveys were completed in line with best practice bat survey guidelines.	August – October 2023 April– May 2024
Great crested newt survey (**Appendix 8.7**)	Habitat Suitability Index (HSI), environmental DNA (eDNA) and population estimate survey techniques were used on waterbodies identified within the Site and within 500 m of both the Site and the 2021/2022 survey boundary.	April – June 2022
Reptile survey (**Appendix 8.8**)	Reptile refugia surveys were completed between April and June 2022.	April – June 2022
Water vole and otter survey (**Appendix 8.9**)	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 2022. Water vole rafts were checked monthly during dormouse/reptile surveys throughout 2022.	October 2021 April – September 2022
Dormouse survey (**Appendix 8.10**)	Nest-tube survey was undertaken to confirm presence or likely absence and gain an understanding of distribution across the 2021/2022 survey area.	November 2021 – September 2022
Fish	Assessment of the likely presence or absence was completed using desk study data, habitat assessment and discussions with site personnel.	November 2021 – December 2023

8.4.8 In addition, a Net Biodiversity Benefit report (**Appendix 8.11**) has been undertaken, which includes a review of established baseline and post development designs to assess the predicted biodiversity loss and gains that would result from the Proposed Development.

8.4.9 A report to inform a Habitats Regulation Assessment has also been prepared, assessing the potential impacts on internationally designated sites. This is provided as a standalone document as part of the Planning Application for the Proposed Development (Electric Arc Furnace Stage 1 Habitat Regulations Assessment Screening Report, RSK Biocensus, June 2024).

Assessment Process

8.4.10 The assessment upon identified ecological receptors has been undertaken in line with the CIEEM Guidelines.

8.4.11 In line with this guidance, the assessment has involved the following:

- Establish a robust and accurate ecological baseline for the Site;
- Identify and evaluate the nature conservation/biodiversity interest present;
- Identify any potential effects arising from the development (during the construction and operational stages);
- Establish the character/nature and significance of those identified effects;
- Identify mitigation measures to address the significant effects;
- Assess any residual effects and the need for any ecological compensation; and
- Assess cumulative effects from other Cumulative Projects.

Reporting of the Environmental Effect and Significance Criteria

8.4.12 The assessment of likely significant effects has taken into account the construction and operational stages. The following sections define the approach adopted within the assessment for the determination of 'value', the likely impacts, the level of effect and significance.

8.4.13 The first stage of the assessment was to determine the 'value' of the ecological features or 'receptors'. The CIEEM Guidelines place the emphasis on identifying different aspects of ecological value including designations, biodiversity value, potential value, secondary or supporting value, social value, economic value, legal protection and multi-functional features. These values have been applied to the receptors within a defined geographical scale, from 'international' to 'local/site'. The criteria used to define the 'value' of the ecological features on a geographic scale are provided in **Table 8.5**.

Table 8.5: Defining the value of ecological resources/receptors

Value of ecological resource / receptor	Example criteria
International	An internationally designated site or candidate/proposed site (Special Protection Area (SPA), potential SPA, Special Area of Conservation (SAC), candidate SAC and/or Ramsar site). A sustainable area of a habitat listed in Annex I of the Habitats Directive or smaller areas of such habitat which are essential to maintain the viability of the larger whole. Sustainable population of an internationally important species or site-supporting such a species (or supplying a critical element of their habitat requirement) i.e.: International Union for Conservation of Nature (IUCN) Red List species that is listed as critically endangered, endangered or vulnerable; or Species listed in Annex IV of the Habitats Directive; or sites that support 1% or more of a biogeographic population of a species.

Value of ecological resource / receptor	Example criteria
National	A nationally designated site (Site of Special Scientific Interest (SSSI) or National Nature Reserve) or a discrete area which meets the selection criteria for national designation (e.g., SSSI selection criteria). An area formally selected by Defra as a Nature Improvement Area. A sustainable area of a priority habitat identified in Section 7 of Environment (Wales) Act or of smaller areas of such habitat, which are essential to maintain the viability of the whole. stainable population of a nationally important species or site-supporting such a species (or supplying a critical element of their habitat requirement) i.e.: Species listed on Schedules 5 and 8 of the W&CA (1981); UK Red Data Book species; Other species listed as occurring in 15 or fewer 10 km squares in the UK; or Sites supporting 1% or more of a national population.
Regional	Sites/populations which exceed the County-level designations but fall short of SSSI selection guidelines, including the following: Sustainable areas of key habitat identified in the Regional Biodiversity Action Plan (BAP) or smaller areas of such habitat, which are essential to maintain the viability of the whole; Population of a species listed as being nationally scarce which occurs in 16–100 10 km squares in the UK; Population of a species listed in a Regional BAP or relevant Natural Area on account of its regional rarity or localisation; or Sites supporting 1% or more of a regional population.
County	Some designated sites (including Sites of Importance for Nature Conservation, County Wildlife Sites or Sites of Metropolitan Importance). A viable area of habitat identified in the County BAP. Sustainable populations of the following species: Species listed in a County/Metropolitan 'red data book' or BAP on account of its rarity/localisation in a county context; or, Sites supporting 1% or more of a county population.
Local/Site	Very low importance and rarity, local scale: Areas of habitat considered to appreciably enrich the habitat resource within the ecological study area itself. A small population of a species of conservation concern i.e., listed in the Local BAP.

8.4.14 The next stage of this EcIA was to predict and characterise the likely change and impact on the ecological receptors identified. It was necessary to consider all of the following parameters:

- Whether the change is positive (beneficial) or negative (adverse);
- The magnitude or severity of the change;
- The extent of the area subject to a predicted impact;
- The duration the impact is expected to last prior to recovery or replacement of the resource or feature;
- Whether the impacts are reversible, with recovery through natural or spontaneous regeneration, or through the implementation of mitigation measures or irreversible, when no recovery is possible within a reasonable timescale or there is no intention to reverse the impact; and
- The timing and frequency of the impact, i.e. conflicting with critical seasons or increasing impact through repetition.

8.4.15 The CIEEM Guidelines also stress consideration of the likelihood that '*a change/activity will occur and also the degree of confidence in the assessment of the impact on ecological structure and function*'. Likelihood has then been specified using the following terms:

- Certain (95% probability or higher);
- Probable (50 – 94% probability);
- Unlikely (5 – 49% probability); or
- Extremely unlikely (less than 5% probability).

8.4.16 The assessment of potential impacts has been undertaken with the inclusion of primary and tertiary mitigation identified (see **Chapter 4: Environmental Assessment Methodology**). Residual effects account for any secondary mitigation measures required. An assessment has been made of the level and significance of residual effects (i.e. the level and significance of the effects that are predicted to remain after the implementation of all committed mitigation measures).

8.4.17 There are two key aspects to 'significance'. First, what constitutes a significant ecological effect is determined in relation to the concept of 'integrity'. Integrity is defined as '*the coherence of its ecological structure and function, across its whole area, which enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified*'. Secondly, it is always stated in relation to a geographical context. Thus, an impact is described as significant at the level at which the integrity of the ecological receptor is affected. An impact may still be significant at some geographical level below that at which the receptor was deemed to be valuable (e.g. loss of common plant species may not affect the integrity of a SSSI valued at national level, but it may still be a significant impact at the local or site level).

8.4.18 To allow a consistent approach across all technical topics, the standard levels of effect and significance defined in the CIEEM Guidelines are set out in **Table 8.6** alongside the equivalent definitions of effect used in this Chapter. These can be either 'adverse' or 'beneficial'. For example, a significant effect at the international level using the CIEEM Guidelines would equate to a Major level of effect using the standard EIA assessment methodology.

Table 8.6: CIEEM Guidelines on levels of effect and significance and equivalent effect categories and definitions.

Significance using CIEEM Guidelines	Equivalent level of category definitions following standard EIA methodology
Significant at the international level	Major
Significant at the national level	Major
Significant at the regional level	Moderate
Significant at the district or county level	Moderate
Significant at the local or site level	Minor
Not significant	Negligible

Determining significance

8.4.19 For each residual effect (i.e. following the identification of secondary mitigation), a clear statement has then been made as to whether the effect is significant or not significant. Under the CIEEM Guidelines, the significance of effect on the ecological features is to be determined based on the analysis of the factors that characterise the impact as well as professional judgement. A significant effect is defined as '*an effect that either supports or undermines biodiversity conservation objectives for the ecological feature or for biodiversity in general*'.

Limitations of the assessment

8.4.20 There are areas within the Site where the vegetation is very dense and so inspection for signs of protected species was difficult. However, it is considered that given the evidence found within the wider Site this is not a significant limitation.

8.4.21 Given the suite of ecological surveys carried out and the fact that there has been little material change to the habitats on site, the desk study results and survey results and are still considered valid and provide a sufficiently robust baseline against which this assessment is conducted.

Design basis and assumptions

8.4.22 The main assumptions of the project design and/or construction approach are:

- There would be no large areas of trees removed. Where the National Grid cable route associated with the Proposed Development must go through these areas they would be drilled beneath to minimise impacts;
- There would be a minimum 6 m offset of construction works from all waterbodies where practicable;
- No additional lighting would be added to areas that are currently dark; and
- No drainage ditches would be removed, and the National Grid cable route would use temporary short-term over-pumping to allow for the installation beneath them.

8.5 Established, interim and future baseline

Established baseline conditions overview

8.5.1 Please refer to section 4.2 of **Chapter 4: Environmental Assessment Methodology** for a description of baselines being considered for the Proposed Development within the ES. The following sections provide a summary of the established baseline conditions. Further detail is presented in **Appendix 8.1 to 8.10**.

8.5.2 The Site is approximately 160 hectares in size and is located to the south-east of the town of Port Talbot. While the Site is predominantly industrial in nature with associated buildings and hardstanding, there are habitats present consistency predominantly ephemeral short perennial, neutral grassland, broadleaved plantation woodland, open water and reedbeds and scrub. There are a number of drainage channels throughout the Site, there is one lagoon associated with the channels and one large lake associated with the steelworks, located at the northern extent of the Site.

8.5.3 The Site is immediately bordered to the north, east and west by Tata Steel UK Limited (Tata Steel) steelworks, with green fields, an access road and Margam Moors SSSI adjacent to the south of the Site. The surrounding landscape is a mixture of woodland, hedgerows, waterbodies (reservoir), grassland and residential properties within Margam. Swansea Bay (Bristol Channel) is located approximately 880 m west of the Site.

Designated sites

8.5.4 There are six statutory designated sites covered by nine designations located within 10 km. These are listed in **Table 8.7** and their locations are shown on **Figure 8.2.**

Table 8.7: Statutory designated sites within 10 km of the Site

Site name	Reason for designation	Distance from Red Line Boundary at closest point
Margam Moors Site of Special Scientific Interest (SSSI)	The last remaining example of the once extensive coastal levels in West Glamorgan. Bounded to the seaward by dunes and to landward by high ground, the meadows provide an agriculturally-managed freshwater habitat which hosts many species of plant on the edge of their geographical range, and nationally important invertebrates. Mesotrophic marsh, fen meadow and ditch communities support flowering-rush (*Butomus umbellatus*), frogbit (*Hydrocharis morsus-ranae*), arrowhead (*Sagittaria sagittifolia*), Cyperus sedge (*Carex pseudocyperus*) and brown sedge (*C. disticha*) on the edge of their range, with others such as lesser water-plantain (*Baldellia ranunculoides*), tubular water-dropwort (*Oenanthe fistulosa*) and marsh helleborine (*Epipactis palustris*) of local interest.	Adjacent to south of Red Line Boundary

Site name	Reason for designation	Distance from Red Line Boundary at closest point
	The nationally rare beetle (*Haliplus mucronatus*), the dragonfly (*Sympetrum sanguineum*) the regionally rare beetle (*Anacaena bipustulata*), and the water-bug (*Corixa panzeri*) have all been found in the ditches. The SSSI is located south of the Site.	
Eglwys Nunydd Reservoir SSSI	The largest sheet of fresh water in the county. On the site of Margam Moors which, before being reclaimed for the Abbey Steel Works, were a notable site for wildfowl. The reservoir attracts large numbers of wintering waterfowl and passage migrants. Notable species including Great Crested and Little Grebes, Mallard, Gadwall and Coot now breed. The SSSI is located to the south-east of the Site.	310 m
Kenfig / Cynffig Special Area of Conservation (SAC)	Qualifying Annex I habitats: • Fixed dunes with herbaceous vegetation ("grey dunes") • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) • Dunes with *Salix repens* ssp*. argentea* (*Salicion arenariae*) • Hard oligomesotrophic waters with benthic vegetation of *Chara* spp. • Humid dune slacks Qualifying Annex II habitats: • Fen orchid (*Liparis loeselii*) Petalwort (*Petalophyllum ralfsii*)	1425 m
Kenfig / Cynffig SSSI	Kenfig is of special interest for its extensive sand dune habitats and standing waters together with a mixture of associated coastal habitats including saltmarsh, intertidal areas, swamp, woodland and scrub. In addition, the site is of special interest for the assemblages of plants, fungi and invertebrates that are associated with the sand dunes and standing waters. The following individual species are also of special interest: petalwort, the medicinal leech, the fen orchid, the shrill carder bee, the hairy dragonfly and a weevil.	
Kenfig Pool and Dunes National Nature Reserve (NNR)	Kenfig Nature Reserve is a sand-dune reserve, with Glamorgan's largest natural lake, Kenfig Pool. The reserve is a refuge for wildfowl all year round. Bittern can be seen during the winter.	1434 m
Kenfig Pool and Dunes Local	Kenfig National Nature Reserve is also designated as a Site of Special Scientific Interest. The area is managed to ensure the dunes aren't overcome by	1466 m

Site name	Reason for designation	Distance from Red Line Boundary at closest point
Nature Reserve (LNR)	dense grassland and scrub woodland losing important and diverse wildlife.	
Cefn Cribwr Grasslands / Glaswelltiroedd Cefn Cribwr SAC	Qualifying Annex I habitats: • *Euphydryas* (*Eurodryas, Hypodryas*) *aurinia* • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	6372 m
Crymlyn Bog Ramsar site	Ramsar Criterion 1 Largest example of valley floodplain topogenous mire in South Wales, and one of the largest surviving fens in the west of Britain. Very few other sites are known to support a comparable complexity and diversity of vegetation. Habitats Directive Annex I features present on the SAC include: • H7140 Transition mires and quaking bogs • H7210 Calcareous fens with (*Cladium mariscus*) and species of the (*Caricion davallianae*) • H91E0 Alluvial forests with (*Alnus glutinosa* and *Fraxinus excelsior*). Ramsar criterion 2 Supports a substantial population of the nationally-rare slender cotton-grass (*Eriophorum gracile*), and a rich invertebrate fauna including many rare and highly localised species. Ramsar criterion 3 The site supports 199 vascular plant species including 17 regionally-uncommon and one nationally-rare	8077 m
Crymlyn Bog/ Cors Crymlyn SAC	Qualifying Annex I habitats: • Calcareous fens with (*Cladium mariscus*) and species of the (*Caricion davallianae)* • Transition mires and quaking bogs Alluvial forests with (*Alnus glutinosa* and *Fraxinus excelsior*, [*Alno-Padion, Alnion incanae*, *Salicion albae*])	

8.5.5 There are three non-statutory designated sites located within 1 km of the Red Line Boundary. These are listed in **Table 8.8**.

Table 8.8: Non-statutory designated sites within 1 km of the Site

Site name	Reason for designation	Distance from Red Line Boundary at closest point
Neath Port Talbot Watercourses Site of Importance for Nature Conservation (SINC)	Not Available – all Neath Port Talbot watercourses are designated as SINCs.	Within the Red Line Boundary
Eglwys Nunydd SINC	Eglwys Nunydd is a 260-acre supply reservoir in Margam, originally constructed to provide water for the large steelworks at Margam. The lake supports trout and coarse fishing and is also used for dinghy sailing. The lake is classed as eutrophic standing water but there are numerous habitats forming a cohesive site. These include reedbeds, lowland fen and lowland mixed deciduous woodland. The site is extremely rich in migrant and resident bird species, a great number of which are Schedule 1 and Section 7 species.	310 m
Junction 38 Wetland Complex SINC	This is a cohesive wetland site comprising wet woodland, reed beds, ditches, and marshy grassland. Some drier areas support indicators of the neutral grassland NVC type MG5. Much is known about this site because it has been included in several planning applications over recent years. The site is located to the rear of Port Talbot Steelworks near Junction 38 of the M4 motorway. Margam Moors SSSI is approximately 800m south-west of the Site and is fairly well connected by the network of drains and ditches in the area. Eglwys Nunydd SSSI is about 750m directly south of the Site and is designated due to the waterfowl populations it supports and as a SINC it additionally includes the surrounding wetland and scrub habitats. The area is very wet but is occasionally grazed by cattle. There is a National Grid substation directly west of the Site and high voltage power lines cross the Site in several directions; resilience clearance works are undertaken under these pylons on a fairly regular basis.	335 m

8.5.6 There are also four ancient woodland sites within 1 km of the Site. The nearest being an ancient semi-natural woodland 439 m from the Red Line Boundary.

Habitats

8.5.7 The habitats found on-site are outlined in **Table 8.9** and their locations are shown on **Figure 8.3**.

Table 8.9: Habitats on-site

Habitat	Description
Scrub	Scrub is widely distributed in discrete pockets across the Site dominated by Butterfly-bush (*Buddleja davidii*), Willow (*Salix* sp.), Elder (*Sambucus nigra*) and Bramble. The majority of the scrub is 3-4 m high and quite dense and likely to have established as areas of the steel works were mothballed.
Ephemeral Short Perennial	This vegetation has become established on substrate such as railway ballast and areas where coke fuel ash and furnace slag has been spread. Due to the industrial operations the continued movements of such substrate across the Site ensures this vegetation is continually being kick–started as new plants colonize bare substrate. Due to the nutrient poor status of the substrate and its free draining nature, a vegetation community comprising annual plants, ruderal weeds and bryophytes and lichens has developed. In places this vegetation is species rich.
Open Water and Reedbed	Open water was present in a number of discrete lagoons with channels linking the lagoons together as part of the steel works drainage network. The southern fields is an area of derelict unmanaged Coastal Floodplain grazing marsh and here the fields are divided by a network of drainage ditches. Common reed (*Phargmites australis*) fringes the open water lagoons and has also grown extensively over the ditch network to almost totally obscure any open water.
Semi-improved Neutral Grassland	Neutral grassland is widespread across the Site growing in a complex mosaic with Ephemeral Short Perennial and scrub. The grassland is dominated by False Oat-grass (*Arrhenatherum elatius*) and was in general less species rich than the Ephemeral Short Perennial. Species such as Wild Carrot (*Dacus carota*) and Yellow-wort (*Blackstonia perfoliate*) indicate where the underlying substrate is more base rich.
Broadleaved Plantation	Broadleaved plantation was noted in one location to the south of the Site. The woodland comprised a mixture of native and non-native trees up to 4m in height with a ground flora dominated by bramble and Common nettle (*Urtica dioica*).
Coastal floodplain grazing marsh (comprised of semi-improved neutral grassland and ditches)	The desk study has highlighted the presence of Margam Moors SSSI, an area of Coastal floodplain grazing marsh, consisting of grasslands divided by ditches supporting a diverse aquatic plant and invertebrate assemblage. The southern fields within the Site are a similar area of grassland fields and ditches, coastal grazing marsh is a habitat of Principal Importance in Wales.
Invasive non-native Species	Surveys identified Japanese knotweed within the northern extent of the Site.

8.5.8 Collectively this mosaic of habitats would be identified as open mosaic habitat on previously developed land, a habitat of principal importance in Wales, listed under Section 7 of the Environment (Wales) Act. Due to the nutrient poor status of the substrate on which vegetation has established the flora is relatively diverse and species rich.

Protected and otherwise notable species

8.5.9 Baseline information on the protected and notable species scoped in for assessment are outlined in **Table 8.10** and are further discussed in **Appendix 8.2 to 8.10.**

Table 8.10: Protected and notable species

Species	Description
Bats – roosting	The desk study returned records of the following bat species within 2 km of the Site: Daubenton's bat (*Myotis daubentonii*), Noctule bat (*Nyctalus noctule*), Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*) and Whiskered bat (*Myotis mystacinus*). No trees within the Site were found to provide roosting potential. Twenty-four structures were surveyed externally and, where possible, internally. One building was assessed as having Moderate suitability for supporting roosting bats, two were assessed as having Low suitability and the remaining twenty-one were assessed as having Negligible suitability. Emergence surveys were completed on buildings assessed as offering suitability, these surveys confirmed the absence of roosting bats from within the Site Roosting bats are assumed absent from the Site.
Bats – foraging / commuting	The desk study returned records of the following bat species within 2 km of the Site: Daubenton's bat (*Myotis daubentonii*), Noctule bat (*Nyctalus noctule*), Common pipistrelle (*Pipistrellus pipistrellus*), Soprano pipistrelle (*Pipistrellus pygmaeus*) and Whiskered bat (*Myotis mystacinus*). There is limited suitable foraging habitat within the Site. Activity surveys (static detectors and transect surveys) recorded low numbers of five species/groups within the Red Line oundary (Common pipistrelle, Soprano pipistrelle, Noctule, Daubenton's and Myotis sp.). The focus of the commuting activity was along the southern edge of the Site and the railway corridor to the east. The foraging/commuting bat assemblage is of a local level of importance for the Port Talbot area.
Breeding birds	The desk study returned records of 109 priority bird species from the 2 km radius around the Red Line oundary, with many of these being associated with the reservoirs, coast, woodlands or grassland habitats surrounding these areas, such as: skylark (*Alauda arvensis*), marsh harrier (*Circus aeruginosus*), common gull (*Larus canus*) and Cetti's warbler (*Cettia cetti*). Priority species identified by the desk study with the potential to be associated with habitats within or immediately adjacent to the Site were: Cetti's warbler, skylark. Extensive areas of the Site provide suitable breeding habitat for a range of bird species, Site including the areas of woodland, scrub neutral grassland and coastal grazing marsh. During breeding bird surveys 43 species were recorded, of which 36 were likely to be breeding. 25 notable species were recorded, of which 21 species were likely to be breeding. These included Cetti's warbler, which is protected under Schedule 1 of the Countryside and Wildlife Act. Possible nesting by another Schedule 1 species, Peregrine, was recorded on a gas holder on the western side of the Site.

Species	Description
	The breeding bird assemblage is of at least district level importance for the Port Talbot area.
Wintering birds	Suitable overwintering habitat present on-site includes the lagoon and coastal grazing marsh. During the wintering bird surveys 36 species were recorded, of which 18 were notable. Few notable wildfowl and waders were recorded and low numbers of individuals of notable bird species were recorded across the Site. The species assemblage comprised species typical of the habitats found on-site. The Site is considered to be of no more than local importance for wintering birds.
National vegetative classification	Priority habitats were found within the Site, including Open Mosaic Habitat on Previously Developed Land and Coastal and Floodplain Grazing Marsh. Habitats on the southern margin of the Site provide an important ecological buffer between the steelworks and designated sites to the south. The priority habitats should be considered to be of county importance for Port Talbot.
Invertebrates	The desk study returned records of 125 notable invertebrate species within 2 km of the Site, indicating the presence of locations within the local area that are extraordinarily rich with invertebrate species, including many scarce species. The complex habitats recorded on-site, such as Open Mosaic and Coastal Grazing Marsh, provide suitable habitat for a great range of invertebrate species. In addition, the areas of open water and network of ditches also provide valuable habitats for invertebrate species. The Site comprises a moderately high invertebrate fauna that includes a low number of localized and specialized species; 15 of these currently have nationally significant statuses. The Site should be considered of at least regional importance for invertebrates.
Badgers	The desk study returned records of badger within 2 km of the Site. The nearest record was located 1 km west of the Site. The southern extent of the Site supports areas of woodland, scrub and coastal grazing marsh, which provide suitable foraging habitat for badgers. One outlier sett (one entrance) was identified (20 m outside of the Site but ~ 30 m from the nearest proposed infrastructure) with low activity levels recorded. Several latrines were recorded within the southern areas of the Site. The Site should be considered of local importance for badger.
Great crested newts	The desk study revealed records of great crested newts within 2 km of the Site. The nearest record was located approximately 2 km south of the Site. A review of maps and aerial imagery identified two ponds and numerous ditches within a 500 m radius of the Red Line Boundary, which could provide suitable breeding habitat for great crested newts. A range of aquatic habitats that offer suitable breeding habitat for this species are present within the Site, including a large lagoon and drainage channels within the operational area and within the fields to the southern extent of the Site.

Species	Description
	No great crested newts were recorded within the Site. One population was recorded further south (over 500 m from Red Line Boundary). Great crested newts are considered absent from the Site.
Reptiles	The desk study identified records of common lizard, grass snake and slow-worm within the 2 km of the Red Line Boundary. Grass snake and slow-worm records were within 1 km of the Red Line Boundary and the closest record for common lizard occurred within 100 m of the Red Line Boundary. The Site contains large areas of a range of habitats that are suitable for reptiles, which are well connected within and beyond the Site boundary. The areas of ephemeral short perennial vegetation, neutral grassland, scrub and coastal grazing marsh provide optimum foraging and hibernating opportunities for reptiles. In addition, the network of aquatic habitats provides further foraging and migration corridors for grass snake. Slow worm, common lizard, and grass snake (Natrix helvetica) were recorded across the Site. An estimated population size classification was carried out and a low population was estimated for grass snake, and a good population was estimated for both common lizard and slow worm. The Site should be considered of local importance for reptiles.
Water vole and otter	The desk study returned records of otter within 2 km of the Red Line Boundary, the nearest record approximately 1.4 km east of the Red Line Boundary. The BDS returned historic records of water vole (1976) within 2 km of the Red Line Boundary. The surveys conducted to date have found that habitat suitable for water voles and otters can be found in 30 ditches across the Site. During the presence/likely absence surveys, none of the ditches had water vole field signs or otter field signs recorded. Otter and water vole are considered absent from the Site.
Dormouse	The desk study returned no records of dormouse within 2 km of the Red Line Boundary. However, dormice are known to be present at greater distances to both the east and west of the Site. Areas of woodland and scrub provide suitable habitat for dormouse on-site. The scattered scrub, small areas of woodland and hedgerows adjacent to the southern boundary of the Site, and throughout the landscape to the south and south-east, provide connectivity between the Site and the surrounding area. None recorded within the Site. Dormice are considered absent from the Site.
Invasive non-native species	Surveys of the Site identified Japanese knotweed. Invasive non-native species should be considered of a biosecurity risk to the project.

Evolution of the baseline

Interim baseline

8.5.10 From a biodiversity perspective, it is anticipated that the interim baseline (as the 'heavy end' is closed and associated processes no longer operate on site) will be relatively similar to the established baseline and the value of ecological features would be relatively similar to that of the existing baseline conditions described above. It is likely that the extent of the ephemeral and short perennial vegetation habitat would expand as more

areas of the steelworks become disused. In addition, it is possible that invasive species would colonise parts of the Site without ongoing frequent maintenance. As such, it is considered that the established baseline is a suitable reference point for this EcIA. The significance of effects will be reported relative to the established baseline only as it is unlikely that changes between the established and interim baseline will affect any conclusions.

Future baseline

8.5.11 From a biodiversity perspective, it is anticipated that the future baseline, in the absence of further development within the Site, will be relatively similar to the established baseline and the value of the ecological features would be relatively similar to those of the established baseline conditions described above. It is likely that the extent of the ephemeral and short perennial vegetation habitat would expand as more areas of the Site become disused. In addition, it is possible that invasive species would colonise the Site with the cessation of frequent maintenance which currently controls the spread of such species.

8.5.12 With the implementation of the Proposed Development, areas of ephemeral and scrub habitats present within the Site would be cleared and replaced by buildings/hardstanding as well as areas of created open mosaic habitat. In addition, the biodiversity enhancement area to the south would create a mosaic of wetland habitats. These habitat areas would continue to develop and likely improve ecologically, under a sympathetic management and maintenance regime (secured through the Landscape and Ecological Management Plan (LEMP) and Construction Environmental Management Plan (CEMP)). The Outline CEMP is provided in **Appendix 2.1**, and the LEMP is provided in **Appendix 2.2 (Volume 3)**. Additionally, the Landscape and Habitat Mitigation Proposals are illustrated in **Figure 2.4 (Volume 4)**.

Climate Change

8.5.13 Long-term climatic predictions suggest that warmer, wetter winters and drier summers will become more frequent, with more extreme weather events likely. Combined with changes in land management, increased urbanisation, and increased biotic pressures, climate change may lead to long term changes in the population and distribution of some species in the UK. The climate projections provided in **Chapter 13: Climate** state that by the 2030's, increased winter rainfall of ~11% and reduced summer rainfall of ~14% is forecast for the area which would favour those habitats present that are more tolerant of extreme water conditions (i.e. floods or drought).

8.5.14 However, no significant changes to the established or interim baseline assessed herein are envisaged in the short-term, and there is considerable uncertainty about how any national changes in abundance and distribution of species would affect the established or interim baseline.

8.5.15 Several of the habitats present on site are considered sensitive to climate change according to Natural England's Climate Change Adaption Manual; Standing water is considered high, coastal grazing marsh is considered moderate sensitive and deciduous woodland is considered low. Any proposed mitigation and enhancement of habitats would need to take the resilience of these habitats into account.

8.5.16 The Nature Recovery Action Plan for Wales states that the number and range of invasive non-native species is likely to increase with the changing climate, and Natural England's Climate Change Adaption Manual states the presence of environmental pressures (including invasive species) will exacerbate the impacts of climate change.

8.6 Project characteristics and embedded mitigation

8.6.1 The assessment of likely significant effects of the Proposed Development assumes that primary and tertiary mitigation are in place. These measures are identified below, with a summary provided on how the measures contribute to the mitigation and management of potentially significant environmental effects.

8.6.2 During the design process, several aspects (primary mitigation) were taken into consideration in order to minimise the potential risk to species and habitats arising from the Proposed Development. These included:

- The layout of the Proposed Development has been adjusted to minimise impacts to the southern fields which contained lowland floodplain grazing marsh;
- The layout of the Proposed Development has avoided impacts to sensitive habitats where possible (e.g. the areas of soil with the highest peat content and the habitats of highest conservation value);
- Where avoidance has not been possible, the infrastructure would be constructed in such a way as to maintain the integrity and connectivity of the hydrology of hydrologically sensitive habitats; and
- Access tracks would be designed in keeping with good practice, of which further detail is provided in **Chapter 9: Surface water, flood risk and drainage**.

8.6.3 Tertiary mitigation that has been incorporated into the design of the Proposed Development that would protect the existing ecology includes (further details would be provided in the CEMP):

- Construction to take place during working hours of 7am to 7pm Monday to Friday and 7am to 1pm on Saturdays to minimise lighting required during construction. The lighting design would comply with the Lighting Assessment (**Appendix 5.5**) and use light fittings chosen to limit stray light and minimise impacts on sensitive species. The lighting would also be designed to minimise the visibility from sensitive receptors off-site;
- There is a minimal risk of vehicle oil or fuel spillage from both the construction and operational phases. However, the site management team would ensure sufficient staff are trained in use of spill kits and other pollution prevention measures. There would also be a dedicated refuelling area which would be bunded to ensure no run-off pathways onto the adjacent vegetation, located at least 50 m away from any watercourse;
- Surface water pollution prevention measures would be implemented such as the Pollution Prevention Guidance and CIRIA's Control of water pollution from construction sites. The surface water drainage system would discharge into the existing drainage channels and reservoirs throughout the Site. A range of SUDS features would be used, including rain gardens and a series of pollution control/prevention measures would be installed;
- Preparation of a dust management plan in line with IAQM's Guidance on the Assessment of Dust from Demolition and Construction (refer to recommended measures provided in **Appendix 6.4**); and

- Construction plant emissions would have due regard to the measures outlined in best practice guidance.

8.7 Assessment of potential effects

8.7.1 The EcIA has been undertaken in accordance with CIEEM guidelines with establishment of baseline ecological conditions within the appropriate zone of influence of the Proposed Development, and identification of important ecological features through a combination of ecological field surveys and a desk-based review. Each identified important ecological feature is assessed separately, with consideration given to impact extent, magnitude, duration, timing, frequency and reversibility, as appropriate, along with an assessment of the level of confidence in the impact assessment for the determination of significance of effect.

Important ecological features

8.7.2 Following a review of the established baseline (outlined in **Section 8.5** above), **Table 8.11** lists the ecological features, receptors and details which have been carried forward to the detailed assessment. Those carried forward are important ecological features of sufficient conservation value with a potential to be affected by the Proposed Development, and therefore requiring further consideration within this ES.

Table 8.11: Determination of important ecological features (IEF) to be scoped in for further assessment.

IEF	Justification	Scoped in/out of assessment
Statutory designated sites (over 1 km from the Red Line Boundary)	Statutory designated sites support a range of habitats and European and nationally protected species. However, given the distance of these statutory designated sites over 1red l km from the Site no direct or indirect impacts are anticipated on the following sites which have been scoped out of detailed assessment. • Crymlyn Bog/Cors Crymlyn SAC and Ramsar • Cefn Cribwr Grasslands/Glaswelltiroedd Cefn Cribwr SAC • Kenfig Pool and Dunes National and Local Nature Reserve • Kenfig/Cynffig SAC and SSSI The Ramsar and SAC sites were also scoped out during the screening stage of Habitats Regulations Assessment.	Scoped out
Statutory designated sites (within 1 km of the	Statutory designated sites Eglwys Nunydd Reservoir SSSI and Margam Moors SSSI have been scoped in to the detailed assessment due to their close proximity to the Proposed Development (nearest is 10m south of the Site).	Scoped in

IEF	Justification	Scoped in/out of assessment
Red Line Boundary)		
Non-statutory sites	There are three non-statutory sites within 1 km of the Red Line Boundary. There would be direct impacts to Neath Port Talbot Watercourses SINC as these are present within the Site. While the other two sites are over 100 m away indirect impacts must be considered and therefore these sites have been scoped into the detailed assessment.	Scoped in
Ancient woodland sites	The four ancient woodland sites are over 100 m and so it is not considered that there would be any direct or indirect impacts.	Scoped out
Coastal floodplain grazing marsh	The coastal floodplain grazing marsh (habitat of principal importance in Wales) present onsite was noted as being in Poor condition, however it was considered ecologically linked to the Margam Moors SSSI to the south which indicates the habitat is of some ecological value.	Scoped in
Open mosaic habitat (scrub and ephemeral)	The scrub and ephemeral habitats present onsite are collectively identified as open mosaic habitat on previously developed land which is a habitat of principal importance in Wales.	Scoped in
Other habitats present onsite	Broadleaved woodland, open water and semi-improved neutral grassland habitats are also present on-site.	Scoped in
Invertebrates	During field studies, the habitat of particular value for invertebrates within the Site was identified to be primarily within the southern extent of the Site.	Scoped in
Fish	The lagoon is known to support fish species.	Scoped in
GCN	No ponds would be directly affected by the Proposed Development. The Site does offer habitats which could provide suitable refuge for GCN including woodland, tall herb ruderals and scrub. However, due to the absence of GCN within 500 m of the Red Line Boundary during	Scoped out

IEF	Justification	Scoped in/out of assessment
	ecological surveys (eDNA negative) no significant effects are anticipated and therefore GCN are scoped out of further assessment.	
Reptiles	During reptile presence and absence surveys a low population was estimated for grass snake, and a good population was estimated for both common lizard and slow worm. Habitats used by reptiles including long, scrubby grassland edge, would be impacted during construction and therefore this receptor has been scoped into the detailed assessment.	Scoped in
Birds - breeding	The scrub and open mosaic habitat which dominates the majority of the Site has potential to support a common nesting bird assemblage. Although the data search returned records of notable bird species like Cetti's warbler and skylark, these are found within the southern fields and along the drainage network which are being retained. The Site is determined to be of district value to breeding birds.	Scoped in
Birds - wintering	Suitable overwintering habitat present on-site includes the lagoon and coastal grazing marsh. The species assemblage comprised species typical of the habitats found on-site.	Scoped in
Bats - roosting	No buildings or trees within the Site offered potential to support roosting bats and therefore roosting bats have been scoped out of the detailed assessment.	Scoped out
Bats – foraging / commuting	The Site offers suitable habitats to support foraging and commuting, and so foraging/commuting bats have been scoped into a detailed assessment.	Scoped in
Water vole and otter	No suitable habitats were found on-site as the watercourses on-site were heavily overgrown and/or dry at the time of the survey. Surveys of both species found no evidence they were using habitats within the Site. Both species have therefore been scoped out of further detailed assessment.	Scoped out
Dormouse	Surveys found no evidence dormice were using habitats within the Site and therefore they have been scoped out of further detailed assessment.	Scoped out

IEF	Justification	Scoped in/out of assessment
Invasive non-native species	Surveys identified Japanese Knotweed within the northern extent of the Site.	Scoped in

8.7.3 In summary, the receptors to be taken forward to assessment are:

- Statutory designated sites (within 1 km of the Site);
- Non-statutory sites;
- Coastal floodplain grazing marsh;
- Open mosaic habitat (scrub and ephemeral);
- Other habitats;
- Invertebrates;
- Reptiles;
- Breeding birds;
- Wintering birds;
- Foraging/commuting bats; and
- Invasive non-native species.

Predicted effects

8.7.4 Effects may arise for species and habitats at the Proposed Development via a number of mechanisms:

- Direct effects associated with habitat loss or damage;
- Direct effects on protected species associated with resting place destruction, killing or injury of individuals;
- Indirect effects on habitats and species associated with dust, emissions, siltation, leaks and spillages;
- Indirect effects on protected species associated with disturbance; and
- Indirect effects on protected species through pollution of habitats/watercourses affecting food sources.

8.7.5 Based on the description of the ecological baseline presented in this Chapter, a summary of the habitats and species within the vicinity of the Proposed Development is provided in **Table 8.12**.

8.7.6 In identification of designated sites as 'important ecological features', consideration has been given to the existence of pathways for effects to occur. This includes the direct and indirect impacts listed above. Where habitat mosaics have been identified by the ecological baseline survey, the constituent Phase 1 and/or UK Hab habitat types are taken to be the relevant important ecological features.

8.7.7 Where no significant effects are likely with the application of embedded mitigation, this is specified, and the feature is not considered an important ecological feature requiring

EcIA. Features considered not to be important ecological features are not assessed further in this Chapter.

Table 8.12: Ecological importance assessment

Ecological receptor	Intrinsic value of the feature in the context of the proposed development	Justification of intrinsic value of feature in the context of the Proposed Development in reference to the baseline conditions
Eglwys Nunydd Reservoir SSSI	National	The largest sheet of fresh water in the county. On the site of Margam Moors which, before being reclaimed for the Abbey Steel Works, were a notable site for wildfowl. The reservoir attracts large numbers of wintering waterfowl and passage migrants. Notable species including Great Crested and Little Grebes, Mallard, Gadwall and Coot now breed. The site is approximately 370 m south-east of the Proposed Development. Without embedded mitigation the Site has the potential to be adversely affected by disturbance from light, increased vehicular traffic and air pollutants. While there is a hydrological link to the Proposed Development it flows from the SSSI to the Proposed Development and therefore there is no potential impact pathway.
Margam Moors SSSI	National	The last remaining example of the once extensive coastal levels in West Glamorgan. Bounded to the seaward by dunes and to landward by high ground, the meadows provide an agriculturally-managed freshwater habitat which hosts many species of plant on the edge of their geographical range, and nationally important invertebrates. Without embedded mitigation the Site has the potential to be adversely affected by air pollution during construction, disturbance from light, increased vehicular traffic and air pollutants. While there is a hydrological link to the Proposed Development it flows from the SSSI to the Proposed Development and therefore there is no potential impact pathway.

Ecological receptor	Intrinsic value of the feature in the context of the proposed development	Justification of intrinsic value of feature in the context of the Proposed Development in reference to the baseline conditions
Neath Port Talbot Watercourses SINC	County	All Neath Port Talbot watercourses are designated as SINCs. Therefore, this SINC is present within the Site. Without embedded mitigation the Site has the potential to be adversely affected by surface water pollution during construction, disturbance from light, increased vehicular traffic and air pollutants.
Eglwys Nunydd SINC	County	Eglwys Nunydd is a 260-acre supply reservoir in Margam (310 m south-east), originally constructed to provide water for the large steelworks at Margam. The lake supports trout and coarse fishing and is also used for dinghy sailing. The lake is classed as eutrophic standing water but there are numerous habitats forming a cohesive site. These include reedbeds, lowland fen and lowland mixed deciduous woodland. The site is extremely rich in migrant and resident bird species, a great number of which are Schedule 1 and Section 7 species. Without embedded mitigation the site has the potential to be adversely affected by disturbance from light, increased vehicular traffic and air pollutants. While there is a hydrological link to the Proposed Development it flows from the SSSI to the Proposed Development and therefore there is no potential impact pathway.
Junction 38 Wetland Complex SINC	County	This is a cohesive wetland site (335 m south-east) comprising wet woodland, reed beds, ditches, and marshy grassland. Some drier areas support indicators of the neutral grassland NVC type MG5. Without embedded mitigation the site has the potential to be adversely affected during construction by disturbance from light and air pollutants. While there is a hydrological link to the Proposed Development it flows from the SINC to the Proposed Development and therefore there is no potential impact pathway.

Ecological receptor	Intrinsic value of the feature in the context of the proposed development	Justification of intrinsic value of feature in the context of the Proposed Development in reference to the baseline conditions
Coastal floodplain grazing marsh	County	Poor condition coastal floodplain grazing marsh (a priority habitat) but considered ecologically linked to Margam Moors SSSI. Small areas of the habitat would be temporarily lost due to the construction of the National Grid cable route associated with the Proposed Development. However, this area would be enhanced to good condition wetland habitats following construction. This would be delivered using a management plan including grazing, reed bed creation and ditch restoration. Full details on this are given in the Biodiversity Net Benefit report (**Appendix 8.11**).
Open Mosaic habitat (scrub and ephemeral)	County	Good condition open mosaic habitat on previously developed land which is a habitat of principal importance in Wales. Areas of this habitat would be lost during the construction of the Proposed Development. However, similar habitat would be created and allowed to establish within the Site.
Other habitats	Local	Broadleaved woodland, open water and semi-improved neutral grassland. Areas of these habitats would be temporarily lost or disturbed during the construction of the Proposed Development.
Invertebrates	Regional	During field studies, the habitat of particular value for invertebrates within the Site was identified to be primarily within the southern extent of the Site. Areas of these habitats would be temporarily lost or disturbed during the construction of the Proposed Development
Fish	Local	Known presence of fish species within the lagoon. Baseline surveys and fish health checks were not considered necessary; as fish would not need to be transferred to another watercourse (either on or off-site). Furthermore, the lagoon is considered to be of a sufficient size, so as to provide appropriate refuge for

Ecological receptor	Intrinsic value of the feature in the context of the proposed development	Justification of intrinsic value of feature in the context of the Proposed Development in reference to the baseline conditions
		fish during the construction phase of the works and following completion. In addition, there would be controls to maintain the water quality.
Badger	Local	One outlier sett (one entrance) was identified (20 m outside of the Site but ~ 30 m from the nearest proposed infrastructure) with low activity levels recorded. Several latrines were recorded within the southern areas of the Site.
Reptiles	Local	Slow worm, common lizard, and Grass snake (Natrix helvetica) were recorded across the Site. An estimated population size classification was carried out and a low population was estimated for grass snake, and a good population was estimated for both common lizard and slow worm.
Birds - Breeding	District	Extensive areas of the Site provide suitable breeding habitat for a range of bird species, including the areas of woodland, scrub neutral grassland and coastal grazing marsh. During breeding bird surveys 43 species were recorded, of which 36 were likely to be breeding. 25 notable species were recorded, of which 21 species were likely to be breeding. These included Cetti's warbler, which is protected under Schedule 1 of the Countryside and Wildlife Act. Possible nesting by another Schedule 1 species, Peregrine, was recorded on a gas holder on the western side of the Site.
Birds - Wintering	Local	Suitable overwintering habitat present on-site includes the lagoon and coastal grazing marsh. During the wintering bird surveys 36 species were recorded, of which 18 were notable. Few notable wildfowl and waders were recorded and low numbers of individuals of notable bird species were recorded across the Site. The species assemblage comprised species typical of the habitats found on-site.

Ecological receptor	Intrinsic value of the feature in the context of the proposed development	Justification of intrinsic value of feature in the context of the Proposed Development in reference to the baseline conditions
Bats – Foraging / commuting	Local	The Site offers low potential foraging habitat. However, given that the Proposed Development would not require any removal of trees and the fact that no Annex II species were recorded within the Site and so is considered to be of Local value only for bats.
Invasive non-native species	Local	The Site contains several isolated stands of Japanese Knotweed within the northern extent of the Site.

Assessment of effects

8.7.8 In the **Table 8.13**, the Proposed Development description has been used to identify construction activities and methodology, the potential impact pathway and potential resulting effect types.

Table 8.13: Potential effect identification

Ecological receptor	Development activity	Potential impact pathway	Potential effect
Eglwys Nunydd Reservoir SSSI	Construction Operation	Increase in possible air pollutants from both construction and operation of the Proposed Development. Disturbance from increased lighting during construction and operation.	Indirect effect on habitats and bird assemblage within SSSI.
Margam Moors SSSI	Construction Operation	Increase in possible air pollutants from both construction and operation of the Proposed Development. Disturbance from increased lighting during construction and operation.	Indirect effect on habitats and associated species within SSSI.
Neath Port Talbot Watercourses SINC	Construction Operation	Pollution run off from construction works, potentially ending up at the designated site.	Direct effect on habitats and associated species within SINC.

Ecological receptor	Development activity	Potential impact pathway	Potential effect
		Increase in possible air pollutants from both construction and operation of the Proposed Development. Disturbance from increased lighting during construction and operation.	
Eglwys Nunydd SINC	Construction Operation	Increase in possible air pollutants from both construction and operation of the Proposed Development. Disturbance from increased lighting during construction and operation.	Indirect effect on habitats and bird assemblage within SINC.
Junction 38 Wetland Complex SINC	Construction Operation	Increase in possible air pollutants from both construction and operation of the Proposed Development. Disturbance from increased lighting during construction and operation.	Indirect effect on habitats and associated species within SINC.
Coastal floodplain grazing marsh	Removal of vegetation to facilitate construction activities	Loss of small amounts of habitats as well as possible adverse effects during construction due to tracking through habitat.	Direct habitat loss Degrading of habitat.
Open Mosaic Habitat (scrub and ephemeral)	Removal of vegetation to facilitate construction activities	Loss of small amounts of habitats as well as possible adverse effects during construction due to tracking through habitat.	Direct habitat loss Degrading of habitat.
Other habitats	Removal of vegetation to facilitate construction activities	Loss of small amounts of habitats as well as possible adverse effects during construction due to tracking through habitat. Pollution run-off	Direct habitat loss. Degrading of habitat.
Invertebrates	Tracking over suitable habitat Vegetation removal to facilitate construction works.	Destruction of suitable reptile habitat. Direct physical removal of habitat. Accidental disturbance from site personnel and through noise from construction activities.	Mortality Direct habitat loss Disturbance.

Ecological receptor	Development activity	Potential impact pathway	Potential effect
	Construction, including use of plant, equipment, increased presence of site personnel and disturbance from increased noise and pollution		
Fish	Removal of section of lagoon to facilitate the development	Loss of small amount of habitat Pollution run-off	Direct habitat loss Disturbance
Badger	Construction, including use of plant, equipment, increased presence of site personnel and disturbance from increased lighting, noise and pollution.	Loss of foraging and commuting habitat. Accidental disturbance from site personnel and plant including both noise and light disturbance. Operational lighting of the Proposed Development.	Direct habitat loss Disturbance.
Reptiles	Tracking over suitable habitat Vegetation removal to facilitate construction works. Construction, including use of plant, equipment, increased presence of site personnel and disturbance from increased noise and pollution.	Destruction of suitable reptile habitat. Direct physical removal of habitat. Accidental disturbance from site personnel and through noise from construction activities.	Mortality Direct habitat loss Disturbance.
Birds – Breeding	Vegetation removal to facilitate construction works. Construction, including use of plant, equipment, increased presence	Destruction of suitable breeding habitat. Direct physical removal of habitat. Accidental disturbance from site personnel and through noise from construction activities.	Mortality Direct habitat loss Disturbance.

Ecological receptor	Development activity	Potential impact pathway	Potential effect
	of site personnel and disturbance from increased lighting, and noise.		
Birds – Wintering	Vegetation removal to facilitate construction works. Construction, including use of plant, equipment, increased presence of site personnel and disturbance from increased lighting, noise and pollution.	Destruction of suitable over-wintering habitat. Direct physical removal of habitat. Accidental disturbance from site personnel and through noise from construction activities.	Mortality Direct habitat loss Disturbance.
Bats – Foraging / commuting	Vegetation removal to facilitate construction works. Construction, including use of plant, equipment, increased presence of site personnel and disturbance from increased lighting, noise and pollution. Operation	Loss of foraging and commuting habitat. Accidental disturbance from site personnel and plant including both noise and light disturbance. Operational lighting of the Proposed Development.	Direct habitat loss Disturbance.
Invasive non-native species	Vegetation removal to facilitate construction works. Operation	Direct physical removal of habitat. Accidental disturbance from site personnel and construction activities.	Direct habitat loss Disturbance.

8.7.9 Having identified the ecological importance of the Site, and potential effects, for scoped-in ecological features, the sections below consider significance.

Construction effects

Statutory Designated Sites (Eglwys Nunydd Reservoir SSSI and Margam Moors SSSI)

8.7.10 Eglwys Nunydd Reservoir SSSI and Margam Moors SSSI are 370 m south-east and 10 m south of the Proposed Development respectively. They are considered to be of national importance.

Predicted construction effects

8.7.11 There would be no direct habitat loss from any of the statutory sites, however there are potential indirect effects arising from changes to air quality and lighting.

8.7.12 The dispersion modelling completed in **Chapter: 6 Air Quality** demonstrates that the NO_x levels resulting from the steel works would decrease during the construction period from those recorded at these receptors currently. Therefore there would be an improvement in the air quality within the SSSIs.

8.7.13 The lighting design ensures that there is no increase in lighting levels within the SSSIs during construction.

8.7.14 Overall, the indirect effect on statutory sites would result in an indirect, long-term, permanent beneficial effect for the duration of the construction period.

Proposed additional mitigation

8.7.15 No additional mitigation is proposed.

Residual construction effects

8.7.16 Overall, given the embedded and additional mitigation measures, the indirect effect on statutory sites would result in an **indirect**, **long-term, permanent beneficial** effect for the duration of the construction period, which is **not significant**.

8.7.17 Note the Habitats Regulations Screening Assessment (HRA) has concluded there are unlikely to be any significant effects on any European site due to the lack of potential impact pathways and the distances from the development. Therefore, an appropriate assessment is not required.

Non-Statutory Designated Sites (Neath Port Talbot Watercourses, Eglwys Nunydd, Junction 38 Wetland Complex SINCs and ancient woodland sites)

8.7.18 Neath Port Talbot Watercourses SINC (within the Site), Eglwys Nunydd Reservoir SINC (180m south-east) and Junction 38 Wetland Complex SINC (335 m south-east) are considered to be of county importance. The ancient woodland sites within 2 km are also considered to be of county importance.

Predicted construction effects

8.7.19 There would be no direct habitat loss from any of the statutory sites. However, there would be potential indirect effects arising from construction works including disturbance such as increased noise from site personnel and site plant, lighting, and changes to air quality.

8.7.20 The air quality assessment presented in **Chapter: 6 Air Quality** has used air quality dispersion modelling and predicted that the only site potentially negatively affected is the Junction 38 Wetlands Complex SINC. The potential for air quality effects on other designated sites has therefore not been further assessed herein.

8.7.21 The Junction 38 Wetlands Complex SINC is a receptor of county value and the sensitivity to changes in air quality is moderate. Modelling indicates that process contribution of the Proposed Development and committed developments to NOx concentrations, nitrogen deposition and acid deposition are below 100% of the relevant critical levels and loads for all Junction 38 Wetlands Complex SINC receptor locations.

8.7.22 The lighting design would not result in any increased lighting at the SINCs during construction.

8.7.23 The Neath Port Talbot Watercourses SINC would be protected from pollution run off via a suitable buffer zone from watercourse (6 m) together with the standard construction guidelines regarding run off. There would be a short term increase in disturbance during construction works.

8.7.24 Therefore, effects on the SINCs are considered to be not significant at the local level. This equates to a direct temporary, short-term, minor, adverse effect.

Proposed additional mitigation

8.7.25 The pre-construction quality of watercourses and waterbodies would be maintained during construction (**Chapter 9: Surface water, flood risk and drainage**). Watercourse protection measures contained within the CEMP would be adopted and include protection against siltation and sedimentation, and pollution incidents such as the implementation of a pollution response plan and the safe storage of chemicals in bunded containers. Robust mitigation measures would be installed prior to works commencing to ensure the impacts on watercourses are minimised. Mitigation throughout the Proposed Development would be regularly monitored and maintained/replaced as required. Monitoring of water quality would be carried out before and during construction.

Residual construction effects

8.7.26 Overall, given the embedded mitigation measures, the indirect effect on non-statutory sites would result in an **indirect**, **short-term, temporary adverse** effect for the duration of the construction period, which is **not significant**.

Site habitats – Coastal floodplain grazing marsh (habitat of principal importance)

Predicted construction effects

8.7.27 There is approximately 15 ha of coastal floodplain grazing marsh within the blue line boundary (land under Tata Steel UK Limited (Tata Steel) control) of which 0.76 ha would be temporarily lost as a result of construction of the Proposed Development within the Site. The Proposed Development in this area comprises the installation of an electrical cable which would be buried, and that habitat reinstated. The grassland on-site is considered to be in *Poor* condition, however it is considered ecologically linked to the Margam Moors SSSI. Due to the temporary loss of this grassland as a result of the

Proposed Development, prior to additional mitigation this would result in a direct, short-term, temporary adverse effect.

Proposed additional mitigation

8.7.28 Existing vegetation would be retained where possible. An Ecological Clerk of Works (ECoW) would be provided at the construction stage to supervise site works. The ECoW give regular toolbox talks to make site personnel aware of the ecological sensitivities on-site. The ECoW would have the authority to stop any construction activity that is having or likely to have an unplanned adverse environmental effect, or be in breach of relevant environmental protection legislation.

8.7.29 Areas of sensitive habitat close to construction areas would be marked by the ECoW to prevent accidental encroachment. Detailed locating (micrositing) of infrastructure would be undertaken to avoid the most sensitive habitats and take into account the ecological buffer zones set out in the EMP. Where micrositing cannot avoid areas of sensitive habitats or features, the ECoW would discuss and agree additional required mitigation to be included in the CEMP.

8.7.30 Any land degraded by construction and not required for the operation of the Proposed Development, such as temporary crane pads and borrow pits, would be restored as soon as possible after construction is completed. Where a good ground flora is established, turves would be carefully removed during construction as far as practicable and stored following good practice for re-use in the restoration of areas not required for the operation of the Proposed Development. Good site management practices would be implemented to minimise the risk of encroachment of the construction corridor into adjacent habitats. Any notable floral species encountered would be marked with an exclusion zone or translocated to other suitable areas of habitat or stored for reuse in reinstatement of temporary infrastructure. The implementation of these measures would reduce the potential for impacts on sensitive habitats.

8.7.31 In addition, as far as reasonably practicable, materials for construction would be sourced from on-site borrow pits (if required), which would ensure the composition of materials used is as close to the local conditions as possible. Further detail on the mitigation of potential dust impacts would be detailed within the CEMP.

8.7.32 The pre-construction quality of watercourses and waterbodies would be maintained during construction (**Chapter 9: Surface water, flood risk and drainage**). Watercourse protection measures contained within the CEMP would be adopted and include protection against siltation and sedimentation, and pollution incidents such as the implementation of a pollution response plan and the safe storage of chemicals in bunded containers. Robust mitigation measures would be installed prior to works commencing to ensure the impacts on watercourses are minimised. Mitigation throughout the Proposed Development would be regularly monitored and maintained or replaced as required. Monitoring of water quality would be carried out before and during construction.

8.7.33 The Biodiversity Net Benefit report (provided in **Appendix 8.11**) includes measures to enhance the southern fields area to provide a wetland mosaic of habitats and a sympathetic management plan including a grazing regime which would restore the coastal grazing marsh. This would be included in a LEMP, to ensure longer-term management requirements are met.

Residual construction effects

8.7.34 The habitat creation and enhancement, if undertaken and managed carefully has the potential to result in a **direct**, **long-term**, **permanent beneficial** effect, which would be **significant** at the county level.

Site habitats – Open mosaic habitat on previously developed land (priority habitat)

Predicted construction effects

8.7.35 There is approximately 25.39 ha of open mosaic habitat within the Site of which 4.05 ha would be permanently lost as a result of construction of the Proposed Development. The habitat is considered to be in *Good* condition and is a priority habitat. Due to the permanent loss of this habitat as a result of the Proposed Development, prior to mitigation this would result in a direct, long-term, permanent adverse effect.

Proposed additional mitigation

8.7.36 Existing vegetation would be retained where possible. The ECoW would also give regular toolbox talks to make site personnel aware of the ecological sensitivities on-site. The ECoW would have the authority to stop any construction activity that is having or likely to have an unplanned adverse environmental effect, or be in breach of legislation.

8.7.37 Areas of sensitive habitat close to construction areas would be marked by the ECoW to prevent accidental encroachment. Micrositing of infrastructure would be undertaken to avoid the most sensitive habitats and take into account the ecological buffer zones set out in the EMP. Where micrositing cannot avoid areas of sensitive habitats or features, the ECoW would discuss and agree additional required mitigation to ensure impacts are minimised in line with the terms of the CEMP.

8.7.38 Any land degraded by construction and not required for the operation of the Proposed Development, such as temporary crane pads and borrow pits, would be restored as soon as possible after construction is completed. Where a good ground flora is established, substrate would be carefully removed during construction as far as practicable and stored following good practice for re-use in the restoration of areas not required for the operation of the Proposed Development. As such, any vegetation removed for the construction phase would be reinstated within the Site facilitating natural re-colonisation of vegetation communities. Permanent habitat loss would be limited to that required for the footprint of buildings and infrastructure and good site management practices would be implemented to minimise the risk of encroachment of the construction corridor into adjacent habitats.

8.7.39 In addition, as far as reasonably practicable, materials for construction would be sourced from on-site borrow pits, which would ensure the composition of materials used is as close to the local conditions as possible. Further detail on the mitigation of potential dust impacts would be detailed within the CEMP.

8.7.40 The pre-construction quality of watercourses and waterbodies would be maintained during construction (**Chapter 9: Surface water, flood risk and drainage**). Watercourse protection measures contained within the CEMP would be adopted and include protection against siltation and sedimentation, and pollution incidents such as the implementation of a pollution response plan and the safe storage of chemicals in bunded containers. Robust mitigation measures would be installed prior to works commencing to ensure the

impacts on watercourses are minimised. Mitigation throughout the Proposed Development would be regularly monitored and maintained or replaced as required. Monitoring of water quality would be carried out before and during construction.

8.7.41 The LEMP (**Appendix 2.2**) and Biodiversity Net Benefit (**Appendix 8.11**) reports include measures to create (approximately 2 ha) of similar habitat within the Site using existing spoil on-site which contains the seed bank required. This would be included in a LEMP, agreed with Neath Port Talbot Council prior to construction, to ensure longer-term management requirements are met.

Residual construction effects

8.7.42 The habitat creation would compensate for what is being lost and, if undertaken and managed carefully has the potential to result in a **direct**, **long-term**, **permanent beneficial** effect, which would be **significant** at the county level using CIEEM guidance.

Site habitats – other habitats

Predicted construction effects

8.7.43 There is approximately 2.58 ha of broadleaved woodland, 9.94 ha of open water, 7.89 of dense scrub, 0.08 ha of swamp, and 4.53 ha or semi-improved neutral grassland within the Site. 2.54 ha (scrub, semi-improved neutral grassland and open water) would be permanently lost as a result of construction of the Proposed Development. Due to the small loss of this habitat as a result of the Proposed Development, prior to mitigation this would result in a direct, long-term, permanent adverse effect.

Proposed additional mitigation

8.7.44 Existing vegetation would be retained where possible, and the proposed access route would use existing hardstanding tracks. The landscape proposal includes localised screening and areas of new planting which would be planted following construction completion to avoid any possible damage to the newly establishing planting during construction.

8.7.45 Areas of sensitive habitat close to construction areas would be marked by the ECoW to prevent accidental encroachment. Micrositing of infrastructure would be undertaken to avoid the most sensitive habitats and take into account the ecological buffer zones set out in the EMP. Where micrositing cannot avoid areas of sensitive habitats or features, the ECoW would discuss and agree additional required mitigation to ensure impacts are minimised in line with the terms of the CEMP.

8.7.46 A 6 m protective buffer area would be set out around all watercourses present on-site (where they are not being directly impacted).

8.7.47 Any scrub and/or semi-improved grassland degraded by construction and not required for the operation of the Proposed Development, such as temporary crane pads and borrow pits, would be restored as soon as reasonably practical after construction is completed. Where a good ground flora for the grassland is established, turves would be carefully removed during construction as far as practicable and stored following good practice for re-use in the restoration of areas not required for the operation of the Proposed Development. As such, any vegetation removed for the construction phase

would be reinstated within the Site facilitating natural re-colonisation of vegetation communities. Permanent habitat loss would be limited to that required for the footprint of infrastructure and good site management practices would be implemented to minimise the risk of encroachment of the construction corridor into adjacent habitats. Any notable floral species encountered would be marked with an exclusion zone or translocated to other suitable areas of habitat or stored for reuse in reinstatement of temporary infrastructure. The implementation of these measures would reduce the potential for impacts on sensitive habitats.

8.7.48 In addition, as far as reasonably practicable, materials for construction would be sourced from on-site borrow pits, which would ensure the composition of materials used is as close to the local conditions as possible. Further detail on the mitigation of potential dust impacts would be detailed within the CEMP.

8.7.49 The pre-construction quality of watercourses and waterbodies would be maintained during construction (**Chapter 9: Surface water, flood risk and drainage**). Watercourse protection measures contained within the CEMP would be adopted and include protection against siltation and sedimentation, and pollution incidents such as the implementation of a pollution response plan and the safe storage of chemicals in bunded containers. Robust mitigation measures would be installed prior to works commencing to ensure the impacts on watercourses are minimised. Mitigation throughout the Proposed Development would be regularly monitored and maintained/replaced as required. Monitoring of water quality would be carried out before and during construction.

8.7.50 The LEMP and Biodiversity Net Benefit reports submitted alongside the planning application include measures to create and enhance similar habitat within the Site and the wider blue line boundary (land under the Applicants control). This would be included in a LEMP, agreed with Neath Port Talbot Council prior to construction, to ensure longer-term management requirements are met. All tree planting and seeding would use native species.

8.7.51 The ECoW would also give regular toolbox talks to make site personnel aware of the ecological sensitivities on-site. The ECoW would have the authority to stop any construction activity that is having or likely to have an unplanned adverse environmental effect, or be in breach of legislation.

Residual construction effects

8.7.52 The habitat creation and enhancement, if undertaken and managed carefully has the potential to result in a **direct**, **long-term**, **permanent beneficial** effect, which would be **significant** at local level.

Protected species – invertebrates

Predicted construction effects

8.7.53 The complex habitats recorded on-site, such as open mosaic and coastal grazing marsh, provide suitable habitat for a great range of invertebrate species. In addition, the areas of open water and network of ditches also provide valuable habitats for invertebrate species.

8.7.54 The Site comprises a moderately high invertebrate fauna that includes a low number of localized and specialized species; 15 of these currently have nationally significant statuses.

8.7.55 Due to habitat loss supporting these species there is likely to be a direct, short-term, temporary adverse effects on invertebrates from the construction works.

Proposed additional mitigation

8.7.56 An ECoW would be present during enabling works and throughout the construction period of the Proposed Development when required. They would be a suitably experienced individual, whose role would be to provide advice so that the works are carried out in accordance with environmental measures detailed in the CEMP or LEMP.

8.7.57 The ECoW would also give regular toolbox talks to make site personnel aware of the ecological sensitivities on-site. The ECoW would have the authority to stop any construction activity that is having or likely to have an unplanned adverse environmental effect, or be in breach of legislation.

8.7.58 The habitat creation measures outlined in the LEMP and retention of the scrub habitat within the Site and the larger blue line boundary (land under the Applicants control) would ensure the continued availability of suitable habitat for the invertebrate assemblage identified.

Residual construction effects

8.7.59 With mitigation in place the magnitude of change is low, and there is likely to be a **direct**, **long-term**, **permanent beneficial** effect on invertebrates from the construction works, which would be **significant** at the regional level.

Protected species – fish

Predicted construction effects

8.7.60 The lagoon on-site provides suitable habitat for a population of fish species.

8.7.61 Due to the in-fill of a small section of the lagoon, there is likely to be a direct, short-term, temporary adverse effects on fish from the construction works.

Proposed additional mitigation

8.7.62 Prior to works commencing, an initial aquatic habitat walkover should be conducted around the reservoir margins. This would include mapping and identifying any habitat which may be used for spawning, and thus inform the likelihood of encountering spawning fish; which would reduce the risk of any delays to the works.

8.7.63 Works should avoid the main coarse fish spawning season. However, under the Salmon and Freshwater Fisheries Act 1975 (SAFFA), it is an offense to disturb spawning fish regardless of the time of year. As such, we would advise on a pre-works spawning check as a precautionary approach if works are undertaken anytime between early Feb and August.

8.7.64 An aquatic ecologist should be present on site, to act as an ECoW, during the initial construction phase of installing a cofferdam/sheet piling, to isolate the section of the

reservoir for infill. The ECoW would monitor for any signs of fish in distress during this phase and stop works if considered necessary. Following successful isolation, a fish rescue would be undertaken in the isolated section of the reservoir, prior to dewatering. Any fish caught would be released into the main body of the reservoir.

8.7.65 Following fish rescue, the water levels should be drained down with an aquatic ECoW on site to monitor for, and transfer, any remaining fish which may become stranded during the drawdown process.

8.7.66 The habitat creation measures outlined in the LEMP and retention of the larger majority of the lagoon habitat would ensure the continued availability of suitable habitat for the fish present.

Residual construction effects

8.7.67 With mitigation in place the magnitude of change is low, and there is likely to be a **direct**, **long-term**, **permanent beneficial** effect on fish from the construction works, which would be **significant** at the local level.

Protected species – badger

Predicted construction effects

8.7.68 The southern extent of the Site supports areas of woodland, scrub and coastal grazing marsh, which provide suitable foraging habitat for badgers.

8.7.69 One outlier sett (one entrance) was identified (20 m outside of the Red Line Boundary but ~ 30 m from the nearest proposed infrastructure) with low activity levels recorded. Several latrines were recorded within the southern areas of the Site.

8.7.70 The sett could be disturbed and badger could potentially suffer incidental injury or mortality when site clearance works commence, in particular the removal of vegetation, topsoil and any material that could be used as a refuge. Although habitat suitable for foraging badger is present on the Site, there is additional habitat of good quality within the surrounding area, including the nearby Margam Moors SSSI.

8.7.71 From the works occurring in proximity to the sett, there is likely to be an indirect, short-term, temporary adverse effect on badger from the construction works.

Proposed additional mitigation

8.7.72 The ECOW would supervise any works within 30 m of the badger sett and a buffer zone would be instated around the sett to ensure no accidental encroachment.

8.7.73 The ECoW would also give regular toolbox talks to make site personnel aware of the ecological sensitivities on-site. The ECoW would have the authority to stop any construction activity that is having or likely to have an unplanned adverse environmental effect, or be in breach of legislation.

8.7.74 The CEMP would include good practice measures including; covering of deep excavations, foundations and pipe openings (or a ramp installed) when not active to prevent entrapment of animals.

Residual construction effects

8.7.75 There is likely to be an **indirect, short-term**, **temporary adverse** effect on badger from the construction works, which would be **not significant** at the local level.

Protected species – reptiles

Predicted construction effects

8.7.76 The ecological survey work has identified that a small population of grass snake, and a good population of both common lizard and slow worm are present within the areas to the south of the Site. A small number of individual reptiles could be disturbed and potentially suffer incidental injury or mortality when site clearance works commence, in particular the removal of vegetation, topsoil and any material that could be used as a refuge. Although habitat suitable for reptiles is present on the Site, there is additional habitat of good quality within the surrounding area, including the nearby Margam Moors SSSI.

8.7.77 There is likely to be a **direct, long-term, permanent adverse effect** on reptiles from the construction works.

Proposed additional mitigation

8.7.78 The risk of injury or killing would be minimised by measures outlined in the CEMP, including proposed precautionary working method statements (PWMS), whilst the habitat creation measures outlined in the LEMP and retention of the scrub habitat within the larger blue line boundary (land under Tata Steel UK Limited (Tata Steel) control) would ensure the continued availability of foraging habitat for reptiles.

8.7.79 A small proportion of habitat within the Site, primarily around the southern fields, was identified as having some potential to support populations of the three common reptile species. All reptile species are protected from killing or injury under the Wildlife and Countryside Act 1981 as amended (W&CA). The ECoW would ensure a precautionary works method statement be enforced during construction works to ensure reptiles and their resting habitats are safeguarded. This would include measures such as phased vegetation clearance to displace any reptiles from the development footprint into retained habitat under the supervision of a suitably experienced ecologist. Removal of vegetation and of places of shelter/hibernation features would be undertaken outside of the reptile hibernating period (October to February inclusive), during periods of warm, dry weather. If this is not possible, vegetation would be cut to the ground (to remove potential bird nesting habitat), but the roots would remain intact until hibernation is complete. The root system of vegetation would then be removed once the reptile hibernation season is over.

8.7.80 Prior to any vegetation removal an ECOW would hand search the area and remove any likely reptile refuges, and vegetation would be cut in stages before being cut to ground level prior to final removal to displace reptiles into retained habitats adjacent.

8.7.81 The ECoW would also give regular toolbox talks to make site personnel aware of the ecological sensitivities on-site. The ECoW would have the authority to stop any construction activity that is having or likely to have an unplanned adverse environmental effect, or be in breach of legislation.

Residual construction effects

8.7.82 With mitigation in place the magnitude of change is low, and there is likely to be a **direct**, **short-term**, **temporary adverse** effect on reptiles from the construction works, which would be **not significant** at the local level.

Protected Species – Breeding Birds

Predicted construction effects

8.7.83 Extensive areas of the Site provide suitable breeding habitat for a range of bird species, including the areas of woodland, scrub neutral grassland and coastal grazing marsh.

8.7.84 During breeding bird surveys 43 species were recorded, of which 36 were likely to be breeding. 25 notable species were recorded, of which 21 species were likely to be breeding. These included Cetti's warbler, which is protected under Schedule 1 of the Countryside and Wildlife Act. Possible nesting by another Schedule 1 species, Peregrine, was recorded on a gas holder adjacent to (but outside of) the western side of the Site.

8.7.85 A small number of breeding birds could be disturbed and potentially suffer incidental injury or mortality when site clearance works commence, in particular the removal of vegetation, topsoil and any material that could be used as a refuge. Although habitat suitable for breeding birds is present on the Site, there is additional habitat of good quality within the surrounding area, including the nearby Margam Moors SSSI.

8.7.86 There is likely to be a direct, long-term, permanent adverse effect on breeding birds from the construction works.

Proposed additional mitigation

8.7.87 The risk of injury or killing would be minimised by measures outlined in the embedded mitigation, including proposed PWMS, whilst the habitat creation measures outlined in the LEMP and retention of the scrub and woodland habitat within the blue line boundary (land under Tata Steel UK Limited (Tata Steel) control) would ensure the continued availability of breeding habitat for birds.

8.7.88 Removal of vegetation, ground clearance and the commencement of construction activities should be undertaken outside of the breeding bird season (considered to be late February to August). Birds and their nests are protected under the W&CA and the removal of scrub and trees, and ground clearance works would generally be undertaken outside of the breeding bird season. Where it is not possible to undertake these works outside of the breeding bird season, an inspection for nests would be undertaken by a suitably experienced ECoW prior to the removal of vegetation. If nesting birds are identified during this process, works in the vicinity of the nest (estimated to be a 10m standoff) would cease until the young have fledged.

8.7.89 The ECoW would also give regular toolbox talks to make site personnel aware of the ecological sensitivities on-site. The ECoW would have the authority to stop any construction activity that is having or likely to have an unplanned adverse environmental effect, or be in breach of legislation.

Residual construction effects

8.7.90 With mitigation in place the magnitude of change is low, and there is likely to be a **direct**, **short-term**, **temporary adverse** effect on breeding birds from the construction works, which would be **not significant** at the district level. In addition, from the habitat creation and enhancement proposals there is likely to be a **direct, long-term, permanent beneficial** effect on breeding birds which would be **significant** at the district level.

Protected species – wintering birds

Predicted construction effects

8.7.91 Suitable overwintering habitat present on-site includes the lagoon and coastal grazing marsh.

8.7.92 During the wintering bird surveys 36 species were recorded, of which 18 were notable. Few notable wildfowl and waders were recorded and low numbers of individuals of notable bird species were recorded across the Site. The species assemblage comprised species typical of the habitats found on-site.

8.7.93 A small number of wintering birds could be disturbed and potentially suffer incidental injury or mortality when site clearance works commence, in particular the removal of vegetation, topsoil and any material that could be used as a refuge. Although habitat suitable for wintering birds is present on the Site, there is additional habitat of good quality within the surrounding area, including the nearby Eglwys Nunydd SSSI.

8.7.94 There is likely to be a direct, short-term, temporary adverse effect on wintering birds from the construction works.

Proposed additional mitigation

8.7.95 The risk of injury or killing would be minimised by measures outlined in the embedded mitigation, including proposed PWMS, whilst the habitat creation measures outlined in the LEMP and retention of the open water and coastal grazing marsh habitat within the Site and the larger blue line boundary (land under Tata Steel UK Limited (Tata Steel) control) would ensure the continued availability of suitable habitat for wintering birds.

8.7.96 The ECoW would also give regular toolbox talks to make site personnel aware of the ecological sensitivities on-site. The ECoW would have the authority to stop any construction activity that is having or likely to have an unplanned adverse environmental effect, or be in breach of legislation.

Residual construction effects

8.7.97 With mitigation in place the magnitude of change is low, and there is likely to be a **direct**, **short-term**, **temporary adverse** effect on wintering birds from the construction works, which would be **not significant** at the local level. In addition, from the habitat creation and enhancement proposals there is likely to be a **direct, long-term, permanent beneficial** effect on breeding birds which would be **significant** at the district level.

Protected species – bats (foraging and commuting habitat)

Predicted construction effects

8.7.98 The habitat baseline report highlighted that the Site has suitable habitat which could be used by foraging and commuting bats including woodland edge, scrub, and line of tree (hedgerow) habitats. These habitats are connected to larger woodland areas in the wider landscape and are assessed as having moderate potential for supporting foraging and commuting bats. The results of the activity surveys showed that the Site supported a low level of bat activity from five species/groups (Common pipistrelle, Soprano pipistrelle, Noctule, Daubenton's and Myotis sp.). The Proposed Development would result in the loss of a discrete, small amount of scrub, but no boundary features would be lost, therefore we do not envisage any disruption to commuting routes. The loss of a habitat on-site would result in a small loss of foraging habitat for bats on-site. However, connectivity between the Site and the wider landscape would remain and also the enhancement of the retained southern fields on-site would likely benefit foraging bats post development.

8.7.99 The magnitude of change, prior to mitigation, for commuting and foraging bats is moderate. It is likely that there would be direct, short-term, permanent adverse effect on foraging bats from the construction works.

Proposed additional mitigation

8.7.100 Temporary lighting, noise and vibration during construction could also cause adverse effects on commuting and foraging bats. However, these impacts would be minimised by the lighting plans outlined in the CEMP, which would seek to minimise light spill keeping it highly directional and to enable dark corridors to be maintained along retained areas of open space to ensure foraging conditions maintained for foraging bat species.

8.7.101 The ECoW would also give regular toolbox talks to make site personnel aware of the ecological sensitivities on-site. The ECoW would have the authority to stop any construction activity that is having or likely to have an unplanned adverse environmental effect, or be in breach of legislation.

8.7.102 Noise and vibration would be controlled by no nighttime working to avoid impacts on nocturnal foraging and commuting bats. Should bats be displaced by construction activities there are other areas in the wider landscape that would provide suitable, alternative roosting and foraging habitat. Additionally, any increases in noise from the construction is likely to be restricted to the footprint of the Proposed Development and habitats immediately on the boundary, resulting in a low magnitude impact.

Residual construction effects

8.7.103 The magnitude of change, prior to mitigation, is low. It is likely that there would be an **indirect**, **short-term**, **temporary adverse** effect, which would be **not-significant**.

Invasive non-native species

Predicted construction effects

8.7.104 The ecological survey work has identified several isolated stands of Japanese Knotweed in the northern extent of the Site. This invasive species could be disturbed and potentially spread across the construction site causing incidental damage to the habitats when site clearance works commence, in particular the removal of vegetation and topsoil.

8.7.105 There is likely to be a **direct, long-term, permanent adverse effect** due to non-native invasive species from the construction works.

Proposed additional mitigation

8.7.106 The risk of spreading the invasive non-native species would be minimised by measures outlined in the CEMP, including proposed PWMS, and proposed control methods. This would ensure the control/ removal of invasive non-native species from the red-line boundary.

Residual construction effects

8.7.107 With mitigation there is likely to be a **direct**, **long-term, permanent beneficial** effect on non-native invasive species from the construction works, which would be **significant** at the local level.

Operational effects

8.7.108 During the operational phase of the project the following aspects of the Proposed Development could cause impacts on the ecological receptors that have been scoped in. This assessment has considered the embedded primary and tertiary mitigation measures from **Section 8.7**.

Statutory designated sites (Eglwys Nunydd Reservoir SSSI and Margam Moors SSSI)

Predicted operation effects

8.7.109 There would be no direct impacts from the operational phase on any of the statutory sites, however there could be potential indirect effects arising from changes to air quality.

8.7.110 Emissions to air from the Proposed Development are addressed in **Chapter 6: Air Quality.**

8.7.111 Assessment of air emissions on ecological receptors is guided by the *Institute of Air Quality Management and Assessment guidance: A guide to the assessment of air quality impacts on designated nature conservation sites (IAQM, 2019)*:

8.7.112 Section 5 of this guidance states: "*For Ramsar, European and national designated sites, the guidance advises that to screen out the need for further assessment, a PC (process contribution) for any substance emitted from an industrial source must meet both of the following criteria:*

- *the short-term PC is less than 10% of the short-term environmental standard; and*
- *the long-term PC is less than 1% of the long-term environmental standard."*

8.7.113 At all receptor locations, the impact at ecological receptors decreases during the EAF operational scenario, representing beneficial impacts.

8.7.114 The indirect effect on statutory sites would result in an indirect, long-term, permanent beneficial effect.

Proposed additional mitigation

8.7.115 No proposed additional mitigation.

Residual operation effect

8.7.116 Overall, given the mitigation measures, the indirect effect on statutory sites would result in an **indirect, long-term, permanent beneficial** effect, which would be **significant** at the local level.

Non-statutory designated sites (Neath Port Talbot Watercourses, Eglwys Nunydd, Junction 38 Wetland Complex SINCs and ancient woodland sites)

Predicted operation effects

8.7.117 There would be no direct impacts from the operational phase on any of the non-statutory sites, however there could be potential indirect effects arising from changes to air quality.

8.7.118 Emissions to air from the Proposed Development are addressed in **Chapter 6: Air Quality.**

8.7.119 Assessment of air emissions on ecological receptors is guided by the *Institute of Air Quality Management and Assessment guidance: A guide to the assessment of air quality impacts on designated nature conservation sites (IAQM, 2019)*:

8.7.120 Section 5 of this guidance states: "*For Ramsar, European and national designated sites, the guidance advises that to screen out the need for further assessment, a PC (process contribution) for any substance emitted from an industrial source must meet both of the following criteria:*

- *the short-term PC is less than 10% of the short-term environmental standard; and*
- *the long-term PC is less than 1% of the long-term environmental standard.*

8.7.121 *For local wildlife sites and ancient woodlands, the Environment Agency uses less stringent criteria in its permitting decisions. Environment Agency policy for its permitting process is that if either the short-term or long-term PC is less than 100% of the critical level or load, they do not require further assessment to support a permit application*."

8.7.122 At all receptor locations (except E15 and E16), the impact at ecological receptors decreases during the EAF operational scenario, representing beneficial impacts. E15 and E16 correspond to specific locations within the Junction 38 Wetland SINC. At these locations, modelled concentrations of nitrous oxides (NOx) increased, as did the resultant modelled nitrogen and acid deposition. The modelled level of increase was greater than 1% of the long term critical load threshold as above, but less than 100%.

8.7.123 As the Junction 38 Wetland is a locally designated SINC rather than a Ramsar, European or nationally designated site it is considered that the less stringent, 100% threshold should reasonably apply. Whilst the sensitivity of the habitats to nitrogen are not known, the location of the SINC, being close to existing industrial sources and the M4 motorway

suggests it is already likely to be subject to elevated NO_x concentrations, which may to an extent have already influenced the habitat composition and vegetation communities present. The area of the SINC affected has been identified from aerials as reedbeds and marshy grassland. Reedbeds and wetland habitats naturally reduce the nitrogen levels in the soil.

8.7.124 Advice from the air quality team is that this assessment outcome is driven specifically by the package boilers which would provide a short-term function during EAF construction and early stages of operation. This effect would therefore be temporary and reversible, and should be weighed against the more general improvements in air quality at other receptor locations due to the cessation of the 'heavy end' operation and resultant reduction in emissions of key pollutants.

8.7.125 Taking into account all considerations referred above it is considered that the impact on the SINC is assessed as indirect short-term temporary adverse. Once the package boilers are removed the impact on the SINC is assessed as indirect long-term permanent beneficial effect.

Proposed additional mitigation

8.7.126 No proposed additional mitigation.

Residual operation effects

8.7.127 Overall, the indirect effect on non-statutory sites would result in an **indirect, long-term, permanent beneficial** effect, which would be **significant** at the local level.

Protected Species – Bats – Foraging/commuting

Predicted operation effects

8.7.128 The operational lighting design has the potential to disturb the foraging/commuting bats that utilize the Site.

8.7.129 There is likely to be a direct, long term, permanent adverse effect.

Proposed additional mitigation

8.7.130 The LEMP would outline an appropriate long-term management regime for the areas of retained habitat, including a lighting design to minimise the lighting of these areas. The created/enhanced habitat would provide additional foraging opportunities. Operational lighting would also be kept to a minimum where required. The lighting would also be informed by the project ecologists to ensure low light spill devices are used for adjacent habitats and also to ensure low lux levels are maintained along edge habitat and waterbodies, minimising impacts on nocturnal species such as bats using the Site for foraging and commuting. Lighting design to ensure watercourses and woodland remain unlit at night. No artificial lighting would be installed along or within 2 m of any edge feature to minimise disturbance to bats;

Residual operation effects

8.7.131 Considering the measures which would be included in the LEMP, the effect on foraging and commuting bats during the operational phase would be minimal. Therefore, there is

likely to be a **direct, long-term, permanent beneficial** effect, which would be **significant** at the local level.

Invasive non-native species

Predicted operation effects

8.7.132 There is the potential for invasive non-native species present on site to be spread by the operational activities.

8.7.133 There is likely to be a direct, long-term, permanent adverse effect.

Proposed additional mitigation

8.7.134 The LEMP would outline an appropriate long-term management and control regime for the invasive non-native species.

Residual operation effects

8.7.135 Considering the measures which would be included in the LEMP, the effect on invasive non-native species during the operational phase would be minimal. Therefore, there is likely to be a **direct, long-term, permanent beneficial** effect, which would be **significant** at the local level.

8.8 Further survey and monitoring requirements

8.8.1 Pre-construction surveys would be undertaken for badger, within the areas prior to vegetation clearance.

8.8.2 If a potential resting place (e.g. badger sett) of a protected species is found within the construction footprint, then work would cease within an appropriate species-specific buffer (as set out in the CEMP) until it can be established whether it is in active use by the protected species (to be surveyed by an experienced ecologist).

8.8.3 If presence is confirmed, then Natural Resources Wales would be consulted to discuss possible mitigation measures and / or seek an appropriate protected species licence.

8.8.4 Where construction work is to commence more than two years after the completion of the ecology surveys, pre-construction surveys will be undertaken to ensure there has been no change in condition on site.

8.8.5 Monitoring surveys of the proposed habitat creation and enhancement would be undertaken (**Appendix 8.11** and **Appendix 6.3**) to ensure the targeted habitats and conditions are achieved. These surveys would be completed by a suitably experienced ecologist.

8.9 Possibilities for enhancement

Net biodiversity benefit

8.9.1 Net biodiversity benefit for a project is mandatory, under Section 6 duty of the Environment (Wales) Act 2016.

8.9.2 As described below (under Ecosystem Resilience) a number of measures to benefit biodiversity are proposed in the LEMP and the Net Biodiversity Benefit Report (**Appendix 8.11**). In this section, evidence is provided as to how the Proposed Development would maintain and enhance biodiversity, through the implementation of the LEMP.

8.9.3 The LEMP is subject to iteration as they would be formalised as part of planning consent (following agreement from the Applicant (as land manager), Neath Port Talbot Council) but it provides a clear statement of the aims and ambitions of the measures to be implemented.

8.9.4 The Net Biodiversity Benefit report submitted alongside the planning application includes measures to enhance the southern fields area to provide a wetland mosaic of habitats and with a sympathetic management plan including a grazing regime. This is included in the LEMP, which will be agreed with Neath Port Talbot Council prior to construction, to ensure longer-term management requirements are met.

8.9.5 The Proposed Development as a whole could deliver approximately 18 ha of new and enhanced habitats, including, mixed scrub, ephemeral spoil heaps, reedbeds, grassland, and coastal floodplain grazing marsh species. These habitats, once at target condition, would be considerably more diverse and higher quality than the baseline habitats within the Site.

Ecosystem resilience

8.9.6 The Natural Resources Wales Ecosystem Resilience Field Guide together with the Neath Port Talbot Council Biodiversity Duty Plan 2020-2023 highlight the importance of ecosystem resilience and actions that can be undertaken to meet this aim, as required by the Environment (Wales) Act 2016. Resilient ecosystems are those with good levels of diversity, which are of sufficient extent, are in a good condition and have connectivity; referred to as the 'DECCA' framework of measurable attributes. Actions to achieve resilient ecosystems include safeguarding and improving existing ecosystems, restoring degraded habitats and creating new areas of habitat. Measures may also include tackling current pressures, such as removing invasive non-native species and improving air quality. Priority actions to build ecosystem resilience in the uplands include increasing tree cover and managing run-off pathways.

8.9.7 The LEMP and Net Biodiversity Benefit report for the Proposed Development (**Appendix 8.11**), include a number of prescriptions to promote ecosystem resilience within the Site. Diversity would be enhanced by the creation of new biodiverse habitats, for example the restoration of coastal floodplain grazing marsh. The extent of open ground habitats would be increased, for example through scrub control and bund creation, to create more open mosaic habitat areas. The removal of invasive species (such as Japanese Knotweed) would improve the natural condition of habitats within the Site. The coastal floodplain restoration areas include watercourse restoration, providing attractive corridors for wildlife to disperse, including from within the SSSI to the south. Additionally, where it is possible to do so, water retention measures are proposed, that would create new ponds and ditches. As well as increasing biodiversity, these measures aim to reduce water flow during heavy rainfall events, which should aid flood prevention lower down in the catchment. This would provide an ecosystem level solution to the danger of increasingly frequent flooding events as a result of climate change.

8.9.8 Therefore, the implementation of the LEMP would enhance biodiversity and create new opportunities to improve ecosystem resilience within the Site boundary.

8.10 Cumulative effects

8.10.1 An assessment of the potential impacts of the Proposed Development on biodiversity when considered cumulatively with other committed development projects in the vicinity of the Proposed Development is provided in **Table 8.14** below. Cumulative developments information has been identified from **Chapter 15: Cumulative effects**.

Table 8.14: Cumulative biodiversity effects

Application Reference	Development Applicant and Brief Description	Distance from EAF	Criteria 1 (concurrent construction, operational and/or demolition phases)	Criteria 2 (common sensitive receptors/resources that have potential to be significantly affected)	Criteria 3 (availability and proportionality of environmental assessment information)
-	P-Fields planning application Tata Steel UK Limited (Tata Steel) is submitting a standalone full planning application in relation to laying concrete in the P Fields area, which lies within the extent of the EAF planning application boundary. The total area of concrete hardstanding proposed is expected to be approximately 27,000 m^2, with approximate dimensions of 195 m (east to west) by 140 m (north to south).	0km	Construction is likely to be in advance of the majority of the EAF works but as P-Fields falls within the EAF red-line boundary, landtake related effects are already assessed in this chapter with no additional cumulative effects anticipated.	Effects will be limited to on-site habitats and species only, which are already assessed in this chapter with no additional cumulative effects anticipated.	Ecological survey data for P-Fields has been collected as part of the EAF ES and is reported I this chapter.
P2014/0825	Foel Trawsnant Bryn Port Talbot Full planning permission for Pennant Walters (FoelT) Ltd to install 11 wind turbines with a maximum tip height of 145 m, together with ancillary development including substation and control building, on-site underground electrical cables, stone site access tracks, temporary construction compounds, turbine foundations and temporary crane pads.	7 km north	Construction of the wind farm is anticipated to take about 12 to 24 months. No construction start and completion dates provided and therefore not possible to determine if construction and operational phases are concurrent with the EAF project.	Potential in combination effects on the International Statutory designated sites (SAC, SPA and Ramsar).	Environmental Statement available.

Application Reference	Development Applicant and Brief Description	Distance from EAF	Criteria 1 (concurrent construction, operational and/or demolition phases)	Criteria 2 (common sensitive receptors/resources that have potential to be significantly affected)	Criteria 3 (availability and proportionality of environmental assessment information)
P2021/1255	Land off J38 of the M4, Margam Full planning application by Sandvik Osprey Ltd for a metal processing facility totalling 28,500 sq.m of floorspace comprising a powder processing plant, warehouse and store, office building, amenity building, laboratory, services building, substation, phase 2, CCTV, storage tanks and plant, parking, servicing and roads and associated works.	850 m north	Construction phase expected to last until June 2026. Potential for construction and operational phases to be concurrent with the EAF project.	There is potential for in combination effects on all designated biodiversity sites and species found on-site. Potential for significant cumulative effects on watercourses within ZoI e.g. Upper Mother Ditch, Nant Cwm Philip, Efglwys Nunydd Reservoir. There is also potential for in-combination effects relating to flood risk, water quality and groundwater abstraction.	Environmental Statement, Traffic Assessment and Drainage Strategy available.
P2021/1193	Former Oil Refinery Llandarcy Neath SA10 6FG (Coed Darcy Llandarcy Neath) St. Modwen Developments Ltd have submitted an outline planning application, with all matters reserved except for strategic access, for residential uses (C2 & C3 use class), including land for education (D1 use class) with associated public open space, commercial uses (A1, A2, A3, B1, D1 & D2), commercial/employment (B2 & B8) uses, public open space, highway works, sustainable drainage,	10 km north	Programme submitted: Worse case assumption that construction would take six years beginning in 2023. Potential for construction and operational phases to be concurrent with the EAF project.	Potential in combination effects on International Statutory designated sites (SAC, SPA and Ramsar).	Environmental Statement for the outline application available.

Application Reference	Development Applicant and Brief Description	Distance from EAF	Criteria 1 (concurrent construction, operational and/or demolition phases)	Criteria 2 (common sensitive receptors/resources that have potential to be significantly affected)	Criteria 3 (availability and proportionality of environmental assessment information)
	ecological mitigation and enhancement, landscaping, ground remediation, and associated engineering and infrastructure works.				
P2023/0858	Crown Wharf Port Talbot Docks Port Talbot SA13 1RA (Project Dragon) LanzaTech Ltd has submitted an application for the demolition of existing structures and erection of a Sustainable Aviation Fuel (SAF) production facility, including the production of green hydrogen and sustainable diesel, enclosed ground flare, storage tanks, installation of pipework and electrical, processing and utility equipment, administration, warehouse and laboratory buildings, new access, car parking and transport infrastructure including a truck loading area and associated works, hard and soft landscaping, areas for temporary construction laydown, and associated development on land at Crown Wharf Port Talbot Docks Port Talbot SA13 1RA.	1.3 km north-west	Construction: expected to commence in 2024 and could last up to 2.5 years	There is potential for in combination effects on all designated biodiversity sites and species found on-site. Potential for significant cumulative effects on watercourses within ZoI e.g. Upper Mother Ditch, Nant Cwm Philip, Efglwys Nunydd Reservoir. There is also potential for in-combination effects relating to flood risk, water quality and groundwater abstraction.	Environmental Statement available
DNS/3264571	Y Bryn Wind Farm Y Bryn Wind Farm Ltd (owned by	1 km north-east	No programme available and therefore	Potential in combination effects with all designated sites and	Environmental Statement available

Application Reference	Development Applicant and Brief Description	Distance from EAF	Criteria 1 (concurrent construction, operational and/or demolition phases)	Criteria 2 (common sensitive receptors/resources that have potential to be significantly affected)	Criteria 3 (availability and proportionality of environmental assessment information)
	ESB and Coriolis Energy Ltd) has submitted a DNS application for the installation of up to 18 wind turbines (ranging between up to 206 m, up to 230 m and up to 250 m to tip) with associated infrastructure on land at Bryn and Penhydd forests, located between Port Talbot and Maesteg. Y Bryn Wind Farm is expected to generate up to 129.6 MW.		not possible to determine if construction and operational phases are concurrent with the EAF project.	species found on-site.	
DNS CAS-03018-G7G6H7	Mynydd Ty-Talwyn Energy Park Galileo 03 Ltd has submitted a Scoping Direction Request in relation to the proposed construction and operation of up to 10 wind turbines, ground mounted solar photovoltaic modules, Battery Energy Storage Systems, substation, permanent anemometer mast, ancillary infrastructure works, habitat management, and works to facilitate vehicular access to the Site on land approximately 4 km north-west of Bridgend.	5.5 km east	Construction phase likely to last 12-18 months and operation period expected to be approximately 50 years. No programme dates available and therefore not possible to determine if construction and operational phases are concurrent with the EAF project.	Potential in combination effects on the International Statutory designated sites (SAC, SPA and Ramsar).	EIA Scoping Report available that includes consideration of potential sources of impact.
DNS CAS-01977-L5K6R7	Eirlys Solar Farm Octo Partners Ltd has submitted a Scoping Direction Request in relation to a proposed solar farm and energy storage project with an	4 km north	No programme available and therefore not possible to determine if construction and	Likely potential for in combination effects with the International Statutory designated sites (SAC, SPA and Ramsar).	EIA Scoping Report available that includes consideration of potential sources of

Application Reference	Development Applicant and Brief Description	Distance from EAF	Criteria 1 (concurrent construction, operational and/or demolition phases)	Criteria 2 (common sensitive receptors/resources that have potential to be significantly affected)	Criteria 3 (availability and proportionality of environmental assessment information)
	installed generation capacity of approximately 79 MW on agricultural land to the south of Moel Ton-mawr and west of Mnyndd Margam.		operational phases are concurrent with the EAF project.		impact.
N/A	National Grid Margam substation extension and cable connection	Adjacent	Following project-related discussions with National Grid, it is understood that an application will be forthcoming in relation to the extension of the National Grid Margam substation and construction of a cable route outside of the EAF project site. The National Grid project will be included in the CEA shortlist.		

8.10.2 The results of the assessment completed in this Chapter were compared with the projects identified in the cumulative assessment table above to assess if the potential in-combination pathways identified from the other projects would result in any in-combination effects.

8.10.3 The EAF development would not result in any significant adverse effects on any protected sites or watercourses within the area and therefore those developments identified above with potential in combination effects on protected sites and watercourses can be discounted.

8.10.4 The EAF development would not result in any significant adverse effects on protected species populations within the same geographical context and/or habitat niche as the developments identified above and therefore, can be discounted.

8.10.5 Given that the developments to be considered do not have any potential impact pathways to result in cumulative effects, no cumulative effects are anticipated.

8.10.6 In relation to climate change, no cumulative effects are anticipated on the basis that climate change adaptation effects and impacts are specific to the development and will not result in impacts to any of the identified neighbouring developments.

8.11 Summary of effects

8.11.1 **Table 8.15** provides a summary of the likely significant effects, receptors, residual level of effect and conclusions on significance considered within the Chapter.

8.11.2 The Proposed Development would impact on habitats that primarily include open mosaic habitat. 4.31 ha of open mosaic habitat would be lost during construction, but a bespoke habitat creation scheme (to be set out in the LEMP which would form a planning condition to be discharged prior to construction) would set out proposals for the creation of new open mosaic habitat with bunds using soils sourced from within the Site and therefore contains a local seed bank. The majority of the blue line boundary (land under Tata Steel UK Limited (Tata Steel) ownership) would continue to be maintained in its entirety together with a suitable protective buffer and this, together with the proposed enhancement scheme in the southern fields, would continue to provide foraging habitat for bats and breeding/foraging habitat for birds. Reptiles are present on-site and so a PWMS together with provision for an ECoW would ensure any construction works would have no negative impact on the on-site reptile population.

8.11.3 The operation stage is not considered likely to cause any additional negative effects on ecology after mitigation.

Table 8.15: Summary of residual significant effects

Environmental factor	Receptor	Impact	Effect	Additional mitigation proposed	Residual effect
Construction phase					
Designated sites	Internationally and nationally designated sites (Statutory designations)	Disturbance noise, lighting, human activity, diffuse pollution and changes to air quality	Indirect, long-term, permanent beneficial	No additional mitigation proposed	Indirect, long-term, permanent beneficial (not significant)
	Locally designated sites (SINCs) (non-statutory designations)	Disturbance noise, lighting, human activity, and diffuse pollution	Temporary, short-term, minor, adverse effect	Precautionary working method statement Monitoring of water quality	Indirect, short-term, temporary adverse effect (not significant)
	Locally designated sites (SINCs) (non-statutory designations)	Change to air quality	Temporary, short-term, minor, adverse effect	No additional mitigation proposed	Indirect, short-term, temporary adverse effect (not significant)
Habitat	Coastal floodplain grazing marsh	Loss of habitat	Direct, short-term, temporary adverse	Retain habitat where possible Restoration and enhancement Net Biodiversity Benefit proposals	Direct, long-term, permanent (significant beneficial at county level)
	Open mosaic habitat	Loss of habitat	Direct, long-term, permanent adverse	Retain habitat where possible Restoration where impacts are temporary Creation of bunds using existing spoil from the Site Net Biodiversity Benefit proposals	Direct, long-term, permanent (significant beneficial at county level)

Environmental factor	Receptor	Impact	Effect	Additional mitigation proposed	Residual effect
	Other habitats	Loss of habitat	Direct, short-term, temporary adverse	Retain habitat where possible 6m buffer along watercourses Restoration where impacts are temporary Net Biodiversity Benefit proposals	Direct, long-term, permanent (significant beneficial at local level)
Protected species	Invertebrates	Habitat loss and alteration, disturbance noise and human activity	Direct, short-term, temporary adverse	Net Biodiversity Benefit proposals	Direct, long-term, permanent (significant beneficial at regional level)
	Fish	Habitat loss and alteration, disturbance noise and human activity	Direct, short-term, temporary adverse	Supervision of works within lagoon Precautionary working method statement Net Biodiversity Benefit proposals Drainage proposals	Direct, long-term, permanent (significant beneficial at local level)
	Badger	Disturbance Loss foraging habitat	Indirect, short-term, temporary adverse	Supervision of works within 30 m of sett	Indirect, short-term, temporary adverse (not significant)
	Reptiles	Habitat loss and alteration, disturbance noise and human activity	Direct, long-term, permanent adverse	Precautionary working method statement Net Biodiversity Benefit proposals	Direct, short-term, temporary adverse (not significant)
	Breeding Birds	Habitat loss and alteration, disturbance noise and human activity	Direct, long-term, permanent adverse	Precautionary working method statement Work outside of breeding season where possible	Direct, long-term, permanent (significant beneficial at district level)

Environmental factor	Receptor	Impact	Effect	Additional mitigation proposed	Residual effect
				Net Biodiversity Benefit proposals	
	Wintering Birds	Habitat alteration, disturbance noise and human activity	Direct, short-term, temporary adverse	Precautionary working method statement Net Biodiversity Benefit proposals	Direct, long-term, permanent (significant beneficial at district level)
	Bats	Loss foraging habitat and disturbance from lighting	Direct, short-term, permanent adverse	Lighting strategy No night time working Net Biodiversity Benefit proposals	Indirect, short-term, temporary adverse (not significant)
	Invasive non-native Species	Spreading	Direct, long-term, permanent adverse	Precautionary working method statement	Direct, long-term, permanent (significant beneficial at local level)
Operational phase					
Designated sites	Statutory and non-statutory designated sites	Changes to air quality	Indirect, long-term, permanent beneficial	No additional mitigation proposed	Indirect, long-term, permanent (significant beneficial at local level)
	Locally designated sites	Changes to air quality	Indirect, short-term, permanent adverse Indirect, long-term permanent beneficial	No additional mitigation proposed	Indirect, long-term, permanent (significant beneficial at local level)
Protected species	Bats - foraging/commuting	Disturbance	Direct, long-term, permanent adverse	Long term habitat management regime and minimised lighting design Net Biodiversity Benefit proposals	Direct, long term, permanent (significant beneficial at local level)

Environmental factor	Receptor	Impact	Effect	Additional mitigation proposed	Residual effect
	Invasive non-native species	Spreading	Direct, long-term, permanent adverse	Management and control regime Net Biodiversity proposals	Direct, long-term, permanent (significant beneficial at local level)

8.12 References

Natural Resources Wales Ecosystem Resilience Field Guide Available from: https://naturalresources.wales/guidance-and-advice/environmental-topics/land-management/ecosystemresilience-field-guide/?lang=en

Neath Port Talbot Council Biodiversity Duty Plan 2020-2023Available from: https://www.npt.gov.uk/30833

DECCA' framework of measurable attributes Available from: https://cdn.cyfoethnaturiol.cymru/media/693356/resilient-ecological-networks-practitioner-guide.pdf?

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