Harworth Estates Investments Ltd

Erlas Park, Wrexham
Cefn Park

Proposed phased residential development for the construction of up to 900 residential dwellings with associated infrastructure (primary school, playing fields, open space, SUDs and a wastewater treatment plant (if necessary) with all matters reserved except fordetailed means of primary highway access.

EIA Scoping Report

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1. INTRODUCTION

1.1 Harworth Estates Investments Ltd. (the 'Applicant') is seeking to obtain outline planning permission for residential development and associated infrastructure in association with the emerging housing allocation known as KSS2 (south) on land to the east of Cefn Road, Wrexham, LL13 9TT. The Site is located within the administrative authority of Wrexham County Borough Council (WCBC). The site extends to 49.09 hectares and the Site Location Plan is presented at **Appendix 1**.

1.2 Egniol has been instructed by the Applicant to submit an Environmental Impact Assessment (EIA) Scoping Request in respect of the above site to formally determine the scope of the EIA under the provisions of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017[1] as amended[2] (hereafter referred to as the 'EIA Regulations'). The purpose of this report is to inform the request for an EIA Scoping Opinion in respect of the Applicant's proposal (hereafter referred to as the 'Proposed Development').

1.3 The Applicant has undertaken a range of environmental surveys and technical assessments across the Site to inform the design evolution of the Proposed Development. The information obtained to date has been used to inform the scope of the EIA as set out in this Scoping Report.

Requirement for EIA

1.4 The EIA Regulations require that for certain planning applications, an EIA must be undertaken. Schedule 1 of the EIA Regulations lists developments that always require EIA and Schedule 2 of the EIA Regulations list developments that may require EIA if it is considered that they could give rise to significant environmental impacts.

1.5 Regulation 6 of the EIA Regulations makes provision for a developer to request a 'Screening Opinion' from the Local Planning Authority (LPA) to ascertain whether an EIA is required if a development is classed as a Schedule 2 development. This decision is based on the likelihood of significant environmental effects arising in relation to the development proposals. Due to the scale and location of the Proposed Development, it has been assumed for the purposes of the application that a statutory EIA will be required and therefore the Applicant will be undertaking an EIA in respect of the proposals without seeking a Screening Opinion from the Local Authority.

[1] The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations. 2017 No. 567 (W. 136)
[2] The Town and Country Planning (Environmental Impact Assessment) (Wales) (Amendment) Regulations 2019 No. 299 (W. 76).

EIA Scoping

1.6 Under Regulation 14 of the 2017 EIA Regulations, a person who is minded to make an EIA application may ask the relevant planning authority to state in writing their opinion as to the information to be provided and subsequently reported in an Environmental Statement (ES) (a 'Scoping Report'). The scoping process is an integral part of undertaking an EIA and its purpose is to provide relevant background information about the Site, the Proposed Development, key environmental issues and the approach for the assessment of potential effects.

1.7 This Scoping Report outlines the Proposed Development and identifies issues that will be assessed by the EIA and reported in the ES that will accompany the planning application. The objectives of the scoping process are to:

- Provide a detailed description of the development, including its physical characteristics and land use requirements.
- Identify key environmental topics that the EIA will consider.
- Define the extent to which environmental topics will be investigated.
- Allow consultation with the LPA, and statutory and non-statutory consultees; and
- Provide a mechanism for agreeing the content and methodology of the EIA with stakeholders at an early stage in the process.

Structure of Report

1.8 The report is divided into the following sections:

- **Section 1: Introduction**
- **Section 2: Site Context:** This section describes our understanding of the current conditions of the Site and the surrounding area.
- **Section 3: Description of Development:** This section provides a description of the Proposed Development.
- **Section 4: EIA Approach:** This section provides the proposed approach to undertaking the EIA.
- **Section 5: Alternatives:** This section sets out the approach to the alternatives assessment.
- **Section 6 – 14: Environmental Assessment Topics:** These sections outline the proposed methodology for the ES and for each technical assessment expressed as chapters and/or appendices of the ES.
- **Section 15: Non-Significant Issues:** This section sets out those environmental issues deemed to be non-significant for the purposes of EIA and would not be included as a chapter in the ES.

- **Section 16: Structure of the Environmental Statement:** This section defines the proposed structure of the ES, chapters and document formats.
- **Section 17: Summary and Conclusions**

1.9 It should be noted that the Scoping Report has been produced using currently available information in relation to the Site and the Proposed Development. However, the design of the Proposed Development is still evolving and will continue to do so throughout the EIA process.

1.10 This is important as it allows an iterative design process to be followed which takes account of environmental issues and allows for the incorporation of mitigation measures into the proposals. Therefore, changes to the proposals between the scoping of the EIA and the submission of the application should not necessarily require the EIA to be fully re-scoped.

1.11 The scope presented relates to the general principles of the proposals rather than the specifics; hence the scope can accommodate minor amendments to the Site and the proposals. If the scheme changes materially or if the Site expands significantly in area, it is acknowledged that further scoping may be required.

2. SITE CONTEXT

2.1 This section sets out the geographical context of the Site and summarises potential environmental constraints and sensitive receptors in the vicinity.

Site Location and Description

2.2 The land associated with this proposal comprises an area of previously undeveloped agricultural land and is located to the east of Cefn Road, Wrexham.

2.3 The northern edge of the site is bounded by Oakhurst and Thornleigh (Dol Ddraenen) to its north west. A historic woodland can be found south and southeast of the site. The east and south of the site are bounded by hedgerows and open fields. The site is publicly accessible and several Public Rights of Way (PROW's), including footpaths ABE/1 and ABE/2 run from east to west through the site.

2.4 The site is mostly open grassland with existing playing pitches to the west and arable agricultural land to the east and south. Woodland occupies a small portion of the site, towards the west. The existing playing pitches are linked to Ysgol Morgan LLwyd, a local secondary school located to the immediate west across Cefn Road.

2.5 The surrounding areas around the site are largely characterised by existing residential dwellings, and community facilities. To the north and west of the site are built up urban areas, comprised of detached, semi-detached and terraced properties.

2.6 The area adjacent to the west of the site also offers a range of services mainly within a small parade of retail premises including a convenience store, takeaway restaurants, pharmacy and hairdresser. Border Retail Park and an Asda Superstore are within a 25 minutes' walk from the site. A wider range of retail outlets are available in Wrexham town centre, 2km to the west, and on Wrexham Industrial Estate, 2.5km to the east.

2.7 Erlas Victorian Walled Garden is a community garden located adjacent to the site's north east limit. Acton Park is the closest large park, 2km north west of the site.

2.8 Queensway Sports Complex, home to the Wrexham Athletics Club and North Wales Crusaders rugby league club, is located 1.5km southwest of the site. Its facilities include: a swimming pool, gymnastics gymnasium, squash courts, 3G sport turf and athletics tracks and field.

2.9 Wrexham is served by two railway stations: Wrexham General Station and Wrexham Central Railway Station both located approximately 4km from the site.

2.10 There are bus services that run through Hullah Lane and Sutton Drive, and to the north through Holt Road and St. Andrew Crescent, the services are as follows:

- Stagecoach line 5: Wrexham Bus Station (Wrexham)to Chester Railway Station (Chester);

- Arriva Bus lines 7 and 8: Wrexham Bus Station to Caia Park;
- Arriva Bus line 35: Wrexham Bus Station to Plas.

2.11 There are no designated Scheduled Monuments, Conservation Areas, Registered Parks and Gardens, Registered Battlefields or Listed Buildings within the site boundary.

2.12 There were no national statutory designated sites (Sites of Special Scientific Interest (SSSIs), National Nature Reserves, or Local Nature Reserves) within 2 km of the site boundary. The site is within a SSSI Impact Risk Zone for more distant SSSIs but only for livestock/poultry units and general combustion processes. On this basis, Natural Resources Wales do not need to be consulted further. Five non-statutory designated sites are located within 5 km of the site boundary. All of these are Local Wildlife Sites (LWSs) and include:

- Cefn Park. A series of broadleaved woodlands within Cefn Park Estate.
- Borras Bog. An acid bog with birch canopy that is in excellent condition and unusual for the Wrexham area.
- Errdig Estate. Trust estate with woodlands, semi-improved neutral grasslands and marshes.
- Wrexham Industrial Estate.
- Pant Yr Ochain. 2.3km to the North of the Site. Historic Inn with surrounding habitats.

2.13 There are no watercourses present on the site and the site is in Flood Zone 1, which identifies the area as having a low probability of flooding.

2.14 The site is not located in an Area of Outstanding Natural Beauty (AONB) or any other landscape designation.

2.15 The site does not lie within an Air Quality Management Area (AQMA). The nearest AQMA is 15.6 km to the north of the site in Chester.

Environmental Constraints and Potentially Sensitive Receptors

2.12 Features of the Sites and surrounding area may form a constraint to development or be identified as a sensitive receptor that may be affected by the Site. Identifying such constraints and receptors early in the design process ensures that mitigation measures are designed into the proposals progressively from the outset and are fully integrated into the design where appropriate. Details on specific environmental constraints and opportunities found at and around the Site are presented within the technical sections of this document (see Sections 6 to 14). For the purposes of the scoping exercise, these have been identified to include:

- Landscape and Visual;
- Ecology and Nature Conservation;
- Cultural Heritage;
- Transport and Access;
- Air Quality;
- Noise;
- Flood Risk and Drainage;
- Agricultural Land; and
- Minerals.

3. PROPOSED DEVELOPMENT

3.1 The planning application will be submitted to WCBC. The current proposed description of development is:

> *"Proposed phased residential development for the construction of up to 900 residential dwellings with associated infrastructure (primary school, playing fields, open space, SUDs and a wastewater treatment plant (if necessary) with all matters reserved except for detailed means of primary highway access."*

3.2 An Illustrative Masterplan is included at **Appendix 2**. Whilst this plan will not be submitted for approval, it provides an indication of the potential configuration of the development and spine road and allows informed assumptions to be made within the EIA.

3.3 It is the Applicants vision that the development will be guided by a simple and robust set of parameters and comprise:

- Creation of a high quality, attractive, new residential neighbourhood; sensitive to adjacent uses and complementary to the existing residential neighbourhoods; offering a mix of housing types and tenures and delivering 900 high-quality, sustainable new homes in a variety of styles and sizes to meet the needs of local people;

- Provide a landscape-led residential development that has been carefully designed with the local community in mind, offering public open space and opportunities for recreational activities; but also delivering managed and enhanced public access providing permeable links and connections through the site for the benefit of existing and future residents, with more than adequate levels of amenity provision on site;

- The "community dividend" that will provide existing residents with access to affordable housing and contributions towards educational services and greenspace amenity opportunities with connective access; thus, making the community more sustainable and resilient;

- Offering 20% affordable homes which could help families in the area currently struggling to secure a safe and stable home, as well as first time buyers and key workers;

- Deliver much-needed new homes on a site which benefits from an emerging allocation and has been identified as suitable for housing by the Council, thus preventing speculative development and a development that will respect the identity of Wrexham Town;

- Offer a sustainable residential development that capitalises on the site's proximity to local shops and services by promoting pedestrian and cycle links;

- Provide a sustainable development that utilises renewable energy sources, as well as low-carbon construction materials and methods;

4. EIA APPROACH

4.1 This section details the proposed technical areas for assessment within the ES. It sets out the legislative framework, an outline of the intended approach to assessment and the potential effects that have been identified at this stage. Where appropriate and where sufficient information is known, it outlines potential mitigation measures.

Potentially Significant Issues

4.2 The scoping exercise has identified several study areas which have the potential to generate significant environmental effects. Accordingly, the following environmental issues have been 'scoped in' to the EIA for the Proposed Development:

- Landscape and Visual;
- Ecology and Nature Conservation;
- Cultural Heritage;
- Transport and Access
- Air Quality;
- Noise;
- Flood Risk and Drainage;
- Agricultural Land; and
- Minerals.

4.3 Each of these technical assessment areas is discussed in greater detail in Sections 6 – 14 of this Report.

EIA Approach and Methodology

4.4 The ES will be prepared to fully comply with Schedule 4 (Part I and II) of the 2017 EIA Regulations: 'Information for Inclusion in Environmental Statements'; and in accordance with national Planning Practice Guidance (PPG).

4.5 Schedule 4 of the 2017 EIA Regulations state that:

> *"4. A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.*

5. A description of the likely significant effects of the development on the environment resulting from, inter alia:

a) the construction and existence of the development, including, where relevant, demolition works;

b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;

c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;

d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);

e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;

f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;

g) the technologies and the substances used.

The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC(1) and Directive 2009/147/EC(2)."

Consistency

4.6 To assist the reader in understanding the technical assessments a consistent approach will be adopted throughout the EIA to ensure that likely significant effects are identified and evaluated in a transparent manner. Each environmental assessment topic will adopt the following approach:

- Baseline Assessment and Identification of the Study Area.
- Identification of Sensitive Receptors.
- Identification of likely significant effects during construction, and operation of the Proposed Development (including temporary, permanent, indirect, direct, adverse and beneficial).
- Assessment of Effect Significance.
- Mitigation Measures.
- Assessment of Residual Effects; and
- Assessment of Cumulative Effects.

Significance Criteria

4.7 The assessment of significance will be undertaken for all potential effects to determine their relative importance. The following criteria will be considered when assessing their significance:

- Magnitude (size of effect).
- Spatial extent (size of the area affected).
- Duration (short, medium, or long term).
- Nature of the effect (direct or indirect, reversible, or irreversible).
- Sensitivity of the surrounding environment and receptors.
- Inter-relationship between effects.
- International, national, or local standards; and
- Relevant planning policy.

4.8 Where appropriate and not restricted by the requirements of specific guidance, such is the case with air quality, the significance criteria below will be used to categorise predicted effects. Where alternative classifications have been used in order to comply with specific guidance, they will be explained in the methodology sections within each technical assessment. The significance levels identified can be either adverse or beneficial.

Table 4.1: Significance Criteria

Significance	Criteria
Major	These impacts are likely to be important considerations at a regional or district scale but, if adverse, are potential concerns to the project, depending upon the relative importance attached to the issue during the decision-making process. Mitigation measures and detailed design work are unlikely to remove all of the impact upon the receptor.
Moderate	These impacts, if adverse, while important at a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or a particular resource. They represent issues where impacts will be experienced but mitigation measures and detailed design work may ameliorate/enhance some of the consequences upon affected communities or interest. Some residual impact may still arise.
Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Nevertheless, they are of relevance in the detailed design of the project and consideration of mitigation measures.
Negligible	Potential impact is beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
No Impact	No impact is predicted.

Mitigation

4.9 As set out within paragraph 7 of Schedule 4 of the 2017 EIA Regulations, the EIA will include:

> *"A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases".*

4.10 Mitigation is defined as those measures that are required to avoid, remedy, or offset the identified environmental impacts of a project. Those mitigation measures that are identified through the EIA process and which have been designed into the proposals will be considered to be part of the development as 'embedded mitigation' for the final assessment as presented in the ES. This 'embedded' mitigation will be described in each technical chapter where relevant prior to the assessment of potential impacts. It is placed in this order to enable an assessment of the impacts to be made which takes into account the mitigation measures which have been designed into the Proposed Development, i.e., embedded into the design.

4.11 Mitigation that is not embedded into the proposals and which requires a commitment from the applicants to carry out further actions will be specified in the 'Mitigation' section of each technical chapter and summarised in the Summary of Mitigation and Residual Effects of the ES chapter. These measures would then be secured through the application of conditions attached to the planning permission or through an appropriate legal framework, such as a Section 106 agreement.

Residual Effects

4.12 Each ES chapter will conclude with a summary of the residual effects of the development once all related mitigation measures have been taken into account.

Cumulative Effects

4.13 In line with Schedule 4 Paragraph 5(e) of the EIA Regulations, an ES must provide a description of the likely significant effects of a project on the environment resulting from:

"…the culmination of effects with other existing and / or approved projects…"

4.14 Such effects are known as 'cumulative effects'.

4.15 Given that existing development will be considered in the environmental baseline conditions relevant to the Site and the development, and a consideration of the likelihood of significant environmental effects of the development are judged against the relevant environmental baseline conditions, the potential for cumulative effects focuses as a minimum on those Cumulative Schemes with:

- A resolution to grant planning permission.
- A valid planning permission and yet to start on-site.
- A valid planning permission and under construction.

4.16 Cumulative effects may be divided into two categories as follows:

- Additional impacts arising from interrelationships within the same development; and
- Those arising from the development in combination with other Proposed Developments.

4.17 Most cumulative effects result when construction phases of more than one development overlap. However, the assessment will also assess operational effects of more than one development, where appropriate.

4.18 Cumulative effects will be discussed within the chapters, assessing the potential for cumulative effects for each technical assessment, thus ensuring that the LPA can evaluate the impacts of the development in isolation and in conjunction with other developments in the area.

4.19 Egniol will undertake a cumulative site search for consented planning applications on the Wrexham County Borough Council planning portal which are classed as 'major developments'. The search area will extend to a 1km radius from the Site boundary. This search criteria is considered robust given the nature of the Proposed Development and its location.

4.20 The ES shall consider the potential cumulative effects in combination with the Proposed Development. Each chapter of the ES will also consider the cumulative effects of this development together with the other site coming forward as part of the emerging KSS2 allocation which will include the link road. This will be a qualitative assessment based upon information available at the time.

4.21 We would welcome any suggested cumulative sites from WCBC as part of their scoping opinion.

5. ALTERNATIVES

5.1 A statutory requirement for inclusion in an EIA is the reporting of the consideration of alternatives in the development of a proposal. Schedule 4 of the EIA Regulations states that an EIA is required to provide:

> *"A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."*

5.2 Therefore, the ES will define the following types of alternatives considered by the Applicant:

- The 'do nothing' alternative: Consideration of the impacts in the absence of the development; and
- Alternative layout and designs: A description of the design evolution based on environmental constraints, potential effects and other considerations, with a description and account of the main reasons why alternative layouts were dismissed and why the preferred design option was selected.

5.3 No alternative sites were considered for the development.

6. LANDSCAPE AND VISUAL

Introduction

6.1 The Site comprises mainly fields managed as both arable farmland and amenity recreation grounds adjacent to the settlement of Wrexham. The fields are largely defined by hedgerows in addition to a small copse of woodland containing a pond towards the western part of the Site. These landscape features/elements contribute to landscape character and influence the visual envelope of the Site.

6.2 The visual envelope of the Site is further influenced by the Site's topography. The Site extends along the upper east-facing slope of a hill and also has a gently undulating landform which appears most pronounced on the slopes. The topography of the Site also contributes to its scenic value in views across and out of the Site.

6.3 The Site is not covered by any landscape-related statutory or non-statutory designations but has intervisibility with the Clwydian Range and Dee Valley AONB within the Clwydian Hills c.7km west of the Site and across lowland farmland to the east towards the English county of Cheshire. A number of Special Landscape Areas are also located within the countryside surrounding the Site. The public can currently obtain views towards the above from the three Public Rights of Way (PRoW) traverse the Site.

6.4 The visual envelope of the Site is more constrained to the general north and south as a result of the local topography and presence of built form and/or woodland.

6.5 The appraisal of the Site's character identified the following elements and features within the Site that contribute to the Site's character:

- Sloping topography towards the River Dee floodplain to the east;
- Sense of exposure on the top of the hill with long distance views eastwards towards Cheshire to the east and the Clwydian Hills to the west;
- Sense of settlement from the top of the hill as a result of the adjoining settlement edge and presence of Wrexham Industrial Estate within the countryside to the east of the Site;
- Hedgerows and Hedgerow Trees providing definition to the irregular landscape pattern;
- Tree cover comprising Hedgerow Trees, scattered trees and small woodland blocks within and adjoining the Site providing a sense of layering within the landscape; and
- Small woodland and pond providing landscape structure and character to the recreation grounds.

Site Context

6.6 The Site comprises a number of irregular-shaped fields used for agricultural purposes and adjoins the settlement of Wrexham.

6.7 The Site is bound to the west mainly by Cefn Road but also Oakhurst (road) and the curtilages of residential dwellings off Cefn Road and Thornleigh (road). The Site is bound the north mainly by Bryn Estyn Road but also by the curtilage of the Erlas Centre which contains Erlas Victorian Walled Garden, the curtilage Old Bungalow Garage (business) and smallholding. Cefn Park Farm (farmstead) and Cefn Park Container Storage (business) and the associated access track are located to the immediate south of the Site.

Assessment Methodology

6.8 The Landscape and Visual Impact Assessment (LVIA), that will form the Landscape and Visual ES Chapter, is to be undertaken as a process, providing input into the design development of the proposals from the initial stages in order to embed mitigation measures into the Development, and seek opportunities to avoid or reduce adverse effects and identify opportunities for beneficial effects.

6.9 The ES Chapter will be prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) and Landscape Institute advice notes. The Landscape and Visual Impact Assessment Methodology Summary of Approach and Criteria Tables is appended to this report (at Appendix 6.1).

6.10 Groups of receptors will be agreed with the Wrexham County Borough Council (WCBC) and their input sought for any additional views not identified.

<u>Mitigation and Mitigation Effectiveness</u>

6.11 In addition to measures developed through iterative design, embedded in the scheme design, other further mitigation measures will be identified, where appropriate. The effectiveness of the delivery of mitigation included within the Development will also be considered and assessed. Year 1 effects will be assessed on the basis of the 'worst case scenario', i.e. maximum parameters with no foliage on the surrounding vegetation and no implemented planting scheme. Year 15 effects will be based upon the 'best case scenario', including established (but not necessarily mature) planting and on any proposed masterplan and landscape scheme.

<u>Study Area and Spatial Scope</u>

6.12 Based on our initial knowledge of the area and Site and an assumed building parameter height of 2-2.5 storeys, a study area has been identified on 2.5km from the Site. This is proposed as a suitable extent given the generally undulating nature of the topography and the scale of the development. The landscape and visual study area is

proposed to be same, as this will enable effects on viewers in the surrounding area and indirect landscape effects to be adequately assessed.

6.13 Landscape and visual effects are considered likely to arise during both the Construction and Operation phases of the Proposed Development. For the purposes of the assessment, the terms 'impact' refers to the causation of change. The changes will be judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity.

Key Receptors

Landscape Receptors

6.14 Landscape receptors will include both local and Site level landscape character, with the local landscape character informed by the published baseline character assessments.

Visual Receptors

6.15 Once the Zone of Theoretical Visibility (ZTV) plan is produced, a Site visit will be undertaken with photographic record obtained, preferably during the winter period to represent a worst-case scenario. Once the visual receptors are refined following the Site visit, these will be shared within the Council for agreement ahead of completing the assessment.

Methodology for Determining Significance

6.16 Landscape and visual effects above moderate adverse (i.e. Major) are considered to be significant; all other effects are considered not significant.

Methodology for Determining Sensitivity

6.17 Overall sensitivity lies along a continuum of low to high. The Value and Susceptibility of a receptor are both considered in forming a judgment of overall sensitivity.

6.18 Susceptibility is defined as the ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences. It is assessed for both landscape receptors including, landscape character areas, and for visual receptors (people). It indicates the ability of a defined landscape receptor to accommodate the proposed development "without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies." (GLVIA, 3rd edition, para 5.40) and identifies "the occupation or activity of people experiencing views at particular locations and the extent to which their attention may be focused on the views and the visual amenity they experience at a particular locations." (GLVIA, 3rd edition, para 6.32). An example of how Susceptibility can be described at each end of the continuum of low to high is provided within Appendix 6.1.

6.19 Landscape Value is "*the relative value that is attached to different landscapes by society*" (GLVIA, 3rd edition, page 157). Box 5.1 (GLVIA 3rd version, page 84) sets out some factors

to be considered in the identification of valued landscapes. These can be broadly described as: Landscapes recognised and valued for their quality (condition) and/or cultural associations; key characteristics and features as recognised in published landscape character assessments; scenic quality; rarity; representativeness; recreational value and for perceptual qualities, notably wildness and /or tranquillity. An example of how Value can be described at each end of the continuum of low to high is provided in Table 1 (Appendix 6.1) for landscape receptors. In visual terms, Value relates to that attached to views experienced by receptors (people). An example of how Value can be described at each end of the continuum of low to high is provided within Appendix 6.1.

Methodology for Determining Magnitude

6.20 Overall magnitude of change lies along a continuum of low to high. Together the Scale, Geographical Extent, and Duration and Reversibility of effect are all considered in understanding the overall Magnitude of change.

6.21 Full descriptions and justification for determining magnitude are included within Appendix 6.1.

Impact Significance Matrix

6.22 Full descriptions and the assessment matrix for each are included at Appendix 6.1.

7. ECOLOGY AND NATURE CONSERVATION

Introduction

7.1 This scoping chapter has been prepared by Tyler Grange Group Ltd. (TG) on behalf of Harworth Estates Investments Ltd. The approach outlined explains how the impacts of the proposed development on ecological resources, including protected sites, habitats and protected and priority species will be assessed. It has been informed by desk-based study, site survey work and published guidance.

Site Context

7.2 The site covers an area of 49.09 hectares and comprises mainly arable fields and amenity grassland in use as playing fields bordered by hedgerows and mature trees; public footpaths also cross the site at several points. Cefn Road runs along the western site boundary, and Bryn Estyn Road along the northern boundary. Residential development lies to the north and west of the site, and agricultural fields to the south and east. Wrexham Industrial Estate is located 1.1km east of the site. The red line boundary is shown at **Appendix 1**.

Legislative Policy Requirements and Technical Guidance

7.3 The legislative and planning policy framework relating to ecology is provided in **Appendix 7.1**.

Assessment Methodology

Assessment criteria

7.4 The Ecological Impact Assessment (EcIA) will assess protected sites habitats and species in accordance with the CIEEM Ecological Impact Assessment[3] guidance, using the approach set out as follows:

Sensitivity, Value or Importance

7.5 Geographical Scope - A desk-based study and initial site survey were used to identify important ecological features (sites, habitats and species) which may be affected by the development proposals, to determine the potential 'zone of influence' (ZOI), and to inform the scope of further survey work required. The study area extends beyond the site boundary to include a 10km radius for international statutory site designations, a 2km radius for national statutory site designations; and a 1km radius for all protected and priority species records.

7.6 Temporal scope - The EcIA will cover both the construction and operational phases of the development.

7.7 Sensitivity of Receptors - The results of the initial desk study, site surveys and data gathered during detailed surveys will be used to evaluate the importance of ecological resources within the ZOI in accordance with the CIEEM EcIA guidance.

7.8 The guidance provides a framework for the evaluation of features that considers the direct biodiversity importance of habitats and species, the indirect importance of features which help support the ecological integrity of key features, legal protection for both sites and species, and evaluation against national and local planning guidance and objectives. It uses a geographic frame of reference for identifying important ecological features in accordance with the scale in **Table 7.1** overleaf.

[3] CIEEM, 2016. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Winchester: Chartered Institute of Ecology and Environmental Management (CIEEM).

Table 7.1: Importance of Ecological Features

Designation	Receptors
International	An ecological feature (species, designated site or habitat) which is important at an international level. A population that would meet the published selection criteria as a qualifying feature for designation of a SAC. An internationally designated site or candidate site, i.e. an SPA, proposed SPA (pSPA), SAC, candidate SAC (cSAC), Ramsar site, or an area which would meet the published selection criteria for such designation. Other significant areas of Annex 1 priority habitats listed in the Habitats Directive, the loss of which would significantly change the overall range and area at the European scale in the long term.
National	Nationally significant populations of species identified in Environment (Wales) Act, Part 14 as being of principle importance for the conservation of biodiversity in Wales, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the national scale. A population that would meet the published selection criteria as a qualifying feature of a SSSI. A nationally designated site, i.e. SSSI, NNR or discrete area which would meet the published selection criteria for national designation. A significant area of a non-designated habitat type identified in Environment (Wales) Act, Part 1 as being of principle importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area should be a major component of areas that are at near-equivalence to SSSIs, meeting most of the published SSSI selection criteria.
Regional (Wales)	Regionally significant populations of species identified in the NERC Act Part 1 as being of principal importance for the conservation of the biodiversity of Wales, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss of which would significantly change the species' overall conversation status (i.e. range, abundance, population trend) at the regional scale. A significant area of non-designated habitat type identified in the NERC Act, as being of principal importance for the

[4] https://www.legislation.gov.uk/anaw/2016/3/contents/enacted

Designation	Receptors
	conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area of that habitat at the regional level in the long term. Significant areas of semi-natural ancient woodland that do not meet the national value criteria (above) should be considered at this scale due to the irreplaceable nature of such habitat.
County	Significant populations of species identified in the NERC Act as being of principal importance for the conservation of biodiversity in Wales , or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-list'), or priority species in the County BAP the loss of which would significantly change the species' overall conservation status (i.e. range, abundance, population trend) at the County scale. Sites formally recognised by local authorities, e.g. SBI, or considered to meet published ecological selection criteria for such designation. A significant area of a non-designated habitat type identified in the Environment (Wales) Act, Part 1 as being of principle importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area of that habitat at the county scale in the long term. A significant area of key habitat identified in the County BAP.
Local	Species listed on any of the above-mentioned priority lists, that appreciably enrich District/Borough biodiversity, but which are not in themselves of District/Borough importance of greater. Semi-natural habitats, listed on any of the above-mentioned priority lists, that appreciably enrich local biodiversity, but which are not in themselves of District/Borough importance or greater.
Site	Species populations of limited ecological importance due to their size, composition or lack of threat/rarity. The loss of such features would have no discernible impact on the species'/habitat's overall range and conservation status at any administrative scale in the long term. Areas of habitat of limited ecological importance due to their size, species composition or lack of threat/rarity. The loss of such features would have no significant impact on the habitat's overall range and conservation status at any administrative scale in the long term.

7.9 **Magnitude of Impact** - The assessment should consider impacts including direct loss of habitats, fragmentation and isolation of habitats, disturbance or killing/injury of species, changes to key ecological features, and changes to the local hydrology or water quality.

7.10 The following factors are considered when describing ecological impacts:

- Positive or negative – an impact can improve or reduce the quality of the environment, evaluated against nature conservation objectives and policy;
- Extent – this is the area over which an effect occurs;
- Magnitude – the size or amount of an effect, determined on a quantitative basis where possible (see **Table 7.2** below);
- Duration – the time for which an effect is expected to last prior to recovery or replacement of the resource of feature;
- Timing and frequency – some effects are only likely if they happen to coincide with a critical life-stage or seasons. Others may occur if the frequency of an activity is sufficiently high;
- Reversibility- an irreversible (permanent) effect is defined as one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) effect is one from which spontaneous recovery is possible or for which effective mitigation is both possible and enforceable; and
- Cumulative effects – where consideration is given to any other developments within the ZOI, together with the proposed development, may result in significant effects.

Table 7.2: Significance of Effects

Significance	Environmental Impact
Major	The impact is likely to have an adverse / positive effect on the integrity of a site or the conservation status of a species or species assemblage
Moderate	The impact affects a site or the conservation status of a species or species assemblage but the adverse impact would not affect integrity of that site or the conservation status of a species or species assemblage. A moderate positive impact would benefit conservation status of a site / species / species assemblage.
Minor	The impact is likely to have an adverse / positive effect an ecological feature but would not affect integrity or conservation status.
Negligible	An effect positive or negative would be minimal
Neutral	No detectable change from the baseline condition

7.11 The significance of an effect is the product of the magnitude of the impact and the importance or sensitivity of the ecological feature affected. The CIEEM EcIA Guidance provides a complex framework for the consideration of impacts to ecological features and the reader is referred to the actual guidance for full details. However, in summary, greater levels of significance are generally ascribed to large impacts on features of higher ecological importance and lesser levels of significance are generally ascribed to small impacts on features of higher ecological importance, or larger impacts on features of lower ecological importance.

7.12 In accordance with professional guidance and terminology; a significant effect, in ecological terms, is defined as an effect (positive or negative) on the integrity of a designated site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative effects. Insignificant effects are those that would not result in such changes.

7.13 The importance of any features that would be significantly affected is then used to identify geographical scales at which the effect is significant. This value relates directly to the consequences, in terms of legislation, policy and/or development control at the appropriate level. So, a significant negative effect on a feature of importance at one level would be likely to trigger related planning policies and, if permitted, generate the need for development control mechanisms as described in those policies.

7.14 Significant effects on features of ecological importance should be mitigated (or compensated for) in accordance with the guidance derived from policies applies at the scale relevant to the feature or resource.

7.15 Effects are unlikely to be significant where features of local importance or sensitivity are subject to small scale or short-term effects. However, where there are a number of small scale effects that are not significant alone, it may be that, cumulatively, these may result in an overall significant effect.

7.16 The assessment of effects uses the terminology described above. However, to provide consistency with the terminology throughout the ES potential and residual effects (positive or negative) are also described using the terms set out in Table 7.2.

7.17 Impact Prediction Confidence - It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out in **Table 7.3** below:

Table 7.3 Impact Prediction Confidence

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Consultation

7.18 Consultation with respect to ecology has not been undertaken prior to submission of this EIA Scoping Report. However, consultation with Wrexham Council on the requirement for further surveys to inform the planning application will need to be undertaken.

Studies and Surveys Undertaken to Date to Inform Scoping

7.19 The potential Zone of Influence (ZoI) considered for this scoping has been defined as 10km for International Nature Conservation Designations 2 km for statutory and non-statutory designations and for records of protected species.

Data Search

7.20 A desk-based study was conducted whereby records of designated sites and records of protected and priority species were purchased and interrogated for the site and the surrounding landscape. The aim of the data search is to collate existing ecological records for the site and adjacent areas. Obtaining existing records is an important part of the assessment process as it provides information on issues that may not be apparent during a single survey, which by its nature provides only a 'snapshot' of the ecology of a given site.

7.21 The following resources were consulted/contacted:

- Multi-Agency Geographic Information for the countryside (MAGIC) website;
- Local Records Centre (COFNOD); (Data ordered on 15/12/2023 and received on 25/12/2023);
- Wrexham County Borough Council website;
- Joint Nature Conservation Committee (JNCC) website;
- Ordnance Survey mapping; and
- Google Maps, including aerial photography.

7.22 The following areas of search around the boundary of the site boundary were applied:

- 2 km for bat records;
- 2 km for protected and priority species, national statutory designated and non-statutory sites; and
- 10 km for European statutory sites.

'Extended' Phase I Habitat Survey and UKHabs

7.23 An 'extended' Phase 1 survey was conducted on the 16th October 2020 by Laura Dennis, an experienced field ecologist. This was then updated by Dale Mortiboys (ACIEEM, FISC lvl 3) and Elliot Grundy on 22/08/2023, experienced ecological consultants, and suitably experienced ecologists. The methods used during the walkover survey broadly followed methods used in an 'extended' Phase I habitat survey and entailed recording the main plant species and classifying and mapping habitat types with reference to the Habitat Definitions provided by the UK Habitat Classification Working Group.

7.24 Additionally, the habitats identified were evaluated for their potential to support legally protected and notable fauna species. Where access allowed, adjacent habitats were also considered in order to assess the site within the wider landscape and to provide information with which to assess possible impacts within the context of the site boundary.

Ecological Baseline

Designated Sites

7.25 The data search was based on records purchased from North Wales Environmental Information Service (COFNOD), as well as data from the Multi-Agency Geographic Information for the Countryside (MAGIC).

7.26 The data search returned four Natura 2000 sites within 10 km of the site, however, no national statutory designated sites. Three non-statutory designated sites are located within 2 km of the site. These are detailed in **Table 7.4** below.

Table 7.4 Designated Sites

Designated site	Distance and direction from site	Citation	Ecological Importance
Midland Meres and Mosses Phase 2B (RAMSAR)	2.5 km southeast	Designated for the diverse range of habitats from open water to raised bog.	International
River Dee and Bala Lake Special Area of Conservation (SAC)	5.8 km north	Designated for the presence of Annex I habitat 3260 *'Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation*' and the Annex II species Atlantic Salmon *Salmo salar* and floating water-plantain *Luronium natans*, along with the Annex II species Sea lamprey *Petromyzon marinus*, Brook lamprey *Lampetra planeri*, River lamprey *Lampetra fluviatilis*, bullhead *Cottus gobio* and otter *Lutra lutra.*	International
Johnstown Newt Sites (SAC)	5.2 km north	The population of great crested newts Triturus cristatus is one of the largest known in Great Britain and has been the focus of much conservation management over the last few years. Breeding sites are provided in part by a mining subsidence pool, and natural water-filled hollows on clay, whilst other ponds have been created as part of nature conservation management. Terrestrial habitat varies from marshy grassland, grazed farmland and swamp through to scrub and broad-leaved woodland. Good populations of the widespread amphibian species are also present.	International
Berwyn and South Clwyd Mountains (SAC)	8.1 km south	Designated for the presence of Annex I habitats 4030 *'European dry heaths'* and 7130 *'Blanket Bogs'*, along with 6210 *'Semi-natural dry grasslands and scrubland facies on calcareous substrates*', 7140 *'Transition mires and quaking bogs*', 8120 *'Calcareous and calcshist screes of the montane to alpine levels*' and 8210 *'Calcareous rocky slopes with chasmophytic vegetation*'.	International

Cefn Park (LWS)	0.83 km southeast	A series of broadleaved woodlands within Cefn Park Estate.	Local
Borras Bog (LWS)	1.05 km north	An acid bog with birch canopy that is in excellent condition and unusual for the Wrexham area.	Local
Errdig Estate (LWS)	1.50 km southeast	National Trust Estate with woodlands, semi-improved neutral grasslands and marshes.	Local

Habitats and Flora

7.27 The habitats present on site are summarised below in **Table 7.5**, along with a description of the composition of the main plant species present and an assessment of their ecological importance. The location of habitats are shown on the Habitats Features Plan **13539/P01a.**

- Amenity grassland;
- Arable;
- Hedgerows;
- Invasive non-native species (Japanese knotweed);
- Pond;
- Scrub;
- Semi-natural broadleaved woodland and scattered trees; and
- Tall ruderals.

Table 7.5 Habitats and Flora

Habitat	Description and Species	Ecological Importance
Arable Land	A large proportion of the site is given over to arable crop production, mostly maize. At the time of the survey all fields had been harvested and left as stubble, except one in the south-east which was fallow.	This habitat is considered to be of **negligible ecological importance**.
Amenity Grassland	Areas of amenity grassland are present towards the north and west of the site. All areas are maintained as short-mown grassland and are dominated by common grasses and forbs. The survey was undertaken in sub-optimal conditions, and the shortness of the sward made a full species record difficult, but species present include cock's-foot *Dactylis glomerata* (A), white clover *Trifolium repens* (A), greater plantain *Plantago lanceolata* (F), dandelion *Taraxacum officinale agg.* (F), ragwort *Senecio jacobaea* (O) and chickweed *Stellaria media* (O).	This habitat type is of **negligible ecological importance**.
Hedgerows	A network of hedgerows are present along field boundaries throughout the site. They vary in condition, but include examples of species-rich, intact hedgerows with mature trees. Most are dominated by Hawthorn *Crataegus monogyna*, (D) or holly *Ilex europaeus* (A), but other species present include elder *Sambucus nigra* (F), hazel *Corylus avellana* (O), sycamore *Acer pseudoplatanus* (O), and pedunculate oak *Quercus robur* (O)	The hedgerows provide habitat connectivity through the site and to habitats beyond the site boundary and collectively are a priority habitat of **local ecological importance**.
Invasive non-native Species	A stand of Japanese knotweed *Reynoutria japonica* is present at the boundary of the amenity grassland in the west of the site.	This is of **negligible ecological importance**, but a strategy for treatment and/or removal will be required prior to development to adhere to current legislation (Schedule 8 of the WCA 1981).
Pond	A pond is present within woodland at the west of the site. It is shallow and heavily shaded by woodland vegetation throughout the year. Very little aquatic or marginal vegetation is established, and the waterbody	This habitat is considered to be of **local ecological importance.**

Habitat	Description and Species	Ecological Importance
	is full of leaf litter. It provides aquatic habitat that is not present elsewhere on the site and is therefore of ecological importance within the context of the site. It also provides breeding habitat for great crested newt *Triturus cristatus* (discussed below). A small and very shallow ephemeral pool was noted in the centre of the south-eastern parcel of arable land in May 2021, which subsequently dried up during the species surveys completed within the site.	
Scrub	Small areas of scrub are distributed through the site which include areas dominated by bramble *Rubus fruticosus* agg (D), and other areas of mixed scrub including hawthorn (A), holly (F), hazel (F) and blackthorn *Prunus spinosa* (O). An area of scrub is also present in the north of the site, which is dominated by coppiced willow *Salix sp.* (O).	The scrub is of **negligible ecological importance** but is likely to provide foraging and nesting opportunities for wildlife including birds and small mammals.
Scattered Trees	A number of scattered mature trees are also present which are mostly located within the amenity grassland at the west of the site, with additional specimens present within some of the hedgerows. Species include pedunculate oak and sycamore.	Scattered trees are of **local ecological importance.** The mature trees provide foraging and nesting habitat for a range of bird and bat species.
Semi-natural broadleaved woodland	A block of semi-natural broadleaved woodland is located in the west of the site, at the centre of the amenity grassland area. The canopy is dominated by oak, with ash *Fraxinus excelsior* (F), silver birch *Betula pendula* (F), cherry *Prunus avium* (O) and hazel (O). The understorey is mostly holly (A) and hawthorn (A) and the field layer is dominated by common nettle *Urtica dioica*.	The broadleaved woodland is of **local ecological importance**. The woodland provides foraging and nesting habitat for a range of species, including birds and amphibians.
Tall Ruderal	Several areas dominated by tall ruderal vegetation are present, mostly associated with arable field boundaries. Species include common nettle (A), hogweed *Heracleum spondylium* (F), cow parsley (F) and bracken *Pteridium aquilinum* (O).	The tall ruderal is of **negligible ecological importance** but is likely to provide foraging and nesting opportunities for

Habitat	Description and Species	Ecological Importance
		wildlife including birds and small mammals.

Adjacent Habitats

7.28 Areas of woodland lie directly adjacent to the site boundary in the north-east (part of Erlas House) and south-east (Fox Covert). Arable land lay to the south and east of site. To the west and north there are residential properties.

Protected and Notable Species

7.29 The below section sets out the potential for protected species on site. Species which are considered likely absent from the site based on professional judgement, following consideration the of habitats within the site, signs of species presence at the time of survey and data search records, are not discussed.

7.30 Detailed surveys for most areas of the site have been undertaken and give an indication of likely constraints relating protected species. Further consultation on the requirement for any further surveys to inform the EIA for protected species will be undertaken in advance of submission of the ES chapter.

7.31 The findings are summarised below:

Amphibians

7.32 The data search returned records of common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt Lissotriton *vulgaris* and great crested newt (GCN) *Triturus cristatus* within 2km of the site. No European Protected Species (EPS) licences were returned for GCN within 2 km of the site. There are seven ponds within 250m of the site. Presence - absence surveys using a combination of eDNA, bottle trapping and torching were undertaken on all ponds in May 2021. The surveys confirmed GCN presence in one onsite pond and two ponds lying immediately to the north of the site.

7.33 The terrestrial habitats within the site of suitability to GCN are the woodland, the connecting hedgerows through the site and associated field margin vegetation, which also provide connectivity to the wider landscape. The majority of the site (i.e. intensive agricultural land/short-mown playing fields) is unsuitable for GCN and is not considered important in maintaining populations locally.

7.34 Other more mobile amphibian species such as common toad may be present. Common toads are a priority species under the Environment Act (Wales) 2016. It is considered any population utilising terrestrial habitats on site, such as the hedgerows and woodland, will also be using further habitats beyond the site boundary and not reliant on the site alone.

7.35 The site overall, is deemed to be of **local ecological importance** for GCN and other amphibians.

Badger

7.36 The data search returned 51 records of badger within 2km of the site in the past ten years, with several within the site itself.

7.37 An initial badger survey identified high level of badger activity recorded across the site, including two main setts, and several other active setts. The update survey in 2023 confirmed continued badger activity across the site with evidence of foraging and active setts within and surrounding the site boundary.

7.38 Although badgers are a protected species, they are protected for animal welfare reasons, not because they are a threatened or endangered species. As such any population is not likely to be of importance in maintaining populations beyond the immediate locality and as such are of **negligible ecological importance**.

Bats

7.39 The data search returned records for eight bat species within 2km of the site. Species included common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, other unidentified pipistrelle species, noctule *Nyctalus noctula*, Brown Long-eared bat *Plecotus auratus*, Daubenton's bat *Myotis daubentonii*, Brandt's bat *Myotis brandtii,* Whiskered bat *Myotis mystacinus* myotis bat Myotis, and Lesser horseshoe bat *Rhinolophus hipposideros*. The nearest of these was a record of common pipistrelle 0.2 km south of the site in 2016. A known lesser horseshoe bat maternity roost is present within the Erlas Victorian estate adjacent to the north west corner of the site with the roost being approx. 100m from the wider application boundary.

7.40 The wider site offers roosting and foraging opportunities for bats within the trees and along hedgerows which stretch through the site. Further surveys will be needed to assess the potential of these habitats and possible further once a plan showing loss is generated. Overall, the removal of hedgerows across the site is limited and proposals highlight that good connectivity to commuting and foraging areas will remain across the site.

7.41 The site lies within a rural context, with low levels of light pollution within and adjacent to site, and a wide availability habitats for commuting and foraging bats in the site and wider landscape.

7.42 Bat activity surveys were conducted by Tyler Grange in 2021 and 2023. Activity was recorded along most field boundaries with trees lines, hedgerows and other linear features. Notable bat activity hotspots were identified at the hedgerows in the centre of site. Activity relating to the more light-intolerant species, i.e. Myotis group bats, was recorded adjacent to the southern boundary of the site as well as the centre of the site

and larger fields. This is to be anticipated as the site is largely unlit and well connected to the wider landscape with woodlands blocks and hedgerows.

7.43 Overall, the assemblage of bats utilising the site for foraging and commuting is considered to be of **local ecological importance.**

Birds

7.44 The data search by COFNOD confirmed the presence of a large number of bird species in the surrounding area, which are expected given the habitats present. The majority were common urban/suburban species, with records of Schedule 1 species also returned. No evidence of such species was noted within the site during the surveys completed, however, some habitat does exist for nesting Hobby Falco subbuteo. Other Red/Amber list species were also identified but they were not recorded during the surveys completed within the site. A summary of bird species found to be using the site for breeding when surveyed in 2021 is provided below.

7.45 It is considered that the principal ornithological value of the site for nesting is within the boundary vegetation comprising hedgerow and scrubby margins, which were noted to support probable breeding from a number of birds of conservation concern and other 'green list' species. The central woodland copse within the site was also noted to support a wide range of both amber and green list species.

7.46 The arable fields also provide value for two or three pairs of breeding lapwing *Vanellus vanellus.*

7.47 Whilst the playing fields within the site offer no suitable habitat for nesting, they are obviously important in maintaining bird populations locally for those species which utilise such grassland for foraging and rearing young, principally starling and thrushes.

7.48 Overall, the site is considered to be of **local ecological importance** for birds.

Hedgehog

7.49 Numerous records for hedgehog were returned close to site and in the wider area for hedgehog *Erinaceus europaeus*. The closest of which was 24m from the site. Hedges woodland habitat and other areas of dense ground cover would provide suitable habitat for hedgehogs. Habitats are only likely to be of importance for hedgehogs occurring within the immediate locale of the site and there is no recommendation for further surveys to this regard as standard precautionary working methods during construction can by employed to manage any risks to this species.

Reptiles

7.50 Two records of grass snake *Natrix helevetica* were returned from 2010 and 2016, c.1.2km distant respectively. Records for adder *Vipera berus* slow worm Anguis fragilis and common lizard *Zootoca vivipara* were all returned in the wider landscape but were close to the 2km buffer.

7.51 There is some limited habitat suitable for reptiles within the site, such as along field margins, where a longer grassland sward, scattered scrub and tall ruderals are present. However, this is very limited in extent and is mostly located around the amenity areas of the site which are subject to a high level of human disturbance. It is considered the likelihood of reptiles being present on site is low and therefore, will not be discussed further in this report.

Otter and Water Vole

7.52 A single record of water vole *Arvicola amphibius* was returned from the data search. This 2015 record is from the River Gwenfro approximately 0.84km to the west of the site. Six records of otter *Lutra lutra* were returned by the data search, the closest of which sits 0.79km to the west of the site Caia park. The majority of the otter records are as a result of killed animals on the roads in the wider area. No rivers, streams or suitable habitat for either of these species is present on site.

Other Species

7.53 Five records for European hare *Lepus europaeus* were returned from the data search within the last ten years. The closest of which was 0.33km from the site boundary from 2019. This species was not observed on site and is therefore not considered further for survey or mitigation as standard precautionary working methods during construction can by employed to manage any risks to this species.

7.54 Five records of polecat *Mustela putorius* were returned in the data search. All of these were in excess of 1.5km from the site, and associated with the Wrexham industrial park wildlife site, there is no recommendation for further surveys as standard precautionary working methods during construction can by employed to manage any risks to this species.

Further work required

7.55 Detailed survey work and the analysis of ecological data gathered is still ongoing. Results of existing surveys undertaken at the site will be discussed and where necessary updated to include previously un-surveyed areas. Where mitigation is required in respect of protected species, the details will need to be agreed with Wrexham Council and Natural Resources Wales.

7.56 Full details will be included with the Ecology ES chapter and supporting appendices, and will be used to inform the assessment of impacts:

7.57 To assess the impacts of the development on the relevant statutory sites, a Habitat Regulations Assessment (HRA) will likely be required in respect of European conservation designations scoped in to the EIA.

Construction Phase

Scope of environmental impacts and effects

7.58 The sensitive receptors identified, potential magnitude of impacts and the likelihood of a resulting significant effect during the construction phase, in the absence of mitigation, are summarised in **Table 7.6**.

7.59 This EIA Scoping report does not represent the results of an EcIA but provides a conservative judgement about impact pathways and receptors for which significant effects are considered possible, and which should therefore be scoped in to the EIA for further assessment. Those where there is no likely significant effect, and the confidence level at this stage is high, should be scoped out of the EIA.

Table 7.6 Scope of Environmental Impacts and Effects Construction Phase

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Protected Sites Statutory				
Midland Meres and Mosses Phase 2B (RAMSAR) Negligible impact due to distance from the site and lack of impact pathways. Features for which the SAC is designated lie at sufficient distance to be unaffected by construction works (generation of dust, noise, plant movements and similar)	International	Negligible	Negligible	High
River Dee and Bala Lake Special Area of Conservation (SAC) As above	International	Negligible	Negligible	High
Johnstown Newt Sites (SAC) As above	International	Negligible	Negligible	High
Berwyn and South Clwyd Mountains (SAC) As above	International	Negligible	Negligible	High
Protected Sites Non-Statutory				
Cefn Park (LWS) Features for which the LWS is designated lie at a distance for there to be the potential to be affected by construction works (generation of dust, noise,	County	Temporary Minor Negative	Minor Adverse	High

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
plant movements and similar)				
Borras Bog (LWS) As above	County	Temporary Minor negative	Minor adverse	High
Errdig Estate (LWS) Features for which the LWS is designated lie at sufficient distance to be unaffected by construction works (generation of dust, noise, plant movements and similar)	County	Negligible	Negligible	High
Habitats				
Arable land- Loss of extensive areas of habitat	Negligible	Negligible	Negligible	High
Amenity grassland Loss of extensive areas of habitat	Negligible	Negligible	Negligible	High
Hedgerows Potential for habitat loss (losses as yet undefined until masterplan is confirmed) and severance of habitat connections	Local	Moderate negative	Minor adverse	High
Pond Assumed to be retained (based on draft development plans), however there is the potential for the habitat to be degraded through isolation and pollution during construction (in the absence of appropriate safeguards)	Local	Minor negative	Minor adverse	High
Scrub	Negligible	Negligible	Negligible	High

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Loss of small areas habitat (losses as yet undefined until masterplan is confirmed)				
Scattered trees Loss of small areas habitat (losses as yet undefined until masterplan is confirmed)	Local	Minor negative	Minor adverse	High
Tall ruderal Loss of small areas habitat (losses as yet undefined until masterplan is confirmed)	Negligible	Negligible	Negligible	High
Semi-natural broadleaved woodland (based on draft development plans), however there is the potential for the habitat to be degraded through isolation and proximity of development	Local	Minor negative	Minor adverse	High
Invasive non-native Species	Negligible	Minor negative	Minor adverse	High
Species				
Amphibians – loss / fragmentation of habitat, disturbance, killing / injury	Local	Minor Negative	Minor Adverse	High
Badger – disturbance, killing / injury	Negligible	Neutral (but legislative requirement)	Negligible	High
Bats – loss / fragmentation of habitat, disturbance, potential loss of roost opportunities in trees	Local	Minor Negative	Minor Adverse	High
Birds – loss / fragmentation of habitat, disturbance, killing / injury	Local	Minor Negative	Minor Adverse	High
Other protected species which may occur on site (hedgehog, brown hare, polecat)	Local	Minor Negative	Minor Adverse	High

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
loss / fragmentation of habitat, disturbance, killing / injury				

Operational phase

7.60 The sensitive receptors identified, potential magnitude of impacts and the likelihood of a resulting significant effect during the construction phase, in the absence of mitigation, are summarised in **Table 7.7**. As noted above for the construction effects, **Table 7.7** does not represent the results of an EcIA but provides a conservative judgement likelihood of significant effects to inform the judgement of which impacts should be scoped in or out of the EIA.

Table 7.7 Scope of Environmental Impacts and Effects Operational Phase

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Protected Sites Statutory				
Midland Meres and Mosses Phase 2B (RAMSAR) Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.	International	Major Negative	Major Adverse	Low*
River Dee and Bala Lake Special Area of Conservation (SAC) As above	International	Major Negative	Major Adverse	Low*
Johnstown Newt Sites (SAC) Negligible due to distance from the site and lack of impact pathways which could affect GCN populations for which the site is designated	International	Negligible	Negligible	High
Berwyn and South Clwyd Mountains (SAC) Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.	International	Major Negative	Major Adverse	Low*
Protected Sites Non-Statutory				
Cefn Park (LWS) While some public footpaths border woodland areas none go through woodland areas and it is therefore unlikely that increases in public access (by dog walkers etc.)	County	Temporary Minor Negative	Minor Adverse	High

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
would adversely affect the LWS.				
Borras Bog (LWS) Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.	County	Minor negative	Minor adverse	High
Errdig Estate (LWS) Features for which the LWS is designated lie at sufficient distance to be unaffected by operational effects (increase in public access etc).	County	Negligible	Negligible	High
Habitats				
Arable land No impacts predicted	Negligible	Negligible	Negligible	High
Amenity grassland No impacts predicted	Negligible	Negligible	Negligible	High
Hedgerows Habitat loss / modification due to lack of management	Local	Minor negative	Minor adverse	High
Pond Habitat loss / modification due to lack of management	Local	Minor negative	Minor adverse	High
Scrub No impacts predicted	Negligible	Negligible	Negligible	High
Scattered trees Habitat loss / modification due to lack of management	Local	Minor negative	Minor adverse	High
Tall ruderal No impacts predicted	Negligible	Negligible	Negligible	High
Semi-natural broadleaved woodland Habitat loss / modification due to lack of management	Local	Minor negative	Minor adverse	High

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Invasive non-native species Could potentially colonise areas of retained / created habitat	Negligible	Minor negative	Minor adverse	High
Species				
Amphibians Potential for populations to decline if ponds and supporting habitats are not appropriately managed.	Local	Minor Negative	Minor Adverse	High
Badger Potential disturbance to setts and habitats used by badger.	Negligible	Neutral (but legislative requirement)	Negligible	High
Bats Potential for populations to decline if supporting habitats are not appropriately managed.	Local	Minor Negative	Minor Adverse	High
Birds Potential for populations to decline if supporting habitats are not appropriately managed.	Local	Minor Negative	Minor Adverse	High
Other protected species which may occur on site (hedgehog, brown hare, polecat) Potential for populations to decline if supporting habitats are not appropriately managed.	Local	Minor Negative	Minor Adverse	High
*The assessment of impacts to these species will be confirmed following completion of surveys and analysis of ecological data and as such this assessment is currently identified as having a low confidence level.				

Limitations and uncertainties

7.61 No limitations or uncertainties are identified in relation to phase 1 survey or desk - study data used for this scoping report. Once the air quality assessment is complete it will be possible to assess whether the development would lead to any changes that could lead to an increase in in airborne nitrogen which could affect sites with nitrogen sensitive habitats within conservation designations (such as peatland and montane habitats).

7.62 The detailed development layout is yet to be determined and depending on the areas of the site affected, further ecological surveys may be required to assess ecological effects relating to land within the site for which access has not yet been gained. Any limitations or uncertainties arising from survey results will be described in the ecology ES chapter.

7.63 Where necessary, where information is not available or where survey results are inconclusive, assumptions may be made (with justification) to assess potential impacts on ecological receptors and any mitigation solutions proposed. In such instances, in accordance with CIEEM guidelines**Error! Bookmark not defined.**, the precautionary principle will b e applied which states that: "In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effects, mitigation/compensation measures should be applied in accordance with the precautionary principle".

Inter-related effects

7.64 Final layout, including landscape design, and impacts arising from air quality during could potentially have a bearing on the potential impacts relating to ecology.

Cumulative effects

7.65 The assessment of cumulative effects will be based on the CIEEM Guidelines for Ecological Assessment**Error! Bookmark not defined.** and will be applied to those receptors for w hich the potential for significant impacts have been identified; or where in combination with effects from other developments, a potential impact which would otherwise be deemed insignificant would become significant.

7.66 Other plans or projects which would need to be considered include the following types of future development within the same zone of influence:

- Proposals for which consent has been applied which are awaiting determination in any regulatory process (not necessarily limited to planning permission);
    - Projects which have been granted consent (not limited to planning permissions) but which have not yet been started or which have been started but are not yet completed (i.e. under construction);
    - Proposals which have been refused permission but which are subject to appeal and the appeal is undetermined; and

- To the extent that their details are in the public domain, proposed projects that will be implemented by a public body but for which no consent is needed from a competent authority.

7.67 In relation to European conservation designations, if it is deemed that a Habitats Regulations Assessment is required, UK government guidance in relation to Appropriate Assessment[5] will also be used.

Summary of proposed EIA scope

7.68 **Table 7.8** below summarises the ecological impacts proposed to be scoped in and out of the EIA.

[5] [5] https://www.gov.uk/guidance/appropriate-assessment

Table 7.8 Summary the ecological impacts proposed to be scoped in and out of the EIA.

Impacts	Scoped in or out?	Justification
Construction Phase		
Protected Sites Statutory		
Midland Meres and Mosses Phase 2B (RAMSAR)	Out	Negligible impact due to distance from the site and lack of impact pathways. Features for which the SAC is designated lie at sufficient distance be unaffected by construction works (generation of dust, noise, plant movements and similar)
River Dee and Bala Lake Special Area of Conservation (SAC)	Out	As above
Johnstown Newt Sites (SAC)	Out	As above
Berwyn and South Clwyd Mountains (SAC)	Out	As above
Protected sites non-statutory		
Cefn Park (LWS)	In	Features for which the LWS is designated lie at a distance for there to be the potential to be affected by construction works (generation of dust, noise, plant movements and similar)
Borras Bog (LWS)	In	As above
Errdig Estate (LWS)	Out	Features for which the LWS is designated lie at sufficient distance to be unaffected by construction works (generation of dust, noise, plant movements and similar)
Habitats		
Arable land	Out	Of negligible ecological importance
Amenity grassland	Out	Of negligible ecological importance
Hedgerows	In	Priority habitat

Impacts	Scoped in or out?	Justification
		Potential for habitat loss (losses as yet undefined until masterplan is confirmed) and severance of habitat connections
Pond	In	Priority habitat Assumed to be retained (based on draft development plans), however there is the potential for the habitat to be degraded through isolation and pollution during construction (in the absence of appropriate safeguards)
Scrub	Out	Of negligible ecological importance
Scattered trees	In	If there are veteran trees these would be considered priority habitat Loss of small areas habitat (losses as yet undefined until masterplan is confirmed)
Tall ruderal		Of negligible ecological importance
Semi-natural broadleaved	In	Priority habitat (based on draft development plans), however there is the potential for the habitat to be degraded through isolation and proximity of development
Invasive Non-native Species	Out	Of negligible ecological importance
Species		
Amphibians	In	GCN is a European protection species Fragmentation of habitat, disturbance, killing / injury
Badger	In	Protected species Disturbance, killing / injury
Bats	In	Bats are a European protection species Loss / fragmentation of habitat, disturbance, potential loss of roost opportunities in trees
Birds	In	Includes priority species Loss / fragmentation of habitat, disturbance, killing / injury
Other protected species	In	Includes priority species Loss / fragmentation of habitat, disturbance, killing / injury
Operation		
Protected Sites – Statutory		

Impacts	Scoped in or out?	Justification
Midland Meres and Mosses Phase 2B (RAMSAR)	In	Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.
River Dee and Bala Lake Special Area of Conservation (SAC)	In	As above
Johnstown Newt Sites (SAC)	Out	Negligible impact due to distance from the site and lack of impact pathways which could affect GCN populations for which the site is designated
Berwyn and South Clwyd Mountains (SAC)	In	Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.
Protected Sites non-statutory		
Cefn Park (LWS)	Out	While some public footpaths border woodland areas none go through woodland areas and it is therefore unlikely that increases in public access (by dog walkers etc.) adversely affect the LWS.
Borras Bog (LWS)	In	Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.
Errdig Estate (LWS)	Out	Features for which the LWS is designated lie at sufficient distance to be unaffected by operational effects (increase in public access etc).
Habitats		
Arable land	Out	Habitat of negligible ecological importance
Amenity grassland	Out	Habitat of negligible ecological importance
Hedgerows	In	Priority habitat Habitat loss / modification due to lack of management
Pond	In	Priority habitat Habitat loss / modification due to lack of management
Scrub	Out	Habitat loss / modification due to lack of management unlikely to be significant due to small size of habitat
Scattered trees	In	If there are veteran trees these would be considered priority habitat Habitat loss / modification due to lack of management
Tall ruderal	Out	Habitat of negligible ecological importance

Impacts	Scoped in or out?	Justification
Semi-natural broadleaved woodland	In	Habitat loss / modification due to lack of management
Invasive non-native species	Out	Negligible ecological importance
Species		
Amphibians	In	European protected species Potential for populations to decline if ponds and supporting habitats are not appropriately managed.
Badger	In	Protected species increased public activity could result in disturbance to setts and habitats used by badger.
Bats	In	European protected species Potential for populations to decline if supporting habitats are not appropriately managed.
Birds	In	Includes priority species Potential for populations to decline if supporting habitats are not appropriately managed.
Other protected species	In	Includes priority species Potential for populations to decline if supporting habitats are not appropriately managed.

8. CULTURAL HERITAGE

Introduction

8.1 This chapter of the Scoping Report provides an overview of effects which have the potential to be significant and are, therefore, scoped into the Environmental Statement Cultural Heritage Chapter. The methodology which will be used to assess the potentially significant effects is described.

8.2 This document deals with effects and their impact on cultural heritage receptors, including both designated and non-designated heritage assets, and the impacts that development within the site boundary will have on the surrounding Historic Environment.

8.3 The existing Historic Environment of the site and its surrounding environs will also be considered in the ES. That assessment will consider, but is not limited to:

- Designated assets, monuments and landscapes as defined by the Royal Commission on the Ancient and Historical Monuments of Wales's (RCAHMW) Coflein database, and Cadw; and,
- Non-designated assets, monuments and landscapes as defined by the Clwyd-Powys Regional Historic environment record (HER).

Site Context

8.4 North-east Wales has a rich and varied history. A significant archaeological and built heritage resource is located in the Clwyd region, with nationally and regionally significant examples of Industrial heritage centred around the settlement of Wrexham.

Designated Assets

8.5 There are no World Heritage Sites, Registered Battlefields, Registered Parks and Gardens, Scheduled Monuments, or Conservation Areas within the study area.

8.6 There are no Designated Assets within the site boundary.

8.7 Nine Grade II Listed Buildings are recorded within the 1km study area surrounding the site by Cadw, all of which are dated from the Industrial to Modern era. The Locations of these Designated Heritage Assets can be found on Figure 8.1. These are associated with the Cefn Park Estate (Identifier: 17273); and 19th and 20th century residential buildings to the north-west of the site.

Non-designated Assets

8.8 There are 145 recorded archaeological monuments and findspots, and 3 archaeological events recorded on the Clwyd-Powys Historic Environment Record within the 1km study area.

8.9 Nine non-designated assets are recorded within the application site, which include: Two Roman Coins (Identifier: 54713, 106386); two spindle whorls of Roman to medieval date (identifier: 97014, 97015); three buckles of medieval to post-medieval date (identifier: 54701, 97016, 97017); a post-medieval boundary stone (104513); and the site of a pond, visible on the 1881 edition of the Ordnance Survey Map (55355). The RCAHMW also notes that a number of cropmarks are visible within the application site; however, further details of these cropmarks are not given on the RCAHMW database.

8.10 A significant concentration of non-designated assets are situated within close proximity to the site but external to the site boundary. These include 22 non-designated farm buildings which date from the post-medieval to Industrial periods (identifiers: 147012, 147015, 147018, 147019, 14720, 147021, 140722, 146988, 146989, 146990, 1496991, 534331, 534332, 54333, 54334, 54335, 147233, 147234, 147235, 147236, 147237, 147238).

Potential Impacts

8.11 A direct physical impact is one where construction works directly involved with the project (e.g., excavations and groundworks) result in a direct physical change to the fabric of the heritage asset (e.g., partial or complete removal).

8.12 An indirect physical impact is one that results from the project, but not resulting from direct (planned) intervention by the project's construction (e.g., vibration from groundworks/construction traffic affecting the fabric of a heritage asset or changes in ground conditions resulting in an effect on preservation conditions beyond the project parameters).

8.13 Impacts to the significance of a heritage asset may also occur if a development changes the surroundings in which a heritage asset is located, experienced and appreciated (i.e., its setting). Similarly, historic character may also be affected if the proposed scheme results in a change to the prevailing character of the area.

8.14 The Archaeology and Cultural Heritage assessment is likely to have key inter-relationships with Lighting, Noise, Landscape and Visual, and Transport and Access. These will be considered where relevant.

<u>Potential impacts during construction</u>

8.15 Construction activities which could affect the archaeology and cultural heritage resource include: any intrusive groundworks, including directional drilling, piling, and

open cut trench excavation; construction of any temporary works areas or permanent above ground infrastructure; and general construction activities such as plant movement or increased traffic movements due to construction.

8.16 The potential impacts during construction that will be assessed are:

- Direct, physical, impacts to designated heritage assets;
- Direct, physical, impacts to non-designated heritage assets;
- Indirect, physical, impacts to designated heritage assets;
- Indirect, physical, impacts to non-designated heritage assets;
- Temporary change to the setting of designated heritage assets, which could affect their heritage significance; and
- Temporary change to the setting of non-designated heritage assets, which could affect their heritage significance.

Potential impacts during Operation

8.17 Activity which could have an ongoing impact to the archaeology and cultural heritage resource will be the presence of the potential visibility of the construction infrastructure from the surrounding heritage assets. Any permanent above ground infrastructure has the potential to result in a change to the setting of heritage assets, which could affect heritage significance. This could include:

- Permanent change to the setting of designated heritage assets, which could affect their heritage significance; and
- Permanent change to the setting of non-designated heritage assets, which could affect their heritage significance.

Summary of potential impacts

Table 8.1: Summary of Potential Impacts – Archaeology and Cultural Heritage [scoped in (✓) and scoped out (x)]

Potential Impacts	Construction	Operation
Direct, physical, impacts to designated heritage assets.	✓	x
Direct, physical, impacts to non-designated heritage assets.	✓	x
Indirect, physical, impacts to designated heritage assets.	✓	✓
Indirect, physical, impacts to non-designated heritage assets.	✓	✓
Change to the setting of designated heritage assets, which could affect their heritage significance.	✓	✓
Change to the setting of non-designated heritage assets, which could affect their heritage significance.	✓	✓
Transboundary impacts	✓	✓

Assessment Methodology

8.18 Assessment of the archaeology and cultural heritage resource will be an ongoing process that will be combined with ongoing site works to refine the development footprint. To date, designated and non-designated heritage assets have been identified within the 1km study area.

8.19 The impact assessment upon the archaeology and cultural heritage resource will follow a heritage significance-based approach to historic environment decision-making, as set out in the NPPF, Section 16: Conserving and enhancing the historic environment (Ministry of Housing, Communities and Local Government, 2021). The assessment will also follow all relevant and appropriate guidance as produced by Cadw.

8.20 As part of the EIA, a commercial search of the Clwyd-Powys Regional Historic Environment Record (HER) to provide an updated data set of the previously recorded

non-designated heritage assets and events will be undertaken to provide an up-to-date dataset.

8.21 As part of the EIA process, the existing environment with respect to archaeology and cultural heritage will be described, including, but not limited to the following:

- Known non-designated heritage assets within 1km of the site boundary;
- Designated heritage assets within 1km of the site boundary, to inform a settings assessment of heritage assets identified as potential receptors of development, and,
- Designated heritage assets which could be affected by the presence of development, which will be identified through professional judgement and consideration of a Zone of Theoretical Visibility (ZTV) developed by the LVIA consultants.

8.22 Identification of heritage assets potentially affected by the project will be undertaken through spatial analysis of the heritage data within a GIS framework, and in consultation with the Heritage Impact Assessment previously undertaken by Tetra Tech (2021). Initial consideration of the setting of heritage assets and any potential for impact upon heritage significance has been undertaken as part of the setting assessment and informed by walkover surveys and site visits. A full consideration of and conclusions re. setting impacts and effects will be made in the final ES, following finalisation of the project.

8.23 Table 8.2 below identifies the sources that will be accessed to inform the characterisation of the existing environment within respect to archaeology and cultural heritage.

Table 8.2: Data sources to be used for the assessment of archaeology and cultural heritage

Data source	Data contents
British Geological Survey (BGS)	Historic borehole logs and the wider geological background for the region.
Cadw	Contains data on all designated heritage assets within Wales, maintained by Cadw. GIS data for all Scheduled Monuments, Listed Buildings, Registered Parks and Gardens and Registered Battlefields.
Clwyd-Powys Regional Historic environment record (HER).	Contains data on all recorded non-designated heritage assets, maintained by the Clwyd-Powys Regional Historic environment record (HER). The data includes findspots, monuments and locally listed buildings. Information on previous events (archaeological surveys and investigations) will also be obtained.
Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW)	Maintained by RCAHMW and contains information derived from digital records on the Welsh Historic Environment including the Coflein database which records details of many thousands of archaeological sites, monuments, buildings, and maritime sites in Wales, together with an index to the drawings, manuscripts and photographs held in the NMRW archive collections.
Walkover Surveys and Site Visits	Data from walkover surveys and site visits will be used, identifying current land-use and any potential unrecorded non- designated heritage assets.
Zone of Theoretical Visibility (ZTV) Model	Any ZTV produced by the LVIA team will be assessed to help inform settings assessment.
Existing archaeological studies and published sources	Background information on the archaeology of north-east Wales, including the results of archaeological assessments carried out for Wrexham and in the local area. Archaeological monographs and unpublished archaeology archive reports will also be reviewed to inform the baseline data.

8.24 Table 8.3 records the surveys, proposed and undertaken, at the development site. These surveys have been, and will be, undertaken in accordance with industry guidelines and agreed in advance with the relevant Historic Environment stakeholders.

Table 8.3: Proposed baseline surveys archaeology and cultural heritage

Survey/study	Timing	Spatial Coverage
Walkover Surveys	2020-2021	Targeted areas of the proposed application boundary will be visited to identify current land use and any potential unrecorded non-designated heritage assets, as well as ground truthing of certain previously recorded assets. Two Site Walkover Surveys (SWS) were completed in aid of the completion of the Archaeological and Heritage Desk-Based Assessment, and Heritage Impact Assessment, for the above site. The details of these are listed below: • Archaeological and Heritage Desk-Based Assessment: SWS undertaken in 2020 by Gregg Griffin, (MCIfA), Archaeological Consultant, Tetra Tech; and, • Heritage Impact Assessment: SWS undertaken in 2021 by Dr Paul Tubb, Senior Archaeological Consultant, Tetra Tech.
Setting Assessment Site Visits	2020-2021	Heritage assets identified as potentially being affected by the development (through a change in their setting) will be visited to inform the setting assessment. Two Setting Assessment Site Visits (SASV) were completed in aid of the completion of the Archaeological and Heritage Desk-Based Assessment, and Heritage Impact Assessment, for the above site. The details of these are listed below: • Archaeological and Heritage Desk-Based Assessment: SASV undertaken in 2020 by Gregg Griffin, (MCIfA), Archaeological Consultant, Tetra Tech; and,

		• Heritage Impact Assessment: SASV undertaken in 2021 by Dr Paul Tubb, Senior Archaeological Consultant, Tetra Tech.
Geophysical Survey	2021-2023	Targeted areas for geophysical survey, identified through desk-based baseline collation, e.g. Aerial photographic and LiDAR analysis. Geophysical Survey was partly done at the site in 2021, with the area to be fully subject to survey in December 2023.

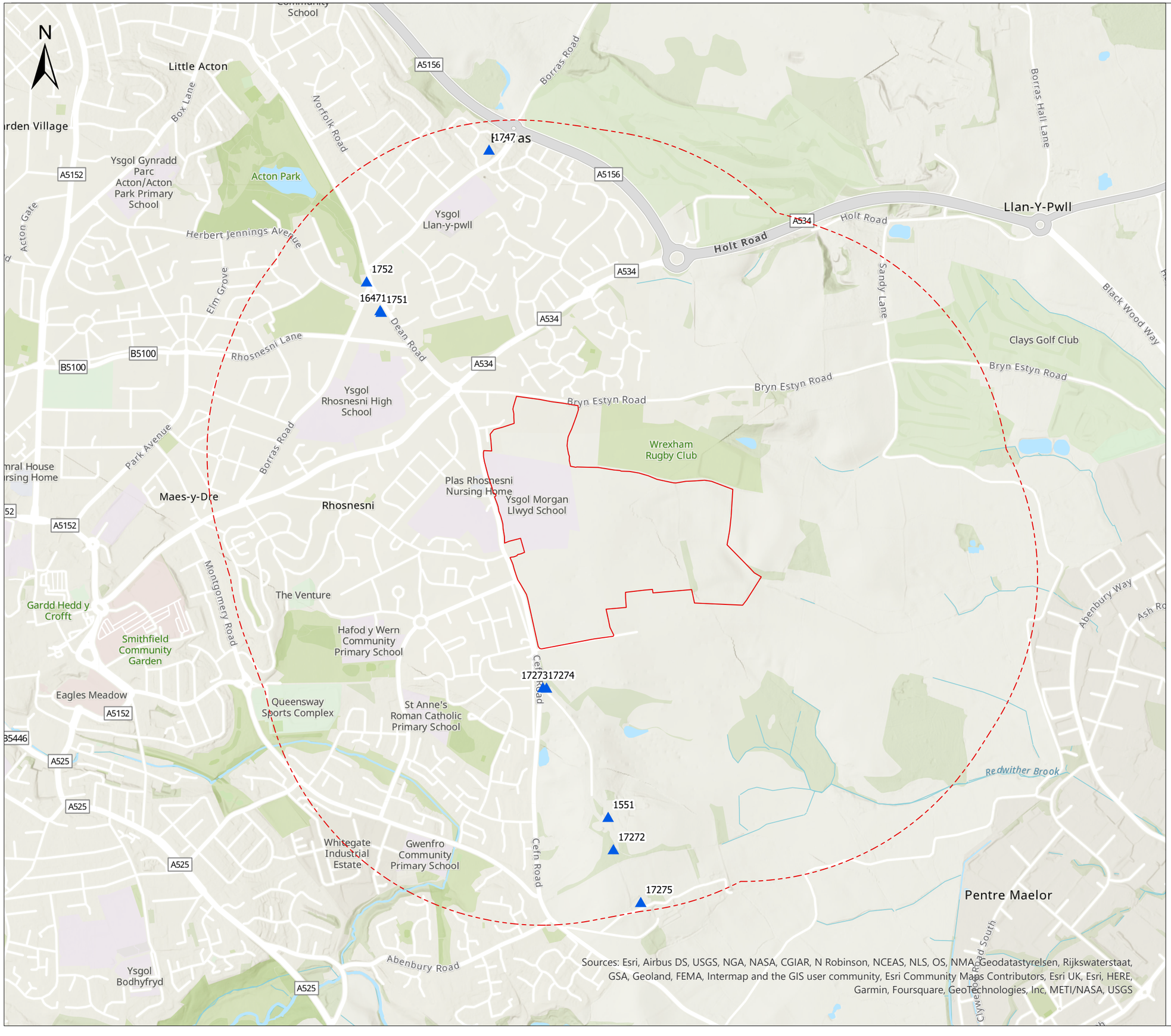
8.25 Following these initial baseline surveys, consideration of the requirement for any initial targeted archaeological evaluation (e.g., trial trenching) may be undertaken, dependent on the results of the Geophysical Survey, and consultation with the Clwyd-Powys regional archaeologist. Any targeted trial trenching may be undertaken at areas where the baseline surveys have identified a high potential for buried archaeological remains to be present. Any initial phase of targeted trial trenching would, however, be highly dependent on landowner access permissions being agreed.

8.26 Identification of any areas to potentially be subject to intrusive evaluation, as part of the application, would be decided through consideration of the baseline data and non-intrusive surveys and would be discussed and agreed in consultation with Clwyd-Powys Historic Environment Service.

8.27 The ES related assessment will be undertaken in accordance with following standards and guidance:

- Setting of Historic Assets in Wales, Cadw (2017); and,
- Conservation Principles for the sustainable management of the historic environment in Wales, Cadw (2011).

8.28 The assessment will be supported by a series of related technical reports and appendices. This includes the Archaeological and Heritage Desk-Based Assessment (Tetra Tech, 2021), and the Heritage Impact Assessment (Tetra Tech, 2021).



Legend

- Site Boundary
- Listed Buildings
- Study Area

0 100 200 400 600 800 1,000

Metres

LH	MB	December 2023	V1
Created:	Checked:	Date:	Version:

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TETRA TECH

Sheet Size: **A3** Scale of Original: **1:13,219**

Client: Harworth Group

Project: Cefn Park, Wrexham

Title: Designated Assets

Office:	Project No:	Figure No:
4154	784-B024030	8.1

9. TRANSPORT AND ACCESS

Introduction

9.1 This Chapter of the EIA will be prepared by SLR Consulting and will assess the likely traffic & transport impacts of the proposals upon the site and surrounding area. A Transport Assessment (TA) and Travel Plan (TP) will be prepared to accompany the planning application. These reports will form appendices to the EIA.

Relevant Policy and Guidance

9.2 The following transport policy and guidance will be considered in the preparation of the Transport and Access Chapter:

- Planning Policy Wales (PPW) Edition 11, February 2021;
- The Wales Transport Strategy 2021
- Active Travel Act Guidance July 2021;
- Technical Advice Note 18 (TAN 18): Transport, March 2007;
- Joint North Wales Local Transport Plan (LTP), January 2015;
- Wrexham Local Development Plan 2 (LDP2) 2013 to 2028; and,
- Wrexham Residential Design Guide, June 2009.

Site Context

9.3 Cefn Road forms the western boundary of the development site and forms a north-south route along the eastern side of Wrexham, providing access to the Caia Park residential area and providing connections for the A534 to the north and A525 to the south. It is a residential road with traffic calming in place. It is typically around 6.3m in width and street-lit, with a central hatched median strip along much of the route north of the Hullah Lane junction to encourage lower vehicle speeds.

9.4 Bryn Estyn Road is to the northern boundary and is a rural lane providing limited vehicle access to a small number of properties but also serves as an east-west route for pedestrians and cyclists linking to Wrexham Industrial Estate.

9.5 The site is in a highly sustainable location as it benefits from proximity to a wide range of local facilities including multiple schools and shops, providing the potential to make it a very well-connected development. Such facilities are located in Borras to the north and Rhosnesni and Caia Park to the west and there is a network of footways in the area to help connect the site to these areas.

9.6 There are several bus stops located within a 400 metre walk from the edge of the site, served by buses that provide direct connections during the day to Wrexham Town Centre. The site is therefore well located in relation to access to bus services.

9.7 There are two railway stations – Wrexham Central and Wrexham General – located on the western side of Wrexham Town Centre both approximately 4 kilometres from the site. Both stations can be reached by taking a bus to Wrexham Bus Station in the centre of town and walking approximately 260 metres to Wrexham Central or 550 metres to Wrexham General.

9.8 The site is therefore well located to present opportunities for travel by rail as part of a public transport journey chain.

9.9 A set of traffic surveys is being undertaken in November 2023 to establish the current traffic flows on the surrounding highway network. The results of the traffic surveys will be reported in the EIA chapter, establishing baseline traffic levels that will form the basis for the traffic assessments of future year scenarios without and with development.

9.10 The Baseline Assessment will also consider the personal injury traffic accident statistics over the last representative 60-month period as obtained from recorded 'STATS 19' data.

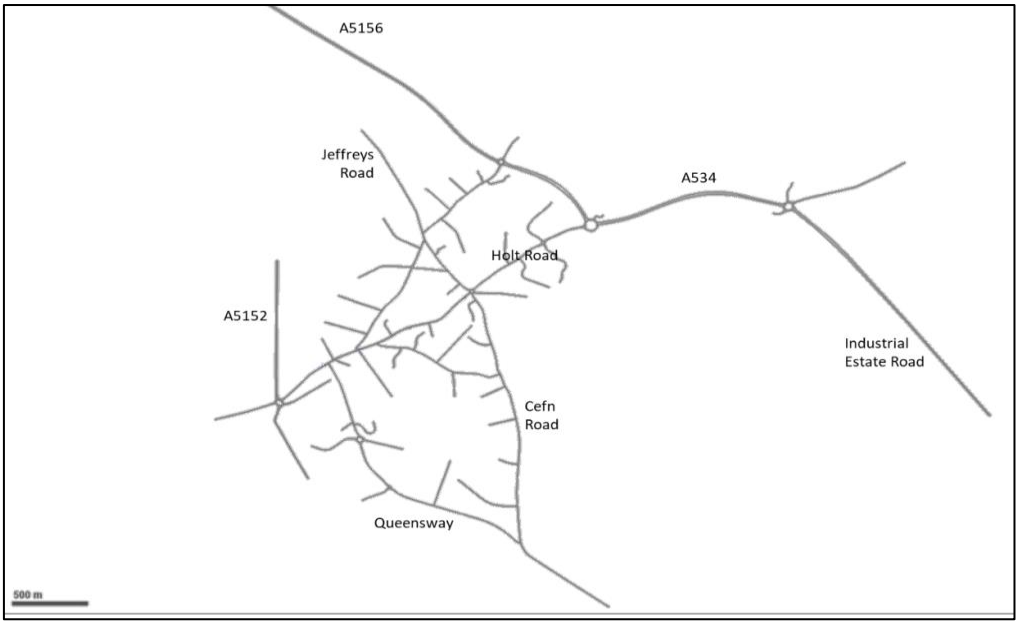
9.11 The site forms part of a wider strategic development site known as KSS2 and there is a policy requirement that a link road is delivered to run through the KSS2 site, this being considered necessary new infrastructure by the Local Authority to help accommodate the traffic arising from the KSS2 development.

9.12 The link road does not need to be delivered prior to development however but would be delivered once a proportion of the KSS2 site is occupied.

Study Area

9.13 The study area will be contiguous with the extent of the VISSIM model which is shown in Figure 9.1 below.

Figure 9.1 VISSIM Model Study Area



Potential Effects

9.14 An environmental impact can arise through the extra vehicle trips that might be generated by at a site and from new transport infrastructure. The potential implications that may arise from additional traffic have been described in the Institute of Environmental Assessment (IEMA) 'Guidelines for the Environmental Assessment of Road Traffic' (1993) and include:

- Driver Delay;
- Public Transport Users Delay;
- Pedestrian Delay;
- Pedestrian Amenity;
- Fear and Intimidation;
- Severance; and
- Accidents and Road Safety.

9.15 The assessment will consider the above factors during the construction and operational phases of development.

9.16 The IEMA guidelines state that in scoping out the extent of the assessment for the operational and construction phases, it suggests that "two broad rules of thumb could be used as a screening process to delimit the scale and extent of the assessment". Those Rules are:

- Rule 1: Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)
- Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10% or more.

9.17 The IEMA Guidelines go on to state that any increases in traffic flows of less than 10% are generally accepted as having negligible impact as daily variance in traffic flows can be of equal magnitude. The 30% threshold relates to the level at which humans may perceive change and there may therefore be an effect. Impacts above this level therefore do not suggest that there is a significant impact, only that further consideration is required to assess the significance.

9.18 The supporting Transport Assessment for the Proposed Development will determine whether the 10% or 30% threshold will be exceeded.

Sensitivity of Receptors

9.19 The potential environmental receptors affected by the Proposed Development are human, and these receptors include residents living close to the highway network, vulnerable road users i.e. pedestrians and cyclists, and drivers on the network. These parties will tend to be affected by the different environmental impacts to different degrees. For example, pedestrians are more impacted upon due to accidents than car drivers.

9.20 Overall, the receptors of the environmental impacts are considered to be Low or Local as the site is at the edge of an urban area that is already characterised by traffic movement. The importance of each receptor is considered in Table 9.1:

Table 9.1: Designation of Potentially Sensitive Receptors

Designation	Receptors
Very High (e.g. International)	**None**
High (e.g. national)	**None**
Medium (e.g. Regional / County)	**None**
Low (e.g. local)	**Residential properties on Cefn Road, Bryn Estyn Road, Holt Road.** **Vulnerable Road Users** **Drivers using the study network**
Negligible	

Assessment Methodology

9.21 The assessment methodology will follow the methodology provided by IEMA for the environmental assessment of road traffic and by Department for Transport on preparing Transport Assessments and Travel Plans.

9.22 It is intended that traffic assessment of the surrounding highway network will be undertaken using a microsimulation traffic modelling programme called VISSIM. The VISSIM model will allow the network as a whole to be considered accounting for interactions between junctions. The model will be calibrated and validated using traffic survey data and journey time data collected in November 2023.

9.23 The model will consider a scenario with the link road in place and the full development of KSS2. It will also consider an interim scenario which would allow delivery of a proportion of the total KSS2 development prior to the link road being necessary to mitigate the effects of the KSS2 traffic. This interim scenario will be defined and developed during the course of the modelling process.

9.24 It is anticipated that the overall approach to the assessment of likely significant effects from transport and access will be as follows:

- Establish existing traffic flows and conditions from survey data and from desk-based analysis;
- Assess the levels of traffic generated by any committed developments and add these to the existing traffic flows to establish the future year base traffic flows;
- Factor in any additional future year background traffic forecasts over and above the committed development already considered;
- Assess future baseline traffic conditions in the model;
- Calculate the traffic flows generated by the Proposed Development and distribute/ assign these to the study area highway network;
- Assess the effects of the traffic generated by the Proposed Development, compared to the future baseline and compare this against the IEMA thresholds; and
- Develop any highway infrastructure schemes that may be necessary to mitigate any traffic effects of development, including any improvements to pedestrian and cycle facilities in the area.

9.25 The above will be reported in a Technical Chapter of the EIA with the TA forming an appendix to the ES.

Significance Criteria

9.26 The IEMA's aforementioned guidance sets out the broad principles of how to assess the magnitude of the effect for each category. This is summarised below:

- Severance – The guidance states that "severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery". Further "changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively". However, the guidance acknowledges that the measurement and prediction of severance is extremely difficult. The assessment of severance pays full regards to specific locations, in particular the location of pedestrian routes to key local facilities and whether or not crossing facilities are provided.
- Driver Delay – such delays "… are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system".
- Pedestrian delay – "Changes in the volume, composition or speed of the traffic may affect the ability of people to cross the roads". The guidance suggests that assessors "… use their judgement to determine whether pedestrian delay is a significant impact".
- Pedestrian amenity – broadly defined as the relative pleasantness of a journey, it is affected by traffic flow, traffic composition and pavement width/ separation from traffic. The guidance suggests a tentative threshold for judging the significance of changes in pedestrian amenity of where traffic flow (or its lorry component) is halved or doubled.
- Fear and intimidation – the impact of this is dependent upon the volume of traffic, its HGV composition, its proximity to people or the lack of protection caused by such factors a narrow pavement width. The guidance states that there are no commonly agreed thresholds for estimating this from known traffic and physical conditions.
- Accidents and safety – the guidance suggests that "Professional judgement will be needed to assess the implications of local circumstances, or factors, which may elevate or lessen risks of accidents, e.g. junction conflicts".

9.27 The guidance makes it clear that "a critical feature of environmental assessment is determining whether a given impact is significant". Further, "for many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor backed up by data or quantified information whenever possible. Such judgements will include the assessment of the number of people experiencing a change in environmental impact…".

Magnitude of Impact

9.28 The magnitude of potential impact (both beneficial and adverse) on environmental baseline conditions will be identified through the detailed consideration of the Proposed Development, taking into account the following:

- Relevant legislation, policy or guidelines (i.e. IEMA Guidelines for the Environmental Assessment of Road Traffic (1993);
- The degree to which the environment is potentially affected for example, whether the quality is enhanced or impaired;
- The scale or degree of change from baseline conditions as a result of the Proposed Development;
- The duration of the effect for example, whether it is temporary or permanent; and
- The reversibility of the effect.

9.29 The magnitude of impacts will be assessed and reported for the construction and operational phases of the proposed development.

10. AIR QUALITY

Introduction

10.1 An assessment of the likely significant effects from emissions to air from or associated with the Proposed Development, and thus the potential for the Proposed Development to impact upon nearby relevant receptors, will be undertaken by Miller Goodall Ltd.

10.2 The potential effects of the Proposed Development on local air quality relate to dust associated with demolition and construction activities, and emissions from road traffic associated with the construction and operation of the Proposed Development.

10.3 This chapter of the Scoping Report describes the methodology which will be used to assess these potential impacts.

Site Context

10.4 A review of existing air quality information relating to pollutants of interest, nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$), has been completed. Background concentrations of NO_2, PM_{10} and $PM_{2.5}$ have been obtained from the Defra background maps6. Data has also been gathered from the North Wales Authorities Collaborative Project 2022 Air Quality Progress Report7, which includes air quality monitoring data from WCBC.

10.5 The location of areas of known poor air quality, in particular Air Quality Management Areas (AQMA), close to the study area have been reviewed using the Department of Environment Food and Rural Affairs (Defra) interactive map8. There are currently no AQMAs declared in North Wales.

10.6 WCBC monitors NO_2 using diffusion tubes at 26 locations, including one diffusion tube triplicate site which is co-located with an automatic monitoring station, which is part of the Automatic Urban and Rural Network (AURN). The AURN site is located approximately 2.5 km southwest of the Proposed Development. Therefore, it is not representative of the conditions at the Proposed Development.

10.7 There are, however, four NO_2 diffusion tube monitoring sites within 2 km of the Proposed Development. The results from these diffusion tubes are shown in **Table 10.1** and their locations are shown in **Figure 10.1**. Monitoring data has been obtained from the North Wales Authorities Collaborative (2022) Air Quality Progress Report**Error! Bookmark not defined.**.

[6] http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018
[7] North Wales Authorities Collaborative (NWAC) (2022) North Wales Authorities Collaborative Project 2022 Air Quality Progress Report
[8] https://uk-air.defra.gov.uk/aqma/maps/

Table 10.1: Significance Criteria

Site ID (classification)	Location		Annual Mean NO_2 Concentrations ($\mu g/m^3$)					
			2016	2017	2018	2019	2020	2021
WBC-021 (roadside)	334100	350700	19.9	17.8	18.8	NA	NA	NA
WBC-033 (roadside)	333981	350171	19.2	17.5	18.5	15.6	19.3	21.0
WBC-042 (roadside)	335359	352178	25.6	24.4	23.2	20.6	NA	NA
WBC-043 (roadside)	333966	349691	17.9	18.4	19.3	17.0	14.4	16.5
Annual Mean NO_2 air quality objective			40 $\mu g/m^3$					

10.8 The monitoring results in **Table 10.1** indicate that annual mean concentrations of NO_2 were below the NO_2 annual mean objective at the identified monitoring sites during the period shown.

10.9 The results also indicate that the short-term objective for NO_2 was unlikely to be exceeded at the identified monitoring sites as monitored annual mean concentrations were well below the indicative screening concentration of 60 μ/gm^3 during the period shown.

10.10 WCBC has one PM_{10} and $PM_{2.5}$ monitoring location. This is at the AURN site. However, as discussed, the AURN is not representative of the conditions at the Proposed Development.

Proposed Scope of Assessment

Assessments to be Scoped Out

10.11 In respect of demolition and construction dust, guidance from the Institute of Air Quality Management[9] advises that, with appropriate mitigation in place, the impacts of demolition and construction dust will not be significant. The characteristics of the site and the surrounding area suggest that mitigation would not be impracticable or ineffective. These mitigation measures can be included within a CEMP for the Project.

10.12 In terms of traffic generation during the demolition and construction phase of the development, it is anticipated that there will not be a change in:

[9] IAQM "Guidance on the assessment of dust from demolition and construction" v2.1 2023

- Light-duty vehicle (LDV) flows of more than 500 annual average daily traffic (AADT) on roads with relevant receptors; and
- Heavy-duty vehicle (HDV) flows of more than 100 AADT on roads with relevant receptors.

10.13 The IAQM guidance[10] indicates that likely impacts of construction traffic on local air quality will not, therefore, be significant.

10.14 In the unlikely event that flows are higher than anticipated, the impacts will be temporary.

10.15 The Proposed Scheme has no significant combustion sources associated with it. Therefore, the effect of combustion emissions associated with the operational stage of the Proposed Scheme on human receptors close to the Site is not considered to be significant and will not be considered further in the EIA or reported in the ES.

Proposed Assessments

10.16 Emissions from road traffic associated with the operational phase of the Proposed Development have the potential to have a significant effect on air quality and will, therefore be considered in the EIA and reported in the ES.

10.17 The Proposed Scheme may include a wastewater treatment works (WwTW). The odour associated with the WwTW has the potential to have a significant effect on the amenity for existing and proposed residents in the surrounding area and will, therefore be considered in the EIA and reported in the ES.

Assessment Methodology

Road Traffic Emissions

10.18 The validated Atmospheric Dispersion Modelling System for Roads (ADMS-Roads) v5.0.0.1 will be used to calculate the impact of development-generated vehicle exhaust emissions, on concentrations of NO_2, PM_{10} and $PM_{2.5}$ at existing receptors located adjacent to the assessed road network.

10.19 ADMS-Roads is a comprehensive tool for investigating air pollution in relation to road networks. The model uses algorithms for the height-dependence of wind speed, turbulence and stability to produce improved predictions. It can predict long-term and short-term concentrations, as well as calculations of percentile concentrations.

10.20 The technical approach to the air quality assessment will be in accordance with the DEFRA publication LAQMTG22[11].

[10] EPUK and IAQM (January 2017) Land Use Planning and Development Control: Planning for Air Quality (v1.2)
[11] Department for the Environment Food and Rural Affairs (2022). Local Air Quality Management Technical Guidance Document LAQM.TG(22)

10.21 The ADMS model requires the derivation of background pollutant concentration data that are factored to the year of assessment, to which the model adds contributions from the assessed roads. There are no background monitoring locations in the vicinity of the Proposed Development and receptor locations. Therefore, background NO_2, PM_{10} and $PM_{2.5}$ concentrations will be obtained from the Defra LAQM support tools[12] for the 1km x 1km grid squares covering the Proposed Development site and receptor locations for the years of assessment.

10.22 24-hour AADT traffic flow data are required for input into the air quality assessment. Traffic data will be provided by SLR Consulting Limited (the transport consultants for the project), for use in the assessment. The roads to be modelled are shown in **Figure 10.1**. The following roads will be included in the model:

- A534 (East of A5156)
- A5156 North of Site Access
- Borras Road
- A5156 (West of Borras)
- Borras Park Road
- Holt Road West (Cefn - A534 (at A5156))
- Holt Road (A534 (at Cefn))
- Dean Road
- Bryn Estyn Road
- Cefn Road (Holt - Hullah (at Holt))
- Holt Road (Hullah - Cefn (at Hullah))
- Holt Road (South of Hullah)
- Roundabout Circling (A534 and A5156 roundabout)
- Holt Road (Hullah - Cefn (at Cefn))
- Cefn Road (Holt - Hullah (at Hullah))
- Cefn Road (Hullah - Access)
- Cefn Road (South of the site)

10.23 Posted speed limits will be utilised in the model, apart from the approach to junctions and roundabouts where queuing traffic sections will be included in the model at 5kph where appropriate.

10.24 A base year will be modelled which will either be for the year 2019 or 2022.

[12] http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2018

10.25 The impact of the Proposed Development will be considered in conjunction with committed developments in the area which will consist of:

- The opening year, with committed development, without the proposed development; and
- The opening year, with committed development, with the proposed development.

10.26 Meteorological data from the Hawarden meteorological recording station will be used in the ADMS-Roads model. This is the most representative recording station for the Proposed Development.

10.27 Model verification is the process of adjusting model outputs to improve the consistency of modelling results with respect to available monitored data. In the assessment model uncertainty will be minimised following DEFRA guidance**Error! Bookmark not defined.**. The verification of the ADMS model output will be achieved by modelling the NO_2 concentrations at WBC-042 and comparing the modelled concentration with measured concentrations. Verification at WBC-42 will only be possible if a 2019 base year is agreed upon during consultation as 2019 was the final year of monitoring at this diffusion tube location. Currently, 2022 WCBC monitoring data is not available. Due to COVID-19 lockdowns, 2020 and 2021 are not deemed suitable base years.

10.28 Ten existing high-sensitivity receptor (ESR) locations were selected based on their proximity to road links affected by the proposed development, where the potential effect of development-related traffic emissions on local air pollution would be most significant. The ESR locations are detailed in **Table 10.2** and shown in **Figure 10.1**.

Table 10.2: Existing Sensitive Receptor Locations

Receptor	Grid Ref	
ESR1	335829	351856
ESR2	335124	351244
ESR3	335160	351307
ESR4	335113	351258
ESR5	334540	350864
ESR6	334419	350851
ESR7	335241	350910
ESR8	335312	350683

Receptor	Grid Ref	
ESR9	335300	350648
ESR10	335374	350433

10.29 Five proposed high-sensitivity receptor (PSR) locations were selected based on the proposed residential land parcels in the Masterplan, the PSRs are adjacent to the roadside, where the potential effect of traffic emissions on local air pollution would be most significant. The PSR locations are detailed in **Table 10.3** and shown in **Figure 10.1**.

Table 10.3: Proposed Sensitive Receptor Locations

Receptor	Grid Ref	
PSR1	335232	350996
PSR2	335278	350845
PSR3	335347	350594
PSR4	335409	350411
PSR5	335404	351227

10.30 Oxides of nitrogen (NO_x) concentrations will be predicted using the ADMS-Roads model. The modelled road contribution of NO_x at the identified receptor locations was then converted to NO_2 using the NO_x to NO_2 calculator (v8.1, 2020) following Defra guidance[13].

10.31 Guidance is provided by EPUK and IAQM**Error! Bookmark not defined.** on criteria for d etermining the significance of a development's impact on local air quality. **Table 10.4** details the impact descriptors used for individual receptors in relation to annual mean pollutant concentrations. The overall significance of impacts will be determined using professional judgment. Changes of 0%, i.e., less than 0.5%, will be described as Negligible.

[13] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/nox-to-no2-calculator/

Table 10.4: Significance Criteria

Long term average Concentration at the receptors in assessment year	Annual Mean NO_2 Concentrations (µg/m3)			
	1	2-5	6-10	>10
75% or less of AQAL	Negligible	Negligible	Minor	Moderate
76-94% of AQAL	Negligible	Minor	Moderate	Moderate
95-102% of AQAL	Minor	Moderate	Moderate	Major
103-109% of AQAL	Moderate	Moderate	Major	Major
110% or more of AQAL	Moderate	Major	Major	Major

10.32 In accordance with IAQM guidance**Error! Bookmark not defined.**, a 'Moderate' (Adverse/Beneficial) or 'Major' (Adverse/Beneficial) impact will be considered a Significant effect in EIA terms and a 'Negligible' or 'Minor Adverse' impact will be a Not Significant effect. However, EPUK/IAQM guidance advises that the overall assessment of significance is to be based on professional judgement. Therefore, the overall significance of impacts will be determined using professional judgement taking into account such factors as:

- impact descriptors for individual receptors;
- the existing and future air quality in the absence of the development;
- the extent of current and future population exposure to the impacts; and
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

10.33 An effect may be either temporary or permanent, and if there is an effect it may be either short term or long term. These considerations are included in the significance determination. Professional judgement, therefore, will be used to assess the overall air quality impact of the Project as either 'Significant' or 'Not Significant'.

WWTW Odour

10.34 The methodology within the IAQM (2018) Guidance on the assessment of odour for planning[14] will be used to inform the assessment.

[14] IAQM (2018) Guidance on the assessment of odour for planning

10.35 The potential impact of the WWTW will be determined by considering the source odour potential and the effectiveness of the pollutant pathway.

10.36 The first step in the assessment is to estimate the odour generating potential of the site activities, termed the "Source Odour Potential", which takes into account three factors:

- The scale (magnitude) of the release from the odour source, taking into account the effectiveness of any odour control or mitigation measures that are already in place. This involves judging the relative size of the release rate after mitigation and taking account of any pattern of release (e.g. intermittency).
- How inherently odorous the emission is. In some cases it may be known whether the release has a low, medium or high odour detection threshold (ODT); this is the concentration at which an odour becomes detectable to the human nose. In most instances the odours released by a source will be a complex mixture of compounds and the detectability will not be known. However, for some industrial processes the odour will be due to one or a small number of known compounds and the detection thresholds will be a good indication of whether the release is highly odorous or mildly odorous.
- The relative pleasantness/unpleasantness of the odour.

10.37 Using the factors above, **Table 10.5** can be used to determine whether the source odour potential is Large, Medium or Small.

Table 10.5: Determining the Source Odour Potential

Source Odour Potential	Magnitude	Compounds	Unpleasantness	Mitigation/Control
Large	Larger permitted processes of odorous nature or large Sewage Treatment Works (STWs); materials usage hundreds of thousands of tonnes/m^3 per year; area sources of thousands of m^2.	The compounds involved are very odorous (e.g. mercaptans), having very low Odour Detection Thresholds (ODTs) where known.	Processes classed as "Most offensive" (where known) compounds/odours having unpleasant (-2) to very unpleasant (-4) hedonic score.	Open air operation with no containment, reliance solely on good management techniques and best practice.
Medium	Smaller permitted processes or small (STWs); materials usage thousands of tonnes/m^3 per year; area sources of hundreds of m^2.	The compounds involved are moderately odorous.	Processes classed in H4 as "Moderately offensive"; or (where known) odours having neutral (0) to unpleasant (-2) hedonic score.	Some mitigation measures in place, but significant residual odour remains.
Small	Falls below Part B threshold; material usage hundreds of tonnes/m^3 per year; area sources of tens m^2.	The compounds involved are only mildly odorous, having relatively high ODTs where known.	Processes classed as "Less Offensive" in H4; or (where known) compounds/odours having neutral (0) to very pleasant (+4) hedonic score.	Effective, tangible mitigation measures in place (e.g. BAT, BPM) leading to little or no residual odour.

10.38 Next, the effectiveness of the pollutant pathway as the transport mechanism for odour through the air to the receptor, versus the dilution/dispersion in the atmosphere, is estimated. Any factor that increases dilution and dispersion of the odorous pollutant plume as it travels from source (e.g. processes and plant) to receptor will reduce the concentration at the receptor, and hence reduce exposure. Important factors to consider here are:

- The distance of sensitive receptors from the odour source.
- Whether these receptors are downwind (with respect to the predominant prevailing wind direction). Odour episodes often tend to occur during stable atmospheric conditions with low wind speed, which gives poor dispersion and dilution; receptors close to the source in all directions around it can be affected under these conditions. When conditions are not calm, it will be the downwind receptors that are affected. Therefore, receptors that are downwind with respect to the prevailing wind direction tend to be at higher risk of odour impact.
- The effectiveness of the point of release in promoting good dispersion, e.g. releasing the emissions from a high stack will – all other things being equal - increase the pathway, dilution and dispersion.
- The topography and terrain between the source and the receptor. The presence of topographical features such as hills and valleys, or urban terrain features such as buildings can affect air flow and therefore increase - or inhibit - dispersion and dilution.

10.39 Using the factors above, **Table 10.6** can be used to determine the effectiveness of the pollutant pathway.

Table 10.6: Determining the Effectiveness of Pollutant Pathway

Effective Pathway for Odour Flux to Receptor	Distance	Direction	Effectiveness of dispersion/dilution
High	Receptor is adjacent to the source/site; distance well below any official set-back distances.	High frequency (%) of winds from source receptor (or, qualitatively, receptors downwind of source with respect to prevailing wind).	Open process with low-level releases, e.g. lagoons, uncovered effluent treatment plant, landfilling of putrescible wastes.
Moderate	Receptor is local to the source.	-	Releases are elevated but compromised by building effects.
Ineffective	Receptor is remote from the source; distance exceeds any official set-back distances.	Low frequency (%) of winds from source to receptor (or, qualitatively, receptors upwind of source with respect to prevailing wind).	Releases are from high level (e.g. stacks, or roof vents >3m above ridge height) and are not compromised by surrounding buildings.

10.40 Source Odour Potential and the Pathway Effectiveness are considered together to predict the risk of odour exposure (impact) at the receptor location, as shown by the example matrix in **Table 10.7**.

Table 10.7: Risk of Odour Exposure (Impact) at the Specific Receptor Location

Pathway Effectiveness	Source Odour Potential		
	Small	Medium	Large
Highly Effective Pathway	Low Risk	Medium Risk	High Risk
Moderately Effective Pathway	Negligible Risk	Low Risk	Medium Risk
Ineffective Pathway	Negligible Risk	Negligible Risk	Low Risk

10.41 With respect to the sensitivity of receptors, the IAQM recommends that the air quality practitioner uses professional judgment to identify where on the spectrum between high and low sensitivity a receptor lies, taking into account the following general principles shown in **Table 10.8**.

Table 10.8: Sensitivity of the Receptor

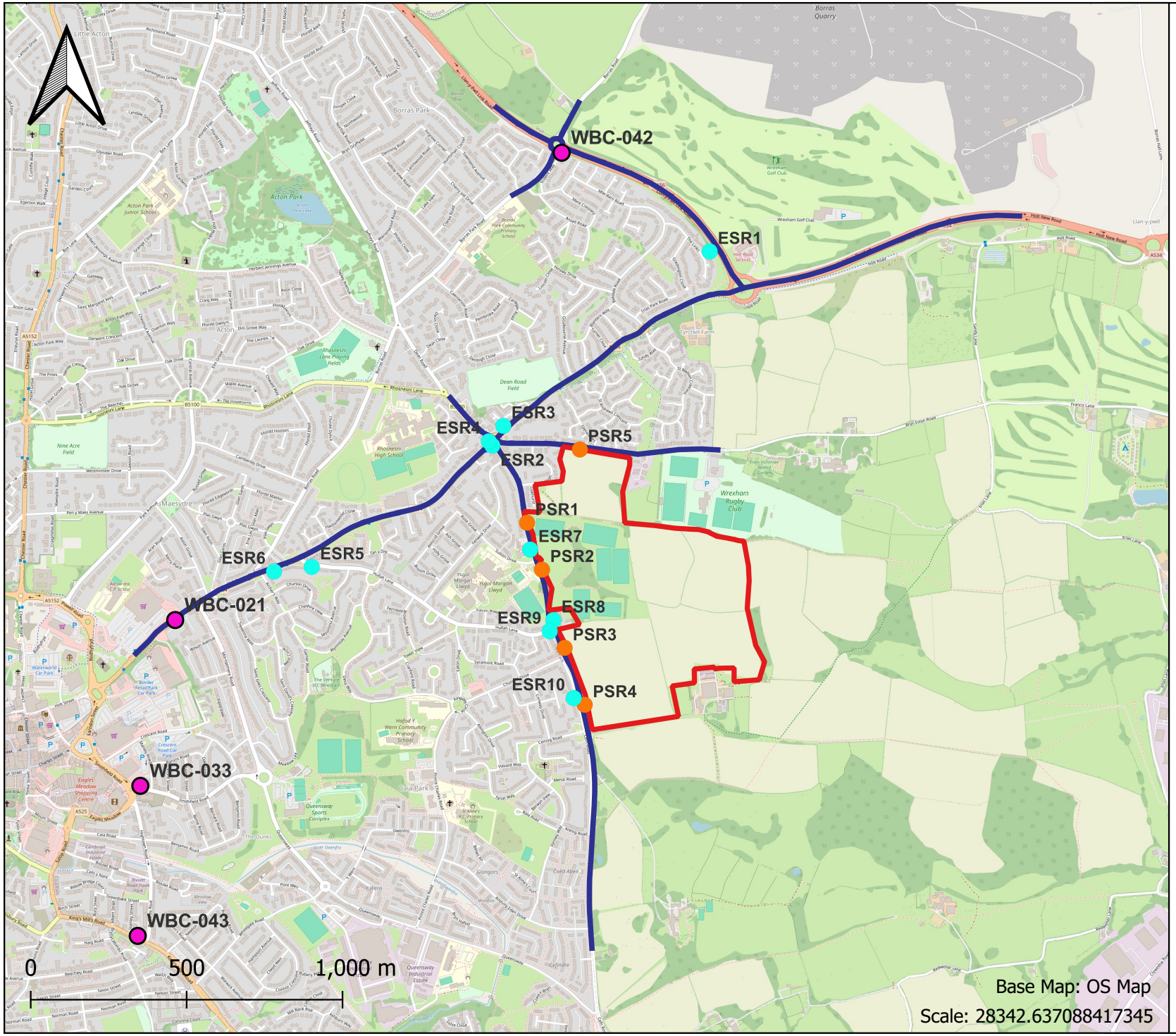
Sensitivity of the Receptor	Defining qualities
High	Surrounding land where: Users can reasonably expect enjoyment of a high level of amenity. The people would reasonably be expected to be present here continuously, or at least regularly for extended period, as part of the normal pattern of use of the land. Examples may include residential dwellings, hospitals, schools/education and tourist/cultural.
Medium	Surrounding land where: Users would expect to enjoy a reasonable level of amenity but wouldn't reasonably expect to enjoy the same level of amenity as in their home. People wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land. Examples may include places of work, commercial/retail premises and playing/recreational fields.
Low	Surrounding land where: The enjoyment of amenity would not be reasonably expected. There is transient exposure, where the people would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. Examples may include industrial, farms, footpaths and roads.

10.42 The magnitude of the effects of the odour will be assessed using the matrix shown in **Table 10.9** which combines the magnitude of odour impact with receptor sensitivity. The odour effects may range from negligible, through slight adverse and moderate adverse, up to substantial adverse.

Table 10.9: Likely Magnitude of Odour Effect at the Specific Receptor Location

Risk of Odour Exposure (From Table 10.7)	**Receptor Sensitivity**		
	Low	Medium	High
High Risk of Odour Exposure	Minor Adverse Effect	Moderate Adverse Effect	Major Adverse Effect
Medium Risk of Odour Exposure	Negligible Effect	Minor Adverse Effect	Moderate Adverse Effect
Low Risk of Odour Exposure	Negligible Effect	Negligible Effect	Minor Adverse Effect
Negligible Risk of Odour Exposure	Negligible Effect	Negligible Effect	Negligible Effect

10.43 Odour risks deemed 'negligible' or 'minor adverse' are considered to be insignificant. If the impact is deemed significant in the IAQM odour screening assessment then modelling will be undertaken. If modelling is required, the local authority will be consulted on the modelling methodology.



Legend

- Site
- WCBC monitoring
- PSR
- ESR
- Roads

Project: Land East of Cefn Park

Report Number: 102716-2

Drawn by: MH

MILLER GOODALL
ACOUSTICS - AIR QUALITY - LIGHTING

Date: 18/12/2023

11. NOISE AND VIBRATION

Introduction

11.1 This chapter of the Scoping Report provides an overview of expected effects which are not significant and can scoped out of the future Environmental Statement Noise and Vibration Chapter, and effects which have the potential to be significant and are scoped into the Environmental Statement Noise and Vibration Chapter. The methodology which will be used to assess the potentially significant effects is described.

11.2 This document deals with effects and their impact on off-site receptors, such as existing residential properties and sensitive commercial uses, and the change they will experience from the baseline condition.

11.3 Impacts from existing environmental noise levels on the development will be considered as part of a standalone noise impact assessment that will be appended to the ES. That assessment will consider break-in noise levels to proposed residential units and external noise levels to private gardens by using the criteria stated in BS 8233:2014[15] and WHO 1999[16].

Site Context

11.4 The baseline noise levels affecting the Site and existing noise sensitive properties are likely to be relatively low, with levels impacted by the noise from existing road traffic and local commercial/industrial noise sources.

11.5 The baseline vibration levels affecting the site are likely to be negligible.

11.6 Existing road traffic noise sources include the following:

- Wrexham Road (A534);
- Llan-y-Pwll Link Road (A5156);
- Cefn Road;
- Bryn Estyn Road; and
- Stryt Holt.

11.7 Existing commercial/industrial noise sources include the following:

- Wrexham Industrial Estate; and
- Wrexham Container Storage.

[15] British Standard 8233:2014 Guidance on insulation and noise reduction in buildings
[16] World Health Organization 1999 Guidelines for community noise

11.8 An initial environmental noise survey was undertaken at the site in January 2022. These measurements are considered representative of typical daytime and night-time conditions in and around the Site.

11.9 **Table 11.1** and **Table 11.2** provide a summary of the initial background noise survey data from that survey for the daytime and night-time periods respectively. The locations of the measurement positions are indicated on **Figure 11.1**

11.10 Additional surveys will be undertaken to establish the baseline at offsite receptors in order for comparison of changes from construction site activity noise and operational road traffic to be assessed.

Table 11.1: Initial Noise Survey Data (Daytime)

Location	Date	Start Time	Elapsed Time (hr:mm:ss)	$L_{Aeq,T}$ (dB)	L_{Afmax} (Db)	$L_{AF10,T}$ (Db)	$L_{AF90,T}$ (Db)
MP1	20/1/22	10:20	00:15:00	52.2	62.7	55.6	43.8
		12:35	00:15:00	52.7	64.9	55.5	46.2
		14:40	00:15:00	52.9	63.1	55.7	45.4
MP2	20/1/22	10:50	00:15:00	50.0	67.9	51.8	40.2
		13:00	00:15:00	47.5	64.3	51.5	36.9
		15:10	00:15:00	48.4	62.3	51.2	42.1
MP3	20/1/22	11:25	00:15:00	42.8	56.4	43.7	38.6
		13:30	00:15:00	44.5	59.7	47.0	41.1
		15:40	00:15:00	46.3	70.8	47.2	41.4
MP4	20/1/22	11:55	00:15:00	43.2	52.8	45.3	40.3
		14:00	00:15:00	45.9	59.7	47.5	42.4
		16:05	00:15:00	45.2	53.0	46.5	43.8
MP5	20/1/22	10:40	00:15:00	45.1	62.8	46.7	41.9
		12:35	00:15:00	40.6	51.6	42.6	37.5
		14:40	00:15:00	42.6	53.3	44.4	40.2
MP6	20/1/22	11:05	00:15:00	40.3	55.1	41.2	36.9
		13:00	00:15:00	40.2	57.2	40.1	36.2
		15:05	00:15:00	43.5	60.9	43.4	38.3
MP7	20/1/22	11:40	00:15:00	41.6	59.3	42.8	39.0
		13:30	00:15:00	43.1	56.2	45.4	40.2
		15:35	00:15:00	43.4	65.3	44.7	41.8
MP8	20/1/22	12:05	00:15:00	58.6	71.6	63.2	41.5
		13:55	00:15:00	59.8	73.9	63.9	43.8
		16:00	00:15:00	59.7	70.0	63.7	45.5

Table 11.2: Initial Noise Survey Data (Night-time)

Location	Date	Start Time	Elapsed Time (hh:mmm :ss)	$L_{Aeq,T}$ (dB)	L_{AFmax} (dB)	$L_{AF10,T}$ (dB)	$L_{AF90,T}$ (dB)
MP1	2/2/22	05:30	00:15:00	50.7	61.8	54.9	39.4
		06:40	00:15:00	51.9	61.8	55.7	41.4
MP8	2/2/22	06:10	00:15:00	66.2	84.9	70.9	40.0

11.11 The data in Table 11.1 indicates that noise levels across the site are relatively low. The western extents next to Cefn Road are the louder due to local road traffic. The northern, southern, central and eastern areas being predominantly quiet in character.

Identification of Effect/s which are Not Significant

Demolition and Construction Vibration due to on-site works

11.12 Demolition and construction activities have the potential to result in nuisance and/or adverse health effects for existing residential properties to the west and north.

11.13 No demolition activities are anticipated so no significant effects will arise from demolition.

11.14 Potential significant effects from vibration during the construction stage generally occur during piling. During the construction stage, no piling works are anticipated for the residential scheme.

11.15 Construction of the potential school may require piling. However, the location of the potential school is approximately 150 m from the nearest receptors to the west and greater than 200 m from the nearest receptors to the north, so are likely to benefit from significant distance attenuation. A study area of 100m from the source of construction vibration is normally considered sufficient to identify sensitive receptors according to DMRB LA111[17] guidance. As all receptors are greater than 100 m from the site of the potential school, the effects of vibration due to piling is expected to be Not Significant.

11.16 In addition, the adoption of Best Practicable Means (BPM), as defined in the Control of Pollution Act 1974[18] will provide the basis for a series of vibration control measures, which will be incorporated within the Construction Environmental Management Plan (CEMP). Vibration effects will also be avoided by employing standard mitigation

[17] Design Manual for Roads and Bridges LA 111 Revision 2 - Noise and vibration (May 2020).
[18] Control of Pollution Act 1974 c.40.

measures in line with the guidance set out in British Standard 5228:2009+A1:2014 Noise and vibration control on construction and open sites, Part 2: Vibration[19].

11.17 As demolition activities are unlikely to occur, no piling works are anticipated for the construction of the residential scheme, and due to the distance of the potential school from the receptors, the potential for significant effects from vibration is considered to be removed. Vibration from construction activities is therefore not considered to be significant and will not be considered further in the EIA or reported in the ES.

Construction and Operational Road Traffic Vibration

11.18 The magnitude of road traffic vibration is typically controlled by the road surface. The effects of operational vibration are not considered to be potentially significant. The DMRB LA111 assessment methodology, provides the following statement in the guidance:

'*…a maintained road surface will be free of irregularities as part of project design and under general maintenance, so operational vibration will not have the potential to lead to significant adverse effects*.

11.19 Roads proposed within the development will be maintained so road traffic vibration is unlikely to be significant. Roads surrounding the site are likely to be maintained so road traffic vibration is unlikely to be significant.

11.20 Therefore, the effects of operational road traffic vibration are unlikely to be considered significant and will not be considered further within the EIA or reported in the ES.

[19] British Standard 5228:2009+A1:2014 Noise and vibration control on construction and open sites, Part 2: Vibration.

Identification of Effect/s which are Likely to be Significant

11.21 **Table 11.3** presents a summary of effects of the development that may be significant and the receptors that are likely to be impacted. The effects at these receptors are considered to require assessment within the EIA and inclusion within ES.

Table 11.3: Likely Significant Effects

Applicable Development Phase	Effect	Receptor
Construction	Disturbance associated with noise generated by temporary on-site activities	Residential receptors on: • Cefn Road • Oakhurst • Thornleigh • Dwellings adjacent to Bryn Estyn Road, including subsidiary road adjacent to the north east of phase 1 • Llwyn Knottia Farm Educational receptors: • Morgan Llywd School Commercial receptors: • The Erlas Centre and Walled Garden • Clwb Rygbi Wrecsam
Construction	Disturbance associated with road traffic noise	Residential receptors on: • Cefn Road • Dwellings on and adjacent to Bryn Estyn Road
Operational	Disturbance associated with road traffic noise	Residential receptors on: • Cefn Road • Dwellings on and adjacent to Bryn Estyn Road • Hullah Lane* • Stryt Holt*

* The locations of representative residential receptors on Hullah Lane and Stryt Holt will be selected when traffic flow data becomes available.

11.22 Referring to Table 11.3, it should be noted that all receptors will not be affected during each phase of the development. As the phasing plan develops, the receptors to be assessed for each phase of the development will be selected.

Waste Water Treatment Works

11.23 The Proposed Scheme may include a wastewater treatment works (WwTW). Potential significant effects may include:

- Construction site activity noise;
- Construction stage road traffic noise;
- Construction stage vibration;
- Operational industrial noise; and,
- Operational road traffic noise

11.24 Construction stage vibration may be generated during the construction of infrastructure such as tunnels, outfalls, tanks and chambers that may require groundworks involving compacting and piling activities.

11.25 Operational industrial noise may be generated by operational activities that may include noise from fixed plant, noise from mobile plant and noise from deliveries.

11.26 The likelihood of significant effects is dependent on the scale and location of the proposed WwTW. Should the scale and location indicate a likelihood of significant effects, the WwTW will be considered in the EIA and reported in the ES.

Assessment Methodology

Construction site activity noise

11.27 The impact from noise due to on-site construction works associated with the Proposed Scheme will be considered in relation to the guidance provided with BS 5228:2009 Part 1: Noise[20] and DMRB LA111 as far as reasonably practicable.

11.28 A qualitative assessment of noise from the following activities will be considered:

- Earthworks;
- Non-piled foundations; and
- Building works.

[20] British Standard 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open site – Part 1 Noise.

11.29 Predictions of the noise generated by these activities will be made using the methodology and data in BS5228:2009+A1:2014. To consider their impact, the predictions will be compared against the baseline conditions.

11.30 Based on the noise survey date presented in **Table 11.1** and **Table 11.2** in and around the Site, the closest receptors are considered to have a fixed baseline of 65 dB $L_{Aeq,T}$ which is considered to be the Significant Observed Adverse Effect Level (SOAEL), based on the Category A levels in Table E1 in BS 5228-1. Based on this, the magnitude of effect for thresholds for construction activity noise to be used in the assessment are presented in **Table 11.4**.

Table 11.4: Magnitude of effect for construction activity noise

Magnitude of Effect	Construction activity noise level $L_{Aeq,T}$ Daytime (07.00 – 19.00, T = 12 hr) and Saturdays (07.00 – 13.00, T = 6 hr)
Major	> L_{Aeq} 70 dB
Moderate	> L_{Aeq} 65 dB ≤ L_{Aeq} 70 dB
Minor	> L_{Aeq} 55 dB ≤ L_{Aeq} 65 dB
Negligible	≤ 55 dB

11.31 The level of the effect for construction activity site noise will be based on the sensitivity of the receptor and the magnitude of the change from the agreed baseline.

Construction stage road traffic noise

11.32 The guidance contained in DMRB LA111 will be used as the basis for the assessment of construction road traffic noise. LA111 provides a methodology for assessing the effects of road traffic noise during the construction stage of a project.

11.33 This method is based on assessing the increase in the baseline noise level (BNL) of the closest public road used for construction traffic.

11.34 Effects to off-site receptors will be considered in the EIA and reported in the ES Chapter. **Table 11.5** presents the criteria adopted to determine the magnitude of the impact from the baseline conditions.

Table 11.5: DMRB LA111 Magnitude of impact at receptors from construction road traffic noise

DMRB LA111 Magnitude of Impact	Increase in baseline noise level (BNL) *dB*
Major	≥ 5
Moderate	≥ 3.0 and < 5.0
Minor	≥ 1.0 and < 3.0
Negligible	< 1.0

11.35 The magnitude of impact for construction road traffic noise will be based on the sensitivity of the receptor and the magnitude of the impact from the agreed baseline.

Construction stage vibration

11.36 Should assessment of the WwTW be required, the assessment of construction vibration will be undertaken at selected representative receptors following BS 5228-2[21] and DMRB LA111 methodology and criteria as far as reasonably practicable.

11.37 DMRB LA11 provides magnitude of impact criteria in terms of LOAEL and SOAEL peak particle velocity (PPV) vibration levels. BS 5228-2 Table B.1 provides guidance on the effects of corresponding PPV vibration levels, in terms of human response. Should assessment of the WwTW be required, effects to off-site receptors will be considered in the EIA and reported in the ES Chapter. **Table 11.6** presents the criteria adopted from the guidance to determine the magnitude of the impact at the selected receptors.

[21] British Standard 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open site – Part 2 Vibration

Table 11.6 Magnitude of impact for vibration due to construction activities

Magnitude of Impact	Vibration Level PPV, mms^{-1}
Major	≥ 10
Moderate	≥ *1* *< 10*
Minor	≥ *0.3* *< 1*
Negligible	< 0.3

11.38 The level of effect for construction stage vibration will be based on the sensitivity of the receptor and the magnitude of the impact.

Road traffic noise during operation

11.39 The guidance contained in DMRB LA111 will be used as the basis for the assessment of operational road traffic noise. LA111 provides a simple and detailed method for assessing the effects of road traffic noise during the operational stages of a project.

11.40 The assessment methodology is usually used for new roads; however, a derivation of the method can be used for quantitatively assessing the changes in traffic noise on existing roads. This method is based on a comparison between the baseline conditions and conditions with the Proposed Scheme in the opening year and future assessment year.

11.41 Effects to off-Site receptors will be considered in the EIA and reported in the ES Chapter. **Table 11.7** presents the criteria adopted to determine the magnitude of the change from the baseline conditions.

Table 11.7: DMRB LA111 Magnitude of change for short-term and long-term from operational road traffic

DMRB LA111 Magnitude of Change	Change from Baseline *dB* $L_{A10,18hr}$	
	Short-term	Long-term
Major	≥ 5	≥ 10
Moderate	3.0 to 4.9	5.0 to 9.9
Minor	1.0 to 2.9	3.0 to 4.9
Negligible	< 1.0	< 3.0

11.42 The level of the effect for operational road traffic noise will be based on the sensitivity of the receptor and the magnitude of the change from the agreed baseline.

11.43 The final level of effect will be based on the assessment of the initial effect combined with professional judgement. Professional judgement should consider the difference in relation to the top and bottom of the minor and moderate banding boundary, absolute noise level in relation to Lowest Observed Adverse Effect Level (LOAEL) and SOAEL sound levels in DMRB LA111 guidance and character of the sound in relation to the existing acoustic context.

11.44 Where an effect is changed based on professional judgement, the justification will be reported along with any supporting evidence.

Industrial noise during operation

11.45 Should assessment of the WwTW be required, the assessment of operational activities associated with fixed plant, mobile plant and deliveries will be undertaken at selected representative receptors using BS 4142 methodology and criteria as far as reasonably practicable.

11.46 BS 4142 presents a method of assessing the potential noise impact of an industrial source, by comparing the noise level due to industrial sources (the Rating Level) with that of the existing background noise level at the nearest noise sensitive receptor in the absence of the source (the Background Sound Level).

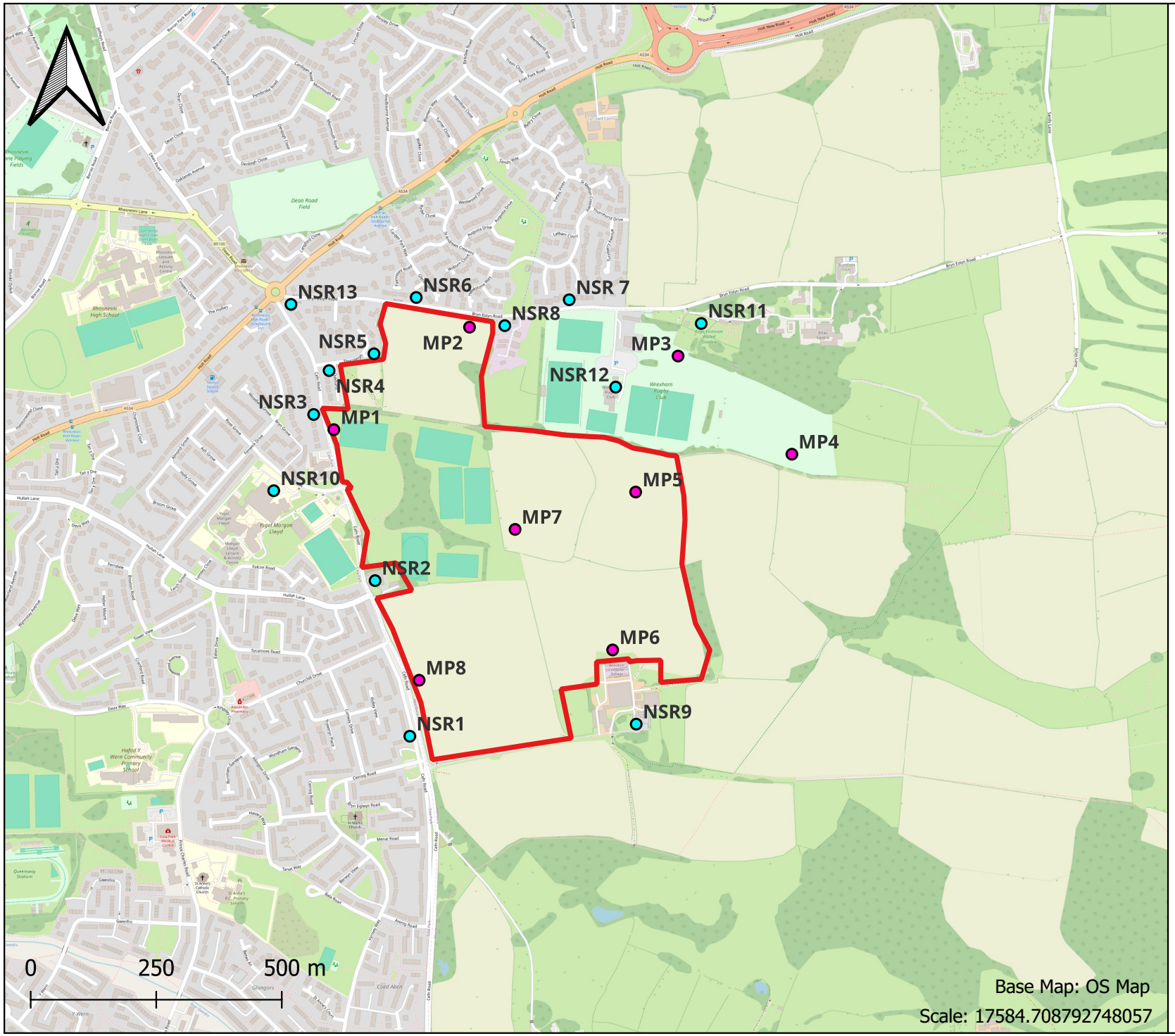
11.47 The Specific Noise Level is defined as the noise level produced by the source at the assessment location. A character correction may be applied for acoustic features such as tonality, impulsivity or intermittency. The corrected Specific Noise Level is the Rating Level.

11.48 Effects to off-Site receptors will be considered in the EIA and reported in the ES Chapter. **Table 11.8** presents the criteria adopted to determine the magnitude of impact.

Table 11.8 Magnitude of impact for operational industrial noise

Magnitude of Impact	Difference between Rating Level and Background Sound Level dB
Major	≥ 10
Moderate	≥ *5* *< 10*
Minor	≥ *0* *< 5*
Negligible	< 0

11.49 The level of effect for operational industrial noise will be based on the sensitivity of the receptor and the magnitude of the impact.



Legend

- Site
- Monitoring Position
- Noise Sensitive Receptor

Project: Land East of Cefn Park

Report Number: 102716-2

Drawn by: MH

MILLER GOODALL
ACOUSTICS - AIR QUALITY - LIGHTING

Date: 18/12/2023

12. FLOOD RISK AND DRAINAGE

Introduction

12.1 This chapter of the scoping report presents an overview of the likely significant effects of the proposed residential development on the water environment. This considers the potential impacts on surface water quality, flood risk and drainage. It sets out an environmental baseline, identifies potential impacts for construction and operational phases, describes the scope and assessment methodology and presents the findings of the assessment and any mitigation measures which have been considered.

Site Context

12.2 The assessment will be carried out to identify potential impacts on the water environment by assessing the likely impact of the proposed development during construction and operation. These will be assessed with consideration of the magnitude and importance of the receptor. For the purposes of the surface water (quality and flood risk) the study area will consider all the features within the site development based on the boundary shown on masterplan to be developed by Tetra Tech Ltd.

12.3 The assessment will cover the construction and operational stage of the proposal and identifies aspects that have the potential to affect the existing baseline situation. The following issues will be considered:

- Effects on groundwater levels, flow and quality;
- Effects on surface water quality;
- Effects on groundwater dependant terrestrial ecosystems;
- Changes to the natural drainage patterns;
- Effects on base flows;
- Effects on runoff rates and volumes;
- Effects on erosion and sedimentation;
- Effects on water resources (both private and public water supplies); and
- Effects on flooding and impediments to flow.

12.4 Where likely significant effects are predicted, their significance will be assessed, and possible measures incorporated into the future design to mitigate or reduce the significance of these effects. Significance will be assigned to any residual effects following the implementation of the proposed mitigation measures.

12.5 The potential for cumulative effects will also be assessed.

Legislation, Policy and Design Guidance

12.6 The assessment will consider, the following legislation, policies and best practice design guidance.

National policy & Legislation

- Planning Policy Wales
- Land Drainage Act and Water Resources Act 1991
- The Flood and Water Management Act 2010
- The Water Framework Directive

Local policy & Guidance

- Wrexham County Borough Council (WCBC) acting as the Lead Local Flood Authority (LLFA);
    - Local Planning Guidance Note No 30 – Design (A Guide for Developers and Architects when Designing Residential Developments).
    - Local Planning Guidance Note No 32 - Biodiversity & Development

Natural Resources Wales

- Environment Agency Policy on Groundwater Protection (Formerly GP3), an approach adopted by Natural Resources Wales (NRW).
- Statutory National standards for sustainable drainage systems (SuDS) - Standards for sustainable drainage systems - designing, constructing, operating, and maintaining surface water drainage systems.

Other Guidance

- CIRIA C502 Environmental Good Practice on Site
- CIRIA C532 Control of Water Pollution from Construction Sites
- EA Pollution Prevention Guidelines (PPG) (now withdrawn, but still useful points of reference)

Please note the above list is not an exhaustive list and further relevant guidance may be suggested or use requested by the LLFA, SuDS Approving Body (SAB) or NRW.

Consultations

12.7 Various authorities will require consultation during the flood risk assessment and drainage strategy design.

12.8 Wrexham CBC, acting as the Lead Local Flood Authority will require consultation to agree the principles of the future drainage strategy and flood risk assessment. Agreement of site run off rates will need to be agreed.

12.9 SuDS Approving Body will also require consulting, as part of the drainage strategy regarding the use of any SuDS features.

12.10 Natural Resources Wales may require consultation on any proposals to discharge surface water flows to ground.

12.11 Welsh Water will require consulting for any future discharge connection into the public sewer, capacity and treatment of foul effluent.

Assessment Methodology

12.12 This scoping report identifies how it is intended to bring forward the residential development at Cefn Farm.

12.13 A flood risk assessment (FRA) will be prepared to support a planning application for the development and to satisfy the requirements the LLFA. The site sits fully within Flood Zone 1.

12.14 The flood risk assessment will be produced in compliance with the national planning policy and will consist of data collection and review, desk-based research and consultation with regulatory bodies and third parties in relation to flood risk and drainage. The study will provide a risk-based assessment of potential flooding to the site caused by various sources, including fluvial, tidal, surface water/pluvial, groundwater, surcharged sewers, and other man-made sources. Mitigation measures will be identified within the FRAto address any risks to the site and any potential future risk to other land.

12.15 The site is not located within a Groundwater Source Protection Zone area (SPZ). There is an SPZ located 800m east of the site and the potential impacts on groundwater flows and quality will be assessed using a methodology agreed with Wrexham CBC, the SuDS Approving Body and Natural Resources Wales.

12.16 Google map images indicates that there are possible existing waterbodies within site boundary. These will need confirming and the impact upon these hydrological assets considered.

12.17 The proposed surface water drainage strategy will be designed to follow the hierarchy for disposal of surface water flows. These being;

- Infiltration – At or as close to source as possible,
- Discharge to Surface Waters (i.e. watercourse),
- Discharge to a surface water sewer, highway drain or another drainage system,
- Discharge to a combined sewer.

Construction and Operation

12.18 Construction activities have the potential to contaminate and cause flooding to existing waterbodies. While temporary works drainage will be the responsibility of the

contractor, they will also be considered during the final assessment.

12.19 Works to, or in close proximity to existing watercourses will require LLFA approval. Impacts of such works will be considered within final report.

12.20 Future development drainage will be designed in accordance with the SSG and Welsh Water specific requirements. This drainage will be maintained by the adopting water authority or by an appropriate maintenance company. The operational effects of this drainage are not considered to be significant and should not require any further consideration.

13. AGRICULUTRAL LAND

Introduction

13.1 This section provides a description of the agricultural land and soils baseline and provides an initial indication of potential effects of the Proposed Development. This chapter then sets out the proposed scope and methodology for the assessment of likely significant effects relating to agricultural land and soil resources arising from the construction and operation of the Proposed Development.

Site Context

13.2 The site includes approximately 31ha of arable agricultural use, with the remainder in non-agricultural uses, including a business centre, sports pitches and a small block of woodland.

13.3 Topography is level to gently sloping falling from 80m Above Ordnance Datum (AOD) in the west to around 70m AOD in the east.

13.4 The climate at the site is moist and moderately cool, with moderate soil moisture deficits. The number of Field Capacity Days (when the soil can accept no further rainfall) is larger than is typical for lowland areas and is slightly unfavourable for agricultural land working.

13.5 The bedrock geology is the Salop Formation, which comprises reddish brown mudstone with sandstone. Across most of the site the bedrock is overlain by glaciofluvial sheet deposits of sand and gravel, locally with lenses of silt, clay or organic material. Deposits of diamicton overlie the bedrock in the west.

13.6 Newport 1 association soils are mapped across the site. The Newport series, which is extensive around Wrexham, is characterised by sandy loam or loamy sand topsoil and becomes progressively sandier with depth. Soil profiles are permeable and well drained, in Wetness Class (WC) I.

13.7 The Welsh Government Predictive ALC Map for Wales shows the site to be mainly of very good quality Grade 2.

13.8 The site has been subject to a number of detailed Agricultural Land Classification (ALC) surveys carried out by the Welsh Government and Reading Agricultural Consultants. These surveys have classified 22.7ha (or 44% of the site) as Grade 2; 6.5ha (12%) as Subgrade 3a; 2ha (4%) as Subgrade 3b, with the remainder as non-agricultural land.

13.9 The Grade 2 land has dark brown sandy loam topsoil, typically of 30cm depth. The upper subsoil is reddish brown to brown medium sandy loam or loamy medium sand. The lower subsoil is mostly strong brown and commonly comprises medium or coarse sand. To the north and north-west of the farmstead at the southern site boundary, lower subsoil horizons of sandy silt loam are also identified. Due to the coarse soil textures, the ability of the profiles to retain water is slightly affected, resulting a droughtiness limitation to Grade 2.

13.10 In the west of the site, the soil profiles include very dark grey sandy loam topsoil of between 28cm and 38cm depth. Most of the subsoil in the west comprises sand. The subsoil contains increasing volumes of stone with depth, which increases the droughtiness limitation to Subgrade 3a or Subgrade 3b, depending upon the specific volumes.

Assessment Methodology

Likely impacts from construction

13.11 Construction activities will result in the permanent loss of approximately 31ha of agricultural land from the Site, with potential knock-on implications for food production. Most of the agricultural land in the site is best and most versatile (BMV) agricultural land (Grades 1, 2 and 3a).

13.12 Soil is a finite resource that fulfils many important functions and services for society in addition to the production of food and fibre. During the construction phase, damage to, and loss of, topsoil could occur if other dissimilar materials such as subsoil or other materials were stockpiled directly on it without a separating layer or possibly by poor work causing mixing of topsoil subsoil and other materials during stockpile placement or removal.

13.13 There is also a risk of long-term damage to soil structure, and the loss of potentially valuable soil, if there is uncontrolled trafficking of land and soil by heavy machinery, especially wheeled machinery.

13.14 Biodegradation of topsoil would occur if it compacted in storage, stockpiled when wet, if stockpiled in the medium-to-long-term, or covered by soil stores for significant periods. Permanent, direct, adverse impacts may arise, therefore, from disposing of soil or re-using it for inappropriate purposes that do not meet the many beneficial functions of soil; by mixing incompatible soil resources; and by poor management of the soil resource.

Likely impacts from operation

13.15 The impacts on agricultural land and soils will occur during the construction of the Proposed Development, and no additional impacts are expected as a result of the operation of the scheme. Operational effects on agricultural land and soils are scoped out of the assessment.

Proposed assessment methodology

13.16 The assessment will be based on the Proposed Development parameter plans assuming that construction movements may occur across the whole of the red line boundary; that the Proposed Development will be brought forward in areas according to the parameters plans; and that no land will remain in agricultural use within the red line boundary on completion of the Proposed Development. The range and mix of uses has no relevance to the assessment of agriculture and soils.

13.17 The assessment methodology will be based on defining the sensitivity of the soil and agricultural land receptors and determining the magnitude of change upon each, according to a standard set of significance criteria.

13.18 The sensitivity of the soil and agricultural land receptors will be determined using the criteria set out in Table 13.1.

Table 13.1 Agricultural land and soils sensitivity criteria

Sensitivity	Agricultural Land	Soil Resources
High	Grades 1 and 2	Soils with high clay and silt fractions (clays, silty clays, sandy clays, heavy silty clay loams and heavy clay loams); peaty soils
Medium	Subgrades 3a and 3b	Silty loams, medium silty clay loams, medium clay loams and sandy clay loams
Low	Grades 4 and 5	Soils with a high sand fraction (sands, loamy sands, sandy loams and sandy silt loams)

13.19 The magnitude of change upon these receptors will then be determined using the criteria set out in Table 13.2.

Table 13.2 Agricultural land and soils magnitude of change criteria

Sensitivity	Agricultural Land	Soil Resources
Major	Development would directly lead to the loss of over 50ha of agricultural land	The soil displaced from development is unable to fulfil one or more of the primary soils functions
Moderate	Development would directly lead to the loss of between 20ha and 50ha of agricultural land	The soil displaced from development mostly fulfils the primary soil functions off-site or has a reduced capacity to fulfil the primary functions on site

Minor	Development would directly lead to the loss of between 5ha and 20ha of agricultural land	The soil displaced from development mostly fulfils the primary soil functions on-site
Negligible	Development would directly lead to the loss of less than 5ha of agricultural land	The soil retains its existing functions on-site

13.20 Mitigation measures are available to mitigate impacts on agricultural land and soils and the mitigation measures required will be identified in the ES following the assessment of the effects. An example of mitigation that is likely to be appropriate at the Site is the preparation of a Soil Resource Management Plan (SRMP) to identify the soil types within the site; the most appropriate re-use for the different types of soils; and the proposed methods for handling, storing and replacing soils on-site, so that the quality of the soil resources can be maintained in the design of the Proposed Development.

14. MINERALS

Introduction

14.1 A Minerals ES Chapter would be undertaken to examine the potential impacts resulting from the proposed development. The Chapter would assess the importance of the underlying mineral resource, the viability of any prior extraction, and the impact the proposed development would have on this receptor (the underlying mineral resource).

14.2 The safeguarding of non-renewable resources, such as minerals, is a key aspect of sustainable development. Paragraph 5.14.7 of Planning Policy Wales (Edition 11), which was adopted in February 2021, emphasises the importance of safeguarding mineral resources to deliver need and prevent sterilisation.

14.3 Paragraph 32 of Minerals Technical Advice Note 1: 'Aggregates' states *"resources must be safeguarded for possible use by future generations."*

Site Context

The Site and Surroundings

14.4 The site is approximately 49.09ha and is located immediately east and south of built development in Wrexham. The site slopes from its peak of around 80m above ordnance datum (AOD) in the northwest to around 705m AOD in the east/ southeast.

14.5 The site mainly comprises numerous fields, which are predominantly arable agricultural land as well as several sports pitches belonging to both Ysgol Morgan Llwyd School (which is to the west of the site). The fields and sports pitches are generally bounded by hedgerows and scattered with trees.

14.6 A water main, which requires a 12m easement, traverses through the site from north to south in an 'L' shape and also follows part of the northern boundary of the site. A combined sewer, which also requires a 12m easement, extends from the water main to the northeast corner of the site. A section of foul sewer extends across a small section of the northwest of the site.

Minerals Designations, Local Policy, and Reported Geology

14.7 Proposals Map 2 Inset 1 of the adopted Wrexham Unitary Development Plan 1996-2011 (UDP) shows that most of the site is within an area described as 'Protection of Mineral Resources'. The Proposals Map sheet shows this protection area is allocated under UDP Policy MW9. Policy MW9 is set out below: -

'Resources of sand and gravel, and clay will be safeguarded from non-mineral development in order to prevent the sterilisation of unworked minerals deposits. The identification of mineral resource areas gives no presumption in favour of the working of any deposits.

Within such areas non-mineral development will be strongly resisted unless a resource assessment (or other information) is provided to demonstrate that no exploitable reserves exist within the development site. Where non-mineral development which materially prejudices minerals resources is granted planning permission on land holding minerals deposits, provision should be made for the prior removal of mineral deposits.'

14.8 The British Geological Survey (BGS) show on their GeoIndex website that the site is mainly underlain by Devensian Glaciofluvial Sheet Deposits, which comprise sands and gravels. A small part of the site to the west is shown to be underlain by Devensian Till or Diamicton, which comprises mixed sands, silts, clays and gravels.

14.9 The small part of the site not within the 'Protection of Mineral Resources' area is the part shown by the BGS to be underlain by Devensian Till.

14.10 The Local Development Plan (LDP) (Deposit April 2018 version) includes two policies relating to minerals safeguarding. LDP Policy MW1: 'Minerals Safeguarding' is set out below: -

'Non-mineral development within Mineral Safeguarding Areas as defined on the proposals map will only be permitted where it can be demonstrated that: -

i. The mineral underlying the site does not merit extraction, or
ii. The need for the non-mineral development outweighs the need to protect the resource, or
iii. The mineral can be satisfactorily extracted prior to the non-mineral development, or
iv. The development is of a temporary nature or can be removed within the timescales within which the mineral is likely to be needed, and
v. Essential infrastructure that supports the supply of minerals would not be compromised or would be provided elsewhere.

All applications for development in these areas shall be supported by a Mineral Safeguarding Assessment.

Proposals for non-mineral development on allocated sites of 4ha or more and which are underlain by surface coal or Category 1 sand and gravel shall be supported by a Prior Extraction Assessment.'

14.11 Policy SP17: 'Minerals Supply and Safeguarding' is set out below:-

'Minerals will be sustainably managed through:-

a. The protection of minerals from unnecessary sterilisation by directing new development away from areas underlain by mineral of importance or where this is not possible, through the requirement to extract mineral prior to the non-mineral development; and

b. Avoiding conflict between mineral working and sensitive development through the use of buffer zones; and

c. Contributing towards meeting the regional need for aggregate minerals in collaboration with Flintshire County Council; and

d. Supporting proposals for mineral extraction within the County Borough which contribute towards maintaining an adequate supply of minerals in sustainable locations including the delivery of high quality restoration and aftercare programmes which enhance and provide linkages with the natural environment.'

14.12 The LDP states that the material underlying the site is of national importance, but paragraph 5.29 states:-

'The SA/ SEA identifies that these KSS will impact on Best and Most Versatile agricultural land and minerals of national importance, however the need to provide housing, infrastructure and other community facilities in sustainable locations outweighs the need to protect these resources in this instance.'

14.13 Furthermore, paragraph 6.178 of the LDP states:-

'The need for mineral underneath sites which are allocated for non-mineral development has already been considered through the development of the LDP and the need for the non-mineral development is considered to outweigh the need to protect the resource in its entirety.'

14.14 The Regional Technical Statement 1st Review (RTS), was published by the North Wales Regional Aggregates Working Party (NWRAWP) in 2014 and is discussed in the emerging LDP. A second review report RTS was published in September 2020.

14.15 Paragraph 5.28 of the second review RTS states the *'landbank* (in Wrexham) *is currently adequate, at just under 20 years, but a further allocation is needed to meet the RTS requirement over the full plan period'.* Table 5.4 of the second Review RTS shows that Wrexham require an additional 1.565 million tonnes of sand to cover the plan period.

14.16 A planning permission (P/2022/0448) was granted in November 2022 at Ballswood for the extraction of an additional 500,000 tonnes of sand and gravel. This reduces the shortfall identified in Table 5.4 of the RTS second review to around 1 million tonnes.

Site Investigation Information

14.17 Eighteen trial pits were excavated at the site in November 2021. The results of this exercise are summarised below.

Table 14.1 - Site Investigation Log Summary

Trial pit	Topsoil Depth (mbgl)	Strata 1 Depth (mbgl)	Strata 1 Description	Strata 2 Depth (mbgl)	Strata 2 Description
TP101	0.4	1.5	Fine to medium SAND		
TP102	0.3	0.2	Silty SAND	1	Silty CLAY
TP103	0.4	1.1	Slightly silty SAND		
TP104	0.3	1.1	Silty SAND	0.2	Silty sandy CLAY
TP105	0.4	1.3	Slightly silty SAND		
TP106	0.3	1.9	Silty/ very silty SAND		
TP107	0.3	1.7	Slightly silty SAND		
TP108	0.3	2.2	Silty SAND		
TP109	0.25	1.25	Silty/ silty gravelly SAND		
TP110	0.3	0.2	Slightly clayey gravelly SAND	0.9	Coarse SAND and GRAVEL
TP111	0.35	1.55	Slightly clayey gravelly SAND		
TP112	0.35	0.5	Coarse SAND and GRAVEL	1.15	Gravelly SAND
TP113	0.35	0.4	Gravelly SAND	1.25	SAND
TP114	0.3	1.2	Coarse SAND		
TP115	0.3	1.5	Slightly gravelly SAND		
TP116	0.35	1.75	SAND/ gravelly SAND		
TP117	0.4	0.7	Clayey gravelly SAND	0.1	SAND
TP118	0.3	1.1	Gravelly SAND		

14.18 The trial pits were excavated to depths ranging between 1.2m and 2.5m, with an average depth of 1.76m. The logs indicate that sand with varying quantities of fines were encountered immediately beneath the topsoil. With the exception of TP102, at least 1m was of sand/ sand and gravel was recorded in each of the trial pits. Sand/ sand and gravel was also recorded to the base of each trial pit with the exception of TP102 and TP104.

14.19 Particle Size Distribution (PSD) testing was completed on four of the recovered samples. This information is summarised in Table 14.2 below.

Table 14.2 – Particle Size Distribution Tests

Trial pit	Top Depth (mbgl)	Base Depth (mbgl)	Strata Recorded in Logs	Sand	Gravel	Fines
TP102	1.2	1.4	Silty Clay	0%	0%	91%
TP105	1.4	1.6	Slightly silty SAND	92%	1%	8%
TP107	1.4	1.6	Slightly silty SAND	90%	5%	5%
TP117	1.2	1.2	Sand	88%	5%	7%

14.20 The PSD tests indicate that the tested samples include higher quality sands.

14.21 Groundwater was encountered during the works. The log for TP106 denotes the ground was saturated from 1.6m and the log for TP108 denotes the ground was saturated from 1.8m.

Assessment Methodology

14.22 The Minerals ES Chapter would follow the methodology described in Section 4 of this Scoping Report.

14.23 It is proposed that one receptor, the underlying mineral resource, is scoped into the ES Chapter.

14.24 The ES Chapter would be informed by the findings of a Minerals Safeguarding Assessment. The Minerals Safeguarding Assessment would include the information requirements of a Prior Extraction Statement.

14.25 Wrexham Council have provided feedback (11/01/2023) to an earlier edition Prior Extraction Statement and this correspondence, which included recommended content for a report, would also inform the ES Chapter as well as the updated Minerals Safeguarding Assessment. The Minerals Safeguarding Assessment would be included as a technical appendix to the ES Chapter.

14.26 Assessment of effects will be carried out through consideration of baseline conditions, the nature of the site and surroundings, and the proposals.

15. NON-SIGNIFICANT ISSUES

15.1 This section sets out those environmental issues deemed to be insignificant for the purposes of EIA, and as such have been 'scoped out' of the EIA process.

Wind

15.2 The proposed development will not comprise buildings of a sufficient size and scale to affect wind flow and dynamics such that significant environmental effects could result. As such, due to the expectation of no potential for significant effects in relation to wind microclimate, this topic is proposed to be scoped out of the ES for this outline application.

Lighting

15.3 Artificial lighting is provided to encourage a safe environment for a range of activities including driving, cycling and walking. It is also used to enhance the environment by means of decorative and flood lighting of areas, features and buildings. Any new lighting proposed as part of the development at the sites will be in accordance with British Standards, The Institution of Lighting Professionals ('ILP') and The Chartered Institution of Building Services Engineers ('CIBSE') which prescribes required lighting levels. This would be referenced within the ES, where applicable. The proposed lighting will be selected with reference to the following design standards and codes of practice:

- BS EN 5489-1: 2003 +A2 (2008) Code of Practice for the design of road lighting: Part 1 Lighting of roads and public amenity areas;
- BS EN 13201-2: 2003 Road lighting – Part 2: Performance requirements;
- ILE GN01: Guidance notes for the reduction of obtrusive light;
- ILE TR12: Lighting of pedestrian crossings (2007); and
- ILE TR25: Lighting for traffic calming features.

15.4 Lighting will be designed in conjunction with the design team and landscape consultant to ensure that lighting is appropriate in terms of the potential effects on public realm and surroundings of the site. As this mitigation can be 'designed-in' to the proposals and secured through appropriate planning controls, it is considered that a detailed assessment of lighting is not required as part of the EIA.

Daylight and Sunlight

15.5 Development in densely urbanised locations or of a high-rise nature can cause impacts to the levels of light received by adjacent properties. The proposed development is in an open area of land and is not high-rise in nature. There would be no potential for issues of overshadowing or light obstruction to adjacent properties such that an assessment would need to be undertaken to quantify the impact and propose mitigation. It is therefore proposed that this be scoped out of the EIA.

Major Accidents and Disasters

15.6 The EIA Regulations require that an ES needs to include a description of the expected effects of the Proposed Development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters that are relevant to the project concerned. In this case, the nature and scale of the proposed development is not considered to pose risk of major accidents and/or disasters. As such, major accidents and disasters are not proposed to be included as part of this EIA.

Arboriculture

15.7 Given the presence of existing trees and hedgerow cover across the site, a full tree survey is to be undertaken in accordance with BS5837:2012 and an Arboricultural Impact Assessment (AIA) report will be prepared to accompany the planning submission.

15.8 Whilst at this stage the layout is expected to require the proposed loss of sections of internal existing hedgerow to facilitate highway proposals and pedestrian connections, any such losses will be kept minimal and mitigated for within the scheme. Given that a fully detailed BS5837 baseline will be utilised to inform the emerging scheme layout, there is scope to provide for the retention and long-term protection of the majority of existing hedgerows and trees of merit and maturity within the site and as a result the scheme is not envisaged to give rise to significant arboricultural impacts. As such it is proposed that an assessment of the arboricultural baseline, development impacts and mitigation in the context of relevant planning policy can be addressed via a standalone AIA rather than as a discipline specific ES chapter.

15.9 Following scheme fix the AIA will detail the opportunities for tree retention and any required removals, mitigation and development impacts in relation to the retained tree stock. A corresponding Tree Removal and Retention plan will be prepared, providing a composite of the final scheme layout for submission and the baseline tree survey information to illustrate the findings of the AIA.

15.10 The AIA will be prepared as a supporting technical appendix to the landscape or ecology chapter of the ES.

Waste

15.11 Given the nature of the proposed development, materials required for the construction of the proposed development are unlikely to be particularly scarce or environmentally sensitive, nor is the proposed development likely to result in materials becoming scarce. Consideration will be given throughout the design process to the specification of suitable materials, including their sustainability and environmental implications, to support an environmentally sensitive and high-quality development. As a result, the proposed development is not likely to have any significant effects in relation to materials.

15.12 Waste will be generated during the construction phase, as a result of the construction of the new buildings. Waste management will be considered carefully throughout the design and construction of the proposed development, to ensure compliance with legislation, and to minimise costs associated with waste disposal. The volume of construction waste likely to be generated by the development would be in line with what would be expected from a development of this size and will not significantly affect the capacity of local waste infrastructure.

15.13 During the operation of the development, waste (including recyclables) generated by dwellings will be managed by the local waste authority, while waste from the retail uses will be managed by commercial operators. None of the proposed users are anticipated to be major generators of waste and the wastes generated by the proposed development should not significantly affect the capacity of local waste infrastructure.

15.14 Following the implementation of standard mitigation measures including the adoption of a Site Waste Management Plan ('SWMP'), construction waste arising's can be reduced to a minimum such that it is not significant. As such, waste has been scoped out of the EIA.

Climate Change

15.15 The climate change impacts associated with the proposals, and the subsequent requirement for adaptation and mitigation measures to increase the resilience to climate change events will be covered within the technical assessments accompanying the planning application. Impacts associated with vehicle movements, emissions, dust and air quality will be considered within the ES. Furthermore, flood risk mitigation and management measures, such as suitable drainage discharge rates, will be factored into the design of the scheme. Overall, any significant climate change impacts will be sufficiently considered and assessed within the technical reports accompanying the planning application, setting out a series of mitigation measures to minimise climate change impacts. As such, it is not considered climate change is required to be assessed separately as part of this EIA.

Human Health

15.16 The EIA Regulations require that an ES considers the impact on human health of a proposed development. The nature of this proposed development is not considered to result in potential for direct health impacts to any nearby sensitive receptors (residents). Any potential impacts on highways, and subsequently on noise and air quality, as a result of the proposed development that could give rise to indirect impacts on human health are expected to be mitigated appropriately to result in no significant residual effects and therefore no significant residual effect on human health.

16. STRUCTURE OF THE ENVIRONMENTAL STATEMENT

Volume 1: The Non-Technical Summary

16.1 A Non-Technical Summary (NTS) is required under the EIA Regulations and presents the findings of the ES in a manner suitable for use by non-experts.

Volume 2: Environmental Statement

16.2 This Volume will contain the main text of the ES. The proposed topics for consideration and their respective chapter headings are set out below:

(1) Introduction

(2) Approach

(3) Site Description

(4) Alternatives

(5) The Proposed Development

(6) Landscape and Visual

(7) Ecology and Nature Conservation

(8) Cultural Heritage

(9) Transport and Traffic

(10) Air Quality

(11) Noise

(12) Flood Risk and Drainage

(13) Agricultural Land

(14) Minerals

(15) Summary of Mitigation and Residual Effects

Volume 3: Appendices

16.3 This volume will contain supporting information and a collection of technical reports upon which the conclusions of the ES are based.

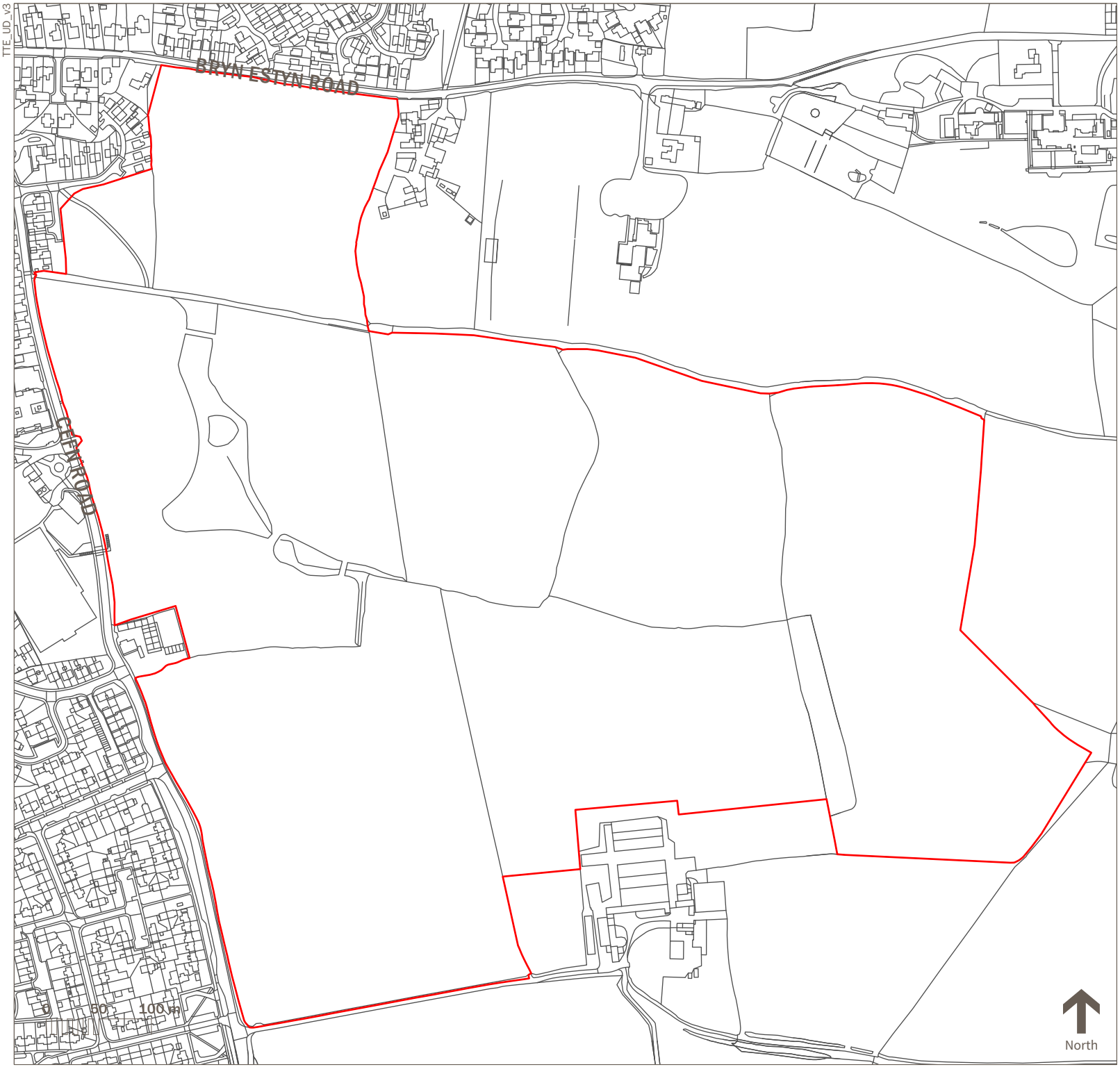
17. Summary and Conclusions

17.1 The Scoping Report has been prepared to support a formal request to WCBC for a Scoping Opinion under the EIA Regulations regarding the scope of the EIA and the likely content of the ES which will accompany the Application.

17.2 We would welcome feedback on the proposed approach to the EIA and would be grateful if WCBC would respond by way of a formal Scoping Opinion within the requisite 8 weeks in accordance with Regulation 14 (4) of the EIA Regulations. If the Local Planning Authority require any additional information in order to make a decision, please do not hesitate to contact Egniol.

Appendix 1 – Site Location Plan

TTE_UD_v3



TETRA TECH

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Key

Site boundary (49.09ha)

PRELIMINARY ISSUE

Document control

-	-	-	-	-	-
P03	Combined boundaries	11.12.23	BR	BR	AC
P02	Amendments to site boundaries	07.12.23	LR	BR	AC
P01	Additional boundary to east added	06.12.23	BR	BR	AC
Rev	Description	Date	Dwn	Chk	App

Cefn Park Wrexham
Harworth Group

SITE LOCATION PLAN

TTE Proj No	Drwn / date	Ch'ked / date	Appr'd / date	Scale @ A4	Suitability
784-B024030	BR / Dec '23	BR / Dec '23	BR / Dec '23	1:5,000	-

Client Proj No	Origin	Vol/System	Level/Loc	Type/Code	Role	Drwg no	Rev
-	TTE	00	XX	DR	UD	03	P03

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Appendix 2 – Illustrative Masterplan

TTE_UD_v2



Aerial image: © Google Earth 2022

TETRA TECH

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KEY

- Land under Harworth Group control
- KSS2 boundary
- Proposed residential parcel
- Potential primary school (2ha)
- Retained sports pitch
- Proposed public open space
- Retained trees / hedgerows
- Proposed planting
- Indicative proposed SuDS
- Proposed spine road with green verge*
- Proposed road network
- Road feature / traffic calming
- Placemaking / gateway feature
- Existing / potential play space
- Pedestrian / cycle link
- Retained Public Right of Way (PRoW)
- Retained / proposed pedestrian / cycle route
- Existing cycle route
- Existing bridge linking Ysgol Morgan Llwyd School to sports pitches

**Position of link to remaining KSS2 to be determined*

Document control

Rev	Description	Date	Dwn	Chk	App
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
P01	Issue for client and technical team review	13.12.23	BR	AC	AC

Erlas Park Wrexham

Harworth Group

DRAFT

STRATEGIC MASTERPLAN | PREFERRED OPTION

TTE Proj No	Drwn | Date	Checked | Date	Appr'd | Date	Scale @ A3	Suitability
B024030	BR | Dec '23	AC | Dec '23	AC | Dec '23	1:5000	S0

Client Proj No	Originator	Vol/System	Level/Location	Type/Code	Role	Number	Revision
-	TTE	00	XX	DR	UD	40	P01

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Appendix 6.1 - LVIA Methodology

Appendix 6.1: EIA Landscape and Visual Impact Assessment Methodology summary of Approach and Criteria Tables

The key terms used within assessments are:

- Susceptibility and Value – Which contribute to Sensitivity.
- Scale, Geographical Extent, Duration and Reversibility – which contribute to the Magnitude of change.
- Level of Effect - the level or degree of effect on the landscape as a resource and/or the effect on views and visual amenity as experienced by people and is judged by determining magnitude (or the nature of the effects) and registering it against sensitivity
- Level of Effect – a judgment of the level of effect when Sensitivity and Magnitude are combined.
- Significance - A measure of the importance or gravity of the environmental effect defined by level of effect criteria. A final additional judgment is made about whether an effect is likely to be significant or not, for developments subject to EIA.

Sensitivity

Overall sensitivity lies along a continuum of low to high. The *Value and Susceptibility* of a receptor are both considered in forming a judgment of overall sensitivity.

Susceptibility is defined as the ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences. It is assessed for both landscape receptors including, landscape character areas, and for visual receptors (people). It indicates the ability of a defined landscape receptor to accommodate the proposed development "without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies." (GLVIA, 3rd edition, para 5.40) and identifies "the occupation or activity of people experiencing views at particular locations and the extent to which their attention may be focused on the views and the visual amenity they experience at a particular locations." (GLVIA, 3rd edition, para 6.32). An example of how Susceptibility can be described at each end of the continuum of low to high is provided in the following Tables below A and B for both landscape and visual receptors.

Landscape **Value** is "the relative value that is attached to different landscapes by society" (GLVIA, 3rd edition, page 157). Box 5.1 (GLVIA 3rd version, page 84) sets out some factors to be considered in the identification of valued landscapes. These can be broadly described as: Landscapes recognised and valued for their quality (condition) and/or cultural associations; key characteristics and features as recognised in published landscape character assessments; scenic quality; rarity; representativeness; recreational value and for perceptual qualities, notably wildness and /or tranquillity. An example of how Value can be described at each end of the continuum of low to high is provided in the following Table 1 for landscape receptors. In visual terms, **Value** relates to that attached to views experienced by receptors (people). An example of how Value can be described at each end of the continuum of low to high is provided below for visual receptors in the following Table 2.

Magnitude of Change

Overall magnitude of change lies along a continuum of low to high. Together the *Scale, Geographical Extent, and Duration and Reversibility of effect* are all considered in understanding the overall Magnitude of change.

Scale of effect is assessed for both landscape and visual receptors and identifies the degree of change which would arise from the development. An example of how Scale of effect can be described at each end of the continuum of low to high is provided in the following Tables 3 and 4 for both landscape and visual receptors.

Geographical Extent of effect of is assessed for both landscape and visual receptors and indicates the geographic area over which the effects will be felt. An example of how Geographical Extent can be described at each end of the continuum of low to high is provided in the following Tables 3 and 4 for both landscape and visual receptors.

Duration and Reversibility of effect is assessed for all landscape and visual receptors and identifies the time period over which the change to the receptor would arise as a result of the development. An example of how Duration and Reversibility can be described at each end of the continuum of low to high is provided in the following Tables 3 and 4 for both landscape and visual receptors.

Level of Effect



Best practice guidelines stipulate that the significance of any landscape related impact should be evaluated, both during the construction works and following completion of the development. The significance of any landscape and visual effect is a function of the sensitivity of the affected landscape resources and visual receptors against the magnitude of change that they would experience. As such, the assessment of potential and residual effects can be described as: negligible, minor, moderate, and major. A description is set out in TTable.5

The following terms will be used to define residual landscape/townscape direct and indirect effects:

Adverse: the proposed development may result in direct loss of physical landscape/townscape resources, weaken key characteristics or negatively affect the integrity of a landscape/townscape designation; and
Beneficial: the proposed development may replace poor quality elements of the existing landscape/townscape or strengthen existing landscape/townscape characteristics.
Neutral: the proposed development would result in neither appreciable adverse nor beneficial landscape effects.

The following terms have been used to define residual visual effects:
Adverse: the proposed development reduces visual amenity; and
Beneficial: the visual amenity is improved by the proposed development.
Neutral: the proposed development would result in neither appreciable adverse nor beneficial visual effects.

Significance

Landscape/Townscape or visual effects above moderate adverse (i.e. Major) are considered to be significant; all other effects are considered not significant.

Table.1 Sensitivity of Receptors Criteria: Landscape Receptors

As set out below, the Sensitivity lies along a continuum of low to high. The Value and Susceptibility of a landscape/townscape/seascape receptor are both considered in understanding and forming a judgment regarding its overall Sensitivity.

		Landscape Value		***Landscape Susceptibility***
	Designations and Conservation Interests/Associations *Landscapes recognised and valued for their quality and / or cultural associations / recreational value*	***Key Characteristics and Features*** *As recognised in published Landscape Character Assessments or policy*	***Landscape Condition*** *Degree to which the landscape is intact and legible & its scenic quality*	*The ability of a defined landscape to accommodate the specific proposed development without undue negative consequences*
High	National / Regional Importance (e.g. AONB, National Park, Registered Parks and Gardens)	Features which are dominant within the landscape and are fundamental to defining the distinct landscape character of an area. Important characteristics and features recognised as forming intrinsic part of nationally and regionally designated landscapes. Distinctive individual or rare features.	Distinct landscape structure with strong pattern and intact features. Few detractors or uncharacteristic features or elements present.	The landscape is such that changes in terms of the proposed development would be entirely at odds with the character of the local area, related to matters including pattern, grain, use, scale and mass.
	Local importance (e.g. Conservation Areas, Special Landscape Areas / Features)	Locally important and notable features that contribute to the overall character of an area. Features and elements protected by local policy.	Landscape exhibits recognisable structure and characteristic patterns. Some detracting features present.	The proposed development has a degree of consistency with the existing scale, pattern, grain, land use of the prevailing character, although mitigation may be appropriate to enhance assimilation.
Low	No Designation and no or very few attributes that demonstrably lift the landscape resource, above ordinary, at a local level	Features or elements that are uncharacteristic and detract from the landscape character of an area.	Degraded landscape structure with fragmented pattern and poor legibility of character. Detracting features notable within the landscape.	The proposed development is entirely consistent with the character of the local area, related to matters including pattern, grain, use, scale and mass.

e.g. Medium – Landscape Character Area does not include a designation but includes important characteristics and features that create a distinct landscape structure with strong pattern and intact features. The proposed development has a degree of consistency with the existing scale, pattern, grain, land use of the prevailing character, although mitigation may be appropriate to enhance assimilation.



Table.2 Sensitivity of Receptors Criteria: Visual Receptors

As set out below, the Sensitivity lies along a continuum of low to high. The Value and Susceptibility of a receptor are both considered in understanding and forming a judgment regarding its overall Sensitivity.

	Value (attached to views)	***Visual Susceptibility*** *The occupation or activity of people experiencing the view and the extent to which their attention or interest may be focused on the views and their visual amenity at particular locations*
High	Recognised national / Important Viewpoints, including those identified within and protected by policy. These viewpoints may be tourist destinations and marked on maps. Designed views, including from within historic landscapes. Users of nationally recognized routes e.g. National Cycle Network, National Trails. Land with public access (i.e. Open Access Land and National Trust Land).	People visiting recognised viewpoints with views towards the development. People using Public Rights of Way and Access Land as part of recreational routes with extensive views towards the development.
	Locally important views/ views. Views from within locally designated landscapes e.g. Conservation Areas and local planning policy. Views from local routes identified on maps Permissive routes, not recognised by policy or identified on maps.	People using recreational facilities or playing outdoor sports with views of the development but for whom views are not the main focus. Users of Public Rights of Way and Access Land with intermittent views towards the development.
Low	No designations present	People travelling along roads or using transport routes where the focus is not on the views and views of the development are fleeting. People at places of work where attention is not on the views. Users of Public Rights of Way and Access Land where views towards the development are limited to glimpses and are not the main focus of attention.

e.g. Medium - views of the landscape are part of, but not the sole purpose of the receptors activities along local routes.



Table.3 Magnitude of Change Criteria: Landscape Receptors

As set out below, magnitude of change lies along a continuum of low to high. Together the Scale, Geographical extent, and Duration and Reversibility of effect are all considered in understanding and forming a judgment regarding the overall magnitude of change.

	Scale	***Geographical Extent***	***Duration and Reversibility***
	identifies the degree of change which would arise from the development	*of effect indicates the geographic area over which the effects will be felt*	*of effect identifies the time period over which the change to the receptor would arise as a result of the development.*
High	Highly noticeable change, affecting most key characteristics and dominating the experience of the Landscape/Townscape; introduction of highly conspicuous new development; and the baseline situation will be fundamentally changed.	Extensive affecting the majority or all the Landscape/Townscape Character Area.	Long-term or permanent, the change is expected to be in place for 10+ years and there may be no intention for it to be reversed or only partially reversed.
	Partial alteration to key elements, features, qualities or characteristics, such that post development the baseline situation will be largely unchanged but noticeable despite discernible differences.	Localised, affecting the site and a proportion of the wider Landscape/Townscape Character Area.	Medium-term, the change is expected to be in place for 5-10 years and the effects may be reversed or partially reversed.
Low	Minor alteration to few elements, features qualities or characteristics resulting in a barely perceptible change.	Affecting the site and immediate setting only.	Short-term, the change is expected to be in place for 0-5 years and the effects are likely to be reversed.

e.g. Medium – Highly noticeable change with introduction of highly conspicuous development which will affect the site and a proportion of the character area for a short-term, during construction. The effects are likely to be reversed.



Table.4 Magnitude of Change Criteria: Visual Receptors

As set out below, magnitude of change lies along a continuum of low to high. Together the Scale, Geographical extent, and Duration and Reversibility of effect are all considered in understanding and forming a judgment regarding the overall magnitude of change.

	Scale	***Geographical Extent***	***Duration and Reversibility***
	identifies the degree of change which would arise from the development	*Wide, and/or within close proximity, and/or open views.*	*identifies the time period over which the change to the receptor would arise as a result of the development.*
High	Intensive/dominant or major alteration to key elements of the baseline view.	Extensive, open and/or close proximity, and/or direct and/or affecting unscreened views.	Long-term or permanent, the change is expected to be in place for 10+ years and there may be no intention for it to be reversed or only partially reversed.
	Partial/noticeable or minor alteration to key elements of the baseline view.	Framed, and/or contained, and/or medium distance, and/or partially screened views.	Medium-term, the change is expected to be in place for 5-10 years and the effects may be reversed or partially reversed.
Low	Minor alteration to few elements of the baseline view.	Narrow, and/or fragmented, and/or long distance, and/or heavily screened views.	Short-term, the change is expected to be in place for 0-5 years and the effects are likely to be reversed.

e.g. Medium – Intensive and major alteration to key elements of the framed baseline view over a medium distance for a short period of time during construction. The effects are likely to be reversible.



Table.5 Level of Effect Criteria

Major beneficial:	The development would fit well with the scale, landform and pattern of the landscape and bring substantial enhancements. The development would create a major improvement in views.
Moderate beneficial:	The development would fit well with the scale, landform and pattern of the landscape, maintain and/or enhance the existing landscape character. The development would create a noticeable but improved change in the view.
Minor beneficial:	The development would complement the scale, landform and pattern of the landscape, whilst maintaining the existing character. The development would result in minor improvements to the existing views.
Negligible:	The development would cause very limited changes to the landscape and/or views but creates no significant effects; the development would create neither an adverse or beneficial change to the landscape or visual receptor.
Minor adverse:	The development would cause minor permanent and/or temporary loss or alteration to one or more key elements or features of the landscape, to include the introduction of elements that may not be uncharacteristic of the surrounding landscape. The development would cause limited visual intrusion.
Moderate adverse:	The development would cause substantial permanent loss or alteration to one or more key elements of the landscape, to include the introduction of elements that are prominent but may not be substantially uncharacteristic with the surrounding landscape. The development would be clearly visible and would result in adverse effects upon the landscape.
Major adverse:	The development would irrevocably damage, degrade or badly diminish landscape character features, elements and their setting. The development would be irrevocably visually intrusive and would disrupt fine and valued views both into and across the area.



Appendix 7.1 – Legislative and Policy Framework Ecology

7. ECOLOGY AND NATURE CONSERVATION

Introduction

A7.1 This scoping chapter has been prepared by Tyler Grange Group Ltd. (TG) on behalf of Harworth Group. The approach outlined explains how the impacts of the proposed development on ecological resources, including protected sites, habitats and protected and priority species will be assessed. It has been informed by desk-based study, site survey work and published guidance.

Site Context

A7.2 The site covers an area of 52 hectares and comprises mainly arable fields and amenity grassland in use as playing fields bordered by hedgerows and mature trees; public footpaths also cross the site at several points. Cefn Road runs along the western site boundary, and Bryn Estyn Road along the northern boundary. Residential development lies to the north and west of the site, and agricultural fields to the south and east. Wrexham Industrial Estate is located 1.1km east of the site.

A7.3 The redline boundary is shown in **Appendix 1**.

Legislative Policy Requirements and Technical Guidance

A7.4 Specific habitats and species are afforded protection in the UK under the following legislation:

- The Conservation of Habitats and Species Regulations (as amended) 2018 (the Habitats Regulations);
- Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Countryside and Rights of Way (CRoW) Act 2000;
- Environment Wales Act 2016 (as amended);
- The Protection of Badgers Act (PBA) 1992; and
- Hedgerow Regulations 1997 (as amended).

National policy

A7.5 The Welsh Government sets out in Paragraph 5.1.2 of Edition 11 of Planning Policy Wales (PPW) the following objectives for the conservation and improvement of the natural heritage:

- Promote the conservation of landscape and biodiversity, in particular the conservation of native wildlife and habitats;
- Ensure that action in Wales contributes to meeting international responsibilities and obligations for the natural environment;
- Ensure that statutorily designated sites are properly protected and managed;
- Safeguard protected species; and

- Promote the functions and benefits of soils, and in particular their function as a carbon store.

A7.6 Section 5.4 of PPW requires that Unitary Development Plans (UDPs) set out the locational policy framework for the conservation and enhancement of the natural heritage and seek to conserve and enhance the natural heritage in ways which brings benefits to local communities and encourage social and economic progress.

A7.7 UDPs should encourage the appropriate management of features of the landscape which are of major importance for flora and fauna in order to complement and improve the ecological coherence of the Natura 2000 network. This encompasses features which, because of their linear or continuous structure or their function as "stepping-stones" or "wildlife corridors", are essential for migration, dispersal and genetic exchange. Policies should attach appropriate weight to statutory and non-statutory designations and devise criteria against which development will be assessed. The conservation and, where appropriate, enhancement of biodiversity outside designated areas, should also be sought.

Wrexham County Borough Unitary Development Plan (adopted 14th Feb 2005)

A7.8 Local Policies relating to ecology that will need to be considered as part of any development proposals include:

- Policy PS2: "Policy PS2 Development must not materially detrimentally affect countryside, landscape/townscape character, open space, or the quality of the natural environment."

- Policy PS11: "Encouragement will be given to proposals which improve the biodiversity value of sites and to the establishment of local nature reserves where the nature conservation and landscape interest of the land will be protected and enhanced."

- Policy GDP1: All new development should: "Ensure the safety and amenity of the public and safeguard the environment from the adverse effects of pollution of water, land or air, hazards from industry and quarrying, and associated noise, odour or vibration arising from development." "Safeguard sites and areas of nature conservation and wildlife interest, and to provide new habitats where there is an unavoidable loss of existing habitats and areas of wildlife interest."

- Policy EC4: "Development proposals should provide for the conservation and management of hedgerows, trees, orchards, woodland, wildlife and other natural landscape and water features, and include new planting in order to enhance the character of the landscape and townscape. Development which results in the loss or significant damage to valuable trees, important hedgerows or ancient woodland sites will not be permitted."

- Policy EC6: "Development either within or close to sites of biodiversity interest will only be permitted where it can be clearly demonstrated that the need for the development

outweighs the need to safeguard the intrinsic nature conservation value of the site. Where such development is permitted, damage should be kept to a minimum, and compensatory measures should be provided. Measures to improve the biodiversity value of sites and enhance their natural conservation interest and landscape quality including the establishment of local nature reserves, will be supported."

Wrexham Local Development Plan 2 (LDP2) 2013 – 2028

A7.9 Wrexham County Borough Council is preparing LDP2, which will replace the current adopted UDP. Policies in the preferred strategy of the LDP span economic, social and environmental objectives . The environmental objectives include:

- Objective SO9: protect, manage and enhance the natural and historic environment and landscapes;
- Objective SO10: reduce carbon emissions and maximise our resilience to and mitigate and adapt to the impact of climate change;
- Objective SO11: ensure development meets the needs of society and industry, now and in the future, through ensuring adequate protection and supply of high quality minerals; and
- Objective SO12: facilitate the provision of an integrated network of waste facilities which enable waste to be managed in a sustainable way.

Biodiversity Action Plans - Species and Habitats of Principal Importance and the UK Biodiversity Action Plan

A7.10 The UK Post-2010 Biodiversity Framework succeeded the UK BAP partnership in 2011 and covers the period 2011 to 2020. However, the lists of Priority Species and Habitats agreed under the UKBAP still form the basis of much biodiversity work in the UK. The current strategy for Wales was published by Natural Resources Wales in their 'State of Natural Resources Report (SoNaRR) ', dated October 2016. Although the UK BAP has been succeeded, SAPs developed for the UK BAP remain valuable resources for background information on priority species under the UK Post-2010 Biodiversity Framework.

A7.11 The commitment to preserving, restoring or enhancing biodiversity is further emphasised being listed in section 7 of the Environment (Wales) Act 2016.

Assessment Methodology

Assessment criteria

A7.12 The Ecological Impact Assessment (EcIA) will assess protected sites habitats and species in

accordance with the CIEEM Ecological Impact Assessment[1] guidance , using the approach set out as follows:

Sensitivity, Value or Importance

A7.13 Geographical Scope - A desk-based study and initial site survey were used to identify important ecological features (sites, habitats and species) which may be affected by the development proposals, to determine the potential 'zone of influence ' (ZOI), and to inform the scope of further survey work required. The study area extends beyond the site boundary to include a 10km radius for international statutory site designations, a 2km radius for national statutory site designations; and a 1km radius for all protected and priority species records.

A7.14 Temporal scope - The EcIA will cover both the construction and operational phases of the development.

A7.15 Sensitivity of Receptors - The results of the initial desk study, site surveys and data gathered during detailed surveys will be used to evaluate the importance of ecological resources within the ZOI in accordance with the CIEEM EcIA[1] guidance.

A7.16 The guidance provides a framework for the evaluation of features that considers the direct biodiversity importance of habitats and species, the indirect importance of features which help support the ecological integrity of key features, legal protection for both sites and species, and evaluation against national and local planning guidance and objectives. It uses a geographic frame of reference for identifying important ecological features in accordance with the scale in **Table 7.1** overleaf.

Designation	Receptors
International	An ecological feature (species, designated site or habitat) which is important at an international level. A population that would meet the published selection criteria as a qualifying feature for designation of a SAC. An internationally designated site or candidate site, i.e. an SPA, proposed SPA (pSPA), SAC, candidate SAC (cSAC), Ramsar site, or an area which would meet the published selection criteria for such designation. Other significant areas of Annex 1 priority habitats listed in the Habitats Directive, the loss of which would significantly change the overall range and area at the European scale in the long term.
National	Nationally significant populations of species identified in Environment (Wales) Act, Part 12 as being of principle importance for the conservation of biodiversity in Wales, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss would significantly change the species' overall conservation status (i.e. range,

[1] CIEEM, 2016. Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Winchester: Chartered Institute of Ecology and Environmental Management (CIEEM).

[2] https://www.legislation.gov.uk/anaw/2016/3/contents/enacted

Designation	Receptors
	abundance, population trend) at the national scale. A population that would meet the published selection criteria as a qualifying feature of a SSSI. A nationally designated site, i.e. SSSI, NNR or discrete area which would meet the published selection criteria for national designation. A significant area of a non-designated habitat type identified in Environment (Wales) Act, Part 1 as being of principle importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area should be a major component of areas that are at near-equivalence to SSSIs, meeting most of the published SSSI selection criteria.
Regional	Regionally significant populations of species identified in the NERC Act Part 1 as being of principal importance for the conservation of the biodiversity of Wales, or otherwise formally deemed to be nationally rare and threatened (e.g. 'red-listed'), the loss of which would significantly change the species' overall conversation status (i.e. range, abundance, population trend) at the regional scale. A significant area of non-designated habitat type identified in the NERC Act, as being of principal importance for the conservation of biodiversity in Wales, the loss of which would significantly change the overall range and area of that habitat at the regional level in the long term. Significant areas of semi-natural ancient woodland that do not meet the national value criteria (above) should be considered at this scale due to the irreplaceable nature of such habitat.
County	Significant populations of species identified in the NERCAct as being of principal importance for the conservationof biodiversity in Wales, or otherwise formally deemedto be nationally rare and threatened (e.g. 'red-list'), orpriority species in the County BAP the loss of which would significantly change the species' overall conservationstatus (i.e. range, abundance, population trend) at theCounty scale. Sites formally recognised by local authorities,e.g. SBI, or considered to meet published ecologicalselection criteria for such designation. A significant area ofa non-designated habitat type identified in the Environment (Wales) Act, Part 1 as being of principleimportance for the conservation of biodiversity in Wales,the loss of which would significantly change the overallrange and area of that habitat at the county scale in thelong term. A significant area of key habitat identified in the County BAP.

Designation	Receptors
Local	Species listed on any of the above-mentioned priority lists, that appreciably enrich District/Borough biodiversity, but which are not in themselves of District/Borough importance of greater. Semi-natural habitats, listed on any of the above-mentioned priority lists, that appreciably enrich local biodiversity, but which are not in themselves of District/Borough importance or greater.
Site	Species populations of limited ecological importance due to their size, composition or lack of threat/rarity. The loss of such features would have no discernible impact on the species'/habitat's overall range and conservation status at any administrative scale in the long term. Areas of habitat of limited ecological importance due to their size, species composition or lack of threat/rarity. The loss of such features would have no significant impact on the habitat's overall range and conservation status at any administrative scale in the long term.

Table 7.1: Importance of Ecological Features

A7.17 **Magnitude of Impact** - The assessment should consider impacts including direct loss of habitats, fragmentation and isolation of habitats, disturbance or killing/injury of species, changes to key ecological features, and changes to the local hydrology or water quality.

A7.18 The following factors are considered when describing ecological impacts:

- Positive or negative – an impact can improve or reduce the quality of the environment, evaluated against nature conservation objectives and policy;
- Extent – this is the area over which an effect occurs;
- Magnitude – the size or amount of an effect, determined on a quantitative basis where possible (see **Table 7.2** below);
- Duration – the time for which an effect is expected to last prior to recovery or replacement of the resource of feature;
- Timing and frequency – some effects are only likely if they happen to coincide with a critical life-stage or seasons. Others may occur if the frequency of an activity is sufficiently high;
- Reversibility- an irreversible (permanent) effect is defined as one from which recovery is not possible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it. A reversible (temporary) effect is one from which spontaneous recovery is possible or for which effective mitigation is both possible and enforceable; and
- Cumulative effects – where consideration is given to any other developments within the ZOI, together with the proposed development, may result in significant effects.

Significance	Environmental Impact
Major	The impact is likely to have an adverse / positive effect on the integrity of a site or the conservation status of a species or species assemblage
Moderate	The impact affects a site or the conservation status of a species or species assemblage but the adverse impact would not affect integrity of that site or the conservation status of a species or species assemblage. A moderate positive impact would benefit conservation status of a site / species / species assemblage.
Minor	The impact is likely to have an adverse / positive effect an ecological feature but would not affect integrity or conservation status.
Negligible	An effect positive or negative would be minimal
Neutral	No detectable change from the baseline condition

Table 7.2 : Significance of Effects

A7.19 The significance of an effect is the product of the magnitude of the impact and the importance or sensitivity of the ecological feature affected. The CIEEM EcIA Guidance provides a complex framework for the consideration of impacts to ecological features and the reader is referred to the actual guidance for full details. However, in summary, greater levels of significance are generally ascribed to large impacts on features of higher ecological importance and lesser levels of significance are generally ascribed to small impacts on features of higher ecological importance, or larger impacts on features of lower ecological importance.

A7.20 In accordance with professional guidance and terminology; a significant effect, in ecological terms, is defined as an effect (positive or negative) on the integrity of a designated site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative effects. Insignificant effects are those that would not result in such changes.

A7.21 The importance of any features that would be significantly affected is then used to identify geographical scales at which the effect is significant. This value relates directly to the consequences, in terms of legislation, policy and/or development control at the appropriate level. So, a significant negative effect on a feature of importance at one level would be likely to trigger related planning policies and, if permitted, generate the need for development control mechanisms as described in those policies.

A7.22 Significant effects on features of ecological importance should be mitigated (or compensated for) in accordance with the guidance derived from policies applies at the scale relevant to the feature or resource.

A7.23 Effects are unlikely to be significant where features of local importance or sensitivity are subject to small scale or short-term effects. However, where there are a number of small scale effects that are not significant alone, it may be that, cumulatively, these may results in an overall significant effect.

A7.24 The assessment of effects uses the terminology described above. However, to provide consistency with the terminology throughout the ES potential and residual effects (positive or negative) are also described using the terms set out in Table 7.2.

A7.25 Impact Prediction Confidence - It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out in **table 7.3** below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 7.3 Impact Prediction Confidence

Consultation

A7.26 Consultation with respect to ecology has not been undertaken prior to submission of this EIA Scoping Report. However, consultation with Wrexham Council on the requirement for further surveys to inform the planning application will need to be undertaken.

Studies and Surveys Undertaken to Date to Inform Scoping

A7.27 The potential Zone of Influence (ZoI) considered for this scoping has been defined as 10km for International Nature Conservation Designations 2 km for statutory and non-statutory designations and for records of protected species.

Data Search

A7.28 A desk-based study was conducted whereby records of designated sites and records of protected and priority species were purchased and interrogated for the site and the surrounding landscape. The aim of the data search is to collate existing ecological records for the site and adjacent areas. Obtaining existing records is an important part of the assessment process as it provides information on issues that may not be apparent during a single survey, which by its nature provides only a 'snapshot' of the ecology of a given site.

A7.29 The following resources were consulted/contacted:

- Multi-Agency Geographic Information for the countryside (MAGIC) website ;
- Local Records Centre (COFNOD) ; (Data ordered on 15/12/2023 and received on 25/12/2023);
- Wrexham County Borough Council website ;
- Joint Nature Conservation Committee (JNCC) website;
- Ordnance Survey mapping; and
- Google Maps, including aerial photography.

A7.30 The following areas of search around the boundary of the site boundary were applied:

- 2 km for bat records;

- 2 km for protected and priority species, national statutory designated and non-statutory sites; and
- 10 km for European statutory sites.

'Extended' Phase I Habitat Survey and UKHabs

A7.31 An 'extended' Phase 1 survey was conducted on the 16th October 2020 by Laura Dennis, an experienced field ecologist. This was then updated by Dale Mortiboys (ACIEEM, FISC lvl 3) and Elliot Grundy on 22/08/2023 , experienced ecological consultants, and suitably experienced ecologists. The methods used during the walkover survey broadly followed methods used in an 'extended' Phase I habitat survey and entailed recording the main plant species and classifying and mapping habitat types with reference to the Habitat Definitions provided by the UK Habitat Classification Working Group .

A7.32 Additionally, the habitats identified were evaluated for their potential to support legally protected and notable fauna species. Where access allowed, adjacent habitats were also considered in order to assess the site within the wider landscape and to provide information with which to assess possible impacts within the context of the site boundary.

Ecological Baseline

Designated Sites

A7.33 The data search was based on records purchased from North Wales Environmental Information Service (COFNOD), as well as data from the Multi-Agency Geographic Information for the Countryside (MAGIC).

A7.34 The data search returned four Natura 2000 sites within 10 km of the site, however, no national statutory designated sites. Three non-statutory designated sites are located within 2 km of the site. These are detailed in **Table 7.4** overleaf.

Designated site	Distance and direction from site	Citation	Ecological Importance
Midland Meres and Mosses Phase 2B (RAMSAR)	2.5 km southeast	Designated for the diverse range of habitats from open water to raised bog.	International
River Dee and Bala Lake Special Area of Conservation (SAC)	5.8 km north	Designated for the presence of Annex I habitat 3260 *'Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation*' and the Annex II species Atlantic Salmon *Salmo salar* and floating water-plantain *Luronium natans*, along with the Annex II species Sea lamprey *Petromyzon marinus*, Brook lamprey *Lampetra planeri*, River lamprey *Lampetra fluviatilis*, bullhead *Cottus gobio* and otter *Lutra lutra.*	International
Johnstown Newt Sites (SAC)	5.2 km north	The population of great crested newts Triturus cristatus is one of the largest known in Great Britain and has been the focus of much conservation management over the last few years. Breeding sites are provided in part by a mining subsidence pool, and natural water-filled hollows on clay, whilst other ponds have been created as part of nature conservation management. Terrestrial habitat varies from marshy grassland, grazed farmland and swamp through to scrub and broad-leaved woodland. Good populations of the widespread amphibian species are also present.	International

Berwyn and South Clwyd Mountains (SAC)	8.1 km south	Designated for the presence of Annex I habitats 4030 *'European dry heaths'* and 7130 *'Blanket Bogs'*, along with 6210 *'Semi-natural dry grasslands and scrubland facies on calcareous substrates*', 7140 *'Transition mires and quaking bogs*', 8120 *'Calcareous and calcshist screes of the montane to alpine levels*' and 8210 *'Calcareous rocky slopes with chasmophytic vegetation*'.	International
Cefn Park (LWS)	0.83 km southeast	A series of broadleaved woodlands within Cefn Park Estate.	Local
Borras Bog (LWS)	1.05 km north	An acid bog with birch canopy that is in excellent condition and unusual for the Wrexham area.	Local
Errdig Estate (LWS)	1.50 km southeast	National Trust Estate with woodlands, semi-improved neutral grasslands and marshes.	Local

Table 7.4: Designated Sites

A7.35 **Habitats and Flora**

A7.36 The habitats present on site are summarised below in **Table 7.5**, along with a description of the composition of the main plant species present and an assessment of their ecological importance. The location of habitats are shown on the Habitats Features Plan **13539/P01a.**

- Amenity grassland;
- Arable;
- Hedgerows;
- Invasive non-native species (Japanese knotweed);
- Pond;
- Scrub;
- Semi-natural broadleaved woodland and scattered trees; and
- Tall ruderals.

Habitat	Description and Species	Ecological Importance
Arable Land	A large proportion of the site is given over to arable crop production, mostly maize. At the time of the survey all fields had been harvested and left as stubble, except one in the south-east which was fallow.	This habitat is considered to be of **negligible ecological importance**.
Amenity Grassland	Areas of amenity grassland are present towards the north and west of the site. One section forms part of a local rugby club (inaccessible but viewed from the site boundaries), and the rest is used for informal sports pitch and public recreation. All areas are maintained as short-mown grassland and are dominated by common grasses and forbs. The survey was undertaken in sub-optimal conditions, and the shortness of the sward made a full species record difficult, but species present include cock's-foot *Dactylis glomerata* (A), white clover *Trifolium repens* (A), greater plantain *Plantago lanceolata* (F), dandelion *Taraxacum officinale agg.* (F), ragwort *Senecio jacobaea* (O) and chickweed *Stellaria media* (O).	This habitat type is of **negligible ecological importance**.

Habitat	Description and Species	Ecological Importance
Hedgerows	A network of hedgerows are present along field boundaries throughout the site. They vary in condition, but include examples of species-rich, intact hedgerows with mature trees. Most are dominated by Hawthorn *Crataegus monogyna*, (D) or holly *Ilex europaeus* (A), but other species present include elder *Sambucus nigra* (F), hazel *Corylus avellana* (O), sycamore *Acer pseudoplatanus* (O), and pedunculate oak *Quercus robur* (O)	The hedgerows provide habitat connectivity through the site and to habitats beyond the site boundary and collectively are a priority habitat of **local ecological importance**.
Invasive non-native Species	A stand of Japanese knotweed *Reynoutria japonica* is present at the boundary of the amenity grassland in the west of the site.	This is of **negligible ecological importance**, but a strategy for treatment and/or removal will be required prior to development to adhere to current legislation (Schedule 8 of the WCA 1981).
Pond	A pond is present within woodland at the west of the site. It is shallow and heavily shaded by woodland vegetation throughout the year. Very little aquatic or marginal vegetation is established, and the waterbody is full of leaf litter. It provides aquatic habitat that is not present elsewhere on the site and is therefore of ecological importance within the context of the site. It also provides breeding habitat for great crested newt *Triturus cristatus* (discussed below). A small and very shallow ephemeral pool was noted in the centre of the south-eastern parcel of arable land in May 2021, which subsequently dried up during the species surveys completed within the site.	This habitat is considered to be of **local ecological importance.**
Scrub	Small areas of scrub are distributed through the site which include areas dominated by bramble *Rubus fruticosus* agg (D), and other areas of mixed scrub including hawthorn (A), holly (F), hazel (F) and	The scrub is of **negligible ecological importance** but is likely to provide

Habitat	Description and Species	Ecological Importance
	blackthorn *Prunus spinosa* (O). An area of scrub is also present in the north of the site, which is dominated by coppiced willow *Salix sp.* (O).	foraging and nesting opportunities for wildlife including birds and small mammals.
Scattered Trees	A number of scattered mature trees are also present which are mostly located within the amenity grassland at the west of the site, with additional specimens present within some of the hedgerows. Species include pedunculate oak and sycamore.	Scattered trees are of **local ecological importance.** The mature trees provide foraging and nesting habitat for a range of bird and bat species.
Semi-natural broadleaved woodland	A block of semi-natural broadleaved woodland is located in the west of the site, at the centre of the amenity grassland area. The canopy is dominated by oak, with ash *Fraxinus excelsior* (F), silver birch *Betula pendula* (F), cherry *Prunus avium* (O) and hazel (O). The understorey is mostly holly (A) and hawthorn (A) and the field layer is dominated by common nettle *Urtica dioica*.	The broadleaved woodland is of **local ecological importance**. The woodland provides foraging and nesting habitat for a range of species, including birds and amphibians.
Tall Ruderal	Several areas dominated by tall ruderal vegetation are present, mostly associated with arable field boundaries. Species include common nettle (A), hogweed *Heracleum spondylium* (F), cow parsley (F) and bracken *Pteridium aquilinum* (O).	The tall ruderal is of **negligible ecological importance** but is likely to provide foraging and nesting opportunities for wildlife including birds and small mammals.

Table 7.5: Habitats and Flora

Adjacent Habitats

A7.37 Areas of woodland lie directly adjacent to the site boundary in the north-east (part of Erlas House) and south-east (Fox Covert). Arable land lay to the south and east of site. To the west and north there are residential properties.

Protected and Notable Species

A7.38 The below section sets out the potential for protected species on site. Species which are considered likely absent from the site based on professional judgement, following consideration the of habitats within the site, signs of species presence at the time of survey and data search records, are not discussed.

A7.39 Detailed surveys for most areas of the site have been undertaken and give an indication of likely constraints relating protected species. Further consultation on the requirement for any further surveys to inform the EIA for protected species will be undertaken in advance of submission of the ES chapter.

A7.40 The findings are summarised below:

Amphibians

A7.41 The data search returned records of common frog *Rana temporaria*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris* and great crested newt (GCN) *Triturus cristatus* within 2km of the site. No European Protected Species (EPS) licences were returned for GCN within 2 km of the site. There are seven ponds within 250m of the site. Presence - absence surveys using a combination of eDNA, bottle trapping and torching were undertaken on all ponds in May 2021. The surveys confirmed GCN presence in one onsite pond and two ponds lying immediately to the north of the site.

A7.42 The terrestrial habitats within the site of suitability to GCN are the woodland, the connecting hedgerows through the site and associated field margin vegetation, which also provide connectivity to the wider landscape. The majority of the site (i.e. intensive agricultural land/short-mown playing fields) is unsuitable for GCN and is not considered important in maintaining populations locally.

A7.43 Other more mobile amphibian species such as common toad may be present. Common toads are a priority species under the Environment Act (Wales) 2016. It is considered any population utilising terrestrial habitats on site, such as the hedgerows and woodland, will also be using further habitats beyond the site boundary and not reliant on the site alone.

A7.44 The site overall, is deemed to be of **local ecological importance** for GCN and other amphibians.

Badger

A7.45 The data search returned 51 records of badger within 2km of the site in the past ten years, with several within the site itself.

A7.46 An initial badger survey identified high level of badger activity recorded across the site, including two main setts, and several other active setts. The update survey in 2023 confirmed continued badger activity across the site with evidence of foraging and active setts within and surrounding the site boundary.

A7.47 Although badgers are a protected species they are protected for animal welfare reasons, not because they are a threatened or endangered species. As such any population is not likely to be of importance in maintaining populations beyond the immediate locality and as such are of **negligible ecological importance**.

Bats

A7.48 The data search returned records for eight bat species within 2km of the site. Species included common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, other unidentified pipistrelle species, noctule *Nyctalus noctula*, Brown Long-eared bat *Plecotus auratus*, Daubenton's bat *Myotis daubentonii*, Brandt's bat *Myotis brandtii,* Whiskered bat *Myotis mystacinus* myotis bat Myotis, and Lesser horseshoe bat *Rhinolophus hipposideros*. The nearest of these was a record of common pipistrelle 0.2 km south of the site in 2016. A known lesser horseshoe bat maternity roost is present within the Erlas Victorian estate adjacent to the north west corner of the site with the roost being approx. 100m from the wider application boundary.

A7.49 The wider site offers roosting and foraging opportunities for bats within the trees, in the buildings associated with the rugby club and along hedgerows which stretch through the site. Further surveys will be needed to assess the potential of these habitats and possible further once a plan showing loss is generated. Overall, the removal of hedgerows across the site is limited and proposals highlight that good connectivity to commuting and foraging areas will remain across the site.

A7.50 The site lies within a rural context, with low levels of light pollution within and adjacent to site, and a wide availability habitats for commuting and foraging bats in the site and wider landscape.

A7.51 Bat activity surveys were conducted by Tyler Grange in 2021 and 2023. Activity was recorded along most field boundaries with trees lines, hedgerows and other linear features. Notable bat activity hotspots were identified at the hedgerows in the centre of site. Activity relating to the more light-intolerant species, i.e. Myotis group bats, was recorded adjacent to the southern boundary of the site as well as the centre of the site and larger fields. This is to be anticipated as the site is largely unlit and well connected to the wider landscape with woodlands blocks and hedgerows.

A7.52 Overall, the assemblage of bats utilising the site for foraging and commuting is considered to be of **local ecological importance.**

Birds

A7.53 The data search by COFNOD confirmed the presence of a large number of bird species in the surrounding area, which are expected given the habitats present. The majority were common urban/suburban species, with records of Schedule 1 species also returned. No evidence of such species was noted within the site during the surveys completed, however, some habitat does exist for nesting Hobby Falco subbuteo. Other Red/Amber list species were also identified but they were not recorded during the surveys completed within the site. A summary of bird species found to be using the site for breeding when surveyed in 2021 is provided below.

A7.54 It is considered that the principal ornithological value of the site for nesting is within the boundary vegetation comprising hedgerow and scrubby margins, which were noted to support probable breeding from a number of birds of conservation concern and other 'green list' species. The central woodland copse within the site was also noted to support a wide range of both amber and green list species.

A7.55 The arable fields also provide value for two or three pairs of breeding lapwing *Vanellus vanellus.*

A7.56 Whilst the playing fields within the site offer no suitable habitat for nesting, they are obviously important in maintaining bird populations locally for those species which utilise such grassland for foraging and rearing young, principally starling and thrushes.

A7.57 Overall, the site is considered to be of **local ecological importance** for birds.

Hedgehog

A7.58 Numerous records for hedgehog were returned close to site and in the wider area for hedgehog *Erinaceus europaeus*. The closest of which was 24m from the site. Hedges woodland habitat and other areas of dense ground cover would provide suitable habitat for hedgehogs. Habitats are only likely to be of importance for hedgehogs occurring within the immediate locale of the site and there is no recommendation for further surveys to this regard as standard precautionary working methods during construction can by employed to manage any risks to this species.

Reptiles

A7.59 Two records of grass snake *Natrix helevetica* were returned from 2010 and 2016, c.1.2km distant respectively. Records for adder *Vipera berus* slow worm Anguis fragilis and common lizard *Zootoca vivipara* were all returned in the wider landscape but were close to the 2km buffer.

A7.60 There is some limited habitat suitable for reptiles within the site, such as along field margins, where a longer grassland sward, scattered scrub and tall ruderals are present. However, this is very limited in extent and is mostly located around the amenity areas of the site which are subject to a high level of human disturbance. It is considered the

likelihood of reptiles being present on site is low and therefore, will not be discussed further in this report.

Otter and Water Vole

A7.61 A single record of water vole *Arvicola amphibius* was returned from the data search. This 2015 record is from the River Gwenfro approximately 0.84km to the west of the site. Six records of otter *Lutra lutra* were returned by the data search, the closest of which sits 0.79km to the west of the site Caia park. The majority of the otter records are as a result of killed animals on the roads in the wider area. No rivers, streams or suitable habitat for either of these species is present on site.

Other Species

A7.62 Five records for European hare *Lepus europaeus* were returned from the data search within the last ten years. The closest of which was 0.33km from the site boundary from 2019. This species is was not observed on site and is therefore not considered further for survey or mitigation. t as standard precautionary working methods during construction can by employed to manage any risks to this species.

A7.63 Five records of polecat *Mustela putorius* were returned in the data search. All of these were in excess of 1.5km from the site, and associated with the Wrexham industrial park wildlife site, there is no recommendation for further surveys as standard precautionary working methods during construction can by employed to manage any risks to this species.

Further work required

A7.64 Detailed survey work and the analysis of ecological data gathered is still ongoing. Results of existing surveys undertaken at the site will be discussed and where necessary updated to include previously un-surveyed areas. Where mitigation is required in respect of protected species, the details will need to be agreed with Wrexham Council and Natural Resources Wales.

A7.65 Full details will be included with the Ecology ES chapter and supporting appendices, and will be used to inform the assessment of impacts:

A7.66 To assess the impacts of the development on the relevant statutory sites, a Habitat Regulations Assessment (HRA) likely to be required in respect of European conservation designations scoped in to the EIA.

Construction phase

Scope of environmental impacts and effects

A7.67 The sensitive receptors identified, potential magnitude of impacts and the likelihood of a resulting significant effect during the construction phase, in the absence of mitigation, are summarised in **Table 7.6**.

This EIA Scoping report does not represent the results of an EcIA but provides a conservative judgement about impact pathways and receptors for which significant effects are considered possible, and which should therefore be scoped in to the EIA for further assessment. Those where there is no likely significant effect, and the confidence level at this stage is high, should be scoped out of the EIA.

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Protected Sites Statutory				
Midland Meres and Mosses Phase 2B (RAMSAR) Negligible impact due to distance from the site and lack of impact pathways. Features for which the SAC is designated lie at sufficient distance to be unaffected by construction works (generation of dust, noise, plant movements and similar)	International	Negligible	Negligible	High
River Dee and Bala Lake Special Area of Conservation (SAC) As above	International	Negligible	Negligible	High
Johnstown Newt Sites (SAC) As above	International	Negligible	Negligible	High
Berwyn and South Clwyd Mountains (SAC) As above	International	Negligible	Negligible	High
Protected Sites Non-Statutory				
Cefn Park (LWS) Features for which the LWS is designated lie at a distance for there to be the potential to be affected by construction works (generation of dust, noise, plant movements and similar)	County	Temporary Minor Negative	Minor Adverse	High

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Borras Bog (LWS) As above	County	Temporary Minor negative	Minor adverse	High
Errdig Estate (LWS) Features for which the LWS is designated lie at sufficient distance to be unaffected by construction works (generation of dust, noise, plant movements and similar)	County	Negligible	Negligible	High
Habitats				
Arable land- Loss of extensive areas of habitat	Negligible	Negligible	Negligible	High
Amenity grassland Loss of extensive areas of habitat	Negligible	Negligible	Negligible	High
Hedgerows Potential for habitat loss (losses as yet undefined until masterplan is confirmed) and severance of habitat connections	Local	Moderate negative	Minor adverse	High
Pond Assumed to be retained (based on draft development plans), however there is the potential for the habitat to be degraded through isolation and pollution during construction (in the absence of appropriate safeguards)	Local	Minor negative	Minor adverse	High
Scrub Loss of small areas habitat (losses as yet undefined until masterplan is confirmed)	Negligible	Negligible	Negligible	High
Scattered trees Loss of small areas habitat (losses as yet undefined until masterplan is confirmed)	Local	Minor negative	Minor adverse	High
Tall ruderal Loss of small areas habitat (losses as yet undefined until masterplan is confirmed)	Negligible	Negligible	Negligible	High

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Semi-natural broadleaved woodland (based on draft development plans), however there is the potential for the habitat to be degraded through isolation and proximity of development	Local	Minor negative	Minor adverse	High
Invasive non-native Species	Negligible	Minor negative	Minor adverse	High
Species				
Amphibians – loss / fragmentation of habitat, disturbance, killing / injury	Local	Minor Negative	Minor Adverse	High
Badger – disturbance, killing / injury	Negligible	Neutral (but legislative requirement)	Negligible	High
Bats – loss / fragmentation of habitat, disturbance, potential loss of roost opportunities in trees	Local	Minor Negative	Minor Adverse	High
Birds – loss / fragmentation of habitat, disturbance, killing / injury	Local	Minor Negative	Minor Adverse	High
Other protected species which may occur on site (hedgehog, brown hare, polecat) loss / fragmentation of habitat, disturbance, killing / injury	Local	Minor Negative	Minor Adverse	High

Table 7.6 Scope of Environmental Impacts and Effects Construction Phase

Operational phase

A7.68 The sensitive receptors identified, potential magnitude of impacts and the likelihood of a resulting significant effect during the construction phase, in the absence of mitigation, are summarised in **Table 7.7** . As noted above for the construction effects, **Table 7.7** does not represent the results of an EcIA but provides a conservative judgement likelihood of significant effects to inform the judgement of which impacts should be scoped in or out of the EIA.

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Protected Sites Statutory				
Midland Meres and Mosses Phase 2B (RAMSAR)	International	Major Negative	Major Adverse	Low*

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.				
River Dee and Bala Lake Special Area of Conservation (SAC) As above	International	Major Negative	Major Adverse	Low*
Johnstown Newt Sites (SAC) Negligible due to distance from the site and lack of impact pathways which could affect GCN populations for which the site is designated	International	Negligible	Negligible	High
Berwyn and South Clwyd Mountains (SAC) Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.	International	Major Negative	Major Adverse	Low*
Protected Sites Non-Statutory				
Cefn Park (LWS) While some public footpaths border woodland areas none go through woodland areas and it is therefore unlikely that increases in public access (by dog walkers etc.) would adversely affect the LWS.	County	Temporary Minor Negative	Minor Adverse	High
Borras Bog (LWS) Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.	County	Minor negative	Minor adverse	High
Errdig Estate (LWS) Features for which the LWS is designated lie at sufficient distance to be unaffected by operational effects (increase in public access etc).	County	Negligible	Negligible	High
Habitats				
Arable land	Negligible	Negligible	Negligible	High

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
No impacts predicted				
Amenity grassland No impacts predicted	Negligible	Negligible	Negligible	High
Hedgerows Habitat loss / modification due to lack of management	Local	Minor negative	Minor adverse	High
Pond Habitat loss / modification due to lack of management	Local	Minor negative	Minor adverse	High
Scrub No impacts predicted	Negligible	Negligible	Negligible	High
Scattered trees Habitat loss / modification due to lack of management	Local	Minor negative	Minor adverse	High
Tall ruderal No impacts predicted	Negligible	Negligible	Negligible	High
Semi-natural broadleaved woodland Habitat loss / modification due to lack of management	Local	Minor negative	Minor adverse	High
Invasive non-native species Could potentially colonise areas of retained / created habitat	Negligible	Minor negative	Minor adverse	High
Species				
Amphibians Potential for populations to decline if ponds and supporting habitats are not appropriately managed.	Local	Minor Negative	Minor Adverse	High
Badger Potential disturbance to setts and habitats used by badger.	Negligible	Neutral (but legislative requirement)	Negligible	High
Bats Potential for populations to decline if supporting habitats are not appropriately managed.	Local	Minor Negative	Minor Adverse	High
Birds Potential for populations to decline if supporting habitats are not appropriately managed.	Local	Minor Negative	Minor Adverse	High

Feature and potential scope of impact	Feature importance	Potential magnitude of impact	Potential significance of effect	Confidence level
Other protected species which may occur on site (hedgehog, brown hare, polecat) Potential for populations to decline if supporting habitats are not appropriately managed.	Local	Minor Negative	Minor Adverse	High
*The assessment of impacts to these species will be confirmed following completion of surveys and analysis of ecological data and as such this assessment is currently identified as having a low confidence level.				

Table 7.7 Scope of Environmental Impacts and Effects Operational Phase

Limitations and uncertainties

A7.69 No limitations or uncertainties are identified in relation to phase 1 survey or desk -study data used for this scoping report. Once the air quality assessment is complete it will be possible to assess whether the development would lead to any changes that could lead to an increase in in airborne nitrogen which could affect sites with nitrogen sensitive habitats within conservation designations (such as peatland and montane habitats).

A7.70 The detailed development layout is yet to be determined and depending on the areas of the site affected, further ecological surveys may be required to assess ecological effects relating to land within the site for which access has not yet been gained. Any limitations or uncertainties arising from survey results will be described in the ecology ES chapter.

A7.71 Where necessary, where information is not available or where survey results are inconclusive, assumptions may be made (with justification) to assess potential impacts on ecological receptors and any mitigation solutions proposed. In such instances, in accordance with CIEEM guidelines[1], the precautionary principle will be applied which states that: "In cases of reasonable doubt, where it is not possible to robustly justify a conclusion of no significant effects, mitigation/compensation measures should be applied in accordance with the precautionary principle".

Inter-related effects

A7.72 Final layout, including landscape design, and impacts arising from air quality during could potentially have a bearing on the potential impacts relating to ecology.

Cumulative effects

A7.73 The assessment of cumulative effects will be based on the CIEEM Guidelines for Ecological Assessment[1] and will be applied to those receptors for which the potential for significant impacts have been identified; or where in combination with effects from other

developments, a potential impact which would otherwise be deemed insignificant would become significant.

A7.74 Other plans or projects which would need to be considered include the following types of future development within the same zone of influence:

- Proposals for which consent has been applied which are awaiting determination in any regulatory process (not necessarily limited to planning permission);
- Projects which have been granted consent (not limited to planning permissions) but which have not yet been started or which have been started but are not yet completed (i.e. under construction);
- Proposals which have been refused permission but which are subject to appeal and the appeal is undetermined; and
- To the extent that their details are in the public domain, proposed projects that will be implemented by a public body but for which no consent is needed from a competent authority.

A7.75 In relation to European conservation designations, if it is deemed that a Habitats Regulations Assessment is required, UK government guidance in relation to Appropriate Assessment[3] will also be used.

Summary of proposed EIA scope

A7.76 **Table 7.8** below summarises the ecological impacts proposed to be scoped in and out of the EIA.

Impacts	Scoped in or out?	Justification
Construction Phase		
Protected Sites Statutory		
Midland Meres and Mosses Phase 2B (RAMSAR)	Out	Negligible impact due to distance from the site and lack of impact pathways. Features for which the SAC is designated lie at sufficient distance be unaffected by construction works (generation of dust, noise, plant movements and similar)
River Dee and Bala Lake Special Area of Conservation (SAC)	Out	As above
Johnstown Newt Sites (SAC)	Out	As above

[3] [3] https://www.gov.uk/guidance/appropriate-assessment

Impacts	Scoped in or out?	Justification
Berwyn and South Clwyd Mountains (SAC)	Out	As above
Protected sites non-statutory		
Cefn Park (LWS)	In	Features for which the LWS is designated lie at a distance for there to be the potential to be affected by construction works (generation of dust, noise, plant movements and similar)
Borras Bog (LWS)	In	As above
Errdig Estate (LWS)	Out	Features for which the LWS is designated lie at sufficient distance to be unaffected by construction works (generation of dust, noise, plant movements and similar)
Habitats		
Arable land	Out	Of negligible ecological importance
Amenity grassland	Out	Of negligible ecological importance
Hedgerows	In	Priority habitat Potential for habitat loss (losses as yet undefined until masterplan is confirmed) and severance of habitat connections
Pond	In	Priority habitat Assumed to be retained (based on draft development plans), however there is the potential for the habitat to be degraded through isolation and pollution during construction (in the absence of appropriate safeguards)
Scrub	Out	Of negligible ecological importance
Scattered trees	In	If there are veteran trees these would be considered priority habitat Loss of small areas habitat (losses as yet undefined until masterplan is confirmed)
Tall ruderal		Of negligible ecological importance
Semi-natural broadleaved	In	Priority habitat (based on draft development plans), however there is the potential for the habitat to be degraded through isolation and proximity of development
Invasive Non-native Species	Out	Of negligible ecological importance
Species		
Amphibians	In	GCN is a European protection species Fragmentation of habitat, disturbance, killing / injury
Badger	In	Protected species

Impacts	Scoped in or out?	Justification
		Disturbance, killing / injury
Bats	In	Bats are a European protection species Loss / fragmentation of habitat, disturbance, potential loss of roost opportunities in trees
Birds	In	Includes priority species Loss / fragmentation of habitat, disturbance, killing / injury
Other protected species	In	Includes priority species Loss / fragmentation of habitat, disturbance, killing / injury
Operation		
Protected Sites – Statutory		
Midland Meres and Mosses Phase 2B (RAMSAR)	In	Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.
River Dee and Bala Lake Special Area of Conservation (SAC)	In	As above
Johnstown Newt Sites (SAC)	Out	Negligible impact due to distance from the site and lack of impact pathways which could affect GCN populations for which the site is designated
Berwyn and South Clwyd Mountains (SAC)	In	Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.
Protected Sites non-statutory		
Cefn Park (LWS)	Out	While some public footpaths border woodland areas none go through woodland areas and it is therefore unlikely that increases in public access (by dog walkers etc.) adversely affect the LWS.
Borras Bog (LWS)	In	Potential for changes in air pollutant emissions to result in adverse impacts on habitats arising from deposition of airborne pollutants.
Errdig Estate (LWS)	Out	Features for which the LWS is designated lie at sufficient distance to be unaffected by operational effects (increase in public access etc).
Habitats		
Arable land	Out	Habitat of negligible ecological importance
Amenity grassland	Out	Habitat of negligible ecological importance
Hedgerows	In	Priority habitat Habitat loss / modification due to lack of management
Pond	In	Priority habitat Habitat loss / modification due to lack of management
Scrub	Out	

Impacts	Scoped in or out?	Justification
		Habitat loss / modification due to lack of management unlikely to be significant due to small size of habitat
Scattered trees	In	If there are veteran trees these would be considered priority habitat Habitat loss / modification due to lack of management
Tall ruderal	Out	Habitat of negligible ecological importance
Semi-natural broadleaved woodland	In	Habitat loss / modification due to lack of management
Invasive non-native species	Out	Negligible ecological importance
Species		
Amphibians	In	European protected species Potential for populations to decline if ponds and supporting habitats are not appropriately managed.
Badger	In	Protected species increased public activity could result in disturbance to setts and habitats used by badger.
Bats	In	European protected species Potential for populations to decline if supporting habitats are not appropriately managed.
Birds	In	Includes priority species Potential for populations to decline if supporting habitats are not appropriately managed.
Other protected species	In	Includes priority species Potential for populations to decline if supporting habitats are not appropriately managed.

Table 7.8 Summary the ecological impacts proposed to be scoped in and out of the EIA.

Appendix 7.2 Legislation and Planning Policy

A7.1 Specific habitats and species are afforded protection in the UK under the following legislation:

- The Conservation of Habitats and Species Regulations (as amended) 2018 (the Habitats Regulations);
- Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Countryside and Rights of Way (CRoW) Act 2000;
- Environment Wales Act 2016 (as amended);
- The Protection of Badgers Act (PBA) 1992; and
- Hedgerow Regulations 1997 (as amended).

National Policy

A7.2 The Welsh Government sets out in Paragraph 5.1.2 of Edition 11 of Planning Policy Wales (PPW) the following objectives for the conservation and improvement of the natural heritage:

- Promote the conservation of landscape and biodiversity, in particular the conservation of native wildlife and habitats;
- Ensure that action in Wales contributes to meeting international responsibilities and obligations for the natural environment;
- Ensure that statutorily designated sites are properly protected and managed;
- Safeguard protected species; and
- Promote the functions and benefits of soils, and in particular their function as a carbon store.

A7.3 Section 5.4 of PPW requires that Unitary Development Plans (UDPs) set out the locational policy framework for the conservation and enhancement of the natural heritage and seek to conserve and enhance the natural heritage in ways which brings benefits to local communities and encourage social and economic progress.

A7.4 UDPs should encourage the appropriate management of features of the landscape which are of major importance for flora and fauna in order to complement and improve the ecological coherence of the Natura 2000 network. This encompasses features which, because of their linear or continuous structure or their function as “stepping-stones” or “wildlife corridors”, are essential for migration, dispersal and genetic exchange. Policies should attach appropriate weight to statutory and non-statutory designations and devise criteria against which development will be assessed. The conservation and, where appropriate, enhancement of biodiversity outside designated areas, should also be sought.

Wrexham County Borough Unitary Development Plan (adopted 14th Feb 2005)

A7.5 Local Policies relating to ecology that will need to be considered as part of any development proposals include:

- Policy PS2: "Policy PS2 Development must not materially detrimentally affect countryside, landscape/townscape character, open space, or the quality of the natural environment."

- Policy PS11: "Encouragement will be given to proposals which improve the biodiversity value of sites and to the establishment of local nature reserves where the nature conservation and landscape interest of the land will be protected and enhanced."

- Policy GDP1: All new development should: "Ensure the safety and amenity of the public and safeguard the environment from the adverse effects of pollution of water, land or air, hazards from industry and quarrying, and associated noise, odour or vibration arising from development." "Safeguard sites and areas of nature conservation and wildlife interest, and to provide new habitats where there is an unavoidable loss of existing habitats and areas of wildlife interest."

- Policy EC4: "Development proposals should provide for the conservation and management of hedgerows, trees, orchards, woodland, wildlife and other natural landscape and water features, and include new planting in order to enhance the character of the landscape and townscape. Development which results in the loss or significant damage to valuable trees, important hedgerows or ancient woodland sites will not be permitted."

- Policy EC6: "Development either within or close to sites of biodiversity interest will only be permitted where it can be clearly demonstrated that the need for the development outweighs the need to safeguard the intrinsic nature conservation value of the site. Where such development is permitted, damage should be kept to a minimum, and compensatory measures should be provided. Measures to improve the biodiversity value of sites and enhance their natural conservation interest and landscape quality including the establishment of local nature reserves, will be supported."

Wrexham Local Development Plan 2 (LDP2) 2013 – 2028

A7.6 Wrexham County Borough Council is preparing LDP2, which will replace the current adopted UDP. Policies in the preferred strategy of the LDP span economic, social and environmental objectives. The environmental objectives include:

- Objective SO9: protect, manage and enhance the natural and historic environment and landscapes;

- Objective SO10: reduce carbon emissions and maximise our resilience to and mitigate and adapt to the impact of climate change;

- Objective SO11: ensure development meets the needs of society and industry, now and in the future, through ensuring adequate protection and supply of high quality minerals; and

- Objective SO12: facilitate the provision of an integrated network of waste facilities which enable waste to be managed in a sustainable way.

Biodiversity Action Plans - Species and Habitats of Principal Importance and the UK Biodiversity Action Plan

A7.7 The UK Post-2010 Biodiversity Framework succeeded the UK BAP partnership in 2011 and covers the period 2011 to 2020. However, the lists of Priority Species and Habitats agreed under the UKBAP still form the basis of much biodiversity work in the UK. The current strategy for Wales was published by Natural Resources Wales in their 'State of Natural Resources Report (SoNaRR) ', dated October 2016. Although the UK BAP has been succeeded, SAPs developed for the UK BAP remain valuable resources for background information on priority species under the UK Post-2010 Biodiversity Framework.

A7.8 The commitment to preserving, restoring or enhancing biodiversity is further emphasised being listed in section 7 of the Environment (Wales) Act 2016.