Ecological Impact Assessment Report

Margam Substation

August 2025

Prepared for:
National Grid Electricity Transmission

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Project Number:
331201497

Revision	Description	Date	Author	Quality Check	Independent Review
1	First Issue for Client comment	July 25	HE	HE	HU
2	Updates following Client comments and receipt of updated Technical Reports from others.	August 25	HE	JG	HU

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Executive Summary

National Grid Electricity Transmission (NGET) is proposing an extension to the existing Margam Substation in Port Talbot, South Wales. This extension will include new infrastructure such as a gas-insulated switchgear hall, amenities building, drainage systems, ecological enhancements, and associated engineering works. This Ecological Impact Assessment (EcIA), prepared by Stantec, evaluates the potential effects of the Proposed Development on ecology and biodiversity.

The Site comprises an existing substation and adjacent wetland habitats, located between Tata Steel Works and the M4 corridor, within the Junction 38 Wetland Complex, a Site of Importance for Nature Conservation (SINC).

The EcIA is based on detailed desk studies, field surveys conducted between 2024 and 2025, and consultation with ecological stakeholders. Surveys covered habitats and species including bats, birds, reptiles, amphibians, water vole, otter, and invertebrates. The assessment approach is undertaken in accordance with good practice guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM).

The Site supports a complex of wetland habitats which are considered Priority Habitats. Protected and notable species recorded include: water vole, bats (including lesser horseshoe), breeding and wintering birds, reptiles, and invertebrates.

The Proposed Development will result in the permanent loss of approximately 1.67 hectares of SINC and Priority Habitat, but no significant impacts are anticipated on nearby nationally or internationally designated sites due to distance and lack of ecological connectivity. To minimise ecological impacts, the design includes embedded mitigation such as minimising the development footprint, sensitive lighting and drainage design, and diversion of ditches to maintain hydrology. Species-specific features such as: a wildlife tower, reptile hibernacula, and gabion baskets will be delivered through the Proposed Development. Compensation measures involve habitat creation and enhancement within the Site and off-site biodiversity enhancements at Margam Burrows, including dune slack restoration and scrub management.

The Proposed Development is expected to deliver a measurable Net Biodiversity Benefit (NBB), in line with Planning Policy Wales and the Environment (Wales) Act 2016. Long-term management and monitoring plans will ensure the resilience and sustainability of habitats and species. With the proposed mitigation, compensation, and enhancement measures in place and secured by appropriate planning mechanisms (condition and/or section 106), the Proposed Development is considered ecologically acceptable and will support biodiversity conservation and ecosystem resilience in Neath Port Talbot.

1 Introduction

1.1 Overview

1.1.1 Stantec was commissioned by National Grid Electricity Transmission (NGET) to undertake an Ecological Impact Assessment (EcIA) of the Proposed Development known as the Margam Substation Extension, proposed within land owned by NGET at Margam, Port Talbot. The proposed substation extension (hereafter referred to as the 'Proposed Development') is to be subject of a full planning application and this Ecological Impact Assessment provides an assessment of the potential effects of the Proposed Development on ecological features within the Site and the surrounding area, in order to inform decision-making.

1.2 Site Location and Proposed Development Description

1.2.1 The proposed development site (hereafter referred to as "the Site") comprises the NGET land at approximate central grid reference SS 78581 86365. The Site comprises an existing substation and area of wetland complex to the east of the Tata Steel Works and Network Rail railway line. The Site lies to the south of the Tata Steel Sports and Social Club (golf course), to the west of woodland and to the north of the BOC Ltd. works area and fields owned by BOC Ltd. Beyond the immediate Site surroundings, the M4 corridor lies to the east, Swansea Bay lies to the west, Eglwys Nunydd Reservoir to the south and Margam town to the north. The Site is shown on **Figure 1.**

1.2.2 The Proposed Development is an extension to the existing Margam Substation, with the full description of the Proposed Development as follows:

1.2.3 The planning application, (the 'Proposed Development'), is for "full planning application for the extension of the Margam 275kV substation including the erection of a gas insulated switchgear hall (GIS hall) and the demolition of the existing control and amenities buildings to enable the erection of a new amenities building. Works to include earthworks, surface water management and drainage infrastructure, lighting, CCTV, boundary treatment, car parking, ecological improvements including a wildlife tower and gabion baskets, improved internal access roads, diesel generator and hardstanding, storage and washroom buildings, water storage tank, flood defence wall including flood gates and appropriate landscaping and other associated engineering operations. A detailed overview of the proposed works to the existing Margam 275kV substation compound is provided below:

- Construction of a GIS hall to house 275 kV electrical switchgear and ancillary equipment;
- The GIS hall to include 12 bays with the provision of 3 spare bays;
- Mechanically Switched Capacitor with Damping Network;
- Realignment of the existing downleads and Super Grid Transformer circuits to new bays within the GIS hall;
- New amenities building to include welfare facilities, meeting room and ancillary office space;
- One diesel generator to be used in a backup situation only and hardstanding for a replacement freestanding diesel generator;
- Security fencing;
- Surface water management and drainage infrastructure including internal drainage systems;
- Flood defence wall (1150mm high and depth 1000mm) and flood gates at existing access points into the existing substation;

- Water storage tank (6m high and 6.1m diameter);
- CCTV;
- Lighting to include 6m medium duty, tilt down tubular steel constructure (exact location to be agreed), 27no. 'label C', 18no. 'label E' and 13no. 'label EX1), dark sky approved.
- Creation of new designated car parking area (four standard bays and two accessible bays).
- Landscaping to incorporate native planting / wildflowers.
- Ecological mitigation to include a wildlife tower and gabion baskets."

1.2.4 The Site is shown in **Figure 1** and encompasses the area required for delivery of all the proposed development, including the area beyond the proposed built development footprint which is proposed for habitat creation and management for the purposes of achieving a net benefit for biodiversity through the Proposed Development. The plan provided at **Appendix A** shows the proposed built development footprint, i.e. the permanent works footprint associated with the proposed substation delivery that are being proposed through the planning application.

1.3 Permitted Development Works

1.3.1 In parallel with, and in advance of the Proposed Development, NGET are undertaking enabling works and temporary works in accordance with the Schedule 2, Town and Country Planning (General Permitted Development) Order 1995 (as amended) ("Permitted Development Works"). These Permitted Development Works are taking place within the land owned by NGET and also extend into land owned by BOC Ltd, to the south of the NGET land and within land to the west, owned by Tata Steel. The Permitted Development Works include activities within the footprint of the Proposed Development. As the footprint of the Permitted Development Works overlaps with the Proposed Development footprint and the premise of the Permitted Development Works is that the Site would be restored following completion to the condition it was in prior to the works, this EcIA considers the impact of the Proposed Development assuming a "future baseline" of the Site restored to its condition prior to the commencement of the Permitted Development Works. The timeline of the two elements means that the reality is that the Proposed Development works will proceed (subject to planning) prior to the completion of the Permitted Development works. Therefore, taking the "pre-works" (i.e. Pre-Permitted Development Works) site baseline as the baseline for assessment is the most appropriate approach to the assessment which aligns with good practice guidance (CIEEM, 2024).

1.3.2 This EcIA addresses the consideration of the direct and indirect ecological effects associated with the Proposed Development within the Site, considering the impacts of the works being proposed through the planning application only. The EcIA considers the ecological effects of the Proposed Development in relation to relevant legislation, planning policy and related guidance.

1.3.3 Note that NGET are also mindful of the ecological effects of the Permitted Development Works, which are progressing in accordance with Schedule 2, Town and Country Planning (General Permitted Development) Order 1995 (as amended), the company's own environmental and ecological standards, and Ofgem's Annual Environmental Reporting requirements.

1.4 Planning History

1.4.1 The Site was subject to a prior planning application for a new separate sub-station extension in 2009. However, it was subsequently determined that it was not feasible from an engineering perspective to deliver the substation extension in the location proposed in the 2009 application. The survey and assessment work undertaken for that prior application provides some historical context relevant to the Site which is considered in this EcIA.

1.5 Report Objectives

1.5.1 This report sets out the Ecological Impact Assessment of the Proposed Development. As such, the objectives of this report are to provide:

- An outline of the methodologies, with reference to relevant survey guidance, for determining the ecological baseline for the Site. The methodology for ecological assessment is also described.
- A description of the ecological baseline, providing a summary of the key results of the desk study and detailed ecological survey reports, to determine the important ecological features within the zone of influence of the Proposed Development.
- An assessment of potential impacts arising from the Proposed Development on important ecological features during construction and operation is made, taking into account mitigation measures that are embedded in the schemed design or delivery.
- Subsequently any required further ecological mitigation and compensation measures are described so that the Proposed Development will avoid contravention of legislation and enable compliance with relevant planning policy.
- Furthermore, the EcIA identifies how the Proposed Development will deliver ecological enhancement to deliver a Net Benefit for Biodiversity (NBB) in accordance with requirements of Planning Policy Wales 12 (PPW 12) Chapter 6 (Distinctive and Natural Places).[1]

[1] NB: Summaries and/or extracts from relevant legislation and planning policy taken into consideration in this Ecological Impact Assessment and in the development of the Proposed Development are provided at Appendix B.

2 Methods

2.1 Overview

2.1.1 This Ecological Impact Assessment has been informed by both desk study and field surveys, with the scope of the field surveys discussed and agreed with Neath Port Talbot Council prior to and during the implementation of the survey work through 2025. This section describes the approach taken to the desk study and provides a summary of the field survey methods used for habitat and protected or otherwise notable species surveys. Furthermore, this section describes the approach taken for the evaluation of ecological features and the ecological impact assessment methodology used.

2.2 Desk Study

2.2.1 Statutory designated areas within proximity of the Site were identified using Data Map Wales (https://datamap.gov.wales/maps/new#/). International designations were considered within ~10 km of the central point of the Site. National Designations and Local Nature Reserves and Priority Habitats and Ancient Woodland were considered within ~2km.

2.2.2 Ordnance Survey maps (1:25,000) and aerial images of the Site were examined online (bing.com/maps and Google Earth Pro).

2.2.3 Data on non-statutory sites of nature conservation interest (Sites of Importance for Nature Conservation (SINCs)) within ~2 km of the central point of the Site were obtained from Aderyn (the Biodiversity Information and Reporting Database of Local Environmental Records Centres Wales), along with records of protected and notable species.

2.2.4 The following reports were also reviewed as part of the desk study. The first two reports relate to the proposed development of an Electric Arc Furnace on land owned by Tata Steel UK Ltd, to the west of the Proposed Development site. The two National Grid reports relate to the prior application for a new substation on the Site from 2009:

- RSK Biocensus (2024) Electric Arc Furnace Preliminary Ecological Appraisal. Report on behalf of Tata Steel UK Ltd
- RSK Environment Ltd (RSK) (2024) Electric Arc Furnace (EAF) Environmental Statement Vol 2. Report on behalf of Tata Steel UK Ltd.
- National Grid (2009). ‘Margam 275kV Substation – Environmental Report; and,
- National Grid (2009) Margam 275kV Substation – Environmental Report Technical Appendices

2.3 Study Area – Field Surveys

2.3.1 The Study Area for the ecology field surveys is shown in the Figure provided at **A-3, Appendix A.** The Study Area encompassed the land owned by NGET (identified as “The Site” in the figure provide at A-3 Appendix A), as well as the adjacent land to the south, owned by BOC Ltd. The survey methods and summary of protected species survey results includes the approach taken and findings from both the NGET and BOC Ltd land, as detailed in the individual Technical Reports. Where specific species surveys deviated from this Study Area, this is explained in the individual species survey reports (refer to **Section 7** for reference list). The Ecological Baseline described in this EcIA (**Section 3**) presents the habitats, protected and notable species results from the NGET land only, as relevant to the Proposed Development Site and as extracted from the individual Technical Reports presenting the methods and results of the habitat and species surveys.

2.4 Survey Methods

2.4.1 Ecological survey work was completed in 2024 and spring/early summer 2025 to provide the baseline for the purposes of assessment to inform the ecological assessment in this report. The field survey methods and dates are summarised in **Table 2.1**. A full description of field survey methods are included in the individual Technical Reports (see full Reference list at **Section 7**). As described in the Limitations section in this EcIA (**Section 2.5**) Neath Port Talbot Council's (NPTC's) Ecologist has requested that NGET continue bat activity and invertebrate surveys through the rest of the summer season. The same methods described below will be undertaken for the remaining surveys.

Table 2.1 Field Survey Methods

Ecology Survey	Field Survey Methods
Preliminary Ecological Appraisal	The Site was mapped in March, June and November 2024 according to Phase 1 Habitat Classification (JNCC 2010), using previous data recorded in UKHab survey and on-site observation to determine and confirm habitat equivalence in the Phase 1 Habitat Survey classification. The habitat survey methods were extended in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for Preliminary Ecological Appraisal (CIEEM 2017) so that the habitats identified were also evaluated for their potential to support legally protected and notable species. Target notes were used to record any habitats or features of ecological interest such as evidence of, or habitats with potential to support protected species, or to provide supplementary information on features too small to map, or to provide additional details, for example relating to species composition and structure.
National Vegetation Classification (NVC)	A NVC survey was undertaken in June 2025 in accordance with industry standard guidance and methodology (Rodwell, 1991, 1995, 2000). The survey focussed on the habitat parcels which were displaying transitionary features (including swamp and marshy grassland), with a view to confirming their conservation status and habitat classification. For each identified habitat block, five 2 x 2m quadrats were placed to provide a good cover of the area. Within each quadrat, all vascular plant species were identified and assigned a percentage cover. The data were then analysed and matched to the relevant NVC community and sub-community using the keys provided in the British Plant Communities Volumes 2, 4 and 5 (Rodwell, 1991,1995, 2000). The data were also run through MAVIS (CEH, 2016). MAVIS is a program that assigns vegetation data to a number of different classification systems including NVC, based on the 'goodness of fit' with published community types in Rodwell (1991, 1995, 2000).
Otter *Lutra lutra*	The otter survey undertaken in May and September 2024 comprised of searching for evidence of otter presence such as: spraints, footprints, slides, holts, feeding platforms, and resting places such as layup sites and couches.
Water vole *Arvicola amphibius*	The water vole survey was conducted in May and September 2024 in accordance with standard best practice guidelines (Dean *et al.* 2016) and consisted of searching for field signs of water voles (including faeces, latrines, feeding stations, burrows, lawns, nests, footprints and runways) from within the channel and suitable habitat. The suitability of the habitats for water vole was assessed following criteria outlined in Dean *et al.* (2016).
Bats	A Ground Level Tree Assessment (GLTA) of trees within the Site was undertaken in March and June 2024 in accordance with best practice guidance (Collins, 2023) to identify trees with potential roost features (PRFs).
	A bat roost assessment of the substation buildings (B1-B4) was undertaken on 6 March 2025 in accordance with best practice guidance (Collins, 2023) and included an internal inspection of B1 and external inspection of all the buildings (B1-B4) looking for signs of, or the potential for the buildings to support roosting bats.

Ecology Survey	Field Survey Methods
	A bat emergence survey was undertaken of the substation buildings on 5 June 2025 in accordance with best practice guidance (Collins, 2023).
	A walked transect route with seven "station stops" for visual observations and acoustic data recording was undertaken following survey principals recommended in Collins (2023) on 16 April and 12 May 2025.
	Remote, unattended bat detector recording units (termed bat 'data loggers') were deployed at the Site to obtain quantitative data on bat activity. Three data loggers were deployed on the Site between 11-15 April and 9-14 May 2025 to gather a minimum of five consecutive monitoring nights. Sound files were analysed using the Kaleidoscope software.
Breeding birds	The breeding bird surveys were undertaken between 10 June and 9 July 2024 in accordance with the Bird Survey Guidelines (Bird Survey & Assessment Steering Group, 2023). Six survey visits were completed where the entire Site was walked slowly across a single transect by an experienced surveyor, approaching all suitable habitat within 50 m of the Site's boundaries and both visually scanning and listening for birds. Where possible, the following details were recorded: bird numbers, species, age and sex, habitat associations and bird behaviour. Registrations of birds were assessed to confirm their breeding status. In accordance with good practice guidance (Bibby *et al.,* 2000) the starting point and direction of the route walked were varied on each survey visit. All dawn visits were completed during early morning to mid-morning hours and took two hours to complete. The dusk survey was commenced 30 minutes before sunset for a duration of two hours.
Wintering birds	The wintering bird surveys were undertaken between 22 October 2024 and 11 February 2025 in accordance with best practice guidelines (Bird Survey and Assessment Steering Group, 2023). These comprised a series of six survey visits during which suitably experienced ornithologists walked a pre-determined transect route throughout the Site. The transect route was interspersed with stops, to scan for birds using optical equipment. All bird species encountered (either visually or through their vocalisations) were recorded using standard British Trust for Ornithology (BTO) species codes and behaviour notation (Marchant, 1983). Any noteworthy observations within 100 m of the site boundary were recorded. Particular attention was given to undertaking counts of any notable aggregations of feeding and roosting birds such as waders, finches and thrushes, and to recording raptor roosting and foraging activity.
Reptiles	Reptile surveys were undertaken in accordance with best practice guidance (Froglife 1999 & 2025). Two sets of surveys were undertaken with the Site between 27 September and 31 October 2024 and 24 March and 06 May 2025. As the first survey period was undertaken within a sub-optimal period for undertaking reptile surveys, an additional set of surveys were undertaken. Reptile refugia consisting of heavy gauge mineral roofing felt cut into approximately 0.5m x 1m rectangles were placed on the Site. Locations with suitability for reptiles were selected for the refugia, often following linear margins, and orientated to receive the maximum amount of sunshine.
Great crested newt *Triturus cristatus*	The survey methods employed comprised of environmental DNA (eDNA) sampling and/or Habitat Suitability Index (HSI) assessments. eDNA surveys were undertaken in line with guidance (Biggs *et al.*, 2014). Water samples were collected from waterbodies on the Site and within 250m (where access allowed) on 23 May 2024, 24 May 2024 and 17 April 2025. These samples were analysed by ADAS or Surescreen. Waterbodies were assessed on 24 September 2024 using the GCN HSI assessment method developed by Oldham *et al.* (2000).

Ecology Survey	Field Survey Methods
Invertebrates	The invertebrate survey involved walkover surveys of the Site sampling the invertebrates on 21 May, 22 May, 23 June and 24 June 2025 using several different techniques as per Eyre, 1996; Hill *et al.*, 2006 & Sutherland, 2006. The invertebrate survey methods followed standard guidance for terrestrial species (JNCC 2008; English Nature 2005) The following techniques were used: sweep netting, aerial netting, beating tray, grubbing, direct searching and aquatic sampling. Invertebrate samples collected were analysed using microscopes, appropriate identification books and reference papers.

2.5 Limitations

2.5.1 The specific limitations associated with the surveys listed above are described in each of the Technical Reports (see full reference list at **Section 7**); whilst none of the limitations are deemed significant, they have been taken into account in the evaluation and assessment in this EcIA.

2.5.2 It is worth noting in this section that the approach and scope of survey work has been discussed with NPTC's Council's Ecologist. NPTC have requested that certain surveys continue through the rest of the summer season (specifically bat activity surveys and invertebrate surveys); the evaluation and assessment for these species groups as presented within this EcIA has therefore been made with the understanding that further data may be collected and bearing in mind the range of potential outcomes. This approach ensures that the assessment remains adaptive and responsive to emerging data, allowing for the integration of additional findings to refine and validate the conclusions during Pre-Application Consultation (PAC) and prior to the submission of the planning application, due in the autumn 2025.

2.5.3 Additionally, it is important to acknowledge that some of the "Early Works" progressing under Permitted Development have restricted access to parts of the Study Area for species surveys since spring 2025. It was agreed with NPTC's Ecologist that extrapolating survey results from surrounding habitats within the site would be appropriate. This approach was agreed with the NPTC because the Early Works area supported the same range of habitats as present within the wider Study Area. Therefore, despite the limitations, the surveys conducted in 2024 and spring/early summer 2025 are considered to provide a robust baseline for the ecological assessment, ensuring that the impact assessment comprehensively reflects the site's baseline ecological characteristics and value.

2.5.4 Lastly, at the time of the PAC submission and the production of this EcIA, certain aspects of the design remain unresolved (e.g. the drainage design). Accordingly, this EcIA has been based on the current Proposed Site Plan (MARPT-BHK-01-ZZ-DG-A-130023 – see **Appendix A**). Any subsequent changes to the design from that shown in the Proposed Site Plan will require a review of ecological implications and associated mitigation measures, to maintain the validity of the conclusions of the assessment presented in this EcIA.

2.6 Consultation

2.6.1 A number of meetings and a Site visit have been led by Stantec with ecological stakeholders and advisors regarding the proposed scope of ecological surveys, the survey results, and proposed mitigation, compensation and enhancement measures, particularly with respect to the delivery of net benefit for biodiversity. Ecological stakeholders and advisors for the proposed development include: NPTC's Ecologist, Natural Resources Wales, Celtic Wildflowers (local Ecology specialist), Tata Steel UK Ltd (Environmental Advisor), RSK Biocensus Ltd. (Ecologists) and NGET's own Biodiversity Advisor.

2.7 Ecological Evaluation and Impact Assessment Method

Evaluation

2.7.1 The importance of ecological features potentially affected by the proposed development were evaluated with regard to CIEEM's Guidelines for Ecological Impact Assessment in the UK and Ireland (hereafter referred to as 'the CIEEM Guidelines') (CIEEM, 2018). The CIEEM Guidelines recommend that valuation of ecological features associated with a site is made with reference to a geographical framework, i.e. a feature may be of importance within the following context:

- International and European
- National (Wales)
- Regional (Southwest Wales)
- County (Neath Port Talbot)
- Local (Margam)
- Less than Local (Site)
- Negligible

2.7.2 The evaluation process allows the identification of 'Important Ecological Features' which, in the context of this assessment were deemed to be any feature considered to be of importance within the 'Local' context or greater. All 'Important Ecological Features' were carried forward for detailed impact assessment, whilst other identified features (i.e. those assessed as being of less than Local importance) were excluded from further assessment given that impacts on such features are considered insignificant regardless of the nature or magnitude of the potential impact.

2.7.3 Where protected or notable species of less than 'Local' importance were recorded, they are considered with respect to enable compliance with relevant wildlife legislation, where required.

2.7.4 Terminology

2.7.5 Use of the terms 'impact' and 'effect' within the impact assessment follow the definitions as defined within CIEEM Guidelines. An 'impact' is defined as an action that results in changes to an ecological feature e.g. when a proposed development requires the removal of a tree with bat roost features. An 'effect' is the outcome to an ecological feature from an impact e.g. the effects on a bat population from the loss of a tree with bat roost features. The construction and operation impacts of the Proposed Development and associated effects on Important Ecological Features are based on the plan provided of the permanent works within **Appendix A (A.2)**.

2.7.6 Impact Assessment

2.7.7 The evaluation, impact assessment and application of the mitigation hierarchy[2] will be undertaken in line with CIEEM Guidelines, applicable legislation, planning and biodiversity policy as outlined in **Appendix B**.

2.7.8 Ecological input has been provided during the design process for the proposed development; and as such, 'embedded avoidance and mitigation' with respect to ecological features are included within the Proposed Development. The impact assessment therefore considers the impacts of the scheme and assesses the ecological effects taking account the embedded avoidance and mitigation measures. This approach is in accordance with the CIEEM Guidelines which promotes the assessment of effects of the mitigated scheme only, where there is high confidence that integrated mitigation will be implemented; as in this situation.

2.7.9 Once 'Important Ecological Features' have been identified, any resulting impacts from the Proposed Development, taking in to account the inherent scheme design, can be fully determined. Potential impacts may be direct or indirect and could occur in one or more of the project phases (e.g., construction or operation).

2.7.10 Following characterisation of each impact, an assessment is made with regards to whether or not the resulting effect on the 'Important Ecological Feature' is deemed to be 'significant' or not in ecological terms. This is determined in relation to the structure and function of defined sites,

[2] The mitigation hierarchy is a structured approach to managing ecological impacts, prioritising actions in the following order: avoid harm where possible, minimise unavoidable impacts, restore affected habitats, and offset residual losses through compensatory measures

habitats, or ecosystem(s) and / or the conservation status of habitats or species with reference to a given geographical area.

2.7.11 Where an 'Important Ecological Feature' is likely to experience a significant adverse effect, a sequential process has then been adopted to avoid, mitigate, or compensate ecological impacts (often referred to as the 'mitigation hierarchy').

2.7.12 An assessment of residual impacts to determine the significance of their effects on the 'Important Ecological Features' is then described. Any residual impacts that will result in effects that are significant, and any proposed compensatory measures are then determined. Furthermore, the ecological enhancement to enable delivery of Net Biodiversity Benefit is described.

2.8 Report Qualification

2.8.1 All survey work and assessment were undertaken by experienced and qualified ecologists, in accordance with CIEEM's Code of Professional Conduct.

2.8.2 All ecological surveys have an expected validity period owing to the tendency of the natural environment to change over time. This validity period varies from receptor to receptor, and is also dependent on the degree of change in a site's management and overall landscape ecology. Regardless, if Site development does not commence within 12-18 months of the date of this report, the findings of this report should be reviewed, and a re-survey and re-assessment of the Site should be undertaken if deemed necessary by a suitably qualified ecologist.

2.8.3 This report does not purport to provide detailed, specialist legal advice. Where legislation is referenced, the reader should consult the original legal text, and/or the advice of a qualified environmental lawyer.

3 Ecological Baseline

3.1 Overview

3.1.1 This section provides a summary of the of findings of the desk study and survey work and provides an evaluation of the identified ecological features in the context of the CIEEM geographical framework. This supports determination of those feature(s) requiring further consideration in terms of impact assessment.

A summary of relevant legislation and planning policy is provided as applicable in **Appendix B.**

3.2 Designated Sites

3.2.1 **Table 3.1** provides a summary of the designated sites within the Study Area including their location in relation to the Site and their reasons for designation and importance.

Table 3.1: Summary of Designated Sites in the Study Area

Designated Site	Location	Summary of Reason for Designation
Statutory Designated Sites of International Importance		
Kenfig/ Cynffig Special Area of Conservation (SAC)	Located 3.0 km south of centre of the Site.	Annex I habitats that are a primary reason for designation include: • 2130 Fixed coastal dunes with herbaceous vegetation *Priority feature • 2170 Dunes with *Salix repens* ssp. *Argentea* (Salicion arenariae) • 2190 Humid dune slacks • 3140 Hard oligo mesotrophic waters with benthic vegetation of Chara spp. Annex I habitats present as a qualifying feature: • 1330 Atlantic salt meadows (Glauco- Puccinellietalia maritimae) Annex II species that a primary reason for designation include: • 1395 Petalwort *Petalophyllum ralfsii* • 1903 Fen orchid *Liparis loeselii*
Glaswelltiroedd Cefn Cribwr / Cefn Cribwr Grasslands SAC	Collection of sites located south and southeast, with the closest located 7.0 km from the centre of the Site.	Annex I habitats that are a primary reason for designation include: • 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae). Annex II species that a primary reason for designation include: • 1065 Marsh fritillary butterfly *Euphydryas* (Eurodryas, Hypodryas) *aurinia*
Crymlyn Bog / Cors Crymlyn SAC	Located 10.3 km northwest of the centre of the Site.	Annex I habitats that are a primary reason for designation include: • 7140 Transition mires and quaking bogs • 7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* *Priority feature Annex I habitats present as a qualifying feature: • 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) *Priority feature
Crymlyn Bog Ramsar	Located 10.3 km northwest of	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

Designated Site	Location	Summary of Reason for Designation
	the centre of the Site.	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* 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. The site supports 199 vascular plant species including 17 regionally-uncommon and one nationally rare.
Statutory Designated Sites of National Importance		
Eglwys Nunydd Reservoir Site of Special Scientific Interest (SSSI)	Located 1.0 km south of the centre of the Site.	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 grebe *Podiceps cristatus*, little grebe *Tachybaptus ruficollis*, mallard *Anas platyrhynchos*, gadwall *Anas strepera* and coot *Fulica atra*.
Margam Moors SSSI	Located 1.1 km southeast from the centre of the Site.	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. 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.
Cynffig/ Kenfig SSSI	Located 3.0 km south of centre of the Site.	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 *Petalophyllum ralfsii*, the medicinal leech *Hirudo medicinalis*, the fen orchid *Liparis loeselii*, the shrill carder bee *Bombus sylvarum*, the hairy dragonfly *Brachytron pratense* and a weevil *Pachytychius quinquepunctatus*.
Kenfig Pools and Dunes National Nature Reserve (NNR)	Located 3.0 km south of centre of the Site.	Sand-dune reserve, with plants including fen orchids, birds and insects. Glamorgan's largest natural lake, Kenfig Pool, is set on the edge of the reserve with spectacular views across Swansea Bay to the Gower. The reserve is leftover from a huge, rolling dune system that once stretched from the Ogmore estuary to the Gower Peninsular.

Designated Site	Location	Summary of Reason for Designation
Statutory Designated Sites of County Importance		
Kenfig Pools and Dunes Local Nature Reserve (LNR)	As above	As above
Non-Statutory Designated Sites of County Importance		
Junction 38 Wetland Complex Site of Importance for Nature Conservation (SINC)	Located with the Site.	Reason for selection: • H1:3 Native woodland • H9:2 Lowland Fen • H9:3 Purple moor-grass and rush pastures Important species noted include: water vole, otter, grass snake *Natrix helvetica*, common lizard *Zootoca vivipara*, reed bunting *Emberiza schoeniclus* and Cetti's warbler *Cettia cetti*.
Eglwys Nunydd SINC	Located 0.8 km south of the centre of the Site.	Reason for selection: • H9:4 Reedbeds • H13:4 Eutrophic standing waters • S2 Bird • Additional qualifying features include: • H1:3 Native woodland • H1:4 Scrub communities • H9:2 Lowland Fen Important species noted include: barn owl *Tyto alba* and Cetti's warbler.
Margam Country Park SINC	Located 1.2 km east of the centre of the Site.	Reason for selection: • H1:2 Wood pasture and parkland • H13:2 Ponds • H16 Mosaic habitats (marshy grassland, woodland, scrub and neutral grassland) • S1 Mammals – bat roosts of 14 species. Important species noted include: lesser horseshoe *Rhinolophus hipposideros*, greater horseshoe *Rhinolophus ferrumequinum*, barbastelle *Barbastella barbastellus*, brown hare *Lepus europaeus* and adder *Vipera berus*.

3.3 Habitats

3.3.1 **Table 3.2** summarises the results of the field surveys with respect to habitats within the Site, including an evaluation of their importance.

Table 3.2: Summary of Habitats within the Site

Phase 1 Habitat Type	Summary Description and Rationale for Evaluation	Importance
Swamp	Swamp was the predominant habitat on the Site. It was dominated by common reed *Phragmites australis*, which forms a virtual monoculture over much of this habitat type within the Site. Other occasionally occurring species include yellow flag *Iris pseudacorus*, nettle *Urtica dioica*, reed canary grass *Phalaris arundinacea*, water mint *Mentha aquatica*, water pepper *Persicaria hydropiper* and meadowsweet *Filipendula ulmaria*.	County

Phase 1 Habitat Type	Summary Description and Rationale for Evaluation	Importance
	Other areas of swamp adjacent are transitional between the reed-dominated habitats and the grassland habitats; these areas supported stands of greater pond sedge *Carex riparia* with occasional tussocks of purple moor-grass *Molinia caerulea*, and locally abundant hemp agrimony *Eupatoria cannabinum*. Dry ditches are present within this habitat which run along historical ditch lines, these ditches have been subsumed by the dominant reed into the swamp across much of the Site. This habitat forms a critical part of the complex of wetland habitat types which supports the SINC designation within the Site, falling within the broad habitat category "Fen, Marsh and Swamp" as defined within the Wildlife Site Guidance Wales (Wales Partnership, 2008). It is considered that this habitat primarily falls under the definition of the Section 7 Priority Habitat (Reedbeds) (BRIG (ed. Ant Maddock) 2008, revised 2011)	
Marshy grassland	An area of marshy grassland was recorded within the Site, with similar plant species composition to the swamp habitat, but with a greater abundance of grasses (cock's-foot *Dactylus glomerata* and false-oat grass *Arrhenatherum elatius* were particularly notable), but mostly characterised by abundant meadowsweet and hemp-agrimony. Occasional small stands of a tall sedge species and, rare-occasional tussocks of purple moor grass also were noted. This habitat is in a transitional state and based on the 2025 Botanical Survey Report of the Site (Stantec, 2025) could equally fit into the phase 1 habitat type "swamp". This habitat forms part of the complex of wetland habitat types which supports the SINC designation within the Site, falling within the broad habitat category "Fen, Marsh and Swamp" as defined within the Wildlife Site Guidance Wales (Wales Partnership, 2008). Whilst this habitat is not technically reedbed, the Priority Habitat definition for Reedbeds (BRIG (ed. Ant Maddock) 2008, revised 2011) encompasses associated habitats with which reedbeds form a mosaic, stating that: 'They [reedbeds] tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them'. This habitat is therefore valued in this context as a Priority Habitat.	County
Dense scrub	Dense scrub was present across the Site and appears largely to have spread from the original field boundaries. The scrub is dominated by far by willow *Salix spp*. The distribution was still largely linear and lacks a canopy structure, so has been assigned as scrub, but would develop into carr (wet) woodland with time. Whilst this habitat is not technically reedbed, the Priority Habitat definition for Reedbeds (BRIG (ed. Ant Maddock) 2008, revised 2011) encompasses associated habitats with which reedbeds form a mosaic, stating that: 'They [reedbeds] tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them'. At present the dense scrub is encroaching into the Reedbed complex, and has the potential to result in a transition towards carr woodland, which would be detrimental to the habitats for which the SINC was designated. This is reflected in the evaluation of this habitat type. However, it is considered that this habitat may, if managed as part of the wetland complex, form part of the Reedbed Priority Habitat.	Local
Standing water	This habitat comprised ponds and ditches. Three small ponds were recorded on the Site; these appeared to have been balancing ponds associated with the existing sub-station compound.	County

Phase 1 Habitat Type	Summary Description and Rationale for Evaluation	Importance
	This habitat forms part of the complex of wetland habitat types which supports the SINC designation within the Site, falling within the broad habitat category "Fen, Marsh and Swamp" as defined within the Wildlife Site Guidance Wales (Wales Partnership, 2008). Whilst this habitat is not technically reedbed, the Priority Habitat definition for Reedbeds (BRIG (ed. Ant Maddock) 2008, revised 2011) encompasses associated habitats with which reedbeds form a mosaic, stating that: 'They [reedbeds] tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them'.	
Semi-improved neutral grassland	A small area of drier grassland was present in the north-east of the Site. This was unmanaged with a tall sward, with scrub invading from margins. Bird's-foot trefoil *Lotus corniculatus*, cow parsley *Anthriscus sylvestris*, hogweed *Heracleum sphondylium* and common knapweed *Centaurea nigra* were the most apparent broadleaved species. This area is small in extent with limited species diversity.	Less than Local
Ephemeral/ short perennial	Ephemeral/ short perennial was present along tracks that run through the Site and includes bare ground that has become colonised by short grass and other low lying herbaceous vegetation.	Less than Local
Hardstanding	Hardstanding was recorded in association with the substation, main access track and car park area.	Negligible

3.4 Evidence of Habitat Change within the Site

3.4.1 As described above, the majority of habitats within the Site fall within the boundary of the J38 Wetland Complex SINC which is designated for the complex of wetland habitats within the SINC, the majority of those that fall within the Site falling within the description of the Priority Habitat type "Reedbed". A comparison of habitat extents recorded within the Site in 2024-2025 (**Figure 5**) with the habitat mapping submitted with the 2009 planning application (National Grid, 2009) and the designation information for the Junction 38 Wetland Complex SINC shows that habitats have changed through time, with the extent of reedbed (swamp) and willow scrub increasing since 2009; drier semi-natural grassland which was present in the Site in 2009 has been replaced by marshy grassland and swamp, with encroaching willow scrub.

3.4.2 It is considered likely that this change in habitats is as a result of the poor-functioning of the ditches in the Site and surface water drainage (or lack thereof), which combined with the understanding of the hydrology and hydrogeology of the Site (see subsequent paragraph) has resulted in retention of surface water within the Site and a concurrent response in the vegetation composition. This is also supported by observations from the NGET team (Laing O Rourke pers comm. June 2025) that the ditches through the Site are blocked where they would otherwise drain surface water into the Upper Mother Ditch, which is the main functioning ditch around the perimeter of the Site that takes water draining north and then west towards Tata's land holding and the sea beyond. Furthermore, the lack of active management of habitats within the Site has also allowed the willow scrub to increase its extent and dominance across the Site.

3.4.3 The Hydrogeological Impact Assessment for the proposed development described the baseline hydrology and hydrogeology of the Site. It describes how the presence of clay at surface indicates that the wetland habitats present within the Site are primarily being fed by surface water run-off due to impeded drainage, as opposed to groundwater baseflow, although given the limited thickness of the clay in places some groundwater input cannot be entirely ruled out. However, the Site drainage network is also considered to be primarily within the loam soils and clay superficials and therefore will receive limited groundwater baseflow. The assessment of the baseline situation described in the Hydrogeological Impact Assessment is supported by the observation of poorly functioning ditches resulting in water retention within the site and the response seen in the change of vegetation within the Site over time.

3.5 A Note Regarding Peat

3.5.1 Whilst not strictly relating to the (surface) ecological baseline described in the tables above, a note is included in this baseline section of the Ecological Impact Assessment with regards to peat presence within the Site. This is because the presence of peat within the site was raised as a particular point of concern by NPTC during early discussions regarding the Proposed Development. It is useful to confirm the situation with regards to peat within this baseline section of the EcIA, such that the confirmed position can be clearly understood. The Peat Management Plan (WRC, 2025) describes that ground investigations have confirmed peat soil at the Site is buried at a variety of depths, with areas of shallow peat starting from 0.2 m below ground level (bgl), with the deepest records at 3 m bgl. The presence of buried peat means that none of the peat deposits are 'active' i.e. they are not actively sequestering carbon as they have no active vegetation layer (e.g. sphagnum moss) present. However buried peat, such as that recorded within the Site, remains a carbon store whilst kept waterlogged and not in contact with oxygen in the atmosphere. Potential impacts on peat and the mitigation measures that will be employed to avoid or minimise any adverse impacts are considered in this EcIA, as part of the discussion regarding operational impacts on the J38 Wetland Complex SINC.

3.6 Protected and Notable Species

3.6.1 **Table 3.3** summarises the results of the desk study and field survey with respect to species, including an evaluation of their importance.

3.6.2 Species have been scoped out of this report when no records were returned for the species during the desk study and no habitats with suitability to support the species was present on the Site.

Table 3.3: Summary of Protected and Notable Species

Species/ Species Group	Summary Description and Rational	Importance
Badger *Meles meles*	The desk study returned records of badger for the study area, mainly from road mortalities along the M4, the closest record is of a sighting from Margam Crematorium located approximately 650 m southwest of the Site. A badger survey conducted on the Tata Steel land to the west of the Site in 2022/ 2023 identified an active outlier badger sett with one entrance hole, as well as latrines, runs and a badger footprint. No evidence of badger setts or field signs (e.g. latrines, hairs) were recorded during the PEA survey. The scrub present on the Site provides suitable opportunities for sett creation, where not inundated with water. Habitats including swamp, marshy grassland and scrub is suitable to support foraging and there is ecological connectivity from the Site to suitable habitat in the surrounding area to support commuting badger. Although no badger setts or field signs were recorded on the Site, as badgers are highly mobile species and some habitat suitability has been recorded, there is potential that badgers use the Site for foraging and commuting on an occasional basis.	Less than Local
Otter	The desk study returned two records of otter for the study area, with the closest record located 1.3 km east of the Site on the other side of the M4 with Margam Country Park. The citation for the SINC located within the Site lists otter as an important species. No evidence of otter was recorded during the 2007 survey undertaken for the 2009 application. The surveys undertaken for the Tata Steel land were undertaken in October 2021 and April 2022. Habitat suitable for otter including a ditch network and lagoon was identified, but no evidence of otter was recorded.	Less than Local

Species/ Species Group	Summary Description and Rational	Importance
	No evidence of otter was recorded during the 2024/2025 surveys. It can't be ruled out that otter may pass through the Site on occasion, due to the ditch system's connectivity to the Eglwys Nynydd Reservoir to the south of the Site. However, the low number of records of otter reported by the data search, and lack of any evidence of otter activity within the Site, suggests that otters are unlikely to be resident at the Site. This is consistent with the conclusions of previous surveys for the Site and Tata Steel land.	
Water vole	The desk study found no records of water vole in the study area over the past ten years. Historic records were noted, with the closest sighting on Margam Moors, 1.6 km southwest of the Site from pre-1980. The SINC citation within the Site lists water vole as an important species. A survey for the 2009 application, conducted in October 2007, sighted a water vole in the north of the Site, along with fresh feeding remains. Additional signs included disused burrows and droppings on the Upper Mother Ditch. Surveys on Tata Steel land in October 2021 and April 2022 identified suitable habitat for water vole but found no evidence of water vole. The Site's complex of wetland habitats offers suitable habitat for water vole, especially for foraging and above-ground nesting. Most ditches have limited suitability for burrowing due to shallow banks and water levels, except for the bunded bank in the northwest area. The Upper Mother Ditch provides the best conditions for water voles, with suitable banks, foraging resources, and open water. Overall, the Site offers moderate suitability for water vole. Potential water vole field signs recorded during the 2024 surveys included a run to a nearby waterbody, several feeding stations of varying sizes and three potential water vole burrows. No latrines, nests, or droppings/latrine were found, but the feeding stations suggested the presence of voles. Based on the presence of a complex of wetland habitats of moderate suitability for water vole but the relatively low incidence of potential fields signs being recorded and an absence of latrines, the 2025 survey results suggested water vole were likely present with a low population density. This conclusion was in accordance with the water vole mitigation handbook (Dean et al. 2016) and was consistent with previous survey findings used to support the 2009 application at the Site and on a precautionary basis a low population of water voles have been assumed to be present within the Site for the purposes of this EcIA. During the completion of water vole mitigation works of the permitted development works area ("Early Works") within the Site in Spring 2025, undertaken under licence from NRW and through permitted development rights by NGET, no water voles were captured from the Early Works area within the Site. Though no water voles were found within the works area, this does not preclude that water voles are absent from suitable habitat in the surrounding area.	Local
Bats	The desk study returned 95 records of bat species; of the 95 records, 26 are from roosts, all within the Margam Country Park, and include the following species: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, whiskered *Myotis mystacinus*, brown long-eared *Plecotus auritus*, lesser horseshoe, Daubenton's *Myotis daubentonii*, noctule *Nycatalus noctula* and Nathusius' pipistrelle *Pipistrellus nathusii*. The closest roost records are of common pipistrelle, soprano pipistrelle, whiskered and brown long-eared located approximately 1 km east of the Site within Margam cottage. The lesser horseshoe roost record is for a maternity roost within the Margam Park apple store, located approximately 1.2 km east of the Site. NPTC's Ecologist advised of a recent record of a lesser horseshoe roost (likely	Local

Species/ Species Group	Summary Description and Rational	Importance
	maternity roost) at Kenfig Industrial Estate, approximately 2.5 km south of the Site. NPTC's ecologist also advised of a further lesser horseshoe roost in a farm building less than 1 km to the east. A review of the information relating to that record via the planning portal identified that this record related to a single lesser horseshoe bat. The Margam Country Park SINC, located 0.8 km from the Site, is noted to support 14 species of bat including the lesser horseshoe, greater horseshoe *Rhinolophus ferrumequinum* and barbastelle *Barbastella barbastellus*. Surveys conducted for Tata Steel land to the west of the Site in 2023 and 2024 identified no roosting bats, however, activity surveys identified at least five bat species using the survey area for foraging and commuting. Surveys undertaken in 2025 within the Site classified two buildings within the substation as having low suitability for roosting bats and the other two buildings were assessed as having negligible suitability. A subsequent emergence survey undertaken in June 2025 recorded no bats emerging from these buildings. No trees within the Site were recorded to support potential bat roost features. Bat activity across the survey area (encompassing the Site and the adjacent land to the south owned by BOC) recorded during activity surveys (Night-time Bat Walkover and Static Automated Bat Detector Surveys April and May 2025) was relatively low with the majority of activity from common pipistrelle and soprano pipistrelle. Other species recorded included lesser horseshoe, brown long-eared, noctule, Myotis sp. and serotine *Eptesicus serotinus*. The bat species assemblage recorded within the survey area during the activity surveys provides a survey area score of 13 (using methods outlined in Reason and Wray, 2023). This score is considered relatively low for both West Glamorgan and South Wales, and below the county importance threshold of 20. This score remains below 20 even if all Myotis spp. were to be included in the calculation. The most notable species (in terms of conservation status) recorded during the activity surveys was the lesser horseshoe bat, which was widespread but patchy across the survey area, favouring areas with dense scrub. However, lesser horseshoe bat activity was generally low, with most recordings indicating commuting bats. There was no evidence of sustained foraging or regularly used feeding areas. There is therefore no evidence the survey area is within a Core Sustenance Zone for lesser horseshoe bats i.e. there is no evidence that the Site is in regular use by lesser horseshoe bats, such as those from the maternity colony at Margam Park. Whilst small day roosts for lesser horseshoe bats may be present nearer the Site, there is no evidence of roosts present on Site and there is no evidence that the Site is within a core home range area for this species.	
Hazel dormouse	The desk study returned no records of hazel dormouse for the study area and were not considered during the 2009 application. Surveys undertaken between October and November 2021 and between April and September 2022 on the Tata Steel land recorded no signs of hazel dormouse. The scrub within the Site combined with the woodland to the east of the Site have suitability to support hazel dormouse; however, these habitats are not well-connected connected to other similar habitats in the wider area which would be required to support and sustain a dormouse population. Whilst the scrub and adjacent woodland does have some suitability for dormouse, there is a lack of connectivity to other habitats in the wider area. This, combined with the lack of records within the study area, the lack of	N/A

Species/ Species Group	Summary Description and Rational	Importance
	signs of hazel dormouse during the Tata Steel surveys, and the fact that hazel dormouse are considered rare within Neath Port Talbot means that hazel dormouse are considered likely absent from the Site, as such, will not be considered further within this EcIA.	
Breeding birds	The desk study returned a total of 50 bird species for the study area. Species recorded included a range of common and widespread species as well as a number of rarer species, including barn owl and marsh harrier *Circus aeruginosus* which were both recorded within or directly adjacent to the Site. The breeding bird survey completed in 2008 for the Site recorded a total of 31 bird species, with an estimated 15 species likely to be using habitats within the Site for breeding or for foraging whilst rearing chicks nearby. This included the following notable species: Cetti's warbler, kingfisher *Alcedo atthis* (foraging only), bullfinch *Pyrrhula pyrrhula*, reed bunting *Emberiza schoeniclus*, dunnock *Prunella modularis*, goldcrest *Regulus regulus*, kestrel *Falco tinnunculus* and willow warbler *Phylloscopus trochilus*. Breeding bird surveys conducted for Tata Steel land in 2022 recorded 36 species likely to be breeding within the Tata Steel site, including potential breeding by Cetti's warbler and peregrine falcon *Falco peregrinus*, which are Schedule 1 listed bird species. The Tata Steel site was assessed as being of local importance for breeding birds. The breeding bird survey of the Site undertaken in the 2024 breeding season recorded a total 25 bird species, with 22 species confirmed as probable or possible breeding species and with the majority of bird activity focussed in areas of reedbed and densely vegetated scrub and woodland habitats. Of the 25 species recorded during the surveys, 8 species are species of conservation concern. These included Cetti's warbler which is specially protected under Schedule 1 of the Wildlife and Countryside Act (1981, as amended) and bullfinch, wood pigeon *Columba palumbus*, sedge warbler *Acrocephalus schoenobaenus*, willow warbler, whitethroat *Curruca communis*, dunnock *Prunella modularis* and wren *Troglodytes troglodytes* which are all species included on the Birds of Conservation Concern (BoCC) Amber list. Despite Cetti's warbler being included as a Schedule 1 breeding species, this species has been increasing its range within the UK and is now relatively widespread. Bullfinch, wood pigeon, sedge warbler, willow warbler, whitethroat, dunnock and wren are principally included on the BoCC Amber list owing to declines in their population sizes but remain relatively common and widespread species within the UK. The remainder of the other bird species recorded were all relatively common and widespread species.	Local
Wintering birds	Wintering bird surveys conducted for Tata Steel in 2021 and 2022, recorded 20 notable species utilising the area to the west of the site. The species assemblage was typical for the habitats within that Site. Of the 40 species recorded during the field survey undertaken across the Proposed Development Site and the adjacent land to the south owned by BOC Ltd, the majority comprised common and widespread species typical of similar and suitable habitat in the surrounding area; two of these were recorded from just outside the survey area. None of the species listed as qualifying features of the Eglwys Nunydd Reservoir SSSI were recorded during the wintering bird surveys and, therefore, the site is not considered provide a supporting role to the wintering bird populations of that SSSI. The wintering bird population was evenly distributed throughout the site with passerines recorded in greater numbers within denser scrub cover and	Local

Species/ Species Group	Summary Description and Rational	Importance
	areas bordering broadleaf continuous woodland to the east. Species including Cetti's warbler, water rail and moorhen were found within of close to areas of standing water whilst snipe were found to be using areas of swamp and marshy grassland habitat. Other species such buzzard, little egret and three gull species were recorded flying over the site but did not interact with it. Two Schedule 1 species were recorded: Cetti's warbler and redwing *Turdus iliacus*. Schedule 1 refers to breeding birds only and, redwing are not known to breed in Wales. As such it is likely the individuals recorded will have been present in the area during the winter or on passage only. Neither species are of particular conservation concern, being listed as 'green' within the Birds of Conservation Concern Wales 4 (BoCCW4) list (Johnstone *et al.* 2022). One EC Birds Directive Annex I species was recorded: little egret *Egretta garzetta*. However, only one individual was recorded on the Site during one survey visit, indicating that this site of not of particular importance for the species. This species is locally common and becoming increasingly frequent in the local area (Bradshaw *et al.* 2024) Seven species are species of principal importance in Wales, as defined by Section 7 of the Environment (Wales) Act 2016 were recorded: herring gull *Larus argentatus*, kestrel, dunnock, bullfinch, linnet *Linaria cannabina*, redpoll *Acanthis flammea*, and reed bunting. Whilst these are considered to be priority species for conservation, they are all comparatively numerous species in the local area. Five species recorded are included in the BoCCW4 Red List: herring gull, lesser black-backed gull *Larus fuscus*, kestrel, meadow pipit *Anthus pratensis*, and linnet. Twelve species are included in the BoCCW4 Amber list: water rail *Rallus aquaticus*, snipe *Gallinago gallinago*, common gull *Larus canus,* little egret, magpie *Pica pica*, coal tit *Periparus ater*, goldcrest, dunnock, grey wagtail *Motacilla cinerea*, chaffinch *Fringilla coelebs*, bullfinch and redpoll. The wintering bird assemblage recorded within and in close proximity to the site is considered to be of local importance and consists of widespread and common species expected within the context of similar habitats within this area.	
Reptiles	The desk study returned records of common lizard, slow worm *Anguis fragilis*, adder and grass snake. The surveys undertaken for the 2009 application (National Grid, 2009) recorded a peak adult count of one grass snake and two common lizards but concluded a high population of grass snake and common lizard, based on a precautionary evaluation of populations present. Although no slow worms were recorded, the report states that they are likely present in the area due to the suitability of the habitat. The surveys undertaken for the Tata Steel land (RSK Biocensus, 2024) recorded three species of reptile (grass snake, common lizard and slow worm) with a low population estimate for grass snake (peak adult count of 1) and a good population estimate for both common lizard and slow worm (peak adult counts of 10 and 19 respectively). The SINC located within the Site noted grass snake and common lizard as important species and the Margam Country Park SINC located 0.8km from the Site, although separated by the M4, noted adder as an important species. NPTC's Ecologist also advised of prior records of slow worm from within the Site, from prior translocation work more than 10 years ago.	County

Species/ Species Group	Summary Description and Rational	Importance
	The survey of the Site for reptiles undertaken in autumn 2024 and in spring 2025 recorded a peak count of two adult common lizard and one slow worm from the Site. The presence of male, female and juvenile common lizard confirmed a breeding population of this species within the Site. Reptiles captured during a reptile translocation exercise undertaken by RSK on behalf of Laing O Rourke prior to commencement of Permitted Development Works within the Site in spring 2025 recorded low numbers of common lizard (three), slow worm (five) and grass snake (two); actual capture numbers of adults as indicated in brackets. Juvenile slow worm (two) were also captured, confirming breeding status of this species within the Site. Combining the results of all survey and the reptile translocation exercise, the Site supports low populations of three species of reptile. As such, the Site meets the criteria for a Key Reptile Site and would qualify for SINC status (County value) on that basis, as discussed with Neath Port Talbot Council's Ecologist. This evaluation is also consistent with reptiles being one of the important species associated with the Site in the J38 Wetland Complex SINC designation description.	
Amphibians including great crested newt and toads	The desk study returned records for great crested newt *Triturus cristatus* and common toad *Bufo bufo* for the study area. The closest record pertained to four individual adult great crested newt, recorded in 2005 approximately 450 m west of the Site. The surveys reported in the 2009 planning application for the Site found no evidence of great crested newt and recorded fish from a number of ditches within the Site, including the Upper Mother Ditch. Great crested newt surveys were undertaken within the Tata Steel landholding, included surveys of three water bodies within 250m of the BOC land, as well as a number of waterbodies across the Tata Steel landholding. All of the waterbodies surveyed, aside from one, returned a negative result for great crested newt eDNA. This included the waterbody likely associated with the record returned from the local records centre which was found to no longer support great crested newt. The waterbody that returned a positive result is located within a dune system located approximately 1.8 km south-west of the Site. The two ponds located within the Tata Steel golf course to the north of the Site concluded Good and Average suitability for great crested newt. Negative eDNA results from the fourteen waterbodies sampled within the Site and within 250 m determined likely absence of great crested newt. Taking into account the negative eDNA survey results, along with historical survey data for the Site (submitted with the 2009 planning application) also recording "likely absence" for great crested newt, and recent survey work undertaken on behalf of Tata Steel on land adjacent to the Site also recording "likely absence" for great crested newt, it is considered that great crested newt are likely absent from the Site. The Site has suitability for common toad and are likely to be present on the Site.	Less than Local (Toads)
Fish	The desk study returned one record of brown trout *Salmo trutta* located within the Afon Cynfigg, approximately 2.6 km south of the Site. The surveys reported in the 2009 planning application for the Site reported the presence of fish within the ditches with larger species observed in the Upper Mother Ditch. No indication of which fish species were noted. During the Tata Steel surveys the lagoon on-site was assessed as providing suitable habitat for a population of fish species.	Local

Species/ Species Group	Summary Description and Rational	Importance
	The ditches on the Site and the BOC land have suitability for fish species, with the Upper Mother Ditch noted as being the most suitable. The ditches especially the Upper Mother Ditch has suitability to support European eel *Anguilla anguilla*. Given the extensive ditch network at the Site and connectivity with similar off-site habitats, and the presence of fish species recorded at the Site on previous surveys, it is likely that fish are present at the Site with populations focused on the Upper Mother Ditch and the presence of European eel cannot be ruled out.	
Invertebrates	The desk study returned numerous records of species listed on the International Union for Conservation of Nature (IUCN) Red List invertebrate species and SPI species within 2 km of the Site. The surveys reported in the 2009 planning application for the Site identified the presence of 402 species of invertebrate, many of these were common and widespread species, with a large proportion being associated with the wetland habitats present at the Site. Two Priority Species were recorded: the brown banded carder-bee *Bombus humilis* and the shrill carder-bee *Bombus sylvarum*. An invertebrate assessment conducted at the Tata Steel site in 2022 recorded a total of 414 species, of which 28 species are recorded to have national status including scarce butterfly and bee species. Species with the greatest conservation concern recorded were the wall brown butterfly *Lasiommata megera* and the shrill carder bee. The assessment concluded that the area surveyed was of regional importance for invertebrate assemblages. The surveys undertaken on the Proposed Development Site recorded 140 species in total including the following notable species: ▪ A solitary wasp *Argogorytes fargeii* Notable A ▪ Small heath *Coenonympha pamphilus* IUCN GB Post 2001 NT, Env (Wales) Act S7 ▪ A whirligig beetle *Gyrinus suffriani* IUCN GB Post 2001 VU ▪ Wall butterfly IUCN GB Post 2001 NT, Env (Wales) Act S7 ▪ Bleeding heart spider *Nigma puella* IUCN GB Post 2001 LC, NS ▪ A rove beetle *Paederus fuscipes* Notable B ▪ A weevil *Polydrusus formosus* Notable A ▪ Scarce cardinal beetle *Schizotus pectinicornis* IUCN GB Post 2001 LC, NR ▪ Cinnabar moth *Tyria jacobaeae* Env (Wales) Act S7 In accordance with criteria set out in Plant (undated) the Site was provisionally assessed as being of County importance. Analysis using Natural England's Pantheon tool determined that none of the specific assemblage types meet SSSI criteria. However, taking into account of the desk study findings, along with the May 2025 survey findings, it is assumed	Regional

Species/ Species Group	Summary Description and Rational	Importance
	that an evaluation of Regional importance may be achieved for the Site once all surveys are complete (i.e. taking account of mid and late summer survey findings).	
Other Species of Principal Importance (SPIs)	The desk study returned records for hedgehog *Erinaceus europaeus*, brown hare, harvest mouse *Micromys minutus* and polecat *Mustela putorius* with a record for harvest mouse within the Site and polecat located approximately 500 m east of the Site. The Site including reedbeds, grassland and scrub has suitability for sheltering/nesting/hibernating, foraging and commuting hedgehog, harvest mouse and polecat. The Site's habitats provide limited opportunities for foraging and commuting brown hare. Harvest mouse nests have been recorded by Ecological Clerk of Works supervising targeted Ground Investigation Works being undertaken within the Site. Harvest mouse have been confirmed on the Site and it is considered likely that hedgehog are present on the Site. Also given their large territory size (up to 500ha for males) (Mammal Society, undated) polecat are considered to have the potential to forage and commute within the Site. It is considered highly unlikely that brown hare would be present at the Site given the lack of suitable habitat.	Less than Local
Invasive non-native species	The desk study returned a records of Himalayan cotoneaster *Cotoneaster simonsii*, Himalayan balsam *Impatiens glandulifera*, Japanese knotweed *Fallopia japonica*, montbretia *Crocosmia x crocosmiiflora*, Japanese rose *Rosa rugosa*, wall cotoneaster *Cotoneaster horizontalis* and Canadian waterweed *Elodea canadensis* for the study area. Himalayan balsam was identified during the PEA 580 m south of the Site and Japanese knotweed was identified 630 m south of the Site adjacent to a ditch and turning area along Heolcae'r- Bont road. No invasive non-native species were identified on the Site. As invasive non-native species have no nature conservation value they will not be valued using the same approach as the other biodiversity features. Although, as it is an offence to cause their spread in the wild, they are considered in this EcIA from the perspective of legislative compliance.	N/A

3.7 Summary of Important Ecological Features

3.7.1 A summary of the evaluation of the above ecological features with reference to the geographical framework defined in **Section 2.7** is provided in **Table 3.4**. Those ecological features identified of Local value and above are considered to be Important Ecological Features which are taken forward in this assessment. Where ecological features require mitigation in order to enable legal compliance, these features are considered in the assessment for this purpose, even if their value is less than Local.

Table 3.4: Summary of the Evaluation of the Ecological Features

Ecological Feature	Importance
Designated Sites	
Kenfig/ Cynffig SAC	International
Glaswelltiroedd Cefn Cribwr / Cefn Cribwr Grasslands SAC	International
Crymlyn Bog / Cors Crymlyn SAC	International

Ecological Feature	Importance
Crymlyn Bog Ramsar	International
Eglwys Nunydd Reservoir SSSI	National
Margam Moors SSSI	National
Cynffig/ Kenfig SSSI	National
Kenfig Pools and Dunes NNR	National
Kenfig Pools and Dunes LNR	County
Junction 38 Wetland Complex SINC	County
Eglwys Nunydd SINC	County
Margam Country Park SINC	County
Habitats	
Swamp, marshy grassland and standing water	County
Dense scrub	Local
Semi-improved grassland, ephemeral/ short perennial and hardstanding	Less than Local or Negligible
Species	
Badger	Less than Local
Otter	Less than Local
Water vole	Local
Bats	Local
Hazel dormouse	Negligible
Breeding birds	Local
Wintering birds	Local
Reptiles	County
Amphibians	Less than Local
Fish	Local
Invertebrates	Regional
Other SPIs	Less than Local
Invasive non-native species	N/A

4 Impact Assessment, Mitigation and Compensation

4.1 Overview

4.1.1 The following section considers the impacts and subsequent ecological effects of the Proposed Development (**Section 1.2**) during both construction and operation for the important ecological features identified in **Section 3**. Where impacts are identified, appropriate avoidance and mitigation measures are described. Where significant residual effects remain after mitigation, the compensation measures required to ameliorate those effects are confirmed, along with the measures being proposed, in order to deliver a net biodiversity benefit.

4.1.2 It is appropriate to reiterate at this point that this Ecological Impact Assessment (EcIA) considers the impacts associated with the Proposed Development only and not those associated with the Permitted Development works ("Early Works") taking place ahead of and in parallel with the Proposed Development. The assessment considers and presents the impacts of the Proposed Development based on the "pre-works" (i.e. pre-Early Works) ecological baseline, in line with good practice guidance (CIEEM, 2024), taking into account those Proposed Development works which overlap with the footprint of the Early Works.

4.1.3 In practice, the Proposed Development works will proceed without restoration of the Site following the Early Works. Certain ecological mitigation measures described in this EcIA, such as species translocation and habitat enhancement relating to reptiles and water vole, have already been implemented under NGET's Permitted Development rights. These Early Works have been carried out in accordance with relevant legislation and best practice guidance, and have been subject to appropriate licensing and oversight by suitably qualified ecologists (RSK Biocensus, working with Laing O'Rourke).

4.1.4 Where relevant to the delivery of the Proposed Development, this EcIA has taken full account of the ecological implications of the Early Works and associated ecological mitigation. This includes consideration of protected species and habitat condition within areas where the permanent works footprint overlaps with the Early Works area. This approach means that all relevant impacts associated with the Proposed Development are addressed and that mitigation and compensation measures for the Proposed Development are appropriately considered within this EcIA.

4.1.5 It is also worth noting that the assessment assumes, based on advice from the Contractor, that working areas required to deliver the permanent works illustrated at **Appendix A** fall within the footprint of the proposed built development / permanent works areas and that the only impacts outside the proposed built development/ permanent works footprint relate to:

- Temporary impacts/measures during construction of the permanent works to deal with surface water runoff from the working areas; and
- The areas proposed for the delivery of measures for net biodiversity benefit including wildlife tower, gabion baskets.

4.1.6 Note that the description of the Proposed Development also includes the delivery of landscaping and drainage design within the Site and these aspects are also considered in this EcIA.

4.1.7 Lastly, at the time of the PAC submission and the production of this EcIA, certain aspects of the design (e.g. the drainage design) remain at a preliminary stage. Accordingly, this EcIA has been based on the current Proposed Site Plan (MARPT-BHK-01-ZZ-DG-A-130023 – see **Appendix A**). Any subsequent changes to the design from that shown in the Proposed Site Plan will require a review of ecological implications and associated mitigation measures, to maintain the validity of the conclusions of the assessment presented in this EcIA.

4.2 Avoidance and Embedded Mitigation

4.2.1 With reference to the mitigation hierarchy, the scheme has been designed to avoid ecological impacts as far as possible in the first instance.

4.2.2 **Section 5** provides more detail on the consideration of the stepwise process in determining the preferred option for the location of the Proposed Development. All the potentially feasible options for delivery of a new substation to the NGET network in the area were considered in a Siting Study (Stantec, 2025). The Proposed Development was selected as the least environmentally damaging and most technically viable option. The Siting Study demonstrated that it was not possible to avoid impacts on the Junction 38 Wetland Complex SINC.

4.2.3 Subsequent to the Siting Study, impact avoidance measures incorporated into the Design of the Proposed Development included the following:

- Designing the sub-station extension in order to minimise the footprint of the built development. This approach was taken for the design to minimise the direct impact of the Proposed Development on the J38 Wetland Complex SINC.
- Delivery of the Proposed Development as an extension to the existing substation enabled the use of existing access routes, minimising the need for new road construction for the Proposed Development.
- Substation details including lighting design to minimise indirect effects onto retained areas of SINC.
- Diversion of ditches affected by the Proposed Development to enable maintenance and enhancement of hydrology and ecology of retained area of SINC. A preliminary drainage ditch design is provided in the Margam Drainage Report (Baker Hicks, 2025c).
- A drainage strategy based on an attenuated discharge to the local drainage network has been developed to demonstrate the feasibility of the proposed Sustainable Drainage System (SUDS) solution (Baker Hicks, June 2025a). SUDS Approving Body (SAB) approval of the drainage scheme will be sought in parallel to the planning application for the proposed extension of Margam Substation.

4.2.4 Furthermore, a series of plans and strategies will be implemented during construction and operation which describe the key issues and the measures implemented to avoid and minimise impacts and deliver net biodiversity benefit. It is anticipated that these plans and strategies will be secured through appropriate planning mechanisms e.g. condition and/or Section 106.

- Construction Environmental Management Plan (Laing O Rourke, 2025a)
- Construction Logistics Plan (Laing O Rourke, June 2025b)
- Surface Water Management Plan (Laing O Rourke, June 2025d)
- Waste Management Plan (Laing O Rourke, 2025c)
- Peat Management Plan (WRC, 2025)
- Landscape and Habitat Strategy Plan (Stantec, 2025f)
- Landscape Detailed Designs (provided in Stantec (2025e))
- Landscape and Habitat Management Plan. Margam Substation (Stantec, 2025e)
- Habitat Management Plan. Margam Burrows (Stantec 2025m)

4.2.5 In broad terms the first five documents above set out measures to prevent significant negative impacts arising during the constructions phase. The last four documents provide the strategy for the delivery of habitats and ecological mitigation and compensation features that are designed to deliver mitigation compensation or enhancement and provide initial designs for their delivery, along with a description of the proposals for future management and monitoring.

4.3 Potential Impacts in the Absence of Mitigation

4.3.1 Considering the potential impacts in the absence of mitigation, the following potential impacts could arise as a result of the Proposed Development during construction:

- Direct loss and disturbance to habitats and associated designated sites.
- Adverse effects to designated sites due to more distant effects e.g. air quality, noise, drainage or lighting.
- Disturbance or killing/injury to protected or notable species either due to direct impacts on habitats used by the species or due to disturbance from, for example, lighting.

4.4 Impact Assessment and Mitigation

Designated Areas – Internationally Designated Areas

4.4.1 Within approximately 10km of the central point of the Site lie a number of Internationally designated Sites (as described in **Section 3.2**). The furthest designated area from the Site is the Crymlyn Bog / Cors Crymlyn SAC and Crymlyn Bog Ramsar site, which is primarily designated for the habitats it supports, including transition mires and quaking bogs, along with calcareous fens, and supports a diverse and rare plant assemblage. The SAC and Ramsar site lie just over 10 km north of the central point of the Site and is separated from the Site by the River Neath and Port Talbot Town. There are no direct or indirect effects on the features for which these areas are designated considered likely, as a result of the Proposed Development, due to a lack of potential source-receptor pathways, therefore **no significant adverse effects** are anticipated.

4.4.2 The other Internationally designated areas within 10km are: Kenfig /Cynffig SAC (around 3 km south of the Site), which is designated primarily for its habitats present which have formed around a sand dune complex and Glaswelltiroedd Cefn Cribwr / Cefn Cribwr Grasslands SAC which is a collection of sites, the closest of which lies around 7 km to the south east of the Site and is designated primarily for its grassland interest but also due to the presence of marsh fritillary butterfly *Euphydryas (Eurodryas, Hypodryas) aurinia*. Given the nature of the Proposed Development and that there are no possible source-receptor pathways between the Proposed Development and the interest features of these two European sites, **no significant adverse effects** are anticipated.

4.4.3 These designated areas, and their constituent other designations (SSSI, NNR, LNR) are therefore scoped out of further consideration in this EcIA. A shadow Habitats Regulations Assessment screening, written in accordance with the Conservation of Habitats and Species Regulations, 2017 has also been undertaken in parallel with this EcIA to formalise the assessment that the Proposed Development will have no Likely Significant Effects on these Internationally designated areas (Stantec, 2025i).

Designated Areas – Nationally Designated Areas: Construction

4.4.4 The two Nationally designated areas lie 1km (Eglwys Reservoir SSSI) and just over 1km (Margam Moors SSSI) from the centre of the Site. There are no direct impacts from the footprint of the Proposed Development on these two designated areas, given the distance between these designated areas and the Proposed Development. However, consideration has been given to the potential for these designated areas to be affected by disturbance (noise and /or lighting arising during construction) from the construction of the Proposed Development and

consideration has also been given to potential impacts arising from water (run-off), indirect impacts on hydrology of these sites, or as a result of air pollution/deposition during construction in the paragraphs below.

4.4.5 The Air Quality Assessment (Stantec, 2025n) considers the potential impacts arising from construction including the following:

- Dust and PM10 from on-site activities and vehicle track-out.
- NO_2, PM10, and PM2.5 from construction traffic and non-road mobile machinery (NRMM).

4.4.6 The assessment concluded that, with appropriate mitigation in place, the residual effects of dust and PM10 from construction and decommissioning activities would be **not significant**. The mitigation measures include a Dust Management Plan and monitoring comprising dust soiling checks to be carried out on a daily basis, along with other standard mitigation measures recommended from the IAQM (IAQM, 2024). These measures will be incorporated into the Construction Environmental Management Plan which is anticipated to be secured by condition and implemented by the contractor accordingly.

4.4.7 With respect to predicted NO_2, PM10, and PM2.5 from construction traffic and non-road mobile machinery (NRMM), the Air Quality Assessment (Stantec, 2025) considers the potential for air quality impacts in this respect arising as a result of predicted traffic movements. Only the J38 Wetland Complex SINC lies within 200m of a road with predicted increases in traffic that may trigger the need for consideration of air quality modelling. Even then, the increased traffic flows predicted during construction are predicted to result in an increase of 20 AADT for roads which is well below the 1000 LDV AADT or 200 HGV AADT which would trigger the need for a more detailed assessment of air quality impacts. Therefore, the potential effects of NO_2, PM10, and PM2.5 from construction traffic and non-road mobile machinery (NRMM) on Eglwys Reservoir SSSI and Margam Moors SSSI is considered to be **not significant** and no mitigation is required.

4.4.8 The Construction Noise and Vibration Impact Assessment (RSK Acoustics, 2025a) modelled and predicted the potential construction-phase impacts on Margam Moors and Eglwys Reservoir SSSIs arising from the Proposed Development. Each construction task was modelled individually, with the assumption that all associated plant items operated simultaneously during that task. This approach ensured that the predictions represented a robust and conservative assessment of potential noise impacts. Based on modelling outcomes, the noise from proposed construction tasks was anticipated to remain well under 55dB. The 55dB criteria level is described in the Noise and Vibration Impact Assessment (RSK Acoustics, 2025a) as the trigger-level for potentially significant effects arising from noise on SSSIs with avifauna, based on Natural England guidance (Drewitt *et al.* 2018). For that reason, ecological effects as a result of noise impacts during construction on the Eglwys Reservoir SSSI and Margam Moors SSSI are **not significant.**

4.4.9 Lighting during construction will be subject to the controls and mitigations outlined in the CEMP (Laing O Rourke, 2025a), with the lighting focussed on illumination around the welfare and working locations only. The CEMP also outlines that even though construction lighting is temporary, due care will be given to the design of the construction phase lighting to avoid light glare and minimise impacts. Given the mitigation measures outlined in the CEMP, there are anticipated to be **no significant effects** as a result of construction phase lighting on Eglwys Reservoir SSSI and Margam Moors SSSI.

4.4.10 With regards to potential impacts on hydrology and potential impacts via run-off (e.g. through fuel spill run-off or through sediment / silt run-off), the Flood Consequence Assessment (Baker Hicks, 2025a) describes how the land in the vicinity of the Site between the elevated railway line to the west and higher ground to the east, within which the Proposed Development is sited, is drained by a network of ditches to the central 'Upper Mother Ditch'. The Upper Mother Ditch drains through a culvert beneath the railway line and the Tata Steel site, passing through a sluice 320 m to the northwest. The sluice structure comprises of a series of flow controls before leading to a culvert beneath the Tata Steel facility (the Tata Upper Mother Outlet). It is anticipated that the Tata Upper Mother Outlet discharges into Swansea Bay or is routed through

the large reservoir on the western side of the Tata Steel facility, before draining to the sea. Hydrological impacts on Eglwys Reservoir SSSI or Margam Moors SSSI are not anticipated as both are located upgradient of the Site and there is no plausible hydrological or hydrogeological pathway that would result in impacts from the Proposed Development (Baker Hicks, 2025a; Baker Hicks, 2025b). For the same reason there is no feasible route for water-borne pollutants from the Site to affect the Eglwys Reservoir SSSI and Margam Moors SSSI. Given this understanding, there are anticipated to be **no significant impacts** as a result of hydrological changes or water-borne pollutants on Eglwys Reservoir SSSI and Margam Moors SSSI.

Designated Areas –Nationally Designated Areas: Operation

4.4.11 Consideration has also been given to the potential for the two Nationally designated areas Eglwys Reservoir SSSI and Margam Moors SSSI to be affected by noise, lighting, water or air pollution during operation of the Proposed Development.

4.4.12 With regards to potential impacts arising from air pollution, the Air Quality Assessment (Stantec, 2025n) describes that there are no potential sources of dust or PM10 as a result of the operation of the substation and so this aspect is not considered further.

4.4.13 With regards to potential impacts arising from NO_2, PM10, and PM2.5 due to traffic movements, the Air Quality Assessment (Stantec, 2025n) describes that the Proposed Development will be mainly unmanned during operation and that the only operational vehicle trips associated with the Proposed Development will be from infrequent maintenance or repair works. The operational vehicle trips associated with the Proposed Development are also expected to be no more than presently associated with the Site. Therefore, the resulting effects from operational road traffic emissions will be far below those during construction and far below the traffic movements considered to trigger the need for further assessment and are therefore considered to be **not significant**.

4.4.14 With regards to potential impacts arising from NO_2, PM10, and PM2.5 during the operation of the proposed new substation extension, the Air Quality Assessment (Stantec 2025n) firstly confirms that whilst the substation will use gas for insulation, these insulation gases will not be combusted and will be contained and therefore will not give rise to any emissions to air or impacts on local air quality. The Air Quality Assessment (Stantec, 2025n) also considers the potential impacts arising from the proposed back-up power generator (diesel-fired) which is required as part of the Proposed Development in case of a power outage. Whilst due to the size of the generator (circa 1,300 kVA), the NOx emission rate screening criteria of 5 mg/sec (Environmental Protection UK and the Institute of Air Quality Management (EPUK / IAQM), 2017) would be exceeded, given the infrequent operation (1 hour tests each month), the emissions to air (of NOx and PM10/PM2.5) are considered to be **not significant** and therefore have not been assessed further.

4.4.15 The Operational Noise Impact Assessment (RSK Acoustics, 2025b) modelled and predicted the potential operational-phase noise impacts arising from the Proposed Development. The predicted noise levels for the Eglwys Reservoir SSSI and Margam Moors SSSI are modelled to be well below the significant 55dB level criteria (the criteria set in the Operational Noise Impact Assessment (RSK Acoustics, 2025b) for potential significant effects arising from noise on SSSIs, based on Natural England guidance (Drewitt *et al.* 2018)). A useful visual representation of the predicted noise levels at 4m is provided at Plate 4.1 below (extracted from the RSK Acoustics (2025b) Operational Noise Impact Assessment). Furthermore, the noise-generating items within the operational substation that are modelled are identified as the backup generator which, as described with regards to air quality impacts, is only required as part of the Proposed Development in case of power outage and is highly unlikely to be operational 24/7. Therefore, operational noise impacts on Eglwys Reservoir SSSI and Margam Moors SSSI are likely to be lower most of the time than those shown modelled in Plate 4.1. For these reasons, ecological effects as a result of noise impacts during operation on the Eglwys Reservoir SSSI and Margam Moors SSSI are **not significant.**

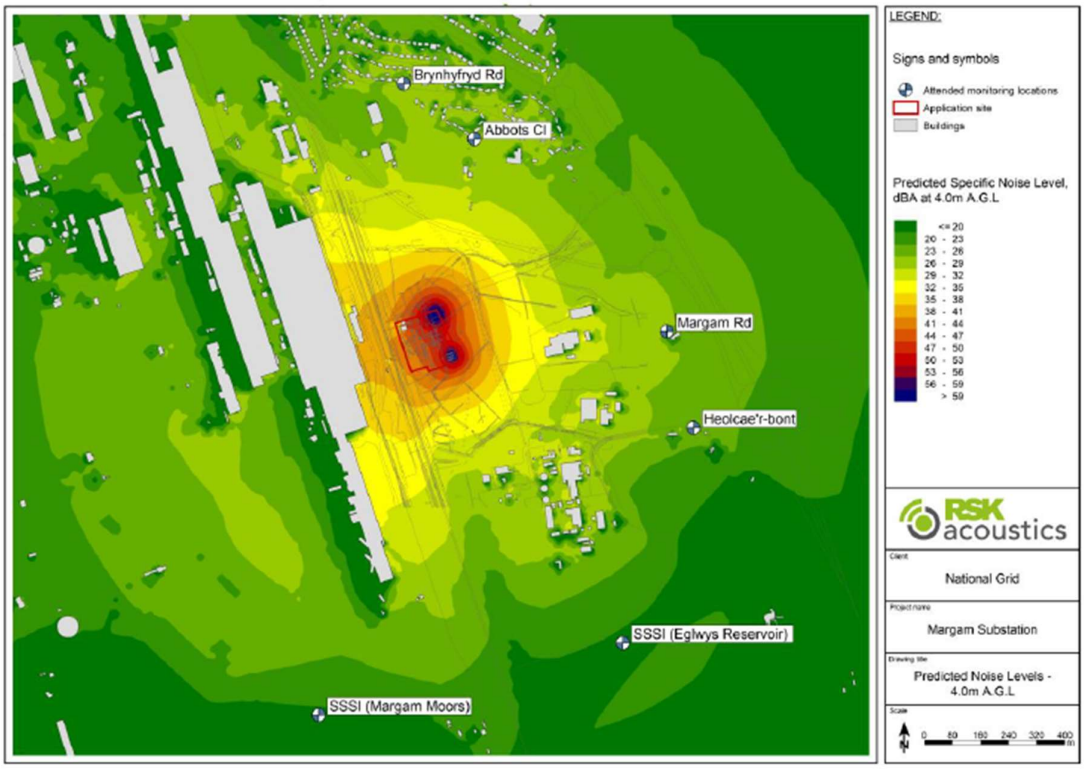


Plate 4.1 Predicted specific noise levels at 4m (extracted from RSK Acoustics (2025b) Operational Noise and Vibration Impact Assessment).

4.4.16 The Lighting Technical Note (Stantec, 2025o) considers the potential impacts of the lighting scheme design for the Proposed Development during operation. It explains that the proposed lighting design for the proposed substation has been modelled by Baker Hicks using industry standard lighting calculation software. The potential for light spill beyond the proposed substation footprint has been modelled up to 15m. Around most of the proposed substation a lighting level of 1 lux extends up to 5m from the substation footprint, extending beyond 5m only in two "hotspots" areas around the substation where the design appears to show more light fittings are proposed. However, the light spill will not reach the Eglwys Reservoir SSSI and Margam Moors SSSI. Therefore, effects from lighting on Eglwys Reservoir SSSI and Margam Moors SSSI during the operation of the Proposed Development are considered to be **not significant.**

4.4.17 As explained in relation to construction, there is no plausible hydrological pathway that would result in impacts from the Proposed Development on Eglwys Reservoir SSSI and Margam Moors SSSI (Baker Hicks, 2025a). For the same reason, there is no feasible route for water-borne pollutants from the Site to affect the Eglwys Reservoir SSSI and Margam Moors SSSI. Given this understanding, there are anticipated to be no ecological effects as a result of hydrological changes or water-borne pollutants on Eglwys Reservoir SSSI and Margam Moors SSSI during operation of the Proposed Development.

Designated Areas – Locally Designated Sites: Construction

4.4.18 No direct or indirect effects as a result of construction are anticipated on Margam Country Park SINC due to the distance of the SINC from the Proposed Development and separation from the Site by existing built development and roads. The predicted effects on Eglwys Nunydd SINC are anticipated to be the same as those described for the Eglwys Nunydd SSSI above and are therefore considered **not significant,** providing the mitigation relating to control of dust and PM10 described in the CEMP is implemented accordingly.

4.4.19 The rest of this section therefore focusses on the potential impacts of the Proposed Development on the J38 Wetland Complex SINC. At this juncture it is worth reiterating that the permanent built development elements for which planning permission is being sought are as described at **Section 1.2** and as shown in the Proposed Site Plan (MARPT-BHK-01-ZZ-DG-A-130023) and Figure showing the Permanent Development Footprint, both provided at **Appendix A.** It is understood that all works associated with delivery of the substation will take place within the Flood Wall (i.e. the footprint of the proposed sub-station extension area shown in **Appendix A**), except for the works associated with the SUDS basin and the ditch diversion and the temporary measures required to address surface water run-off during construction. This assessment does not consider impacts associated with the Permitted Development works which are progressing in advance of, and will continue in parallel with the Proposed Development (subject to approval of the Proposed Development), as discussed at **Section 3.1**. Also note that direct and indirect impacts on species associated with the J38 Wetland Complex SINC during construction are considered in the species sections below.

4.4.20 The development of the scheme design has minimised the footprint of the Proposed Development as much as possible to limit the direct impacts on the SINC. However, the Proposed Development cannot avoid a direct impact on the J38 Wetland Complex SINC. As a result, the Proposed Development will result in the permanent loss of 1.67 ha of the SINC to built development (the substation extension and new access road), representing just over 10% of the planning application boundary and 8.2 % of the SINC area. There will be a further ~0.3 ha of the wetland habitat complex affected by the footprint of the proposed SUDS (outside the SINC boundary) and proposed peat burial areas representing a further 1.47 % of the SINC area, albeit that the SUDS and peat burial areas are expected to form part of the complex of wetland habitats for which the SINC is designated, once vegetation has been planted/ re-established following the works. Furthermore, there will be a loss of 203 m of ditch to the permanent footprint of the development which will be replaced by 290 m of ditch diversion, based on the Proposed Site Plan (**Appendix A**). It is understood that the drainage design is currently at a preliminary stage of design (Baker Hicks, 2025c) and the detail of the drainage design and the implementation of the same, will be secured by Condition.

4.4.21 The habitats within the SINC (and just outside the SINC boundary within the footprint of the SUDS basin) that are to be lost to the Proposed Development include: swamp habitat dominated by reed, ditches that have been subsumed into the swamp habitat, standing water (ditches and ponds), existing trackways (ephemeral /short perennial), semi-improved grassland and dense scrub. The largest area of habitat affected is the complex of reedbed, and willow scrub. As described in the summary habitat descriptions (**Section 3.3**), the Priority Habitat definition for Reedbeds (BRIG (ed. Ant Maddock) 2008, revised 2011) encompasses associated habitats with which reedbeds form a mosaic, stating that: 'They [reedbeds] tend to incorporate areas of open water and ditches, and small areas of wet grassland and carr woodland may be associated with them'. The loss of these habitats is therefore considered to represent a loss of Reedbed Priority Habitat, albeit Reedbed Priority Habitat of low species diversity.

4.4.22 The loss of these habitats is partly addressed through the diversion of the ditches directly affected by the Proposed Development (parts of D6, D4 and D5, shown on **Figure 5**) through the scheme design, with the diverted ditch connecting the retained sections of D6 and D4 with the retained section of D5 (see **Appendix A**). The diverted ditch is also shown within the Landscape and Habitat Strategy Plan and Landscape Design (provided at **Appendix D** of the Landscape and Habitat Management Plan (Stantec, 2025e)). It is anticipated that both the Landscape and Habitat Strategy Plan and Landscape and Habitat Detailed Design are illustrative at this stage, subject to confirmation of the drainage design. It is anticipated that the drainage design, along with the final Landscape and Habitat Strategy Plan and Landscape and Habitat Detailed Design for the Site will be subject to agreement with NPTC and other relevant authorities and will be secured by Condition. Despite the delivery of the ditch diversion, which is anticipated to replace more than the ditch section lost to the Proposed Development, the permanent loss of the area of the SINC which also represents Priority Habitats, is considered an **adverse effect significant at County Level,** in the absence of any compensatory measures. Compensation measures for the loss of the habitats to the SINC and the loss of Priority Habitat are summarised at **Section 4.5** and include on-Site (i.e. within the Planning Application boundary and within the retained area of the SINC) and off-Site measures.

4.4.23 In addition to the loss of surface habitats from the SINC to the Proposed Development, the delivery of the Proposed Development will also interact with the buried peat, due to the piling works needed to deliver the scheme. In the absence of mitigation this could be a significant adverse impact resulting in the loss of peat and release of CO_2. The Peat Management Plan (WRC, 2025) provides an assessment of the expected volumes of peat soils that will require excavation to deliver the Proposed Development; of the 2,010 m^3 of peat anticipated to be encountered, it is anticipated 1,956 m^3 will be suitable for reburial. This peat soil will be reburied within the Site, within the Permitted Development works area (the peat burial areas are shown in the Proposed Permanent Development Plan provided at **Appendix A** and as described in the Peat Management Plan (WRC, 2025)). This approach means that nearly all of the buried peat impacted by the Proposed Development will be retained within the Site whilst avoiding further temporary disturbance or impacts on the SINC habitats. The immediate reburial, or careful storage followed by reburial, proposed within the Peat Management Plan, will also minimise oxidation of peat and release of CO_2 during the excavation process. Following the mitigation measures described in the Peat Management Plan (WRC, 2025) will address the Proposed Development's interaction with the buried peat and avoid significant impacts arising through the loss of peat resource and release of carbon dioxide as a result.

4.4.24 The following paragraphs consider other direct and indirect effects arising from construction of the Proposed Development on Locally Designated Sites, including potential effects from: air pollution, noise pollution, lighting and water pollution/management.

4.4.25 The Air Quality Assessment (Stantec, 2025n) considers potential impacts arising from construction including dust and PM10 from on-site activities and vehicle track-out, and from NOx, PM10 and PM2.5 from construction traffic and non-road mobile machinery. In relation to dust and PM10, the air quality assessment, following IAQM (Institute of Air Quality Management) guidance, determined that the sensitivity of the SINC to dust soiling was judged to be low. However, there is the potential for the SINC to be affected by dust arising from works during construction, in the absence of mitigation. The mitigation measures described in the Air Quality Assessment include a Dust Management Plan and monitoring comprising dust soiling checks to be carried out on a daily basis, along with other standard mitigation measures recommended by the IAQM (IAQM, 2024). These measures will be incorporated into the Construction Environmental Management Plan (Laing O Rourke, 2025a) which is anticipated to be secured by condition and implemented by the contractor accordingly. Providing these measures are secured and delivered effectively effects from dust on J38 wetland complex SINC will be **not significant.**

4.4.26 In relation to NOx, PM10 and PM2.5, from construction traffic and non-road mobile machinery (NRMM), the Air Quality Assessment (Stantec, 2025n) considers the potential for air quality impacts in this respect arising as a result of predicted traffic movements. Only the J38 Wetland Complex SINC lies within 200m of a road with predicted increases in traffic that may trigger the need for consideration of air quality modelling. However, the increased traffic flows predicted during construction will result in an increase of 20 AADT for roads which is well below the 1000 LDV AADT or 200 HDV AADT which would trigger the need for a more detailed assessment of air quality impacts. Therefore, the potential effects resulting from impacts associated with NO_2, PM10, and PM2.5 from construction traffic and non-road mobile machinery (NRMM) on J38 Wetland SINC are considered to be **not significant** and no mitigation is required.

4.4.27 The noise assessment work undertaken by RSK Acoustics (2025a) focussed on potential impacts of construction noise on statutory designated sites and showed that the modelling was based on a worst-case assumption of all noise-making construction activities happening at once, even then determining that noise impacts were not significant on statutory sites. Whilst not specifically modelled, it can be anticipated that there will be short-term noise impacts arising from construction activities on the J38 Wetland Complex SINC as a result of noise-producing activities during construction. Each of the noise-making activities are likely to have a defined period of activity within the programme, such that noise impacts are anticipated to be short-term during the construction period. Whilst these impacts are not anticipated to be significant at the County level (the value of the SINC), in the absence of mitigation, they are anticipated to be **significant at the Local level,** give the construction works are taking place within the SINC and that the SINC supports species such as breeding birds which may be sensitive to noise. The

proposed “Best Practicable Means” of reducing noise to a minimum, as described in the Construction Noise and Vibration Impact Assessment (RSK Acoustics 2025a) will be incorporated into the CEMP and implemented by the contractor accordingly to minimise the impacts of noise such that local **site-level short-term noise effects** are anticipated only which will be **significant at the Site Level** only**.**

4.4.28 Lighting during construction will be subject to the controls and mitigations outlined in the CEMP (Laing O Rourke, 2025a), with the lighting focussed on illumination around the welfare and working locations only. The CEMP also outlines that even though construction lighting is temporary, due care will be given to the design of the construction phase lighting to avoid light glare and minimise impacts. Furthermore, lighting levels will be reduced during non-working hours and kept to the minimum possible required for site security only. Automated systems will be used to switch lights on and off according to activity and ambient lighting levels. Given the mitigation measures outlined in the CEMP, there are anticipated to be effects as a result of construction phase lighting on the SINC **at the Site level only**.

4.4.29 With regards to hydrology and hydrogeology[3], there is the need for careful consideration of the potential for direct and indirect effects during construction of the Proposed Development, given that the J38 wetland complex is designated primarily for its wetland habitats. The following paragraphs consider the potential impacts during construction of the Proposed Development on both hydrological and hydrogeological conditions within the SINC and the other wetland habitats within the Site. These paragraphs also consider the potential for run-off of sediment or pollutants arising from construction activities as a result of the Proposed Development.

4.4.30 The Hydrogeological Impact Assessment (HIA) undertaken of the Proposed Development (Baker Hicks, 2025b) describes how this document has completed a baseline review of the geology, hydrogeology and hydrology of the Site to develop a "Conceptual Site Model" (CSM) which explains the functioning of the groundwater and surface water environs within the Site and is subsequently used to explore the potential hydrogeological impacts of the Proposed Development. The CSM is based on desk study data and Site Investigations (boreholes and groundwater level monitoring), and the consideration of the hydrology of the Site presented in the Flood Consequence Assessment (Baker Hicks, 2025a), as explained in the HIA.

4.4.31 The CSM within the HIA (Baker Hicks, 2025b) confirms the following of relevance to this Ecological Impact Assessment for the Proposed Development:

- That the soil horizons comprise four layers; from the surface: tidal flat deposits comprising clays overlying peat with underlying glaciofluvial deposits and cohesive clay dominated deposits. The bedrock is dominated by mudstone with subordinate siltstone and occasional coal.

- Groundwater strike data from the Site Investigations indicates that the primary aquifer was encountered within the granular glaciofluvial deposits where groundwater is being confined by the lower permeability overlying peat and clays. Given the artesian[4] nature of the groundwater it is not possible to determine groundwater flow direction, however it is likely to follow the local topography in a broadly westerly or south-westerly direction towards the coast.

- The overlying peat horizon is likely to be saturated due to upwelling of groundwater from the underlying glaciofluvial aquifer, however given the high clay content and potential impacts of compression from the overlying clay deposits at surface, groundwater flow within the peat itself it likely to be limited.

- The presence of clay at surface indicates that the wetland habitats present within the Site are primarily being fed by surface water run-off due to impeded drainage, as opposed to

[3] Hydrology refers to the study of surface water processes such as rainfall, runoff, and river flow, while hydrogeology focuses on groundwater movement and interactions within soil and rock layers.

[4] Artesian groundwater refers to water held under pressure within a confined aquifer, where impermeable layers above and below trap the water.

groundwater baseflow, although given the limited thickness of the clay in places some groundwater input cannot be entirely ruled out. However, the Site drainage network is also considered to be primarily within the loam soils and clay superficials and therefore will receive limited groundwater baseflow.

- There is considered to be no hydraulic connection between the superficial and bedrock aquifers due to the low permeability of the upper strata.

4.4.32 Given these findings, the primary consideration for the impacts on the habitats within the Site relates to surface-water hydrology. The Hydrogeological Impact Assessment (Baker Hicks, 2025b) confirms the anticipated hydrogeological impacts associated with the Proposed Development. During construction it is anticipated that short-term dewatering will take place to facilitate construction, however this will primarily be within low permeability clay deposits and therefore significant inflows are not predicted and impacts on the retained areas of the SINC are therefore anticipated to be minimal and **not significant**.

4.4.33 The Baker Hicks Flood Consequence Assessment (FCA) (Baker Hicks, 2025a) provides a review of the potential sources of flood risk at the Site to determine an appropriate design level for flood mitigation measures in the form of a flood defence wall. The FCA concludes that the displacement of floodwater by the proposed flood defence wall during the 1% (1 in 100) and 0.1% (1 in 1,000) annual exceedance probability floods when considering the impacts of climate change will have only a limited effect on the flood extent in the vicinity of the Proposed Development, with peak flood levels increased by 0.019m and 0.023m respectively. Furthermore, the detailed hydraulic modelling that informed the FCA indicates that the annual probability of the land in the vicinity of the Proposed Development flooding is between 10% (1 in 10) and 3.3% (1 in 30) and therefore the minor impact in terms of flood extents and levels arising from the displacement of floodwaters would manifest itself only very infrequently and for a limited duration. Therefore, it can be concluded that the Proposed Development will have **no significant impact** within the retained areas of the SINC by virtue of increased flood extents or levels.

4.4.34 However, given the observations of the changes in habitats within the Site and the lack of functioning drainage ditches, there is the potential for the Proposed Development to deliver during construction an improved position in relation to the surface water management within the Site. The design includes for the diversion and restoration of drainage ditches within the Site as part of the Proposed Development, including the installation of appropriate water control structures (e.g. natural weirs) where necessary. The Margam Drainage Report provides a preliminary design for the drainage within the Site and the diversion and/or restoration of the ditches. The design of the ditches is to enable surface water management and support a better balance and management of surface water to provide for a hydrological balance that supports the persistence of the wetland habitat complex and water column suitable to support emergent vegetation, while also enabling the positive management water balance through the rest of the Site with a view to encouraging development of areas of drier, more floristically diverse marshy grassland or other drier grassland communities. The landscape designs for the ditches provide an illustrative example of what can be achieved, dependent on confirmation of the engineering design. The detailed design and implementation of the drainage design, including the diverted, reinstated or managed ditches, and the landscaping design associated with those, is to be subject to Condition. The ongoing management of these ditches as part of the management of the wider Site is described further in the Operation section below and at **Section 4.5.**

4.4.35 Best practice measures for construction works will be adopted in relation to avoiding hydrological or hydrogeological impacts as a result of sediment run-off or pollution: plant and machinery will be regularly inspected and maintained to avoid accidental spillages; fuels will be stored in bunded areas. Such measures are described in the CEMP which is anticipated to be secured by condition and will be implemented by the contractor accordingly. Furthermore, there will be controls applied to discharges to ground and surface water, in accordance with the Surface Water Management Plan (Laing O Rourke, 2025d). All these controls and measures will minimise hydrological impacts and the potential for pollution events or silt release into the Site or the Upper Mother Ditch and beyond, such that resulting effects arising from hydrological and hydrogeological impacts during construction are considered **not significant.**

Designated Areas – Locally Designated Sites: Operation

4.4.36 No direct or indirect effects as a result of operation of the Proposed Development are anticipated on Margam Country Park SINC due to the distance of the SINC from the Proposed Development and separation from the Site by existing built development and roads. The predicted effects on Eglwys Nunydd SINC are anticipated to be the same as those described for the Eglwys Nunydd SSSI above and are therefore considered **not significant.**

4.4.37 The potential effects of operation of the Proposed Development that need to be considered in relation to the J38 wetland complex SINC relate to the potential for impacts arising from noise, lighting, water pollution or hydrological/hydrogeological changes, or due to air pollution. Direct and indirect impacts on species associated with the J38 Wetland Complex SINC during operation are considered in the species sections below.

4.4.38 In relation to potential impacts arising from air pollution, the Air Quality Assessment (Stantec 2025n) firstly confirms that whilst the substation will use gas for insulation, these insulation gases will not be combusted and will be contained and therefore will not give rise to any emissions to air or impacts on local air quality. The Air Quality Assessment (Stantec, 2025n) describes that there are no potential sources of dust or PM10 as a result of operation of the substation and so this aspect is not considered any further. With regards to potential impacts arising from NO_2, PM10, and PM2.5 due to traffic movements, the Air Quality Assessment (Stantec, 2025n) describes that the Proposed Development will be mainly unmanned during operation and that the only operational vehicle trips associated with the Proposed Development will be from infrequent maintenance or repair works. The operational vehicle trips associated with the Proposed Development are also expected to be no more than presently associated with the Site. Therefore, the resulting effects from impacts associated with operational road traffic emissions will be far below those during construction and far below the traffic movements considered to trigger the need for further assessment and are therefore considered to be **not significant**.

4.4.39 With regards to potential impacts arising from NO_2, PM10, and PM2.5 during the operation of the proposed new substation extension, the Air Quality Assessment (Stantec 2025n) considers the potential impacts arising from the proposed back-up power generator (diesel-fired) which is required as part of the Proposed Development in case of a power outage. Whilst due to the size of the generator (circa 1,300 kVA), the NOx emission rate screening criteria of 5 mg/sec (Environmental Protection UK and the Institute of Air Quality Management (EPUK / IAQM), 2017) would be exceeded, given the infrequent operation (1 hour tests each month), the emissions to air (of NOx and PM10/PM2.5) are considered to be **not significant** and therefore have not been assessed further.

4.4.40 With regards to impacts from noise during operation, the RSK Acoustics (2025b) Operational Noise Impact Assessment defines the 55dB level as the significant effect criteria level of noise that has the potential to result in significant effects on SSSIs, based on Natural England guidance (Drewitt *et al.* 2018). Whilst impacts on the J38 Wetland Complex SINC are not specifically described in the RSK Acoustics (2025b) report on Operational Noise Impact Assessment, the predicted specific noise levels modelled at 4m and as presented in Plate 4.1 in the preceding section considering impacts on Nationally Designated Sites, shows that a very small proportion of the retained area of the J38 Wetland Complex SINC is predicted to be affected by noise levels during operation greater than 55dB. Furthermore, the noise-generating items within the operational substation are identified as the backup generator which is only required as part of the Proposed Development in case of power outage and is highly unlikely to be operational 24/7. For these reasons ecological effects as a result of noise impacts during operation on the J38 Wetland Complex SINC are considered **not significant.**

4.4.41 The Lighting Technical Note (Stantec, 2025o) considers the potential impacts of the lighting scheme design for the Proposed Development during operation, based on the lighting design for the substation building and modelling of the proposed lighting design undertaken by Baker Hicks using industry standard calculation software. The potential for light spill beyond the proposed substation footprint has been modelled up to 15m. Around most of the proposed substation a lighting level of 1 lux extends up to 5m from the substation footprint, extending

beyond 5m only in two “hotspots” areas around the substation where the design appears to show more light fittings are proposed. These include the south eastern corner of the proposed substation which would result in light spill of 1 lux up to 10-15m into the SINC. However, it is understood that the lighting will remain off most of the time and will only be in operation when the Site is occupied, which is envisioned to be twice per month during normal working hours. Therefore, the lighting is most likely to be in use infrequently and during the winter months during working hours. Given these periods of use of the lighting, the effects from lighting during operation of the Proposed Development on the J28 Wetland Complex SINC are considered to be **not significant.**

4.4.1 As described in relation to the consideration of impacts from construction, given that the J38 wetland complex SINC is designated primarily for its complex of wetland habitats, there is the need for careful consideration of the potential for direct and indirect operational effects on the Site’s hydrology and hydrogeology arising from the Proposed Development.

4.4.2 As described in the section relating to Construction impacts, the primary consideration for the impacts on the habitats within the Site relates to surface-water hydrology given the understanding of the separate of the hydrogeological and hydrological environs within the Site, as confirmed in the Hydrogeological Impact Assessment (Baker Hicks, 2025b).

4.4.3 The Hydrogeological Impact Assessment confirms that the habitats within the Site and associated with the SINC are considered to be fed by localised surface water movement and saturated soil conditions due to the low permeability of the underlying strata which will limit infiltration to ground, resulting in saturated conditions. Whilst some minor baseflow from groundwater cannot be ruled out where the clay is thin, given that any excavations required will be shallow and significant dewatering of the aquifer is not proposed, the potential impact on the junction 38 wetland complex from changes to groundwater levels, flows or quality is assessed as negligible. The flood wall will potentially have a minor impact on groundwater flows within the higher permeability granular glacial deposits recorded towards the anticipated base of the flood wall, however due to the low permeability of the overlying clay any minor alteration to flow will not impact the surface vegetation associated with the SINC which is considered to be dependent on surface water flows and the poorly draining nature of the low permeability near-surface deposits. Therefore there will be **no significant adverse effects** within the retained of the areas of the SINC or other wetland habitats within the Site as a result of changes in hydrogeology arising from the Proposed Development.

4.4.4 The Baker Hicks Margam Flood Consequence Assessment (FCA) (Baker Hicks, 2025) provides a review of the potential sources of flood risk at the Site to determine an appropriate design level for flood mitigation measures in the form of a flood defence wall. The FCA concludes that the displacement of floodwater by the proposed flood defence wall during the 1% (1 in 100) and 0.1% (1 in 1,000) annual exceedance probability floods when considering the impacts of climate change will have only a limited effect on the flood extent in the vicinity of the Proposed Development, with peak flood levels increased by 0.019m and 0.023m respectively. However, the detailed hydraulic modelling that informed the FCA indicates that the annual probability of the land in the vicinity of the Proposed Development flooding is between 10% (1 in 10) and 3.3% (1 in 30) and therefore the minor impact in terms of flood extents and levels arising from the displacement of floodwaters would manifest itself only very infrequently and for a limited duration. Therefore, it can be concluded that the Proposed Development will have **no significant adverse effect** within the retained areas of the SINC by virtue of increased flood extents or levels.

4.4.5 The Flood Consequence Assessment (FCA) (Baker Hicks, 2025) describes the provision of a SUDS to enable attenuation of surface water run-off from the Proposed Development. The SUDS will manage both the rate and volume of surface water run-off from the Proposed Development and will also enable management of surface water quality prior to discharge into the Upper Mother Ditch. The SUDS will be subject to agreement with the SAB in parallel with the planning application. The SUDS engineering design has been incorporated into the Landscape and Habitat Strategy Plan and the Landscape Designs, enabling delivery of landscaping provision with biodiversity value appropriate to the J38 wetland complex SINC location.

4.4.6 **Section 4.5** summarises the habitat enhancement and management proposed for the Site during operation described in the Landscape and Habitat Management Plan (LHMP) that will provide a positive approach to management of water balance within the SINC. The LHMP also describes remedial measures and adaptive management to be employed in response to management outcomes (Stantec, 2025e). It is anticipated that the Landscape and Habitat Management Plan will be subject to Condition.

Habitats: Construction

4.4.7 The impacts of the Proposed Development on habitats during construction are considered under the assessment of impacts on the Junction 38 Wetland Complex SINC above.

Habitats: Operation

4.4.8 The impacts of the Proposed Development on habitats during operation are considered under the assessment of impacts on the Junction 38 Wetland Complex SINC above.

Water Vole: Construction

4.4.9 Given the results of the desk study and field survey undertaken in 2024 and spring 2025, the presence of water vole within the Site could not be ruled out and it was determined that water vole were likely present but at low population levels in the area.

4.4.10 The assessment and mitigation approach described in this section is based on the condition of the Site prior to the commencement of Permitted Development works (as described in **Section 1.3**). In practice, the Permitted Development works have progressed ahead of the Proposed Development, and a water vole translocation exercise has already been undertaken from the footprint of the Proposed Development area. This translocation followed the mitigation strategy described below and was approved by NRW. The translocation was undertaken by RSK on behalf of Laing O'Rourke as part of the Permitted Development works in spring 2025 (RSK Biocensus, 2025a and 2025c). During the completion of water vole mitigation works of the Permitted Development works area in Spring 2025, no water voles were captured in the works area. Although no water voles were found within the works area, this does not definitively confirm that water voles are absent from suitable habitat within the Site and surrounding area. Previous surveys have recorded field signs indicative of low-density water vole presence elsewhere within the site, particularly in ditches assessed as providing suitable, albeit suboptimal, habitat. The site also forms part of a broader wetland complex with ecological connectivity to adjacent habitats, which may support transient or recolonising individuals.

4.4.11 The Proposed Development will result in the permanent loss of approximately 1.67 ha of habitat suitable for water voles (to the proposed substation extension footprint and the proposed new access road to the substation) albeit the reedbed dominating the area to be permanently lost to the Proposed Development is relatively poor-quality habitat for water vole. In the absence of mitigation, the loss of habitat would pose a risk of killing, injury or disturbance to water vole, which would contravene legislation which otherwise protects this species (see **Appendix B**). Therefore, to facilitate the Proposed Development, a mitigation strategy for water vole would have needed to be developed and a conservation licence would need to be obtained from NRW to lawfully allow the mitigation strategy, and the Proposed Development works to progress. The proposed works would have needed to demonstrate delivery of a conservation benefit to the local water vole population, in addition to enabling the Proposed Development to progress. As described above, the mitigation strategy and associated licence from NRW has already been secured as part of the Permitted Development Works and implemented within the Early Works area. No further clearance of habitat suitable for water vole is required for the Proposed Development Works. However, the mitigation described below is provided for completeness of the assessment in this EcIA, given the premise of the baseline assumption for the EcIA described in **Section 1.3**

4.4.12 Before any works began, the licence method statement proposed that water voles would be live-trapped and translocated from affected areas (notably ditches D4, D5, D6, and parts of D7)

to a designated receptor site—the Upper Mother Ditch. The Upper Mother Ditch was considered suitable as a receptor site and was enhanced prior to translocation

4.4.13 The licence method statement (RSK Biocensus, 2025a) associated with a conservation licence application to NRW set out the mitigation requirements in detail which are summarised below:

Exclusion Fencing and Monitoring

4.4.14 Temporary exclusion fencing was installed prior to trapping and translocation around the Proposed Development area to prevent water voles from re-entering. The fencing is regularly inspected and maintained.

Trapping and Translocation

4.4.15 Trapping took place between March and April, and continued until five consecutive days of no captures or signs of water voles were recorded. Monitoring rafts and traps were deployed to detect any remaining individuals, and additional trapping would be conducted if necessary.

Destructive Searches

4.4.16 Following trapping, a suitably qualified ecologist conducted destructive searches of burrows and reedbeds using hand tools and, where appropriate, mechanical excavators. This ensures no individuals remained in the Early Works construction zone (which includes the Proposed Development footprint). Vegetation was cleared to facilitate the search for above-ground nests.

Habitat Enhancement and Creation

4.4.17 **Section 4.5** considers the habitat enhancement and management proposed for the Site. With regards to water vole, to compensate for the Proposed Development and the Early Works impacts over 1,460 m of ditches will be diverted, reinstated or enhanced. This includes:

- Enhancing ditches D2, (retained section of) D4, and D9.
- Reinstating or creating ditches D3, D4, D5, D7, and D8 through ditch diversion and reinstatement.
- Enhancing 472 metres of the Upper Mother Ditch.

4.4.18 Enhancement works will include dredging, bank reprofiling, vegetation management, and planting of grasses and rushes to provide a foraging resource for water voles.

4.4.19 Taking into account the proposed mitigation, and enhancement above, which was approved by NRW prior to commencement of the Permitted Development works, impacts on water vole will be ameliorated and there is the potential for the measures described to deliver **a positive benefit** to the conservation of water vole, should they still be present in the **Local area**.

Water Vole: Operation

4.4.20 In addition to the measures described above, the Landscape and Habitat Management Plan (LHMP) proposes positive and adaptive management of the retained, diverted and reinstated ditches within the Site to favour water voles, in alignment with the Water Vole Management Plan required by Condition of the Water Vole licence for works within the Site (RSK Biocensus, 2025c). The LHMP also describes remedial measures and adaptive management to be employed in response to management outcomes (Stantec, 2025e).

4.4.21 The LHMP includes a comprehensive 30-year strategy to enhance, create, and maintain ditch habitats for water voles, ensuring their long-term conservation on site. Over the 30-year period, the ditches will be actively managed to maintain optimal conditions for water voles. This includes regular tree and scrub maintenance to prevent overshading, reed control to maintain open water

channels, and periodic dredging to ensure water depth and flow. Bankside vegetation will be managed to support burrowing and foraging.

4.4.22 Monitoring is another key component. Water vole populations will be surveyed following the schedule defined in the Water Vole Management Plan (RSK Biocensus, 2025c) and Landscape and Habitat Management Plan (Stantec, 2025e), while American mink—an invasive non-native species—will be monitored annually using rafts. If mink are detected, a control programme will be initiated.

4.4.23 Overall, the proposals through construction and operation will deliver **a positive benefit** for water voles by improving habitat quality, controlling threats, and supporting population resilience over the long term. It is anticipated that the Landscape and Habitat Management Plan will be subject to Condition.

Bats: Construction

4.4.24 There was no evidence of bat use of the existing buildings within the existing substation which are to be replaced and there were no potential roosts recorded in the scrub/young trees within the Site during the surveys. As a result, no direct impacts on bat roosts are anticipated as a result of the Proposed Development permanent works.

4.4.25 The activity surveys undertaken across the Site and within the adjacent land recorded relatively low bat activity, with a survey area score of 13 (following Reason and Wray, 2023); as a result the site is considered to be of Local importance to commuting/foraging bats. Further surveys are to be undertaken through the Pre-application Consultation (PAC) period (and the remaining bat activity season) to confirm this evaluation prior to the planning application submission. However, it is considered unlikely that the evaluation would change significantly as the survey area score falls well below the County importance threshold of 20 and would remain below that score, even including all possible *Myotis* species.

4.4.26 The Proposed Development represents the permanent loss of potentially suitable bat foraging habitat (reedbed and scrub) of 1.36ha to the substation extension and 0.31ha to the new access road into the proposed new substation extension (total permanent habitat loss is 1.67ha). This represents 10.8% of the planning application boundary and is therefore considered unlikely to affect the Local population of foraging and commuting bats in the long-term. A further 2% of habitat will be affected by the construction of the proposed SUDS, the construction of the ditch diversion and the creation of the peat burial areas (see **Appendix A**). However, again this is considered unlikely to represent a significant impact on Local bat populations as a result of direct impact on bat habitat.

4.4.27 Given the sensitivity of bat populations to lighting at night, especially the lesser horseshoe bat (albeit this species has been recorded using the Site relatively infrequently), the indirect effects of lighting during construction warrants consideration. Lighting during construction will be subject to the controls and mitigations outlined in the CEMP (Laing O Rourke, 2025a), with the lighting focussed on illumination around the welfare and working locations only. The CEMP also outlines that even though construction lighting is temporary, due care will be given to the design of the construction phase lighting to avoid light glare and minimise impacts. Furthermore, lighting levels will be reduced during non-working hours and kept to the minimum possible required for site security only. Automated systems will be used to switch lights on and off according to activity and ambient lighting levels. Given the mitigation measures outlined in the CEMP, there are anticipated to be effects as a result of construction phase lighting on the SINC **at the Site level only** which for Local bat populations will be **not significant.**

4.4.28 A positive measure to be provided for bats during the construction phase is the provision of a wildlife tower for bats. The Landscape and Habitat Management Plan (LHMP) for the Site (Stantec. 2025e) provides an illustrative example of a proven design for such a wildlife tower. This will provide roosting opportunities for bats within the Site where there are currently no roosting opportunities, and the illustrative example is proven to be used by the highest conservation status species recorded from within the Site and Local area: the lesser horseshoe bat. This has the potential to deliver a **positive** outcome for bats, **significant at the Local level**

if the wildlife tower is successful in being used by roosting bats. It is anticipated that the confirmed detailed design of the wildlife tower and its implementation will be subject to Condition.

Bats: Operation

4.4.29 With regards to the operation of the Proposed Development the potential impact here relates to lighting during the operational phase. The Lighting Technical Note (Stantec, 2025o) considers the potential impacts of the lighting scheme design for the Proposed Development during operation, based on the lighting design for the substation building and modelling of the proposed lighting design undertaken by Baker Hicks using industry standard calculation software. The potential for light-spill was modelled up to 15m.

4.4.30 Around most of the proposed substation, a lighting level of 1 lux extends up to 5m from the substation footprint, extending beyond that in a couple of hotspots; the south eastern corner of the proposed substation would be one of those hotspots which could result in light spill of 1 lux up to 10-15m into the SINC and into habitat likely used by commuting/foraging bats. However, it is understood that the lighting will remain off most of the time and will only be in operation when the Site is occupied, which is envisioned to be twice per month during normal working hours. Therefore, the lighting is most likely to be in use infrequently, and during the winter months during working hours. Given these periods of use of the lighting, the effects from lighting during operation of the Proposed Development on bat commuting and/or foraging activity are considered to be **not significant to Local bat populations** even given the unfavourable modelling showing light spill into the retained habitat areas**.**

4.4.31 To minimise impacts on foraging and commuting bats within the Site, the Lighting Technical Note (Stantec 2025o) proposes that lux levels should be monitored post-development to assess if the new lighting will impact the sensitive hedgerows. Where illuminance readings confirm readings of more than 1.0 lux more than 5m into the SINC, the following mitigation measures will be reviewed to achieve a betterment and further minimise light spill into the SINC, where possible:

- Side light shields could be fixed to the luminaires that are in close proximity to the corners of the proposed substation extension. This would help to block horizontal light from spill over the flood wall into the SINC and areas of habitat used by bats.
- If feasible, steps could also be taken to reduce the quantity of light fittings, or lower the tilt angle to 0º.
- In both proposals, care should be taken to ensure that the substation remains sufficiently lit to the required illuminance levels for National Grid operations.

4.4.32 The monitoring and action to ameliorate adverse impacts relating to lighting and bats should be subject to condition. Taking these proposals into account, the impacts on bats at the Site level is considered **not significant.**

4.4.33 With regards to the provision of a wildlife tower, designed to provide a resource for roosting bats, as a positive measure for bat conservation, **Section 4.5** summarises the habitat enhancement and management described in the LHMP (Stantec, 2025e) describes proposed monitoring of the Wildlife Tower during the operational period. This will take place in June of each monitoring year, with the species of any bats present, and their number, recorded. Any bat droppings present will be collected and sent for DNA analysis. Furthermore, activity monitoring for bats will take place through use of static detectors three times through the season in each monitoring year (covering the spring, summer and autumn periods). The static detectors will be deployed in locations to match, as far as possible, the pre-construction baseline surveys to enable a review of any changes in bat activity, as a result of the Proposed Development and the management described in the LHMP. The LHMP also describes remedial measures and adaptive management to be employed in response to management outcomes (Stantec, 2025e). It is anticipated that the Landscape and Habitat Management Plan will be subject to Condition.

Breeding and Wintering Birds: Construction

4.4.34 The permanent loss of 1.67ha of the wetland habitat complex within the Site to the Proposed Development results overall in a permanent loss of 10.8% of the habitat potential used by breeding birds within the Site to built development, furthermore there is additional associated temporary disturbance with the creation of the other permanent features including the SUDS basin, peat burial areas and ditch diversion which has the potential to be used by breeding birds associated with the reedbed and scrub habitats associated with the site, including the Cetti's Warbler. The permanent loss of the small area of wetland habitat complex is considered unlikely to be significant to breeding bird or wintering bird populations in the long-term given the availability of similar habitat in the Local area. However, there is considered likely to be **adverse impact at the Site level** due to this loss of habitat. Ongoing management of the Site will provide a range of habitats suitable for breeding, foraging and wintering birds, as described in the **Breeding and Wintering Birds: Operation** section below.

4.4.35 There remains the potential to result in contravention of the legislation afforded to breeding birds. This is particularly important with respect to Cetti's warbler which receives an elevated level of protection under Schedule 1 of the Wildlife and Countryside Act, 1981 (as amended). To avoid contravention of the legal protection afforded to nesting birds, it is recommended that, where possible, all vegetation over 50cm in height is removed outside of the bird nesting season (March to August inclusive). Where this is not possible, the vegetation in question should be subject to a nesting bird check by an experienced ecologist not longer than 24 hours prior to clearance. If an active nest is discovered, it should be left in situ behind an appropriately sized protected area (to be advised by the ecologist) until any young have fledged the nest. With regards to Cetti's warbler, the ecologist checks would also need to consider the additional protection afforded to this species, while it is building a nest or is in, on or near, a nest containing eggs or young.

Breeding and Wintering Birds: Operation

4.4.36 The permanent loss of 1.67ha of habitat to the permanent Proposed Development footprint will be balanced by the positive management of the remainder of the Site for the benefit of habitat diversity and biodiversity. The Landscape and Habitat Management Plan (Stantec, 2025e) describes the proposals in detail but the overall outcome is likely to be a more diverse habitat range within the Site which will in turn provide breeding and foraging opportunities for birds such that there will be **no significant adverse effects** on breeding or wintering birds during the operation of the Site compliant with the requirements of the Conservation of Habitats and Species Regulations, 2017 with respect to the habitats of wild birds (See **Appendix B**). **Section 4.5** summarises the habitat enhancement and management proposed for the Site during operation described in the Landscape and Habitat Management Plan (LHMP) that will provide a positive approach to management of habitats within the SINC. The LHMP also describes remedial measures and adaptive management to be employed in response to management outcomes (Stantec, 2025e). It is anticipated that the Landscape and Habitat Management Plan will be subject to Condition.

Reptiles: Construction

4.4.37 The Site is identified as a Key Reptile Site due to confirmed records of three reptile species: grass snake, slow worm, and common lizard. However, the number of individuals recorded for each species is low. This is likely a reflection of the habitat quality within the Site; as the reed-dominated and scrub habitats, which are predominant within the Site, do not provide optimal conditions for these species.

4.4.38 The assessment and mitigation approach described in this section is based on the condition of the Site prior to the commencement of Permitted Development works (as described in **Section 1.3**). In practice, the Permitted Development works have progressed ahead of the Proposed Development, and a reptile translocation has already been undertaken from the footprint of the Proposed Development area. This translocation was undertaken by RSK on behalf of Laing O'Rourke as part of the Permitted Development works in Spring 2025 (RSK Biocensus, 2025b).

During the translocation low numbers of common lizard, grass snake and slow worm were captured from the Early Works area and relocated to areas of retained habitat within the Site.

4.4.39 The Proposed Development will result in the permanent loss of approximately 1.67 ha of reptile habitat (albeit of poor quality) to the footprint of the proposed substation extension and associated new access road section. Without mitigation, this would pose a risk of killing, injury, or disturbance to reptiles, which would contravene legislation protecting this species group (see **Appendix B**). Therefore, to facilitate the Proposed Development, a mitigation strategy for reptiles would need to be developed to address the risks of killing/injury to this species groups as a result of the clearance works required to facilitate the development. it was agreed with NPTC that a translocation of reptile from the works area would be required prior to commencement of works. To support this process, the carrying capacity of the retained habitat area within the Site would be enhanced through the provision of two refugia, each with a minimum size of 4 m (length) × 2 m (width) × 1.5 m (height), oriented with the long axis facing south to maximise solar gain. These refugia would be located in retained habitat outside the footprint of both the Proposed Development and the Permitted Development works area, as shown on the Landscape and Habitat Strategy Plan (Stantec, 2025f).

4.4.40 Prior to translocation, the area to be translocated would be enclosed with suitable fencing (the proposed water vole fencing (see **Water Vole Section** above) is also suitable for reptile exclusion and appropriate to be used for this purpose). Once fenced, reptile refugia would be distributed throughout suitable habitat within the translocation area. A minimum capture effort of 30 days would be implemented, reflecting the low peak counts of reptiles recorded during baseline surveys and the relatively poor habitat quality. Captures would continue until five consecutive days of no captures were recorded, or that sufficiently low numbers remain such that it is considered that a suitable trapping effort has been undertaken based on review of trapping data and weather conditions during the trapping period. Captured animals would be released into retained suitable habitat within the Site, outside the translocation area.

4.4.41 As the translocation progresses, vegetation within the translocation area would be manipulated under ecologist supervision to facilitate the capture of any remaining individuals. Following completion of capture efforts, a destructive search of potential refuges would be undertaken under the supervision of a suitably qualified ecologist. After the translocation is complete and throughout the duration of the Proposed Development works, the exclusion fencing will be monitored and maintained to prevent recolonisation. Vegetation on both sides of the fence will also be managed to prevent overgrowth that could compromise the fence's effectiveness.

4.4.42 As described above, the mitigation strategy for reptile described has already been agreed as part of the Permitted Development Works and implemented within the Early Works area. No further clearance of habitat suitable for reptiles is required for the Proposed Development Works. However, the mitigation described above is provided for completeness of the assessment in this EcIA, given the premise of the baseline assumption for the EcIA described in **Section 1.3.**

4.4.43 The creation of hibernacula will enhance the carrying capacity of the retained habitat. However, the permanent loss of **1.67ha** of poor-quality habitat and the disturbance caused by translocation represent an **adverse effect** on the reptile population, **significant at the Site level**, in the absence of appropriate compensation. Ongoing management of the Site will provide a range of habitats suitable for reptiles, as described in the **Reptiles: Operation** section below.

Reptiles: Operation

4.4.44 Whist there are no direct adverse impacts on reptiles anticipated during the operation of the Proposed Development, the permanent loss of **1.67 ha** of poor-quality habitat to the reptile population represents a long-term adverse impact, likely significant at Site level, given the loss of the habitat within the footprint of the permanent works associated with the Proposed Development. However, **Section 4.5** summarises the habitat enhancement and management proposed for the Site during operation described in the Landscape and Habitat Management Plan (LHMP) that will provide a positive approach to management of habitats within the Site to

support reptile populations in the long-term, such that there will be no long-term significant adverse effects on reptile populations as a result of the Proposed Development. The LHMP also describes remedial measures and adaptive management to be employed in response to management outcomes (Stantec, 2025e). It is anticipated that the Landscape and Habitat Management Plan will be subject to Condition.

Fish: Construction

4.4.45 Whilst the majority of the ditches on Site do not provide good quality habitat for fish (given the shallow, discontinuous water levels, the Upper Mother Ditch was noted as providing suitable habitat for Fish. However, the presence of fish in any of the ditches cannot be ruled out given the Site is designated as a wetland complex. Given some of the ditches are directly affected by the Proposed Development, and others are proposed for reinstatement in line with the mitigation and compensation proposed for water vole (see **Water Vole** section above). there is therefore the potential for killing and injury to fish, an offence under the Salmon and Freshwater Fisheries Act 1975 (SAFFA) and resultant adverse effect likely significant at the Site level, if present during construction and in the absence of mitigation.

4.4.46 The assessment and mitigation approach described in this section is based on the condition of the Site prior to the commencement of Permitted Development works (as described in **Section 1.3**). In practice, the Permitted Development works have progressed ahead of the Proposed Development, and a fish rescue operation has already been undertaken from the footprint of the Proposed Development area and enhanced sections of ditch. This translocation was undertaken by RSK on behalf of Laing O'Rourke as part of the Permitted Development works ("Early Works") in Spring 2025 (RSK Biocensus, *pers comm*) and followed the methodology within the Precautionary Working Method Statement (Fish) (RSK Biocensus, 2025e) which was carried out under an FR2 licence from NRW for use of electric fishing and netting methods as part of the Early Works.

4.4.47 The Precautionary Method of Work described the measures put in place and implemented by suitably experienced ecologists to enable a fish rescue of the affected sections of ditch/standing water prior to commencement of works (RSK Biocensus, 2025e). This included above-ground vegetation clearance initially to reduce habitat suitability, encourage fish to move away from the area and/or minimise vegetation that would inhibit any fish capture and relocation. The fish rescues were carried out by experienced aquatic ecologists. Prior to any in-ditch works commencing the aquatic ecologists placed stop nets in the channel at the up and downstream extents of each works area. These nets were be staked between the banks to secure them in position for the duration of the works. Consecutive electric fishing runs were then be undertaken between the nets to remove as many fish as possible. Nets were left in-situ during the duration of the works until ditch works were completed.

4.4.48 As discussed already, the mitigation strategy for fish described has already been agreed as part of the Permitted Development Works and implemented within the Early Works area. No further works affecting fish are required for the Proposed Development Works. However, the mitigation described above is provided for completeness of the assessment in this EcIA, given the premise of the baseline assumption for the EcIA described in **Section 1.3.** This same methodology will be applied for any future ditch works proposed as part of habitat creation or enhancement works, where considered appropriate. As a result, impacts on fish during construction are considered to be **not significant.**

Fish: Operation

4.4.49 There are no adverse effects anticipated on fish during the operation of the Proposed Development. The long-term management of the Site for the benefit of habitat and water vole opportunities within the Site (see **Section 4.5**) is likely to also be of benefit to fish populations as the measures will provide connected, flowing ditches with continuous standing water and fringing vegetation which will provide much more suitable habitat for fish within the Site than the current poorly maintained and mostly dry, disconnected ditch network. It is therefore anticipated that a **long-term beneficial effect** on fish will result from the Proposed Development, **significant at the Site level**.

Invertebrates: Construction

4.4.50 The permanent loss of 1.67ha of the reedbed habitat to the proposed substation and associated temporary disturbance with the creation of the other permanent features including the SUDS basin, peat bund areas and ditch diversion results overall in a permanent loss of 10.8% of the habitat within the Site to the permanent footprint of built development (the substation extension and associated new access road section) which has the potential to support some of the invertebrates associated with the site. The permanent loss of this small area is considered unlikely to be significant to invertebrate populations in the long-term given the availability of similar habitat in the Local area. However, there is considered likely to be **adverse impact at the Local level** due to this loss of habitat and the anticipated value of the invertebrate assemblage within the site (see **Section 3.6**). The impacts will in part be addressed by the creation and enhancement of habitats within the Site, including slag-filled gabion baskets which will promote new opportunities for invertebrates within the Site. Illustrative examples of the proposed location for and design of the gabion baskets is provided in the Landscape and Habitat Strategy Plan (Stantec, 2025f) and as described in the Landscape and Habitat Management Plan (Stantec, 2025e). The detailed design of these features and their implementation is anticipated to be subject to Condition. The commitment to ongoing management of the site to enhance habitat diversity is described below.

Invertebrates: Operation

4.4.51 Whist there are no direct adverse impacts on invertebrates anticipated during the operation of the Proposed Development, the permanent loss of **1.67 ha** of habitat to the invertebrate population represents a long-term adverse impact, given the loss of the habitat within the footprint of the permanent works associated with the Proposed Development. However, along with the provision of gabion basket habitat features through construction, **Section 4.5** summarises the habitat enhancement and management proposed for the Site during operation described in the Landscape and Habitat Management Plan (LHMP) that will provide a positive approach to management of habitats within the Site to support a diverse invertebrate assemblage within the Site in the long-term, such that there will be no long-term significant adverse effects on invertebrates as a result of the Proposed Development. The LHMP also describes remedial measures and adaptive management to be employed in response to management outcomes (Stantec, 2025e). It is anticipated that the Landscape and Habitat Management Plan will be subject to Condition.

Badger

4.4.52 Whilst badger setts have not been recorded within the Site, there is the potential for badger to be present (commuting/foraging) as they are known in the area, albeit the Site is considered to be of no more value to badger than at the Site level. The potential for badgers to create a sett within the Site is considered to be low, given the very wet nature of the Site, nonetheless considering measures that are mindful of animal welfare is appropriate. Given this, prior to any clearance on Site, the area will be checked to confirm absence of badger setts by a suitably qualified ecologist or Ecological Clerk of Works. The CEMP confirms a pre-construction walkover will be undertaken for all works areas prior to commencement. In the unlikely event that a badger sett was identified a minimum 30m offset (or as agreed with the ecologist) would be set-up around the badger sett whilst appropriate mitigation and, where necessary, licensing was secured. Furthermore, the CEMP will include good-practice measures to avoid entrapment of animals including: covering of pipe openings or deep excavations or, for the latter, providing a ramp to enable animals to exit themselves. It is anticipated that the CEMP and implementation of the same will be secured by Condition. Providing the measures described are implemented there will be no **significant adverse effects** on badger.

Other Species of Principal Importance

4.4.53 The desk study returned records for priority species in the area; harvest mouse and hedgehog are the two which are thought most likely to occur on Site and harvest mouse nest were recorded by the Ecological Clerk of Works during supervision for targeted Ground Investigation Works.

4.4.54 The habitat clearance activities necessary to facilitate the construction of the Proposed Development will still retain some areas of tall tussocky reedbed and grassland and scrub, allowing harvest mice and hedgehog, and amphibians such as common toad, where present, to find refuge outside of the Proposed Development works footprint. Timing of site clearance to avoid the breeding bird season (see **Breeding Birds: Construction** above) will also avoid sensitive periods for these species. Similarly, where clearance cannot avoid the breeding bird season the Ecological Clerk of Works will be checking carefully for nesting birds and can also check for these species at the same time. Impacts on hibernating animals are not anticipated due to the very wet nature of the Site (due to surface water retention) making it largely unsuitable for hibernation within the footprint of the Proposed Development. In the long-term both species are considered likely to benefit from the proposed management of the Site described in **Section 4.5**, such that there will be no **significant adverse effects** on these species as a result of the Proposed Development.

Invasive Non-Native Species.

4.4.55 There are currently no invasive non-native plant species recorded within the Site. However, species such as Japanese knotweed and Himalayan balsam are known to occur in the surrounding area. These species are easily spread unintentionally and could cause significant damage to habitats within the Site if introduced. Their establishment could lead to the degradation of habitats associated with the Site of Importance for Nature Conservation (SINC), including Priority Habitat types. In the absence of mitigation, the potential spread of invasive non-native species into the Site could result in an adverse ecological effect, potentially significant at the County level if SINC habitats are displaced.

4.4.56 Mitigation measures to prevent the spread of invasive non-native species are outlined in the Construction Environmental Management Plan (CEMP). As a result, the risk of invasive plant species being spread during construction of the Proposed Development is considered to be very low. A commitment to ongoing positive management and monitoring of vegetation within the Site, including the monitoring for and, where necessary, control of invasive species, is described further in Landscape and Habitat Management Plan (Stantec, 2025e), summarised at **Section 4.5** below. Provided that the mitigation measures are fully implemented, and ongoing management and monitoring are maintained, the potential for impacts on the SINC from invasive species as a result of the Proposed Development is considered to be avoided. Therefore, **no significant adverse effects** from invasive species are anticipated.

4.5 Compensation and Enhancement Measures.

4.5.1 As described in previous sections whilst the mitigation during construction contributes towards minimising and ameliorating impacts associated with the Proposed Development, in order to comply with National and Local Plan policy relating to delivery of a net biodiversity benefit (see **Appendix B**), the Proposed Development must also deliver compensation and enhancement measures relevant to the impacts and habitats and species of conservation interest for the Site and for the Neath Port Talbot Council administrative area.

4.5.2 Habitat creation and enhancement is proposed within the retained area of the Site outside of the permanent footprint of the development and the ongoing management of this area for the benefit of biodiversity goes some way towards compensating for the permanent loss of 1.67ha of the J38 Wetland Complex SINC to the Proposed Development. This means that the retained areas of the Site (within the ownership of NGET) will be managed for the benefit of biodiversity.

4.5.3 However, it was discussed early on with Neath Port Talbot that on-site compensation measures alone would not be sufficient to enable delivery of Net Biodiversity Benefit through the Proposed Development. Therefore, a number of options were review and discussed with NGET and with NPTC. These included:

- Discussion with Neath Port Talbot Council regarding availability of Biodiversity Sites through the Council's own scheme. The Council confirmed they had no Sites available

- Review of lands owned by others, including for example the BOC Ltd Land to the south of the National Grid land. Potentially suitable land in the immediate area surrounding the Site was confirmed by the third party landowners to be unavailable for biodiversity delivery due to their own plans for the land, or the NGET lands team were unable to contact the land owners through the information available via land registry

- Discussion with South West Wales Wildlife Trust regarding lands they held that they were looking for investment for biodiversity enhancement or creation. The Wildlife Trust offered a potential site within Bridgend Council's administrative area. However, Neath Port Talbot wished for the biodiversity net gain to be achieved within Neath Port Talbot Council's administrative area.

- Lastly, through discussion with Tata Steel UK Ltd and their local ecological advisor (Barry Stewart of Celtic Wildflowers) a parcel of land known as Margam Burrows, owned by Tata Steel Ltd and within Neath Port Talbot Council's administrative area, lying 2km to the south west of the Proposed Development Site, was proposed as a potential area suitable for habitat creation and enhancement. This was discussed and agreed in principle with Neath Port Talbot Council, subject to approval of detailed proposals.

4.5.4 Given the above, two additional documents are submitted with this EcIA: A Landscape and Habitat Management Plan (LHMP) for the National Grid Land at Margam (Stantec, 2025e) and a Habitat Management Plan (HMP) for the Margam Burrows site (Stantec, 2025m).

4.5.5 The Landscape and Habitat Management Plan for the Margam, NGET Site provides the description of the proposed habitat creation and enhancement measures, including a programme of monitoring and adaptive management which are to be implemented within the Site. The objectives of the LHMP are set out within that document are:

- **Objective 1**: To improve surface water management across the Site through the diversion, restoration and ongoing maintenance of ditches, including the installation of appropriate water control structures (e.g. natural weirs) where necessary. Management will aim to maintain a hydrological balance that supports the persistence of the wetland habitat complex and water column suitable to support emergent vegetation for water vole, while also enabling the positive management of drier, more floristically diverse marshy grassland or drier grassland communities.

- **Objective 2:** To manage the dynamic balance between reedbed, marshy grassland, and encroaching scrub and young trees, ensuring the maintenance of habitat diversity and preventing the dominance of any one habitat type to the detriment of others.

- **Objective 3:** To maintain and enhance habitat features that support protected and notable species recorded within the Site, or which have the potential to colonise the Site, including but not limited to: water vole, breeding birds, reptiles, bats, and invertebrates, through targeted habitat management and species-specific interventions.

- **Objective 4:** To implement a programme of ecological monitoring to assess the effectiveness of habitat and species measures, and inform ongoing adaptive management decisions, Monitoring results will be used to identify emerging issues, track progress against defined success criteria, and guide responsive interventions where necessary.

4.5.6 The Habitat Management Plan for Margam Burrows describes additional off-site measures to deliver positive management of a degraded dune slack and dune vegetation, for the benefit of Local biodiversity. The Objectives of the HMP set out in that document are:

- **Objective 1:** To establish the long-term management of the Site and deliver Net Biodiversity Benefit.

- **Objective 2:** To manage the dynamic balance between open dunes, grassland and scrub, ensuring the maintenance of habitat diversity and preventing the dominance of any one habitat type to the detriment of others.

- **Objective 3:** To maintain and enhance habitat features that support protected and notable species recorded within the Site, or which have the potential to colonise the Site, including but not limited to: breeding birds, great crested newt, reptiles, bats, and invertebrates, through targeted habitat management and species-specific interventions.

- **Objective 4**: To implement a programme of ecological monitoring to assess the effectiveness of habitat and species measures, and inform ongoing adaptive management decisions, Monitoring results will be used to identify emerging issues, track progress against defined success criteria, and guide responsive interventions where necessary.

4.5.7 Each of the Management Plans:

- defines responsibilities for implementation and long-term management;

- Sets out the Management Plan Objectives to achieve positive outcomes for biodiversity; and

- Describes the key landscape and ecological deliverables for each site

- Sets out the approach to delivery of landscape/habitat creation measures and measures provided for species

- Describes ongoing management and monitoring proposals for both habitats and species over a 30 year period and describes target attributes for each, along with describing when and how remedial measures will be implemented.

4.5.8 Providing the mitigation, compensation and enhancement outlined in this **Section 4.5** of the EcIA, and provided in full in the Landscape and Habitat Management Plan for Margam, along with the Habitat Management Plan for Margam Burrows, are secured and delivered as described (or, where departures occur, as agreed with NPTC), then no significant adverse residual impacts on the identified ecological features will remain and the Proposed Development will deliver a net biodiversity benefit, in accordance with Local and National policy requirements.

4.6 Residual Impact Assessment

4.6.1 Subject to the mitigation compensation and enhancement measures described in sections **4.1-4.5** above being implemented, **no significant residual adverse effects are anticipated** and the development is anticipated to achieve overall net biodiversity benefit. The ecological mitigation, compensation and enhancement measures, including subsequent management and monitoring and implementation of any required remedial measures, will need to be secured by appropriate planning mechanisms (e.g. Planning Condition or Section 106) to secure a positive outcome for the scheme.

5 Net Biodiversity Benefit

5.1 Net Biodiversity Benefit Commitments

5.1.1 This section of the report draws out the approach taken as the design for the Proposed Development and its implementation have progressed, being mindful of the requirement under Planning Policy Wales (Edition 12) and specifically the Section 6 duty of the Environment (Wales) Act 2016. It describes how the Proposed Development will deliver a Net Benefit for Biodiversity (NBB). In some respects, this section reiterates some of the information provided through the assessment process in the preceding Sections of this EcIA. However, this section specifically considers:

- How the stepwise process has been applied for the Proposed Development
- How ecosystem resilience will be achieved through the Proposed Development.

5.2 Stepwise Process

Avoid and Minimise

5.2.1 In accordance with the stepwise approach outlined in Planning Policy Wales (Edition 12, 2024), a comprehensive Siting Study was undertaken to identify a preferred location for the proposed 275kV GIS substation (Stantec, 2025g). The study assessed ten potential sites, with five shortlisted for detailed appraisal. Each site was evaluated against environmental, technical, and socio-economic criteria, including proximity to designated ecological sites, landscape sensitivity, access, and integration with existing infrastructure.

5.2.2 Option 2, located directly adjacent to the existing Margam Substation, was identified as the preferred site and is the Site considered as the Proposed Development within this EcIA. While the Proposed Development location lies within the Junction 38 Wetland Complex SINC, the Siting Study concluded that no alternative site could avoid impacts on designated ecological sites. All other options would result in either direct or indirect impacts on the SINC or other designated sites (e.g. SSSIs or ancient woodland) due to the required cable routing or substation footprint.

5.2.3 The Proposed Development location was selected as the least environmentally damaging and most technically viable solution, offering:

- Direct adjacency to existing infrastructure, enabling extension rather than new construction;
- The shortest cable route to the proposed Port Talbot Substation, reducing land disturbance and ecological impact;
- Location within an established industrial area, minimising visual and community impacts;
- Use of existing access routes, avoiding the need for new road construction.

5.2.4 The Siting Study (Stantec, 2025g) demonstrates that avoidance of impact on the SINC is not possible, and that the Proposed Development location represents the most sustainable and deliverable option when considered against the full range of planning and environmental constraints.

5.2.5 Following the Siting Study, various options for the design of the substation in the Option 2 location were considered. The primary aim of the design considerations was to minimise the footprint of the Proposed Development, such that permanent impacts on the SINC would be minimised. The scheme design has also included consideration of elements of the design to minimise impacts beyond the footprint of the substation itself on the retained area of the SINC (e.g. through careful consideration of lighting design and construction methods).

On-Site Mitigation and Compensation

5.2.6 The Landscape and Habitat Management Plan (LHMP) for the Site (Stantec, 2025e) describes the Site mitigation and compensations measures in more detail and includes the following measures:

- Assumption of full restoration of soils and replacement vegetation cover through natural regeneration using site-won topsoil following Permitted Development works.
- Restoration and diversion of ditches to improve hydrological and ecological function.
- Installation of water control structures within the diverted and restored ditches to maintain hydrological and ecological function and to provide enhancement to SINC conditions.
- Provision of landscape planting along diverted ditches, focussing on locally and ecologically suitable planting species mixes which also provides favoured foraging plants for species associated with the SINC.
- Provision of species-specific features including a wildlife tower, reptile hibernacula, and gabion baskets (for invertebrates).
- Lighting design to maintain dark areas for bats.
- Rotational management of reedbed, ditch marginal vegetation and ditch sedimentation, and management of scrub extents following completion of construction of Proposed Development to provide enhancement to SINC.
- Monitoring of water levels, vegetation structure, and target species following completion of construction of Proposed Development to provide feedback and inform adaptive management response to provide enhancement to SINC.

Off-Site Compensation and Enhancement

5.2.7 To deliver a measurable net benefit for biodiversity, a complementary off-site enhancement scheme is proposed on Tata Steel land at Margam Burrows (Stantec, 2025m). This includes:

- Scrub removal around existing dune slack pond to improve conditions for great crested newts (GCN).
- Creation of new dune slack in low-diversity closed-sward dune grassland area.
- Re-use of excavated sand from dune slack creation to provide open dune habitat and/or opening up closed-sward on south-facing dunes to benefit invertebrates and early successional species.
- Installation of multifunctional gabion basket features using non-contaminated slag provided by Tata Steel.
- Rotational scrub management, particularly targeting species such as grey willow and sea buckthorn to maintain balance between dune grassland and scrub
- Dune slack rejuvenation on a 3 year cycle, or as determined by monitoring.
- Monitoring and adaptive management to maintain habitat quality and species diversity.

Net Benefit for Biodiversity

5.2.8 The combined on-site and off-site measures are designed to deliver a measurable Net Benefit for Biodiversity (NBB) in accordance with Planning Policy Wales and the DECCA Framework. The proposals:

- Compensate for the permanent loss of part of the J38 Wetland SINC.
- Enhance the ecological function of retained habitats.
- Enhance and create new priority habitats and improve habitat connectivity.
- Support protected and notable species.
- Provide for long-term management and monitoring (30 years) to secure biodiversity gains.

5.3 Ecosystem Resilience

5.3.1 Ecosystem resilience is defined as "the capacity of ecosystems to deal with disturbances, either by resisting them, recovering from them, or adapting to them, whilst retaining their ability to deliver services and benefits now and in the future" (Natural Resources Wales, 2016). This section summarises how the Proposed Development and the associated off-site enhancement scheme at Margam Burrows contribute to ecosystem resilience. **Table 5.1** demonstrates how the Proposed Development aligns with the five key attributes of ecosystem resilience (DECCA Framework[5]) as defined by Natural Resources Wales (2016) in the State of Natural Resources Report (SoNaRR) and further supported by the Practitioners' Guide to Resilient Ecological Networks (Garrett and Ayling, 2021). The table summarises how the Margam Substation Project and the associated offsetting scheme at Margam Burrows contributes to strengthening the resilience of ecosystems through enhancements in diversity, extent, condition, connectivity, and adaptability.

Table 5.1 Proposed Development Delivery Against the DECCA Framework.

DECCA Framework Attribute	Proposed Development Response
Diversity between and within ecosystems	The Proposed Development enhances biodiversity through on-site and off-site measures, supporting a range of habitats including wetland mosaic, scrub, dune slack, and open dune systems. Species-specific features support amphibians, reptiles, invertebrates, and bats, increasing the diversity of available ecological niches.
Extent or scale of ecosystems	Habitat creation and enhancement within the Site increases the diversity and condition of priority habitats and avoids fragmentation by maintaining habitat continuity. The off-site enhancement at Margam Burrows expands the spatial footprint of functioning dune and wetland ecosystems.
Condition of ecosystems and structure/function	On-site habitat management improves habitat condition through hydrological restoration, rotational vegetation management, and invasive species monitoring and (where necessary) control. Off-site, scrub removal and opening up closed vegetation to improve dune habitat condition and function.
Connection between and within ecosystems	The Proposed Development design is mindful of habitat connectivity within the j38 Wetland SINC through maintaining and enhancing habitat corridors and providing dark zones for bats. Off-site enhancements provide restored dune habitats which link to

[5] DECCA Framework: Diversity, Extent. Condition, Connectivity, other Aspects of ecosystem resilience (Adaptability, Recovery, Resilience, Resistance) (based on Garrett and Ayling, 2021)

DECCA Framework Attribute	Proposed Development Response
	existing semi-natural areas, supporting species movement and increased habitat resilience.
Adaptability	The Proposed Development provides for ongoing habitat and species management of the Site and the off-site area at Margam Burrows which incorporates adaptive management with monitoring triggers. Habitat mosaics and structural diversity increase resilience to climate variability and hydrological change, also supporting a range of species with differing ecological niche requirements.

6 Conclusion

6.1.1 This Ecological Impact Assessment (EcIA) has evaluated the potential ecological effects of the proposed Margam Substation Extension, considering both construction and operational phases. The assessment has been informed by comprehensive desk studies, field surveys, stakeholder consultation, and supporting technical documentation, with reference to current best practice guidance (CIEEM, 2024).

6.1.2 The Site supports a range of ecological features of importance at the Site, Local, County, and Regional levels, including designated sites, priority habitats, and protected and notable species. The Proposed Development will result in unavoidable direct impacts, including the permanent loss of approximately 1.67 ha of the Junction 38 Wetland Complex Site of Importance for Nature Conservation (SINC), which also comprises Priority Habitat (reedbed). In the absence of mitigation or compensation, this would represent a significant adverse effect at the County level.

6.1.3 The Proposed Development has been subject to a stepwise design process to avoid and minimise ecological impacts wherever possible. Embedded mitigation measures, including minimising the footprint of the development through the substation design, sensitive lighting design, drainage infrastructure, and ditch diversion, have been incorporated to reduce indirect effects. Furthermore, careful consideration has been taken to the piling and foundation design to minimise impacts on buried peat within the soil profile and on the retained wetland habitat complex of the SINC.

6.1.4 A comprehensive suite of mitigation, compensation, and enhancement measures will be delivered through the scheme, including:

- Translocation and habitat enhancement for water vole and reptiles;
- Creation of species-specific features such as a wildlife tower, gabion baskets, and hibernacula;
- Restoration and management of retained habitats within the Site;
- Off-site compensation and enhancement at Margam Burrows;
- Long-term monitoring and adaptive management secured through the Landscape and Habitat Management Plan for the Margam Site (retained National Grid land) and Habitat Management Plan (for the off-site Margam Burrows site).

6.1.5 Subject to the implementation of these measures, no significant residual adverse effects are anticipated. The Proposed Development is expected to deliver a Net Biodiversity Benefit and deliver ecosystem resilience, aligned with the DECCA framework, in accordance with Planning Policy Wales (Edition 12) and the Environment (Wales) Act 2016.

6.1.6 In conclusion, the Proposed Development is considered ecologically acceptable, with appropriate safeguards and enhancements in place to enable compliance with relevant legislation and policy, and to support the long-term conservation of biodiversity within Neath Port Talbot. It is expected that the detailed design elements and the suite of mitigation, compensation and enhancement measures described in this EcIA will be secured by appropriate planning mechanisms including conditions and/or Section 106, as appropriate.

7 References

CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.3. Chartered Institute of Ecology and Environmental Management, Winchester.

Baker Hicks (2025a) Margam Flood Consequence Assessment Report. NG Margam. Report prepared for National Grid.

Baker Hicks (2025b) Margam Hydrogeological Impact Assessment. Report prepared for SLR on behalf of Baker Hicks for National Grid

Baker Hicks (2025c) Margam Drainage Report. NG Margam Connection. Report Prepared for National Grid.

Baker Hicks (2025c) Margam Drainage Report. NG Margam Connection. Report Prepared for National Grid. Bat Conservation Trust and Institution of Lighting Professionals (2023) Guidance Note 08/23. Bats and Artificial Lighting at Night. ILP Publications

Bibby C.J, Burgess N.D, Hill D.A, Mustoe S.H. (2000) Bird Census Techniques. Second Edition. Elsevier Ltd.

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F 2014. Analytical and methodological development for improved surveillance of the great crested newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (Triturus cristatus) environmental DNA. Freshwater Habitats Trust, Oxford.

Bird Survey & Assessment Steering Group (2023). Bird Survey Guidelines for assessing ecological impacts, v.0.1.6. [Online] Available at: https://birdsurveyguidelines.org

Bradshaw, R., Davies, S., Hibler, D., Jenkins-Jones, D., Jones, C., Rosney, A., Wilson, J., Bristow, P., Tate, L. (2024). East Glamorgan Bird Report No. 61 2022. www.glamorganbirds.org.uk

British Standards International (2013) Biodiversity — Code of Practice for planning and development. BS 42020:2013

Centre for Ecology and Hydrology (CEH)(2016) Modular Analysis of Vegetation Information System (MAVIS)

CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

CIEEM (201824): Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine. Version 1.3 – Updated September 2024. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2022). Code of Professional Conduct – January 2022 [Online] Available at: https://cieem.net/resource/code-of-professional-conduct/

CIEEM (2023) Advice on Ecological Assessment of Air Quality Impacts, Version 2. Chartered Institute of Ecology and Environmental Management. Winchester, UK.

Collins, J., 2023. Bat Surveys for Professional Ecologists: Good Practice Guidelines. 4th ed. London: Bat Conservation Trust.

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

Dean M., Strachan R., Gow D., and Andrews R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Guidance Series). Eds F. Mathews and P. Chanin. The Mammal Society, London.

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

English Nature (2005). Organising Surveys to Determine Site Quality for Invertebrates: A Framework Guide for Ecologists. English Nature, Peterborough.

Eyre, M.D. (1996) Environmental monitoring, surveillance and conservation using invertebrates. EMS publications, Newcastle upon Tyne.

Froglife. (1999). Reptile Survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth. HM Government (1981). Wildlife and Countryside Act, HMSO, London.

Froglife. (2015). Surveying for Reptiles, Tips, techniques and skills to help you survey for reptiles. [online] Available at https://www.froglife.org/wp-content/uploads/2013/06/Reptile-survey-booklet-3mm-bleed.pdf Last accessed 15/11/2024

Garrett H.M and Ayling, S.C (2021) Terrestrial and Freshwater Resilient Ecological Networks: A Guide for Practitioners in Wales. NRW Evidence Report no. 483. Natural Resources Wales.

Geotechnics (2025) Ground Investigation at Phase 1 Margam. Factual Report for National Grid. February 2025

Hill, D., Fasham, M., Tucker, G., Shewry, M. and Shaw, P. (2006) Handbook of biodiversity methods survey, evaluation and monitoring. Cambridge university press, Cambridge.

Holman et al (2020) A guide to the assessment of air quality impacts on designated nature conservation sites – version 1.1, Institute of Air Quality Management, London.

Jacobs (2012) Proposed Construction of 275kV Substation at Margam – Ecological Assessment Report in Support of Revised Planning Application.

JNCC (2010). Handbook for Phase 1 habitat survey. A technique for environmental audit. Revised reprint 2003, reprinted 2007 & 2010.Joint Nature Conservancy Council. Peterborough.

Johnstone, I.G., Hughes, J., Balmer, D.E., Brenchley, A., Facey, R.J., Lindley, P.J., Noble, D.G. & Taylor, R.C. 2022. Birds of Conservation Concern Wales 4: the population status of birds in Wales. Milvus

Joint Nature Conservation Committee (JNCC) (2008). Common Standards Monitoring Guidance for Invertebrates, Version March 2008. JNCC, Peterborough.

IAQM. (2024). Guidance on the Assessment of Dust from Demolition and Construction, version 2.2. London: IAQM.

Laing O Rourke (2025a) Construction Environmental Management Plan. Margam and Port Talbot Substations and Interconnector. Report for National Grid.

Laing O Rourke (2025b) Construction Logistics Plan V3. Margam / Port Talbot Substation. Report for National Grid

Laing O Rourke (2025c) Waste Management Plan V3. National Grid – Margam Heath Port Talbot Substation Interconnector. Report for National Grid.

Laing O Rourke (2025d) Surface Water Management Plan. Margam and Port Talbot Substations and Interconnector.

Maddock, A. BRIG. (2011). UK Biodiversity Action Plan Priority Habitat Descriptions. [Online] Available at: https://data.jncc.gov.uk/data/2728792c-c8c6-4b8c-9ccd-a908cb0f1432/UKBAP-PriorityHabitatDescriptions-Rev-2011.pdf Accessed July 2025.

Marchant, J.H. (1983) BTO Common Birds Census instructions. BTO, Tring

National Grid (2009). Margam 275kV Substation – Environmental Report. National Grid

National Grid (2009). Margam 275kV Substation – Environmental Report Technical Appendices. National Grid

Natural Resources Wales (NRW), (2016). The State of Natural Resources Report (SoNaRR): Assessment of the Sustainable Management of Natural Resources. Technical Report. [Online] Available at: https://naturalresources.wales/evidence-and-data/research-and-reports/the-state-of-natural-resources-report-assessment-of-the-sustainable-management-of-natural-resources/?lang=en

Neath Port Talbot Council (2018) Biodiversity and Geodiversity. Supplementary Planning Guidance May 2018. [Online] Available at: https://media.npt.gov.uk/media/nqpnpgge/spg_biodiversity_geodiversity_may18.pdf

Neath Port Talbot County Borough Council (Adopted January, 2016) Local Development Plan (2011 – 2026). https://api.npt.gov.uk/asset?url=https%3A%2F%2Fmedia.npt.gov.uk%2Fmedia%2Fca2fbumd%2Fldp_written_statement_jan16.pdf%3Fv%3D20240823155047

Neath Port Talbot County Borough Council (May 2018) Local Development Plan 2011-2026: Biodiversity and Geodiversity Supplementary Planning Guidance

Neath Port Talbot County Borough Council (May 2018) Local Development Plan 2011-2026. Biodiversity and Geodiversity. Supplementary Planning Guidance. [Online] Available at: https://api.npt.gov.uk/asset?url=https%3A%2F%2Fmedia.npt.gov.uk%2Fmedia%2Fnqpnpgge%2Fspg_biodiversity_geodiversity_may18.pdf%3Fv%3D20241209172432

Oldham R.S., Keeble J., Swan M.J.S. and Jeffcot, M. (2000). Evaluating the Suitability of Habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal Vol. 10, pp 143-155.

Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Version 1.1. Chartered Institute of Ecology and Environmental Management, Ampfield.

Rodwell, J.S (Ed.) (1991) British Plant Communities Volume 2: Mires and Heaths. Cambridge University Press.

Rodwell, J.S (Ed.) (1995) British Plant Communities Volume 4: Aquatic Communities Swamps and Tall Herb Fens. Cambridge University Press.

Rodwell, J.S (Ed.) (2000) British Plant Communities Volume 5: Maritime Communities and Vegetation of Open Habitats. Cambridge University Press.

RSK Biocensus (2025a) Margam Substation. Water Vole Licence Method Statement. Report for Laing O Rourke on behalf of National Grid

RSK Acoustics (2025a) Construction Noise and Vibration Impact Assessment. Margam Substation. Report for Laing O Rourke on behalf of National Grid.

RSK Acoustics (2025b) Operational Noise Impact Assessment. Margam Substation- Extension. Report for Laing O Rourke on behalf of National Grid.

RSK Biocensus (2024a) Electric Arc Furnace Preliminary Ecological Appraisal. Report on behalf of Tata Steel UK Ltd

RSK Biocensus (2025b) Margam Substation. Early Works Reptile Translocation. Report for Laing O Rourke

RSK Biocensus (2025c) Margam Substation. Water Vole Management Plan. Report for Laing O Rourke on behalf of National Grid.

RSK Biocensus (2025d) Wintering Birds Survey Report. Margam Substation. Report for Laing O Rourke on behalf of National Grid.

RSK Biocensus (2025e) Margam Precautionary Working Method Statement (Fish). Report for Laing O Rourke on behalf of National Grid.

RSK Environment Ltd (RSK) (2024b) Electric Arc Furnace (EAF) Environmental Statement Vol 2. Report on behalf of Tata Steel UK Ltd.

Stantec (2025a) Bat Surveys Interim Report. Margam, National Grid Electricity Transmission. Report for National Grid Electricity Transmission.

Stantec (2025b) Great Crested Newt Survey Report. Margam, National Grid Electricity Transmission. Report for National Grid Electricity Transmission.

Stantec (2025c) Landscape Detailed Design. Plan for National Grid Electricity Transmission.

Stantec (2025) Habitat Management Plan. Margam Burrows. Report for National Grid Energy Transmission.

Stantec (2025d) Interim Invertebrate Report. Margam, National Grid Electricity Transmission. Report for National Grid Electricity Transmission.

Stantec (2025e) Landscape and Habitat Management Plan. Margam Port Talbot. Report for National Grid Electricity Transmission.

Stantec (2025f) Landscape and Habitat Strategy Plan. Plan for National Grid Electricity Transmission

Stantec (2025g) Port Talbot Connection Substation. Siting Study. Report on behalf of National Grid Electricity Transmission.

Stantec (2025h) Reptile Survey Report. Margam, National Grid Electricity Transmission. Report for National Grid Electricity Transmission.

Stantec (2025i) Shadow Habitat Regulations Assessment Report – Planning Application. Margam, National Grid. Report for National Grid Electricity Transmission.

Stantec (2025j) Breeding Bird Survey Report. Margam, National Grid Electricity Transmission. Report for National Grid Electricity Transmission.

Stantec (2025k) Botanical Survey Report. Margam, National Grid Electricity Transmission. Report for National Grid Electricity Transmission.

Stantec (2025l) Water Vole and Otter Report. Margam, National Grid Electricity Transmission. Report for National Grid Electricity Transmission.

Stantec (2025m) Habitat Management Plan. Margam Burrows. Report for National Grid Electricity Transmission

Stantec (2025n) Air Quality Assessment. Margam Substation, Port Talbot. Report for National Grid Electricity Transmission

Stantec (2025o) Lighting Technical Note. Margam Port Talbot. Report for National Grid Electricity Transmission.

Sutherland W J (ed.) 2006. Ecological Census Techniques 2nd edition. A Handbook. CUP

UK Hab Ltd. (2023) UK Habitat Classification Version 2.0 [Online] Available at: https://www.ukhab.org.

Wales Biodiversity Partnership (2008) Wildlife Sites Guidance Wales. A Guide to Develop Local Wildlife Systems in Wales. February 2008. Wales Biodiversity Partnership.

Welsh Assembly Government (2009) Planning Policy Wales. Technical Advice Note 5: Nature Conservation and Planning (TAN 5). [Online] Available at: https://www.gov.wales/sites/default/files/publications/2018-09/tan5-nature-conservation.pdf

Welsh Government (2022). Biodiversity deep dive: Recommendations. Outcome of the biodiversity deep dive focussing on protecting at least 30% of the land and 30% of the sea by 2030. [Online] Available at: https://www.gov.wales/biodiversity-deep-dive-recommendations

Welsh Government (February 2024) Planning Policy Wales, Edition 12. https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf

WRC (2025) Peat Management Plan. Margam Substation Extension. Report for Laing O Rourke on behalf of National Grid.

Wright, M.D., Goodman, P and Cameron, T C (2010) Exploring behavioural responses of shorebirds to impulsive noise. Wildfowl (2010) 60: 150–167

8 Figures

Figure 1: Site Location Plan

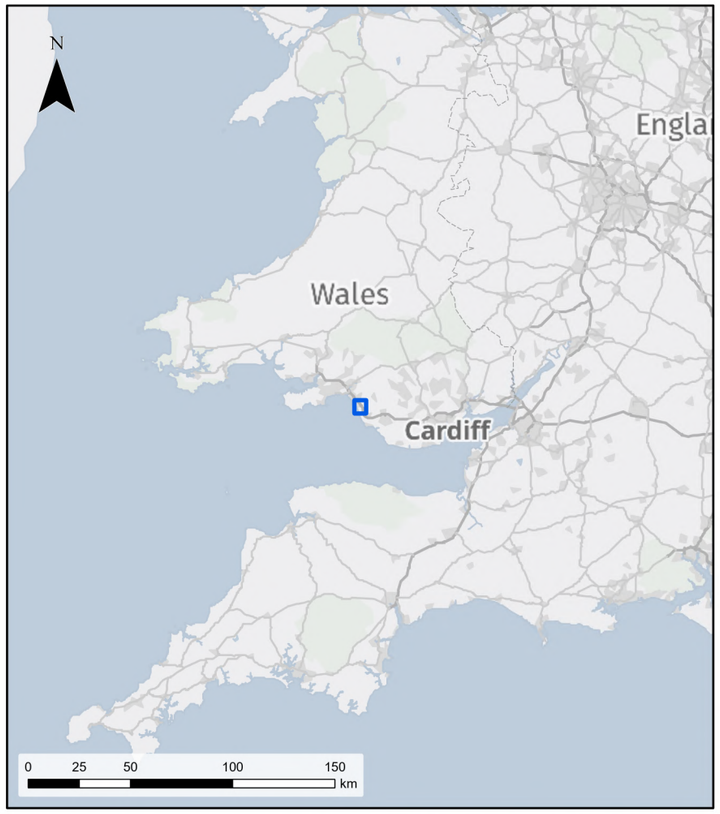
Figure 2: Internationally Designated Sites

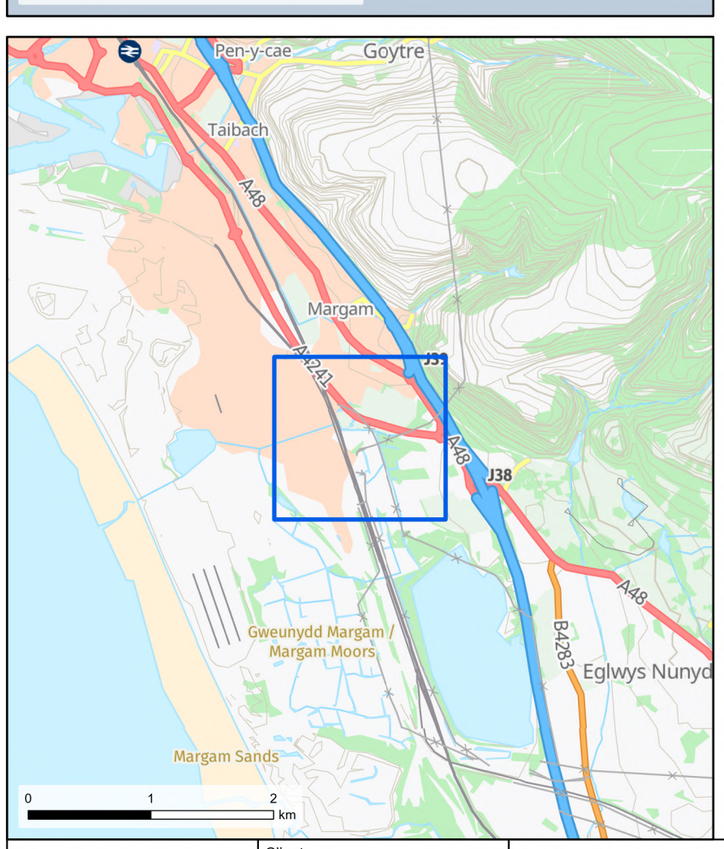
Figure 3: Nationally and Locally Designated Sites

Figure 4: Ancient Woodland and Priority Habitats

Figure 5: Phase 1 Habitat Survey Plan

Figure 6: Net Benefit for Biodiversity: Margam National Grid Land and Margam Burrows Proposed Off-Site Compensation and Enhancement Areas





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MARGAM PORT TALBOT

Site Location Plan

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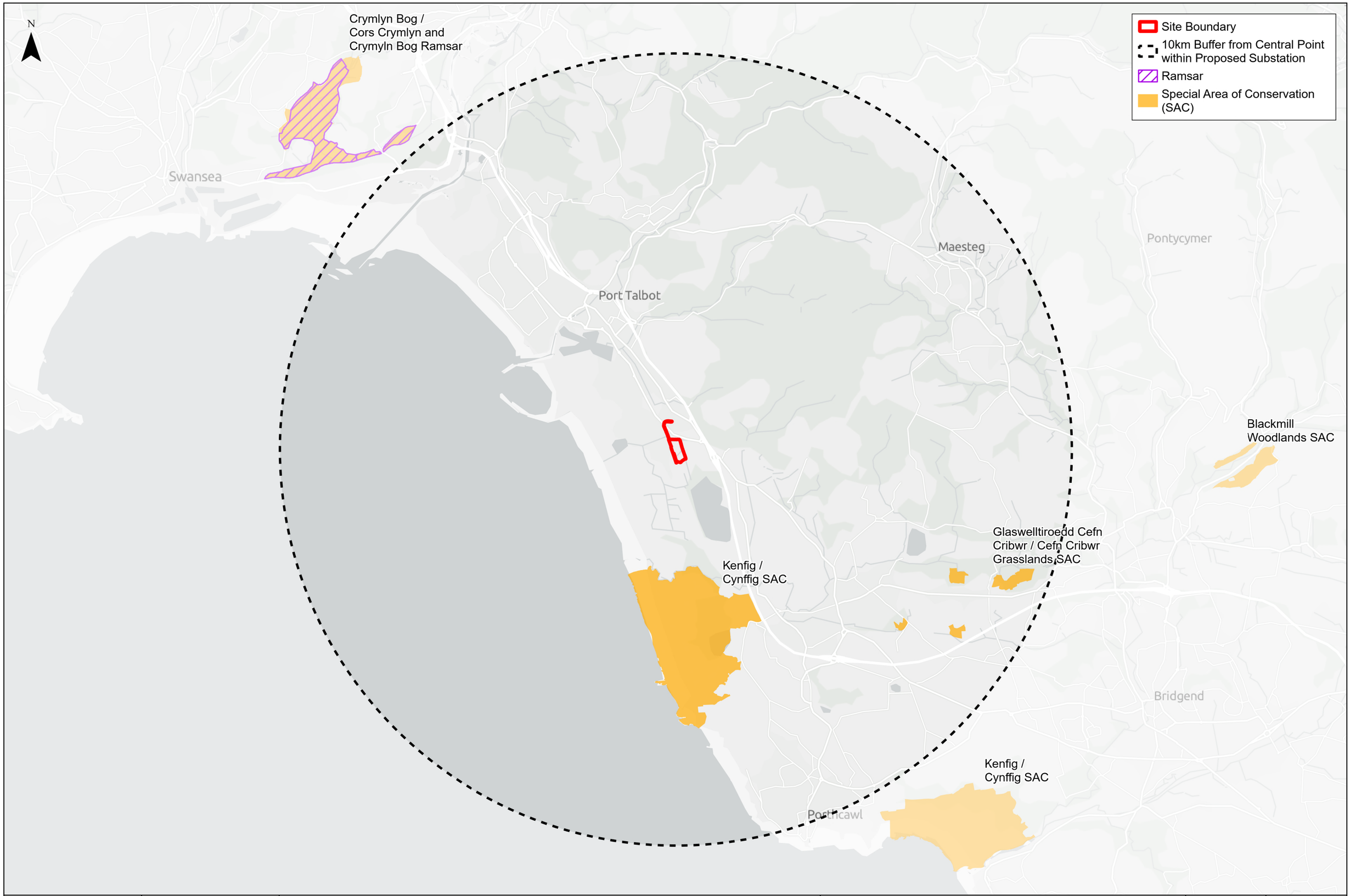

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MARGAM PORT TALBOT

Internationally Designated Sites

0 2.5 5 km

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N

Site Boundary
2km Buffer from Central Point within Proposed Substation
Site of Importance for Nature Conservation (SINC)
Site of Special Scientific Interest (SSSI)

Junction 38 Wetland Complex SINC

NPT Ancient Semi-Natural Woodland

Margam Country Park SINC

Eglwys Nunydd SINC

Eglwys Nunydd Reservoir SSSI

Margam Moors SSSI

Margam

Eglwys Nunydd

A4241 A48 M4

0 0.5 1 km

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MARGAM PORT TALBOT

Nationally and Locally Designated Sites

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N

Site Boundary

2km Buffer from Central Point within Proposed Substation

Ancient Woodland

Traditional Orchards

Lowland Meadows

Habitats of Principal Importance

Coastal and Floodplain Grazing Marsh

Lowland fens and Reedbeds

Purple moor grass and rush pastures

Margam

Eglwys Nunydd

A4241

A48

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MARGAM PORT TALBOT

Ancient Woodland and Priority Habitats

0 0.5 1 km

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N

Site Boundary
2km Buffer from Central Point within Proposed Substation
G1 - Standing Water - Ditch
Dry Ditch
A2.1 - Scrub - dense/ continuous
B2.2 - Neutral grassland - semi-improved
B5 - Marsh/marshy grassland
F1 - Swamp
G1 - Standing water - Pond
J1.3 - Cultivated/disturbed land - ephemeral/short perennial
Hardstanding/Built structure

Upper Mother Ditch
D1
D2
D3
D4
D5
Upper Mother Ditch
D6
D4
D7
D8
D9
D10

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MARGAM PORT TALBOT
Phase 1 Habitat Survey Plan

0 250 500 m

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N

Site Boundary

Proposed Off-Site Area for Net Biodiversity Benefit Delivery (Margam Burrows)

Margam Moors Site of Special Scientific Interest (SSSI)

1:5,000

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MARGAM PORT TALBOT

Net Benefit for Biodiversity: Margam National Grid Land and Margam Burrows Proposed Off-Site Compensation and Enhancement Areas

0 0.5 1 km

Maxar, Microsoft

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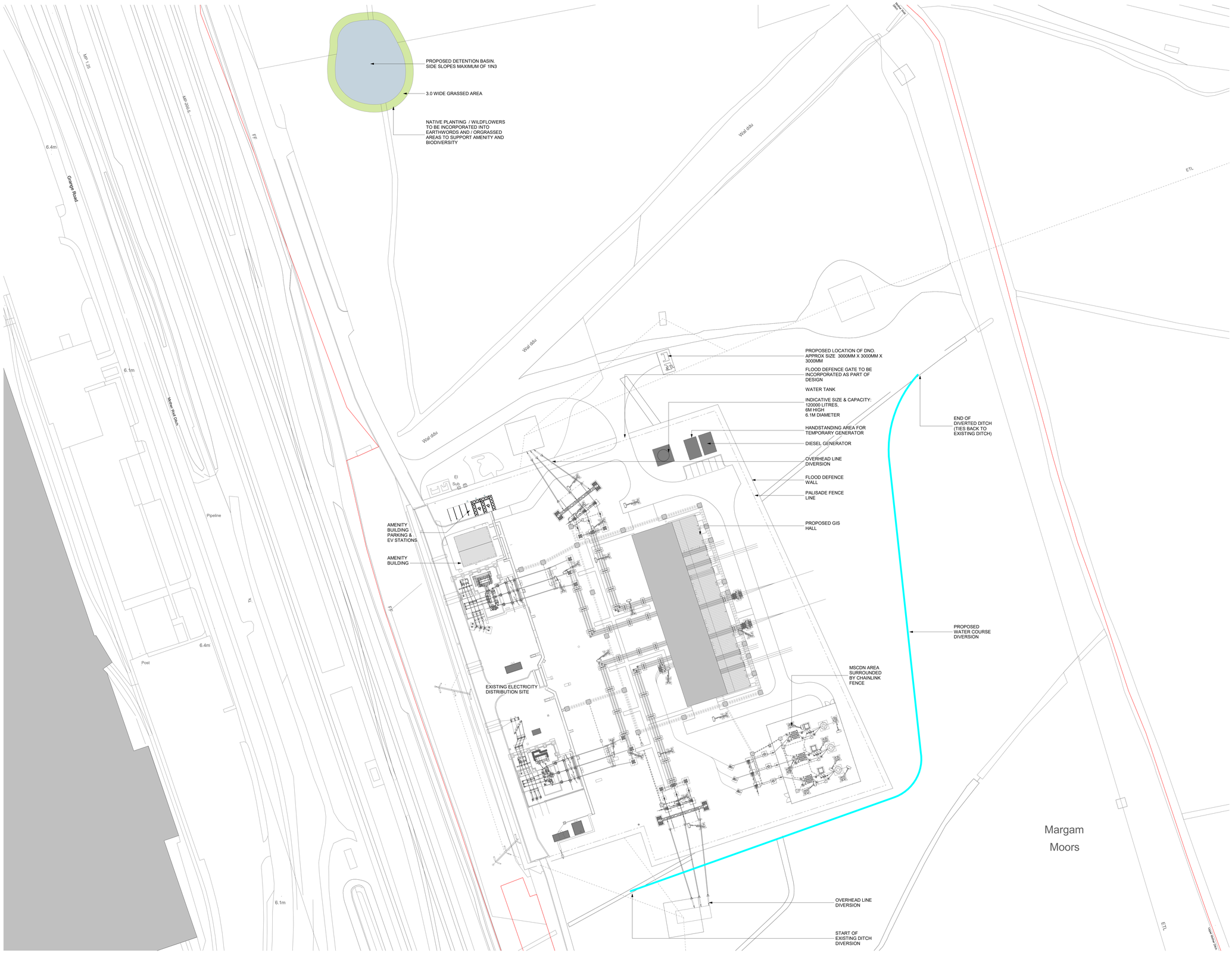
Appendix A Proposed Development Plans and Ecology Survey Study Area

A.1 Proposed Site Plan



1 Margam Site Plan - Proposed
Scale: 1 : 500

SCALE 1:500 (5 0 5 10 15 20 25 m)

For Planning

GENERAL NOTES

ALL BAKERHICKS DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE GENERAL NOTES DRAWINGS, THE RELEVANT BAKERHICKS SPECIFICATIONS AND ALL RELEVANT ARCHITECTS AND SERVICE ENGINEER'S DRAWINGS AND SPECIFICATION.

ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM.

ALL DIMENSIONS ARE IN MILLIMETRES (U.N.O)

DO NOT SCALE ANY ENGINEERING DRAWINGS OR DIGITAL DATA. IF IN DOUBT ASK. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES IN DIMENSIONS ARE TO BE REFERRED TO ENGINEER BEFORE WORK IS PUT TO HAND.

THE CONTRACTOR MUST ADVISE THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND/OR SITE CONDITIONS / DIMENSIONS AT THE EARLIEST POSSIBLE OPPORTUNITY.

REVISION NOTES ARE FOR GUIDANCE ONLY. FOR SPECIFIC DETAILS, REFER TO CLOUDED AREA ON DRAWINGS FOR MOST RECENT AMENDMENTS.

ALL DIMENSIONS AND LEVELS ARE TO BE CHECKED ON SITE BY THE CONTRACTOR OR HIS SUBCONTRACTOR PRIOR TO PREPARING ANY WORKING DRAWINGS OR COMMENCING ON SITE.

ALL WORK HAS TO BE CARRIED OUT WITH THE REQUIREMENTS OF THE RELEVANT STATUTORY AUTHORITIES AND REGULATIONS.

ALL METHOD STATEMENTS SHOULD BE SUBMITTED TO THE ARCHITECT / CDM PRINCIPAL DESIGNER AND ENGINEER FOR REVIEW AT LEAST TWO WEEKS BEFORE CARRYING OUT THE SAID WORKS.

ALL PROPRIETARY PRODUCTS TO BE AS SPECIFIED OR EQUAL APPROVED.

KEYPLAN

SITE KEY

SITE BOUNDARY

SITE AREA: (154648.052 m2) (15.46 Hectares) (38.20 Acres)

BUILDINGS

PROPOSED WATERCOURSE DIVERSION

NOTE:

DRAWING TO BE PRINTED IN COLOUR

REFER TO PEAT MANAGEMENT STRATEGY FOR AREAS OF PEAT BURIAL LOCATIONS

P05	S3 For Review and Comment: Planning drawings updated following feedback with NPT on 24/07/25	MY	OTr / PC	29/07/25
P04	S3 - For Review & Comment. Updated Proposed Site Layout following Planning Consultant Feedback	OTr	OT/RC	30/06/25
P03	Issued for planning, comments incorporated following client feedback	GP	OTr / RC	24/04/25
P02	Issued For Planning	DSB	OTr / RW	10/02/25
P01	First Issue	DSB	RW / JK	03/02/25
Rev.	Description	Cre'd	Chk'd / Appr'd	Date

nationalgrid

Master Scheme No:	Sub-Scheme No:	Site:
101677		MARGAM

Scheme Name: Margam Substation

Document Title: Margam GIS Hall - Proposed Site Plan

Created by:	Date:	Checked by:	Date:	Approved by:	Date:
DSB	30/01/25	RW	30/01/25	JK	30/01/25

Development Eng:	Document Type:	Scale:	Format:	Sheet(s):	Rev:
	DWG	1 : 500	A0		P05

National Grid Document Number: 13_LOR_0066

MARPT-BHK-01-ZZ-DG-A-130023

A.2 Proposed Permanent Development Footprint

N

Planning Application Boundary
Existing Substation
Proposed Substation Extension
Proposed Access Road Improvements and Ditch Diversion
Proposed SUDS
Proposed Peat Burial Areas

Ffordd Yr Harbwr / Harbour Way
Heol Margam / Margam Road
Allotments
Bowling Green
Tennis Court
Other Sports Facility
A4241
A48
M4
Upper Mother Ditch
Tyn y Caeau
Longland House
Playing Field

Stantec

Client
nationalgrid

MARGAM PORT TALBOT
Planning Application Boundary and Proposed Permanent Development Footprint

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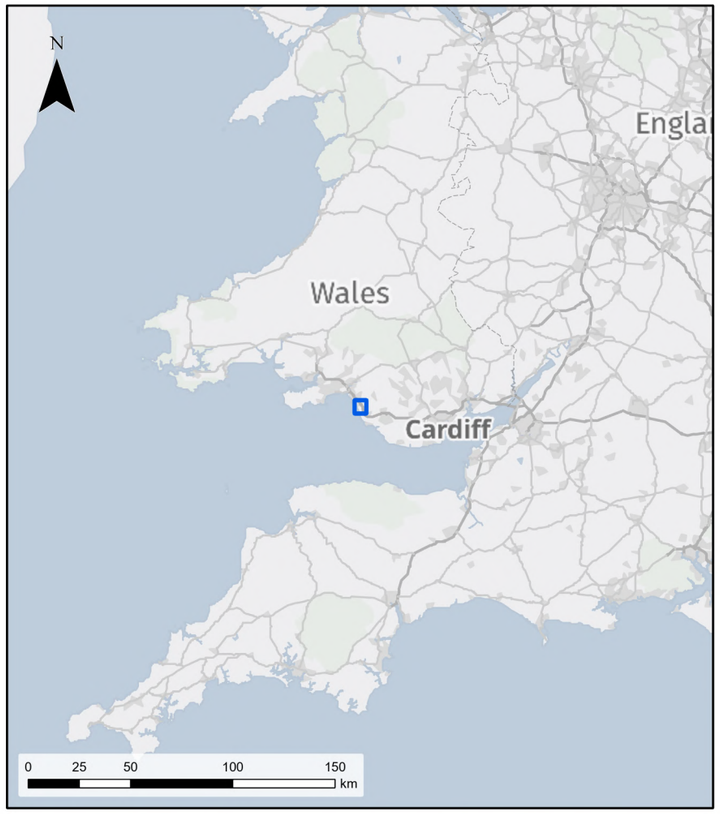
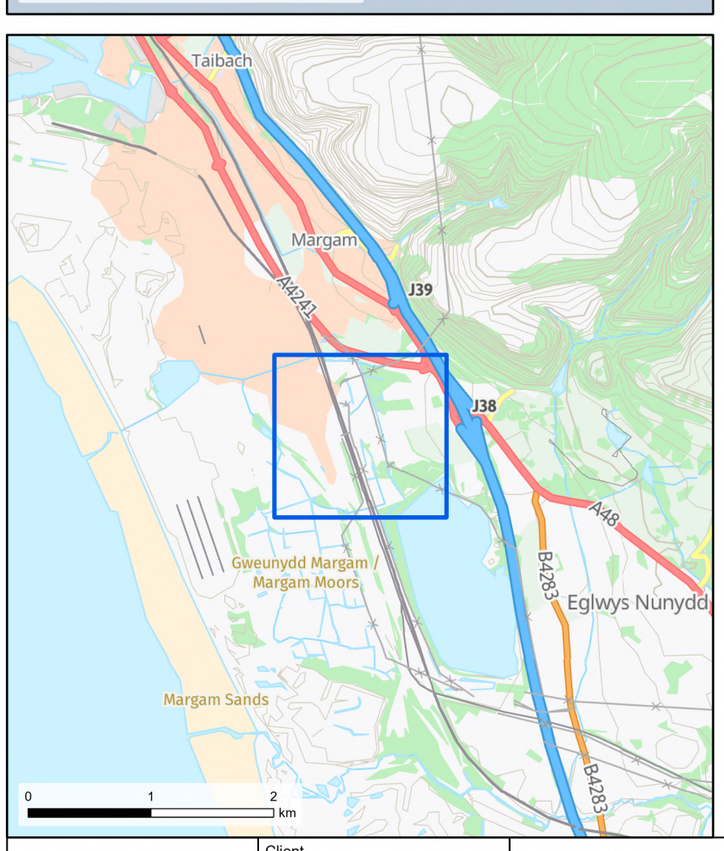
A.3 Ecology Survey Study Area





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MARGAM PORT TALBOT

Site Location

Date: 15/11/2024	
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Figure: 01	Rev: A

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Appendix B Summary of Relevant Legislation and Policy

B.1 Legislation

The Conservation of Habitats and Species Regulations 2017 (as amended) – European Protected Species

B.1.1 The Conservation of Habitats and Species Regulations transpose the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ("The Habitats Directive") into law.

B.1.2 The 2017 Regulations consolidate the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 in respect of England and Wales. The regulations provide for:

- designation and protection of European Sites (Special Protection Areas (SPA) and Special Areas of Conservation (SAC)) including the need for 'Appropriate Assessment' of plans and proposals;
- protection of European protected species;
- adaptation of planning and other controls for the protection of European Sites; and
- make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2.

B.1.3 No actions that will impact upon a European protected species or its habitat can be undertaken unless authorised by a European Protected Species licence issued by Natural England. Such a licence is granted until after planning consent has been granted once Natural England are satisfied that adequate measures are to be put in place to mitigate for the impact of the development.

The Conservation of Habitats and Species Regulations 2017 – Wild Bird Habitats

B.1.4 The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, 'Birds Directive'36) (Regulation 10 (3)) whose objective is the 'preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive…' Regulation 10 (7) states: 'In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements'.

B.1.5 In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: 'So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).'

Wildlife and Countryside Act 1981 (as amended)

B.1.6 The Wildlife and Countryside Act 1981 (as amended) (WCA) implements the Convention of European Wildlife and Natural Habitats (The Bern Convention) and the Directive 2009/147/EC 'The Birds Directive'.

B.1.7 The 1981 WCA has been amended by the Countryside and Rights of Way (CROW) Act 2000.

B.1.8 Schedules 1 (birds) and 5 (animals) of the WCA identify species of bird and other animal in relation to which the WCA makes killing, injury, taking and disturbance an offence while Schedule 8 to the Act lists species of plant in relation to which the Act makes it an offence to intentionally pick, uproot or destroy.

B.1.9 Section 14(2) of the Act makes it an offence to cause any species of animal or plant listed in Schedule 9 of the Act to grow in the wild. Of these species, those encountered frequently in land development and regeneration projects include Japanese knotweed, giant hogweed, floating pennywort

B.1.10 The Act further provides for notification and confirmation of Sites of Special Scientific Interest (SSSI) for their flora, fauna, geological or physiographical features. It also contains measures for the protection and management of SSSIs. The Countryside and Rights of Wat Act 2000.

Environment (Wales) Act 2016

B.1.11 As part of Welsh Government's commitment to reversing the decline in biodiversity in Wales and increasing the resilience of its ecosystems, the Environment (Wales) Act introduces a new biodiversity duty, which highlights biodiversity as an essential component of ecosystem resilience.

B.1.12 Section 6 of the Act places a duty on public authorities to 'seek to maintain and enhance biodiversity' so far as it is consistent with the proper exercise of those functions. In so doing, public authorities must also seek to 'promote the resilience of ecosystems'. The duty replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006 (NERC Act 2006), in relation to Wales, and applies to those authorities that fell within the previous duty.

B.1.13 Section 7 replaces the duty in Section 42 of the NERC Act 2006. The Welsh Ministers will publish, review and revise lists of living organisms and types of habitat in Wales, which they consider are of key significance to sustain and improve biodiversity in relation to Wales. In producing the list or taking any measures to improve the listed organisms and habitats, the Welsh Ministers must apply the principles of sustainable management of natural resources. Therefore, they must consider any appropriate evidence, for example as provided in the State of Natural Resources Report, and also engage with any relevant stakeholders, including pertinent public authorities. Certain public authorities will also be required to consider the section 7 list, in complying with the new biodiversity duty under section 6 of the Act. The list is important in assisting public bodies to identify potential issues that they may wish to address in meeting their well-being objectives, in addition to contributing to the well-being goal 'a resilient Wales' (Goal 2).

Protection of Badgers Act 1992

B.1.14 The Protection of Badgers Act 1992 protects badgers from persecution rather than being a response to unfavourable conservation status. The Act makes it an offence to:

- willfully kill, injure, take, possess or cruelly ill-treat a badger; or attempt to do so; or
- to intentionally or recklessly interfere with a sett.

B.1.15 Badgers and their setts are frequently encountered in both urban and rural areas and as such land development and regeneration projects have the potential to affect badgers and/or their

setts. If an offence is likely to result an effective mitigation plan much be agreed with Natural England and authorised by licence before work proceeds.

Wild Mammals Protection Act, 1996 (as amended)

B.1.16 Under the Wild Mammals (Protection) Act 1996 it is an offence to cause unnecessary suffering to wild mammals, including crushing and asphyxiating. This Act is primarily concerned with animal welfare and aims to prevent cruelty. As a result, offences include those actions with the intent to inflict unnecessary suffering. A wild mammal includes any mammal which is not domestic or captive. Red foxes, wild deer and other mammals such as rabbits are therefore covered by the Act.

The Invasive Alien Species (Enforcement and Permitting) Order 2019 (IASO)

B.1.17 The IASO transposes the EU Invasive Alien Species (IAS) Regulation (1143/2014) into UK law. The IASO makes it an offence to plant or otherwise cause to grow in the wild any specimen which is of a species of plant which is included in Part 2 of Schedule 2.

The Eels (England and Wales) Regulations 2009

B.1.18 The Eels (England and Wales) Regulations 2009 were created to help recover European eel stocks, aligning with Council Regulation (EC) No 1100/2007. These regulations apply to England and Wales. Structures like dams must include eel passes to allow eels to navigate around obstructions, and eel screens are required to prevent eels from entering harmful areas. The regulations also include measures to support the restocking of eel populations, aiming for sustainable management and recovery of eel populations in the region.

Salmon and Freshwater Fisheries Act 1975

B.1.19 The Salmon and Freshwater Fisheries Act 1975 was enacted to protect salmon and trout from commercial poaching, safeguard their migration routes, and prevent the neglect and vandalism of fisheries. It consolidates previous legislation, including the Salmon and Freshwater Fisheries Act 1923, and introduces measures for proper licensing and water authority approval. The Act also addresses the use of prohibited fishing implements, the construction of fish passes, and the regulation of fishing times and methods to ensure sustainable management of freshwater fisheries in the UK.

B.2 Policy

Planning Policy Wales (2024)

B.2.1 Planning Policy Wales sets out local and national policies regarding development, the latest 12th edition being published in February 2024. The statement sets the priorities and expectations for planning authorities to consider with development proposals, which includes consideration of the environment, landscapes and biodiversity so that “a Resilient Wales can be supported by protecting and providing sufficient scale, extent, diversity and connectivity within, and between, landscapes and habitats to maintain and enhance biodiversity and the resilience of ecosystems.”

B.2.2 The mission statement above should be achieved by considering the following fully according to the policy statement:

- “Development plan strategies, policies and development proposals should be formulated to look to the long term protection and enhancement of the special characteristics and intrinsic qualities of places, be these of natural, historic or built environments, ensuring their longevity in the face of change. This means both protecting and enhancing landscapes, habitats, biodiversity, geodiversity and the historic environment in their own right as well as other components of the natural world, such as water resources or air quality.”

- "Problems should be prevented from occurring or getting worse. Biodiversity loss should be reversed, pollution reduced, environmental risks addressed and the overall resilience of ecosystems improved."

- "When appropriate development is proposed, it must be taken forward in an integrated way, woven into its place/context alongside nature to ensure common issues are considered and accommodated in the early stages of plan making or individual proposal and multiple benefits, such as green infrastructure are secured."

- "Proposals should work creatively with nature and should demonstrate how decisions on design, siting, scale density and other key considerations have been informed by biodiversity and ecosystem resilience considerations."

B.2.3 In conjunction with the Environment (Wales) Act (2016), local authorities have a duty under Section 6 of that legislation to develop, enhance and link green infrastructure, avoiding loss, degradation and fragmentation of these habitats. Development plans should therefore provide a net benefit for biodiversity, working alongside and in conjunction with local ecosystems, and not causing any significant loss of habitat or species' populations. In a step-wise approach to evaluate biodiversity enhancement set out in the policy, the onus is on the developer to bring forward a way which will achieve net benefit for biodiversity, demonstrating the enhancement of local green infrastructure.

B.2.4 The step-wise approach to be considered with each development involves an initial Green Infrastructure Assessment to gauge the local baseline ecological assets and networks. A variety of data sources can be used to inform this including The State of Natural Resources Report (SoNaRR) by NRW, Area Statements, Local Nature Plans and Biodiversity Action Plans.

B.2.5 From the evidence provided in the Green Infrastructure Assessment, the planning authority is to sequentially consider the following in relation to the development proposal, the local environment and net benefit for biodiversity:

- Avoid any loss of biodiversity in any sense and enhance local ecological functions resulting in a net benefit for biodiversity. This could be achieved through identifying an alternative site for development.

- Minimise any loss of biodiversity from development and enhance local ecological functions resulting in a net benefit for biodiversity. After exhausting options to relocate or redesign the development, any subsequent ecological impact should be minimised by maintaining natural habitats on site, ensuring these habitats are well connected to adjacent habitats, retaining existing natural features with a management plan to avoid damage during construction, and even use innovative solutions to maintain any existing ecological functions.

- Mitigate any loss of biodiversity from development and enhance ecological functions within the designated mitigation area resulting in a net benefit for biodiversity. Where efforts to minimise, ecological damage will still result in overall damage from development, finding and designating an area for natural habitat creation or restoration on site in a like-for-like basis will be considered. Overall connectivity to local habitats still needs to be demonstrated and a management plan for natural habitat creation or restoration, including details of financing, should be submitted. If there is no suitable mitigation area on the proposed site, off-site mitigation can be considered with submission of a full ecological statement including ecological baseline of the off-site mitigation area, habitat creation or enhancement plan, financing and ability to demonstrate the perpetuity of the restored ecosystem.

B.2.6 Statutory designated sites are, by principle, not to be developed. They are central to ecological networks within local landscapes. There is potential for development proposals to partly mimic, provide connectivity to and compliment these sites providing the required Section 6 duty to provide a net benefit for biodiversity.

B.2.7 Initial Green Infrastructure Assessments, calculation of baseline ecological value, identification of avoidance, minimisation or mitigation measures in relation to ecological damage, and opportunities for green infrastructure enhancement resulting in a net benefit for biodiversity from development can be provided in a Biodiversity Net Gain (BNG) Assessment.

Technical Advice Note 5: Nature Conservation and Planning (TAN 5)

B.2.8 This Technical Advice Note (TAN) provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. This guidance note supplements Planning Policy Wales, in particular Chapter 6 Distinctive Natural Places (as outlined above).

B.2.9 This TAN brings together advice on sources of legislation relevant to various nature conservation topics which may be encountered by local planning authorities. Chapter 2 sets out the key principles of planning for nature conservation. Chapter 3 provides advice about the preparation and review of development plans, including the relevant statutory requirements. Chapter4 addresses nature conservation in development control procedures. Chapter 5 deals with the conservation of internationally and nationally designated sites and habitats and also covers local sites. Chapter 6 deals with the conservation of protected and priority species. The Annexes form part of this TAN and provide more detailed information and guidance on a range of issues.

Neath Port Talbot County Borough Council, Local Development Plan (2011-2026)

B.2.10 A summary of relevant local planning policies included in the Neath Port Talbot County Borough Council Local Development Plan is provided in Table B 1. Please refer to source document for full text.

Table B 1: Summary of Local Planning Policy

Planning Policy	Summary of Policy Text
Policy SP15 Biodiversity and Geodiversity	Important habitats, species and sites of geological interest will be protected, conserved, enhanced and managed through the following measures: 1. The identification of the following Internationally and Nationally designated sites within the County Borough to enable their protection: (a) Special Areas of Conservation (SACs) and Ramsar Sites; (b) Sites of Special Scientific Interest (SSSIs); (c) National Nature Reserves (NNRs). 2. The identification and protection of sites of regional and local importance; 3. The protection of important natural heritage features.
Policy EN 6 Important Biodiversity and Geodiversity Sites	Development proposals that would affect Regionally Important Geodiversity Sites (RIGS), Local Nature Reserves (LNRs), Sites of Interest for Nature Conservation (SINCs), sites meeting SINC criteria or sites supporting Local Biodiversity Action Plan (LBAP) or S42 habitats or species will only be permitted where: 1. They conserve and where possible enhance the natural heritage importance of the site; or 2. The development could not reasonably be located elsewhere, and the benefits of the development outweigh the natural heritage importance of the site. Mitigation and/or compensation measures will need to be agreed where adverse effects are unavoidable.
Policy EN 7 Important Natural Features	Development proposals that would adversely affect ecologically or visually important natural features such as trees, woodlands, hedgerows / field boundaries, watercourses or ponds will only be permitted where:

Planning Policy	Summary of Policy Text
	1. Full account has been taken of the relevant features in the design of the development, with measures put in place to ensure that they are retained and protected wherever possible; or 2. The biodiversity value and role of the relevant feature has been taken into account and where removal is unavoidable, mitigation measures are agreed.

Biodiversity and Geodiversity Supplementary Planning Guidance

B.2.11 The Biodiversity and Geodiversity Supplementary Planning Guidance (SPG) supplements and explains the policies in the Local Development Plan (LDP). The SPG provides information and guidance setting out the expectations on all development proposals to protect, conserve, enhance and manage important habitats, species and sites of geological interest. The document focuses on the full range of biodiversity and geodiversity features and interests within Neath Port Talbot and sets out the measures that will be taken through the planning system to meet the relevant objectives set out in the LDP.