HALLAM LAND MANAGEMENT LIMITED
ST ALBANS SCHOOL
ST ALBANS SCHOOL WOOLLAM TRUST

Woollam Park

Environmental Statement
Appendices

December 2024

LRM PLANNING LIMITED

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Appendix 1.1: Scoping Report

ON BEHALF OF HALLAM LAND MANAGEMENT LIMITED

Woollam Park North St Albans

Environmental Impact Assessment

Scoping Report

July 2024

LRM PLANNING LIMITED

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1 Introduction

BACKGROUND

1.1 In 2019, Hallam Land Management (HLM) submitted an Environmental Impact Assessment (EIA) Scoping Report in anticipation of an outline planning application for a mixed-use urban extension at North St Albans.

1.2 St Albans City and District Council (the LPA) issued a Scoping Opinion on the 21st June 2019 (Ref: 5/19/1187). At that time, the LPA were preparing a new Local Plan which, amongst other things, identified development proposals to meet future needs up to 2036. The Publication Draft was the subject of consultation in September 2018 and was later submitted to the Secretary of State for Examination in March 2019.

1.3 The Publication Draft Local Plan identified the North St Albans Broad Location as a proposed allocation, intending a new development comprising *inter alia* a minimum of 1,100 dwellings, the provision of a primary school and a neighbourhood centre, new recreation space and green infrastructure, and highway network improvements.

1.4 In 2020, following Examination hearing sessions in March of that year, the LPA withdrew the Publication Draft Local Plan.

1.5 Work has since commenced on a further new Local Plan. In July 2023, the District Council published a Regulation 18 consultation document. North St Albans is again identified in this document as a Broad Location for future development.

1.6 HLM are minded to submit an outline planning application for development on the land at North St Albans and wish to update the EIA Scoping Report to take account of circumstances at the present time, the emerging planning policy context and the LPA's 2019 Screening Opinion. Accordingly, this Scoping Report supersedes that submitted in May 2019.

1.7 The area of land identified as the North St Albans Broad Location is controlled by two parties; HLM and Hunston Properties (referred to as the Sewell Trust land). The Sewell Trust land benefits from outline planning permission granted by the LPA on the 12th January 2022 for residential development of up to 150 dwellings together with all associated works. Therefore, the area of land to which this Scoping Opinion refers relates only to the land controlled by HLM.

1.8 The EIA process intends that a LPA, when deciding whether to grant planning permission for a project which is likely to have significant effects on the environment, does so in the full knowledge of those effects, and takes this into account in the decision-making process.

1.9 Because of the scale, location and potential significant environmental effects, the proposed development has been deemed to be EIA Development. The LPA agree with this as indicated in its June 2019 Scoping Opinion. Accordingly, this Scoping Report has been prepared to determine the extent of environmental matters to be considered within the EIA and reported on in the Environmental Statement (ES).

THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS

1.10 The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 came into effect on the 16th March 2017. This Environmental Impact Assessment Scoping Report has been prepared pursuant to these Regulations.

SCOPING OPINION

1.11 Pursuant to Regulation 15, a person minded to make an application for EIA development may ask the LPA for its formal opinion (the 'Scoping Opinion') on the information to be supplied in the ES. The Scoping Opinion gives the LPA the opportunity to clarify what it considers the main effects of the development are likely to be. Thus, the Applicant is able to focus on these key areas when preparing the ES.

1.12 Regulation 15 prescribes that:

A request under paragraph (1) must include – in relation to an application for planning permission:

i) A plan sufficient to identify the land;

ii) A brief description of the nature and purpose of the development, including its location and technical capacity;

iii) An explanation of the likely significant effects of the development on the environment; and

iv) Such other information or representations as the person making the request may wish to provide or make.

1.13 This report provides the required information outlined in Regulation 15 so that the LPA can provide a Scoping Opinion.

STRUCTURE OF THE SCOPING REPORT

1.14 This Scoping Report is structured as follows:

- Section 2 provides a description of the Site concerned and the nature and purpose of the proposed development;
- Section 3 outlines the methodology proposed to undertake the EIA;
- Section 4 describes potential environmental effects for various topic areas the scope of the environmental assessment proposed;
- Section 6 describes how consideration of cumulative effects will be undertaken; and
- Section 7 provides a summary.

2 The Site and Proposed Development

2.1 This Section describes firstly the prospective Site and its context and secondly the nature of the development proposals.

LOCATION

2.2 The Site, shown at *Appendix 1*, is located immediately north of the urban area of the City of St Albans within the administrative area of St Albans City and District Council.

THE SITE

2.3 A context plan is at *Appendix 2.*

2.4 The majority of the Site is arable land in agricultural use and measures approximately 50 hectares in size. In the north west of the site are three playing fields that are associated with Woollam Playing Fields. The site is located entirely within the Metropolitan Green Belt.

2.5 The Site is bounded to the south by the existing settlement of St Albans, St Albans Girls' School and the Valley Road Industrial Estate. The southern boundary is formed by Longspring Wood which is an ancient woodland and Local Wildlife Site. To the north and east, beyond the main line railway, is the village of Sandridge, countryside and Heartwood Forest; to the north west are the Woollam Playing Fields and to the west is the Sewell Trust Land and the residential dwellings that front Harpenden Road.

2.6 The Site is contained by the A1081 to the west and the railway line to the east. Sandridgebury Lane runs southwest to northeast through the site. Valley Road is at the southern extent of the Site.

2.7 The Site is sub divided into five fields of varying size which are irregular in shape. These fields are typically defined by hedgerows containing some trees.

2.8 There is one Public Right of Way (PROW) along the southern and eastern boundary of the site, reference St Albans City 096.

CONTEXT

2.9 St Albans District has a population of some 148k in 2021 (Source: ONS). St Albans City is the main settlement within the District and is located approximately 27km to the north of central London, approximately 10km southwest of Welwyn Garden City and approximately 15km southeast of Luton.

2.10 The city centre is located approximately 2km to the south of the site and contains retail and employment opportunities.

2.11 St Albans train station is also located approximately 3km to the south of the site, to the east of the town centre. The train station is served by Thameslink which provides a frequent and fast train link into central London; the express service into St Pancras takes on average 23 minutes. There are also train links to Harpenden, Luton, Luton Airport and onto Bedford, Gatwick Airport and Brighton.

2.12 St Albans is a city which comprises a substantial amount of residential development; to the north of St Albans the immediate environs are suburban in character.

2.13 To the southwest of the Site there are two bus stops, on the A1081 and New Green Avenue. These provide public transport links into the City centre and to the train station.

SEWELL TRUST LAND

2.14 Adjoining the Site to the west is the land that benefits from outline planning permission for 150 new homes and open space. The site measures approximately 5ha and is broadly rectangular in shape. That site is similar in nature, comprising agricultural land bound by hedgerows to the north and east and close board fencing with planting to the boundary of residential dwellings fronting Harpenden

Road and Sandridgebury Lane to the south and west. To the north of the site are the Woollam Playing Fields and to the north west of the site there is a petrol filling station and a cluster of dwellings.

2.15 The adjoining dwellings are detached and semi-detached and are traditional in character, in keeping with the local vernacular.

WOOLLAM PLAYING FIELDS

2.16 To the north of the Site is Woollam Playing Fields. This comprises playing fields, changing facilities and pavilion, and car parking. These facilities, which are accessed from Harpenden Road, are operated and managed by the Old Albanians Sports Association (OASA). Three playing fields south of the access road are located within the Site and are to be relocated to an area of land to the west of the existing curtilage of the sports complex referred to as Longcroft. St Albans School also have playing fields and sports facilities to the north of those operated and managed by OASA; these too are accessed from Harpenden Road.

THE PROPOSED DEVELOPMENT

2.17 The proposed development for which outline planning permission will be sought is framed by the development concept in the 2023 Local Plan Regulation 18 consultation document. A Framework Plan has been prepared by HLM which draws upon masterplanning work conducted with the LPA in 2019 and 2020; this is at *Appendix 3*.

Residential development

2.18 The principal component of the proposed development will be new housing; approximately 1,000 new dwellings, to include market housing, affordable housing and specialist accommodation for elderly persons.

Neighbourhood Centre, Primary School and Community Facilities

2.19 It is intended that community facilities will be provided with a new two-form entry primary school. A new Neighbourhood Centre will be provided which will house commercial development opportunities.

Green Infrastructure

2.20 As the Framework Plan illustrates substantial areas of green infrastructure which will variously comprise multi-functional amenity space, play space, habitat creation, retained hedgerows, and trees and new grow spaces. Replacement playing fields to those within the Site will be located to west of the current Woollam Playing Fields at Longcroft.

Drainage

2.21 A sustainable surface water drainage strategy, utilising multifunctional Sustainable Drainage Systems (SuDS) will be implemented. This surface water drainage strategy aims to mimic the existing hydrological regime of the existing Site by capturing, treating, attenuating and then infiltrating surface water runoff from the proposed development. The SuDS will likely comprise swales, raingardens, attenuation basins and infiltration basins, with further opportunities to integrate additional plot level features (e.g., permeable paving, tree pits etc.) being explored at the next stage of design.

Access

2.22 The primary means of access to the development will be from the A1081 with the formation of a new junction south of the existing Woollam Playing Field access. The principle of an access onto the A1081 Harpenden Road was agreed by Hertfordshire County Council's Strategic Transport Infrastructure Board in 2020.

2.23 There will be various pedestrian and cycle access points to the Site to ensure the development is accessible to existing and future residents and is connected to the existing urban area with associated improvements to the cycling and walking networks. There is existing access into the Site

through Sandridgebury Lane, and the future role of this route will need to be determined through the masterplanning process. As the proposals continue to evolve in response to technical evaluation and consultation, the access arrangements will reflect the most suitable scheme for the Site.

2.24 There will be public transport service improvements to ensure connectivity between the Site and key destinations. Off-site pedestrian and cycle improvements to reflect objectives in the Local Cycling and Walking Infrastructure Plan will also be identified. A new route between the Site and Hertfordshire Way, east of the railway line is proposed to reflect objectives in the Public Rights of Way Improvement Plan.

DEVELOPMENT PROPOSALS ON THE SEWELL TRUST LAND

2.25 Outline planning permission (Ref: 5/2020/3096) was granted on the Sewell Trust Land in 2022, comprising up to 150 new homes, associated open space and sustainable urban drainage. Vehicular access to this development parcel will be provided through the demolition of no.126 Harpenden Road and the formation of a new priority junction in that location. These approved development proposals will be considered alongside the HLM proposals as part of a cumulative assessment.

3 EIA Methodology

3.1 This section describes the broad methodology proposed to undertake the EIA and to present the conclusions in the ES.

EUROPEAN UNION DIRECTIVE 2011/92/EU (AS AMENDED BY 2014/52/EU)

3.2 Environmental Impact Assessment is a procedure required under the above EU Directives to assess the effects of certain public and private projects on the environment. Article 2 requires, *before development consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects on the environment*. Article 8 states that such an assessment is to be duly taken into account in the development consent procedure.

3.3 The EU Withdrawal Agreement retains these Regulations within UK law.

TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017 (AS AMENDED)

3.4 The EIA Directive is enacted into English Legislation through the Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

3.5 The Regulations apply to two types of projects, which are set out through the following schedules:

Schedule 1 Projects for which an EIA is required in every case; and

Schedule 2 Projects for which an EIA is required only if the particular project in question is judged likely to give rise to significant environmental effects.

3.6 Schedule 3 outlines the selection criteria for screening schedule 2 development. In this instance it has been deemed that the proposed development does constitute Schedule 2 Development under the terms Urban Infrastructure Project. The LPA's 2019 Screening Opinion confirms this to be the case.

3.7 Schedule 4 prescribes information to be included in an Environmental Statement.

ENVIRONMENTAL TOPIC AREAS

3.8 Regulation 4(2) states that the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors –

a. Population and human health;

b. Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC (34) and Directive 2009/147/EC(35);

c. Land, soil, water, air and climate; and

d. Material assets, cultural heritage and the landscape.

3.9 Based on work undertaken by HLM to date and adopting the conclusion in the LPA's 2019 Scoping Opinion, the aspects of the environment likely to be significantly affected by the proposed development, during construction and operation, are as listed below:

a. Ecology and Biodiversity;

b. Landscape and Visual;

c. Agriculture and Soil;

d. Heritage and Archaeology;

e. Ground Conditions;

f. Water Resources;

g. Socio-Economics / Human Beings;

h. Waste and Material Assets;

i. Climate Change and Resilience;

j. Transport;

k. Noise; and

l. Air Quality.

3.10 The scope of the individual environmental topic assessments is set out in Section 4.

CRITERIA TO ASSESS ENVIRONMENTAL EFFECTS

3.11 The main focus of the EIA process is the prediction and evaluation of the impact of the project on the environment. The results and credibility of an EIA depend largely on the methodologies used to assess and determine the effect of a project. Assessing the significance of impacts relies on the interaction between:

- the sensitivity of the environmental receptor; and
- the magnitude of change to that environmental receptor.

3.12 The sensitivity of an environmental receptor or resource is determined by evaluating a receptors susceptibility to change and value and can be analysed from the baseline information and may be summarised and classified in a table, a rudimentary example of which is provided at Table 3.1.

TABLE 3.1: SENSITIVITY OF ENVIRONMENTAL RECEPTOR

SENSITIVITY	RECEPTOR
High	Internationally / nationally important
Medium	Regionally important
Low	Locally important

3.13 Magnitude of Change is the extent to which the proposed development will result in a change to an environmental receptor or resource. When assessing the magnitude of change, the scale, duration, timing and extent of effects, as well as the degree of certainty in the prediction of impacts and the likelihood of irreversible changes occurring, should be considered. Table 3.2 defines the type of change and magnitude.

TABLE 3.2 MAGNITUDE OF CHANGE TO ENVIRONMENTAL RECEPTORS

EXTENT OF CHANGE	TITLE
High	Entire loss/gain or major variation to key elements/features of the baseline conditions so that the post-development character/ configuration of the baseline condition would be fundamentally changed
Medium	Loss/gain or variation to one or more key elements/features of the baseline conditions so that the post-development character/ configuration of the baseline condition would be materially changed
Low	Minor change from the baseline conditions. The changes are measurable, but not material in the sense that the changes are similar to those pre-development.

EXTENT OF CHANGE	TITLE
None	Inconsequential or no change from baseline conditions.

3.14 Table 3.3 provides a matrix showing impact significance derived from sensitivity and magnitude of change.

TABLE 3.3 MATRIX OF SIGNIFICANCE OF ENVIRONMENTAL EFFECTS

SENSITIVITY OF RECEPTOR	MAGNITUDE OF CHANGE			
	High	Medium	Low	none
High	Major or Substantial	Major or Moderate	Moderate or Minor	Negligible
Medium	Major or Substantial	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible

3.15 There is no statutory definition of 'significance'. In this ES the general significance of criteria is outlined and defined in Table 3.4.

TABLE 3.4 DEFINITION OF SIGNIFICANCE OF ENVIRONMENTAL EFFECTS

SIGNIFICANCE OF EFFECTS	DEFINITION
Major/substantial	An effect which in isolation could have a significant influence on the decision-making process.
Moderate	An effect which on its own could have an influence on decision making, particularly when combined with other effects.
Minor	An effect which on its own is likely to have a minor influence on decision making, but when combined with other effects could have more than more a greater influence.
Negligible	An effect which on its own or in-combination with other effects will not have an influence of decision making.

MITIGATION

3.16 Intrinsic to the EIA process is the development of mitigation measures and their incorporation into the proposed development.

3.17 Mitigation measures are divided into three broad categories as set out in Table 3.5.

TABLE 3.5 TYPES OF MITIGATION MEASURES

TYPE OF MITIGATION	EXAMPLES
Inherent mitigation	Measures designed into the scheme and certain to be delivered e.g., the provision of structural landscape, habitat creation.
Standard mitigation	Measures which are not commonplace as part of such development proposals and to which there is a high degree of

TYPE OF MITIGATION	EXAMPLES
	certainty that they will be provided e.g., the preparation of a construction environment management plan.
Actionable mitigation	Measures which will be secured by a controlling mechanism as part a planning permission e.g., planning condition or obligation or other legal instrument.

3.18 Within each topic chapter, Inherent and Standard Mitigation Measures are considered as part of the Assessment of Environmental Impacts, and Actionable Mitigation is included as part of the Residual Impact Assessment.

THE SPATIAL SCOPE OF THE ASSESSMENT

3.19 The geographical or spatial scope of the EIA has had regard to both the physical extent of the proposed development defined by the Site and the nature of the baseline environment, which in certain instances extends beyond the site.

3.20 The spatial scope of each topic chapter will be set out within the methodology section of each Topic Chapter. Some assessments will be limited to the Site or its immediate surroundings, while others extend across a wider area.

THE TEMPORAL SCOPE OF THE ASSESSMENT

3.21 Potential significant environmental effects are considered for both the construction phase and the operational phase. The broad timescales are shown in Table 3.6.

TABLE 3.6 TEMPORAL SCOPE OF ASSESSMENT

STAGE	TIMEFRAME
Commencement of development	2026 laying out of new playing fields
Construction period	2026-2036 (ten years)
Operational period	100 years
Decommissioning	Not applicable

CONSULTATION

3.22 Throughout the completion of the EIA, information will be gathered from a range of organisations with whom the applicant will consult. These are outlined within the topic chapters in Section 4.

CONSIDERATION OF ALTERNATIVES

3.23 Part 2 of Schedule 4 of the Regulations states that the ES should include 'a description of the reasonable alternatives 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.'

3.24 The National Planning Practice Guidance note on EIA states that '*where alternative approaches to development have been considered, the Environmental Statement should include a description of the reasonable alternatives studied which are relevant to the proposed development*.'

3.25 The Applicant has considered alternatives for development in regard to the "do nothing option", alternative sites and an alternative configuration of the proposed development within the Site.

3.26 The Regulation 18 Local Plan consultation proposes the allocation of this Site. Through the preparation of that and earlier draft Local Plans, the LPA assessed potential development sites. The Interim Sustainability Assessment which accompanied the Regulation 18 Local Plan identified and assessed potential development areas.

3.27 Section 4 of the Sustainability Appraisal outlines the process of identifying potential development locations. The assessment of alternative locations for this scale of development has therefore been conducted through the Local Plan process and no more recent work has been published in respect of this. The Applicant will describe that process and the reasons why North St Albans has been identified but does not propose to undertake an assessment of alternative locations in the EIA.

3.28 Consideration will be given to alternative forms of development for the Site in the context of masterplanning work undertaken to date. Through work undertaken jointly with the LPA and Hertfordshire County Council in 2019 and 2020 and 2024 the masterplan options have been explored extensively. In preparing the planning application there will be the continuous process of adapting the scheme to ensure it is considered the most suitable for the site.

ENVIRONMENTAL TOPIC CHAPTERS

3.29 The structure of each Environmental Topic Chapter is shown on Table 3.7.

TABLE 3.7 STRUCTURE OF ENVIRONMENTAL TOPIC CHAPTERS

SECTION	SCOPE/CONTENTS
Introduction	Outlines the scope of the individual chapter and the nature of the potential environmental impacts to be considered.
Assessment Methodology	Refers to the specific methodology used within the chapter and is structured around the following headings: 3.1 study area; 3.2 consultation; 3.3 legislative / planning policy context 3.4 assessment process; 3.5 assessment criteria; 3.6 sources of information; and 3.7 assessment limitations
Baseline Conditions	The section provides more detailed topic specific information to describe the character of the site and its environs (the study area). This baseline situation describes the quality of the interests on the Site as they relate to this environmental topic. This description serves as a comparative measure against which changes arising from the construction and operational phases of the proposed development can be assessed or predicted. **This will identify the sensitivity of environmental receptors/resources**(i.e., high, medium or low).
Inherent and Standard Mitigation	A summary description of those 'inherent' and 'standard' mitigation measures which **primarily address the scope to avoid, reduce or remedy adverse environmental impacts** or enhance the beneficial aspects arising from the construction and operational periods of the proposed development relating only to the Topic Chapter. These are primarily explained in Chapter 4

	which describes the Proposed Development. 'Actionable' mitigation is considered in the assessment effects to establish residual effects.
Assessment of Environmental Impacts	The identification and assessment of **the nature, extent, magnitude and significance of environmental effects** (including any direct or indirect effects), which arise as a result of the construction and operational periods of the proposed development. This assessment includes 'inherent' and 'standard' mitigation (e.g., strategic landscaping, habitat creation etc that is part of the proposed development). These effects will be determined to be *Major/Substantial, Moderate, Minor and Negligible* and can be *positive (beneficial)* or *negative (adverse)*
Actionable Mitigation	The identification of 'actionable' mitigation employed where applicable to reduce the negative effects of the proposed development.
Residual Impact Assessment	This section will identify *Residual Effects*: **a description and assessment of significance of any effects that will remain after the 'inherent', 'standard' and 'actionable' mitigation measures are applied**. These effects will be determined to be *Major/Substantial, Moderate, Minor and Negligible*.
Cumulative Effects	The identification and assessment of the nature, extent, magnitude and significance of **cumulative environmental effects** arising from other committed development where this has been identified as relevant for the individual topic chapter or where individual receptors are affected by more than one impact.
Summary	Overall Summary and conclusions of the assessment.

4 Scope of Environmental Assessment

4.1 Set out in this section is the intended scope of the Environmental Impact Assessment provided by reference to individual environmental topics that are to form the topic chapters of the ES:

- Ecology and Biodiversity;
- Landscape and Visual;
- Agriculture and Soils;
- Heritage and Archaeology;
- Ground Conditions;
- Water Resources;
- Socio-economics / Human Beings;
- Waste and Material Assets;
- Climate Change and Resilience;
- Transport and Accessibility;
- Noise; and
- Air Quality.

4.2 These correspond with the requirements of Regulations 4(2).

4.3 In the following paragraphs the approach of each of these assessments is discussed.

ECOLOGY

4.4 This Chapter of the ES will consider the effects of the proposed development on ecology and nature conservation. It will describe the designated sites, flora, fauna and habitats at the Site and within the surrounding area. It will consider the value of ecological features in terms of relevant wildlife legislation, national and local planning policies and intrinsic nature conservation value; and then assesses the environmental effects on biodiversity associated with the construction and operational phases of the proposed development. It will identify appropriate mitigation and enhancement measures with the overall aim to achieve net biodiversity gains.

Potential Environmental Effect

4.5 The proposed development could have negative effects on the ecological features and biodiversity as a result of

a. Loss or degradation of habitats;
b. Loss or reduction of protected / notable species populations due to mortality / injury or loss of breeding, commuting or foraging habitat;
c. Disturbance to protected / notable species;
d. Increased recreational disturbance effects to nearby designated sites; and
e. Fragmentation due to habitat loss and lighting.

4.6 The proposed development could also have positive effects on the ecological features and biodiversity from new habitat creation or enhancement of existing important ecological features.

Baseline

Statutory and Non-Statutory Designated Sites

4.7 There is one internationally designated site located within 15km of the Site, the Chilterns Beechwoods Special Area of Conservation (SAC), located approximately 14.5km west. Due to the intervening distance and the presence of suitable recreational facilities in the locality, it is considered that there will be no increase in recreational pressure on this designated site.

4.8 There are no SSSIs within 2km of the site. Of the nine locally non-statutory sites, Long Spring Wood Local Wildlife Site (LWS), also an ancient and semi-natural woodland, is situated adjacent to the south eastern boundary of Site. The remaining eight LWS's fall within 1km of the Site.

Habitats

4.9 An extended Phase 1 Habitat survey was undertaken on 28th August 2018. Habitats which were found to comprise ecological/conservation value include the ancient woodland, hedgerows with incorporated mature trees, and young plantation woodland to the south and north. The arable fields, amenity grassland and the small pockets of scattered scrub are considered to have low value. This was supplemented by updated habitats surveys in 2022, which include a Condition Assessment to assign a baseline biodiversity value to the existing habitats, by following the biodiversity metric 4.0 guidelines.

4.10 All hedgerows onsite qualify as Habitats of Principal Importance under section 41 of the Natural Environment and Rural Communities (NERC) Act, as they support over 80% native woody species. Long Spring Wood LWS, an ancient woodland, also qualifies as a Habitat of Principle Importance under this Act. In addition to this, three hedgerows are considered to be important hedgerows under the Hedgerows Regulations 1997.

Fauna

4.11 The evaluation of the habitats on the site resulted in the following protected species surveys being undertaken:

- Badger (Confidential);
- Bat tree roost assessment;
- Monthly bat activity transects;
- Wintering birds;
- Breeding bird surveys;
- Dormice; and
- Reptile survey.

Bats

4.12 Initial activity transects and static surveys were carried out in 2018 (between July – October inclusive) and have been updated during the 2022 survey season (September and October). During the 2022 surveys five bat species (common pipistrelle, soprano pipistrelle, noctule, barbastelle and serotine) and three species groups (*Plecotus* sp., *Myotis* sp. and *Nyctalus* sp.) were identified. During the 2022 statis surveys, common pipistrelles were most frequently recorded (approximately 91.88% of total data) followed by soprano pipistrelle (6.1%) with the remaining bat species making up below 1% of the calls recorded. Four of these bat species/species groups are NERC (2006) species of principal importance (soprano pipistrelle, noctule, barbastelle and *Plecotus* sp), and all are common and widespread within the county. Low numbers of the barbastelle bat (Annex II and IV Habitats and Species Directive) have also been recorded utilising boundary features, although these only make up 0.3% of the total registrations. 13 trees were identified as having some bat roosting potential; however, obvious roosting evidence was present.

Wintering Birds

4.13 Four wintering bird surveys were undertaken between November 2018– February 2019 (inclusive), and subsequently updated over 2022 -2023. A total of 36 bird species were identified within the survey area, with 18 of them considered notable species. In addition to this, the mitigation plots as part of the development proposals were surveyed, identifying a total of 32 species, with 18 species considered as notable. The hedgerows and woodland have been identified as providing suitable foraging and nesting habitats for the generalist species assemblages recorded onsite, with the exception being Skylark which were recorded in the arable margins.

Breeding Birds

4.14 A total of 31 bird species were recorded during the breeding bird surveys, conducted in April and May 2022, within the Site, of which 13 were considered 'notable' species. Of the species recorded, five were confirmed as breeding on the Site, 10 were considered probable breeders and the remaining 16 species were considered possible or non-breeders. A total of 32 species were recorded within the proposed mitigation fields, of which 15 were considered notable species. The breeding bird overall assemblage included farmland specialist species such as skylark, linnet and yellowhammer, although in general was comprised of common and widespread species, considered to be of no more than Local Importance.

Hazel Dormouse

4.15 Three hazel dormouse surveys have been undertaken to date (between September – November 2018), where no dormice were recorded.

Reptiles

4.16 A full suite of reptile surveys was undertaken during September and October 2018, whereby one common lizard was recorded in the north-eastern corner of the Site. In 2022 (April to June) the surveys were updated, where a single common lizard was recorded in the same position as 2018.

4.17 The degree of habitat creation, including retention of valuable habitats will ensure new opportunities for biodiversity net gains, which will benefit existing fauna assemblages and potentially encourage new species which are currently absent.

Proposed Assessment Methodology

4.18 The Assessment will follow the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018). This assesses impacts during construction and operation phases, as well as cumulative effects of additional developments within the locality. The ecological features that may be affected by such activities are then evaluated within the geographical framework context based on the CIEEM criteria of international, national, regional, county and local.

4.19 In addition to the above, each species survey has a number of guidance documents to ensure a robust assessment is made and standardised; these will be detailed within the specific species reports.

Potential Mitigation

4.20 The layout will reflect, where feasible, a preference for the retention and protection of hedgerows, trees and woodland. Losses of important vegetation will be compensated for through the planting / creation of new habitats. The overall intention will be to achieve net biodiversity gain in accordance with the National Planning Policy Framework (NPPF), which will be facilitated by the BNG metric 4.0 calculation.

4.21 Circular walks and areas of open space will be incorporated within the scheme in order to encourage residents to stay within the confines of the development, thereby reducing impacts to the nearby LWS's.

4.22 Dark corridors will be designed throughout, especially incorporating key bat navigational/foraging corridors which have been identified; this comprises of enhanced connected linear features (e.g., hedgerows / watercourses) with buffers and a sensitive lighting strategy, to ensure that natural

features are not over illuminated. Trees identified with bat roosting potential, will be retained within areas of Green Infrastructure and additional bat boxes will be added to the scheme.

4.23 Specific mitigation measures have been designed to ensure that skylark populations persist within the local area, which will entail offsite skylark plots (but under the applicants' control), which will facilitate safer and more successful breeding, increasing their conservation status. Creation and enhancement of hedgerows with thick structures and wide planted margins with a suitable seed mix, will increase foraging and nesting opportunities for the local bird population. The enhancement to such features would also benefit species such as reptiles and small mammals. In addition, a variety of bird nest boxes will be included within the scheme to provide further enhancements.

4.24 Native species-rich grassland and hibernaculum will be created where reptiles have been recorded to provide suitable basking, foraging and hibernating resources for these species.

Relevant Consultation

4.25 To undertake the assessment for existing ecological features including protected and notable species, and the occurrence of LWS', Hertfordshire Environmental Records Centre will be consulted. Natural England may also be consulted.

LANDSCAPE AND VISUAL

4.26 This chapter of the ES will assess the landscape and visual effects of the proposed development, specifically the effects on landscape elements within the site, landscape character more generally and visual amenity.

Potential Environmental Effects

4.27 Potential effects arising from the Proposed development with respect to landscape and visual resources are identified as part of the design process. These include both adverse and beneficial effects during the construction phase and the occupation of the Site. Identifying such effects early on has and will continue to assist with the development of the proposals, resulting in a considered and cohesive design approach overall.

4.28 The proposed development will involve a change in land use as well as some loss of existing vegetation within the Site which cannot be avoided. The character of the Site will be completely altered by the proposed development.

4.29 Temporary works arising from the proposed development during the construction phase which may have an effect on landscape and visual receptors are:

a) Site clearance, including loss of existing vegetation within the Site;

b) Presence of site compounds, site offices and welfare facilities;

c) Movement and presence of construction vehicles, plant and equipment;

d) Earthworks, construction of internal road infrastructure and laying out of practical development platforms; and

e) Minor changes to the existing road layout to facilitate access.

4.30 Permanent components of the proposed development which may have an effect on landscape and visual receptors are:

a) The built form of the new development, including road infrastructure; and

b) New green infrastructure integrated into the proposed development including retained trees and hedgerows, open space provision, storm water attenuation, new planting and new footpaths.

Baseline

4.31 The site is relatively open and comprises arable farmland established upon gently undulating landform. The site boundaries are well defined by mature vegetation, including ancient woodland

to the south. Five irregular fields are bounded within the site by hedgerows and Sandridgebury Lane acts to compartmentalise further, dissecting the site south west to east.

4.32 Views across the site are clear, owing to the folding topography, but limited to some boundaries by neighbouring landform and vegetation. To the west planting associated with residential properties aligning Harpenden Road restrict views into and out of the site, as does structural planting defining the sports fields to the north west. Facing south, a belt of ancient woodland screens the commercial premises beyond, and views south west are limited to the boundary of St Albans Girls School. Mid distance and distance views are possible from within the site to open countryside to the north and east, above and beyond field boundaries and the embankment of the rail line which bounds the east of the site. Isolated properties are visible at distance and these receptors and sections of Public Rights of Way within the vicinity would appreciate change within any view.

4.33 A single grade II* and a number of grade II Listed Buildings lie within a 2km radius of the site. The site does not contribute to the setting of any of these buildings. An ancient woodland is designated within the southern boundary of the Site. Two Scheduled Ancient Monuments (SAMs) are found within the vicinity of the Site. The Iron Age territorial boundary known as Beech Bottom Dyke lies approximately 500m south of the Site, and Batch Wood, a moated manorial site is located approximately 1.4km to the west. Three Conservation Areas lie within 2.5km of the Site, within Chidwickbury, the north of St Albans and Sandridge. There are Public Rights of Way that offer an extensive network within the context of the Site. The most significant to this study is St Albans City 096, which runs along the southern Site boundary and connects with Sandridgebury Lane to the north and Valley Road to the South.

Assessment Methodology

4.34 The methodology for this assessment combines the collection and analysis of baseline information, desk study and field survey. Potential landscape and visual effects will be identified and assessed, and specific measures designed to either avoid or mitigate significant effects, these may include enhancements to the existing landscape which would then form an integral part of the proposed development. The resulting overall effect will be described whether beneficial or adverse.

4.35 Landscape and visual effects will be assessed both at year one and in the longer term, when the structural planting proposed as part of the proposed development has matured. For assessment of the long-term effects of the completed scheme, it has been assumed that there will be fifteen years growth for proposed structural planting. The proposed viewpoints for the assessment are shown at *Appendix 5*.

4.36 The landscape character and visual impact assessment of the proposed development will be conducted in accordance with Guidelines for Landscape and Visual Impact Assessment, third edition (GLVIA3), published by the Landscape Institute and the Institute of Environmental Management and Assessment, in 2013. In summary the GLVIA3 states:

"Landscape and Visual Impact Assessment (LVIA), is a tool used to identify and assess the significance of and the effects of change resulting from development on both landscape as an environmental resource in its own right and on people's views and visual amenity."

4.37 There are two components of an LVIA:

a) Assessment of landscape effects; assessing effects on the landscape as a resource in its own right; and

b) Assessment of visual effects; assessing effects on specific views and on the general visual amenity experienced by people.

4.38 These two elements will be described separately in the ES chapter.

Landscape Character

4.39 The landscape context of the project will be evaluated at two levels. The first by reference to the following previously published assessments of the area:

a) The "Character Map of England" published by Natural England (formerly the Countryside Agency) (1999) – Area 110 Chilterns and Area 111 Northern Thames Basin; and,

b) Hertfordshire District and Borough Local Character Areas.

4.40 The second through a detailed assessment of the area's character.

Visual Resources

4.41 The interaction of urban fabric, vegetation and topography determines the potential for views across the study area. Receptors encompass residents, users of rights of way, open spaces and recreational facilities, views from highways and people at work. In overall terms, the first two categories are generally of higher sensitivity than the latter two, although the context of individual receptors can have a bearing on sensitivity.

4.42 A series of representative viewpoints will be selected to illustrate the varying degrees of visibility across the study area and the potential effect on receptors; these are shown at *Appendix 5*.

4.43 The assessment of effects will consider the likely significant direct and indirect effects of the proposed development including mitigation measures during the construction and operation phases.

4.44 Landscape and visual effects are assessed through professional judgements based upon the sensitivity of the existing landscape elements, character, visual receptors and representative viewpoints combined with the predicted magnitude of change arising from the proposed development.

Potential Mitigation

4.45 The project has and continues to develop and evolve in response to baseline environmental surveys and assessments and the resulting identification of opportunities and constraints.

4.46 Although much of the Site area is currently utilised as intensive arable farmland, there are areas of local character and features which are of value to be protected and enhanced. In addition, comprehensive Green Infrastructure (GI) will be introduced to assimilate the built development into its surroundings, whilst providing robust screening from sensitive viewpoints, important and high-quality open amenity space and an attractive setting to the proposals. In addition, this positive framework will accommodate circulation for sustainable modes of transport, interconnected wildlife corridors, and opportunities for Sustainable Drainage Systems. These are inherent mitigation measures that will minimise harmful effects on landscape elements, landscape character and visual amenity.

Relevant Consultation

4.47 In preparing the Masterplan in 2019/2020 with the LPA potential landscape and visual effects and viewpoints were considered with the Council's appointed consultants. In order to undertake the assessment, St Albans City & District Council will be consulted with regard to the extent of the proposed study area and representative viewpoint locations.

AGRICULTURE AND SOILS

4.48 This Chapter of the ES will consider the effects of the proposed development on agricultural land quality and farming circumstances.

Potential Environmental Effect

4.49 The proposed development will result in the loss of agricultural land and could potentially affect farming practices of the tenant farmer.

Baseline

4.50 The Site comprises undeveloped land used primarily for arable. Defra's Agricultural Land Classification identifies the site as comprising predominantly Grade 3a land with a smaller area of Grade 3b and non-agricultural land. Subgrade 3a is classified in the follow terms "*Good quality agricultural land. Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops*". This is considered to be best and most versatile agricultural land. Reading Agriculture has prepared an

Agricultural Land Classification and Soil Resources Report in 2022 which identified grades 3a and 3b within the Site.

Assessment Methodology

4.51 The soil characteristics and agricultural land classification will be explained. This will identify the quality of the soil resource in general and the extent to which Best and Most Versatile Agricultural Land is present.

4.52 The Assessment will, by reference to published Agricultural Land Classification data, establish the distribution of agricultural grades across the Site and determine the significance of any loss in best and most versatile agricultural land. Data from field evaluation may also be used to provide a detailed agricultural land classification. Topographical and climactic conditions may also be considered to determine the extent to which there are limiting factors to the use of the agricultural land.

4.53 Interviews with the persons who farm the land concerned will also be undertaken to determine the importance of the Site to their farming operations.

4.54 There is no standard guidance or assessment methodology for assessing the effects on agricultural receptors and this requires professional judgement. Land resources are however considered to be of 'high' sensitivity. The magnitude of the loss of agricultural land will depend on the extent to which the proposed development will lead to a direct loss of Best and Most Versatile Agricultural Land.

4.55 The general approach is that the magnitude of loss of more the 50ha of BMV is considered to be 'high', between 20ha-50ha is 'medium', less than 20ha is 'low' and where there is no permanent effect on BMV the change is 'negligible'.

Potential Mitigation

4.56 It is not possible to mitigate the impact of the loss of soils or agricultural land, although soils handling, and conservation measures may be appropriate and could be secured by way of planning condition. The need for such measures will be considered in the context of the characteristics of the soil resource and significance of the effects on soils and agricultural land.

Relevant Consultation

4.57 In undertaking the assessment, resources held by the Department for Environment, Food and Rural Affairs will be used including MAFF ALC Survey. Information about the farming circumstances of the tenant farmer land will also be researched. Natural England may also be consulted.

HERITAGE AND ARCHAEOLOGY

4.58 The purpose of this ES Chapter is to identify and assess the likely significant effects of the Proposed development upon archaeology and built heritage.

Potential Environmental Effects

4.59 The potential effects of the proposed development on non-designated archaeology are the partial or total removal of archaeological features that may be present within the developable area of the site. This will result from the groundworks associated with the construction of roads, paths, foundations, services and other below ground aspects of the proposed development.

4.60 There are no designated heritage assets within the Site. Consequently, the proposed development will have no direct physical effect on designated heritage assets. There are a number of designated heritage assets within the wider environs of the Proposed Development. The Proposed development has the potential effect the setting of these designated assets which may lead to a loss to some of the significance of these assets through change within their setting.

Baseline

4.61 The site has been the subject of two historic environment desk-based assessments by Orion Heritage (2018 & 2019). The desk-based assessments concluded that based on the available HER data, that the Site contains no known non-designated heritage assets. However, there is potential for previously unrecorded buried remains to be present. Based on an assessment of available

evidence there is considered to be low-medium potential for prehistoric and Romano-British sub-surface archaeological evidence within the study site. There is considered low potential for significant remains from all other periods.

4.62 In 2019, Cotswold Archaeology undertook a systematic fieldwalking survey of the Site. The survey was undertaken across five fields totalling 60.73ha of which 47ha was surveyed. The survey recorded 70 sherds of pottery, eight fragments of iron and 2265 fragments of undiagnostic ceramic building material. No concentrations of material likely to be indicative of, or derived from sub-surface features were identified, and no lithics were recovered to suggest a continuation of Neolithic and Bronze Age flint scatters previously identified to the west of the site, at the former Cheapside Farm. Recovered flint comprised just four pieces, all subsequently determined to be unworked/ of natural origin. Only two sherds of pottery, one sherd of locally produced Roman pottery and a single sherd of Midlands purple ware, of broad late 14th to 16th century date, were of archaeological significance. Both of these sherds are likely to have derived from manuring processes. The remaining pottery was of later post-medieval and modern date (18th to 20th century) and, as with the other material recovered, is again almost certainly derived from manuring processes.

4.63 There are two scheduled monuments within 1km radius of the Site. These are Batch Wood, Moated Manorial Site (NHLE 1012407), 800m west of the study site and the Iron Age Territorial Boundary known as Beech Bottom Dyke (NHLE 1019136), c. 250m south of the study site.

4.64 There are a total of twenty grade II listed buildings and one Conservation Area are recorded within 1km of the Site. This includes ten listed buildings at Childwick Green (including Childwick Lodge), c. 850m north-northwest of the Site, eight listed buildings at Childwick Bury House c. 900m north-west of the Site and two listed buildings associated with Sandridgebury, c. 700m east of the Site boundary.

Assessment Methodology

4.65 An Historic Environment Desk-Based Assessment (HEDBA) and fieldwalking survey have already been undertaken.

4.66 The following study areas have been chosen for the archaeological impact assessment and built heritage settings assessment. There are no strict parameters for the setting of study areas. This has been defined based on professional judgement, experience of potential significant direct and indirect effects likely to arise from the Proposed Development:

4.67 A 1km radius has been used in the HEDBA to identify designated and non-designated heritage assets which might be directly or indirectly impacted by the Proposed development and inform the potential for previously unrecorded archaeological remains.

4.68 The following data sources have been used in the compilation of the baseline data:

- *Hertfordshire Historic Environment Record (HHER).*
- *National Heritage List for England (NHLE).*
- *Areas of importance identified in local planning policy (Conservation Areas, Archaeological Notification Areas)*
- *Hertfordshire Archives and Local History*
- *The National Archives (TNA)*
- *The British Library (BL)*
- *Site inspection*
- *Map regression based on Ordnance Survey maps and tithe/enclosure maps and apportionments held online at the National Archives and the British Library*
- *Assessment of Lidar and aerial photography*
- *Published/unpublished sources*

4.69 A programme of archaeological evaluation will be undertaken, the scope of which will be agreed with St Albans District Council's Planning Archaeologist.

4.70 The assessment of likely significant effects on historic environment resources of the study site will be conducted in line with the latest and most comprehensive guidance provided. These documents do not provide a prescriptive approach to assessment but identify principles and good practice that have been applied in the methodology for the assessment:

- *Scheduled Monuments – Identifying, protecting, conserving and investigating nationally important archaeological sites under the Ancient Monuments and Archaeological Areas Act 1979 (Department for Digital, Culture, Media and Sport (DCMS) 2010)*
- *Scheduled Monuments & nationally important but non-scheduled monuments (DCMS 2013)*
- *Principles of Selection for Listing Buildings (DCMS 2018)*
- *Conservation Principles – Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage 2008)*
- *Design Manual for Roads and Bridges Volume 11; Section 3; Part 2 'Cultural Heritage' (DMRB) (Highways Agency 2019)*
- *Historic Environment Good Practice Advice in Planning Note Managing Significance in Decision-Taking in the Historic Environment (Historic England 2015)*
- *Historic Environment Good Practice Advice in Planning Note 3 The Setting of Heritage Assets (Historic England 2017)*
- *Seeing the History in the View – A Method for Assessing Heritage Significance in Views (Historic England 2011)*
- *Standard and Guidance for Historic Environment Desk-based Assessments (Institute for Archaeologists 2020)*

4.71 The results of the HEDBA have been used to assess construction and operational effects of the proposed development on archaeological and built heritage features against clearly defined criteria. The magnitude of change for heritage assets potentially affected by the proposed development will be considered in accordance with best practice and Historic England guidance (Historic England 2017).

4.72 The significance of an archaeological asset is assessed in terms of national, regional or local statutory or non-statutory protection and grading of the asset. For non-designated archaeological assets determination of significance will use the Secretary of State's non-statutory criteria and professional judgement.

4.73 The magnitude of impact / change is a product of the extent of development impact on an asset. Effects are rated as High, Medium, Low and Negligible/Neutral. Effects be direct or indirect, adverse or beneficial. The criteria for assessing the magnitude of impact are set out in **Error! Reference source not found.** of the HEDBA.

4.74 The significance of the impact of the proposed development on archaeological and heritage assets is determined by the significance of the asset and the magnitude of impact to the asset.

4.75 Once impacts have been identified, the means by which they can be avoided through design will be explored as a priority. If impacts cannot be avoided through design, then alternative strategies, which may include site investigation and recording, will be proposed. The residual impacts following the implementation of these measures will then be defined and significance criteria applied. All potential impacts and mitigation will be assessed against and informed by national and local planning guidance including the NPPF.

Potential Mitigation

4.76 Should the archaeological evaluation reveal the presence of archaeological remains within the developable area, a programme of archaeological investigation and recording will be agreed with St

Albans District Council's Planning Archaeologist. This will be secured by an appropriately worded planning condition.

Consultation

4.77 Consultation has already been undertaken with St Albans District Council's Planning Archaeologist. Further consultation will be undertaken ahead of and during the archaeological evaluation.

GROUND CONDITIONS

4.78 This Chapter of the ES will assess the geo-environmental characteristics of the Site and firstly the impact the proposed development will have on the ground conditions, and secondly the impact that the ground conditions will have on the proposed development. For this assessment, ground conditions are taken to comprise geology, hydrogeology (groundwater) and contamination.

Potential Environmental Effect

4.79 Potential impacts on ground conditions can involve the following:

a) Potential instigation of stability hazards, i.e., subsidence, landslide, as a result of earthworks and erection of permanent structures

b) Potential alteration of local groundwater conditions, i.e., drainage of shallow aquifer, modification of groundwater levels and flows, as a result of earthworks and subsurface structures

c) Potential creation or removal of pollutant linkages to pre-existing contamination i.e., mobilisation / exposure of contamination, new receptors (proposed residential / commercial usage), as a result of construction activities and change in land use

d) Potential creation of new contamination and adverse impact on ground conditions i.e., accidental spills, trafficking and earthworks damage, waste soils, as a result of construction activities

e) Potential loss of significant geological features and mineral resources as a result of physical changes at the site and serialisation of mineral resources beneath development

f) Potential degradation of buried concrete structures as a result of aggressive chemical ground conditions.

Baseline

4.80 A Preliminary Risk Assessment was undertaken by WSP in 2019. The site currently comprises a parcel of greenfield land that is used predominantly as agricultural land for grazing and crop growth, with an area in the west used as sports pitches for the neighbouring Woollam Playing Fields.

4.81 A review of the earliest available historical maps revealed the site to have been presumed agricultural land up to the present day (with the exception of the west which is in use as sports pitches). The surroundings comprise predominantly agricultural land with interspersed residential properties and commercial / industrial land. A railway is present adjacent to the eastern site boundary.

Contaminated Land Risk Assessment

4.82 Widespread contamination is not expected on the site based on the predominantly historical agricultural and recreational land use on-site, and predominant agricultural and residential land use off-site.

4.83 Contamination, if present, is likely to be localised and result from agricultural use (e.g., localised machinery fuel spills, use of herbicides/pesticides).

4.84 Off-site contamination from the neighbouring industrial estate is considered to be possible, but unlikely given the light industrial / warehousing use. Based on the available information and the proposed residential development, a low-risk classification has been determined with respect to contaminated land.

Preliminary Geotechnical Assessment

4.85 The main geotechnical hazards include the variability and presence of superficial deposits, potential high groundwater levels, variable superficial deposits, potential chalk solution features and shrinking / swelling clay.

4.86 Based on existing information, it is considered unlikely that the potential geotechnical hazards identified will represent a significant constraint to development of the site provided the characteristics of the ground are taken into consideration. Geotechnical risks are considered to represent a Low to Medium risk to the proposed development.

Assessment Methodology

4.87 The assessment of ground conditions in relation to the proposed development will be undertaken by reference to existing data and reports, including a desk study and the findings of a Preliminary Risk Assessment (WSP 2019).

4.88 Contamination at the site will be assessed through a process of risk assessment of the identified plausible contaminant linkages undertaken for the site in line with current legislation.

4.89 The assessment will take into consideration the sources of possible contamination risk and the presence of plausible pathways or receptors as outlined in Part 2A of the Environmental Protection Act 1990.

Potential Mitigation

4.90 Mitigation of construction impacts will depend on development and adherence to an effective Construction Environment Management Plan (CEMP) and Site Waste Management Plan (SWMP) that will ensure good practice and emphasise environmental protection.

Consultation

4.91 In preparing this assessment, the applicant will consult with the Council's environmental protection officer.

WATER RESOURCES

4.92 This Chapter of the ES will consider the likely potential effects of the proposed development on surface water, ground water, drainage, flood risk and water resources/supply in the context of the Site and surrounding area. Effects will be considered from both within the Site boundary and areas external to those being developed.

4.93 A Flood Risk Assessment (FRA) and Drainage Strategy (DS) will also be prepared.

Potential Environmental Effects

4.94 The proposed development has the potential to impact upon the existing water environment within the Site in terms of flood risk, hydrogeological impacts, ground conditions and water resources.

4.95 Any potential environmental effects to key sensitive receptors within the local water environment will be mitigated through implementing a sequential approach to development, directing all development to areas of lowest potential flood risk, and through implementation of sustainable drainage systems (SuDS).

Baseline

4.96 The following describes the baseline conditions that have been identified as part of this scoping assessment. Further parameters and conditions may come to light following further assessment once statutory consultations and site investigations have been undertaken as the scheme and EIA process is progressed.

Fluvial Sources

4.97 There are no watercourses located within the site or in the immediate vicinity. The nearest watercourse identified from Ordnance Survey mapping is the River Ver located 4.6km to the southwest of the site at its nearest point.

4.98 Given this, the site is wholly located within Flood Zone 1, according to the publicly available Flood Map for Planning which is land classified as having a less than 0.1% annual probability of river or sea flooding. According to Table 2 of the PPG all types of development are appropriate within Flood Zone 1[1] subject to the assessment of other types of flooding. As such, flood risk from fluvial sources may be considered to be low.

Surface Water Sources

4.99 The publicly available Long Term Flood Risk Information, Surface Water Flood Risk Mapping shows two corridors of surface water flood risk to flow across the site, generally in a west to east direction, which then collects and pools within the site against the railway embankment to the east of the site. Both corridors of surface water are shown to be of Low (between 0.1% and 1% probability) to High (greater than 3.3% probability) risk of flooding.

4.100 The mapping also shows an area of low surface water flood risk located within the north east corner of the site, which flows in a south easterly direction toward the same topographically low point against the railway embankment along the eastern boundary of the site.

Other Sources

4.101 No other sources of flood risk have been identified to affect the Site as part of this initial appraisal; however, as part of the FRA a comprehensive review of flood risk from all likely sources will be carried out.

Ground Conditions

4.102 Reference to British Geological Survey (BGS) Mapping[2] indicates that the Site is identified to be entirely underlain by a Bedrock geology of Kesgrave Catchment Subgroup - Sand and Gravel.

4.103 The Site is underlain by two types of superficial deposits. To the north, centre and south of the development, areas of Lewes Nodular Chalk Formation and Seaford Chalk Formation (Undifferentiated) - Chalk are situated. To the north and west of the Site, is a superficial geology of Clay with Flints Formation - Clay, Silt, Sand and Gravel.

Water Quality

4.104 The Site forms part of the *Upper* Colne and Ellen Brook Water Body catchment which falls within the Environment Agency's Thames River Basin District.

4.105 The *Upper Colne and Ellen Brook* Water Body has been classified overall as Moderate for 2019 (according to the Environment Agency's latest set of published results)[3]. The reasons it did not achieve 'Good' status include poor soil management by the agricultural industry, over abstraction of groundwater by the water industry, urban and highway runoff impacting on invertebrates, dissolved oxygen levels and macrophytes in addition to increased levels of phosphate Perfluorooctane Sulphonate (PFOS) and Polybrominated Diphenyl Ethers (PBDE).

Nutrient Neutrality

1 https://www.gov.uk/guidance/flood-risk-and-coastal-change#para77
2 https://mapapps2.bgs.ac.uk/geoindex/home.html
3 https://environment.data.gov.uk/catchment-planning/WaterBody/GB106039029820

4.106 According to Natural England's Nutrient Neutrality Site of Special Scientific Interest (SSSI) Mapping, the site is not affected by or fall within a designated site catchment that is subject to a nutrient neutrality strategy.

Water Resources

4.107 The Site falls within the Environment Agency's Colne Abstraction Licensing Strategy catchment. The Environment Agency's licensing strategy for this area sets out the level of water available for abstraction from natural resources (i.e., ground and surface waters) within this catchment and how these resources are managed for abstraction purposes.

4.108 This has identified that the site is in an area where the water from rivers and supporting watercourses is not available for further abstraction, even during high flows (Q30) winter conditions[4]. This is due to catchment flows being below the indicative requirement to help support a healthy ecology within the riverine system and achieve a Water Framework Directive (WFD) status of Good.

4.109 The license strategy document also reviews the resource availability of groundwater within the catchment, which the Environment Agency have assessed as having water available for consumptive (where water is not returned) abstraction for less than 30% of the time. This therefore presents an unreliable source of future water supply to potentially meet the demands of the proposed development, should there be a need for Affinity Water to increase their abstraction license permit for potable water supply purposes.

4.110 The Colne catchment falls within Affinity Water's Central Region according to their Water Resource Management Plan (2020)[5], a document that addresses the need to balance the availability of water supply with the demand for water from customers. To plan for the demands of population growth and climate change, whilst protecting the environment and improving resilience to drought conditions Affinity Water have set out several proposals and objectives to increase water supply within the Central Region. These measures generally include imports of water, building new reservoirs, reducing leakages and reducing water consumption to 110 to 120 litres per head per day by 2045, which should allow for future growth without the need to increase the abstraction of water from natural resources.

4.111 Given these potential measures being implemented to meet the demands of future growth, the Proposed development should not have an adverse impact on natural water resources within the catchment. However, it is recommended that water efficiency and reuse measures are adopted as part of the proposed development build along with implementing a sustainable water management system, where Sustainable Drainage Systems (SuDS), including rainwater harvesting, will be integrated throughout the development to minimise the dependency and usage of a potable mains supply.

Assessment Methodology

4.112 The potential impacts and significance of effects to key sensitive receptors within the local water environment will be considered during the construction and final operation of the development. In summary these include:

Construction

4.113 **Flood Risk:** Without appropriate mitigation the proposed development has the potential to have a significant adverse effect on flood risk during construction via site drainage and surface water runoff if not properly managed. Potential impacts on the quality of groundwater and flood risk within the site as well as surrounding land, as a result of site demolition and construction will be fully assessed, and appropriate mitigation measures proposed as part of a Construction Environmental Management Plan (CEMP).

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*4*https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/792685/Colne_Abstraction_Licensing_Strategy.pdf
5 https://www.affinitywater.co.uk/docs/Affinity_Water_Final_WRMP19_April_2020.pdf

4.114 **Controlled Waters:** Likely impacts to water resources during the construction phase of the development include accidental spillages of fuel oils, leaching of existing contamination, vehicle washdown, suspended solids in surface water runoff, etc. These potential impacts will be suitably mitigated for as part of a CEMP, Environmental Risk Assessment and Temporary Works Method Statements setting out Site-specific measures.

Operation

4.115 **Flood Risk:** Without appropriate mitigation, the final operation of the proposed development has the potential to have a significant adverse effect on flood risk. The proposed development will result in an increase in impermeable area and inherently alter the rainfall runoff relationship at the Site by increasing the rate and volume of surface water runoff. A Flood Risk Assessment, which will use freely available data to assess the level of flood risk to the proposed development and surrounding area, will be carried out to ensure that there are no adverse effects to the Site itself and surrounding area. This assessment and the design of any mitigation measure required will be carried out according to the latest climate change factors to ensure that the development remains safe from flood risk during its lifetime. As part of a site-specific drainage strategy, the proposed surface water drainage system will also be designed to ensure that the proposed development will sustainably manage the reuse and disposal of surface water, replicating the natural drainage system as closely as possible for the operational lifetime of the development.

4.116 **Controlled Waters:** During the operation of the development there is a potential for a long-term adverse effect on the quality of receiving ground and surface water due to the quality of surface water runoff from the proposed development it is not intercepted and treated before discharging to ground or surface water. The proposed surface water strategy will ensure that Sustainable Drainage Systems (SuDS) are utilised as part of the overall surface water drainage system, offering a treatment train approach where possible. Such systems will be designed not only to reduce flood risk, but also improve the water quality of surface water runoff discharged from the Site, providing areas of biodiversity and amenity for the local area as an additional benefit.

4.117 Due to the water stressed nature of the natural catchment supporting water supply within the Colne catchment, the proposed development will seek to adopt water efficient and reuse measures to minimise the dependency and usage of a potable mains supply and align with Affinity Water's targets.

Potential Mitigation

4.118 The proposed development will implement a sequential approach to development, directing all development to areas of lowest potential flood risk. Further measures will be implemented to minimise the potential effects of the proposed development on local sensitive water resources in terms of water quality, flood risk and availability. These may include, but are not exclusive to, use of sustainable drainage systems (SuDS), incorporation of green-blue infrastructure and raising finished floor levels.

Consultation

4.119 Consultation will be undertaken with statutory authorities such as the Lead Local Flood Authority (LLFA), Environment Agency (EA), Affinity Water (AW), Thames Water (TW) and St Albans City and District Council (SADC) where required.

SOCIO-ECONOMIC

4.120 A Socio-Economic Impact Assessment will be completed as part of the EIA, which will consider the likely effects of the proposed development on human beings and local communities.

Potential Environmental Effect

4.121 The Proposed development will have potential effects on human beings both in the construction phase and once occupied. These comprise direct and indirect economic impacts and expenditure impacts; demographic impacts; impacts on housing; impacts on other local services such as education, healthcare, retail, recreation provision.

4.122 Occupants of nearby residential properties and users of the public right of way may experience changes in views and will potentially experience changes in the noise environment and air pollution as a result of increased traffic on the local highway network. These effects will be considered in different environmental topic chapters.

Baseline

4.123 There are no dwellings within the Site, albeit residential properties along Harpenden Road and Sandridgebury Lane are within close proximity to it. Employment is associated with the Site's agricultural use. Approximately 3 hectares of the Site are currently used as playing fields associated with Old Albanians Sport Association. Local facilities close to the site include employment at Porter Wood Industrial Estate, local convenience store, schools, healthcare facilities and areas of open space. The Local Plan Policies Map identified no.126 Harpenden Road within the Broad Location and is to be demolished to provide access to the Sewell Trust land.

Assessment Methodology

4.124 The socio-economic assessment will consider the principal changes to the circumstances of the existing and proposed communities. The following will be considered: population; housing; economic activity and employment; education; health; recreation; retail and emergency services.

4.125 Data and information will be compiled in relation to population data sets and projections, labour market; business and economic forecasts; housing market and household projections, house prices, housing needs; local school capacity, number on roll and forecasts; health data and general practice facilities in the area, supplemented by Clinical Commissioning Group data; mapping of social and community infrastructure.

4.126 There is no standard methodology for undertaking an assessment of the significance of effects on the above socio-economic receptors. In certain areas planning policy or guidance provides qualitative and quantitative measures to determine requirements and in other respects professional judgment is required. A Health Impact Assessment will accompany the planning application to reflect Hertfordshire County Council guidance.

Potential Mitigation

4.127 The proposed development will provide community infrastructure to support the new resident population. A new two form entry primary school is also to be provided. Similarly, open space will be provided as part of the development. Such provision will comprise inherent mitigation. Other community infrastructure may be necessary and is usually funded by financial contributions as a planning obligation in a Section 106 Agreement where they are necessary, directly related to the proposed development and fair and reasonable. The LPA has not yet introduced a Community Infrastructure Levy.

Relevant Consultation

4.128 It is intended that the following organisations will be consulted in the preparation of the socio-economic impact: St Albans City and District Council, Hertfordshire County Council and Parish Councils, Herts Valley Clinical Commissioning Group and emergency services.

WASTE AND MATERIAL ASSETS

4.129 This Chapter of the ES will assess the impacts and effects from the consumption of material resources, and the generation and disposal of waste, arising from the proposed development.

Potential Environmental Effects

4.130 Construction activities will consume natural and non-renewable resources. This has the potential to deplete or degrade such resources.

4.131 The proposed development will also generate waste in the construction and operational phases that requires disposal. This has the potential to consume waste management capacity and degrade the natural environment.

Baseline

4.132 Given that activity associated with the Site is limited mainly to agricultural practices, minimal waste arising, and resource consumption occurs.

Assessment Methodology

4.133 The Institute of Environmental Management and Assessment (IEMA) Guide to Materials and Waste in Environmental Impact Assessment (April 2020) will be used to assess the potential effects from the proposed development using the process and significance criteria it sets out.

Potential Mitigation

4.134 Measures to minimise these adverse effects are commonplace in the construction industry and will be regulated by the preparation and operation of a Construction Environment Management Plan and Site Waste Management Plan which can be secured as planning conditions.

4.135 The proposed development will also be designed so that it incorporates space for the storage and collection of waste to encourage residents and operators to segregate waste at its source and in turn will help to increase recycling rates.

Consultation

4.136 Hertfordshire County Council as the waste authority will be consulted in the preparation of this assessment.

CLIMATE CHANGE

4.137 This Chapter of the ES will provide an assessment of likely significant effects with regards to climate change mitigation and adaptation.

4.138 The UK Climate Change Projections (UKCP18)[6] set out that climate change is projected to lead to increasing temperatures, decreasing summer rainfall and increasing winter rainfall as a result of increasing global Greenhouse Gas (GHG) emissions. This applies to the UK, including the Site.

4.139 In this context, the EIA Regulations require the consideration of Climate Change, including the resilience of development to the effects of climate change, and how development mitigates its impact on climate change through reduced GHG emissions.

4.140 IEMA has prepared guidance for EIA practitioners for both Climate Change Adaptation[7] and Mitigation[8], both of which have been used to inform the appraisal below.

Green House Gas Emissions

4.141 This section of the Chapter will provide an assessment of the likely significant effects of the proposed development on greenhouse gas (GHG) emissions arising from activities and traffic associated with both the construction and operational phases. It aims to provide quantification of likely GHG emissions associated with the proposed development.

Potential Environmental Effects

4.142 The proposed development will give rise to various sources of GHG emissions across the project's lifecycle stages, namely:

a. product stage (the manufacture and transport of construction materials),

b. the operation of plant and equipment during the construction phase),

c. transport and disposal of waste from construction activities,

d. land use change

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6 https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/index
7 IEMA (2020). EIA Guide to: Climate Change Resilience and Adaptation.
8 IEMA (2022). EIA Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance.

e. maintenance, repair, replacement and refurbishment

f. operational energy

g. operation water use

h. end-user emissions

i. decommissioning and disposal

4.143 Based on professional judgement in the context of the development proposed it is not intended to assess matters, (c), (e) and (i) as the likely emissions effects are not considered to be large (c), the effects are not a significant component of the operational phase (e), or the stages are so far in the future there is insufficient certainty to determine the likely effects (i).

Baseline

4.144 Current baseline conditions regarding greenhouse gas (GHG) emissions have been established at the local authority (St Albans), county (Hertfordshire) and regional (East of England) levels from the latest (2021) UK Government local authority and regional carbon dioxide emissions national Assessment Methodology

4.145 statistics: 2005 to 2021[9]. The Site is predominantly arable agricultural land and, for the purposes of the GHG emissions assessment, baseline GHG emissions / sequestration are assumed to be zero to provide a worst-case scenario for assessment. This current baseline GHG information is presented in Table 4.1.

TABLE 4.1 CURRENT BASELINE (2021) GHG EMISSIONS

GEOGRAPHIC LEVEL	BASELINE GHG EMISSIONS (KILO-TONNES CO_2E)
Site	0.00 (assumed)
St Albans	896.7
Hertfordshire	5,967.4
East of England	38,062.6

4.146 Future baseline conditions regarding GHG emissions have also been established in the form of carbon budgets proposed for St Albans (from *Tyndall Centre's Setting Climate Commitments for East of England June 2023*[10] and UK (from the *Committee on Climate Change: Advice on reducing the UK's emissions*[11] as shown in Table 4.2.

9 BEIS (2023). UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2021. Available at: https://www.gov.uk/government/statistics/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics-2005-to-2021

10 Tyndall Centre (2023). Setting Climate Commitments for St Helens. Available at: https://carbonbudget.manchester.ac.uk/reports/E08000013/

11 Committee on Climate Change. Advice on reducing the UK's emissions. Available at: https://www.theccc.org.uk/about/our-expertise/advice-on-reducing-the-uks-emissions/

TABLE 4.2 ST ALBANS AND UK CARBON BUDGETS

PERIOD	BASELINE GHG EMISSIONS (KILO-TONNES CO_2E)	
	St Albans	**UK**
2023-2027	1,900.000	1,950,000
2028-2032	900.000	1,725,000
2033-2037	400.000	965,000
2038-2042	200.000	Not yet set
2043-2047	100.000	Not yet set
2048-2100	100.000	Not yet set

4.147 The above current and future baseline conditions regarding GHG emissions will be used to contextualise GHG emissions / savings calculated from the Proposed Scheme in order to establish the magnitude of its net GHG effect.

Assessment Methodology

4.148 The GHG emissions arising from the construction and operation of the building in the Proposed Scheme will be estimated, their magnitude assessed in the context of baseline emissions and future carbon budgets, and the contribution of the Proposed Scheme to the UK's science-based 1.5°C aligned net zero 2050 trajectory appraised in accordance with IEMA's EIA Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022)[12].

4.149 The assessment of the construction phase will be based on information from the design team in combination with consideration of appropriate good practice guidelines and benchmarks. The operational phase will comprise emissions from the occupation or operation of the dwellings and other buildings to be constructed. Information regarding future energy consumption from the Energy Strategy will be used to determine the effects of the operational phase of the development and increases in emissions.

4.150 The assessment of likely significant effects to sensitive receptors will consider the sensitivity of the receptor (on a scale of high, medium, low and negligible), the magnitude of change (on a scale of large, medium, small and negligible), the level of effect on a scale of major, moderate, minor and negligible. Significant effects will be determined from this evaluation, whether the Proposed Scheme makes an appropriate contribution to the UK's net zero trajectory, and also professional judgment.

Consultation

4.151 In preparing this assessment the Applicants will consult with the Council's Sustainability Project Officer, Hertfordshire Climate Change and Sustainability Partnership.

Climate Change - Adaptation

4.152 This section of the Chapter reports the outcome of the assessment of likely significant effects of climate change on the proposed development.

4.153 Climate resilience is different to most other environmental disciplines, including the assessment of GHG emissions, in that it is the potential effects of the environment (future climatic conditions) on the proposed development that is being assessed rather than the effects of the proposed development on the environment. In the case of climate resilience, climate is part of the context in

12 IEMA (2022). EIA Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance

which the proposed development exists, rather than a receptor. The proposed development and its components are the receptor as it is affected by climate.

Potential Environmental Effects

4.154 The UK Climate Projections provide guidance on the anticipated effects of climate change. Using these projections, the UK Climate Change Risk Assessment (UKCCRA)[13], updated in 2022, identifies potential risks and impacts of climate change across a number of areas including Infrastructure, Health, communities and the Built Environment. Key risks from the UKCCRA which potentially relate to the Proposed Scheme are summarised below.

- *N1 – Risks to species and habitats from climate change;*
- *I2 – Risks for infrastructure from flooding;*
- *I7 – Risks to infrastructure from subsidence;*
- *H1 – Risks to health and wellbeing form high temperatures;*
- *H3 – Risks to people, communities and buildings from flooding;*
- *H5 – Risks to building fabric;*
- *H10 – Risks to water quality and household water supplies;*
- *B1 – Risks to businesses from flooding;*
- *B3 – Risks to business from water scarcity; and*
- *B5 – Risks to business operations due to high* temperatures.

4.155 Based on the Climate Projections and risks from the UKCCRA, key likely receptors to be impacted by climate change include:

- ***Construction Employees*** *and* ***Site Users*** *may be impacted due to overheating from increasing temperatures;*
- *Site* ***Infrastructure*** *may be impacted due to changing ground conditions and as a result of increased rainfall and flood risk;*
- ***Construction Operations*** *may be impacted by changing weather patterns leading to risks of flooding, pollution and impacts on* ***Air Quality*** *from increasing temperature sand dry weather;*
- ***Site Habitats and Species*** *impacted by changing climate space; and*
- ***Site Operations, Infrastructure and foundations*** *and* ***Site Users*** *may be impacted by decreasing summer rainfall and water availability, as well as increased risks of flooding due to increasing winter rainfall.*

4.156 The UK climate projections (UKCP18) are dependent on future GHG emission assumptions. UKCP18 uses scenarios for future GHGs that are based on assumptions on future population, economic development and the mitigation of GHG emissions towards international targets. The real world may follow a different pathway altogether and the scientific community cannot reliably place probabilities on which scenario of GHG emissions is most likely. For the purposes of scoping the 2080s RCP8.5 scenario has been considered as a worst case.

Baseline

4.157 Current baseline climate conditions for the Site have been established from the Met Office's closest automatic weather station at Rothamsted[14], approximately 8km to the north of St Albans. The data

13 https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-2022.
14 Rothamsted (Hertfordshire) UK climate averages - Met Office

provides average monthly conditions for the 1991 – 2010 period summarised in Table 4.3 below to show summer maximum temperature and summer and winter rainfall.

TABLE 4.3 CURRENT CLIMATE BASELINE

DESCRIPTION	TEMPERATURE / RAINFALL
Summer temperature	20.8°C
Annual temperature	14.3°C
Winter rainfall	60mm / month
Summer rainfall	55mm / month

4.158 Future baseline climate conditions for the Site have been established from the Met Office's latest climate projections UKCP18 for the 25km OS grid square within which the Site is located (515364, 209858).

4.159 The projections comprise forecast changes relative to the 1991 – 2010 baseline conditions for annual and seasonal temperatures and rainfall, as well as sea level rise and wind speed. In accordance with IEMA guidance, projections are taken from the "high" emissions scenario (known as "RCP8.5"), 50th percentile (i.e. median) scenario for the 2030s (construction stage) and 2080s (operational Proposed Scheme).

4.160 Projected changes to seasonal and annual temperature and rainfall relative to 1991 – 2010 conditions which could result in severe weather effects such as droughts, floods and heat waves are provided in Table 4.4.

TABLE 4.4 FUTURE CLIMATE BASELINE

DESCRIPTION	TEMPERATURE / RAINFALL BASELINE	2020 - CHANGE TO BASELINE	2020 - FUTURE BASELINE TEMPERATURE / RAINFALL	2050 - CHANGE TO BASELINE	2050 - FUTURE BASELINE TEMPERATURE / RAINFALL
Summer maximum temperature (°C)	21	1.16	22.2	2.88	23.9
Annual temperature (°C)	14.3	0.8	15.1	1.98	16.3
Winter rainfall (mm per month)	74	5.27%	77.9	9%	80.8
Summer rainfall (mm per month)	58	-3.36%	56.1	-16%	48.5

Assessment Methodology

4.161 The following approach is proposed for the climate change resilient assessment in accordance IEMAs EIA Guide to Climate Change Adaptation & Resilience (2020).

- *Confirm the baseline climate conditions (e.g. monthly and annual average temperature and rainfall) for the Site area from long term monitoring data from the closest Met Office automatic weather station.*

- *Review the Met Office's latest climate projections (UKCP18) r the Site area to establish predicted changes to baseline temperature, rainfall and sea level for the 2020s (construction period) and 2050s (future operational period) under the "high emissions scenario" (RCP8.5) in accordance with IEMA's guidance.*
- *Liaise with consultants and prepare a Climate Change Resilience Briefing Note to ensure the UKCP18 projections are appropriately considered as part of other technical work carried out to support the Proposed Scheme; for example, consultants assessing flood risk.*

4.162 The climate resilience assessment will consider the construction and operational phases of the Proposed Development.

4.163 The susceptibility and vulnerability of identified receptors to changes in climatic conditions will be set out. The combination of susceptibility and vulnerability along with the value or importance of the receptor will be used to determine its sensitivity to change.

4.164 The magnitude of change experienced by the identified receptors will then be determined having regard to the probability of the effect occurring and the consequence of that effect (i.e., the degree of harm that will be caused). Measures to mitigate or adapt to the potential impacts of climate change should be considered within the assessment of magnitude.

4.165 Once the sensitivity and magnitude have been determined, these would be combined to reach an overall judgement on the significance of the likely environmental effect.

Consultation

4.166 In preparing this assessment the Applicants will consult with the Council's Sustainability Project Officer, Hertfordshire Climate Change and Sustainability Partnership

TRAFFIC AND MOVEMENT

4.167 This Chapter of the ES will consider the transport and accessibility effects of the proposed development. It will be prepared in conjunction with a Transport Assessment (TA) and a Framework Travel Plan (FTP).

Potential Environmental Effects

4.168 Transport related impacts of the proposed development include changes in traffic volumes, journey distance, junction priority or operation, speed limits, public transport services, location of interchanges, space for transport users, accessibility to jobs and services and any resulting changes in air quality, noise and vibration.

4.169 Occupants of the future development will give rise to an increase in walking, cycling and car trips and generate demand for public transport. Additional car trips on the local highway network can be expected which could adversely affect its safe and efficient operation.

4.170 Existing walking and cycling infrastructure and bus services will need to cater for new residents and this could indicate the need to improve such facilities and services in order to encourage such modes of travel.

4.171 The proposed development could also affect Footpath 96 which adjoins the site's eastern and southern boundaries.

Baseline

4.172 The Site adjoins Harpenden Road, Sandridgebury Lane and Valley Road. Harpenden Lane is an arterial route connecting St Albans City Centre to Harpenden to the north. It is a single carriageway road subject to a 30mph speed limit with footways and on occasion cycleways. Pedestrian crossings are situated at various points. Existing residential properties access directly on to the carriageway. It also functions as a bus corridor. Sandridgebury Lane and Valley Road are rural lanes with only limited lengths of footways and is adjoined principally by hedgerows. Sandridgebury Lane serves a small number of residential properties at its western end.

4.173 Through discussions with Hertfordshire County Council as the local highway authority, traffic survey information has been agreed and collected on local routes and junctions. The scope of the proposed Transport Assessment has been submitted to HCC for its consideration. For completeness of copy of this is included at *Appendix 6*.

Assessment Methodology

4.174 The Transport Assessment to be undertaken will determine the link sensitivity and junction capacity within the study area and then the effect of additional or different traffic movements on the local highway network during AM and PM peak periods. Where necessary and appropriate improvements will be designed to mitigate the impact of the development on the local network. This will be accompanied by a Travel Plan/Travel Demand Management Strategy to encourage the uptake of sustainable travel modes and reduce reliance on private car travel.

4.175 In accordance with Institute of Environmental Management and Assessment (IEMA) guidelines entitled 'Guidance for Environmental Assessment of Traffic and Movement' (2023), the EIA will consider the following potential effects using the benchmarks set out in the guidance:

i) severance;

ii) driver delay;

iii) pedestrian delay (incorporating all non-motorised users);

iv) non-motorised user amenity;

v) fear and intimidation;

vi) road safety; and

vii) hazardous loads/large loads (if applicable).

4.176 This will be undertaken both in respect of construction and also the operational phase of the development.

Potential Mitigation

4.177 Subject to the assessment of additional or different traffic movements, interventions may be necessary. This could be in the form of improvements to pedestrian, cycle or infrastructure and / or public transport, and potentially highway improvements to links or junctions. Measures within the Travel Plan will also be relevant in influencing modal shift.

Relevant Consultation

4.178 This assessment and development of proposed improvements and mitigation measures for the walking, cycling, public transport and highway networks will be undertaken in consultation with Hertfordshire County Council as the local highway authority. Public Transport providers will also be contacted to discuss the bus service strategy.

NOISE AND VIBRATION

4.179 This Chapter of the ES will assess potential impacts with regards to noise and vibration that may occur during the construction and operation of the Proposed Development, potentially affecting the (human) receptors of both the Proposed development (once occupied) and existing premises.

Potential Environmental Effects

4.180 The potentially significant noise effects associated with the Proposed development are summarised as follows:

a) Existing (neighbouring) occupants could experience noise effects during the various construction works associated with the clearance of the site and the construction of the new surfaces and structures.

b) Future occupants of the proposed development could experience noise effects because of the current or changed noise environment on the site, with the traffic movements and the rail line being the primary source of noise locally.

c) Existing occupants could experience noise effects once the proposed development is operational due to increases in traffic flows on local roads.

d) Existing and future occupants could experience noise effects once the Proposed development is operational due to new sources of buildings services noise that may be associated with the retail, commercial or educational elements of the Proposed Development.

Baseline

4.181 It is expected that the Site and surrounding area is dominated by road traffic noise from the A1081 Harpenden Road, the railway line to the east, and, on occasion, from sports activities at Woollam Playing Fields. Other potential sources of noise are the playing fields associated with St. Albans Girls' School, and Porters Wood Industrial Estate.

4.182 Noise surveys at locations representative of the nearest existing sensitive receptors and at locations of the proposed new buildings will inform the baseline description of the noise environment.

4.183 It is expected that any changes to the baseline conditions in the future (not related to the proposed development) will be limited. Changes are most likely to occur in terms of road traffic flows, which will be taken into account as part of the assessment.

4.184 On account of any dwellings associated with the proposed development being set-back from the railway, by at least 30 m, it is expected that any vibration from the railway line will not be a significant issue.

4.185 The potentially significant vibration effects associated with the proposed development are considered limited to one or two elements of the construction works that could affect existing occupants. In the absence of the need for demolition or piling, the most significant construction activity in terms of vibration is anticipated to be the potential use of vibratory rollers during soil compaction.

Sensitive Receptors

4.186 The existing noise- (and vibration-) sensitive receptors are considered to be:

a) The occupants of dwellings along any roads likely to be subject to potentially significant increases in traffic flow.

b) The occupants of dwellings surrounding the site, including those on Harpenden Road; Petersfield; and Sandridgebury Lane.

c) The occupants of St Albans Girls' School.

4.187 The sensitive receptors associated with the Proposed development are taken to be:

a) The occupants of the proposed dwellings (with effects in gardens and habitable rooms to be considered).

b) The occupants of the proposed school (with effects in outdoor teaching areas and classrooms to be considered).

Assessment Methodology

4.188 Relevant legislation, policy and guidance to the assessment of noise and vibration are listed below:

a) Control of Pollution Act 1974, Part III;

b) Environmental Protection Act (1990);

c) National Planning Policy Framework (NPPF) (2021);

d) Planning Practice Guidance on Noise (PPGN) (2014);

e) Noise Policy Statement for England (NPSE) (2010);

f) The District Local Plan Review 1994, St Albans City & District Council (1994)

g) The District Local Plan Review – Saved Policies, St Albans City & District Council (2009)

h) New Local Plan, St Albans City & District Council (Due March 2019)

i) BS 5228 'Code of practice for noise and vibration control on construction and open sites – Part 1: Noise & Part 2: Vibration' (2014);

j) Calculation of Road Traffic Noise (CRTN), Department of Transport and Welsh Office (1988);

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

l) BS 4142 'Methods for rating and assessing industrial and commercial sound' (2014);

m) BS 8233 'Guidance on sound insulation and noise reduction for buildings' (2014);

n) Guidelines for Community Noise, World Health Organization (WHO) (2000);

o) Professional Practice Guidance on Planning & Noise New Residential Development (ProPG: Planning & Noise), Working Group consisting of representatives of the Association of Noise Consultants (ANC), Institute of Acoustics (IOA) and Chartered Institute of Environmental Health (CIEH) (2017);

p) Acoustics Ventilation and Overheating Residential Design Guide Draft for consultation, Association of Noise Consultants (ANC) (2018);

q) BS 6472-1 'Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting' (2008); and

4.189 The assessment of noise and vibration effects arising during the demolition and construction phases of the Proposed development will be undertaken in accordance with the methodologies outlined in BS 5228:2009+A1:2014 Parts 1 and 2. Existing ambient noise levels for the identified receptors will be determined based on the baseline survey data, which will be used to inform the assessment criteria.

4.190 The change in road traffic sound from the surrounding roads as a result of the operation of the Proposed development will be predicted using the methodology contained in the CRTN. The significance of predicted changes will be determined using the magnitude of impact scales contained in HD 213/11 of the DMRB.

4.191 In terms of the operation of any fixed/ building services plant associated with the Proposed Development, noise emission limits will be determined in accordance with the guidance in BS 4142:2014 and any other relevant criteria adopted by the Council. As a minimum, the aim will be that rating levels (i.e. the cumulative sound from the plant including any appropriate correction for acoustic/ noticeable characteristics) do not exceed representative background sound levels outside the nearest dwellings.

4.192 The background sound levels will be determined using the results of the baseline survey; in particular, the lowest of the most regularly occurring $L_{AF90,15m}$ levels for the daytime, evening and night-time periods.

4.193 The assessment of the suitability of the Site for residential and educational use will draw upon the results from the baseline noise survey and will consider the constraints placed upon the noise-sensitive external and internal spaces by road and railway sources, as well as any other potentially significant sources identified. The aim will be to avoid basing the assessment on the highest measured, worst-case conditions, but to determine what could be considered to best account for the typical conditions.

4.194 The road and rail noise distribution across the Site will be modelled using a proprietary computer software package. The model will be validated against the baseline survey results, with corrections made to the road traffic noise levels to reflect future conditions, where necessary.

4.195 The assessment will be guided by the NPPF, PPGN and NPSE, but primarily by BS 8233:2014 and the ProPG: Planning & Noise, and any other relevant criteria adopted by the Council.

Potential Mitigation

4.196 The need for, and extent of, mitigation measures will depend on the findings of the noise and vibration assessments. Consequently, measures to prevent, reduce and offset any adverse effects will be determined through the EIA process.

4.197 The construction works will primarily be controlled by the adoption of Best Practical Means (BPM), as defined under Section 72 of the Control of Pollution Act (CoPA) 1974. Where, despite this, significant effects remain possible, the use of measures such as localized acoustic screens and/or reduced working hours would be recommended.

4.198 The effect of noise upon the sensitive elements of the Proposed development will likely be controlled by a number of means, with the aim of good acoustic and sustainable design. Such as the use of:

a) set-back distances;

b) acoustic screens, in the form of fences and/or earth bunds;

c) internal layouts that place windows to habitable rooms/classrooms away from the source of noise;

d) dual aspect spaces, whereby a second window is located away from the source of noise that can be used for ventilation/cooling purposes; and/or

e) suitable specifications of glazing and ventilation units.

4.199 It should be noted that any mitigation measures presented in the noise and vibration ES chapter will be outline in nature, with final specifications subject to detailed design, where necessary.

Consultation

4.200 Subject to the level and type of response to this Scoping Report, consultation will be undertaken with the Council's Environmental Health Department to identify any particular areas of concern the Council may have. Relevant policies and guidelines will be agreed, with due consideration given to the NPPF, the PPGN and the NPSE.

AIR QUALITY

4.201 This Chapter of the ES will assess potential impacts of the proposed development on air quality.

Potential Environmental Effects

4.202 Potential changes in air quality will arise firstly during the construction phase as a result of such activities, and then in the operational phase as a result of vehicular traffic generated by the development, which has the potential to increase local levels of Particulate Matter (PM_{10} and $PM_{2.5}$) and NO_2. This could adversely affect air quality at potentially sensitive receptors local to the site and within the existing.

Baseline

4.203 Baseline air quality would be established from a review of existing monitoring data and the predicted background data provided by Defra.

4.204 The existing air quality at the Sites is be expected to be good. The main source of local air pollutants would be road traffic using local roads.

4.205 There is an Air Quality Management Area (AQMA) within St Albans centered on the junction of London Road and Holywell Hill where levels of Particulate Matter (PM_{10}) and Nitrogen Dioxide (NO_2) exceed national air quality objectives.

Assessment Methodology

4.206 The air quality assessment will address impacts during construction the construction phase, focused on potential dust-generating activities and on emissions from construction plant within the site and vehicle movements utilizing access roads leading to the site. The subsequent operational phase local air quality impacts, associated with vehicle emissions generated by the proposed

development, will be assessed at existing residential receptors and, where applicable, designated ecological receptors. Furthermore, the suitability of the site for the proposed land used, including school and residential development, will be assessed.

4.207 Dust impacts and impacts relating to construction plant/vehicle emissions during the construction phase will be qualitatively assessed based on the potential sources and effects, together with a risk assessment to identify those receptors that may experience impacts. Mitigation of dust impacts will largely rely on management measures to minimise emissions at source and to protect sensitive receptors. The construction phase assessment will be completed with reference to relevant Institute of Air Quality Management (IAQM) guidance.

4.208 Operational impacts from the proposed development traffic will be assessed quantitatively using the ADMS-Roads model, focusing on emissions of NO_x, PM_{10}, and $PM_{2.5}$ from the assessed road network. This will enable local pollutant concentration impacts to be predicted at all identified sensitive receptors. It is anticipated that concentration predictions will be made for the following three scenarios:

- Base Year (the existing situation to verify the model against existing monitoring data);
- Opening Year without the proposed development (including committed development); and
- Opening Year with the proposed development (including committed development).

4.209 The operational phase assessment methodology will be completed with reference to guidance produced by EPUK/IAQM for assessing air quality impacts from development proposals. This methodology is widely accepted and adopted throughout the UK for such developments. The predicted results from the modelling will be compared against the relevant air quality objectives and with each other to determine the impact of the proposed development on local air quality, which will inform overall environmental significance.

Potential Mitigation

4.210 During the construction phase, air quality impacts can be minimized through implementing appropriate mitigation measures stipulated within a Construction Environmental Management Plan, which is conventionally prepared prior to the commencement of development. Measures to reduce and/or minimize road traffic emissions and encourage walking, cycling and public transport will assist in reducing potentially adverse air quality impacts during the operational phase.

Consultation

4.211 St Albans City and District Council's Environmental Health Officer will be consulted to determine the scope and methodology of the assessment to be undertaken.

5 Cumulative Effects

5.1 The EIA Regulations require an ES to include cumulative effects. The cumulative effects will consider both the combined effects of the topics considered within this report and the ES and the interaction of the proposed development with other relevant major developments within the local area. These are type 1 and type 2 effects.

5.2 **Type 1** effects arise from the proposed development itself where sensitive receptors are subject to various effects. The combined effects of individual effects resultant from the development upon a set of defined sensitive receptors. For example, human beings might be affected by changes in the noise environment and changes in visual amenity which together could result in an adverse or greater effect than the effect in isolation.

5.3 **Type 2** effects are a result of changes to the baseline as a consequence of the proposed development in combination with reasonably foreseeable projects within the local area.

5.4 The Local Planning Authorities opinion of which other development proposals should be taken into account is sought for the Type 2 assessment.

5.5 The assessment will be undertaken based on information that is publicly available at the time of the assessment or made available.

6 Summary

6.1 Table 7.1 below provides a summary of the Environmental Statement which is to be prepared by the Applicant and to be submitted within the Outline Planning Application.

TABLE 7.1 SUMMARY OF ENVIRONMENTAL TOPICS

CHAPTER	CONTENT / SCOPE
Introduction	Summary information regarding the Site, the proposed development and the ES.
Methodology	An explanation of the general methodology employed in preparing the ES.
The Site	A description of the Site and surrounding area.
The Proposed development	A description of the proposed development and its components including construction activities.
Alternatives	The consideration of alternative design options.
Ecology	An assessment of the potential effects of the proposed development on designated sites, important features and protected species.
Landscape and Visual	An assessment of the landscape and visual effects of the proposed development.
Agriculture	An assessment of the potential effects of the proposed development on agricultural practices and soils.
Heritage and Archaeology	An assessment of the potential effects of the proposed development on heritage and archaeology.
Ground Conditions	An assessment the geo-environmental characteristics - geology, hydrogeology (groundwater) and contamination - of the Site and the impact the proposed development will have on the ground conditions, and the impact that the ground conditions will have on the proposed development. For this assessment ground conditions are taken to comprise.
Water Resources	An assessment of the key potential effects of the Proposed development on surface water, ground water, drainage, flood risk and water resources/supply in the context of the Site and surrounding area.
Socio-Economic	An assessment of the potential effects of the proposed on human beings.
Waste and Material Assets	An assessment of the effects from the consumption of material resources, and the generation and disposal of waste, arising from the proposed development.
Climate Change – Greenhouse Gas Emissions	An assessment of the likely significant effects of the proposed development on greenhouse gas (GHG) emissions arising from activities and traffic associated with the both the construction and operational phases.
Climate Change – mitigation and adaptation	An assessment of likely significant effects of climate change on the proposed development
Traffic and movement	An assessment of the potential effects of the proposed development in terms of vehicle trips, public transport, cycling and pedestrians

	(severance, driver delay, non-motorised user delay and amenity, road safety, and hazardous loads/large loads).
Noise	An assessment of the proposed development in terms of noise and vibration.
Air Quality	An assessment of the potential effects of the proposed development on air quality.
Cumulative Effects	Considers both the combined effects of each of the topics in the ES and the interaction between the Site and other major developments in the study area.
Conclusion	An overview summary of the significance of the environmental effects of the proposed development.

LRM Planning
July 2024

Appendix 1. Site location plan

Track
HARPENDEN ROAD
SANDRIDGEBURY LANE
OWSWICK RIDE
HIGH OAKS
BLUNDELL CLOSE
CAVAN DRIVE
NEW GREENS AVENUE
CARNEGIE ROAD
PETERSFIELD
DOVE WAY
PARTRIDGE ROAD
M CRESCENT
NICHOLAS CLOSE
FRANCIS AVENUE
OLD HARPENDEN ROAD
TUDOR ROAD
ELLIS FIELDS
FARRIDAY CLOSE
DARWIN CLOSE
FLD
SRETTON P
VALLEY ROAD
PORTERS WOOD
LONG SPRING
PARK WAY
SOOTHOUSE SPRING
MELBOURNE CL
CANBERRA CLOSE
FIRBANK ROAD
BEECH ROAD

LEGEND

Planning application site boundary

Define.

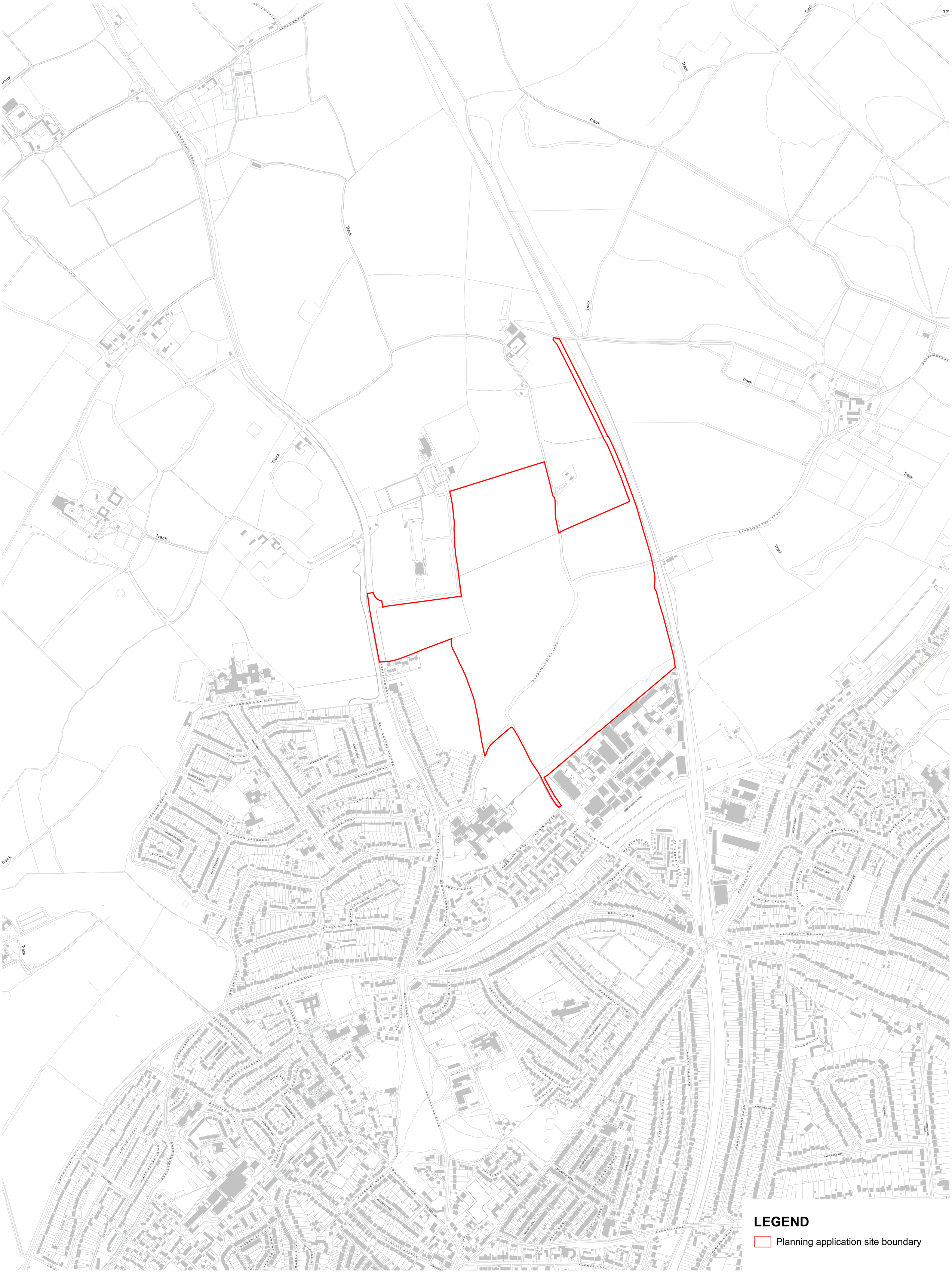
0m 10 20 30 50 100

N

Scale	1:2,500@A1
Date	13/06/2024
Drawn By	TA
Revision	B

Hallam Land	Client
Woollam Park - North St Albans	Project
Site Location Plan	Title
DE-565_005	Ref.

Appendix 2. Site context plan


Track
Track
Track

Appendix 3. Framework Plan

A1
A2
B
C1
C2
C3
D1
D2
D3
E1
E2
F
G
H

DRAFT

LEGEND

- Planning application site boundary
- Residential
  Including as required: access, drainage, landscaping, parking, pedestrian/cycle links and associated infrastructure
- Primary school
  Includes school building, sports pitches and associated infrastructure
- Neighbourhood centre
  With potential of:
  - commercial and retail floor space
  - nursery/creche and community-use floor space
  - residential
- Retirement living
  Includes buildings with associated infrastructure, private open space and garden
- Care facility
  Includes buildings with associated infrastructure, private open space and garden
- Mobility hub / community-use
- Civic space / key site destination
- Public open space
  Including, as required: access, play facilities, drainage, natural and semi-natural green space, amenity green space, pedestrian/cycle links, food growing and production zone, civic space and all necessary infrastructure
- Existing vegetation
- Existing hedgerow
- Existing ancient woodland
- Relocated OASA sports pitches
- Potential diversion route for the Affinity Water potable water main
  with associated 'no building zone' 3m easement (from centre line)
- Proposed Hunston development
  Planning REF 5/2021/0423

DRAFT LAND USE PARAMETER PLAN REV A

Define.

0m 10 20 30 50 100

N

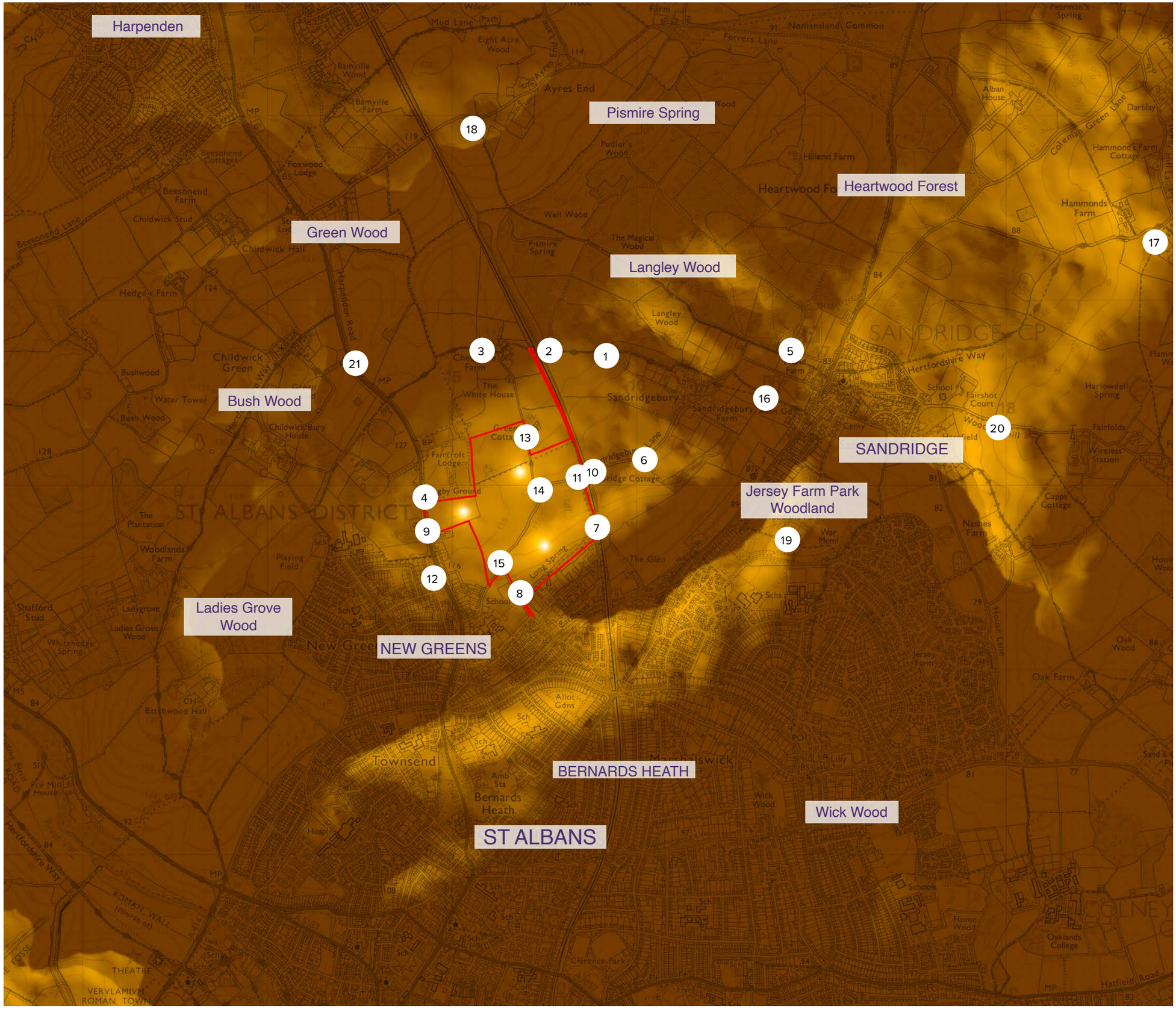
Scale	1:2,500@A1
Date	13/06/2024
Drawn By	TA
Revision	A

Hallam Land	Client
Woollam Park - North St Albans	Project
Parameter Plan - Land Use	Title
DE-565_020	Ref.

Appendix 4. Suggested viewpoints for LVIA

Table of Representative Viewpoints in relation to Visual Receptors

Visual Receptors	**Representative Viewpoint**
Users of public footpath St Albans City 096	Viewpoints 7 and 8
Users of the permissive path through the Site	Viewpoints 11, 14 and 15
Users of public bridleway Sandridge 009	Viewpoint 3
Users of public footpath Sandridge 011	Viewpoint 16
Users of rights of way east and northeast of Sandridge	Viewpoints 20 and 17
Users of Sandridgebury Lane	Viewpoints 10 and 6
Users of the Midland Main Line railway	Viewpoints 7 and 11
Users of Old Albanians Rugby Club	Viewpoint 4
Visitors to the Heartwood Forest.	Viewpoint 5
Visitors to the St Albans Girls School	Viewpoint 15
Visitors to Jersey Farm Park Woodland	Viewpoint 19
Users and residents of Harpenden Road	Viewpoints 4, 9 and 12
Residents of Childwick Green	Viewpoint 21



LEGEND

- Site Boundary
- ZTV Light Source (8m above ground)
- ZTV based on DTM/DSM and is used to show a worst case likely visibility of the existing site and is to be used only to guide representative viewpoint positions
- Visibility more likely
- Visibility less likely
- (X) Viewpoint Locations

0m 100 200 300 500 1000

N

1 -

Zone of Theoretical Visibility -

1:20,000 @A3 -

Viewpoint 1:



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South west
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515837 , N:210722
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 2



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515523 , N:210734
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 3



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515143 , N:210748
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 4a



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:514843 , N:209928
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 4b western side of Harpenden road further north of vp 4



Camera and sensor	Google Earth Pro	Weather and Lighting	Cloudy	Direction of View	South west
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515116 , N:209988
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 4c western side of Harpenden road further north of vp 4



Camera and sensor	Google Earth Pro	Weather and Lighting	Cloudy	Direction of View	South
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515057 , N:210121
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 5



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South west
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:516787 , N:210712
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 6



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	West
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:516039 , N:210158
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 7



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	West
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515779 , N:209767
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 8



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	North
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515372 , N:209420
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 9



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	North
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:514875 , N:209755
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 10



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	North
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515780 , N:210080
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 11



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	North
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515780 , N:210080
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 12



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	North east
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:514912 , N:209431
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 13



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South west
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515200 , N:210256
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 14



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South west
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515467 , N:209981
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 15



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	North
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515284 , N:209554
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 16



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South west
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:516694 , N:210499
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 17



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South west
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:518845 , N:211374
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 18



Camera and sensor	Ipad pro, 11 inch, 2nd generation	Weather and Lighting	Cloudy	Direction of View	South
Lens	N/A	Date	19.10.23	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:515065 , N:211986
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 19



Camera and sensor	i phone 8	Weather and Lighting	Light Clouds	Direction of View	West
Lens	N/A	Date	27.06.24	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E 516833 , N:209705
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 20



Camera and sensor	Google Earth	Weather and Lighting	Light Clouds	Direction of View	West
Lens	N/A	Date	27.06.24	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:558190 , N:211437
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Viewpoint 21



Camera and sensor	Google Earth	Weather and Lighting	Light Clouds	Direction of View	South West
Lens	N/A	Date	27.06.24	Distance from site / feature	xxm
Horizontal Field of View	N/A	Camera Height	1.65m	Coordinates	E:514442 , N:210682
Vertical Field of View	N/A	Eye Level AOD	N/A	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Define.

Appendix 5. Transport Assessment Scoping Report

Technical Note

Project: North St Albans

Subject: Transport Assessment Methodology

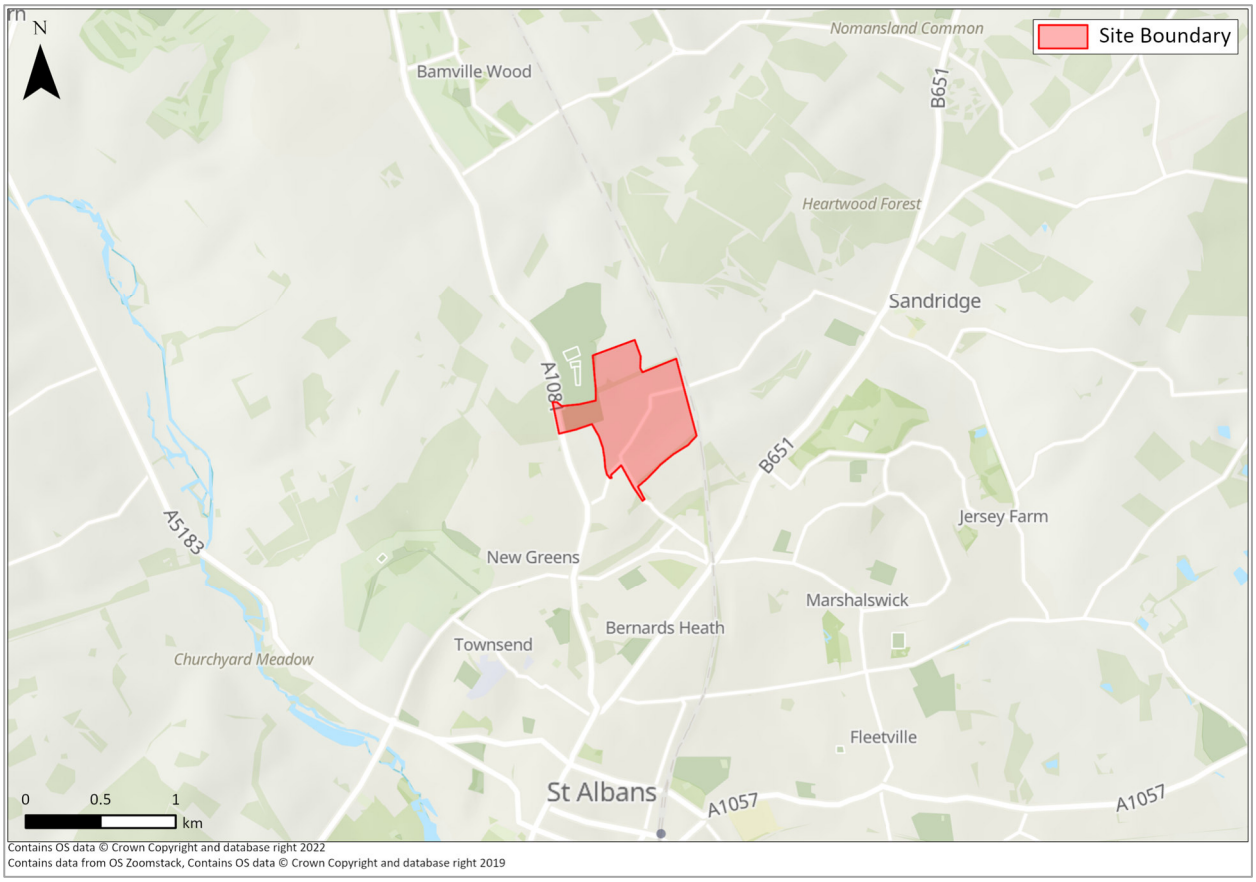
Client:	Hallam Land Management Ltd	**Version:**	3
Project No:	05920	**Author:**	KN
Date:	06/10/2022	**Approved:**	MM

1 Introduction

1.1 Background

1.1.1 PJA has been commissioned to provide transport planning support for the proposed development of Land North of St Albans. The location of the site is shown in Figure 1.

Figure 1: Site Location



1.1.2 Specifically, PJA has been commissioned to help develop a robust access and movement strategy to be presented in a Transport Assessment and Travel Plan/Travel Demand Management Strategy which can be used to support a planning application for development following the withdrawal of the previous draft Local Plan for St Albans City and District in November 2020.

1.1.3 Hallam Land Management Limited (HLM) was previously supported by WSP who undertook various discussions with the local highway authority, Hertfordshire County Council (HCC). Since this time however there has been a step-change in policy surrounding climate change and the role of transport in meeting national and local targets for Net Zero Carbon and it is therefore proposed to consider a different approach to that considered previously.

1.2 Policy Context

1.2.1 Nationally, the UK Government has committed to reducing net emissions of greenhouse gases by 100% relative to 1990 levels by 2050 (to become a 'net zero' emitter). Transport is now the largest contributor to UK greenhouse gas emissions (28%), and this is likely to make it one of the focus areas for reducing emissions. In July 2021, the Government launched its transportation decarbonisation strategy, which sets out how they propose to achieve significant CO_2 reductions in this area. The strategy builds upon the "gear change" strategy which was launched in Summer 2020. Ahead of the release of the decarbonisation strategy the Government have committed to accelerate carbon reductions with a 78% reduction by 2035, which has subsequently been brought into law.

1.2.2 Locally, St. Albans City & District Council voted unanimously in July 2019 to declare a climate emergency with a pledge that the district would become carbon neutral by the end of the decade (2030). The district has pledged to submit an innovative and comprehensive sustainable travel town Vision to HCC which incorporates a clean air zone in the town centre, and measures to further enable journeys to be undertaken by non-car modes.

1.2.3 Additionally, our collective experience of the Covid-19 Pandemic is also likely to lead to significant changes in travel habits, particularly around commuting trips. Many people have discovered (or rediscovered) the joy of walking and cycling for leisure on quieter streets, and around 42% of people in employment planned to continue working from home most of the time, with an element of hybrid working and sometimes visiting their usual place of work[1]. Data recently collected has demonstrated that people typically travel less and previously elevated traffic levels during the traditional peak hours are smoothed. These trends will be explored further through the assessment undertaken.

[1] Is hybrid working here to stay? - Office for National Statistics (ons.gov.uk)

1.3 Strategy Context

1.3.1 There is now a need for development to integrate potential for new ways of living, working, and moving in the post-pandemic period, by creating places and housing products in locations that enable lifestyles which align with achieving net zero goals.

1.3.2 Due to the existing operation of the St Albans highway network, the declared climate emergency and significant shift in policy, our proposed approach to developing a transport strategy for the development of Land North of St Albans will consider:

- How the transport strategy and the quality of provision can be bolstered to maximise the number of trips which can be undertaken by non-car modes.
- How the mix of uses onsite can contribute to reducing the need to travel offsite.
- How additional measures can be delivered which will extend this opportunity to the existing communities around the North St. Albans site, helping to offset residual car borne trips generated by the development.

1.3.3 It is therefore proposed that a low carbon transport strategy for the development is developed which considers how the delivery of active travel and public transport infrastructure outside of the development red line could change travel habits within the establish neighbouring settlement effectively freeing up capacity for any residual development traffic.

1.4 Approach

1.4.1 To develop such a strategy requires analysis of data to understand travel patterns of those living and working in the area already and understand the potential to influence the mode choice of such journeys.

1.4.2 The strategy is likely to identify and rely upon the creation of new active travel infrastructure including new high-quality routes which lie outside of the red line boundary. We therefore seek the buy in of the local highway authority to the vision. This will be achieved by involving the LHA in early engagement through this scoping process and then continued beyond through the application process.

1.4.3 The process for developing the low carbon transport strategy is iterative, taking information about existing travel patterns to identify key trip generators and attractors in order to identify where the common travel corridors are, along with new active travel and public transport infrastructure that can deliver the greatest changes in car use.

1.4.4 In addition to considering connectivity outside of the red line, it is important that the masterplan is developed to align with a low carbon, car-last environment. This means a network of high-quality

active travel routes which pass close to all homes, access to a variety of public transport services, and consideration of how land use planning within the development site can help to reduce car-borne trips. We will also undertake a review of how the car is accommodated including the use of reduced parking standards, off-plot remote parking within centralised mobility hubs, car free streets and modal filtering to further influence travel behaviour.

1.5 Technical Note Purpose

1.5.1 The purpose of this Technical Note is to set out the approach proposed to develop an aspirational low carbon transport strategy for the site. It also sets out the methodology for developing a sound evidence base to underpin the assessment of the strategy.

1.5.2 The success of the strategy will require buy in from the City and District Council's and a wide range of stakeholders, as delivery of the strategy will likely require the implementation of elements beyond the red line. A detailed explanation of the proposed approach is set out within this scoping note as the beginning of a conversation which will lead to the development of an acceptable and deliverable transport strategy supporting development here.

2 Development Proposals

2.1.1 The masterplan for the site is emerging but the development will be residential-led with complementary facilities to support residents and reduce the need to travel offsite. Indicatively, the following development is currently considered:

- In the region of 1,000 residential dwellings including c. 60 retirement living units;
- Care home facility
- 2FE Primary School (420 pupils)
- Local Centre

2.1.2 It is proposed to provide access from various points, with the following currently being considered:

- Pedestrian/Cycle Access:
  - Harpenden Road.
  - Sandridgebury Lane.
  - Valley Road.
- Vehicular Access:
  - Harpenden Road.
- Bus Access:
  - Potential bus link via Valley Road and/or Sandridgebury Lane (s).

3 Data Collection

3.1.1 It is proposed to collect data to assist in the understanding of existing conditions as well as understanding how the development may operate in the future.

3.2 Highway Safety Review

3.2.1 To assist in the analysis of the condition of highway safety on the local network surrounding the development, we will look to obtain Personal Injury Collision (PIC) data for the latest 5 year period from HCC, inclusive of the full STATS-19 dataset including locations, timings and causation.

3.2.2 The study area which will be utilised to obtain PIC data is shown in Figure 2 and encapsulates the highways routing through and immediately surrounding the development site, as well as junctions and their approaches which we will look to assess through junction capacity assessments and other significant carriageways in the vicinity.

Figure 2: Personal Injury Collision Data – Study Area



3.3 2011 Census Data and Other Datasets

3.3.1 Data would be extracted from the 2011 census to include:

- Journey to work data by mode for OD pairs within St Albans.
- Population statistics to inform the TDM.
- Car ownership data.

3.3.2 Data would be extracted for relevant output areas to fit with the zones considered. In particular, to provide a proxy for the development, data relating to St Albans 009 will be used; this is the output area covering the adjacent New Greens area.

3.3.3 Data from the National Travel Survey, TEMPRO, TRICS will also be drawn together to develop or test the development trip generation assumptions.

3.3.4 Data would also be extracted from TRACC[2] relating to public transport accessibility levels to understand key trends around accessibility.

3.3.5 Propensity to Cycle Tool (PCT)[3] data will also be used in the analysis, further details of how the data is proposed to be used is included in proceeding sections.

3.3.6 Data collected as part of the 2021 census is not yet available at lower levels of geography. Whilst there are data releases planned later during 2022, transport and travel statistics are likely to be limited in their use due to the snapshot being recorded during the Covid pandemic. It is therefore proposed to use mobile network data which provides travel insights both prior to the Covid pandemic and emerging patterns moving forward. The data includes the following and would be extracted for the surrounding areas:

- Journey purpose.
- Mode split (road, active travel, bus).
- Time of day.

[2] TRACC Travel Time analysis - Basemap – TRACC software is used to undertake public transport analysis using data to run multi-modal journey time calculations.

[3] The Propensity to Cycle Tool (www.pct.bike) is a nationwide model that identifies where increases in the rates of cycling can be expected through the provision of better infrastructure. It uses census travel to work data and school travel data and looks at trip distances to see where there may be scope for more short journeys to be undertaken by cycling. The data is used regularly in Local Cycling and Walking Infrastructure Plans (LCWIP) prepared and adopted by local authorities across the country.

3.4 Surveys

3.4.1 It is proposed to commission surveys during a neutral period in September/October 2022 to understand existing conditions. This would include the following:

- Manual Classified Counts (MCC) at key junctions to assist in the assessment of highway capacity.
- Multi-modal surveys for a part of the New Greens area of St Albans to provide a baseline picture of local travel demand which is considered to be a good proxy for the potential characteristics of trips generated by the proposed development without the implementation of an aspirational transport strategy.
- Automatic traffic counts to understand existing conditions and to compare to previous counts to understand trends in traffic patterns in the local area prior to and following the Covid pandemic and the growing understanding of climate change impacts.

Manual Classified Counts

3.4.2 Manual Classified Counts and queue surveys would be undertaken on a neutral weekday during w/c 19th September 2022 from 07:00 to 10:00 and 16:00 to 19:00, at the following locations:

- A1081 Harpenden Road/Sandridgebury Lane.
- A1081 Harpenden Road/Beech Road/Batchwood Drive.
- Beech Road/Firbank Road.
- Beech Road/Sandridge Road/Marshalswick Lane/St Albans Road.

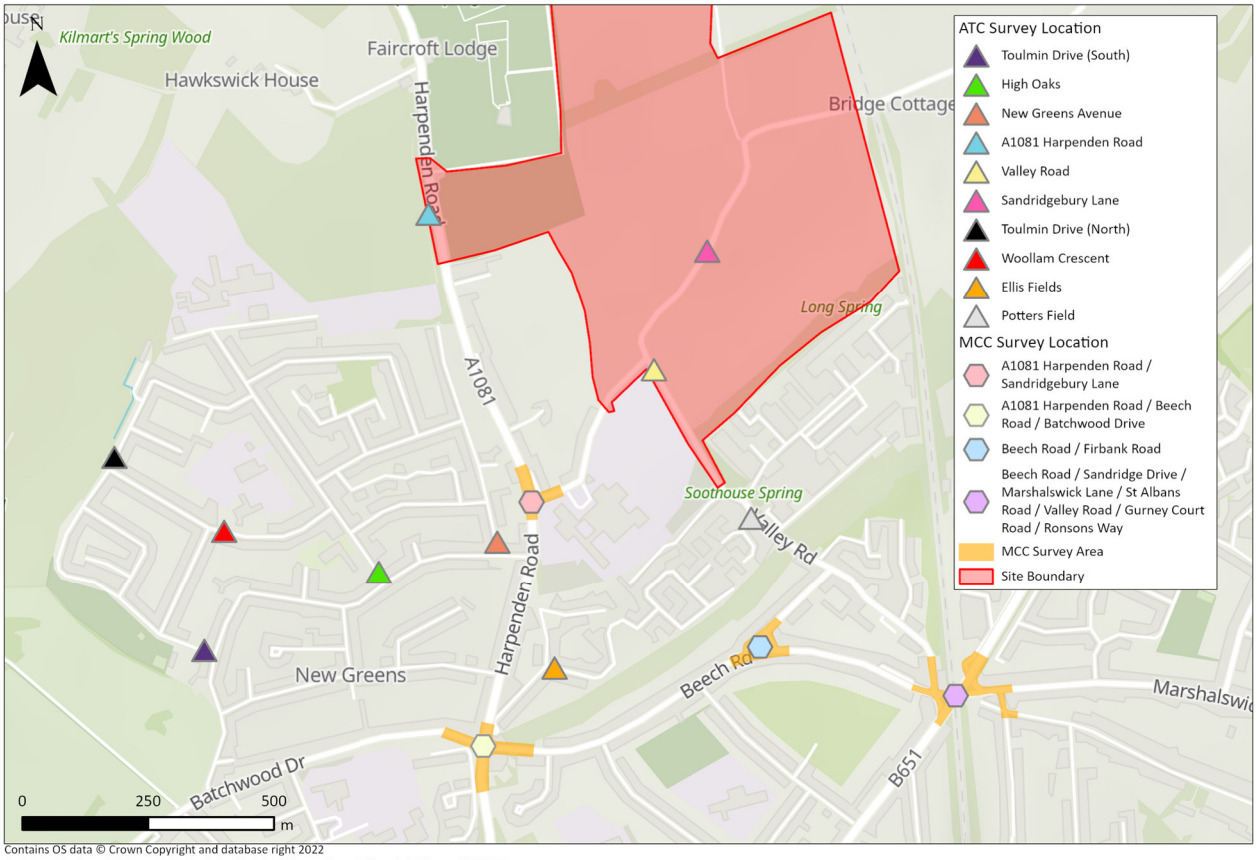
Automatic Traffic Counts

3.4.3 It is proposed to commission a series of automatic traffic counts to understand local conditions as well as to compare to historical counts to understand how traffic conditions have changed since the Covid pandemic began. These would be undertaken for a 7-day period during w/c 19th September 2022, as follows:

- A1081 Harpenden Road.
- Sandridgebury Lane.
- Valley Road.

3.4.4 The location of the Manual Classified Counts and Automatic Traffic Counts are shown in Figure 3, including the Automatic Traffic Counts undertaken as part of the donor site surveys.

Figure 3: Traffic Survey Locations



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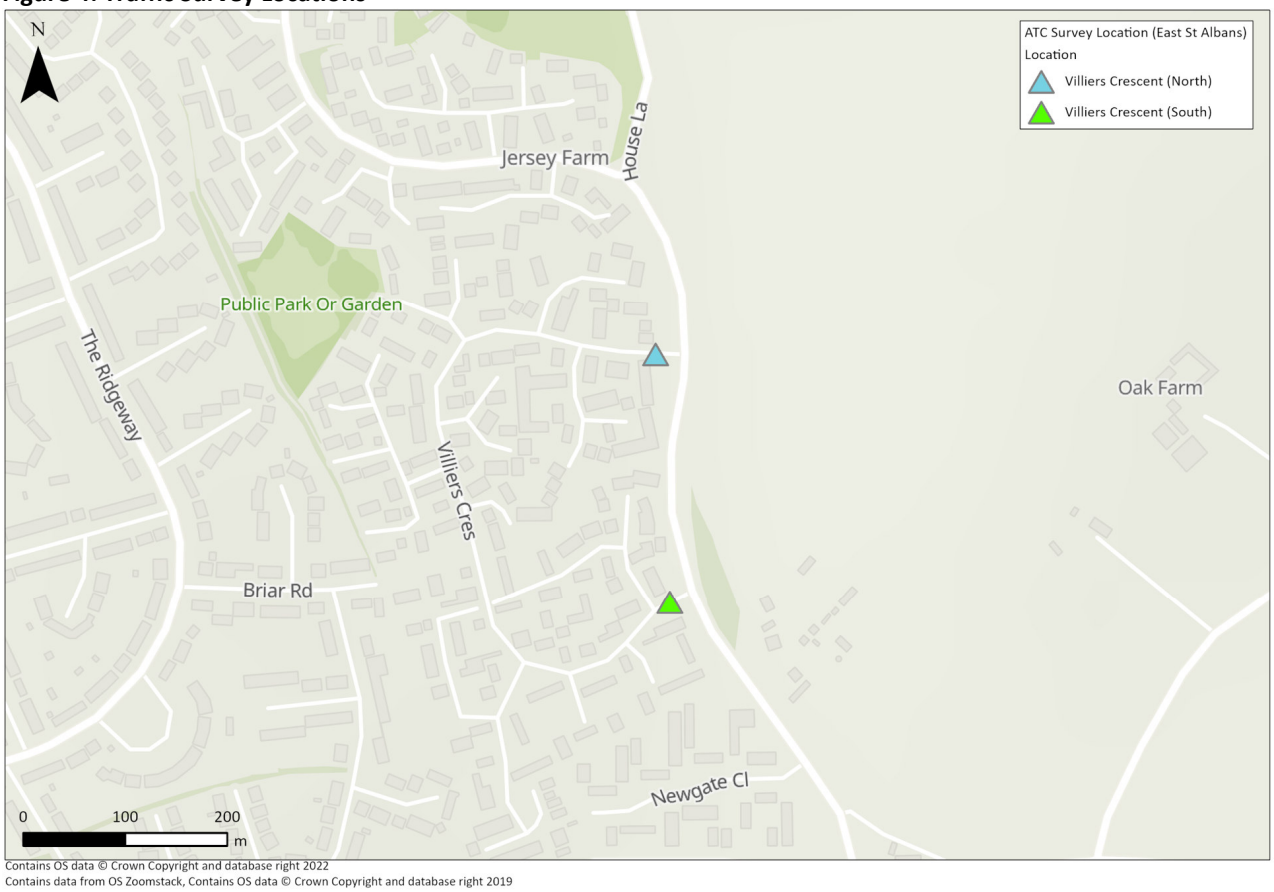
Automatic Traffic Counts – Reference Sites

3.4.5 Four automatic traffic counts will be undertaken in additional areas surrounding the development site to provide reference sites to enable benchmarking against similar residential areas within St Albans. Figure 3 shows two of the locations at Potters Field (Orange Triangle) and Ellis Fields (Grey Triangle), located just south of the development site.

3.4.6 Two further automatic traffic count locations are shown in Figure 4 in east St Albans at Villiers Crescent (North, Blue Triangle) and Villiers Crescent (South, Green Triangle). These would be undertaken for a 7-day period during w/c 3rd October 2022.

Figure 4: Traffic Survey Locations



Multi-Modal Surveys – Donor Site

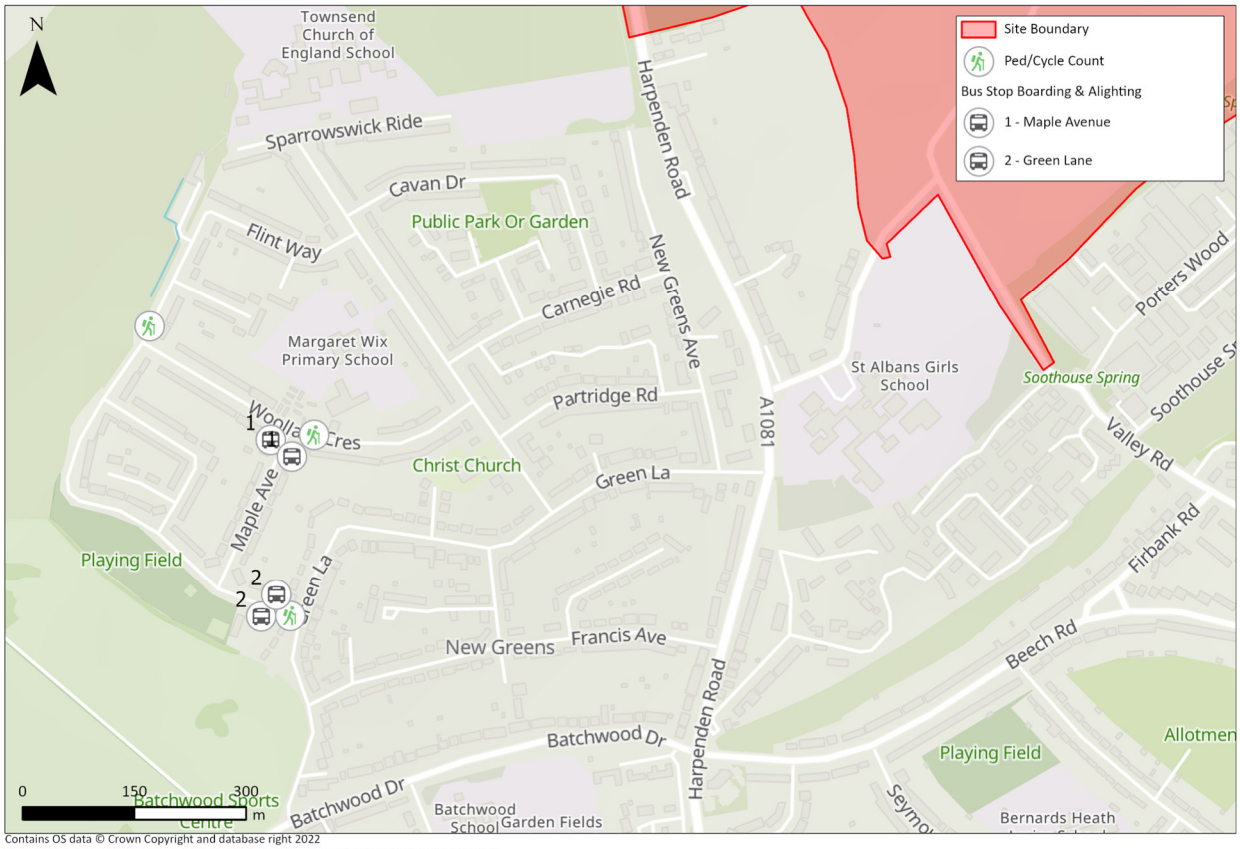
3.4.7 To understand the baseline multi-modal travel characteristics of the local area which could form a baseline for the proposed development, the following surveys are proposed:

- Automatic Traffic Counts – for a 7-day period during October 2022 (w/c 3rd October 2022 onwards):
  - Woollam Crescent.
  - Toulmin Drive North
  - Toulmin Drive South.
  - High Oaks.
  - New Greens Avenue.
- Pedestrian and Cycle Counts - **12 hour (07:00 to 19:00)** for a neutral weekday during October 2022 (w/c 3rd October 2022) to include bi-directional counts at the following locations, shown in Figure 5:

- Woollam Crescent.
- Toulmin Drive North.
- Toulmin Drive South.

- Bus stop surveys – **12 hour (07:00 to 19:00)** for a neutral weekday in October 2022 (w/c 3rd October 2022) to include counts of the number of buses at each stop and total number of passengers boarding and alighting each service at:
  - 4 bus stop locations highlighted on in Figure 5.

Figure 5: Pedestrian/Cycle and Bus Stop Count Locations



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4 Proposed Assessment Methodology

4.1 Introduction

4.1.1 It is proposed to develop a comprehensive Travel Demand Model (TDM) to understand baseline and future trip making patterns within existing communities and the proposed development.

4.1.2 The TDM would consider a range of journey purposes including employment, education, leisure and retail which are the predominant trip purposes which occur during the peak hours.

4.1.3 The TDM will be developed with the use of a range of data from the Census, TRICs database, the National Travel Survey 2019, the propensity to cycle tool, geospatial information and mobile network data.

4.1.4 The TDM will consider a weekday morning and afternoon period and a daily period and the key principles of this will be as follows:

- A broader geographic scope covering not only the development but also neighbouring communities in wider St Albans.
- The baseline trip generation position will be informed by data collected for the New Greens area of St Albans providing a baseline multi-modal trip generation. This would be supported by mobile network data to understand current trip making patterns and validated against Census and TEMPro data to understand trip making patterns by other modes for a variety of purposes.
- Develop a future projected position through consideration of other datasets:
  - Reduced travel demand – based on the masterplan for the site and the complementary land uses which reduce the need to travel offsite.
  - Active travel – considering the strategy for the site and surrounding area and using PCT data to understand the projected uplift in cycling at the development and locally which could be achieved from active travel interventions.
  - Public transport – considering the strategy for the site and determining a donor area for which data can be extracted to forecast uptake of public transport modes at the development and locally resulting from public transport enhancements.
  - Vehicle travel – consider the projected uplift in sustainable modes and determine the resultant reduction in vehicle trips.

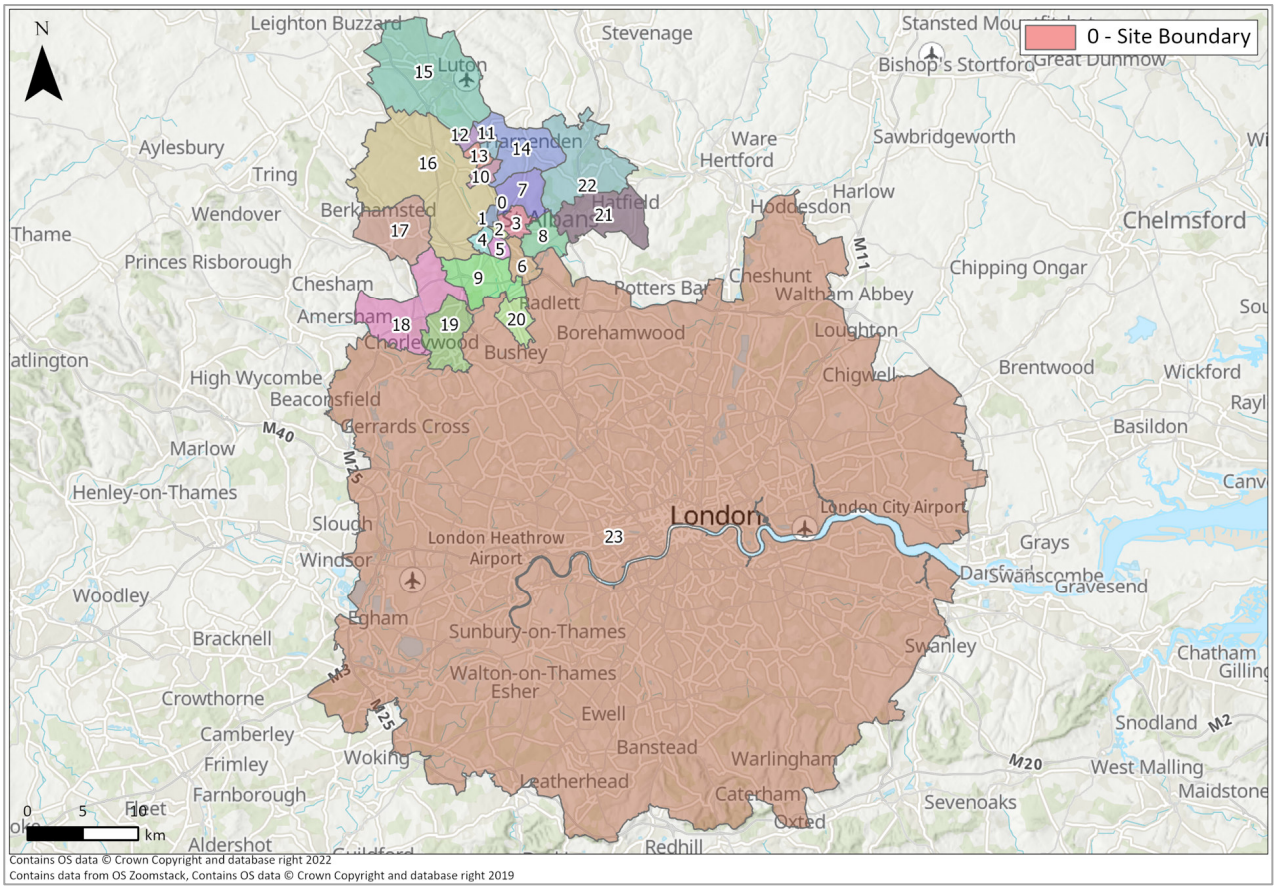
4.2 Travel Demand Model Coverage

4.2.1 The TDM will cover a large area which will encompass the proposed development, the area surrounding the development, wider St Albans and key origins/destinations further afield for journeys terminating/beginning in St Albans.

4.2.2 The zones to be covered within the TDM are set out in Figure 6. These zones have been determined using 2011 Census Journey to Work data for St Albans 009, journeys to/from these zones cover 89% of the total journeys to work for those residing in St Albans 009, as the donor site for the purpose of this assessment. Thus, providing a suitable sample size and a suitable coverage for the TDM.

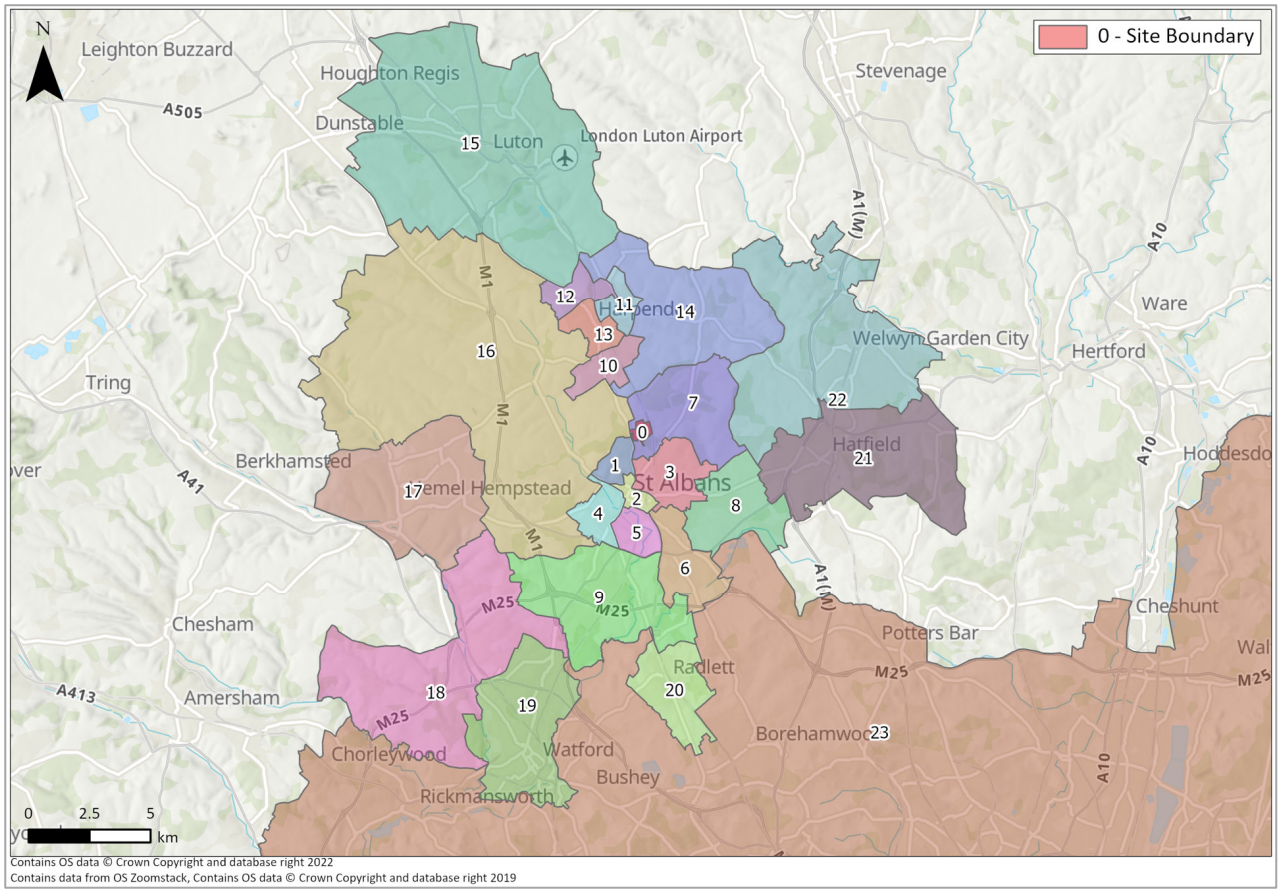
4.2.3 Typical daily journeys for other purposes, such as education, retail and leisure would likely be over a shorter distance and so the zoning determined through consideration of the Journey to Work data would be adequate to cover other journey purposes.

Figure 6: Proposed TDM Zones



4.2.4 Figure 7 provides a local extract of the proposed zones of the TDM.

Figure 7: Proposed TDM Zones (Local Extract)



4.3 Total Person Trip Rates and Generation

Residential Trip Rates and Trip Generation

4.3.1 As we move on from the COVID pandemic, there is a long lasting impact on travel patterns particularly those trips to/from home; including a reduction in overall travel demand with greater levels of home working, changes in modal split following an increased uptake of walking/cycling modes and a change in the times of day which people travel. With only a limited number of surveys undertaken recently in the TRICS database, it is not deemed suitable to use the TRICS database in the calculation of appropriate trip rates or as the basis for factoring daily flow profiles.

4.3.2 The total person trip rates of the site will therefore be determined by surveying the nearby New Greens area. These multi-modal surveys will be used to determine a trip rate for the residential element of the development.

4.3.3 The area suggested and set out in earlier sections is deemed to be representative of the proposed development with a mix of housing, in close proximity to a local centre and schools, that it is expected would be representative of the proposed development.

4.3.4 It is also proposed that there would be a retirement living complex which would provide an onsite community for residents reducing the need to travel. As such, the travel demand associated is likely to be minimal, particularly during the network peak hours. A TRICS assessment will be undertaken to determine appropriate trip rates.

4.3.5 The proposed care home would also likely generate only a modest amount of travel demand. A TRICS assessment will again be undertaken to determine appropriate trip rates.

Education Trip Rates and Trip Generation

4.3.6 Whilst travel patterns of journeys to/from home have changed since the COVID pandemic, the nature of journeys to school have not changed in the same way. It is therefore deemed appropriate to adopt trip rates extracted from the TRICS database from the 04 – Education, A – Primary category as follows. The location of sites have been reviewed to ensure similarities between the sites and the development site.

- Greater London and Ireland removed;
- Only weekday surveys selected; and
- 92 to 449 pupil range selected.

4.3.7 The 12-hour profile of the total person trip generation is presented as follows with full TRICs outputs provided in Appendix A.

Table 1: Total Person Trip Rates and Trip Generation (420 pupils)

Time Period	Arrivals		Departures		Total	
	Trip Rate	Trip Gen	Trip Rate	Trip Gen	Trip Rate	Trip Gen
07:00-08:00	0.124	52	0.039	16	0.163	68
08:00-09:00	**1.296**	**544**	**0.293**	**123**	**1.589**	**667**
09:00-10:00	0.089	37	0.122	51	0.211	89
10:00-11:00	0.024	10	0.048	20	0.072	30
11:00-12:00	0.038	16	0.025	11	0.063	26
12:00-13:00	0.034	14	0.051	21	0.085	36
13:00-14:00	0.032	13	0.058	24	0.09	38
14:00-15:00	0.14	59	0.063	26	0.203	85
15:00-16:00	**0.34**	**143**	**1.044**	**438**	**1.384**	**581**
16:00-17:00	0.103	43	0.366	154	0.469	197
17:00-18:00	0.028	12	0.09	38	0.118	50
18:00-19:00	0.019	8	0.027	11	0.046	19
Daily Trip Rates:	2.267	952	2.226	935	4.493	1887

Local Centre Trip Rates and Trip Generation

4.3.8 It is deemed that the local centre would primarily fulfil onsite demand for facilities and therefore the external trip generation is likely to be minimal.

4.3.9 The trips to the local centre from the proposed residential development are included within the residential trip rates and trip generation, and a proportion of internalisation would be calculated across the site.

4.4 Trip Distribution

4.4.1 The residential person trip generation will be split by journey purpose using TEMPro data. Trips for each journey purpose will be distributed in the following way to provide zone to zone person trips based on the previously defined zoning system:

- Residential:
  - Employment trips – Distribute based on the proportion of trips by MSOA using 2011 Census Journey to Work data for St Albans 009.
  - Education trips – Estimating the number of pupils of primary, secondary and further education age using 2011 Census data for St Albans 009. Distribute trips using a gravity model based on number of pupils in the school weighted against the distance to the facility squared. The majority of primary school trips are distributed to the on-site primary school.
  - Retail and other trips – Distribute trips using a gravity model based on the number of retail workers from the 2011 Census in each MSOA within 11.9km (National Travel Survey 2019, Table NTS0409b) weighted against the distance to the area squared. A proportion of retail trips are distributed to the on-site local centre.
- Education:
  - Internal trips – The internal trips from the onsite population are included above so as not to double count.
  - External trips – The residual school places (not taken by those onsite), have been distributed across local MSOAs within 2.9km for primary schools (National Travel Survey 2019, Table NTS0613) based on the population of the MSOA weighted against the distance to the MSOA squared.

4.4.2 Mobile data network information would be used to refine the assumptions around trip distribution.

4.5 Baseline Modal Split

4.5.1 It is assumed that existing local travel patterns could provide an adequate proxy for the baseline modal split. This represents the likely travel characteristics that would be expected for a

development where particular focus is not given to encourage a high uptake of sustainable travel modes. This baseline will be used to forecast the potential shifts away from car reliance to sustainable modes of travel that could be expected with the right level of infrastructure to support this shift, as set out in proceeding sections.

4.5.2 The baseline modal split of the calculated zone to zone person trips will be considered using 2011 Census Journey to Work modal split data for corresponding O/D pairs based on St Albans 009. Whilst this is based on commuting journeys, there is a limited availability of zone to zone data by mode for other journey purposes. It is therefore proposed to calibrate the calculated overall baseline modal split against the multi-modal donor surveys.

4.5.3 The initial baseline modal splits have been calculated as follows. This will be compared to the surveys undertaken at the donor site and calibrated accordingly.

Table 2: Interim Forecast Baseline Modal Split

Travel Mode	Interim Modal Split (AM Peak: 08:00-09:00)	Interim Modal Split (PM Peak: 17:00-18:00)	Interim Modal Split (12 Hour)
Underground	1%	0%	0%
Train	11%	6%	7%
Bus	5%	5%	5%
Car Driver	59%	55%	53%
Car Passenger	5%	4%	4%
Cycle	3%	3%	3%
Walk	18%	27%	28%
Total	100%	100%	100%

4.5.4 The modal splits shown in Table 2 consider the trips generated to and from the site from external destinations and excludes all movements made within the site (Zone 0), to assist in the avoidance of double counting trips generated by the development. For the purpose of this assessment, it is considered that all trips made within the site area will be undertaken by active travel modes only.

4.6 Future Modal Split

4.6.1 The above baseline modal split provides an indication of travel patterns assuming historic attitudes to travel and methods for forecasting demand remain. It is proposed to provide an aspirational transport strategy for the site to influence future travel patterns. This strategy will influence modal choice amongst future residents encouraging a higher uptake of sustainable travel modes and reduced usage of vehicle modes, as well as reducing the need to travel offsite.

4.6.2 The projected future modal splits will be determined as follows:

- Active travel modes: PCT
  - Key corridors will be determined where improvements could be implemented for cyclists. The resultant PCT levels for the 'Go Dutch' scenario would be applied to journeys to/from the development which begin/end within 400m of an improved corridor (further details are provided in the proceeding section).
- Public transport modes: Donor corridors.
  - Key PT corridors will be determined with donor levels of bus uptake applied to journeys to/from the development which begin/end within 400m of a PT corridor.
- Vehicle modes: A corresponding downturn relating to the projected uplift in sustainable travel modes will be applied.

5 Wider Travel Patterns

5.1 Introduction

5.1.1 This aspirational strategy will not only influence travel patterns at the proposed development but will also look to affect how those in the local community travel, particularly for shorter distance journeys.

5.1.2 It is proposed to use data to understand current travel patterns. This would take the form of mobile network data for all origin and destination pairs within the defined zones, this will establish the following:

- The key OD pairs locally and straight line routes between these.
- GIS software will be used to understand the highway corridors which are used in routes for completing these journeys. Of particular interest would be those journeys using the Harpenden Road corridor and intersecting corridors.
- OD pairs which have the potential to be shifted to sustainable modes based on distance.

5.1.3 The other element of this is the analysis of:

- PCT data to understand key corridors where active travel uptake could increase. Analysis of everyday trips between key origins and destinations which could be undertaken by active travel modes. This would be undertaken for both background and development trips. Further details of this methodology are provided below.

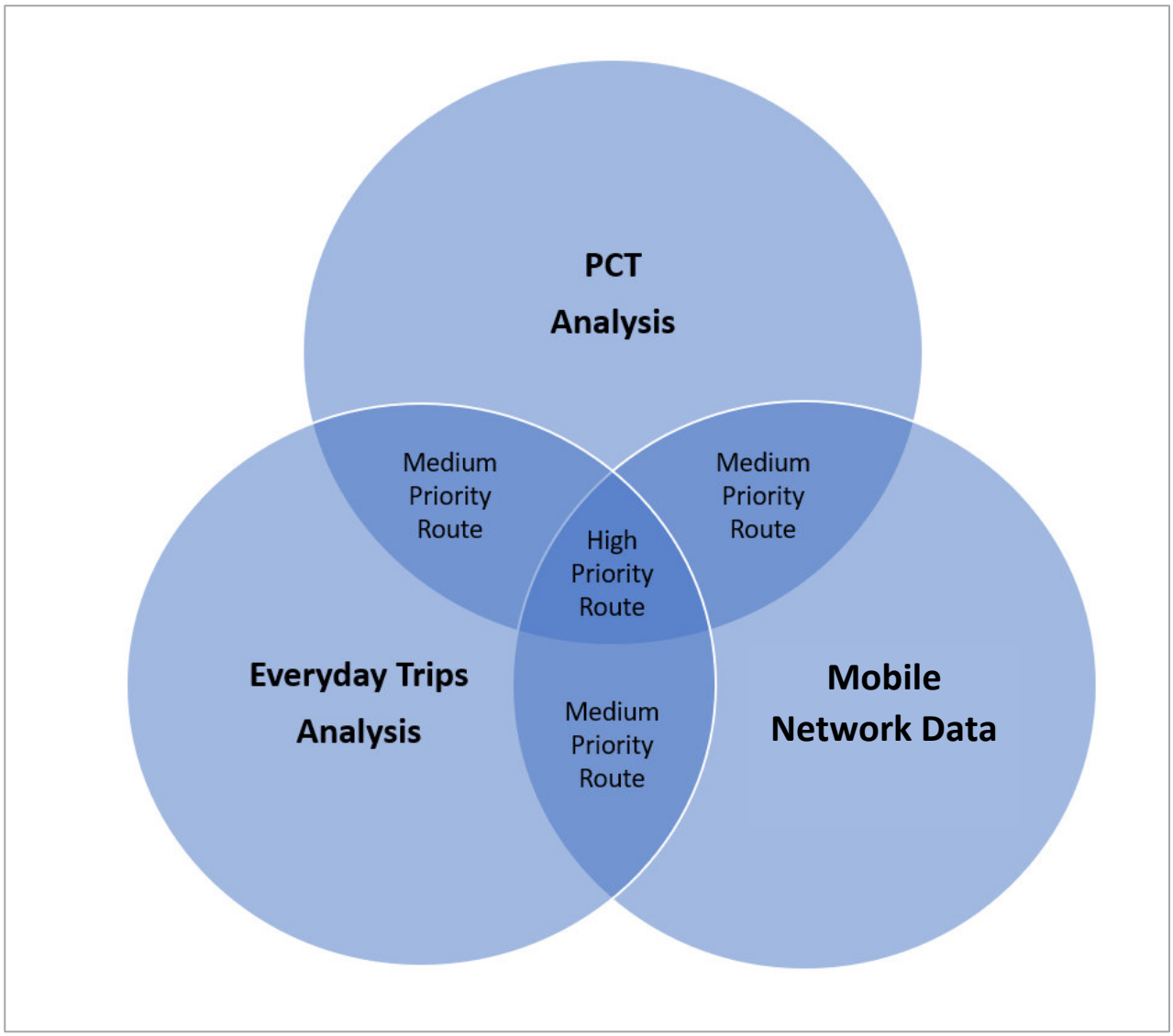
5.2 Potential Active Travel Desire Lines

5.2.1 Potential Active Travel desire lines have been determined through analysis of various datasets within GIS software. This comprises:

- Propensity to Cycle Tool (PCT) data analysis which provides an approximation of commuting trips which could be undertaken by bicycle.
- Everyday trip analysis which considers potential desire lines of other purposes of trips including leisure, recreation and amenity.
- Mobile network data to inform current car-borne travel patterns.

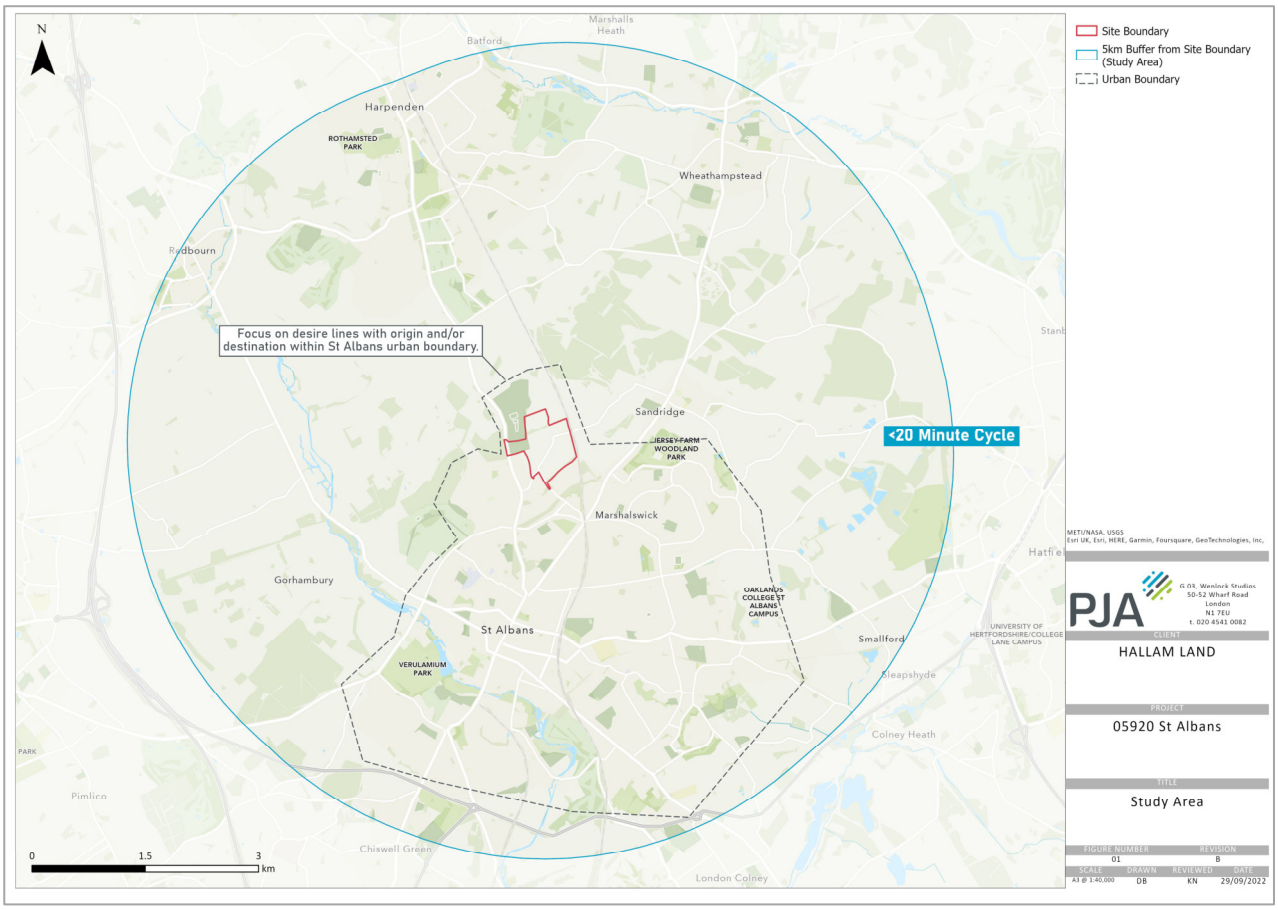
5.2.2 The overlap between these different desire lines is used to prioritise the routes for further study. That is, those desire lines from the different exercises which overlap with one another have the greatest potential to encourage the highest uptake of active travel modes and to reduce corresponding vehicle trips, as illustrated in Figure 8. This is the broad process followed by many local authorities when development their Local Walking and Cycling Infrastructure Plans (LCWIP).

Figure 8: Desire Lines Data Analysis and Relative Route Priority



5.2.3 The study area is presented overleaf (Figure 9) and comprises a 5km buffer around the site. Within the study area, consideration is given to all active travel desire lines within the buffer but with a particular focus on desire lines with a start and/or end point on Harpenden Road as these are the routes which are likely to have the biggest impact in terms of providing the 'headroom' on the road network to enable development North of St Albans through modal shift to active travel modes.

Figure 9: GIS Study Area



5.3 Propensity to Cycle

Overview

5.3.1 The PCT provides seven scenarios for forecasting future levels of cycling which range in ambition from the 'Government Target' (assumes a national average of 6% of commuting trips by bicycle) up to the 'E-Bike' scenario (assumes a national average of 22% of commuting trips by bicycle and improved access to e-bikes). The PCT provides two sets of mapping outputs:

- Straight line networks – these plans show direct paths between LSOA Origin-Destination points which gives an overview of key desire lines for cycling flows.
- Applied Networks – applies the straight desire lines to the existing road network and provides a more detailed summary of where increased cycle flows would take place on the local network.

Methodology and Outputs

5.3.2 The PCT analysis uses the 'E-Bike' scenario, which models the same mode share for cycling as in the Netherlands, adjusting for demographics, trip distance and topography and includes improved access to E-bikes. Using the E-bike scenario is a more ambitious and longer-term outlook for cycling flows, which is advantageous in network planning as it ensures that the proposed routes will provide for assumed future advances in St Albans' cycle network. In terms of the proposed development, this would be complemented by the provision of high-quality infrastructure onsite to include mobility hubs and bike/E-bike hire.

5.3.3 To accommodate for future commuting demand from proposed developments, the population forecasts for each of the proposed sites in the recent draft Local Plan (which has not been adopted) have been incorporated into the PCT forecasts to provide a more accurate representation of potential future flows.

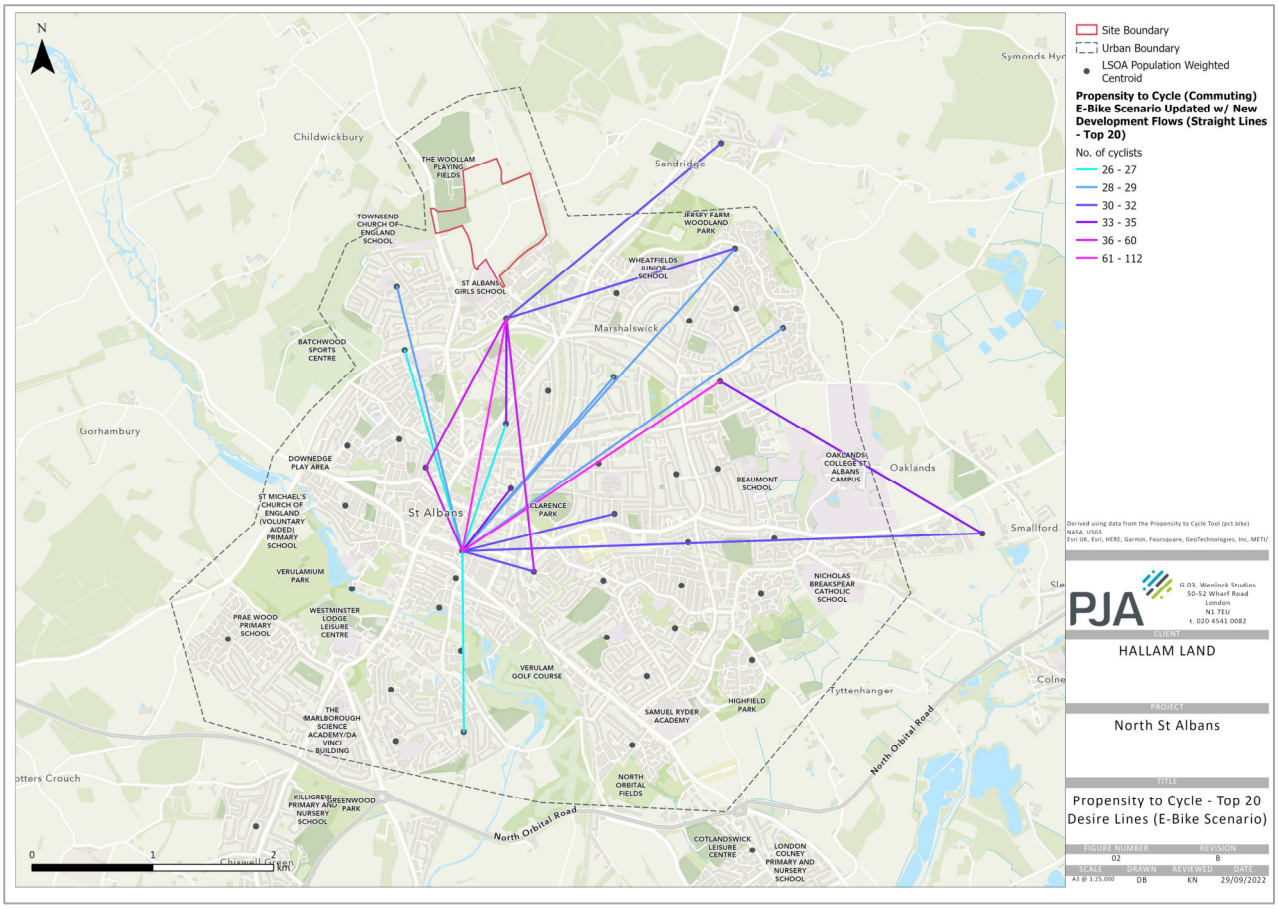
5.3.4 The draft Local Plan site centroids were plotted, and the associated population growth calculated by assuming an average of 2.4 people per new dwelling, which is in accordance with the average household size in 2020 calculated by the Office for National Statistics[4]. The resulting forecast populations were assigned to the nearest LSOA to each potential development site.

5.3.5 The top 20 desire lines, with an origin or destination in St Albans were identified based on the number of cyclists in the E-bike scenario, uplifted to take account of new population as per the above.

5.3.6 The top 20 desire lines with origins and/or destinations, based on the uplifted E-Bike Scenario flows are presented in Figure 10, below.

[4] Families and households in the UK - Office for National Statistics (ons.gov.uk)

Figure 10: PCT E-Bike Scenario – Top 20 Desire Lines



5.3.7 As would be expected when looking at desire lines based on commuting trips, the majority of the top 20 desire lines have a start/end point in the centre of St Albans.

5.3.8 The strongest desire lines are indicated by pink and then purple, showing a pull towards St Albans from the north eastern quadrant and also, to a lesser extent, from the New Greens area.

5.4 'Everyday' Trip Analysis

Overview

5.4.1 The PCT outputs provide an overview of desire lines based on commuting trips. Therefore, a second type of analysis has been undertaken to help understand desire lines associated with 'everyday' trips. For instance, trips to leisure and recreation, trips to local centres and amenity trips.

Methodology and Outputs

5.4.2 Developing the desire lines required the identification of all origins and destinations within the study area. The catchment area has been divided into a hexagon grid using 0.25sqkm hexagons.

5.4.3 For the purposes of the analysis, all hexagons which currently contain an output area centroid and/or are anticipated could include more than 100 residential dwellings in the future were included as origins.

5.4.4 Having identified the origins, destinations were identified based on the following:

- Class 1: Town, Village and Local Centres; Key Employment Sites.
- Class 2: Existing and Proposed Schools, Railway and Bus Stations, Medical Facilities, Supermarkets, Leisure Facilities, Job Centres and Community Facilities.

5.4.5 The origin grids and destinations used in the analysis are presented below.

Figure 11: Assumed Origin Clusters

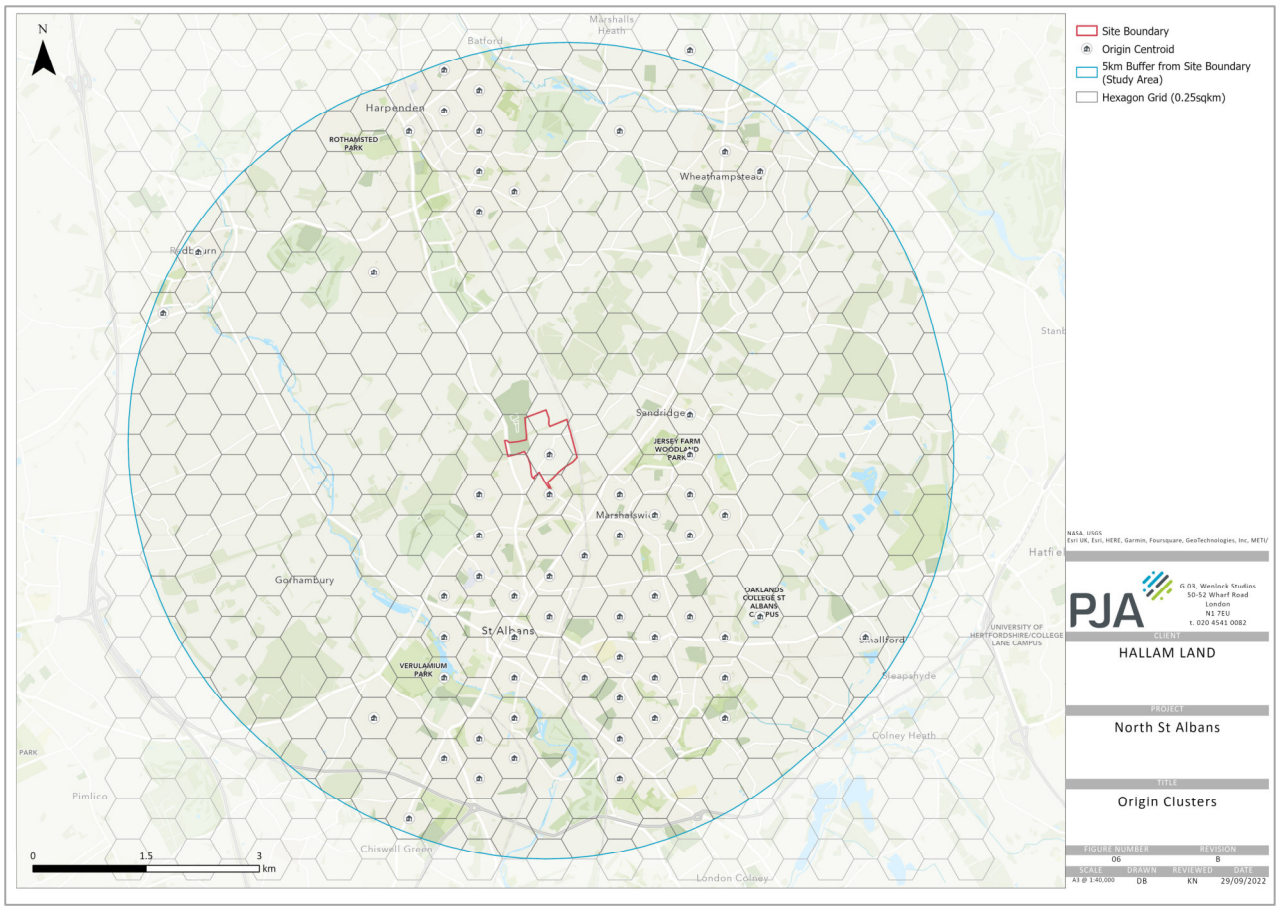
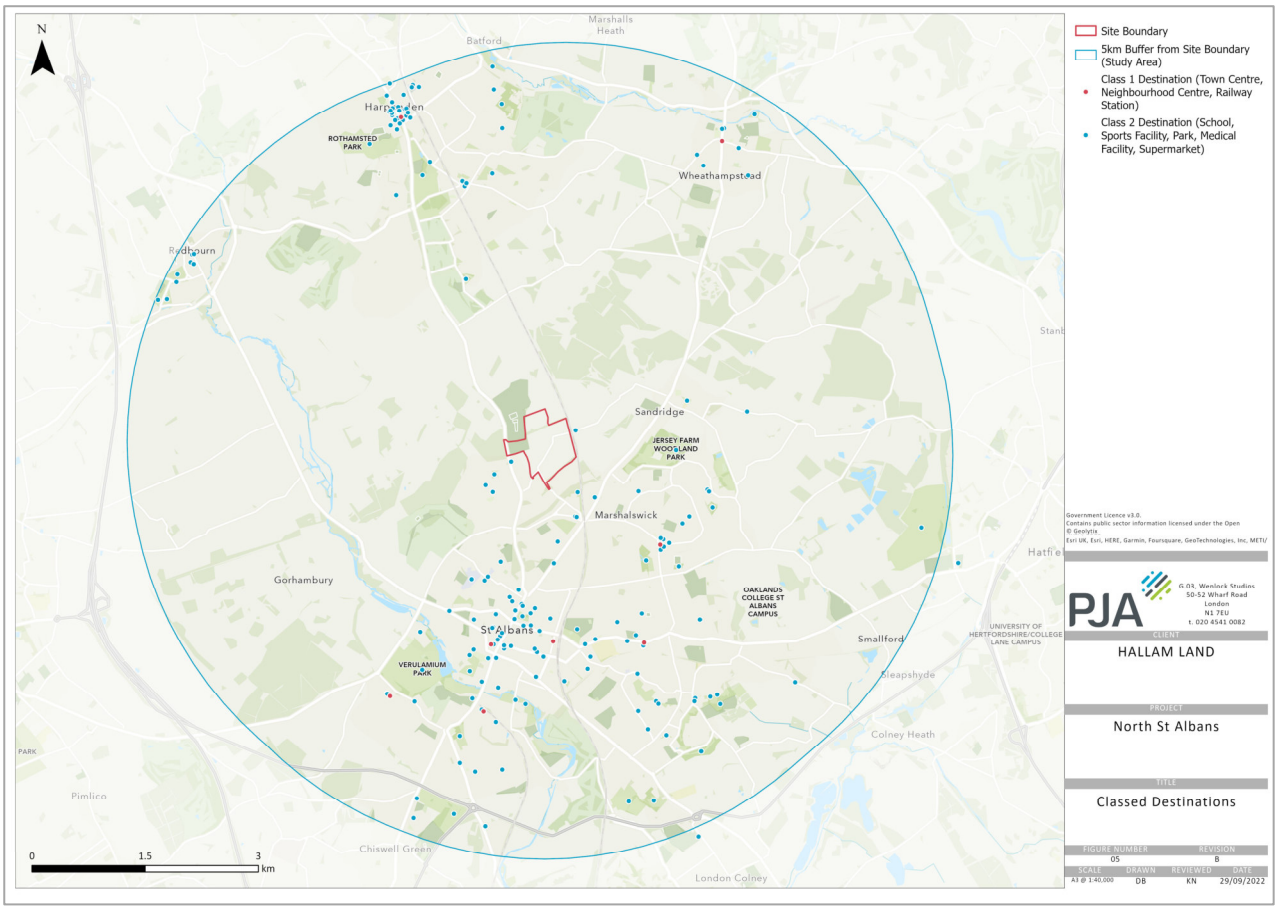


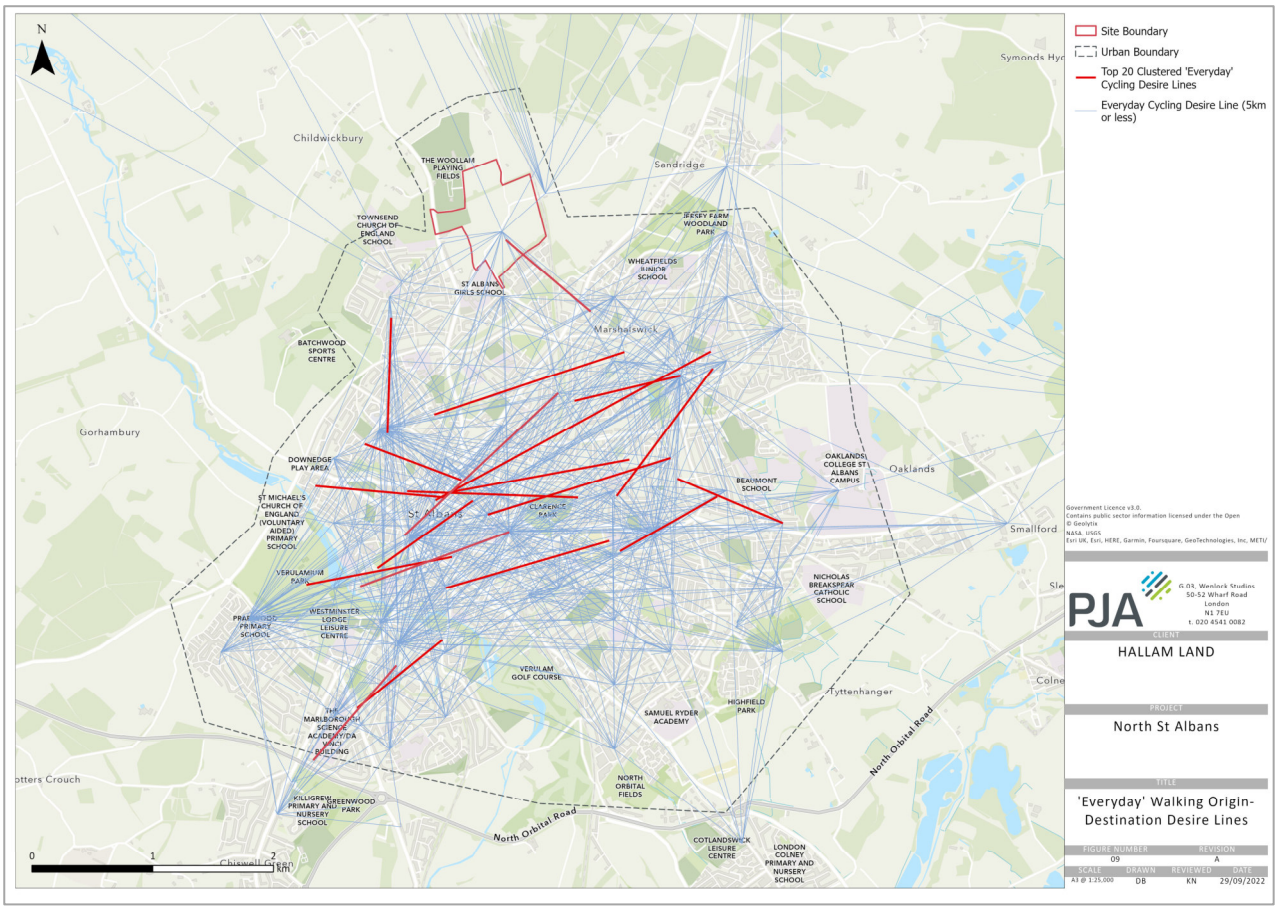
Figure 12: Key Destinations within Study Area



5.4.6 To determine the key 'everyday' desire lines, the spatial relationship between origin and destinations has been analysed. Desire lines have been created from each origin centroid to its nearest Class 2 destination, and then also to all Class 1 destinations in the study area. This assumed that the Class 1 destinations would generate a higher number of trips and that they are also likely to have a larger catchment of trips from across the study area, compared to Class 2 destinations which are more likely to generate locally based trips. Walking trips were defined as desire lines less than 2km in length, and cycling trips were defined as being between 2-8km in length.

5.4.7 Having identified all available desire lines, analysis has been undertaken to cluster the desire lines into a more refined plan which identifies the top 10 walking and cycling desire line clusters. The methodology identifies individual desire lines which are within close proximity to each other and combines these into grouped desire lines. The general alignment of each desire line cluster was then identified to represent the desire lines which represent the highest number of everyday trips.

Figure 13: Top 20 Everyday Cycling Desire Lines



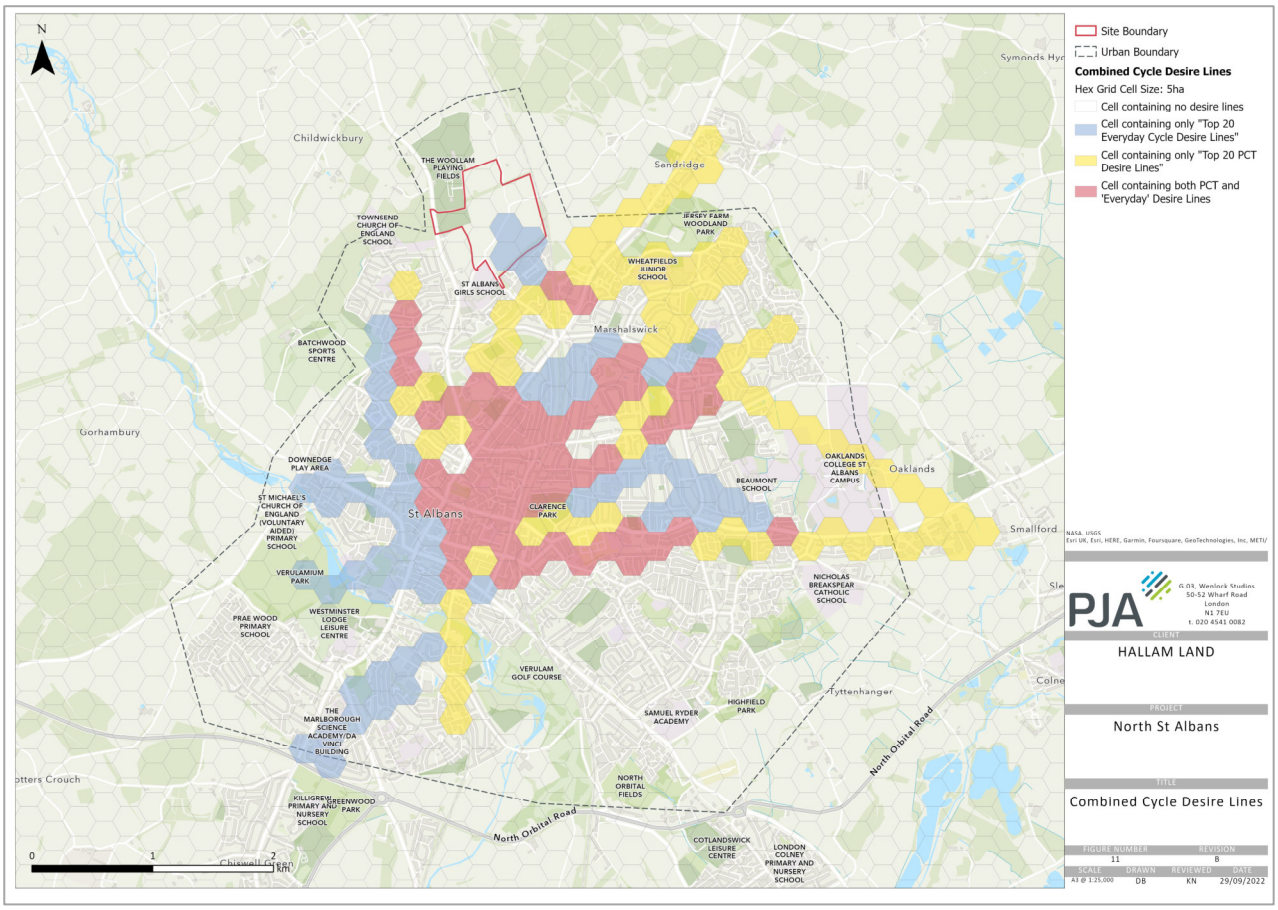
5.5 Desire Line Identification

Combined Desire Lines

5.5.1 In order to identify priority desire lines from the two sets of analysis, the top 20 desire lines for each method were combined to identify areas where they overlapped. The study area was again divided into a hexagonal grid (5ha) and each hexagon which contained a desire line was included in the analysis. Where a hexagon contained a desire line of more than one type, it was classified in a different colour.

5.5.2 The resulting plan for cycling is presented in Figure 14.

Figure 14: Combined Cycling Desire Lines



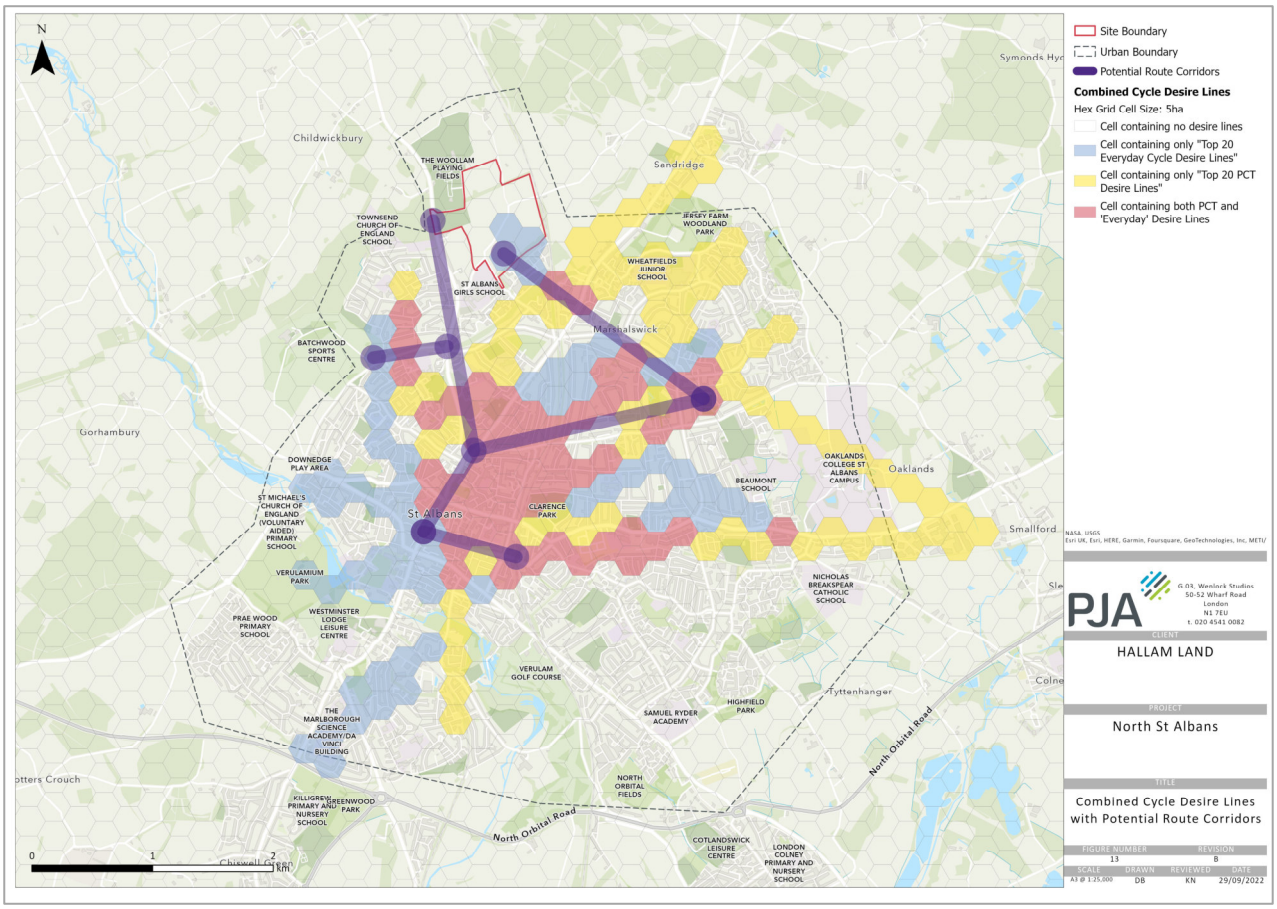
5.5.3 Areas in shades of yellow contain a PCT desire line, areas of blue contain an everyday trips desire line and areas of red contain both types of desire line. Prioritising routes shaded in red would therefore ensure more types of cycling journey are catered for than routes shaded yellow or blue, which is likely to result in a higher rate of modal shift.

5.6 Proposed Cycle Route Audits

5.6.1 Based on the overlap between the predicted desire lines for commuting and everyday trips, it is proposed to audit the following routes to determine feasible interventions to bring the corridors to LTN 1/20[5] standard. The broad corridors where it is proposed audits would focus are shown in Figure 15.

[5] Local Transport Note 1/20: Cycle Infrastructure Design

Figure 15: Proposed Broad Routes for Audit



5.6.2 The broad corridors where improvements could be focussed as follows:

- A north-south route to broadly to follow the Harpenden Road towards St Albans.
- A route connecting the broad development area and Marshalswick.
- An east-west route connecting New Greens and residential areas to the west of Harpenden Road and the development.
- An east-west route to broadly follow Sandpit Lane.

5.6.3 Once these broad corridors are agreed, a more focussed consideration would be given to the potential routes for audit. This would be undertaken by first doing a desktop analysis of opportunities and constraints to inform a site visit to audit specific route options. The audits will then inform potential interventions to ensure the routes become LTN 1/20 compliant.

5.6.4 The next step is to then consider the potential modal shift from vehicle to active travel modes using the PCT modal split targets for the 'Go Dutch' scenario following implementation of the improvements. This assumes the level of cycling seen in the Netherlands adjusting for population demographics, trip distance and topography. This is not as aspirational in terms of its projections

at the 'E-bike' scenario but provides a more conservative yet ambitious target for future cycling levels providing a quality level of infrastructure is provided, compliant with LTN 1/20.

5.6.5 Whilst it is noted that the developer would look to fund some of these routes, the precise level of funding would be determined through ongoing engagement with the local authority.

5.7 Comparison to Vehicle Desire Lines

5.7.1 Following initial meetings with HCC officers, PJA has been advised that the COMET model would not be appropriate for use in understanding local car-borne trip making patterns. It is therefore proposed to use mobile network data to better understand these patterns. This data will demonstrate key OD pairs which use constrained highway corridors. These will then be compared to the proposed cycle desire lines.

5.7.2 The projected uplift in cycle movements for key OD pairs will be used to calculate a resulting reduction in vehicle trips between these OD pairs and corresponding amendments made to vehicle movements.

6 Assessment of Highway Impacts

6.1 Traffic Assignment

6.1.1 The distribution of vehicle trips within the proposed zoning system will be assigned to the local highway network. It is proposed to use GIS software which draws on historical traffic/congestion data[6] to reflect real life route choice. This will be undertaken for a typical Wednesday at 08:30 to reflect peak network conditions.

6.1.2 This provides an "all or nothing" assignment and therefore the outputs will be verified and manually adjusted to reflect route choice where there are alternative routes which would have a comparable journey time.

6.2 Geographic Scope and Data Collection

6.2.1 It is proposed that the following junctions will be assessed using standalone modelling software:

- Site access junctions.
- A1081 Harpenden Road/Sandridgebury Lane.
- A1081 Harpenden Road/Beech Road/Batchwood Drive.
- Beech Road/Firbank Road.
- Beech Road/Sandridge Road/Marshalswick Lane/St Albans Road.

6.3 Assessment Scenarios

6.3.1 It is proposed that the following assessment scenarios would be considered:

- 2022 Base – Based on surveyed flows to ensure models validate to observed conditions.
- 2030 Base (Assumed Opening Year + 5 Years) - Based on uplifted surveyed flows using TEMPro factors and the further addition of traffic associated with pertinent committed development to provide a robust future position.
- 2030 Base + Committed Development + Proposed Development.
- 2030 Revised Base + Committed Development + Proposed Development (Aspirational Modal Split applied to background traffic).

[6] The historical, live, and predictive traffic feeds come directly from HERE (www.HERE.com). HERE collects billions of GPS and mobile phone probe records per month and, where available, uses sensor and toll-tag data to augment the probe data collected. An advanced algorithm compiles the data and computes accurate speeds. The real-time and predictive traffic data is updated every five minutes through traffic feeds. https://www.arcgis.com/home/item.html?id=b7a893e8e1e04311bd925ea25cb8d7c7

6.4 Future Year Assessment and Committed Development

Background Growth

6.4.1 It is proposed to consider two traffic growth scenarios; one being a more standard approach to growth adopted in the past and a second being a more aspirational view on likely growth in traffic.

6.4.2 TEMPro will be used in both instance with forecasts from the National Trip End Model (NTEM) adjusted by the relevant National Transport Model forecasts published as part of the Road Traffic Forecasts (RTF).

6.4.3 TEMPro v8 has recently been released with further updates planned in November 2022 and includes a number of NTEM scenarios:

- Behavioural Change – considers increased flexibility of working and online shopping, a reduction of license holdings amongst the younger population cohort and changes in trip rates.
- Technology – considers a high uptake of connected and autonomous vehicles and low cost electric vehicles. Increase trip making for the elderly cohort among other assumptions.
- Low - considers low rates of population, employment and GDP growth.
- Core - considers central rates of population, employment and GDP growth.
- Regional – considers higher relative growth of population, employment and GDP growth outside London, the South East and East of England. Households and dwelling are also re-distributed in line with the population.
- High – considers high rates of population, employment and GDP growth.

6.4.4 There are also a range of RTF scenarios which will soon be encompassed into TEMPro v8. These projections are shown in Figure 16.

Figure 16: TEMPro v8 RTF Vehicle Miles Forecasts

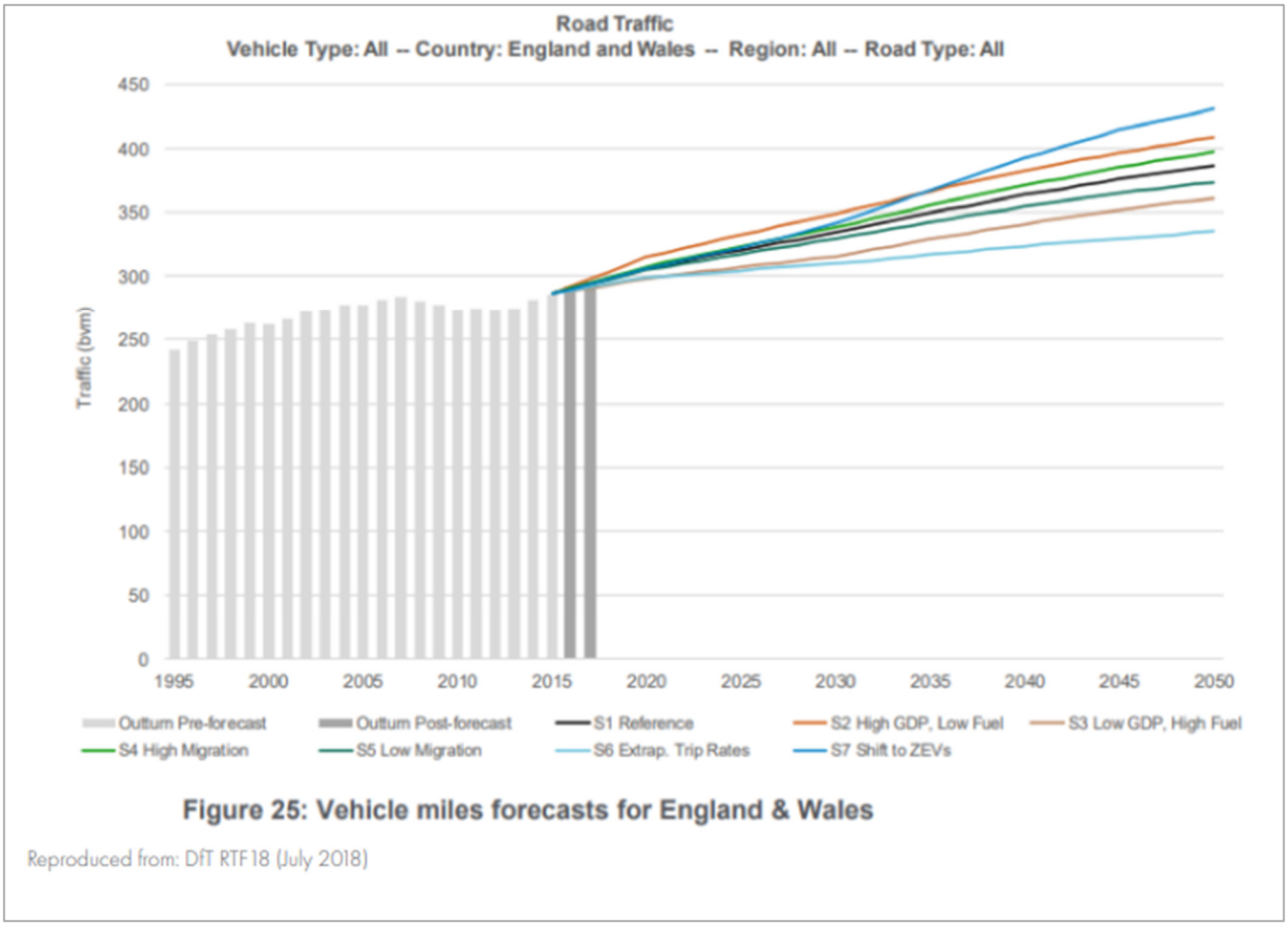


Figure 25: Vehicle miles forecasts for England & Wales

Reproduced from: DfT RTF18 (July 2018)

6.4.5 The following traffic growth scenarios will be considered within the assessment of Land North of St Albans:

- Core Scenario (Typical Growth based on historical trends):
  - Alternative development assumptions to remove projected housing growth from committed (see below) and proposed development.
  - Utilisation of TEMPro core scenario for St Albans.
  - Adjust NTEM growth by RTF Scenario 1 (Reference).
- Aspirational Scenario (Managed growth reflecting behavioural change) – sensitivity scenario:
  - Alternative development assumptions to remove projected housing growth from committed and proposed development.
  - Utilisation of TEMPro behavioural scenario for St Albans.
  - Adjust NTEM growth by RTF Scenario 6 (Extrapolated trip rates).

Committed Development

6.4.6 The TEMPro factors will be adjusted to take account of revised development assumptions removing pertinent committed development and the proposed development. The following committed developments will be accounted for separately and are based on the withdrawn Local Plan site allocations, as follows:

- North St Albans Broad Location (Hunston Properties) - 150 dwellings
- North East Harpenden Broad Location (Crest Nicholson and Bloor) – 680 dwellings
- North West Harpenden Broad Location (Legal and General) – 580 dwellings

6.5 Offsite Highway Improvements

6.5.1 The requirement for any offsite highway improvements to mitigate any residual impacts which are identified to be unacceptable in NPPF terms will be identified through the modelling exercise. This could be delivered through traditional highway improvement works but, more likely, implementation of the off-site sustainable travel measures considered will be used at least in part to mitigate highway impacts.

6.5.2 It is also proposed that the developer would commit to a comprehensive programme of monitoring to respond to actual demands and impacts.

7 On-Site Principles

7.1.1 A strategy for the site would be developed in close liaison with the local highway authority and presented in the Transport Assessment. This would include the following:

- Principles of active travel routes on the site.
- Provision of cycle docks and potential provision of e-bikes.
- Provision of a series of mobility hubs to provide a highly accessible space for public, shared and active travel modes. To include multiple local hubs and a central hub covering the whole development.
- Travel planning to support and encourage uptake of active and public transport modes and Mobility as a Service to ensure a seamless journey for future residents.
- Local connections to provide priority to active travel and public transport users.
- Public transport strategy meeting the needs of future residents providing local connections at the time they wish to travel whilst responding to reduced patronage levels since the Covid pandemic. This would include services to St Albans and other key destinations determined through the TDM with the aim of ensuring any services become commercially viable and self-sustaining.
- Monitoring strategy – a commitment to monitor travel patterns and traffic generation at the site to understand any residual impacts which may require addressing.

8 Summary

8.1.1 PJA has been commissioned to provide transport planning support for the proposed development of Land North of St Albans. This includes the development of a robust access and movement strategy to be presented in a Transport Assessment and Travel Plan/Travel Demand Management Strategy which can be used to support a planning application for development following the withdrawal of the previous draft Local Plan for St Albans City and District in November 2020.

8.1.2 Since previous discussions with HCC undertaken by WSP, policy context and direction has changed in response to the commitment to reduce net emissions. Furthermore, St Albans City and District Council has declared a climate emergency and pledged the area will become carbon neutral by the end of the decade. Changes during the Covid pandemic has demonstrated new attitudes towards active travel and reducing the need to travel.

8.1.3 There is therefore a need for development to integrate potential new ways of living, working and moving in the post pandemic period by creating places and housing products in locations that enable lifestyles which align with achieving the carbon zero goals.

8.1.4 It is therefore proposed that a low carbon transport strategy for the development is developed which considers how the delivery of active travel and public transport infrastructure outside of the development red line could change travel habits within the establish neighbouring settlement effectively freeing up capacity for any residual development traffic.

8.1.5 This note sets out the proposed principles of the strategy as well as the methodology for evidencing the strategy and its impacts on the surrounding network.

8.1.6 It is proposed to use various data sources, as follows:

- 2011 census data.
- National Travel Survey 2019
- TERMPRO
- Public transport accessibility levels from TRACC.
- Propensity to Cycle Tool data.
- Mobile network data.
- Surveys to be undertaken in September 2022.

8.1.7 It is proposed to develop a TDM encompassing the development and the surrounding area. The TDM will be formulated using a comprehensive dataset which considers existing and future travel patterns. The following has been set out:

- Proposed zone structure encompassing wider St Albans and the surrounding area.
- Proposed person trip generation – initially informed by TRICs outputs and will be compared to surveys undertaken for the New Greens area adjacent to the site.
- Trips will be distributed based on journey purpose utilising census data or population/distance weighted gravity models for key trip attractors.
- The baseline modal split will be considered based on census data and calculated using donor site surveys.
- The future modal split will be calculated using forecast for uptake in sustainable travel modes following infrastructure improvements. This will be considered against the potential reduction in vehicle trips based on car-based travel patterns established from mobile network data.
- Similar changes in travel patterns resulting from sustainable travel improvements will be quantified across the wider area and in particular along the Harpenden Road corridor adjacent to the site.
- A methodology is set out which details the corridors which are likely to have the greatest influence and routes which are to be audited to enable active travel interventions to be considered and put forward.
- The off-site highway impacts are proposed to be considered at the site access junction(s) and four offsite junctions:
  - Traffic will be assigned to the network using typical conditions and route choice for a weekday peak period.
  - Assessment will be conducted for a base year of 2022 to validate the outputs of the model against observed conditions.
  - A future year of 2030 will be considered along with key committed development.
  - Two scenarios will be considered to understand the impacts of the baseline travel patterns across the wider network and assuming a greater uptake in sustainable travel modes with a reduction in vehicle trips resulting across the wider network.

8.1.8 The strategy will be underpinned by onsite infrastructure principles and measures to ensure appropriate travel choices are made by future residents. Consideration will be given to:

- Principles of active travel routes on the site.
- Provision of cycle docks and potential provision of e-bikes.
- Provision of a series of mobility hubs to provide a highly accessible space for public, shared and active travel modes. To include multiple local hubs and a central hub covering the whole development.

- Travel planning to support and encourage uptake of active and public transport modes and Mobility as a Service to ensure a seamless journey for future residents.
- Local connections to provide priority to active travel and public transport users:
- Public transport strategy meeting the needs of future residents providing local connections at the time they wish to travel whilst responding to reduced patronage levels since the Covid pandemic. This would include services to St Albans and other key destinations determined through the TDM with the aim of ensuring any services become commercially viable and self-sustaining.
- Monitoring strategy – a commitment to monitor travel patterns and traffic generation at the site to understand any residual impacts which may require addressing.

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RTPI
Chartered Town Planner

Appendix 1.2: Scoping Opinion

COMMUNITY AND PLACE DELIVERY
Christine Traill Strategic Director of Community and Place Delivery

Abi Hawke
LRM Planning Ltd
22 Cathedral Road
Cardiff
Wales
CF11 9LJ

Our Ref: 5/24/1257
Please ask for: George Burgess
E-mail: planning@stalbans.gov.uk

Date: 10 September, 2024

Dear Sir/Madam,

TOWN AND COUNTRY PLANNING ACT (ENVIRONMENTAL IMPACT ASSESSMENT) (ENGLAND) REGULATIONS 2017

Site: Land of Sandridgebury Lane and Between the Railway and Harpenden Road, St Albans

Description of Development: Scoping Opinion - Development of approximately 1,000 new dwellings to include market housing, affordable housing and specialist accommodation for elderly persons, community facilities including a two-form entry primary school and neighbourhood centre, replacement playing fields and associated green infrastructure and access

Applicant: Hallam Land Management Limited

I refer to your Environmental Impact Assessment Scoping Report dated July 2024, prepared by LRM Planning Ltd.

Thresholds and Criteria

The submitted Scoping Report states that the proposed development has been deemed to be EIA development because of the scale, location and potential significant environmental effects. The Scoping Report also notes that the Council's EIA Scoping Opinion (5/19/1187) for a similar development at this site stated that the proposed development was expected to constitute EIA development. The Scoping Report at Paragraph 2.17 onwards confirms the proposed development, which can be summarised as:

- Approximately 1,000 new dwellings, to include market housing, affordable housing and specialist accommodation for elderly persons;
- 2 form-entry primary school;
- Neighbourhood centre with commercial development opportunities;
- Green infrastructure, including replacement playing pitches in place of those which would be lost through the development, multi-functional amenity space, play space, habitat creation, retained hedgerows, and trees and new grow spaces;
- Sustainable urban drainage system; and

- Access.

It is noted that on this basis that the Applicant intends to submit an Environmental Statement (ES) voluntarily. The "Thresholds and Criteria for the identification of Schedule 2 development requiring Environmental Impact Assessment and indicative values for determining significant effects" as set out in the National Planning Practice Guidance indicates that in relation to development falling under Part 10(b), Schedule 2 of the EIA regulations that:

"(i) The development includes more than 1 hectare of urban development which is not dwellinghouse development; or
(ii) the development includes more than 150 dwellings; or
(iii) the overall area of the development exceeds 5 hectares".

It is considered that the proposals would be far in excess of these thresholds and therefore expected to constitute EIA development, in line with the conclusions of the submitted scoping report and the previous EIA Scoping Opinion /19/1187) at this site.

Should you wish to submit a request for a screening opinion in the interest of completeness, the local planning authority can provide its formal view on the matter.

Turning to the scoping report, this has been the subject of consultation in accordance with the Environmental Impact Assessment (EIA) Regulations and copies of the responses are attached.

It is considered that the scope of the Environmental Impact Assessment proposed by you requires amendment to increase the scope in respect of Climate Change and must reflect the comments outlined in this Scoping Opinion and the accompanying consultation responses.

Consultation responses are enclosed with this letter. You will note the specific points which have been made by the consultation bodies and you are required to have regard to these, in full, as well as responding to the points made in the body of this letter. Please ensure that the points raised are included in your EIA and addressed in your subsequent ES.

Some responses have been received from local residents, and these raise issues that would need to be addressed when any planning application is submitted. They do not raise any issues that would require additional matters to be "scoped in" to the EIA, over and above those additional matters set out in this letter and the attached consultation responses.

The District Council considers that the items raised in the Applicants' EIA Scoping Report, and subject to broadening the approach to cover the matters included in the attached consultation responses (noting any caveats in this letter), are all 'scoped-in'. In addition, the following matters should also form part of any ES and need to be 'scoped in':

ECOLOGY AND BIODIVERSITY

Scoped in.

The comments of HCC Ecology (dated 28 August 2024) and Natural England (dated 1 August 2024) should be taken into consideration when preparing this chapter.

LANDSCAPE AND VISUAL

Scoped in.

The scope of this chapter is considered acceptable.

AGRICULTURE AND SOILS

Scoped in.

The scope of this chapter is considered acceptable.

HERITAGE AND ARCHAEOLOGY

Scoped in.

The scope in relation to above ground heritage is considered acceptable.

Historic England's comments (dated 26 July 2024) state that they consider that there appears to be minimal impact on scheduled monuments and Grade I and II* listed buildings in the vicinity of the proposed development.

With regard to below ground heritage, the District Archaeologists comments (dated 5 August 2024) that the proposed scope is considered acceptable. The comments of HCC Historic Environment (dated 7 August 2024) should be taken into account when preparing this chapter.

GROUND CONDITIONS

Scoped in.

The scope of this chapter in relation to ground contamination is considered acceptable, as noted in the Contaminated Land Officer's comments dated 13 August 2024.

The comments of HCC Minerals and Waste (dated 21 August 2024) should be taken into consideration when preparing this chapter.

WATER RESOURCES

Scoped in.

In relation to flood risk, the comments of the LLFA (dated 14 August 2024) must be taken into account when preparing this chapter.

The scope of this chapter should be broadened to include the information requested in Thames Water's comments.

The comments of Affinity Water (dated 14 August 2024) should be taken into consideration when preparing this chapter.

SOCIO–ECONOMIC

Scoped in.

The list of ES topic chapters outlined at paragraph 4.1 of the Scoping Report includes "*Socio-economic / Human Beings".* Paragraph 4.126 of the Scoping Report states that

a Health Impact Assessment (HIA) will accompany the planning application to reflect HCC guidance. It is unclear from the Scoping Report whether an assessment of human health effects is therefore proposed to be scoped out the EIA on the basis that a separate HIA will be provided. For the avoidance of doubt, such an approach would **not** be considered acceptable. An assessment of human health is **scoped in** and a HIA must be included as part of the EIA. The comments from HCC Public Health (dated 5 August 2024) should be taken into account when preparing the HIA.

Paragraph 4.128 of the Scoping Report outlines the organisations that will be consulted in the preparation of the socio-economics chapter and refers to the Herts Valley Clinical Commissioning Group. It should be noted that the relevant health body that should be consulted in the Hertfordshire and West Essex Integrated Care Board (ICB).

WASTE AND MATERIAL ASSETS

Scoped in.

The detailed comments of the HCC Minerals and Waste team (dated 21 August 2024) should be taken into account when preparing this chapter.

CLIMATE CHANGE

Scoped in.

The Scoping Report seeks to scope out three matters from the assessment of greenhouse gas emissions, parts (c), (e) and (i) listed at paragraph 4.142, as follows:

c) transport and disposal of waste from construction activities
e) maintenance, repair, replacement and refurbishment
i) decommissioning and disposal

It is considered acceptable to scope out matter (e) as the effects are not considered to be a significant component of the operational phase. It is also considered acceptable to scope out matter (i) as the effects would be so far in the future that there is insufficient certainty to determine the likely effects. However part (c) should be **scoped in**, as there is likely to be a significant amount of waste from construction activities that is transported and disposed of.

It is considered acceptable to scope out matters (e) and (i), however part (c) should be **scoped in**.

TRAFFIC AND MOVEMENT

Scoped in.

The Scoping Report states that the Traffic and Movement chapter of the ES will be prepared in conjunction with a Transport Assessment and Framework Travel Plan. The comments in the HCC Highways letter (dated 14 August 2024), the National Highways email (received on 14 August 2024) and Network Rail consultation response must be taken into account in the scope of this section of the EIA and the accompanying Transport Assessment.

NOISE AND VIBRATION

Scoped in.

The scope of this chapter is considered acceptable.

AIR QUALITY

Scoped in.

Please review and incorporate the air quality comments from HCC Public health in their letter dated 5 August 2024 Public Health.

CUMULATIVE EFFECTS

In respect of cumulative impact, it will be necessary to take account of outline planning permission 5/2021/0423 for up to 150 dwellings at Land to Rear of 112-156b Harpenden Road.

The local planning authority is not aware of any other major planning applications or extant consents within the vicinity of the site which would need to be included for Type 2 cumulative assessment purposes.

OTHER MATTERS

Please note the comments made by Hertfordshire Constabulary. These are more relevant to a planning application submission but are included for information and completeness. Similarly, the comments provided by the Recycling and Waste Officer are provided for completeness, but are more relevant to a planning application submission.

Comments have also been received from the following consultees, which have not raised any concerns regarding the EIA scope:

- Active Travel England;
- Environment Agency;
- HCC Landscape;
- National Grid; and
- Sport England.

These comments are appended for completeness.

A number of consultation responses have been received from members of the community. These do not raise issues that have not already been outlined in this letter. Some letters raise concerns about the accuracy of the baseline information. It has not been possible to verify this as part of the scoping process, buy you are recommended to review and check your baseline information in the light of those comments.

SUMMARY

It is considered that the scope of the Environmental Impact Assessment proposed by you is broadly acceptable, but must reflect the comments outlined in this Scoping Opinion and the accompanying consultation responses.

You are reminded that detailed comments on the matters scoped in, contained within this letter and the appended scoping responses, must be taken into account in full in the Environmental Impact Assessment.

Yours faithfully

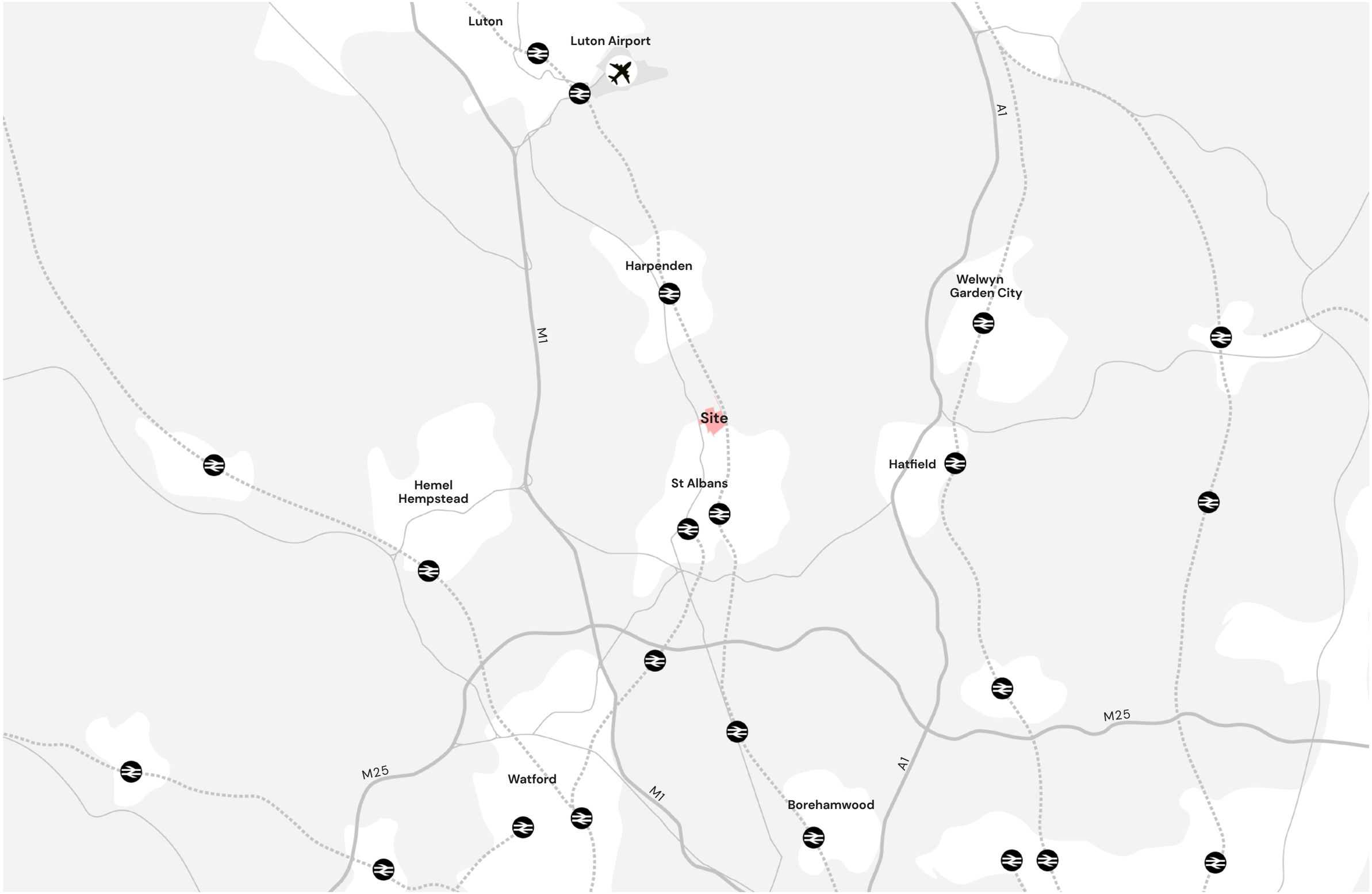
[redacted]

Christine Traill
Strategic Director – Community and Place Delivery
St Albans City & District Council

Encl responses from:

Active Travel England
Affinity Water
Archaeology
Contaminated Land Officer
Design and Conservation
Environment Agency
Hertfordshire Constabulary
HCC Ecology
HCC Highways
HCC Historic Environment
HCC Landscape
HCC Lead Local Flood Authority
HCC Minerals and Waste
HCC Public Health
Historic England
National Grid
National Highways
Natural England
Network Rail
Recycling and Waste Officer
Sport England
Thames Water

Appendix 2.1: Context Plan



Define.

N

Date	04/12/2024
Drawn	TA
Revision	-

Hallam Land Management Limited	Client
Woollam Park, North St Albans	Project
Context Plan	Title
DE_565_UD_10	Ref.

Appendix 2.2: The application site

Appendix 3.1: Parameter Plans

Appendix 3.2: Illustrative Framework Plan



Define.

B	Updated to reflect HLM comments	05.12.24

0m 10 20 30 50 100

N

Scale	1:2000
Date	05/12/2024
Revision	B

Hallam Land Management Limited	Client
Woollam Park, North St Albans	Project
Illustrative Framework Plan	Title
DE_565_105	Ref.

Appendix 3.3: Playing Pitch drawings

Appendix 3.4: Access drawings

Appendix 6.1: Badger survey report

Confidential

Appendix 6.2: Bat survey report

Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

Woollam Park

APPENDIX 6.2 - BAT REPORT

October 2024

FPCR Environment and Design Ltd
Registered Office: Lockington Hall, Lockington, Derby DE74 2RH
Company No. 07128076. [T] 01509 672772 [E] mail@fpcr.co.uk [W] www.fpcr.co.uk

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Rev	Issue Status	Prepared / Date	Approved / Date
-	Draft	NK / 26.10.2022	
	Draft	JAG / 26.04.24	DAH/OGJ / 20.09.24
	Final	CHK / 29.10.2024	

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Table 2: Activity Survey Timings and Weather Conditions

Table 3: Nighttime Bat Walkover Timings

Table 4: Nighttime Bat Walkover Conditions

Table 5: Bat Records within 2km of the Site

Table 6: Bat Mitigation Licences Surrounding the Site

Table 7: Bat Potential Trees on Site

Table 8: 2022 Transect Survey Summary

Table 9: 2024 Night-time Bat Walkover Survey Summary

Table 10: Static Detector Survey Summary 2018-19

Table 11: Static Detector Survey Summary 2022

Table 12: Static Detector Survey Summary 2024

FIGURES

Figure 1: Bat Potential Tree and Static Plan

Figures 2-9: Transect Plans - April-October 2022

Figure 10: Night-time Bat Walkover – Flightlines May 2024

Figure 11: Night-time Bat Walkover – Transect May 2024

APPENDICES

Appendix 1-8 Historic Survey Data: 2018-2019 Transect Plans

1.0 NON-TECHNICAL SUMMARY

1.1 FPCR were commissioned by Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust to conduct bat surveys at Woollam Park, Hertfordshire (central OS grid reference TL154098).

1.2 Proposals for the Application Site include up to 1000 homes, a primary school, a local centre, open space and drainage infrastructure.

1.3 Surveys were carried out on the Site across 2018-2019 and 2022, under the 3rd Edition of the Bat Conservation Trust (BCT) Survey Guidelines. In 2023 BCT published version 4 of the 'Guidelines to Bat Surveys for Professional Ecologists: Good Practice Guidelines'. In light of this, an update survey was completed in May 2024 to supplement and update the existing data.

1.4 The development boundary consisted of five field compartments, four fields under agricultural cultivation and one field comprised amenity grassland currently utilised as a rugby pitch. The arable field compartments support a mixture of cereal and non-cereal crops, with narrow field margins and bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary of the application site is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment.

1.5 The Site comprised of four arable field compartments and a single mown grassland compartment utilised for amenity purposes. The arable field compartments support a mixture of cereal and non-cereal crops, with narrow field margins and bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary of the Site is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment. Sandridgebury Lane bisects the arable field compartments that dominate the Site and a railway line borders the eastern boundary.

1.6 13 trees were assessed as having bat roosting potential. All potential bat roosting trees are to be retained and buffered by the development proposals.

1.7 Proposals involve the construction of a large area of hardstanding with green corridors throughout, as well as large areas of amenity and semi-natural greenspace proposed in the east of the site. Habitats to be created include modified grassland, other neutral grassland, mixed scrub, broadleaved woodland, sustainable urban drainage basins, species rich hedgerows and urban tree planting.

1.8 A sensitive lighting strategy should be secured through and appropriately worded condition to reduce impacts on retained habitats.

1.9 It is recommended that the proposals include the installation of bat boxes around the Site to provide optimal roosting opportunities for bats and enhance the exist resource of such features.

1.10 The proposals include a range of habitat enhancement to the existing woodlands and hedgerows, that will benefit bats including the enhancement of Long Spring Wood LWS with creation of diverse scrub and species grassland, to create the optimal habitat for bats. Further habitat creation will create new foraging and commuting corridor between this LWS and the Heartwood forest complex to the north-east of the site.

1.11 Mitigation recommendations will maintain some of the commuting habitats through creation of hop-overs on hedgerows and incorporation of buffers and sensitive light measures around trees and woodlands to maintain dark corridors.

2.0 INTRODUCTION

2.1 The following report has been prepared by FPCR Environment and Design Ltd on behalf of Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust to present the results of bat surveys completed at Woollam Park, Hertfordshire (central OS grid reference TL154098).

2.2 The scope and objectives of the report are to:

- present the findings of the bat surveys undertaken in 2018-2019, 2022 and 2024.
- assess the relative importance of the survey area for bats.
- review the site proposals and provide recommendations for mitigation, compensation and enhancement as appropriate.

2.3 A suite of ecological surveys have been undertaken on the application site and this report should be read in conjunction with the Environmental Statement (ES, FPCR, 2024).

Site Location and Context

2.4 The development boundary consisted of five field compartments, four fields under agricultural cultivation and one field comprised amenity grassland currently utilised as a rugby pitch. The arable field compartments support a mixture of cereal and non-cereal crops, with narrow field margins and bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary of the application site is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment. The western boundary is bordered by the A1081 Harpenden Road, Sandridgebury Lane bisects the arable field compartments, and a railway line borders the eastern boundary.

2.5 The Site was situated on the northern periphery of the city of St Albans, Hertfordshire. The area directly north of the application site was part of OA Sports Club, beyond this to the north and east of the site comprised arable land. To the south of the site a number of residential dwellings with associated gardens were situated, along with some commercial units and St Albans Girl's School.

Site Proposals

2.6 The proposals include the construction of up to 1,000 new homes (C3), 50 bed elder persons Care Home (C2), 12 units of Special Needs Accommodation (C2); a two-form entry primary school (D1), a neighbourhood centre comprising of A1-A5, D1 health facility and community facility; the laying out of areas of green infrastructure and open space, re-provision of playing fields; new drainage infrastructure; creation of new means of access onto Harpenden Road; and associated infrastructure and earthworks.

3.0 LEGISLATION AND POLICY

3.1 Bats are afforded full protection under the Wildlife & Countryside Act (WCA) 1981 (as amended) and the Conservation of Habitats and Species Regulations (CHSR) 2017 (as amended). All UK species are European Protected Species (EPS).

3.2 In summary, it is illegal to:

- deliberately or recklessly capture, injure or kill any bats;
- deliberately disturb bats and impair their ability to survive, to breed/reproduce or to rear/nurture their young;
- deliberately disturb bats and impair their ability to hibernate or migrate;
- deliberately disturb bats and significantly affect the local distribution or abundance of the species to which they belong;
- intentionally or recklessly disturb any bat while it is occupying a structure or place which it uses for shelter or protection;
- intentionally or recklessly obstruct access to any structure or place which a bat uses for shelter or protection;
- damage or destroy a breeding site or resting place of a bat.

3.3 If impacts to bats or their roosts cannot be avoided, an appropriate licence is required from Natural England to derogate from the relevant legislation.

3.4 Some bat species are listed as species of principal importance for the conservation of biodiversity in England as required under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. The S41 list is used to guide decision-makers, including local planning authorities, in implementing their duty under section 40 of the Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

4.0 METHODOLOGY

4.1 Survey effort was completed on the Site across 2018-2019 and 2022, which used the latest Bat Conservation Trust (BCT) Survey Guidelines available at the time which comprised the 3rd edition (2016). In 2023 the BCT updated their guidelines to Bat Surveys for Professional Ecologists: Good Practice Guidelines' (Bat Conservation Trust, 4th Edition, 2023)[1]. In light of this, an updated survey was completed in May 2024 to supplement the wealth of existing data in order to check that no significant differences in the bat assemblage were recorded.

Desk Study

4.2 In order to compile existing baseline information, relevant ecological information was requested on the 30th of March 2022 from both statutory and non-statutory nature conservation organisations including:

- Herts Environmental Records Centre (HERC)
- Multi Agency Geographic Information for the Countryside (MAGIC)[2]

4.3 When handling data, species records were filtered to those from the previous ten years. Older records were reviewed but only included where they were considered relevant to the site assessment.

Tree Roost Assessment

4.4 Trees within Site were assessed for their potential to support roosting bats by experienced bat ecologists in August 2018 in accordance with BCT 3rd edition survey guidelines. Due to the intervening time since the initial surveys, FPCR were instructed to complete updated surveys in 2022.

4.5 The trees were searched for potential roosting features (PRFs) from ground level with the aid of a torch and binoculars, where appropriate. Features[3] include:

- Natural holes e.g. knot holes arising from naturally shed branches or branches previously pruned back to a branch collar
- Man-made holes e.g. cavities that have developed from flush cuts or cavities created by branches tearing out from parent stems
- Woodpecker holes
- Cracks/splits in stems or branches (horizontal and vertical)
- Lifted or partially detached bark
- Other hollows or cavities, including butt rot and canker cavities
- Crossing stems or branches with suitable roosting space between

1 Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4thedition). The Bat Conservation Trust, London.

2 MAGIC - https://magic.defra.gov.uk/

3 BS 8596:2015 Surveying for bats in trees and woodland – Guide. British Standards Institute.

- Ivy stems with diameters in excess of 50mm with suitable roosting space behind (or where roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk)
- Bat, bird or dormouse boxes

4.6 Trees were then placed into bat roost potential categories as per current guidance[4] and summarised in *Table 1*.

Table 1: Bat Roost Potential Categories for Trees

Tree Categories	Description
Confirmed Roost	Evidence of roosting bats in the form of live/dead bats, droppings, urine staining, fur oil staining etc.
High Potential	A tree with one or more PRFs that are obviously suitable for large numbers of bats on a more regular basis and/or longer duration due to their size, shelter, suitable conditions (height above ground, light levels, etc), and surrounding habitat. Examples include, but are not limited to, woodpecker holes, large cavities, hollow trunks, hazards beams.
Moderate Potential	A tree with PRFs which could support one or more potential roost sites due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status e.g. large roost or maternity roost. Examples include, but are not limited to, rot holes, branch socket cavities, canker cavities, etc.
Low Potential	A tree of sufficient size and age to contain PRFs but with none seen from the ground or features that offer very limited potential. Examples include, but are not limited to, shallow splits, upward facing holes, etc.
Negligible Potential	No features present likely to be used by roosting bats.

4.7 Due to the BCT guideline changing in 2023 an update Ground level Preliminary Roost Assessment was conducted by suitably experienced ecologist on 22nd April 2024.

4.8 Using professional judgement, the ground-based PRA assessment classified any trees identified based upon the presence of suitable features in which the general bat roost potential groups are defined (refer Table 4.2 of the guidelines) and provided in Table 2 below. This is in accordance with the updated BCT guidelines for assessing tree suitability for roosting bats. All of the trees within the Site boundary were assessed for their potential to support roosting bats during the survey.

Table 2: Suitability of Trees for Bats

Suitability	**Description**
NONE	Either no potential roost features or highly unlikely to be any.
FAR	**F**urther **A**ssessment **R**equired to establish if Potential Roost Features are present.
PRF	A tree with at least one **P**otential **R**oost **F**eature.

[4] Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).* The Bat Conservation Trust, London.

Nocturnal Activity Surveys

2018-2022 Surveys

4.9 The Application Site was assessed as having moderate habitat suitability for bats as per BCT 3rd edition guidelines (2016), and therefore monthly transect surveys were undertaken between July 2018-June 2019. Given the intervening time since the initial surveys, this survey effort was updated in April-October 2022.

4.10 A transect route was designed to cover all habitats, where possible, within the survey area with a particular focus on those considered to provide higher bat suitability. The transect was walked by a pair of suitably experienced ecologists with a Wildlife Acoustic Inc. Echo Meter Touch bat detector and Apple Inc. iPad.

4.11 Surveys were only carried out in suitable weather conditions (*Table 3*). The surveys commenced at dusk and continued for 2-3 hours with surveyors walking at a steady pace and recording all bat activity encountered. A dawn survey was also carried out following the dusk survey in June 2019 and August 2022, which began 2 hours prior to dawn and finished at sunrise. The transect routes included five-minute point counts where surveyors would stop and record all bat activity at these specific points.

4.12 Post-survey, the bat calls recorded on the transect were then analysed by experienced ecologists using Kaleidoscope software (Wildlife Acoustics Inc.) to verify the bat species and activity levels.

Table 3: Activity Survey Timings and Weather Conditions

Date	Start Time	Finish Time	Weather Conditions
2018-2019 Surveys			
30th July 2018	20:54	23:16	18°C, dry, 70% cloud cover, light breeze
28th August 2018	19:58	22:05	18°C, dry, 70% cloud cover, light breeze
24th September 2018	18:56	21:03	13°C, dry, 10% cloud cover, light wind
16th October 2018	18:06	21:06	16°C, dry, 100% cloud cover, light breeze
24th April 2019	20:14	22:15	12°C, dry, 65% cloud cover, light breeze
15th May 2019	20:47	23:47	13°C, dry, 10% cloud cover, light breeze
25th June 2019	21:24	00:24	17°C, dry, 100% cloud cover, light breeze
26th June 2019	02:44	04:44	15°C, dry, 100% cloud cover, light breeze
2022 Surveys			
19th April 2022	20:05	22:39	11°C, dry, 80% cloud cover, light breeze
9th May 2022	20:38	22:56	16°C, dry, 100% cloud cover, strong breeze
9th June 2022	21:17	23:44	16°C, dry, 100% cloud cover, moderate breeze
13th July 2022	21:15	23:49	22°C, dry, 40% cloud cover, light breeze
3rd August 2022	20:47	23:15	22°C, dry, 20% cloud cover, no wind
4th August 2022	03:23	05:39	17°C, dry, 40% cloud cover, light breeze
28th September 2022	18:46	21:07	13°C, dry, 40% cloud cover, no wind
17th October 2022	18:04	20:30	15°C, dry, 30% cloud cover, light breeze

2024 Update Survey

4.13 Due to BCT publishing new guidelines (4th edition) in 2023 it was decided that an update survey would be carried out, to supplement the existing data, and to bring the data in line with current guidelines. One survey considered sufficient based on the amount of information already held for the Site and was primarily carried out to ensure there were no significant differences encountered through following the new guidelines.

4.14 In line with new 4th edition BCT guidance (Collins et al, 2023) nighttime bat walkovers are undertaken in two parts. The first part is undertaken by stationary surveyors positioned on habitat features most likely to be utilised as commuting routes by bats. Once conditions become too dark to see or once commuting activity has been observed and has largely ended, surveyors begin a walked transect sampling all areas and habitats within the Site noting any bat activity that is heard or observed along the way. Whilst this includes two elements it is one survey designed to record information to provide further context to elements that static detectors cannot always identify such as bat behaviour or abundance of bats.

4.15 The first part of the survey to observe flightpaths involved two surveyors being positioned at predetermined locations (VP1 and VP2) as shown on *Figure 10*. The vantage point survey started just before sunset and lasted for between 30 minutes to one hour after sunset. After this the walked transect was started and continued until two to three hours after sunset (*Figure 11*). Survey timings (*Table 3*) and weather conditions (*Table 4*) are outlined below.

4.16 Surveyors were equipped with Wildlife Acoustics Inc. Echo Meter Touch® bat detectors in conjunction with Echo Meter Touch® app and Samsung Galaxy Tab Active 3® during the transect surveys to detect bats and aid species identification. And during the survey noted any bat activity observed during the survey.

Table 3: Nighttime Bat Walkover Timings (2024)

Survey Date	Sunset Time	Start Time (commuting)	Start Transect	End Transect
01.05.24	20:26	21:00	21:10	23:03

Table 4: Nighttime Bat Walkover Conditions (2024)

Survey Date	Start Temp	Wind Beaufort Scale	Rain	Cloud cover (%)
01.05.2024	18°C	0	Dry	100%

4.17 The data from the nighttime Bat Walkover survey was analysed as soon as possible after the survey using the Kaleidoscope Viewer© (Wildlife Acoustics, Inc.) software package to assess the amount of bat activity on site by recording the number of bat registrations. Measurements including peak frequency, inter-pulse interval, call duration and end frequency were taken to aid in species identification. This analysis was completed by a suitably experienced ecologist (Analysts are audited internally for quality control purposes and to maintain consistent results). The results were considered as to whether the results differed significantly from the 2018 results and whether further update surveys would be required.

Static Bat Detector Surveys

2018-2022 Surveys

4.18 Wildlife Acoustics Inc. Song Meter SM4BAT FS detectors (hereafter referred to as 'SM4BAT detectors') were deployed within the survey area in habitats likely to be impacted by the development and/or habitats suitable for navigational/foraging routes. Locations are shown in *Figure 1*. Two detectors were used per transect route. However, in April 2019 two new field compartments were added so a third SM4 detector was deployed per month.

4.19 The SM4BAT detectors were left to record for a minimum of five nights of suitable weather conditions each survey. Any data recorded on nights surplus to the first five nights is included in the results section where an Annex II species were recorded. They are programmed to activate 30 minutes before dusk and record continuously until 30 minutes after sunrise.

4.20 The data was analysed as soon as possible after retrieval of the static units using the Kaleidoscope Viewer© (Wildlife Acoustics, Inc.) software package to assess the amount of bat activity on site by recording the number of bat registrations. Measurements including peak frequency, inter-pulse interval, call duration and end frequency were taken to aid in species identification. This analysis was completed by a suitably experienced ecologist (Analysts are audited internally for quality control purposes and to maintain consistent results).

2024 Update Survey

4.21 In line with new 4th edition BCT guidance (Collins et al, 2023) automated static bat detectors were deployed on Site in May 2024, to update the existing data, and ensure that no significant differences were noted.

4.22 Three automated static bat detectors were used to record the passing behaviours of bats from a fixed position. Wildlife Acoustics Inc. Song Meter SM4BAT FS detectors (hereafter referred to as 'SM4BAT detectors') were deployed in habitats likely to be impacted by the proposed development. Locations are shown in *Figure 1* and were chosen using professional judgement.

4.23 The SM4BAT detectors were left to record for a minimum of five nights during suitable weather conditions each survey. They are programmed to activate 30 minutes before dusk and record continuously until 30 minutes after sunrise.

4.24 Following collection, the recordings were analysed using Kaleidoscope Viewer© (Wildlife Acoustics, Inc.) software by experienced ecologists. Each sound file was counted as a single bat pass or registration for each species visible in the sound file. The total number of registrations provides an indication of the relative importance of the site and detector location for bats.

Limitations

4.25 Due to the high level of variation in echolocation calls and the properties of zero-crossed frequency division recordings, it is not always possible to identify calls down to species level. These calls are therefore identified to genus level, which is sufficient for a suitable assessment of potential impacts.

4.26 The lower amplitude calls made by brown long-eared bat *Plecotus auritus* and barbastelle are more difficult to detect and may not be picked up by the directional microphones. Therefore, these species may have been under-recorded during these surveys.

4.27 The SM4BAT detectors do not discern between individual bats or a single bat passing the microphone several times. Therefore, the number of registrations can only provide an indication of bat activity.

4.28 Two field compartments were added to the red line boundary in April 2019 and thus survey data prior to this is not available for these areas. It is considered, however, that sufficient data was collected from adjacent habitats to adequately inform the assessment of the application site.

4.29 Only one update nighttime walkover and one automated static survey were undertaken in 2024, under new BCT guidance[5]. FPCR hold survey data for the Site from 2018 to 2022; while these surveys are now technically out of date, based on CIEEM's guidance that ecological data is valid for two years, due to two full years of data being held, one update survey was decided upon to check that the assemblage and distribution of species remained consistent on the Site. Following analysis of the data it was decided that the assemblage had not significantly changed and that the update survey coupled with the data held from 2018-2022 should be sufficient to provide an accurate assessment and therefore only carrying out one survey in the 2024 season is not considered to be a limitation to this assessment.

5 Collins, J (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London. ISBN-978-1-7395126-0-6

5.0 RESULTS

Desk Study

5.1 Numerous bat records within 2km of the survey area from the last 10 years were provided by HERC in 2022 as summarised in *Table 5*.

Table 5: Bat Records within 2km of the Site

Species	Dates	Status	No. of records	Closest Record Distance (approx.) from Site
Brown long-eared bats *Plecotus auritus*	2003-2016	CHSR, WCA, NERC S41	19	130m
Common pipistrelle *Pipistrellus pipistrellus*	1987-2017	CHSR, WCA	23	On site
Daubenton's bat *Myotis daubentonii*	2009-2016	CHSR, WCA	26	130m
Natterer's bat *Myotis nattereri*	2009-2016	CHSR, WCA	32	130m
Western barbastelle *Barbastella barbastellus*	2017	CHSR, WCA	1	1.84km

5.2 Two mitigation licences were identified within 2km of the application site (*Table 6*).

Table 6: Bat Mitigation Licences Surrounding the Site

Licence Reference	Distance from Site	Duration	Reason
2019-39267-EPS-MIT	1km NW	2019-2024	Damage and destruction of a resting place for common pipistrelle
2018-37807-EPS-MIT	1.7km N	2018-2023	Damage and destruction of a resting and breeding place for brown long-eared bat, common pipistrelle and whiskered bat.

Tree Roost Assessment

5.3 All of the trees within the Site were assessed for their potential for roosting bats in 2024. A total of 13 trees were identified as having roosting bat potential (*Figure 1*). Details are summarised in *Table 7*.

Table 7: Bat Potential Trees on Site

Tree reference (Figure 1)	Species	PRFs	Bat Potential
T1	Ash *Fraxinus excelsior*	Compression fork	Moderate
T2	Ash	Woodpecker hole	Low
T3	Ash	Woodpecker hole	Low
T4	Ash	Woodpecker hole	Moderate
T5	English oak *Quercus robur*	Branch tear out	Moderate
T6	Ash	Main trunk large cavity from limb collapse	High
T7	Ash	Knot hole on main trunk	Low

Tree reference (Figure 1)	Species	PRFs	Bat Potential
T8	Ash	Knot hole on main trunk	Low
T9	Ash	Butt rot, loose bark	Low
T10	Ash	Woodpecker hole	Moderate
T11	Ash	Woodpecker hole (blue tit nest), deadwood in canopy	Moderate
T12	Ash	Woodpecker hole	High
T13	English oak	Knot hole, branch tear out	Low

Nocturnal Transect Surveys

5.4 The historic survey effort throughout 2018 and 2019 recorded a total of five species/species groups were recorded. Common pipistrelle and soprano pipistrelle were the most frequently recorded, with noctule bats, *Plecotus* species, and *Myotis* species also recorded in low numbers. The peak number of bats contacts recorded was during the May 2019 survey with three species/species groups and 32 contacts. Activity was mainly focused around the woodland compartments and the hedgerows H1-H4 in the western extent of the site. Further detail can be found in *Appendices 1-8.*

5.5 During the 2022 survey effort, a total of five species/species groups were recorded. Common pipistrelle was most frequently recorded. There was a peak in both number of species and contacts recorded during the June 2022 survey with four species/species groups and 30 contacts. Other species recorded included: soprano pipistrelle, brown long-eared and *Nyctalus spp* bats. One Annex II species was recorded during the surveys; a single barbastelle was recorded commuting in the north of the Site near hedgerow H13, and close to woodland W1, in September 2022.

5.6 Transect survey results from 2022 are summarised in *Table 8* and illustrated in *Figures 2-9.*

Table 8: 2022 Transect Survey Summary

Date (Figure ref.)	Total Contacts (incl. point counts)	Date (Figure ref.)	Total Contacts (incl. point counts)
19th April 2022 (Figure 2)	**23** 18 common pipistrelle 4 soprano pipistrelle 1 bat spp.	3rd August 2022 Dusk (Figure 6)	**26** 23 common pipistrelle 2 soprano pipistrelle 1 *Nyctalus* spp.
9th May 2022 (Figure 3)	**28** 24 common pipistrelle 4 soprano pipistrelle	4th August 2022 Dawn (Figure 7)	**15** 12 common pipistrelle 2 soprano pipistrelle 1 brown long-eared
9th June 2022 (Figure 4)	**30** 22 common pipistrelle 5 soprano pipistrelle 2 brown long eared 1 *Nyctalus* spp.	28th September 2022 (Figure 8)	**5** 3 common pipistrelle 1 brown long-eared 1 barbastelle
13th July 2022 (Figure 5)	**30** 29 common pipistrelle 1 soprano pipistrelle	17th October 2022 (Figure 9)	**26** 17 common pipistrelle 4 soprano pipistrelle 4 noctule 1 bat spp.

5.7 A total of five species/species groups were recorded during the 2024 May NBW with common pipistrelle most frequently recorded.

5.8 A total of five species/groups were recorded on site in 2024, with common pipistrelle most frequently observed. Commuting activity of common and soprano pipistrelles were observed from vantage points during flightline survey. Common pipistrelle foraging activity was recorded along Sandridgebury Lane and within the woodland strip to the north of the site during the transect. Occasional noctule/*Nyctalus* spp. passes and a single brown long-eared pass were also recorded to the north of the site.

5.9 Survey results from 2024 are summarised in *Table 9* and illustrated in *Figures 10-11.*

Table 9: 2024 Night-time Bat Walkover Survey Summary

Date (Figure ref.)	Total Contacts (incl. vantage points)
1st April 2024 (Figure 2)	**38** 30 common pipistrelle 4 soprano pipistrelle 2 noctule 1 brown long-eared bat 1 *Nyctalus* spp.

5.10 Activity during 2022 and 2024 surveys were frequently recorded along the woodland edges in the north and south and along Sandridgebury Lane in the centre. Overall activity was relatively evenly spread along all linear features on the application site.

Static Bat Detector Surveys

5.11 Over the 2018-2019 survey season, nine species/species groups were recorded by 17 static detectors (*Table 10, Figure 1*). Common pipistrelle (C pip) was most abundant (74.39% of registrations) followed by:

- Soprano pipistrelle (S pip) - 19.91%
- *Pipistrellus* spp. (*Pip* sp.) - 5.21%
- Noctule (Noc) - 0.17%
- Brown long-eared bat (BLE) - 0.1%
- *Nyctalus* spp. (*Nyc*) - 0.09%
- *Myotis* spp. (*Myo*) - 0.07%
- Barbastelle (Barb) - 0.04%
- Nathusius' pipistrelle (N pip) - 0.02%

Table 10: Static Detector Survey Summary 2018-19

Dates	Unit Reference (Figure 1)	Total Registrations	Species & Registration Count	
30th July – 4th August 2018	A1	1287	C pip – 1200 S pip – 81 *Myo* - 2	*Nyc* – 2 N pip - 1
	A2	312	C pip – 269 S pip – 28 *Plec* - 5	Noc – 4 *Myo* – 1 *Nyc* - 1

Dates	Unit Reference (Figure 1)	Total Registrations	Species & Registration Count	
28th August – 2nd September 2018	B1	57	C pip – 143 S pip – 6 Noc – 3 *Nyc* – 2	Barb – 1 *Myo* – 1 *Plec* - 1
	B2	534	C pip – 450 S pip – 46 Noc – 11 *Myo* – 9 Barb - 7	*Pip sp.* – 6 *Plec* – 3 *Nyc* – 1 N pip - 1
24th-29th September 2018	C1	3353	C pip – 3213 S pip – 218 Noc - 8	*Nyc* – 2 N pip – 1 *Plec* – 1
	C2	68	C pip – 55 S pip – 6 *Nyc* - 2	*Pip sp.* – 2 *Plec* – 2 Noc – 1
16th-21st October 2018	D1	1664	C pip – 1632 S pip – 21 Noc - 5	*Nyc* – 2 *Pip sp.* - 1
	D2	248	C pip – 211 S pip – 27 Noc – 4 *Pip sp.* - 2	Barb – 1 *Myo* – 1 N pip – 1 *Plec* - 1
24th-29th April 2019	E1	12	C pip – 10 N pip - 1	*Myo* - 1
	E2	51	C pip - 47	S pip – 4
	E3	24	C pip – 24	
15th-20th May 2019	F1	2854	C pip – 2790 S pip – 37	*Pip sp.* – 27
	F2	420	C pip – 414 *Pip sp.* – 2 *Nyc* - 2	S pip – 1 *Plec* – 1
	F3	386	C pip – 356 S pip - 20	*Pip sp.* – 9 *Nyc* - 1
14th-19th June 2019	G1	8523	C pip – 4008 S pip - 3468	*Pip sp.* – 9 *Nyc* – 1
	G2	366	C pip – 360 S pip – 2 *Ple* - 2	S pip – 1 *Pip sp,* - 1
	G3	1084	C pip – 808 S pip – 264 *Pip sp.* - 9	*Plec* – 2 Noc - 1

5.12 During the 2022 automated surveys, a total of 8166 registrations were recorded over the 2022 season (April-September) by 12 statics (*Table 11*). Common pipistrelle (C pip) was the most frequently recorded species (approximately 91.88% of total data), with other species recorded in lower numbers:

- Soprano pipistrelle (S pip) – 6.1%
- Brown long-eared bat (BLE) – 0.91%
- Noctule (Noc) – 0.53%
- *Nyctalus* spp. (*Nyc*) – 0.22%
- Barbastelle (Barb) -0.2%
- *Myotis* spp. (*Myo)* – 0.14%
- Serotine (Sero) – 0.02%
- *Nyctalus/Eptesicus* spp. (*Nyc/Ept*) – 0.01%

Table 11: Static Detector Survey Summary 2022

Dates	Unit Reference (Figure 1)	Total Registrations	Species & Registration Count	
19th – 24th April 2022	A1	801	C pip – 798	S pip - 3
	A2	1338	C pip – 1285 S pip – 52	*Myo* - 1
9th – 14th May 2022	B1	157	C pip – 149	S pip - 8
	B2	191	C pip – 177 S pip – 9	Noc – 4 *Myo* - 1
9th-14th June 2022	C1	264	C pip – 208 S pip – 37	BLE - 16 *Nyc – 3*
	C2	1126	C pip – 1002 S pip – 86 BLE – 24 Barb - 10	*Nyc* – 2 Noc – 1 *Myo* - 1
13th-18th July 2022	D1	1348	C pip – 1326 S pip – 18	Noc – 3 *Myo* - 1
	D2	954	C pip – 905 S pip – 43 BLE – 3	Noc - 1 *Nyc* – 1 *Nyc/Ept* - 1
3rd-18th August 2022	E1	150	C pip – 101 Noc – 27 S pip – 14 *Nyc* – 4	*Myo* – 2 Sero - 1 BLE - 1
	E2	1748	C pip – 1482 S pip – 225 BLE – 22 *Nyc* - 7	Barb - 5 Noc – 3 *Myo* – 3 Sero - 1
28th September – 3rd October 2022	F1	38	C pip – 26 BLE - 4 S pip – 3	Noc - 3 *Nyc – 1* *Myo* - 1
	F2	51	C pip – 44 BLE – 4 Noc - 1	*Myo* – 1 Barb - 1
12th-17th October 2022	G1	38	C pip – 30 S pip – 3 Barb - 3	Noc – 1 BLE - 1
	G2	209	C pip – 177 S pip – 24 Noc – 2 BLE - 2	Barb – 2 N pip – 1 *Myo* - 1

5.13 During the 2024 automated surveys, a total of 5089 registrations were recorded in May 2024 by 3 statics (*Table 12*). Common pipistrelle (C pip) was the most frequently recorded species (73.21% of total data), with other species recorded in lower numbers:

- Soprano pipistrelle (S pip) – 24.76%
- Barbastelle (Barb) – 1.47%
- Brown long-eared bat (BLE) – 0.35%
- *Pipistrellus* spp. (*Pip* sp.) – 0.079%
- Noctule (Noc) - 0.059%
- Nathusius' pipistrelle (N pip) – 0.020%
- Nyctalus spp. (*Nyc*) – 0.020%

- Myotis spp. (*Myo*) – 0.020%

Table 12: Static Detector Survey Summary 2024

Dates	Unit Reference (Figure 1)	Total Registrations	Species & Registration Count	
1st – 6th May 2024	A1	463	C pip – 347 S pip – 88 Barb - 25	*Pip* sp. – 1 Noctule – 1 BLE - 1
	A2	3146	C pip – 2381 S pip – 712 Barb – 38 BLE - 11	Pip sp – 2 N pip – 1 Myo - 1
	A3	1480	C pip – 998 S pip – 460 Barb – 12 BLE - 6	Noc – 2 *Pip* sp – 1 *Nyc* - 1

6.0 DISCUSSION AND RECOMMENDATIONS

6.1 The following section provides an evaluation of the Site and identifies the likely ecological constraints associated with the proposed development. Where appropriate, measures for the avoidance, mitigation, and compensation of any likely potential impacts together with any enhancements are discussed.

Trees

6.2 The semi-mature trees onsite, including those with roosting bat potential, are to be integrated into the design of the scheme. They are to be incorporated into the green infrastructure (GI) as part of the development. As such, significant impacts to bat potential trees are not anticipated.

6.3 In addition, given the range of bat species identified using the site, including light-sensitive species, the trees and other important habitats, including the hedgerows, will be adequately buffered from lighting. Measures include those within the best practice guidance[6,7], including:

- The avoidance of direct lighting and light spillage on nearby GI using directional lighting.
- The use of low-pressure sodium lights, which emit one light wavelength and attract less insects.
- Restricting the height of light columns to reduce horizontal spill.
- Installing low wattage LED security lighting on properties close to GI during construction to avoid future homeowners installing unsuitable lighting for bats.
- Lights on buildings placed on timers to ensure periods of darkness.

6.4 If proposals change and bat roost potential trees are to be impacted by the development, either directly or indirectly, then further surveys will be required.

Bat Activity

6.5 Both the transect and static surveys suggest that the most important habitats for commuting and foraging bats on site are the woodland edges in the north and south as well as the linear features along the western boundary connecting the two woodlands. The hedgerows either side of Sandridgebury Lane running through the site would also be considered useful for foraging and commuting bats, although their value is reduced since these are less mature and dense than the western boundary.

6.6 Eleven different species/species groups have been recorded commuting and foraging during the activity transect surveys conducted in 2018-19, 2022 and 2024. Common pipistrelles were the most frequently recorded species during both the transect and static surveys. Other common species were recorded at relatively low levels, including soprano pipistrelle, noctule and brown long-eared bat, as well as occasional passes from rarer species such as barbastelle and Nathusius' pipistrelle. Such an assemblage would be expected for the location of the site and the habitat types of present.

6.7 The automated bat detectors recorded a total of 16 barbastelle registrations in 2022 and 9 registrations in 2018-2019. In 2024, a total of 75 barbastelle registrations were recorded. Despite an increase in number of registrations, this only accounts for 1.47% of total bat registrations recorded across the site in 2024. The peak of barbastelle registrations was between 23:00hr-

[6] Bat Conservation Trust (2018) *Guidance Note 08/18 – Bats and artificial lighting in the UK.* BCT, London.

[7] Institute of Lighting Professionals (2021) *Guidance Note 01/21 - The Reduction of Obtrusive Light.* ILP, Warwickshire.

01:00hr (Unit A: 14, Unit B: 18, Unit C: 4). Barbastelles are likely arriving from off-site during lower light levels where it is significantly dark for safer travels.

6.8 An increase in barbastelle registration may also be from changes to automated survey guidance for 2024. As set out in Bat Surveys for Professional Ecologists: Good Practice Guidelines (BCT, 2023[5]) under paragraph 8.2.34, microphones should be pole-mounted and deployed 1.5 meters away from vegetation. In previous years, microphones were deployed on natural features present on the site. This change results in higher quality recordings, and reduction of noise allowing for the increased potential to pick up quieter echolocating species such as barbastelle.

6.9 This species is an Annex II species of the Habitats Directive and a species of Principal Importance under S41 of the NERC Act (2006). The JNCC[8] UK note that: "*The barbastelle is widely distributed across southern England and across Wales but is likely to have been significantly under-recorded within its range.*" Barbastelle bats are known to utilise woodland, streams and rivers. The woodlands on the application site provide opportunities for navigation and foraging. Barbastelles are known to commute/forage over large distances and their range is dependent on the time of the year, with females foraging over increasing distances during the summer months. Flightlines can range from a few to 20km.

6.10 The suitable habitats on the application site are restricted to the peripheries, where barbastelle numbers recorded were not high or consistent enough to suggest that the site is an important resource for this species, but suggests that they are utilising the foraging resources on the Site and using the Site boundaries for commuting purposes. In addition, the woodland to the north of the Site (off-site) is extensive, and is better quality habitat for foraging, commuting and roosting bats including barbastelle bats, than the existing habitats on the Site.

6.11 Regardless, the proposals will see habitat features used by bats, and particularly barbastelles, retained, enhanced and supplemented with new habitats that will promote navigation and foraging. It is concluded that the Site is of local importance for the local bat assemblage.

Mitigation, Compensation and Enhancement

6.12 The retention of boundary trees, scrub and hedgerows along with the creation of new linear features will ensure connectivity around the site is maintained and enhanced. The site has been designed to include a biodiverse core with green space along Sandridgebury Lane and within the centre from north to south, ensuring linkages around and through the site.

6.13 Benefits to bats and other wildlife will be achieved through enhancements to retained habitats and the creation of new habitats:

- A mosaic of tussocky species-rich grassland, shrubs and ditches will increase opportunities for invertebrates and thereby increase foraging opportunities for bats.
- New hedgerow and tree planting will take place along the boundaries to close any existing gaps, particularly along the eastern boundary and Sandridgebury Lane, to improve foraging and commuting routes around the site.

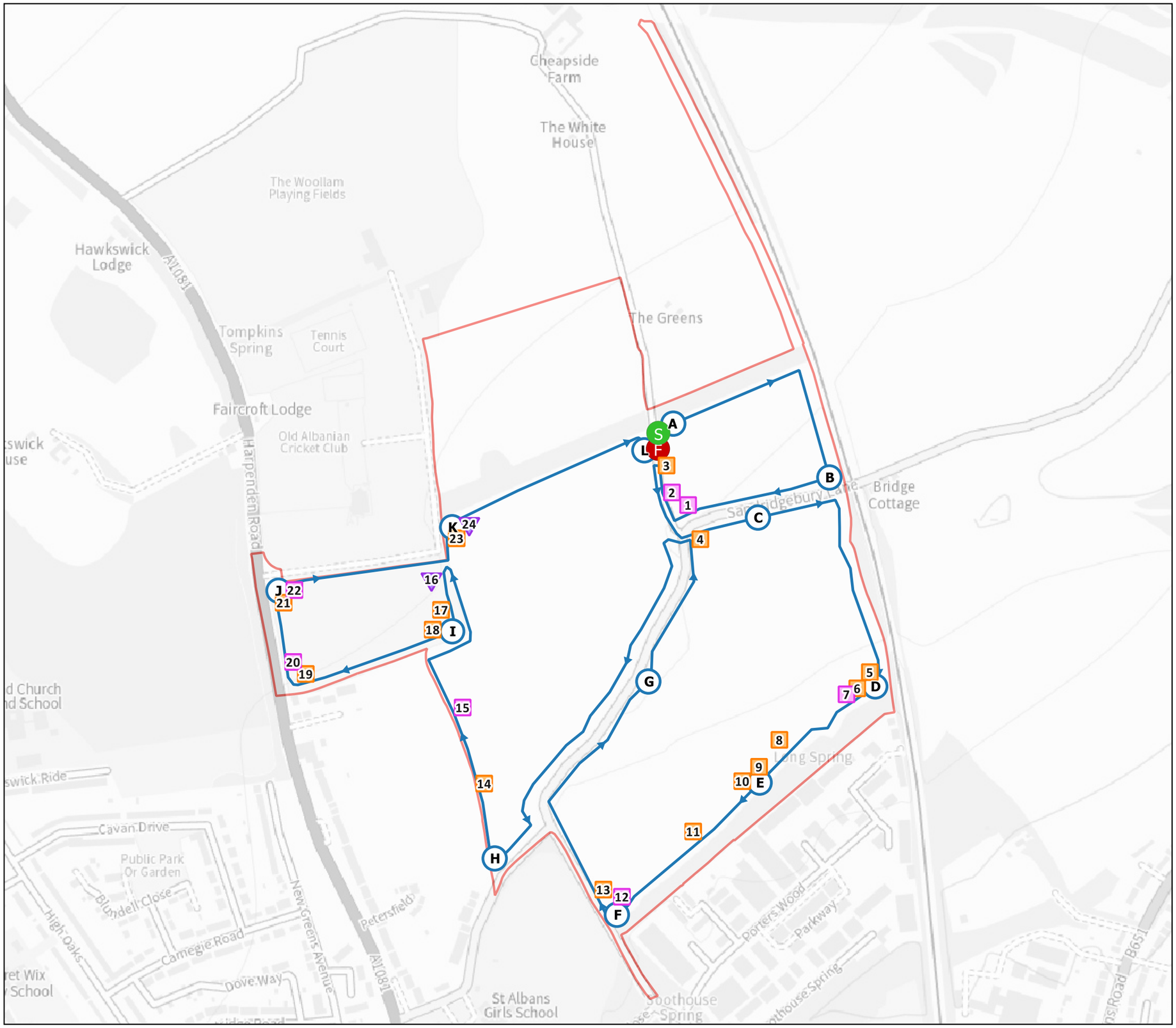
[8] The Joint Nature Conservation Committee UK Status & Trends: Barbastelle. http://jncc.defra.gov.uk/publications/JNCC312/species.asp?FeatureIntCode=S1308. [Assessed 17.10.2022]

- Scrub and grassland planting and enhancement will take place alongside Spring Wood, which will create a diverse habitat edge to the woodland, buffer the woodland from the development, and strengthen the commuting and foraging habitat adjacent to the woodland.
- Native enhancement planting of retained boundary features will improve the structure and species diversity of these features and therefore increase opportunities for foraging and commuting.
- A new community orchard is to be created, which if managed sensitively, can increase opportunities for invertebrates.
- Bat boxes will be installed on mature trees around the site to enhance roosting opportunities. These will be woodcrete boxes, such as Schwegler 1F, 2FN or similar designs for trees.
- Bat tubes can also be incorporated into the brickwork of new buildings close to known commuting habitat, such as the unrendered Habibat 001 bat box.

6.14 Due to the presence of light-sensitive species, including barbastelle and long-eared bat species, a sensitive lighting scheme will be designed into the proposals, particularly along the north and south boundaries. In addition to the measures above, the following should be included within the design of the scheme:

- The avoidance of direct lighting and light spillage on nearby GI using directional lighting.
- The use of low-pressure sodium lights, which emit one light wavelength and attract less insects.
- Restricting the height of light columns to reduce horizontal spill.
- Installing low wattage LED security lighting on properties close to GI during construction to avoid future homeowners installing unsuitable lighting for bats.
- Where outside lighting is required around the car park and club house buildings, this will be on a timer and designed to minimise illumination of surrounding habitats used by the local bat population.
- Car parks and pathways will have low level downward-facing lighting and, depending on the design, rear light baffles or cowls added to direct light.

6.15 The proposals will result in an over-all positive impact on local bat populations, including Barbastelle bats, due to the improvement of the habitats proposed on the Site, including scrub, grassland and woodland, which will improve foraging habitats and strengthen commuting corridors.



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Key:

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Arrow

Bat Species (contacts)

- Common Pipistrelle
- Soprano Pipistrelle
- Noctule

Plan Reference	Time	Species	Passes	Behaviour
Start	18:06	NULL	NULL	NULL
PCA	18:06-18:11	NO BATS	NULL	NULL
PCB	18:19-18:24	NO BATS	NULL	NULL
1	18:29	Soprano pipistrelle	1	Passing
2	18:32	Soprano pipistrelle	2	Passing
3	18:37	Common pipistrelle	2	Passing
4	18:42	Common pipistrelle x2	1	Passing
PCC	18:45-18:50	NO BATS	NULL	NULL
PCD	18:58-19:03	REF 4-5	NULL	NULL
5	18:58	Common pipistrelle	2	Passing
6	19:02	Common pipistrelle	Continuous	Foraging
7	19:03	Soprano pipistrelle	1	Passing
8	19:10	Common pipistrelle	1	Passing
PCE	19:13-19:18	REF 9-10	NULL	NULL
9	19:13	Common pipistrelle	1	Foraging
10	19:16	Common pipistrelle	1	Foraging
11	19:22-19:26	Common pipistrelle x2	Continuous	Socialising/Foraging
PCF	19:25-19:30	REF 11-13	NULL	NULL
12	19:28	Soprano pipistrelle	1	Passing
13	19:28	Common pipistrelle x2	Continuous	Foraging
PCG	19:39-19:44	NO BATS	NULL	NULL
PCH	20:04-20:09	NO BATS	NULL	NULL
14	20:12-20:20	Common pipistrelle	Continuous	Socialising/Foraging
15	20:17	Soprano pipistrelle	1	Passing
16	20:24	Noctule	1	Passing
17	20:26	Common pipistrelle	1	Passing
PCI	20:28-20:33	REF 18	NULL	NULL
18	20:32	Common pipistrelle	1	Passing
19	20:37	Common pipistrelle x2	Continuous	Socialising/Foraging
20	20:37	Soprano pipistrelle	Continuous	Foraging

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project
Woollam Park

drawing title
BAT TRANSECT PLAN (16.10.18)

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OMS/CHK

issue date
29/10/2024

drawing / figure number
Appendix 4

rev
8575-E-01

B:\GIS Projects\8575 St Albans\Plans\Bat Figures\8575-E-01 Transect Plan 4 (16.10.18).qgs

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Key:

Site Boundary

Start & Finish Points

Start point

Finish point

Point Count (with ref.)

Transect Route

Flight Arrow

Bat Contacts

Common Pipistrelle

Plan Reference	Time	Species	Passes	Behaviour
Start	20:13			
PCA	20:13-20:16	No Bats		
PCB	20:27-20:30	No Bats		
1	20:33-20:36	Common pipistrellex2	Continuous	Foraging
2	20:38	Common pipistrelle	1	Commute
PCC	20:44-20:47	Ref 3		
3	20:45	Common pipistrelle	1	Pass
PCD	21:08-21:13	No Bats		
PCE	21:33-21:36	No Bats		
4	21:42	Common pipistrelle	2	Pass
5	21:45	Common pipistrelle	2	Pass
6	21:50-21:53	Common pipistrelle	Continuous	Foraging
PCF	21:55-21:58	Ref 7-8		
7	21:55	Common pipistrelle	1	Pass/Social
8	21:58	Common pipistrelle	1	Pass
9	22:01	Common pipistrelle	1	Pass
PCG	22:17-22:20	Ref 9		
10	22:17	Common pipistrelle	2	Pass
PCH	22:33-22:36	No Bats		
PCI	22:42-22:45	No Bats		
PCJ	22:49-22:52	No Bats		
PCK	23:01-23:13	No Bats		
Finish	23:13			

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29/10/2024

drawing / figure number
Appendix 5

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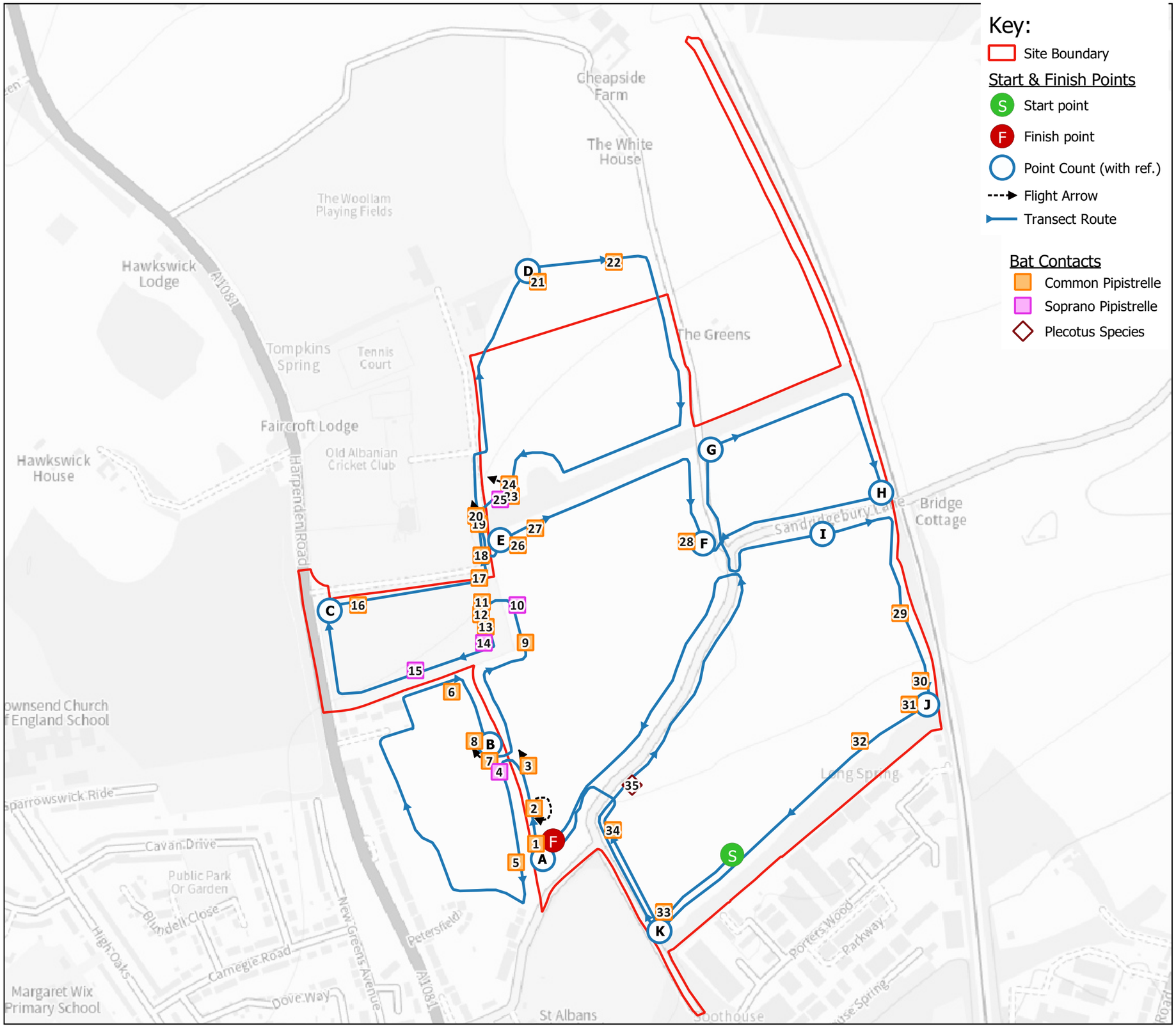

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Plan Reference	Time	Species	Passes	Behaviour
Start	20:45			
PCA	21:02-21:05	Ref 1		
1	21:02	Common pipistrelle	1	Passing
2	21:06	Common pipistrelle	2	
3	21:09	Common pipistrelle	1	Passing
4	21:00	Soprano pipistrelle	1	Passing
5	21:12	Common pipistrelle	1	Passing
6	21:21	Common pipistrelle	2	Foraging
PCB	21:22-21:25	Refs 6-7		
7	21:23	Common pipistrelle	1	Passing
8	21:24	Common pipistrelle	1	Passing
9	21:29	Common pipistrelle	Cont	
10	21:30	Soprano pipistrelle	2	Foraging
11	21:34	Common pipistrelle	3	Foraging
12	21:35	Common pipistrelle	4	
13	21:36	Common pipistrelle	3	
14	21:36	Soprano pipistrelle	4	
15	21:38	Soprano pipistrelle	1	
PCC	21:41-21:44	No Bats		
16	21:45	Common pipistrelle	Cont	
17	21:48	Common pipistrelle	1	Foraging
18	21:49	Common pipistrelle	2	
19	21:50	Common pipistrelle	Cont	Foraging
20	21:50	Common pipistrelle	Cont	Foraging
PCD	21:56-21:59	Ref 21		
21	21:58	Common pipistrelle	1	Passing
22	22:00	Common pipistrelle	4	Foraging
23	22:11	Common pipistrelle	1	
24	22:12	Common pipistrelle	2	
25	22:13	Soprano pipistrelle	1	
PCE	22:15-22:18	Ref 26		
26	22:15	Common pipistrelle	4	
27	22:20	Common pipistrelle	3	Foraging
PCF	22:25-22:28	Ref 28		
28	22:27	Common pipistrelle	1	Passing
PCG	22:31-22:34	No Bats		
PCH	22:42-22:45	No Bats		
PCI	22:52-22:55	No Bats		
29	23:03	Common pipistrelle	2	Foraging
30	23:05	Common pipistrelle	1	Passing
PCJ	23:06-23:09	Ref 31		
31	23:06	Common pipistrelle	Cont	Foraging
32	23:11	Common pipistrelle	Cont	Foraging
PCK	23:23-23:26	Ref 33		
33	23:25	Common pipistrelle	1	Passing
34	23:33	Common pipistrelle	2	
35	23:34	Plecotus sp.	1	

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drawing title
BAT TRANSECT PLAN 15.05.19
scale @ A3 1:5,800
drawn AWR / CHK
issue date 29/10/2024
drawing / figure number **Appendix 6**
rev **8575-E-01**

B:\GIS Projects\8575 St Albans\Plans\Bat Figures\8575-E-01 Transect Plan 6 (15.05.19)

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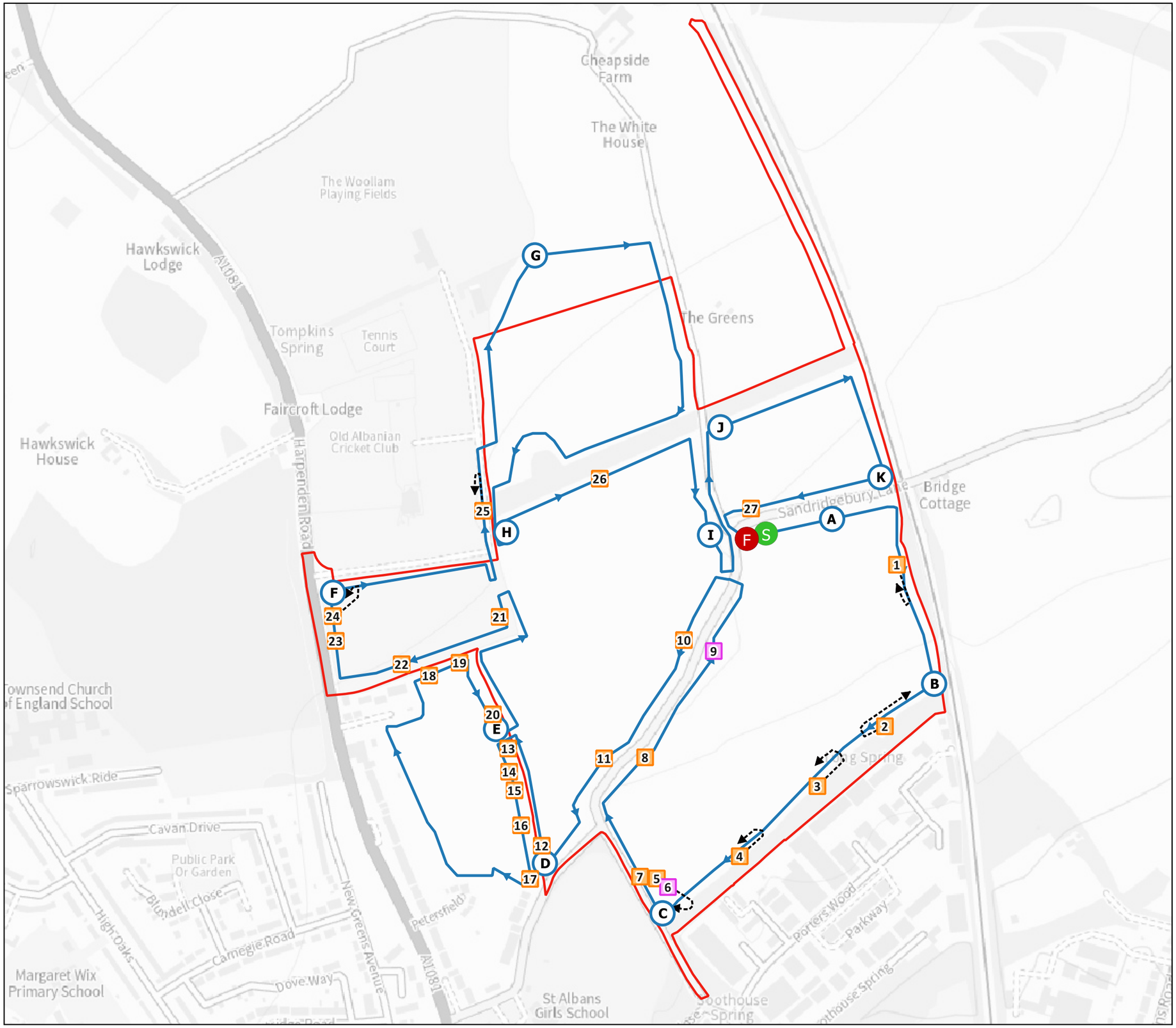

Key:

- Site Boundary
- Start & Finish Points
  - Start point
  - Finish point
  - Point Count (with ref.)
  - Transect Route
  - Flight Arrow
- Bat Contacts
  - Common Pipistrelle
  - Soprano Pipistrelle

Plan Reference	Time	Species	Passes	Behaviour
Start	21:24			
PCA	21:28-21:33	No Bats		
1	21:40-21:42	Common pipistrelle	Continuous	Foraging
PCB	21:46-21:51	Ref 2		
2	21:46-21:51	Common pipistrelle	Continuous	Foraging
3	21:53	Common pipistrellex2	4	Foraging
4	21:56	Common pipistrelle	Continuous	Foraging
5	22:02	Common pipistrelle	Continuous	Foraging
6	22:02-22:05	Soprano pipistrelle	Continuous	Foraging
PCC	22:03-22:08	Ref 5-6		
5	22:03-22:07	Common pipistrelle	Continuous	Foraging
6	22:03-22:09	Soprano pipistrelle	Continuous	Foraging
7	22:09	Common pipistrelle	Continuous	Foraging
8	22:15	Common pipistrelle	1	Passing
9	22:16	Soprano pipistrelle	1	Passing
10	22:24	Common pipistrelle	3	Passing
11	22:28-22:30	Common pipistrellex2	Continuous	Foraging
PCD	22:29-22:34	Ref 12-13		
12	22:32	Common pipistrelle	2	Passing
13	22:34	Common pipistrelle	1	Passing
14	22:36	Common pipistrelle	1	Passing
15	22:38	Common pipistrelle	2	Passing
16	22:41	Common pipistrelle	1	Passing
17	22:43	Common pipistrelle	3	Passing
18	22:51	Common pipistrelle	1	Passing
19	22:53	Common pipistrelle	Continuous	Foraging
PCE	22:55-23:00	Ref 20		
20	22:55-22:57	Common pipistrelle	Continuous	Foraging
21	23:01-23:03	Common pipistrelle	Continuous	Foraging
22	23:05	Common pipistrelle	2	Passing
23	23:09	Common pipistrelle	2	Passing
PCF	23:11-23:14	Ref 24		
24	23:11	Common pipistrelle	4	Foraging
25	23:20	Common pipistrelle	3	Passing
PCG	23:28-23:31	No Bats		
PCH	23:46-23:49	No Bats		
26	23:50	Common pipistrellex2	Continuous	Foraging
PCI	23:56-23:59	No Bats		
PCJ	00:03-00:06	No Bats		
PCK	00:14-00:17	No Bats		
27	00:21	Common pipistrelle	2	Passing
Finish	00:24			

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29/10/2024

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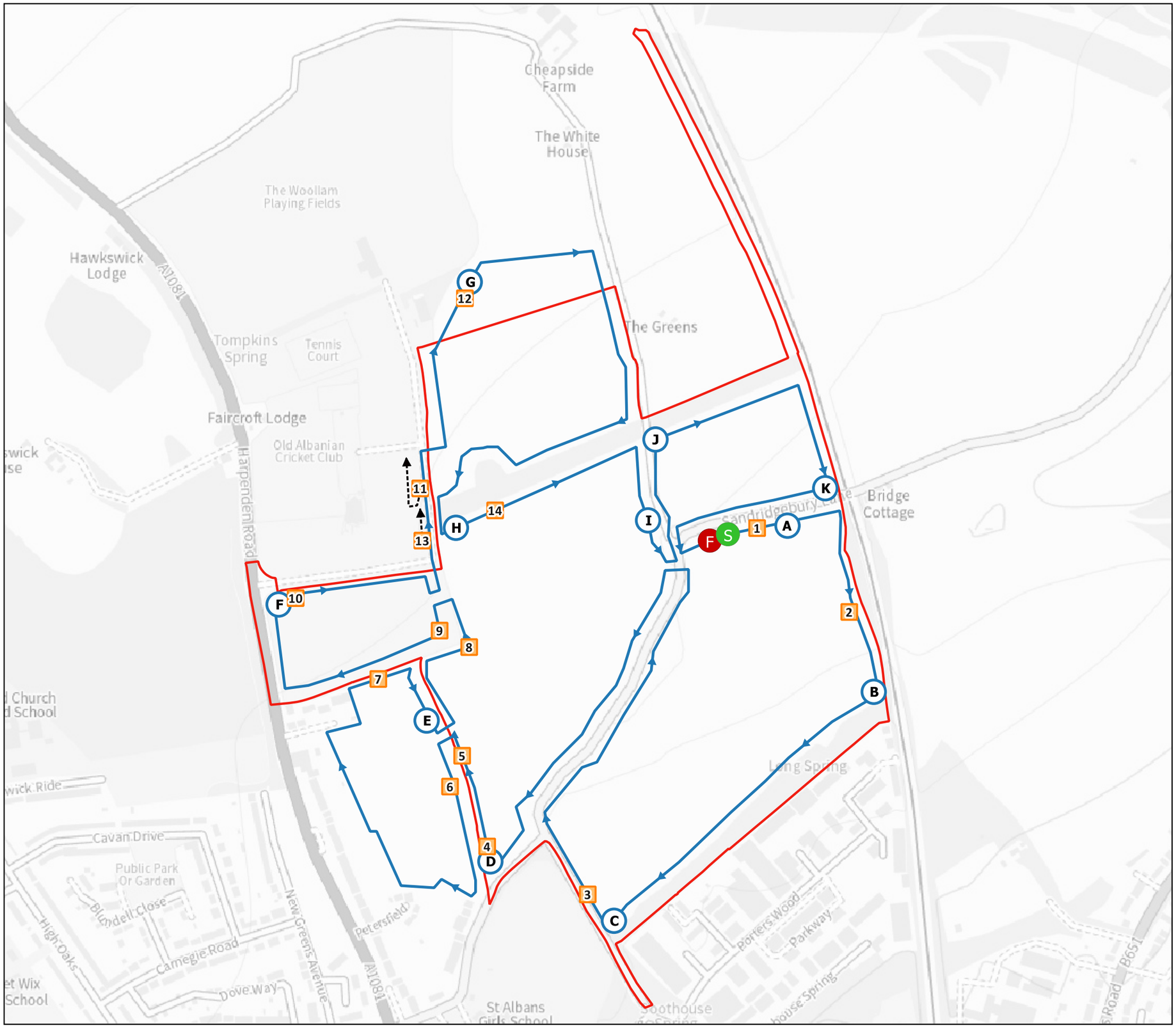
Appendix 7

rev
8575-E-01



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Key:

- Site Boundary

Start & Finish Points

- S — Start point
- F — Finish point
- Point Count (with ref.)
- Transect Route
- Flight Arrow

Bat Contacts

- Common Pipistrelle

Plan Reference	Time	Species	Passes	Behaviour
Start	02:44			
1	02:45	Common pipistrelle	Continuous	Foraging
PCA	02:47-02:50	No Bats		
2	02:52	Common pipistrelle	3	Passing
PCB	02:54-02:57	No Bats		
PCC	03:03-03:06	No Bats		
3	03:07	Common pipistrelle	1	Passing
PCD	03:18-03:21	Ref 4		
4	03:21	Common pipistrelle	1	Passing
5	03:25	Common pipistrelle	1	Passing
6	03:26	Common pipistrelle	Continuous	Foraging
7	03:33	Common pipistrelle	2	Passing
PCE	03:35-03:38	No Bats		
8	03:41	Common pipistrelle	2	Passing
9	03:43	Common pipistrelle	2	Passing
PCF	03:47-03:50	Ref 10		
10	03:50	Common pipistrelle	1	Passing
11	03:53	Common pipistrelle	2	Passing
PCG	03:57-04:00	Ref 12		
12	03:57	Common pipistrelle	1	Passing
13	04:10	Common pipistrelle	3	Passing
PCH	04:11-04:14	No Bats		
14	04:14	Common pipistrelle	3	Passing
PCI	04:19-04:22	No Bats		
PCJ	04:24-04:27	No Bats		
PCK	04:32-04:35	No Bats		
Finish	04:44			

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29/10/2024

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Appendix 8

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8575-E-01

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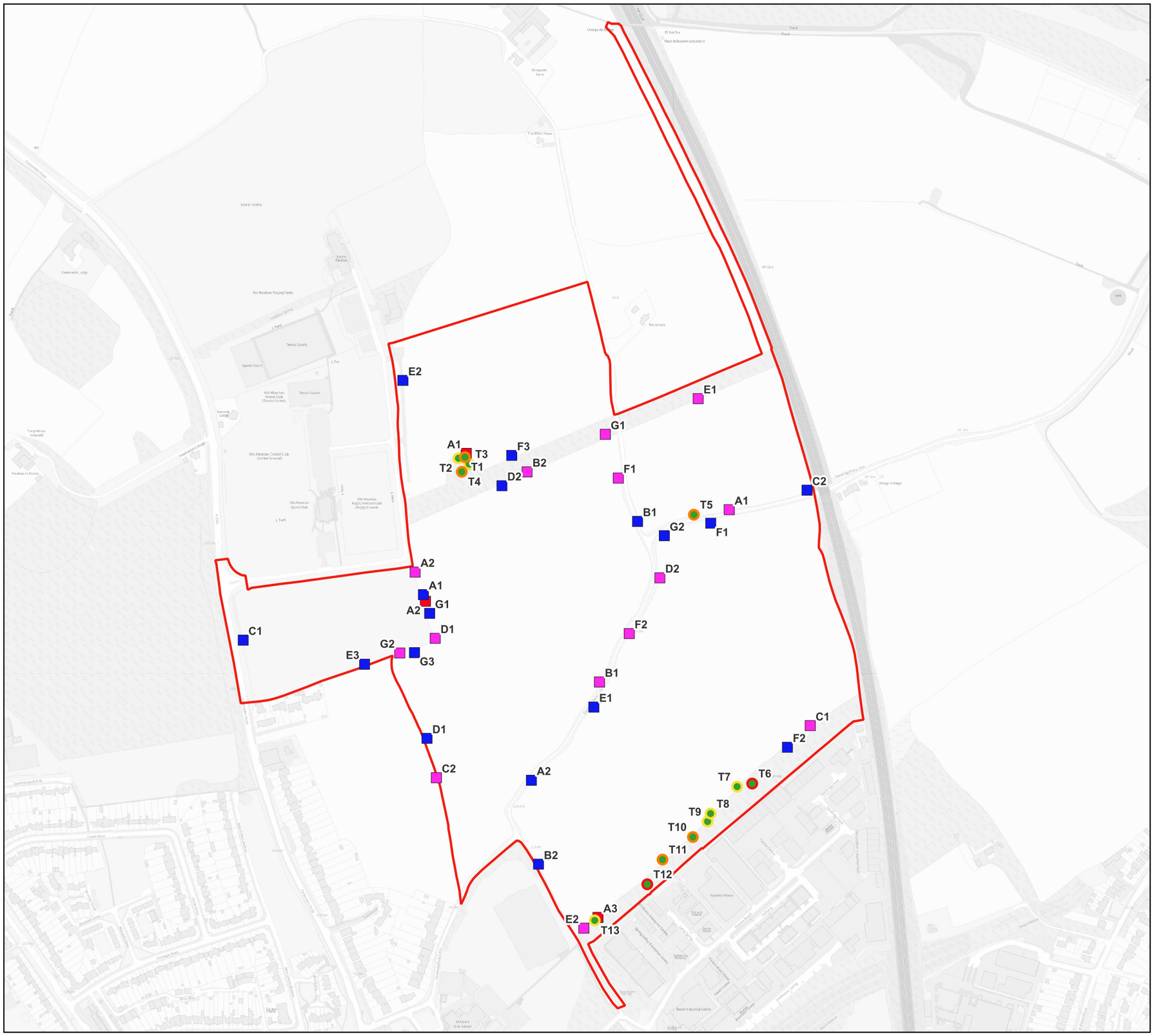

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Key

- Site Boundary
- High bat roost tree potential
- Moderate bat roost tree potential
- Low bat roost tree potential
- 2024 Statics - May
  - A1-3 - May 2024
- 2022 Statics - April-Oct
  - A1-2 - April 2022
  - B1-2 - May 2022
  - C1-2 - June 2022
  - D1-2 - July 2022
  - E1-2 - August 2022
  - F1-2 September 2022
  - G1-2 October 2022
- 2018-19 Statics
  - A1-2 - July 2018
  - B1-2 - August 2018
  - C1-2 - September 2018
  - D1-2 - October 2018
  - E1-3 - April 2019
  - F1-3 - May 2019
  - G1-3 - June 2019

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project
Woollam Park

drawing title
BAT POTENTIAL TREE AND STATIC PLAN

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29/10/2024

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Figure 1

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8575-E-01

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Key

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Path

Bat Species (with ref.)

- Common Pipistrelle
- Soprano Pipistrelle
- Bat Species

Plan Ref.	Time	Species	Behaviour	Passes
Start	20:05			
1	20:14	Bat sp.	Unknown	1
PCA	20:16 - 20:21			
PCB	20:28 - 20:33			
2	20:33	C. Pip	Pass	Cont.
3	20:35	C. Pip	Foraging	Cont.
4	20:42	C. Pip	Pass	2
5	20:44	C. Pip	Pass	3
6	20:50	C. Pip	Foraging	3
PCC	20:52 - 20:57			
7	20:52	S. Pip	Foraging	Cont.
8	20:52	C. Pip	Foraging	Cont.
9	20:53	2x C. Pip	Foraging + Social	Cont.
10	20:55	S. Pip	Foraging + Social	Cont.
11	20:55	C. Pip	Foraging + Social	Cont.
12	20:59	C. Pip	Foraging + Social	2
13	20:59	S. Pip	Foraging + Social	2
14	21:00	2x C. Pip	Foraging	1
PCD	21:05 - 21:10			
15	21:07	C. Pip	Pass	4
PCF	21:23 - 21:28			
16	21:24	C. Pip	Commuting	1
PCG	21:40 - 21:45			
17	21:44	C. Pip	Pass	1
18	21:50	C. Pip	Pass	4
PCH	21:53 - 21:58			
19	21:53	C. Pip	Foraging + Social	Cont.
20	21:53	S. Pip	Foraging + Social	Cont.
PCI	22:06 - 22:11			
PCJ	22:19 - 22:24			
21	22:21	C. Pip	Commuting	3
PCL	22:34 - 22:39			
Finish	22:41			

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project
Woollam Park

drawing title
APRIL BAT TRANSECT PLAN 19.04.22

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issue date
29/10/2024

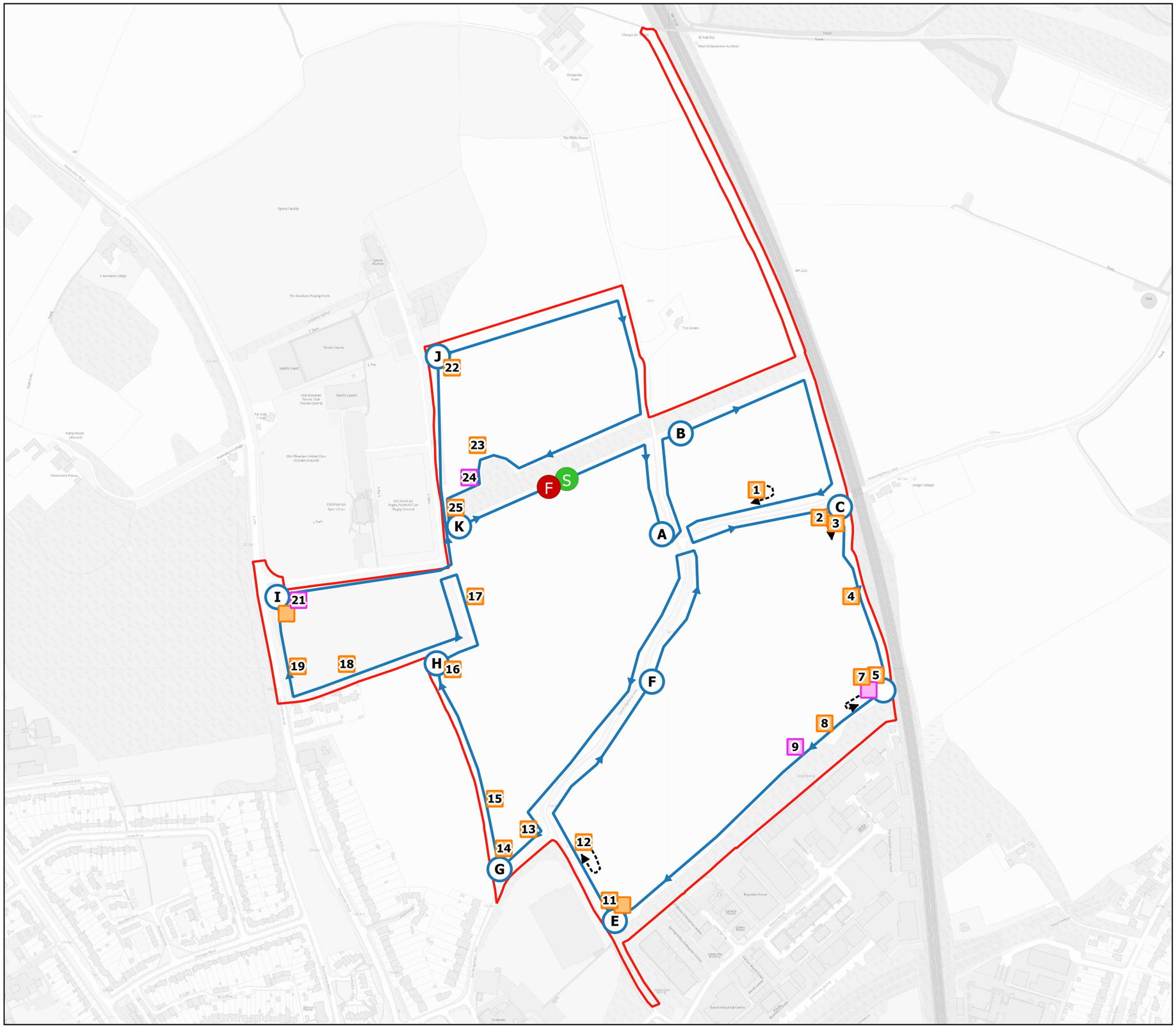
drawing / figure number
Figure 2

rev
8575-E-01

FPCR Environment and Design Ltd, Lockington Hall, Lockington, Derby, DE74 2RH t:01509 672 772 f:01509 674 565 e: mail@fpcr.co.uk w: www.fpcr.co.uk
masterplanning environmental assessment landscape design urban design ecology architecture arboriculture

0 100 200 m

K:\8500\8575\ECO\QGIS 2.14\Plans\Bat Figures\8575-E-01 Transect Plan 2 (April 2022).qgs



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Key

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Path

Bat Contacts (with ref.)

- Common Pipistrelle
- Soprano Pipistrelle

Plan Ref.	Time	Species	Behaviour	Passes
Start	20:58			
PCA	20:46 - 20:51			
PCB	20:55 - 21:00			
1	21:07	C. Pip	Foraging	Cont.
2	21:14	2x C. Pip	Foraging	Cont.
PCC	21:14 - 21:19			
3	21:17	C. Pip	Foraging	Cont.
4	21:20	C. Pip	Pass	1
PCD	21:22 - 21:27			
5	21:22	C. Pip	Foraging	Cont.
6	21:24	S. Pip	Foraging	1
7	21:26	C. Pip	Foraging	Cont.
8	21:27	2x C. Pip	Foraging	1
9	21:28	S. Pip	Foraging	3
10	21:34	C. Pip	Commuting	2
PCE	21:34 - 21:39			
11	21:37	C. Pip	Pass	1
12	21:40	C. Pip	Commuting	2
PCF	21:46 - 21:51			
13	22:00	C. Pip	Commuting	2
PCG	22:01 - 22:06			
14	22:01	C. Pip	Commuting	3
15	22:08	C. Pip	Commuting	2
PCH	22:12 - 22:17			
16	22:14	C. Pip	Commuting	3
17	22:18	C. Pip	Pass	1
18	22:21	2x C. Pip	Foraging	Cont.
PCI	22:24 - 22:29			
19	22:24	C. Pip	Pass	1
20	22:26	C. Pip	Foraging	3
21	22:26	S. Pip	Foraging	3
PCJ	22:34 - 22:39			
22	22:34	C. Pip	Foraging	Cont.
23	22:40	C. Pip	Pass	1
24	22:41	S. Pip	Commuting	1
25	22:49	C. Pip	Commuting	1
Finish	22:56			

client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

drawing title
MAY BAT TRANSECT PLAN 09.05.22

scale @ A3
1:5,800

drawn
BL / CHK

issue date
29/10/2024

drawing / figure number
Figure 3

rev
8575-E-01

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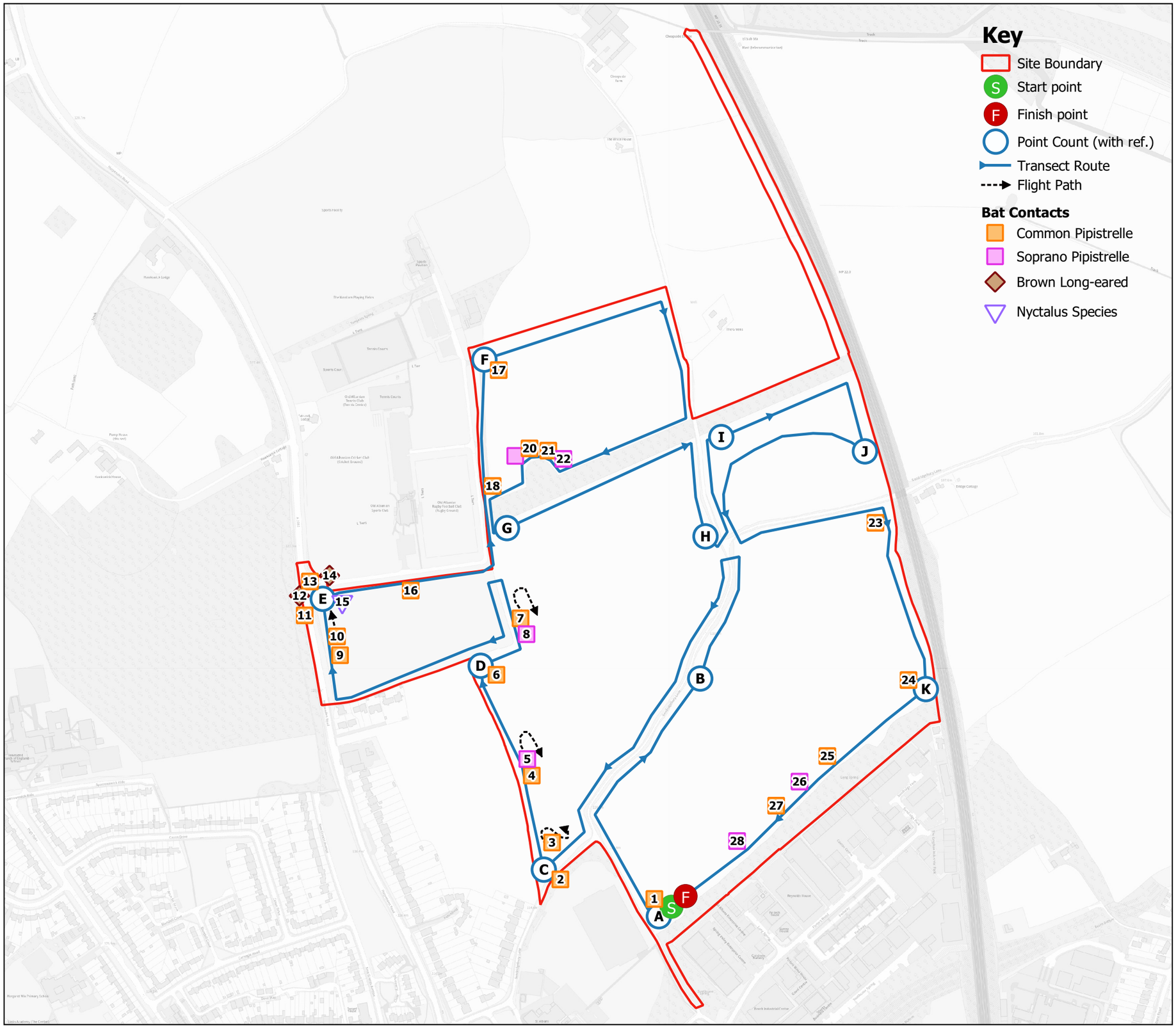
masterplanning environmental assessment landscape design urban design ecology architecture arboriculture

0 100 200 m

K:\8500\8575\ECO\QGIS 2.14\Plans\Bat Figures\8575-E-01 Transect Plan 3 (May 2022).qgs



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Plan Ref.	Time	Species	Behaviour	Passes
Start	21:17			
PCA	21:17 - 21:22			
1	21:22	C. Pip	Commuting	1
PCB	21:28 - 21:33			
PCC	21:45 - 21:50			
2	21:48	C. Pip	Foraging	3
3	21:51	2x C. Pip	Foraging	Cont.
4	21:55	C. Pip	Foraging	Cont.
5	21:55	S. Pip	Foraging	Cont.
PCD	21:58 - 22:03			
6	22:00	C. Pip	Foraging	Cont.
7	22:05	C. Pip	Foraging	3
8	22:05	S. Pip	Commuting	1
9	22:10	2x C. Pip	Commuting	2
10	22:11	C. Pip	Commuting	1
11	22:13	C. Pip	Commuting	1
PCE	22:13 - 22:18			
12	22:14	BLE	Commuting	1
13	22:14	C. Pip	Commuting	2
14	22:15	BLE	Commuting	1
15	22:16	Nyctalus sp.	Foraging	4
16	22:19	C. Pip	Commuting	1
PCF	22:27-22:33			
17	22:28	C. Pip	Commuting	1
18	22:34	C. Pip	Foraging	3
19	22:34	S. Pip	Commuting	1
20	22:40	C. Pip	Commuting	1
21	22:44	C. Pip	Foraging	3
22	22:44	S. Pip	Commuting	1
PCG	22:48 - 22:53			
PCH	22:59 - 23:04			
PCI	23:06 - 23:11			
PCJ	23:14 - 23:19			
23	23:27	C. Pip	Commuting	1
PCK	23:32 - 23:37			
24	23:34	C. Pip	Commuting	1
25	23:38	C. Pip	Commuting	1
26	23:40	S. Pip	Commuting	1
27	23:42	C. Pip	Foraging	3
28	23:43	S. Pip	Commuting	1
End	23:44			

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masterplanning environmental assessment landscape design urban design ecology architecture arboriculture

0 100 200 m

client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust
project
Woollam Park
drawing title
JUNE BAT TRANSECT PLAN 09.06.22
scale @ A3 1:5,800
drawn BL / CHK
issue date 29/10/2024
drawing / figure number **Figure 4**
rev **8575-E-01**

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Key

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Path

Bat Species (with ref.)

- Common Pipistrelle
- Soprano Pipistrelle

Plan Ref.	Time	Species	Behaviour	Passes
Start	21:15			
PCA	21:17 - 21:22			
PCB	21:25 - 21:30			
PCC	21:37 - 21:42			
PCD	21:56 - 22:01			
1	22:09	2x C. Pip	Foraging	Cont.
2	22:12	C. Pip	Foraging	Cont.
PCE	22:14 - 22:19			
3	22:15	C. Pip	Foraging	Cont.
4	22:18	2x C. Pip	Foraging	Cont.
5	22:20	C. Pip	Foraging	Cont.
6	22:22	S. Pip	Commuting	1
PCF	22:25 - 22:30			
7	22:23	C. Pip	Foraging	Cont.
8	22:26	C. Pip	Foraging	1
9	22:29	C. Pip	Foraging	1
10	22:39	C. Pip	Foraging	1
PCG	22:46 - 22:51			
11	22:46	C. Pip	Foraging	Cont.
12	22:55	C. Pip	Commuting	1
PCH	22:57 - 23:02			
13	22:58	C. Pip	Foraging	2
14	23:02	C. Pip	Foraging	1
15	23:03	C. Pip	Commuting	2
16	23:06	2x C. Pip	Foraging	3
17	23:08	C. Pip	Foraging	1
18	22:10	C. Pip	Foraging	1
PCI	23:13 - 23:18			
19	23:13	C. Pip	Foraging	2
20	23:15	C. Pip	Foraging	Cont.
21	23:21	C. Pip	Foraging	Cont.
22	23:34	C. Pip	Foraging	1
23	23:41	2x C. Pip	Foraging	2
PCK	23:43 - 23:48			
24	23:44	C. Pip	Foraging	2
25	23:46	C. Pip	Foraging	2
26	23:48	C. Pip	Foraging	2
End	23:49			

client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

drawing title
JULY BAT TRANSECT PLAN 13.07.22

scale @ A3
1:5,800

drawn
BL / CHK

issue date
29/10/2024

drawing / figure number
Figure 5

rev
8575-E-01

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0 100 200 m

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Key

- Site Boundary
- Transect Route
- Start point
- Finish point
- Point Count Locations
- Flight Arrow

Bat Species (with ref.)

- Common Pipistrelle
- Soprano Pipistrelle
- Nyctalus Species

Plan Ref.	Time	Species	Behaviour	Passes
Start	20:47			
PCA	20:47 - 20:52			
PCB	20:59 - 21:04			
1	21:17	C. Pip	Foraging	2
PCC	21:18 - 21:23			
2	21:26	C. Pip	Foraging	3
3	21:29	C. Pip	Commuting	1
PCD	21:32 - 21:37			
4	21:34	C. Pip	Foraging	2
5	21:51	C. Pip	Foraging	1
6	21:52	C. Pip	Foraging	3
7	21:54	C. Pip	Foraging	2
PCE	21:55 - 22:00			
8	21:56	C. Pip	Commuting	1
9	21:57	S. Pip	Foraging	1
10	21:58	C. Pip	Foraging	4
11	22:03	S. Pip	Commuting	1
PCF	22:05 - 22:10			
12	22:05	C. Pip	Commuting	2
13	22:08	C. Pip	Foraging	2
PCG	22:12 - 22:17			
PCH	22:21 - 22:26			
14	22:22	C. Pip	Commuting	1
15	22:24	C. Pip	Foraging	1
16	22:36	C. Pip	Commuting	1
PCI	22:36 - 22:41			
17	22:39	C. Pip	Foraging	3
18	22:46	Nyctalus sp.	Foraging	2
PCJ	22:50 - 22:55			
PCK	22:58 - 23:03			
19	22:58	C. Pip	Foraging	1
20	23:00	C. Pip	Foraging	2
21	23:02	2x C. Pip	Foraging	1
22	23:04	C. Pip	Foraging	1
23	23:07	C. Pip	Foraging	1
24	23:10	C. Pip	Foraging	2
25	23:15	C. Pip	Commuting	1
Finish	23:15			

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0 100 200 m

client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

drawing title
AUGUST DUSK BAT TRANSECT PLAN 04.08.22

scale @ A3 1:5,800 | drawn DS/BL/CHK | issue date 29/10/2024

drawing / figure number **Figure 6** | rev **8575-E-01**

K:\8500\8575\ECO\QGIS 2.14\Plans\Bat Figures\8575-E-01 Transect Plan 5 (August 2022).qgz

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Key

- Site Boundary
- Transect Route
- Start point
- Finish point
- Point Count Locations
- Flight Arrow

Plan Ref.	Time	Species	Behaviour	Passes
Start	03:23			
PCA	3:23 - 3:28			
1	03:27	C. Pip	Foraging	Cont.
PCB	3:32 - 3:37			
2	03:34	C. Pip	Commuting	1
3	03:36	C. Pip	Foraging	2
4	03:40	C. Pip	Foraging	2
5	03:44	C. Pip	Foraging	1
PCC	3:48 - 3:53			
6	03:47	C. Pip	Foraging	Cont.
7	03:51	BLE	Foraging	1
8	03:51	C. Pip	Foraging	3
9	03:56	C. Pip	Commuting	1
PCD	4:00 - 4:05			
10	04:14	C. Pip x2	Foraging	1
PCE	4:16 - 4:21			
11	04:17	S. Pip	Foraging	2
12	04:19	S. Pip	Foraging	2
PCF	4:28 - 4:33			
13	04:31	C. Pip	Foraging	2
14	04:33	C. Pip	Foraging	2
PCG	4:37 - 4:42			
PCH	4:50 - 4:55			
PCI	5:04 - 5:09			
PCJ	5:16 - 5:21			
PCK	5:25 - 5:30			
Finish	05:39			

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0 100 200 m

client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

drawing title
AUGUST DAWN BAT TRANSECT PLAN 05.08.22

scale @ A3 1:5,800 | drawn DS/BL/CHK | issue date 29/10/2024

drawing / figure number **Figure 7** | rev **8575-E-01**

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Key

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Path

Bat Species (with ref.)

- Common Pipistrelle
- Brown Long-eared
- Barbastelle

Plan Ref.	Time	Species	Behaviour	Passes
Start	18:46			
PCA	18:53 - 18:58			
1	19:05	C. Pip	Foraging	4
PCB	19:06 - 19:11			
2	19:10	C. Pip	Foraging	1
3	19:13	C. Pip	Commuting	1
PCC	19:17 - 19:22			
PCD	19:32 - 19:37			
PCE	19:48 - 19:53			
PCF	20:00 - 20:05			
4	20:04	BLE	Commuting	1
5	20:12	Barbastelle	Commuting	1
PCG	20:14 - 20:19			
PCH	20:35 - 20:40			
PCI	20:45 - 20:50			
PCJ	20:53 - 20:58			
PCK	21:00 - 21:05			
End	21:07			

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0 100 200 m

client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

drawing title
SEPTEMBER BAT TRANSECT PLAN 28.09.22

scale @ A3 1:5,800 | drawn BL / CHK | issue date 29/10/2024

drawing / figure number **Figure 8** | rev **8575-E-01**

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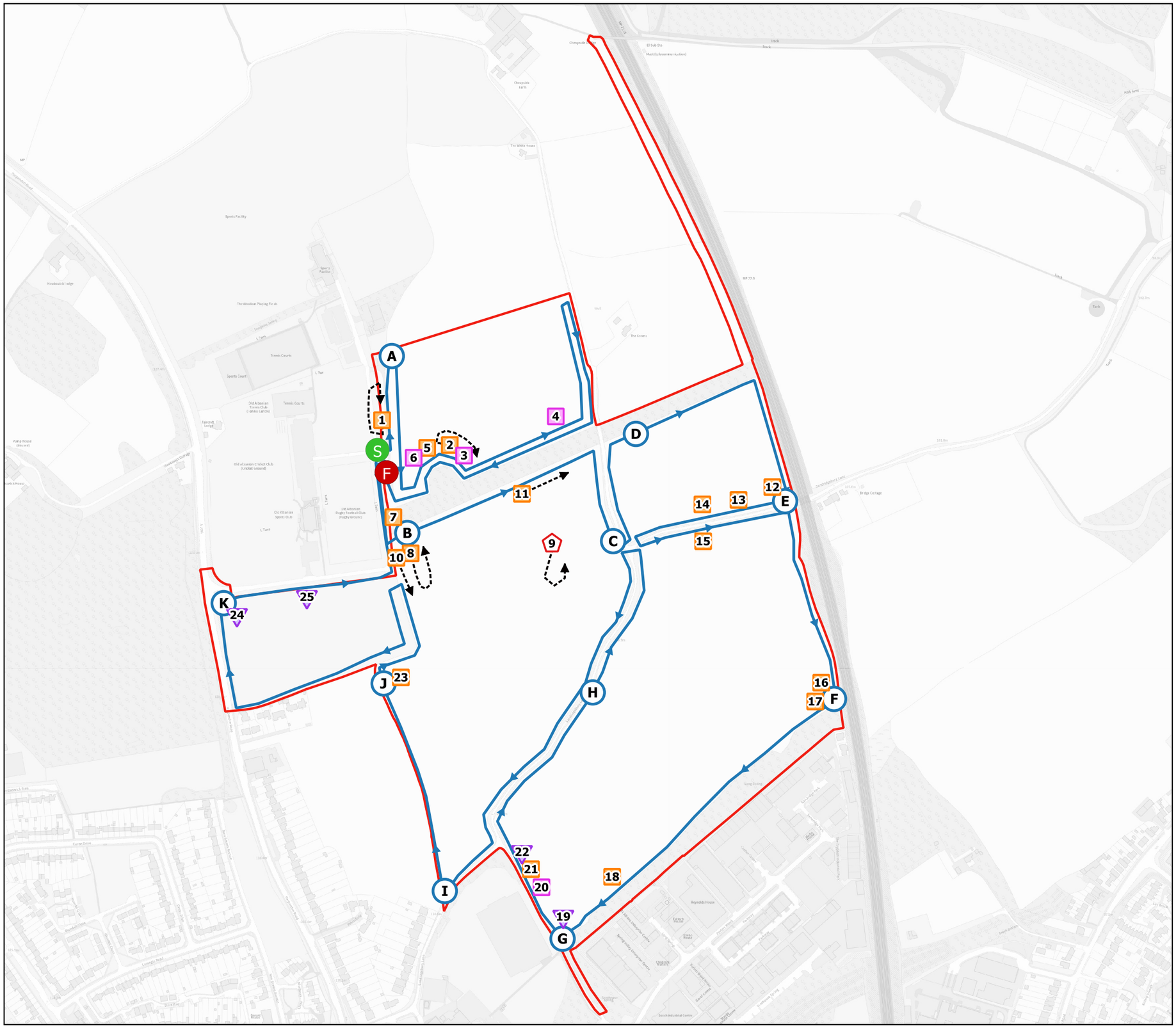

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Key

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Path

Bat Species (with ref.)

- Common Pipistrelle
- Soprano Pipistrelle
- Noctule
- Bat Species

Plan Ref.	Time	Species	Behaviour	Passes
Start	18:04			
PCA	18:06 - 18:11			
1	18:12	C. Pip	Foraging	Cont.
2	18:15	C. Pip	Foraging	Cont.
3	18:15	S. Pip	Foraging	Cont.
4	18:24	S. Pip	Commuting	1
5	19:26	C. Pip	Foraging	Cont.
6	19:26	S. Pip	Foraging	Cont.
7	18:29	C. Pip	Commuting	1
PCB	18:30 - 18:35			
8	18:30	2x C. Pip	Foraging	1
9	18:32	Bat Sp.	Foraging	1
10	18:34	C. Pip	Foraging	3
11	18:38	C. Pip	Foraging	2
PCC	18:42 - 18:49			
PCD	18:49 - 18:54			
PCE	18:59 - 19:04			
12	19:02	C. Pip	Commuting	1
13	19:04	C. Pip	Commuting	1
14	19:06	C. Pip	Foraging	4
15	19:10	C. Pip	Commuting	1
PCF	19:18 - 19:23			
16	19:19	C. Pip	Commuting	1
17	19:22	C. Pip	Commuting	1
18	19:29	C. Pip	Foraging	Cont.
PCG	19:30 - 19:35			
19	19:31	Noctule	Commuting	3
20	19:36	S. Pip	Foraging	Cont.
21	19:36	C. Pip	Foraging	Cont.
22	19:36	Noctule	Commuting	1
PCH	19:40 - 19:45			
PCI	19:56 - 20:01			
PCJ	20:04 - 20:09			
23	20:05	C. Pip	Commuting	1
PCK	20:18 - 20:23			
24	20:21	Noctule	Commuting	2
25	20:24	Noctule	Commuting	2
Finish	20:27			

client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

drawing title
OCTOBER BAT TRANSECT PLAN 17.10.22

scale @ A3
1:5,800

drawn
BL

issue date
29/10/2024

drawing / figure number
Figure 9

rev
8575-E-01

0 100 200 m

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K:\8500\8575\ECO\QGIS 2.14\Plans\Bat Figures\8575-E-01 Transect Plan 9 (October 2022).qgz

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Key:

- Site Boundary
- Point Count Locations
- Transect Route

Vantage Point 1
- Common Pipistrelle - 3 bats

Vantage Point 2
- Common Pipistrelle - 4 bats
- Soprano Pipistrelle - 4 bats

Flightline	Summary
1	Soprano Pipistrelle observed commuting west across field
2	Common Pipistrelle observed leaving woodland and commuting North across field
3	Common Pipistrelle seen headed towards woodland patch at bottom of site

0 50 100 150 200 m

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client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

drawing title
NIGHT-TIME BAT WALKOVER - FLIGHTLINES MAY 2024

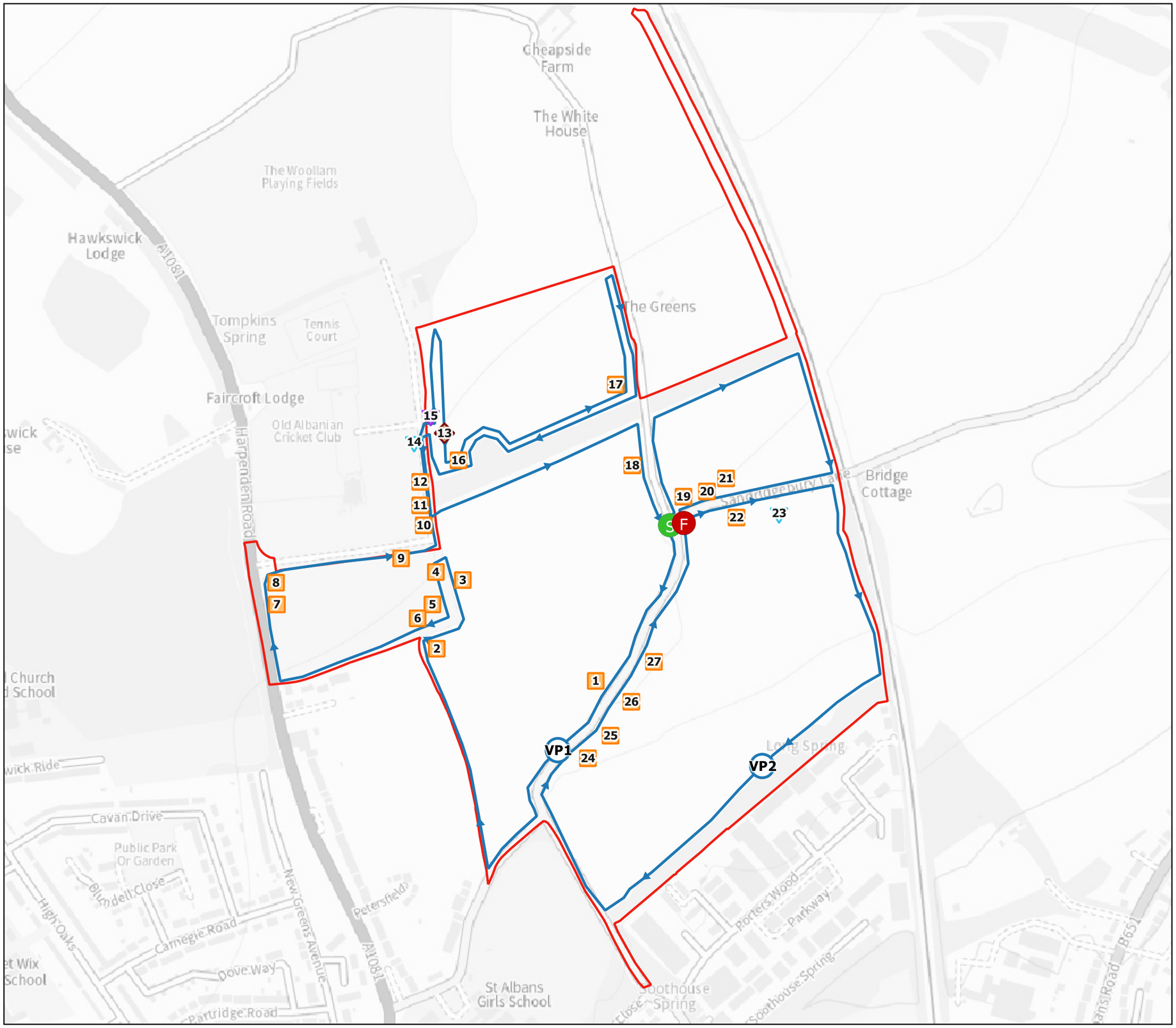
scale @ A3
1:4000

drawn
PO / LW / CHK

issue date
29/10/2024

drawing / figure number
Figure 10

rev
8575-E-01



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Key:

- Site Boundary
- Start point
- Finish point
- Vantage Point
- Transect Route

Bat contacts

- Common Pipistrelle
- Brown Long-eared
- Nyctalus Species
- Noctule

Ref	Time	Species	Behaviour	Passes
1	09:22:00.000	PIPPIP	C	2
2	09:32:00.000	PIPPIP	C	1
3	09:36:00.000	PIPPIP	C	2
4	09:38:00.000	PIPPIP	C	2
5	09:39:00.000	PIPPIP	F	3
6	09:43:00.000	PIPPIP	C	1
7	09:47:00.000	PIPPIP	C	1
8	09:49:00.000	PIPPIP	C	1
9	09:53:00.000	PIPPIP	C	1
10	09:54:00.000	PIPPIP	F+S	Cont.
11	09:54:00.000	PIPPIP	F+S	Cont.
12	09:55:00.000	PIPPIP	C	1
13	09:58:00.000	PLEAUR	C	1
14	09:58:00.000	NYCSPP	C	1
15	09:58:00.000	NYCNOC	C	1
16	10:01:00.000	PIPPP	C	1
17	10:09:00.000	PIPPIP	C	1
18	10:16:00.000	PIPPIP	C	1
19	10:19:00.000	PIPPIP	F	3
20	10:30:00.000	PIPPIP	F	Cont.
21	10:30:00.000	PIPPIP	F	3
22	10:35:00.000	PIPPIP	F	Cont.
23	10:38:00.000	NYCNOC	C	2
24	10:52:00.000	PIPPIP	C	1
25	10:52:00.000	PIPPIP	C	1
26	10:55:00.000	PIPPIP	C	1
27	10:56:00.000	PIPPIP	C	2

client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

drawing title
NIGHT-TIME BAT WALKOVER - TRANSECT MAY 2024

scale @ A3
1:4000

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29/10/2024

drawing / figure number
Figure 11

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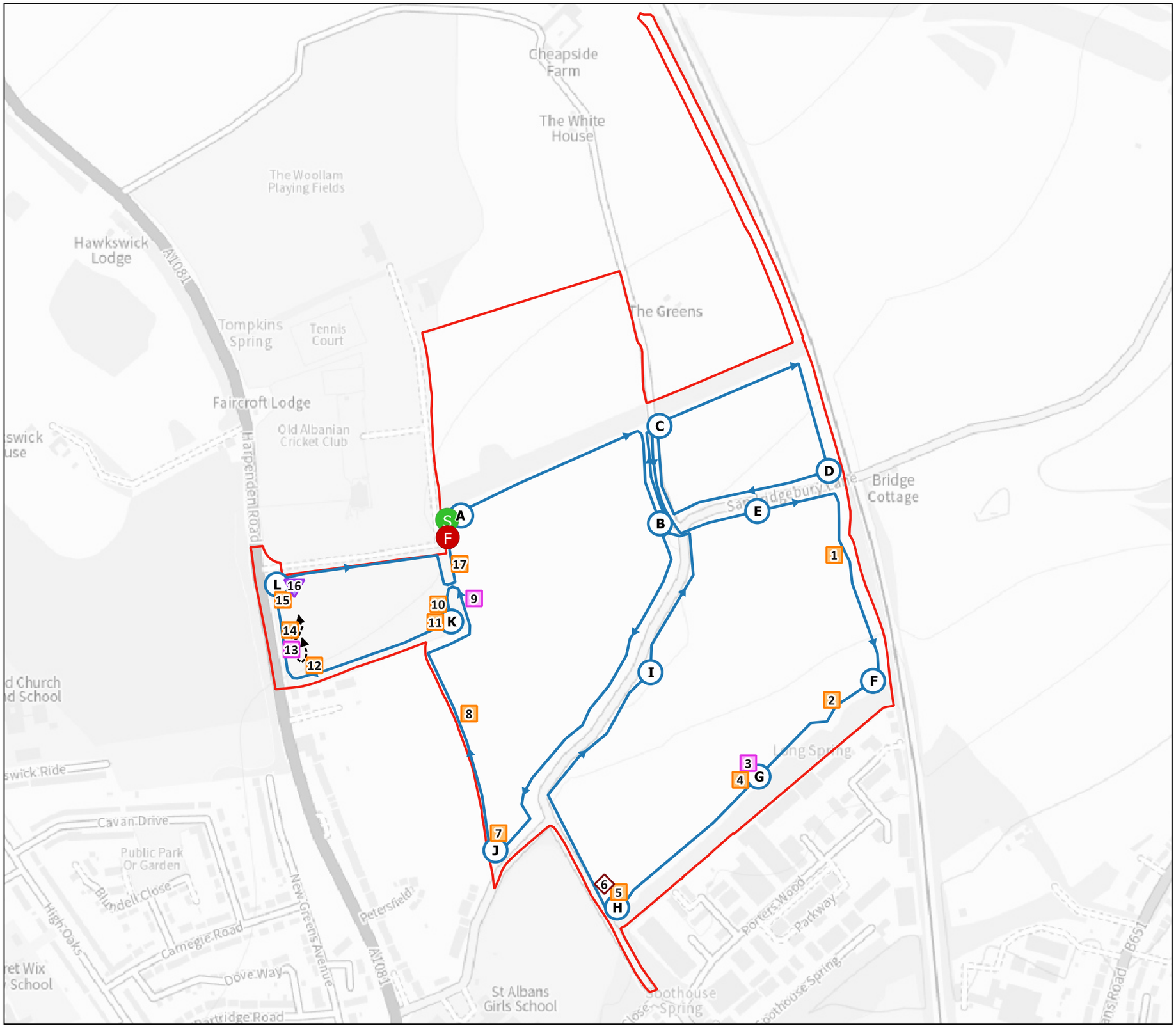

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Key:

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Path

Bat Species (contacts)

- Common Pipistrelle
- Soprano Pipistrelle
- Noctule
- Plecotus Species

Plan Reference	Time	Species	Passes	Behaviour
Start	20:54	NULL	NULL	NULL
PCA	20:54-20:57	NO BATS	NULL	NULL
PCB	21:05-21:08	NO BATS	NULL	NULL
PCC	21:12-21:15	NO BATS	NULL	NULL
PCD	21:23-21:26	NO BATS	NULL	NULL
PCE	21:39-21:42	NO BATS	NULL	NULL
1	21:46	Common pipistrelle	1	Passing
PCF	21:52-21:55	NO BATS	NULL	NULL
2	21:58	Common pipistrelle	1	Passing
PCG	22:05-22:08	REF 3	NULL	NULL
3	22:07	Soprano pipistrelle	1	Passing
4	22:09	Common pipistrelle	1	Passing
PCH	22:14-22:17	REF 5	NULL	NULL
5	22:15	Common pipistrelle	Continuous	Foraging
6	22:18	Long-eared sp.	1	Passing
PCI	22:25-22:28	NO BATS	NULL	NULL
PCJ	22:42-22:45	NO BATS	NULL	NULL
7	22:45	Common pipistrelle	1	Passing
8	22:49	Common pipistrelle	2	Foraging
9	22:54	Soprano pipistrelle	1	Passing
10	22:56	Common pipistrelle	1	Passing
PCK	22:57-23:00	REF 11	NULL	NULL
11	22:59	Common pipistrelle	2	Foraging
12	23:04	Common pipistrelle x2	Continuous	Foraging
13	23:04	Soprano pipistrelle	Continuous	Foraging
14	23:05	Common pipistrelle x2	Continuous	Foraging
15	23:07-23:12	Common pipistrelle	Continuous	Socialising/Foraging
PCL	23:08-23:11	REF 15-16	NULL	NULL
16	23:10	Noctule	1	Passing
17	23:15	Common pipistrelle	1	Passing

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project
Woollam Park

drawing title
BAT TRANSECT PLAN (30/07/18)

scale @ A3
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OMS / CHK

issue date
29/10/2024

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Appendix 1

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8575-E-01

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Key:

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Arrow

Bat Species (contacts)

- Common Pipistrelle
- Soprano Pipistrelle
- Noctule

Plan Reference	Time	Species	Passes	Behaviour
Start	19:58	NULL	NULL	NULL
PCA	19:58-20:01	REF 1	NULL	NULL
1	19:58	Noctule	2	Passing
2	20:03	Noctule	1	Passing
PCB	20:07-20:10	NO BATS	NULL	NULL
PCC	20:18-20:21	NO BATS	NULL	NULL
PCD	20:25-20:28	REF 3	NULL	NULL
3	20:28	Common pipistrelle	3	Passing
PCE	20:36-20:39	REF 4	NULL	NULL
4	20:37	Common pipistrelle	Continuous	Foraging
5	20:43	Common pipistrelle	Continuous	Foraging
6	20:47	Common pipistrelle	4	Passing
PCF	20:52-20:55	REF 7	NULL	NULL
7	20:54	Common pipistrelle	1	Passing
8	20:56	Nocutle	1	Passing
PCG	21:01-21:04	NO BATS	NULL	NULL
9	21:04	Soprano pipistrelle	1	Foraging
10	21:05	Common pipistrelle	Continuous	Foraging
PCH	21:10-21:13	REF 11	NULL	NULL
11	21:12	Common pipistrelle	2	Foraging
PCI	21:17-21:20	REF 12-13	NULL	NULL
12	21:17	Common pipistrelle	1	Foraging
13	21:17	Soprano pipistrelle	2	Socialising/Passing
14	21:21	Common pipistrelle	3	Passing
PCJ	21:26-21:29	NO BATS	NULL	NULL
15	21:41	Common pipistrelle	1	Passing
PCK	21:42-21:45	REF 16	NULL	NULL
16	21:42	Common pipistrelle	4	Passing
17	21:46	Common pipistrelle	Continuous	Foraging
18	21:51	Common pipistrelle x2	Continuous	Foraging

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project
Woollam Park

drawing title
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Key:

- Site Boundary
- Start point
- Finish point
- Point Count (with ref.)
- Transect Route
- Flight Arrow

Bat Species (contacts)

- Common Pipistrelle
- Soprano Pipistrelle
- Myotis Species

Plan Reference	Time	Species	Passes	Behaviour
Start	18:56	NULL	NULL	NULL
PCA	18:56-18:59	NO BATS	NULL	NULL
PCB	19:04-19:07	NO BATS	NULL	NULL
1	19:20-19:26	Common pipistrelle	Continuous	Foraging
PCC	19:23-19:26	REF 1	NULL	NULL
2	19:27	Common pipistrelle	4	Foraging
3	19:30	Common pipistrelle	1	Passing
PCD	19:39-19:42	REF 4	NULL	NULL
4	19:40	Common pipistrelle	1	Passing
5	19:44	Common pipistrelle	1	Socialising/Passing
6	19:44	Soprano pipistrelle	1	Foraging
7	19:46	Common pipistrelle	4	Foraging
8	19:48	Common pipistrelle	4	Passing
PCE	19:50-19:53	REF 9	NULL	NULL
9	19:50	Common pipistrelle	1	Passing
PCF	19:58-20:01	NO BATS	NULL	NULL
10	20:06	Common pipistrelle	1	Foraging
PCG	20:11-20:14	NO BATS	NULL	NULL
PCH	20:17-20:20	NO BATS	NULL	NULL
PCI	20:28-20:31	NO BATS	NULL	NULL
11	20:35	Soprano pipistrelle	1	Passing
12	20:35	Myotis species	1	Passing
PCJ	20:39-20:42	NO BATS	NULL	NULL
13	20:45	Myotis species	1	Passing
14	20:48	Common pipistrelle	1	Passing
PCK	20:49-20:52	NO BATS	NULL	NULL
PCL	20:57-21:00	NO BATS	NULL	NULL
Finish	21:03	NULL	NULL	NULL

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Woollam Park

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issue date
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Appendix 3

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8575-E-01

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Appendix 6.3: Biodiversity net gain report

Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

Woollam Park

Appendix 6.3 - Biodiversity Net Gain Report

November 2024

FPCR Environment and Design Ltd
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Rev	Issue Status	Prepared / Date	Approved / Date
-	Final	JNHW / 01.08.24	OGJ / 06.09.24
A	Final	JNHW / 15.11.24	DAH / 19.11.24
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Figure 4: Baseline Habitat Condition Plan

Figure 5: Proposed Habitat Condition Plan

APPENDIX

Appendix A: Statutory Metric Assessment

1.0 NON-TECHNICAL SUMMARY

Scope and Methodology

- This Biodiversity Net Gain Report has been prepared to support a planning application for the redevelopment of a Site at Woollam Park, North St Albans, Hertfordshire. It presents an overview of the ecological baseline of the Site along with the results of a BNG assessment.
- This assessment has been informed by the completion of UK Habitat Classification V2.0 surveys, habitat condition assessments surveys and the completion of a Statutory Biodiversity Net Gain Metric.

Baseline Habitats

- The Site is comprised mainly of arable habitats, bordered by hedgerow and woodland compartments. A small arable headland has been planted up with annual plant species and is classified as a priority habitat margin.
- A single field of modified grassland is located in the west of the Site, used for amenity purposes.
- The Long Spring Wood Local Wildlife Site (LWS) is located along the southern boundary of the Site, designated for supporting ancient woodland habitat. It is therefore assessed as an irreplaceable habitat within the metric.
- Multiple medium and large rural trees have been identified along the hedgerow linear features.
- The baseline value of the Site is 108.88 Habitat Units and 32.80 Hedgerow Units.

Proposed Habitats

- The proposals include the loss of all the arable and the majority of the grassland habitats identified onsite. The woodland compartments will be retained and where possible enhanced within the proposals.
- Hedgerow H1 will be lost in its entirety, while minor gaps will be made through hedgerows H2, H5, H6, H9 and H11 to facilitate infrastructure access.
- Proposals involve the construction of a large area of hardstanding including up to 1,000 new homes, a primary school, a care home and a neighbourhood centre, as well as associated infrastructure. Green corridors will be created throughout the urban area, with large areas of amenity and semi-natural greenspace proposed in the east of the site. Habitats to be created include modified grassland, other neutral grassland, mixed scrub, broadleaved woodland, allotments, community orchard, sustainable urban drainage basins, species rich hedgerows and urban tree planting.
- The proposed value of the Site will be 121.11 Habitat Units and 41.44 Hedgerow Units.

BNG Assessment Results

- The proposals will result in an uplift of 12.23 habitat units (11.23% gain) and 8.65 hedgerow units (26.37%).
- The proposals will not satisfy the trading rules of the metric, due to the loss of the small area of medium distinctiveness arable margin. The proposals will result in a greater range of habitat diversity, and while it is not considered feasible to maintain this arable habitat within the proposals, this habitat is easily replicable within the surrounding arable landscape.
- This assessment has demonstrated that the proposals will be capable of satisfying the mandatory BNG condition imposed by the Environment Act 2021.

2.0 INTRODUCTION

2.1 The following report has been prepared by FPCR Environment & Design Ltd on behalf of Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust. It's purpose is to provide the results of a Biodiversity Net Gain (BNG) assessment completed in support of a planning permission application for a mixed residential development at land at Woollam Park, North St Albans, Hertfordshire (Central OS Grid Reference: TQ 3467 9632) hereafter known as the 'Site'.

2.2 This report has been prepared as an appendix for an Environmental Statement (FPCR 2024) and should therefore be read in conjunction with that report.

Site Location and Context

2.3 The development boundary is c. 50ha in size consisting of four arable field compartments and a single mown grassland compartment utilised for amenity purposes. The arable field compartments support a mixture of cereal and non-cereal crops, with narrow field margins and bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary of the Site is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment. The western boundary is bordered by the A1081 Harpenden Road while Sandridgebury Lane bisects the arable field compartments that dominate the Site and a railway line borders the eastern boundary.

2.4 The Site was situated on the northern periphery of the city of St Albans, Hertfordshire. To the north and east of the Site comprised arable land. To the south of the Site, a number of residential dwellings with associated gardens were situated along with some commercial units and St Albans Girl's School.

Site Proposals

2.5 The proposals include the relocation and replacement of existing playing fields and erection of pavilion annex; construction of up to 1000 new homes (use class C3) to include a mix of market housing, affordable housing, age restricted specialist accommodation for the elderly, and adult disability service units; an 80-bed care home (use class C2); a local centre (use classes E and F); a two-form entry primary school (use class F;) the laying out of green infrastructure including habitat creation, drainage infrastructure; earthworks; pedestrian and cycle routes; and a new means of access onto Harpenden Road and Sandridgebury Lane.

Aims and Objectives

2.6 This BNG Report is based on the Chartered Institute of Ecology and Environmental Management (CIEEM) guidance[1] and the requirements of the Environment Act as set out in the BNG Practice Policy Guidance[2]. The scope and objectives of this report are to:

- Summarise the results of the baseline UKHab and habitat condition assessment surveys;
- Provide a description of the proposed habitats to be delivered by the scheme;
- Present the results of The Statutory Biodiversity metric calculations completed for the scheme;

[1] CIEEM (2021) Biodiversity Net Gain Report and Audit Templates Chartered institute of Ecology and Environmental Management, Winchester, UK.
[2] Defra (2024) Biodiversity Net Gain Planning Practice Guidance. Available at: Biodiversity net gain - GOV.UK (www.gov.uk) (Accessed: 17.06.2024)

- Provide the consenting authority with a sufficient level of information to aid in the decision-making process regarding the scheme's ability to be able to demonstrate a mandatory biodiversity net gain; and
- Demonstrate how the mandatory biodiversity net gain can be achieved in accordance with Defra's biodiversity net gain hierarchy.

Legislative and Policy Context

The Environment Act 2021

2.7 In England, biodiversity net gain is now required under statutory frameworks introduced by Schedule 7A of the Town and Country Planning Act 1990 (inserted by the Environment Act 2021). Under this framework, every grant of planning permission will be deemed to have been granted subject to a general biodiversity gain condition. This will require an objective for developments to deliver at least a 10% increase in biodiversity value relative to the pre-development biodiversity value of all onsite habitats.

2.8 This is a pre-commencement condition requiring the provision of a Biodiversity Gain Plan to be submitted and approved before works can be commenced, but after planning permission has been granted.

2.9 In principle, the grant of planning permission is not within the scope of BNG, however it is important to consider as part of the consenting body's decision-making process how a scheme will be able to demonstrate BNG after permission is granted. Therefore, this biodiversity net gain report presents the results of a Biodiversity Net Gain assessment that has been completed in order to demonstrate how the proposals will be compliant with the requirements of the Environment Act.

Biodiversity Net Gain Hierarchy

2.10 The statutory framework allows for the 10% biodiversity gain to be delivered through onsite biodiversity gains, registered offsite biodiversity gains or statutory biodiversity credits. However, as set out in Articles 37A and 37D of the Town and Country Planning (Development Management Procedure) (England) Order 2015, development must consider the biodiversity net gain hierarchy when designing scheme proposals. This sets out hierarchy of actions as follows:

- First, for all medium, high and very high distinctiveness habitats, the avoidance of any adverse effects.
- Where these can't be avoided, mitigating any adverse effects on medium, high and very high distinctiveness habitats.
- Then, for all onsite habitats (including low distinctiveness), adverse effects should be compensated by in accordance with the following hierarchy:
  i. Prioritising the enhancement of existing habitats; then
  ii. Creation of onsite habitats;
  iii. Allocation of registered offsite unit gains; then
  iv. Purchase of biodiversity credits

2.11 Proposals must demonstrate how the biodiversity hierarchy has been applied to or provide the reasons for any deviation. This biodiversity net gain hierarchy is distinct from the mitigation hierarchy set out in

paragraph 186(a) of the National Planning Policy Framework (2023) which is addressed in the accompanying Ecological Appraisal where relevant.

Exemptions

2.12 There are a number of circumstances where a Site will be exempt from biodiversity net gain including:

- Development impacting habitat of an area below a 'de minimis' threshold of 25m2, or 5m for linear habitats.
- Householder applications (as defined within article 2(1) of the Town and Country Planning (Development Management Procedure) (England) Order 2015).
- Self-build and custom-build applications (no more than 9 dwellings, site no larger than 0.5 ha and consists exclusively of self-build/ custom dwellings).
- Biodiversity gain sites (where habitats are being enhanced for wildlife only).
- Previously developed land with a baseline score of zero (exempted via the metric).

2.13 The proposals for the Site do not fall under any of the above criteria and this report has therefore been prepared in order to aid Enfield Council in their decision-making process.

National Planning Policy Framework (2023)

2.14 The NPPF (2023) in particular seeks to ensure that the planning system contributes to and enhances the natural and local environment, protect and enhance biodiversity and geodiversity by:

"180. d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

185. b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity."

Mandatory Biodiversity Net Gain Minimum Requirements

2.15 The BNG PPG sets out the minimum requirements of any planning application subject to mandatory BNG to present as part of any submission in order to validate the application. For ease of reference, the minimum information required has been set out in table 1 below.

2.16 Additional detail and information appropriate to the application is provided within this report in order to assist St Albans District Council in their decision-making process and to provide confidence that the scheme will be able to demonstrate a mandatory BNG through the provision of a Biodiversity Gain Plan following receipt of planning permission, in accordance with the PPG.

Table 1: Checklist of minimum BNG reporting requirements

Minimum Requirements of BNG PPG	Statement of Relevance to the Site
Confirmation that the Site is believed to be subject to the mandatory BNG condition.	The Site does not meet any of the exemption criteria and so it is understood that the Site will be subject to the mandatory BNG condition.
The pre-development biodiversity value of the Site, either on the data of application or an earlier proposed date (as appropriate).	The accompanying Statutory Metric completed for the scheme provides the pre-development biodiversity value of the Site. The values are also presented within this report.
Where an earlier date is proposed, provide the reasons for proposing that date.	The 'relevant date' is proposed to be the latest date that a baseline habitat survey was completed. For the Site, this will be 7th May 2024. This is considered to be an appropriate date as it is within the data that ecological data is considered valid (two years, as recommended by CIEEM).
The completed metric calculation showing the calculations of the pre-development biodiversity value of the onsite habitat on the data of application (or proposed earlier date) including the publication date of the biodiversity metric used.	The Statutory Biodiversity Metric, published on 6th August 2024, was used to calculate the pre-development value of the Site. The completed metric has been provided alongside this BNG report.
A statement whether activities have been carried out prior to the date of application (or proposed date), that result in loss of onsite biodiversity value (degradation).	This statement confirms that FPCR and Hallam Land Management are aware of no habitat degradation onsite.
A description of any irreplaceable habitat (as set out in column 1 of the Schedule to the Biodiversity gain Requirements (Irreplaceable Habitat) Regulations 2024) on the Site, that exists on the date of application (or an earlier proposed date)	The Long Spring Wood Local Wildlife Site designated for supporting ancient woodland and therefore is recorded as Irreplaceable habitat within this assessment.
Plan(s), drawn to an identified scale and showing the direction of North, showing onsite habitat existing on the date of application (or earlier proposed date) including any irreplaceable habitat (if applicable).	*Figures 1 and 4* show the baseline habitats present onsite on the proposed relevant date (7th May 2024). This includes the minimum requirement to show an identified scale and north arrow.

3.0 METHODOLOGY

Baseline Habitat Assessment

3.1 A baseline habitat survey was completed broadly following the UKHab Classification system 2.0[3] and the Statutory Biodiversity Metric User Guide. This involved a systematic walk over of the Site boundary to map all habitats present for the purposes of completing the Statutory Biodiversity metric Calculation Tool and their current condition. Habitat condition assessment surveys were also completed in accordance with the Statutory Biodiversity Metric Habitat Condition Assessments. The summary results of the habitat condition assessment survey results are presented in this report.

3.2 The habitat survey was undertaken on in April 2022, with an updated survey carried out on 7th May 2024 (the proposed 'relevant date').

3.3 Full details of the survey methodologies employed are provided in the accompanying Environmental Statement (FPCR 2024).

Biodiversity Net Gain Calculation

3.4 Defra's Statutory Biodiversity Metric calculation tool was used to inform this BNG Report. It is an MS Excel spreadsheet that is used to quantify the predicted net-change in biodiversity value ("biodiversity units") of a proposed development site before and after development. It treats the area-based habitats and linear features such as hedgerows and lines of trees separately, and is based on pre-determined values, along with published written guidance set by a Natural England-led team of experts.

3.5 The development Site was surveyed and mapped, as described above. The survey results were digitised using QGIS, with the existing habitats identified and areas automatically generated.

3.6 On-Site post-development habitats were determined from the latest Detailed Landscape Proposal (DE565-NSA-KE-102 - Define, 2024), with proposed habitats mapped and digitised using QGIS to generate areas for each of the habitats proposed for enhancement.

3.7 These pre- and post-enhancement habitat areas were then inputted into the Statutory Biodiversity Metric Calculation tool. The metric automatically assigns habitat distinctiveness score for each of the baseline and proposed habitats.

3.8 The metric then assigns a range of pre-assigned factors to each of the proposed habitats. These have been advised by subject knowledge experts and are universal multipliers generated by the metric itself for the following variables relevant to habitat creation, enhancement or restoration proposals:

- difficultly of creating or restoring/enhancing a habitat: This pre-assigned score is based on how difficult a particular habitat type is to create or restore/enhance
- temporal risk: this is the 'time to target condition' for any particular habitat and determines how long a particular habitat type is likely to take to reach the condition score that the desired condition score assigned to it.
- spatial risk: this score is based on the distance between the site of habitat loss and any habitats creation or enhancement proposals at any offsite offsetting solutions.

[3] UK Habitat Classification Working Group (2018). UK Habitats Classification User Manual at https://ukhab.org/

3.9 The strategic significance multiplier within the metric has been informed by a desk study review. Full details of the desktop study undertaken are provide in the accompanying Ecological Appraisal.

3.10 Full details of the calculation methodology are provided in The Statutory Biodiversity Metric User Guide.

4.0 BASELINE CONDITIONS

Desktop Study

Strategic Significance

4.1 The Site sits within a predominantly agricultural landscape, with further urban environments to the south. Green space connected to the Site is primarily facilitated through hedgerows, trees and scattered woodland compartments. Notably there are nine local wildlife sites identified within a 1km radius of the site including the Long Spring Wood LWS located onsite, along the southern boundary.

4.2 Determination of the strategic significance for different habitats has been completed according the to the following criteria;

- High Strategic Significance – The habitat type is mapped and described as locally ecologically important within a specific location, within documents specified by the relevant planning authority.
- Medium Significance – Where Local Nature Recovery Strategies (LNRs) have not been published by the Local planning authority, this strategic significance can be applied to habitats providing the following can be demonstrated;
    - explain how the habitat type is ecologically important within a specific location
    - demonstrate the importance of that habitat in providing ecological linkage to other strategically significant locations
    - use professional judgement
- Low Strategic Significance – Applied to all remaining habitats which do not satisfy the criteria detailed above.

4.3 The majority of the site is therefore considered to be of **Low strategic significance,** with **Medium strategic significance** applied to the woodland compartments, and **High strategic significance** applied to the Long Spring Wood.

Biodiversity Units

4.4 The baseline habitats and condition are shown in Figures 1 and 4, while the detailed condition assessment for each of the habitats can be found in Appendix A.

Area Habitats

Arable

4.5 The majority of the Site comprised four intensively farmed arable fields, which supported cereal and non-cereal crops during the time of survey.

4.6 The field margins varied in width (0 – 1m) with a poor species diversity that was largely consistent across the four fields. Grass species present included frequent perennial ryegrass *Lolium perenne*, meadow foxtail *Alopecurus pratensis*, red fescue *Festuca rubra*, and occasional Yorkshire fog, *Holcus lanatus,* cock's foot *Dactylus glomerata* and tall fescue *Festuca arundinacea*. This was accompanied by a low diversity herbaceous community consisting of common and widespread species, including

hogweed *Heracleum sphondylium*, creeping buttercup *Ranunculus repens* and creeping thistle *Cirsium arvense*, with species typical of disturbed arable land occasionally recorded, including dove's foot crane's bill *Geranium molle*, white dead nettle *Lamium album* and common mouse-ear *Cerastium fontanum.*

4.7 A small arable headland at the southern extent of the arable field compartment F2, supported a mixture of annual plants and species-poor grassland. Grass species included cock's foot *Dactylis glomerata* and rough meadowgrass *Poa trivialis,* with herb species such as, corn chamomile *Anthemis arvensis*, corncockle *Agrostemma githago*, common poppy *Papaver rhoeas* and corn flower *Centaurea cyanus* recorded. It is considered that the assemblage and management of this headland classify it as a priority arable margin.

4.8 In accordance with the Statutory Biodiversity Metric guidance, cropland habitats do not require Condition assessments.

Modified Grassland

4.9 Field F1 and a narrow strip of grassland along the western boundary of field F3 comprised short mown modified grassland. Both these grasslands supported signs of regular management and disturbance, with field F1 being utilised as a rugby pitch and F3 as an overflow carpark. The grass species comprised abundant perennial rye grass *Lolium perenne* with frequent annual meadow grass *Poa annua*. Owing to the management regime of this habitat, herb content of this field was generally low with only common and widespread species present, such as common daisy *Bellis perennis*, common mouse ear, common ragwort *Jacobaea vulgaris*, perennial sow-thistle *Sonchus arvensis* and self-heal *Prunella vulgaris.* Further small areas of bare ground indicated disturbance throughout these grasslands.

4.10 These grassland areas were assessed as being in **poor condition**, due to the limited sward structure, species diversity and bare ground frequency.

4.11 A slightly larger field margin, approximately 20m in width was located on the eastern boundary of field F4. It supported an unmanaged sward structure dominated by red fescue, cocks' foot and perennial rye grass with limited herb species including white clover *Trifolium repens*, common mouse-ear, common nettle *Urtica dioica* and common knapweed *Centaurea nigra*. This grassland was further impacted by the adjacent arable farming activities, as well as bare ground from a regularly used public right of way.

4.12 Owing to the structure and diversity identified throughout this grassland margin, it was assessed as being in **moderate condition**.

Lowland Mixed Deciduous Woodland

4.13 Long Spring Wood (W4) was a small ancient woodland located along the southern boundary of F4. It comprised of semi-natural pedunculate oak *Quercus robur* and hornbeam *Carpinus betulus* coppice, with standards of ash *Fraxinus excelsior*, beech *Fagus sylvatica*, sycamore *Acer pseudoplatanus and* wild cherry *Prunus avium*. A sporadic understorey comprised dense shrubs of holly *Ilex aquifolium*, hawthorn *Crataegus monogyna*, cherry laurel *Prunus laurocerasus*, hazel *Corylus avellana,* bramble *Rubus fruticosus* and elder *Sambucus nigra*, as well as open glades consisting of typical woodland ground flora including bluebell Hyacinthoides non-scripta, ivy leaved speedwell *Veronica hederifolia*, pignut *Conopodium majus* and wood mellick *Melica uniflora*. Along the borders of the woodland bramble *Rubus fruticosus* agg scrub and areas of tall ruderal vegetation were present comprised of bracken *Pteridium aquifolium*, common nettle, cow parsley *Anthriscus sylvestris* and hogweed. Informal

footpaths were present throughout the woodland and connected to the industrial and residential developments to the south.

4.14 This woodland is classified as Lowland Mixed Deciduous Woodland Priority Habitat.

4.15 This woodland was assessed as being in **Good condition**, due to the species, tree age and structural diversity as well as supporting healthy tree specimens and a diverse ground flora assemblage.

Other Mixed Woodland

4.16 A small semi-mature mixed woodland (W1) was located within a circular depression in the southern extent of F5, situated between scrub habitats and young plantation woodland. Canopy species comprised ash, eastern larch *Larix laricina* and pedunculate oak, with an understorey of bramble, blackthorn *Prunus spinosa*, dogwood *Cornus sanguinea*, elder *Sambucus nigra* and holly. The ground flora included wood dock *Rumex sanguineus,* wood avens *Geum urbanum* and garlic mustard *Alliaria petiolata* was recorded.

4.17 Also recorded within the mixed woodland was Virginia creeper *Parthenocissus quinquefolia* (TN6) an invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). This invasive non-native species was recorded extensively within the understorey of the woodland and was locally abundant to the south of this habitat.

4.18 Due to lack of ground flora diversity, disturbance of the ground, invasive species present and poor health of the tree species, this woodland was assessed as **in poor condition**.

Other Broadleaved Woodland

4.19 The woodland belt (W3) along the southern boundary of F1 was abundant with semi-mature native trees including ash and hawthorn*,* with frequent field maple *Acer campestre,* pedunculate oak *Quercus robur*, and occasional hazel present. The associated understorey comprised holly*,* bramble and elder with ground flora including hedge bedstraw *Galium mollugo,* upright hedge parsley *Torilis japonica,* and wood avens.

4.20 Due to the species diversity and varied structure of this semi-mature woodland, it has been assessed as being in **moderate condition**.

4.21 The young plantation woodland belt (W2) along the northern boundaries of F2 and F3 differed in composition and were planted more recently than the above, with many trees still supporting tree guards. Species comprised frequent hazel, pedunculate oak and ash, with occasional hornbeam and turkey oak *Quercus cerris* also recorded. The understorey comprised bramble and rose with ground flora largely consisting of grassland species including frequent red fescue, Yorkshire fog and cock's foot and occasional meadow foxtail*.* Occasional herb species such as hogweed, cow parsley, broad-leaved dock *Rumex obtusifolius*, yarrow *Achillea millefolium* and perforate St John's-wort *Hypericum perforatum* were recorded.

4.22 These plantation woodlands were assessed as in **poor condition,** due to the lack of wood species diversity, ground flora diversity as well as having limited age and structural diversity.

Rural Trees

4.23 A total of seventeen trees associated with the hedgerow network, were recorded throughout the Site. In general, these trees were moderate to large in size and included mature specimens of hornbeam, holly, pedunculate oak and goat willow *Salix caprea*.

4.24 Twelve of these trees were assessed as in **moderate condition,** with the remaining five being in **good condition**.

Linear Features

4.25 A total of 14 hedgerows were recorded across the Site, all comprising native tree and shrub species, with four of them associated with agricultural ditch systems. A further eight of these hedgerows were recorded as supporting over 5 species per 30m and are therefore considered species-rich.

4.26 All the hedgerows onsite support more than 80% native species and are therefore considered as NERC s41 habitats of principal importance. Furthermore, hedgerows H1, H5 and H9 present onsite are considered 'important' under ecological criteria of The Hedgerow Regulations 1997 due to the number of species present and presence of associated features.

4.27 The hedgerows were assessed as being in the following conditions;

- H3-H5 – **Poor Condition**
- H1, H6, H7, H9, H11, H14, H15 – **Moderate Condition**
- H2, H8, H10, H13 – **Good Condition**

4.28 A single line of trees TL1 was identified along the southern border of the Site. Formally hedgerow H12 this linear feature supported closely planted tall, immature tree species including pedunculate oak, ash, field maple and hornbeam.

4.29 Due to this tree line supporting native species, in healthy condition with connecting canopies, it was assessed as **moderate condition.**

4.30 Further detailed condition assessment criteria for all the habitats and linear features can be found Appendix A.

5.0 PROPOSED DESIGN

Habitats

Habitat Retention

5.1 The proposals will result in all the arable habitats and the majority of the grassland habitats being lost. Retained woodlands will be protected from damage and to allow sufficient room for enhancement management in line with RPAs identified in the Arboricultural Impact Assessment. In addition, mature trees will be retained and root protection areas (RPA) adequately buffered wherever possible. Tree loss has been kept to a minimum.

5.2 The Long Spring Wood LWS will be afforded a 15m buffer as per the statutory guidance provided for protecting ancient woodland habitats.

5.3 Habitat retention, loss and creation/enhancement is detailed in *Figure 3.*

Habitat Creation and Enhancement

5.4 Habitat creation and condition targets are shown in *Figures 2 and 5*.

5.5 The proposals sought ecological input during an early phase of the design process to ensure that the impacts on ecological receptors will be kept to a minimum. BNG calculations have been completed at an outline planning stage to guide the proposals and ensure that a gain can be achieved as the detailed design progresses.

5.6 The proposals for the Site include extensive areas of Green Infrastructure across the site including a large area of sports pitches and a school in the northern extent, while the south-eastern extent will be used as a greenspace hub including play areas, allotments and amenity areas as well as semi-natural habitats including species-rich grassland, mixed scrub, woodland, community orchard and tree planting.

5.7 The Site includes a range of habitat creation and enhancement measures to maximise the biodiversity score including the following:

- Extensive planting of mixed scrub to include a diverse planting mix and managed to include glades, rides and clearings.
- Planting of species rich grassland, which will be managed through appropriate meadow management to maximise species diversity and sward structure.
- Additional woodland will be planted using a diverse range of tree species and ground flora.
- SuDS basins and swales will be planted with a diverse range of inundated grassland vegetation.
- Retained woodlands will be enhanced through selective thinning, additional planting, retention of deadwood and the introduction of ground flora.
- Allotments and community orchard growing areas, providing a diverse range fruit, seed and nut bearing tree and crop species.
- Long Spring Wood LWS will be retained and enhanced through the management of encroaching bramble scrub, thinning of trees and incorporation into a detailed management plan to mitigate recreational impact on this designated area (further detail provided in the accompanying Environmental Statement).

- Proposals include additional tree planting within the development area, including along streets and within GI areas around the Site peripheries.

5.8 The biodiversity units for the created habitat on the site have been calculated from the Landscape Strategy Plan (DE565-NSA-KE-120 - Define, 2024) and are presented in Table 2, along with a description of the management recommendations which will be employed to achieve the target conditions for each habitat type.

Table 2: Summary of Proposed Habitat Creation/Enhancement

Habitat (Landscaping Plan Reference)	Habitat (UKHab Type)	Description	Target Condition	Distinctiveness
Amenity grassland areas	Modified Grassland	To achieve a moderate condition, a species rich flowering lawn mix will be used to maintain diversity. Further management will ensure it maintains diversity and prevents scrub or bracken encroachment.	Moderate	Low
		Modified grassland in poor condition, will be created across the proposed sports fields in the northern extent of the site. It is expected that this grassland will be managed intensively for its amenity purpose.	Poor	
Species rich grassland	Other Neutral grassland	To achieve a moderate condition, these grassland areas will be managed through sympathetic grassland/or hay-cut management, to target a good representation of a natural grassland habitat.	Moderate	Medium
		These grassland areas will be sown with a native species-rich seed mix and managed to promote grassland diversity and prevents scrub or bracken encroachment.	Poor	
Native scrub and tree planting	Mixed scrub	This habitat will be planted using a diverse range of native scrub species. Edge habitat will be maintained by cutting annually in late summer/early autumn. Appropriate management should promote age range diversity across the scrub compartments, and where possible incorporating glades, rides and clearings interfacing with the species rich grassland, to create areas for wildlife.	Moderate	Medium
Native woodland planting/new trees	Other broadleaved woodland	A range of native trees will be planted in a naturalized pattern. A minimum of 5 species should be planted to promote the growth of a species rich canopy. Understory planting and the seeding of the area with an appropriate ground flora seed mix should also be implemented. These woodland areas will be planted up around scrub areas, protecting the trees from over browsing as well as increasing native tree and shrub diversity.	Moderate	Medium

Sustainable Urban Drainage Systems	Sustainable Urban Drainage Systems	New SUDS features will be designed with a naturalised layout using species rich grassland mixtures and managed to create a varied structure and maintain diversity. Due to the free draining geology of the Site, it is not considered that these features will support standing water for long periods of time.	Good	Low
Linear Conveyance Channels	Sustainable Urban Drainage Systems	Linear features varying between 3-6m in width, designed to support the drainage across the site. These will support varying water levels and may be dry for long periods of time. They will be planted up with species rich grassland mixtures and managed in association with the SuDs features above.	Moderate	
Tree Planting in urban area	Urban Tree	A range of native tree species will be planted across the green infrastructure to the east of the site. A range of native tree species will increase structural and species diversity.	Moderate	Medium
		A range of native and non-native tree species will be planted across the scheme, designed to increase diversity and maintain green corridors throughout the urban area. These trees will be planted in pits with sufficient room to grow to maturity, with any failed specimens being replaced on a like-for-like basis.	Poor	Medium
Semi-native Ground Cover	Introduced Shrub	A range of native and ornamental grasses, shrubs and herbaceous species, providing structural, pollination and foraging resources year-round. To be planted alongside road infrastructure, creating green corridors, supporting urban tree planting.	Condition Assessment – N/A	Low
Allotments	Allotments	A mixture of allotments to be provided across the urban areas, to support food crop planting as well as diverse native species.	Moderate	Low
Community Orchard	Traditional Orchard	Grassland area supporting a range of native tree species supporting fruit, nut and seed. Trees to be managed appropriately to promote growth to maturity. Grassland will be created using species rich native mix and managed though sympathetic grassland/or hay-cut management, with the exception of mown paths to provide public accessibility.	Moderate	High
Informal Footpaths and LEAP Areas	Artificial unvegetated, unsealed surface	It is expected that the informal footpaths and play areas will be surfaced with artificial loose substrate which will be managed.	N/A-Other	Very Low
Residential development/New	Developed land; sealed surface	These habitats have been assumed to include built environment. Also included in these areas will be opportunities for specimen tree	N/A-Other	Very Low

footpath routes/Diverted PRoW		planting, hedgerow creation and landscape planting. The inclusion of these latter features will be considered at the detailed design stage and will help to further increase the BNG score for the Site.		
Residential Garden Areas	Vegetated Garden	The residential gardens throughout the built environment will be planted up with a flowering lawn mix. Due to the third-party ownership of these plots in the future, they have been mapped as vegetated gardens	N/A-Other	Low
Habitat Enhancement				
Existing woodland belts W3 and W4	Other Broadleaved Woodland	These two immature woodland belts support a range of native broadleaved species with a grassland and bramble understory. They will be enhanced through the selective thinning of individual trees to provide tree growing space. Where possible removed trees will be used to create fallen and standing deadwood along the woodland compartments. Further management of the bramble and grassland will promote ground floral development.	Moderate	Medium
Existing Mixed Woodland W2	Other Mixed Woodland	This mixed woodland will be enhanced through the management of scrub and removal of Sch. 9 Virginia creeper, as well as selective thinning to increase deadwood and light penetration into the compartment. Further planting of native tree and scrub species may be used to create structural and species diversity.	Moderate	Medium

Linear Features

5.9 There are a total of 15 hedgerows and two lines of trees present onsite.

5.10 The proposal will result in hedgerow H1 being lost in entirety, with further small sections being lost from hedgerows H2, H4-H6, H9-H11 to facilitate infrastructure access.

5.11 The proposals will aim to enhance hedgerows H7-H9 and H11 through additional native tree and shrub planting along the lengths of the hedgerows to increase the species diversity and tree features across the hedgerow lengths. Further buffering of the existing hedgerows and management of the hedgerow grassland buffer will increase and maintain species diversity.

5.12 Further new hedgerow planting may be incorporated into the proposals at detailed planning stage, providing additional hedgerow units for the Site. Where new hedgerows are created, they should be planted with a minimum of 5 native tree and shrub species per 30m and buffered accordingly to protect them throughout the proposals.

Additional Enhancements

5.13 Additional mitigation measures will be implemented to contribute to a biodiversity net gain within the redesign. This will focus on the provision of faunal enhancements that are not captured within the Statutory Metric. To achieve this, external bat boxes will be installed on buildings as well as bird nest boxes designed for urban species. These will include boxes suitable for house sparrow *Passer domesticus,* starling *Sturnus vulgaris* and swift *Apus apus.*

5.14 Other bat, bird and invertebrate boxes will also be included on trees around the Site to provide additional features.

5.15 Artificial hibernacula will be created within the species-rich grasslands within the green infrastructure and along the North-eastern extent of the Site to provide opportunities for reptiles.

5.16 Additionally, the planting of climbing species such as Jasmin *Jasminum officinale*, Evergreen Clematis *Clematis armandi,* and Blue Passionflower *Passiflora caerulea* supported by trellis has been incorporated into the proposed design. This is also not captured in the Biodiversity Metric but will add value for pollinating insects.

5.17 The provision of these additional enhancements can be secured through an appropriately worded condition.

6.0 BNG METRIC CONCLUSIONS

6.1 The habitat creation proposals highlighted within this report have all been inputted into the Statutory Metric. Table 3 provides a summary of the headline results of the Statutory Metric assessment completed for the proposals. The full metric has been provided in Appendix B.

Table 3: Statutory Metric Headline Results

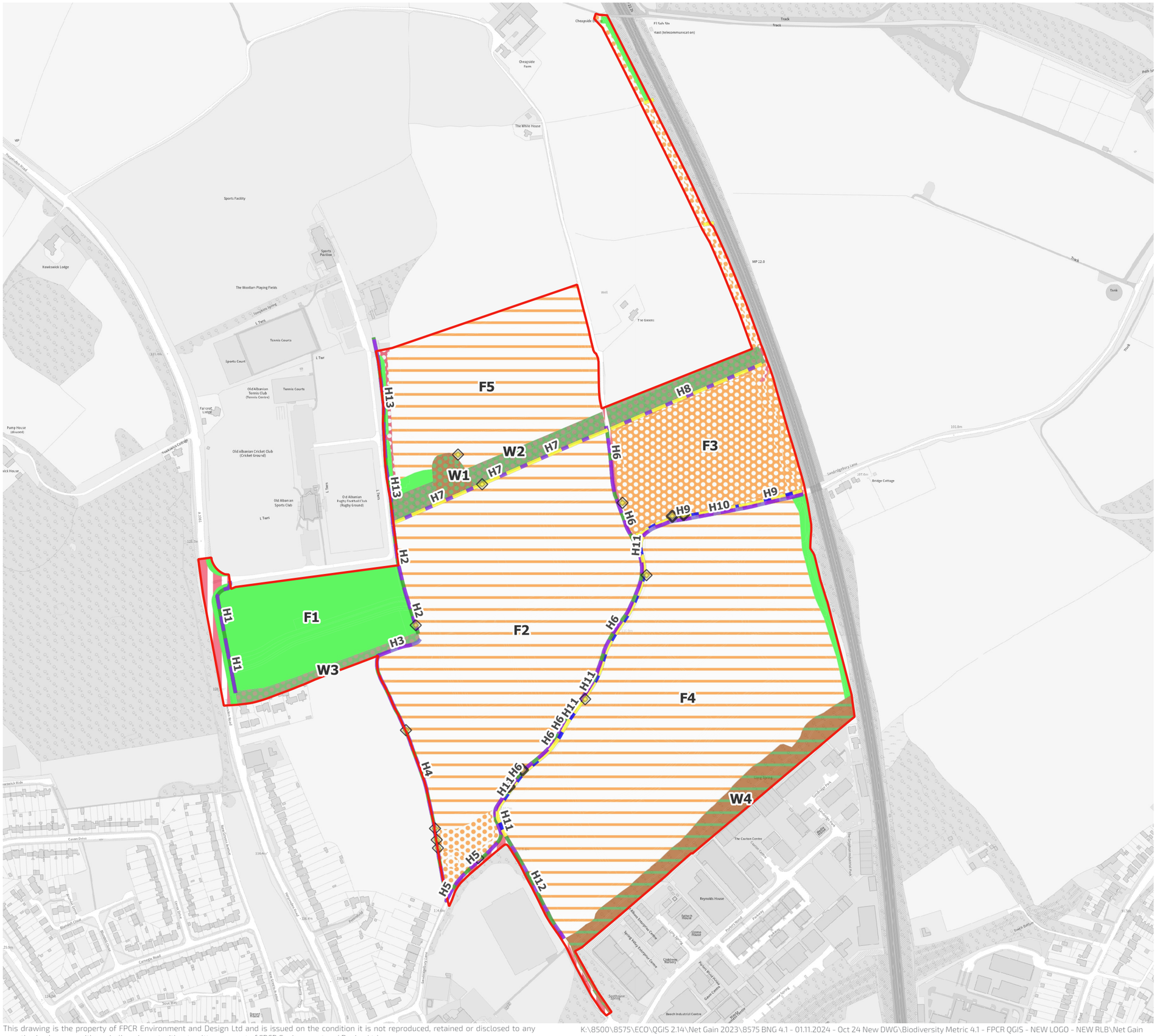
Baseline	Habitat Units	108.88
	Hedgerow Units	32.80
Post-Intervention	Habitat Units	121.11
	Hedgerow Units	41.44
Total Net Unit Change	Habitat Units	**+12.23**
	Hedgerow Units	**+8.65**
Total Net Percentage Change	Habitat Units	**+11.23%**
	Hedgerow Units	**+26.37%**

6.2 The accompanying metric demonstrates that a gain in excess of 10% can be achieved for habitats and hedgerows.

Habitat Trading

Trading Summary

6.3 The proposals do not satisfy the trading rules due to the loss of the medium distinctiveness habitats to be offset by broad habitat. This is due to the unavoidable loss of the small area of priority arable margin in the southern extent of the site. While it is unfeasible to incorporate medium distinctiveness arable habitats within the proposals, the wider planning application will be creating a minimum of 5ha of farmland bird mitigation plots within field compartments in the north of the application site. Furthermore, it is considered that the proposals onsite will provide an overall increase in habitat diversity including significant overall gain in medium distinctiveness habitats. Therefore, it is considered that the overall scheme will compensate for small losses in arable habitats through exceeding the statutory biodiversity net gain targets, to deliver an overall increase in the biodiversity value onsite.



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0 100 200 m

- Red Line Boundary

Baseline Habitats

- Arable field margins cultivated annually
- Artificial unvegetated, unsealed surface
- Cereal crops
- Developed land; sealed surface
- Lowland mixed deciduous woodland
- Modified grassland
- Non-cereal crops
- Other woodland; broadleaved
- Other woodland; mixed

Baseline Hedgerow

- Line of trees
- Native hedgerow
- Native hedgerow - associated with bank or ditch
- Native hedgerow with trees
- Species-rich native hedgerow
- Species-rich native hedgerow with trees

Baseline Individual Trees

- Existing large urban tree
- Existing medium urban tree

date 28/11/24

drwn/chkd DS / JW

client

Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project

Woollam Park

title

BASELINE HABITAT PLAN

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number

FIGURE 1

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04/12/24

drwn/chkd
DS / JW

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project
Woollam Park

title
PROPOSED HABITAT PLAN

scale
1:5,400 @ A3

number
FIGURE 2

rev
-

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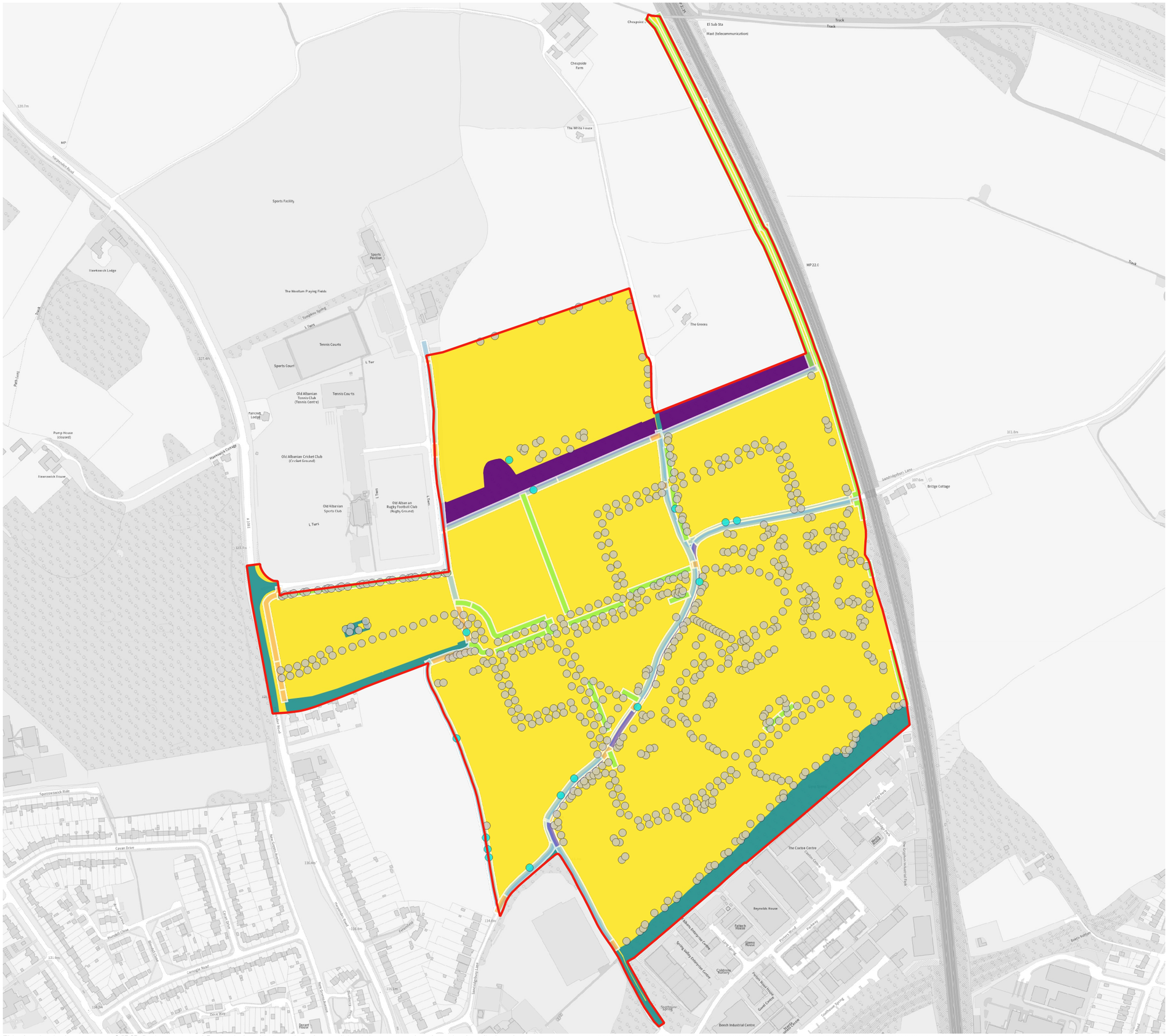

N

0 100 200 m

Red Line Boundary

Habitats

- Enhanced
- Retained
- Lost

Hedgerows

- Created
- Enhanced
- Retained
- Lost

Individual Trees

- Created
- Retained

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title
HABITAT RETENTION PLAN

scale 1:5,400 @ A3

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FIGURE 3

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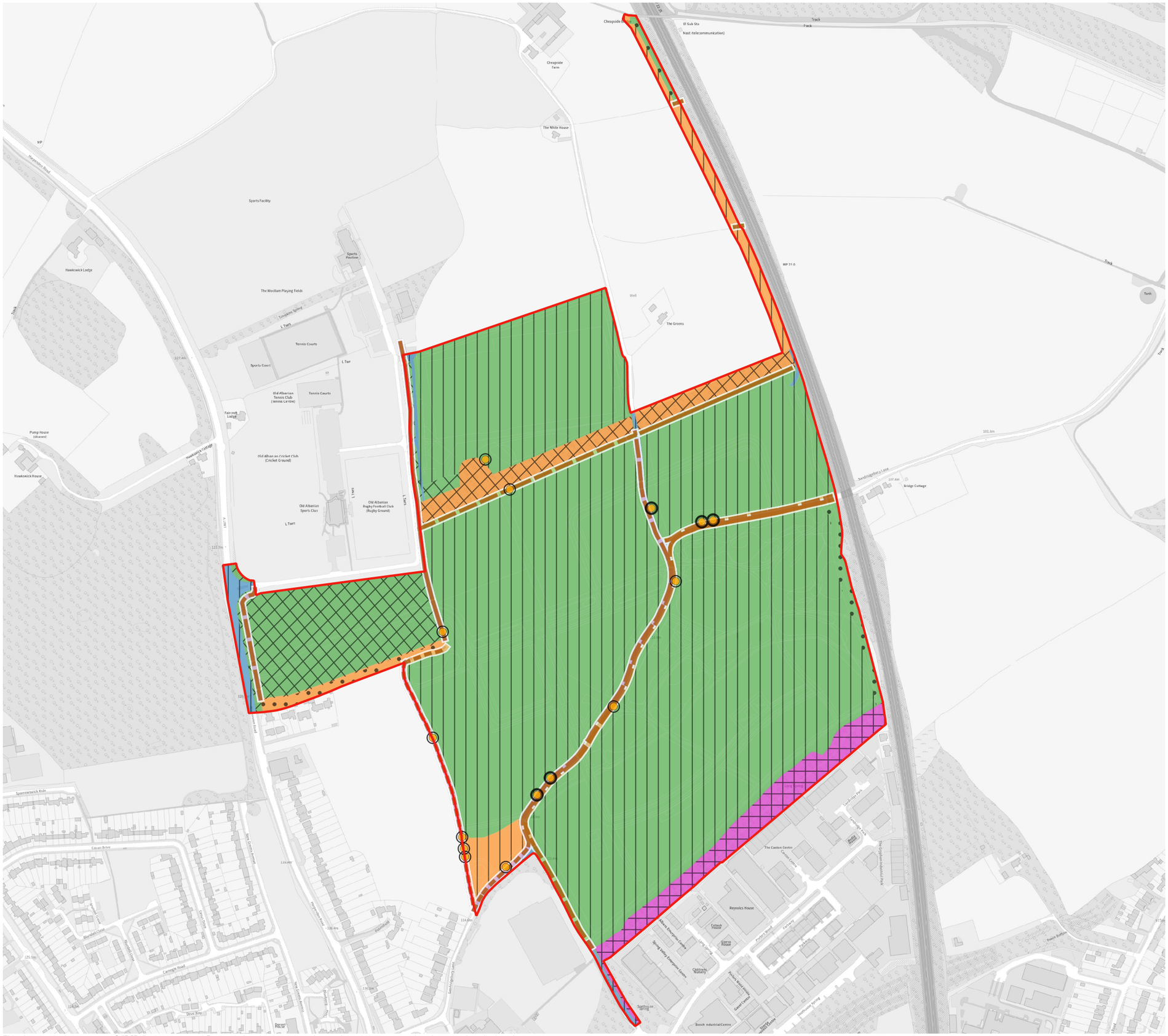

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0 100 200 m

Red Line Boundary

Baseline Habitat Condition

- Good
- Moderate
- Poor
- N/A - Other
- Condition Assessment N/A

Baseline Habitat Distinctiveness

- High
- Medium
- Low
- V.Low

Baseline Hedgerow Condition

- Good
- Moderate
- Poor

Baseline Hedgerow Distinctiveness

- High
- Medium
- Low

Baseline Individual Tree Condition

- Moderate
- Good

Baseline Individual Tree Distinctiveness

- Medium

date 28/11/24

drwn/chkd DS / JW

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project
Woollam Park

title
BASELINE HABITAT CONDITION AND DISTINCTIVENESS PLAN

scale 1:5,400 @ A3

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FIGURE 4

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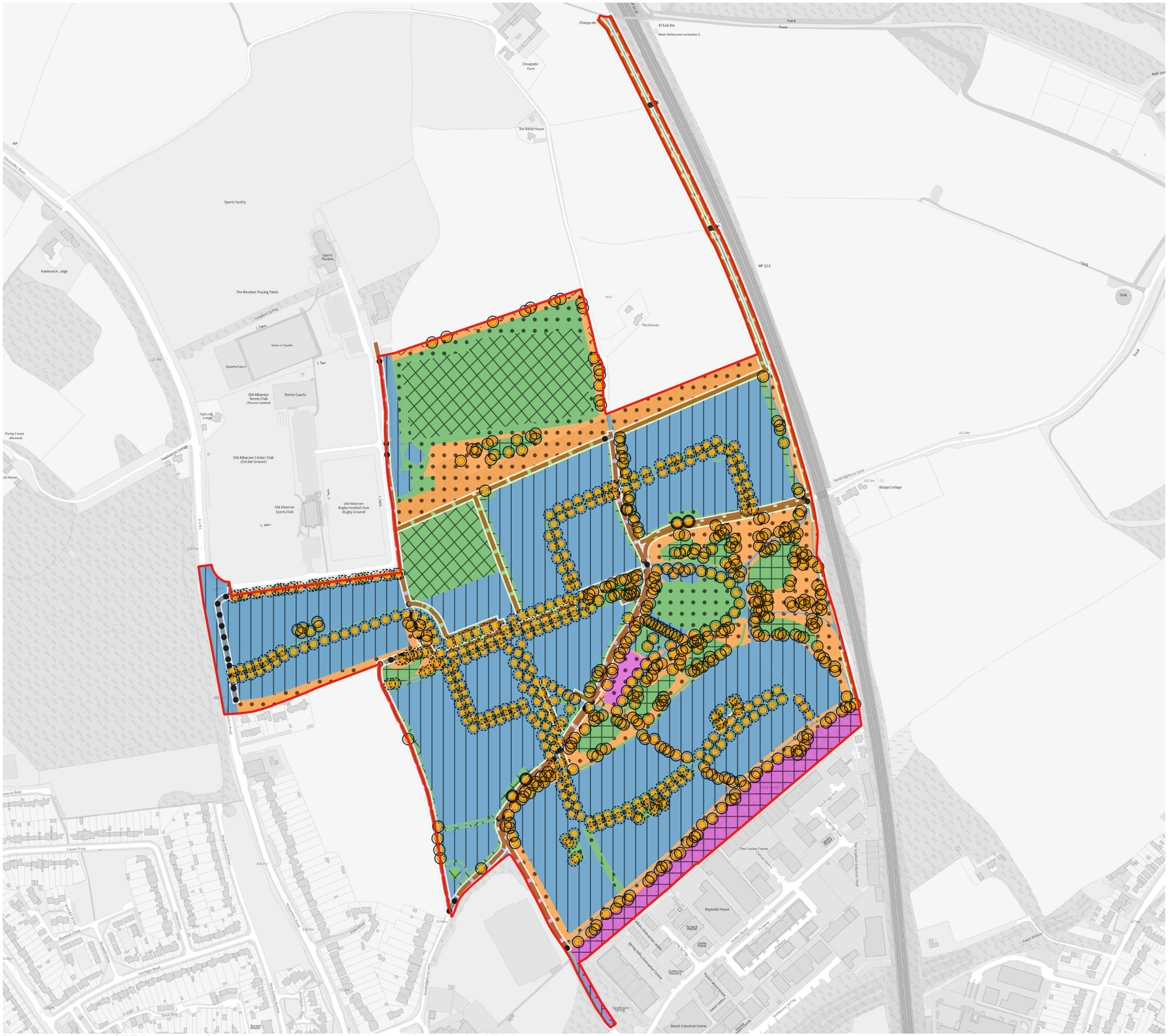
Cheapside
El Sub Sta
Track
The White House
Sports Facility
Sports Pavilion
The Noollam Playing Fields
Tennis Courts
Sports Court
Old Albanian Tennis Club (Tennis Centre)
Tennis Courts
Old Albanian Cricket Club (Cricket Ground)
Old Albanian Sports Club
Old Albanian Rugby Football Club (Rugby Ground)
Hawkswick Cottage
Hawkswick Lodge
Faircut Lodge
Pump House (disused)
Hawkswick Ride
Harpenden Road
The Greens
Well
Tank
MP 22.0
Sandridgebury Lane
Bridge Cottage
Reynolds House
Oaklands Nursery
Beech Industrial Centre
Beech Roadside
The Clayton Centre
The Clayton Industrial Park
Cavan Drive
Rochdale Close
Carnegie Road
Dove Way
Faraday Close
Newton Close
Darwin Close
Priestley Close
Ferguson Close
Fleming Close
Jenner Close
Jenner Road
Hawthorn Close
Hawthorn Road
Sandridgebury Lane
Spring Valley Enterprise Centre
Alban Enterprise Centre
Bowers House
Bowers Close
Bowers Way
New Colney Avenue
New Colney Road
Sandridge Park
Sandridge Park Close
Sandridge Close
Sandridge Road
Sandridge Lane
Sandridge Drive
Sandridge Close
Sandridge Business Centre
Sandridge Barn
Sandridge Cottage
Sandridge Farm
Sandridge Lodge
Sandridge Nursery
Sandridge Park
Sandridge Park

The Statutory Biodiversity Metric -Technical Annex 1: Condition Assessment Sheets and Methodology

July 2024 (v1.0.2)

Instructions

The method for assessing habitat condition is split into three main steps, all of which are outlined in detail below:

STEP 1: Considerations before assessing condition
STEP 2: Choosing the right condition sheet
STEP 3: Using condition sheets

Step 1: Considerations before assessing condition

The following points must be considered **before** undertaking a condition assessment:

a) Condition assessments must be undertaken by a competent person (hereafter referred to as assessors), as defined in the Statutory Biodiversity Metric User Guide. They should be undertaken at the optimum time of year for the assessed habitat(s).

b) Assessors must have access to condition sheets (see **Tabs 1-25**) and the survey cover sheet during the survey (see **SURVEY COVER SHEET** tab). These may be either digital or hard copies.

c) The habitat type of the parcel(s) to be assessed must be determined before consideration can be given to its condition as this enables the assessor to select the correct condition sheet (see **HABITAT DEFINITIONS** tab). Most (but not all) biodiversity metric terrestrial habitat types are equivalent to Level 4 in UKHab, therefore some metric habitats encompass UKHab Level 5 sub-divisions. When classifying a habitat, the assessor should classify and record it to the most accurate and appropriate level. Although a Level 5, or equivalent habitat may need converting to a metric habitat type when using the

d) The location and extent of the habitat parcel(s) to be assessed must be mapped, either on digital or paper maps. Following condition assessment, mapped habitat parcels should be split according to their condition.

e) Each habitat parcel to be assessed must be assigned a unique reference ID.

Step 2: Choosing the right condition sheet

See **SELECTING CONDITION SHEET** tab which lists the habitat types found in the biodiversity metric and indicates which condition sheet should be used for each habitat type. Some condition sheets are unique to a single habitat type; others cover a range of habitat types within the same broad habitat category.

How to use: locate the relevant habitat type in the first column (Habitat type), then refer to the second column (Condition sheet) to determine which habitat condition sheet should be used to assess that particular habitat type. The third and fourth columns (Link to sheet) contain links which can be clicked on to navigate directly to the required condition sheet, for ease of

►Some habitats are allocated a fixed condition score in the biodiversity metric and do not require a condition assessment for the metric to be completed. For certain low and medium distinctiveness habitats there is a fixed option in the metric -

►Habitat descriptions in **bold** are Priority Habitats.

Step 3: Using condition sheets (Tabs 1-25)

The following instructions and points of clarification apply to most condition assessment sheets:

a) Only choose one condition sheet per habitat type. Once the condition sheet has been chosen, the condition assessment can be carried out on relevant sheets A or B, which are the same except that for A - information for one habitat parcel can be recorded, whereas for B - information for up to 10 habitat parcels can be recorded. Each condition sheet is set to print at A4 and can be used as a paper form.

b) Assess the habitat parcel against each condition assessment criterion, recording a ‘pass’ or ‘fail’ for each criterion assessed, unless otherwise directed by categories available on the sheet.

c) If a habitat parcel is failing all criteria, it may be that the habitat type has been recorded incorrectly and the wrong condition sheet is being used. Assessors should refer to the habitat description links at the top of the condition sheet to ensure that the habitat type is correctly identified.

d) If condition varies within a parcel during the assessment then start a new condition assessment. Split the original parcel to ensure that each individual parcel comprises an area of habitat of a consistent type and condition.

e) Some condition assessment sheets have ‘essential’ criteria. Essential criteria must be passed to achieve a particular condition state.

f) Some condition assessment sheets list species that are indicative of suboptimal condition status. These lists are not exhaustive. An assessor may exercise professional judgement and consider additional species within this category, such as GB non-native species secretariat

g) Any relevant evidence for passing or failing criteria, or for a particular score, should be captured within the habitat survey notes and or by taking photographs. Photographs and notes should be referenced on the condition sheet.

h) Record any survey limitations on the condition sheet, such as access restrictions or timing restrictions. If survey limitations prevent any criteria from being confidently and accurately assessed, adopt a precautionary approach when passing or failing

i. If a definitive pass or fail cannot be assigned through baseline survey, assume the criterion is passed.

ii. When monitoring post-intervention habitat, fail criteria which cannot be assessed due to survey limitations.

i) Once all applicable condition criteria have been assessed, assign a result of Good, Moderate or Poor condition following

i. The ‘Fairly Good’ or ‘Fairly Poor’ condition categories are intermediate categories for site-specific features of condition not captured in the standard condition assessment. They should only be applied through application of professional judgement, and sound ecological evidence must be provided to justify the use of these categories. If used, these categories can only be used to adjust the results of a standard metric condition assessment one condition category above or below its result. For example, you cannot go from a standard outcome of ‘Poor’ to an adjustment to ‘Fairly Good' (nor from ‘Good’ to

The condition assessment survey is a good opportunity to identify any potential opportunities for habitat restoration or enhancement. Note potential opportunities for these within the condition sheet.

The **CA SUMMARY SHEET** can be filled out after the survey to summarise information about the condition assessments, including:

- The site or location of the condition assessment survey
- The number of condition sheets used

Notes on Using Condition Sheets

Additional habitat-specific instructions for non-standard condition assessment sheets are provided below:

Using the 'Woodland' condition sheet

The Woodland condition sheet has been adapted from the ‘Woodland Condition Survey’ developed by the England Woodland Biodiversity Group (EWBG). All supplementary information needed to complete a Woodland condition assessment for the purpose of the biodiversity metric is provided or referenced within the Woodland condition sheet.

Instead of allocating a pass or fail to each criterion, each of the criteria within the woodland condition sheets are allocated a score. These scores are summed, and the total sum is used to assign a final condition score.

Using the 'Lakes' condition sheet

The Freshwater Biological Association’s ‘Habitat Naturalness Assessment’ (HNA) is used to assess the condition of a lake. All supplementary information needed to complete a HNA is provided within the Lake condition sheet.

The average of the HNA scores is used to assign a final condition score.

Using the 'Coastal' and 'Intertidal' habitat condition sheets

For most coastal and intertidal habitats, instead of allocating a 'pass' or 'fail' to each criterion, each of the criteria within the condition sheets are allocated a score. These scores are summed, and the total sum is used to assign a final condition score.

Using the 'Hedgerow' condition sheet

The condition sheet for hedgerows has been adapted from the Defra Hedgerow Survey Handbook. All supplementary information needed to complete a hedgerow condition assessment is provided within the Hedgerow condition sheet.

Each condition criterion is assigned to one of five functional groups. The condition of a hedgerow is assessed according to the number of criteria passed within these functional groups

Statutory Biodiversity Metric broad habitat	Statutory Biodiversity Metric habitat	Classification where definition derived	Habitat name in source classification	Other definition or notes
Cropland	Arable field margins cultivated annually	UKHab	Arable field margins cultivated annually	None
	Arable field margins game bird mix	UKHab	Arable field margins wild bird mix	The metric habitat type differs from the UKHab name.
	Arable field margins pollen and nectar	UKHab	Arable field margins pollen and nectar	None
	Arable field margins tussocky	UKHab	Arable field margins tussocky	None
	Cereal crops	UKHab	Cereal crops	None
	Winter stubble	UKHab	Winter stubble	None
	Horticulture	UKHab	Horticulture	None
	Intensive orchards	UKHab	Intensive orchards	None
	Non-cereal crops	UKHab	Non-cereal crops	None
	Temporary grass and clover leys	UKHab	Temporary grass and clover leys	None
Grassland	Traditional orchards	UKHab	Traditional orchards	None
	Bracken	UKHab	Bracken	None
	Floodplain wetland mosaic and CFGM	UKHab	Floodplain wetland mosaic	The metric habitat type differs from the UKHab name. Use as defined in the Statutory Biodiversity Metric User Guide
	Lowland calcareous grassland	UKHab	Lowland calcareous grassland	None
	Lowland dry acid grassland	UKHab	Lowland dry acid grassland	None
	Lowland meadows	UKHab	Lowland meadows	None
	Modified grassland	UKHab	Modified grassland	None
	Other lowland acid grassland	UKHab	Other lowland acid grassland	None
	Other neutral grassland	UKHab	Other neutral grassland	None
	Tall herb communities (H6430)	Use Habitats Directive Annex 1 definition	Tall herb communities (H6430)	None

Statutory Biodiversity Metric broad habitat	Statutory Biodiversity Metric habitat	Classification where definition derived	Habitat name in source classification	Other definition or notes
	Upland acid grassland	UKHab	Upland acid grassland	None
	Upland calcareous grassland	UKHab	Upland calcareous grassland	None
	Upland hay meadows	UKHab	Upland hay meadows	None
Heathland and shrub	Blackthorn scrub	UKHab	Blackthorn scrub	None
	Bramble scrub	UKHab	Bramble scrub	None
	Gorse scrub	UKHab	Gorse scrub	None
	Hawthorn scrub	UKHab	Hawthorn scrub	None
	Hazel scrub	UKHab	Hazel scrub	None
	Lowland heathland	UKHab	Lowland heathland	None
	Mixed scrub	UKHab	Mixed scrub	None
	Mountain heaths and willow scrub	UKHab	Mountain heaths and willow scrub	None
	Rhododendron scrub	UKHab	Rhododendron scrub	None
	Willow scrub	UKHab	Willow scrub	None
	Dunes with sea buckthorn (H2160)	Habitats Directive Annex 1	Dunes with sea buckthorn (H2160)	All other sea buckthorn scrub should be recorded as 'Other sea buckthorn scrub'
	Other sea buckthorn scrub	UKHab	Other sea buckthorn scrub	None
	Upland heathland	UKHab	Upland heathland	None
Individual tree	**Rural tree**	Metric-specific	N/A	None
	Urban tree	Metric-specific	N/A	None
Lakes	Aquifer fed naturally fluctuating water bodies	UKHab	Aquifer fed naturally fluctuating water bodies	None
	Ornamental lake or pond	UKHab	Ornamental lakes or ponds	None
	High alkalinity lakes	Water Framework Directive (WFD) Lakes typology	N/A	≥ 2ha
	Low alkalinity lakes	WFD Lakes typology	N/A	≥ 2ha
	Marl lakes	WFD Lakes typology	N/A	≥ 2ha
	Moderate alkalinity lakes	WFD Lakes typology	N/A	≥ 2ha

Statutory Biodiversity Metric broad habitat	Statutory Biodiversity Metric habitat	Classification where definition derived	Habitat name in source classification	Other definition or notes
	Peat lakes	WFD Lakes typology	N/A	≥ 2ha
	Ponds (priority habitat)	UKHab	Ponds (priority habitat)	< 2ha
	Ponds (non-priority habitat)	UKHab	Pond (non-priority)	< 2ha
	Reservoirs	UKHab/WFD Lakes typology*	Reservoir	*Some larger reservoirs are covered by the WFD Lakes typology.
	Temporary lakes ponds and pools (H3170)	UKHab*	Mediterranean temporary ponds (H3170)	The metric habitat type differs from the UKHab name. *All temporary water bodies not meeting this definition should be recorded as the appropriate pond or lake habitat type.
Sparsely vegetated land	Calaminarian grasslands	UKHab	Calaminarian grasslands	None
	Coastal sand dunes	UKHab	Sand dunes	The metric habitat type differs from the UKHab name.
	Coastal vegetated shingle	UKHab	Coastal vegetated shingle	None
	Ruderal/Ephemeral	UKHab	Ruderal or ephemeral	The metric habitat type differs from the UKHab name
	Tall forbs	UKHab	Tall forbs	None
	Inland rock outcrop and scree habitats	UKHab	Inland rock outcrop and scree habitats	None
	Limestone pavement	UKHab	Limestone pavement	None
	Maritime cliff and slopes	UKHab	Maritime cliff and slopes	None
	Other inland rock and scree	UKHab	Other inland rock	The metric habitat type differs from the UKHab name
Urban	Allotments	UKHab	Allotments	None
	Artificial unvegetated, unsealed surface	UKHab	Artificial unvegetated, unsealed surface	None
	Bioswale	UKHab	Bioswale	None
	Biodiverse green roof	UKHab	Biodiverse green roof	None
	Built linear features	UKHab	Built linear features	None

Statutory Biodiversity Metric broad habitat	Statutory Biodiversity Metric habitat	Classification where definition derived	Habitat name in source classification	Other definition or notes
	Cemeteries and churchyards	UKHab	Cemeteries and churchyards	None
	Developed land; sealed surface	UKHab	Developed land; sealed surface	None
	Biodiverse green roof	UKHab	Biodiverse green roof	None
	Facade-bound green wall	UKHab	Facade-bound green wall	None
	Ground based green wall	UKHab	Ground-based green wall	None
	Ground level planters	UKHab	Ground level planters	None
	Intensive green roof	UKHab	Intensive green roof	None
	Introduced shrub	UKHab	Introduced shrub	None
	Open mosaic habitats on previously developed land	UKHab	Open mosaic habitats on previously developed land	None
	Other green roof	UKHab	Other green roof	None
	Rain garden	UKHab	Rain garden	None
	Actively worked sand pit quarry or open cast mine	UKHab	Active sand pit or quarry or open cast mine	The metric habitat type differs from the UKHab name. This classification relates to non-vegetated working areas only.
	Sustainable drainage system (SuDS)	UKHab	Sustainable drainage system	None
	Unvegetated garden	UKHab	Unvegetated garden	None
	Vacant or derelict land	UKHab	Vacant or derelict land	None
	Bare ground	UKHab	Bare ground	None
	Vegetated garden	UKHab	Vegetated garden	None
Wetland	Blanket bog	UKHab	Blanket bog	None
	Depressions on peat substrates (H7150)	UKHab	Depressions on peat substrates (H7150)	None
	Fens (upland and lowland)	UKHab	Lowland fens; Upland flushes fens and swamps; Other wetlands	The metric habitat type differs from the UKHab name
	Lowland raised bog	UKHab	Lowland raised bog	None

Statutory Biodiversity Metric broad habitat	Statutory Biodiversity Metric habitat	Classification where definition derived	Habitat name in source classification	Other definition or notes
	Wetland – Oceanic valley mire [1] (D2.1)	EUNIS	Oceanic valley bog	None
	Purple moor grass and rush pastures	UKHab	Purple moor grass and rush pastures	None
	Reedbeds	UKHab	Reedbeds	None
	Transition mires and quaking bogs (H7140)	UKHab	Transition mires and quaking bogs - lowland (H7140) Transition mires and quaking bogs - upland (H7140)	The metric habitat type differs from the UKHab name
Woodland and forest	Felled	UKHab	Felled	None
	Lowland beech and yew woodland	UKHab	Lowland beech and yew woodland	None
	Lowland mixed deciduous woodland	UKHab	Lowland mixed deciduous woodland	None
	Native pine woodlands	UKHab	Native pine woodlands	None
	Other coniferous woodland	UKHab	Other coniferous woodland	None
	Other Scot's pine woodland	UKHab	Other Scot's pine woodland	None
	Other woodland; broadleaved	UKHab	Other broadleaved woodland	The metric habitat type differs from the UKHab name
	Other woodland; mixed	UKHab	Other woodland; mixed	None
	Upland birchwoods	UKHab	Upland birchwoods	None
	Upland mixed ashwoods	UKHab	Upland mixed ashwoods	None
	Upland oakwood	UKHab	Upland oakwood	None
	Wet woodland	UKHab	Wet woodland	None
	Wood-pasture and parkland	UKHab	Wood-pasture and parkland	None
Coastal lagoons	*Coastal lagoons*	EUNIS	Saline coastal lagoons	None
Coastal saltmarsh	*Saltmarshes and saline reedbeds*	EUNIS	Coastal saltmarshes and saline reedbeds	None
	Artificial saltmarshes and saline reedbeds	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
Rocky shore	High energy littoral rock	EUNIS	High energy littoral rock	None
	High energy littoral rock - on peat, clay or chalk	Subset of EUNIS habitat based on substrate	High energy littoral rock	None
	Moderate energy littoral rock	EUNIS	Moderate energy littoral rock	None

Statutory Biodiversity Metric broad habitat	Statutory Biodiversity Metric habitat	Classification where definition derived	Habitat name in source classification	Other definition or notes
	Moderate energy littoral rock - on peat, clay or chalk	Subset of EUNIS habitat based on substrate	Moderate energy littoral rock	None
	Low energy littoral rock	EUNIS	Low energy littoral rock	None
	Low energy littoral rock - on peat, clay or chalk	Subset of EUNIS habitat based on substrate	Low energy littoral rock	None
	Features of littoral rock	EUNIS	Features of littoral rock	None
	Features of littoral rock - on peat, clay or chalk	Subset of EUNIS habitat based on substrate	Features of littoral rock	None
Intertidal sediment	Littoral coarse sediment	EUNIS	Littoral coarse sediment	None
	Littoral sand	EUNIS	Littoral sand and muddy sand	None
	Littoral muddy sand	EUNIS	Littoral sand and muddy sand	None
	Littoral mud	EUNIS	Littoral mud	None
	Littoral mixed sediments	EUNIS	Littoral mixed sediments	None
	Littoral seagrass	EUNIS	Littoral sediments dominated by aquatic angiosperms	None
	Littoral seagrass on peat, clay or chalk	Subset of EUNIS habitat based on substrate	Littoral sediments dominated by aquatic angiosperms	None
	Littoral biogenic reefs - Mussels	Subset of EUNIS habitat based on reef forming species	Littoral biogenic reefs	None
	Littoral biogenic reefs - Sabellaria	Subset of EUNIS habitat based on reef forming species	Littoral biogenic reefs	None
	Features of littoral sediment	EUNIS	Features of littoral sediment	None
	Artificial littoral coarse sediment	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
	Artificial littoral muddy sand	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None

Statutory Biodiversity Metric broad habitat	Statutory Biodiversity Metric habitat	Classification where definition derived	Habitat name in source classification	Other definition or notes
	Artificial littoral mud	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
	Artificial littoral sand	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
	Artificial littoral mixed sediments	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
	Artificial littoral seagrass	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
	Artificial littoral biogenic reefs	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
Intertidal hard structures	*Artificial hard structures*	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
	Artificial features of hard structures	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
	Artificial hard structures with integrated greening of grey infrastructure (IGGI)	Adapted from EUNIS - see tab G1 in the Statutory Biodiversity Metric		None
Hedgerows and Lines of trees	*Species-rich native hedgerow with trees - associated with bank or ditch*	UKHab	Species-rich native hedgerow	Combined UKHab codes: h2a5 70 h2a5 191 h2a5 70 191
	Species-rich native hedgerow with trees	UKHab	Species-rich native hedgerow	Combined UKHab codes: h2a5 190
	Species-rich native hedgerow - associated with bank or ditch	UKHab	Species-rich native hedgerow	Combined UKHab codes: h2a5 190 70 h2a5 190 191 h2a5 190 70 191
	Native hedgerow with trees - associated with bank or ditch	UKHab	Native hedgerow	Combined UKHab codes: h2a 190 70 h2a 190 191 h2a 190 70 191
	Species-rich native hedgerow	UKHab	Species-rich native hedgerow	UKHab code: h2a5

Statutory Biodiversity Metric broad habitat	Statutory Biodiversity Metric habitat	Classification where definition derived	Habitat name in source classification	Other definition or notes
	Native hedgerow - associated with bank or ditch	UKHab	Native hedgerow	Combined UKHab codes: h2a 70 h2a 191 h2a 70 191
	Native hedgerow with trees	UKHab	Native hedgerow	Combined UKHab codes: h2a 190
	Ecologically valuable line of trees	UKHab	Ecologically valuable line of trees	Combined UKHab codes: w~ 1175
	Ecologically valuable line of trees - associated with bank or ditch	UKHab	Ecologically valuable line of trees	Combined UKHab codes: w~ 1175 70 w~ 1175 191 w~ 1175 70 191
	Native hedgerow	UKHab	Native hedgerow	Combined UKHab codes: h2a h2a6
	Line of trees	UKHab	Line of trees	UKHab code: w~ 1174
	Line of trees - associated with bank or ditch	UKHab	Line of trees	Combined UKHab codes: w~ 1174 70 w~ 1174 191 w~ 1174 70191
	Non-native and ornamental hedgerow	UKHab	Non-native and ornamental hedgerow	UKHab code: h2b
Watercourse	Priority habitat	UKHab	Rivers (priority habitat)	Use as defined in the Statutory Biodiversity Metric User Guide.
	Other rivers and streams	UKHab	Other rivers and streams	Use as defined in the Statutory Biodiversity Metric User Guide.
	Ditches	Metric-specific	Ditch	Use as defined in the Statutory Biodiversity Metric User Guide.
	Canals	UKHab	Canals	Use as defined in the Statutory Biodiversity Metric User Guide.
	Culvert	N/A	N/A	Use as defined in the Statutory Biodiversity Metric User Guide.

Habitat type (Habitats in bold are Priority Habitats)	Condition sheet
Area habitats	
Broad habitat type: Cropland	
Cropland - Arable field margins cultivated annually	Condition Assessment N/A
Cropland - Arable field margins game bird mix	
Cropland - Arable field margins pollen and nectar	
Cropland - Arable field margins tussocky	
Cropland - Cereal crops	
Cropland - Winter stubble	
Cropland – Horticulture	
Cropland - Intensive orchards	
Cropland - Non-cereal crops	
Cropland - Temporary grass and clover leys	
Broad habitat type: Grassland	
Grassland - Bracken	Condition Assessment N/A
Grassland - Floodplain wetland mosaic and CFGM	See the Statutory Biodiversity Metric User Guide for details on recording.
Grassland - Lowland calcareous grassland	Grassland Medium/High/Very High distinctiveness
Grassland - Lowland dry acid grassland	
Grassland - Lowland meadows	
Grassland - Modified grassland	Grassland Low distinctiveness
Grassland - Other lowland acid grassland	Grassland Medium/High/Very High distinctiveness
Grassland - Other neutral grassland	
Grassland - Tall herb communities (H6430)	
Grassland - Traditional orchards	Orchard
Grassland - Upland acid grassland	Grassland Medium/High/Very High distinctiveness
Grassland - Upland calcareous grassland	
Grassland - Upland hay meadows	
Broad habitat type: Heathland and scrub	
Heathland and shrub - Blackthorn scrub	Scrub
Heathland and shrub - Bramble scrub	Condition Assessment N/A
Heathland and shrub - Gorse scrub	Scrub
Heathland and shrub - Hawthorn scrub	
Heathland and shrub - Hazel scrub	
Heathland and shrub - Lowland heathland	Heathland
Heathland and shrub - Mixed scrub	Scrub
Heathland and shrub - Mountain heaths and willow scrub	Use Heathland condition sheet for Mountain heaths OR
	Scrub condition sheet for Willow scrub
Heathland and shrub - Rhododendron scrub	Condition Assessment N/A
Heathland and shrub – Dunes with sea buckthorn (H2160)	Scrub
Heathland and shrub – Other sea buckthorn scrub	Condition Assessment N/A
Heathland and shrub - Upland heathland	Heathland
Heathland and shrub – Willow scrub	Scrub
Broad habitat type: Lakes	
Lakes - Aquifer fed naturally fluctuating water bodies	Lakes
Lakes - High alkalinity lakes	
Lakes - Low alkalinity lakes	
Lakes - Marl lakes	
Lakes - Moderate alkalinity lakes	
Lakes - Ornamental lake or pond	Lakes OR
	Ponds
Lakes - Peat lakes	Lakes
Lakes - Ponds (priority habitat)	Ponds
Lakes - Ponds (non-priority habitat)	
Lakes - Reservoirs	Lakes
Lakes - Temporary lakes ponds and pools (H3170)	Use Lake condition sheet for Temporary lakes OR
	Pond condition sheet for Temporary ponds and pools

Habitat type (Habitats in bold are Priority Habitats)	Condition sheet
Broad habitat type: Sparsely vegetated land	
Sparsely vegetated land - Calaminarian grasslands	Grassland Medium/High/Very High distinctiveness
Sparsely vegetated land - Coastal sand dunes	Coastal
Sparsely vegetated land - Coastal vegetated shingle	
Sparsely vegetated land - Ruderal/Ephemeral	Urban
Sparsely vegetated land – Tall forbs	
Sparsely vegetated land - Inland rock outcrop and scree habitats	Sparsely vegetated land
Sparsely vegetated land - Limestone pavement	Limestone pavement
Sparsely vegetated land - Maritime cliff and slopes	Coastal
Sparsely vegetated land - Other inland rock and scree	Sparsely vegetated land
Broad habitat type: Urban	
Urban - Allotments	Urban
Urban - Artificial unvegetated, unsealed surface	N/A - Other
Urban - Bioswale	Urban
Urban - Biodiverse green roof	
Urban - Built linear features	N/A - Other
Urban - Cemeteries and churchyards	Use Urban condition sheet as default.
Urban - Developed land; sealed surface	N/A - Other
Urban - Facade-bound green wall	Urban
Urban - Ground based green wall	
Urban - Ground level planters	Condition Assessment N/A
Urban - Intensive green roof	Urban
Urban - Introduced shrub	Condition Assessment N/A
Urban - Open mosaic habitats on previously developed land	Urban
Urban - Other green roof	Condition Assessment N/A
Urban - Rain garden	Urban
Urban - Actively worked sand pit, quarry or open cast mine	Condition Assessment N/A
Urban - Sustainable drainage system (SuDS)	Urban
Urban - Unvegetated garden	N/A - Other
Urban – Vacant or derelict land	Urban
Urban – Bare ground	
Urban - Vegetated garden	Condition Assessment N/A
Broad habitat type: Wetland	
Wetland - Blanket bog	Wetland
Wetland - Depressions on peat substrates (H7150)	
Wetland - Fens (upland and lowland)	
Wetland - Lowland raised bog	
Wetland – Oceanic valley mire [1] (D2.1)	
Wetland - Purple moor grass and rush pastures	
Wetland – Reedbeds	
Wetland - Transition mires and quaking bogs (H7140)	
Broad habitat type: Woodland	
Woodland and forest - Felled	No assessment required - condition fixed at Good
Woodland and forest - Lowland beech and yew woodland	Woodland
Woodland and forest - Lowland mixed deciduous woodland	
Woodland and forest - Native pine woodlands	
Woodland and forest - Other coniferous woodland	
Woodland and forest - Other Scot’s pine woodland	
Woodland and forest - Other woodland; broadleaved	
Woodland and forest - Other woodland; mixed	
Woodland and forest - Upland birchwoods	
Woodland and forest - Upland mixed ashwoods	
Woodland and forest - Upland oakwood	
Woodland and forest - Wet woodland	
Woodland and forest - Wood-pasture and parkland	Wood-pasture and parkland

Habitat type (Habitats in bold are Priority Habitats)	Condition sheet
Broad habitat type: Coastal lagoons	
Coastal lagoons - Coastal lagoons	Coastal lagoons
Broad habitat type: Coastal saltmarsh	
Coastal saltmarsh - Saltmarshes and saline reedbeds	Coastal saltmarsh
Coastal saltmarsh - Artificial saltmarshes and saline reedbeds	
Broad habitat type: Intertidal hard structures	
Intertidal hard structures - Artificial hard structures	Intertidal hard structures
Intertidal hard structures - Artificial features of hard structures	
Intertidal hard structures - Artificial hard structures with integrated greening of grey infrastructure (IGGI)	
Broad habitat type: Intertidal sediment	
Intertidal sediment - Littoral coarse sediment	Intertidal sediment
Intertidal sediment - Littoral sand	
Intertidal sediment - Littoral muddy sand	
Intertidal sediment - Littoral mud	
Intertidal sediment - Littoral mixed sediments	
Intertidal sediment - Features of littoral sediment	
Intertidal sediment - Artificial littoral coarse sediment	
Intertidal sediment - Artificial littoral mixed sediments	
Intertidal sediment - Artificial littoral mud	
Intertidal sediment - Artificial littoral muddy sand	
Intertidal sediment - Artificial littoral sand	
Intertidal sediment - Littoral seagrass	Intertidal seagrass
Intertidal sediment - Littoral seagrass - on peat, clay or chalk	
Intertidal sediment - Artificial littoral seagrass	
Intertidal sediment - Littoral biogenic reefs - Mussels	Intertidal biogenic reefs
Intertidal sediment - Littoral biogenic reefs – Sabellaria	
Intertidal sediment - Artificial littoral biogenic reefs	
Broad habitat type: Rocky shore	
Rocky shore - High energy littoral rock	Rocky shore
Rocky shore - Moderate energy littoral rock	
Rocky shore - Low energy littoral rock	
Rocky shore - Features of littoral rock	
Rocky Shore - Features of littoral rock - on peat, clay or chalk	
Rocky shore - High energy littoral rock - on peat, clay or chalk	
Rocky shore - Moderate energy littoral rock - on peat, clay or chalk	
Rocky shore - Low energy littoral rock - on peat, clay or chalk	
Broad habitat type: Individual trees	
Individual trees – Rural tree	Individual trees
Individual trees – Urban tree	
Hedgerows and Lines of trees habitats	
Broad habitat type: Hedgerows and lines of trees	
Hedgerows and lines of trees - Line of trees	Line of trees
Hedgerows and lines of trees - Line of trees - associated with bank or ditch	
Hedgerows and lines of trees – Ecologically valuable line of trees	
Hedgerows and lines of trees - Ecologically valuable line of trees - associated with bank or ditch	
Hedgerows and lines of trees – Non-native and ornamental hedgerow	No assessment required - condition fixed at Poor

Habitat type (Habitats in bold are Priority Habitats)	Condition sheet
Hedgerows and lines of trees - Native hedgerow	Hedgerow
Hedgerows and lines of trees - Native hedgerow - associated with bank or ditch	
Hedgerows and lines of trees - Native hedgerow with trees	
Hedgerows and lines of trees - Native hedgerow with trees - associated with bank or ditch	

Survey Cover Sheet			
Survey date/s	7th May 2024	**Site name or location**	North St Albans
Weather conditions	Sunny, clear	**Project or development name**	North St Albans
Surveyor name	Casey Higgins-King	**On-site or off-site**	Onsite
Survey reference		**Reason for assessment (if not baseline condition survey)**	
Notes			
c. 48ha in size consisting of five arable field compartments and a single mown grassland compartment utilised for amenity purposes. The arable field compartments support a mixture of cereal and non-cereal crops, with narrow field margins and bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary of the site is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment. The western boundary is bordered by the A1081 Harpenden Road, Sandridgebury Lane bisects the arable field compartments, and a railway line borders the eastern boundary.			

Site or location	Condition sheets	Total number of condition sheets used, or habitat parcels	Number of parcels of each condition achieved					Notes
			Good	Fairly Good	Moderate	Fairly Poor	Poor	
N/A	**Coastal**		N/A	N/A	N/A	N/A	N/A	
N/A	**Coastal lagoons**		N/A	N/A	N/A	N/A	N/A	
N/A	**Coastal saltmarsh**		N/A	N/A	N/A	N/A	N/A	
N/A	**Ditches**		N/A	N/A	N/A	N/A	N/A	
Onsite	**Grassland low distinctiveness**	5			3		2	
N/A	**Grassland medium, high, very high distinctiveness**		N/A	N/A	N/A	N/A	N/A	
N/A	**Heathland**		N/A	N/A	N/A	N/A	N/A	
Onsite	**Hedgerow**	14	4		6		4	
Onsite	**Individual trees**	17	5		12			

N/A	**Intertidal biogenic reefs**		N/A	N/A	N/A	N/A	N/A	
N/A	**Intertidal hard structures**		N/A	N/A	N/A	N/A	N/A	
N/A	**Intertidal seagrass**		N/A	N/A	N/A	N/A	N/A	
N/A	**Intertidal sediment**		N/A	N/A	N/A	N/A	N/A	
N/A	**Lakes**		N/A	N/A	N/A	N/A	N/A	
N/A	**Limestone pavement**		N/A	N/A	N/A	N/A	N/A	
Onsite	**Line of trees**	1			1			
N/A	**Orchard**		N/A	N/A	N/A	N/A	N/A	
N/A	**Ponds**		N/A	N/A	N/A	N/A	N/A	
N/A	**Rocky shore**		N/A	N/A	N/A	N/A	N/A	

N/A	**Scrub**		N/A	N/A	N/A	N/A	N/A	
N/A	**Sparsely vegetated land**		N/A	N/A	N/A	N/A	N/A	
N/A	**Urban**		N/A	N/A	N/A	N/A	N/A	
N/A	**Wetland**		N/A	N/A	N/A	N/A	N/A	
Onsite	**Woodland**	5	1		1		3	
N/A	**Wood-pasture and parkland**		N/A	N/A	N/A	N/A	N/A	

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)												
UK Habitat Classification (UKHab) Habitat Type												
Grassland - Modified grassland												
Habitat Description												
ukhab – UK Habitat Classification												
On-site or off-site, site name and location	North St Albans (Onsite)	**Survey date and Surveyor name**	7th May, Casey Higgins-King									
		Survey reference (if relating to a wider survey)										
Limitations (if applicable)	N/A	**Habitat parcel reference**										
		MG1	MG2	MG3								
		Grid reference										
		TL149098	TL151100	TL157098								

Condition Assessment Criteria		Criterion passed (Yes or No)									Notes (such as justification)
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	No	No	Yes							
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	No	No	No							
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Yes	Yes	No							
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Yes	No	Yes							
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens)[2].	Yes	Yes	Yes							
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Yes	Yes	Yes							
G	There is an absence of invasive non-native plant species[3] (as listed on Schedule 9 of WCA[4]).	Yes	Yes	Yes							
Essential criterion achieved (Yes or No)		No	No	Yes							
Number of criteria passed		5	4	5							

Condition Assessment Result (out of 7 criteria)	Condition Assessment Score	Score Achieved ×/✓									
Passes 6 or 7 criteria including passing essential criterion A	Good (3)										
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)			X							
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	X	X								
Suggested enhancement interventions to improve condition score											

Footnotes
Footnote 1 – Creeping thistle *Cirsium arvense* , spear thistle *Cirsium vulgare* , curled dock *Rumex crispus* , broad-leaved dock *Rumex obtusifolius* , common nettle *Urtica dioica* , creeping buttercup *Ranunculus repens* , greater plantain *Plantago major* , white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris* . **Footnote 2** – For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover. **Footnote 3** – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement. **Footnote 4** – Wildlife and Countryside Act 1981 (as amended).

Condition sheet: HEDGEROW Habitat Types

Habitat Type

Native hedgerow
Native hedgerow - associated with bank or ditch
Native hedgerow with trees
Native hedgerow with trees - associated with bank or ditch
Species-rich native hedgerow
Species-rich native hedgerow - associated with bank or ditch
Species-rich native hedgerow with trees
Species-rich native hedgerow with trees - associated with bank or ditch

Habitat Description

ukhab – UK Habitat Classification

On-site or off-site, site name and location	North St Albans	**Survey date and Surveyor name**	7th May 2024, Casey Higgins-King
Limitations (if applicable)	N/A	**Survey reference (if relating to a wider survey)**	

Condition Assessment Details

A series of ten attributes, representing key physical characteristics are used for this assessment. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.

This assessment is based on the Hedgerow Survey Handbook[1] and Favourable Conservation Status document[2]. For further clarification please refer to the Hedgerow Survey Handbook.

Best practice would be to record the species, age, spacing and other key information about all trees present along a hedgerow within the 'Habitat Description' box, as well as other key features of the hedgerow.

Hedgerow favourable condition attributes

Attributes and functional groupings (A, B, C, D and E)	**Criteria - the minimum requirements for 'favourable condition'**	**Criteria description**	**Habitat parcel reference**										
			H1	H2	H3, H4,	H6, H9	H7	H8,H10	H11	H13	H14, H15		
			Grid reference										

Core groups - applicable to all hedgerow types				**Criterion passed (Yes or No)**										**Notes (such as justification)**
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn *Prunus spinosa* suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	No	No	No	No	No	No	Yes	Yes	No		

B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes		
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	No	Yes	No	No	No	No	No	Yes	Yes		
C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles *Urtica* spp., cleavers *Galium aparine* and docks *Rumex* spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	No	No	No	No	No	Yes	No	No	No		
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA[3]) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website[4], as well as the BSBI website[5] where the 'Online Atlas of the British and Irish Flora'[6] contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website[7].	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (for example, excessive hedgerow cutting).	No	Yes	Yes	Yes	No	Yes	No	Yes	Yes		
Additional group - applicable to hedgerows with trees only														
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient[8]), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.	Yes	Yes	Yes	N/A	N/A	N/A	Yes	No	No		
E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Yes	Yes	Yes	N/A	N/A	N/A	Yes	Yes	Yes		

The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the Statutory Biodiversity Metric. The scores for each are set out in the tables below.

Condition categories for hedgerows without trees

Category	Category Requirements	Metric Score
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and C2 = Moderate condition).	2

Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	

Condition categories for hedgerows with trees		
Category	**Category Requirements**	**Metric score**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 5 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1, C2 and E1 = Moderate condition).	2
Poor	Fails a total of more than 5 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	

Suggested enhancement interventions to improve condition score

Condition Sheet: INDIVIDUAL TREES Habitat Type

Habitat Types

Individual trees – Urban trees
Individual trees – Rural trees
Complete a condition sheet for each tree or block of trees.

Please see the separate Line of trees condition sheet for a line of rural trees. You should only use the Line of trees condition assessment and record that habitat type in rural locations.

Habitat Description

Individual trees (description applied to the urban or rural environment):
Young trees over 7.5 cm in diameter at breast height whose canopies are not touching.

Urban Perimeter / Linear Blocks and Groups (description applied to the urban environment only):
Groups or stands of trees (size requirement as defined above) within and around the perimeter of urban land. This includes those along urban streets, highways, railways and canals, and also former field boundary trees incorporated into developments. Canopies should predominantly overlap continuously. Groups of urban trees that don't match the descriptions for woodland may be assessed within this category.

On-site or off-site, site name and location	North St Albans	**Survey date and Surveyor name**	7th May 2024, Casey Higgins-King
		Survey reference (if relating to a wider survey)	
Limitations (if applicable)	N/A		

Condition Assessment Criteria		**Habitat parcel reference**										
		T1	T2	T3, T14, T16,	T4, T5, T9,	T6, T7, T8	T12, T13, T15					
		Grid reference										
		Criterion passed (Yes or No)										**Notes (such as justification)**
A	The tree is a native species (or at least 70% within the block are native species).	Yes	Yes	Yes	Yes	Yes	Yes					
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Yes	Yes	Yes	Yes	Yes	Yes					
C	The tree is mature (or more than 50% within the block are mature)[1].	No	Yes	Yes	Yes	Yes	Yes					
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Yes	Yes	No	No	No	No					
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	No	No	Yes	Yes	No	No					
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Yes	Yes	Yes	No	No	Yes					
	Number of criteria passed	4	5	5	4	3	4					

Condition Assessment Result (out of 6 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**									
Passes 5 or 6 criteria	Good (3)		X	X							
Passes 3 or 4 criteria	Moderate (2)	X			X	X	X				
Passes 2 or fewer criteria	Poor (1)										
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.											

Suggested enhancement interventions to improve condition score[2]

Condition Sheet: LINE OF TREES Habitat Type

Habitat Types

Line of trees
Line of trees – associated with bank or ditch
Ecologically valuable line of trees
Ecologically valuable line of trees – associated with bank or ditch

Please see the separate Individual trees condition sheet for linear blocks and groups of trees in an urban setting. You should only use this Line of trees condition assessment and record this habitat type in rural locations.

Habitat Description

See the Statutory Biodiversity Metric User Guide.
This assessment is based on the Hedgerow Survey Handbook[1]. For further clarifications please refer to the Handbook.
Where ancient and veteran trees are present within the line of trees, see Footnote 2 for standing advice.

On-site or off-site, site name and location	North St Albans (Onsite)	**Survey date and Surveyor name**	7th May 2024, Casey Higgins-King
		Survey reference (if relating to a wider survey)	
Limitations (if applicable)	N/A	**Habitat parcel reference**	TL1
		Grid reference	TL153 094

	Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justification)
A	At least 70% of trees are native species.	Yes	
B	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Yes	
C	One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark.	No	
D	There is an undisturbed naturally-vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice[2].	No	
E	At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Yes	
	Number of criteria passed	3	

Condition Assessment Result (out of 5 criteria)	Condition Assessment Score	Score Achieved ×/✓
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	X
Passes 2 or fewer criteria	Poor (1)	

Suggested enhancement interventions to improve condition score

Footnotes

Condition Sheet: WOODLAND Habitat Type

UK Habitat Classification (UKHab) Habitat Types

Woodland and forest - Lowland beech and yew woodland
Woodland and forest - Lowland mixed deciduous woodland
Woodland and forest - Native pine woodlands
Woodland and forest - Other coniferous woodland
Woodland and forest - Other Scot's pine woodland
Woodland and forest - Other woodland; broadleaved
Woodland and forest - Other woodland; mixed
Woodland and forest - Upland birchwoods
Woodland and forest - Upland mixed ashwoods
Woodland and forest - Upland oakwood
Woodland and forest - Wet woodland

Habitat Description

ukhab – UK Habitat Classification

This condition sheet is based on the England Woodland Biodiversity Group (EWBG) Woodland Condition Survey Method, available here:
Woodland Wildlife Toolkit (sylva.org.uk)

IMPORTANT: This biodiversity metric woodland condition assessment must be used to assess woodland being input into the biodiversity metric. The outputs of this condition assessment are not equivalent to, nor are they comparable with the scores from the EWBG condition assessment, because the EWBG assessment has been adapted for the biodiversity metric, including the removal of EWBG Indicator 7 (Proportion of favourable land cover around woodland) and Indicator 14 (Size of woodland), and minor changes to other indicators.

On-site or off-site, site name and location	North St Albans (Onsite)	**Survey date and Surveyor name**	7th May 2024, Casey Higgins-King	**Habitat parcel reference**										
				W1	W2	W3	W4	W5						
Limitations (if applicable)	N/A	**Survey reference (if relating to a wider survey)**		**Grid reference**										

Condition Assessment Criteria

	Indicator	Good (3 points)	Moderate (2 points)	Poor (1 point)	Score per indicator										Notes (such as justification)
A	**Age distribution of trees**	Three age-classes[1] present.	Two age-classes[1] present.	One age-class[1] present.	1	2	1	1	3						
B	**Wild, domestic and feral herbivore damage**	No significant browsing damage evident in woodland[2].	Evidence of significant browsing pressure is present in less than 40% of whole woodland[2].	Evidence of significant browsing pressure is present in 40% or more of whole woodland[2].	2	3	3	3	3						
C	**Invasive plant species**	No invasive species[3] present in woodland.	Rhododendron *Rhododendron ponticum* or cherry laurel *Prunus laurocerasus* not present, and other invasive species[3] <10% cover.	Rhododendron or cherry laurel present, or other invasive species[3] ≥10% cover.	3	3	3	3	3						
D	**Number of native tree species**	Five or more native tree or shrub species[4] found across woodland parcel.	Three to four native tree or shrub species[4] found across woodland parcel.	Two or less native tree or shrub species[4] across woodland parcel.	3	3	3	3	3						
E	**Cover of native tree and shrub species**	>80% of canopy trees and >80% of understory shrubs are native[5].	50 - 80% of canopy trees and 50 - 80% of understory shrubs are native[5].	<50% of canopy trees and <50% of understory shrubs are native[5].	3	1	2	3	3						
F	**Open space within woodland**	10 - 20% of woodland has areas of temporary open space[6]. Unless woodland is <10ha, in which case 0 - 20% temporary open space is permitted[7].	21 - 40% of woodland has areas of temporary open space[6].	<10% or >40% of woodland has areas of temporary open space[6]. But if woodland <10ha has <10% temporary open space, please see Good category[7].	3	3	3	3	3						
G	**Woodland regeneration**	All three classes present in woodland[8]; trees 4 - 7 cm Diameter at Breast Height (DBH), saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland[8].	No classes or coppice regrowth present in woodland[8].	1	2	1	2	3						

H	**Tree health**	Tree mortality 10% or less, no pests or diseases and no crown dieback[9].	11% to 25% tree mortality and or crown dieback or low-risk pest or disease present[9].	Greater than 25% tree mortality and or any high-risk pest or disease present[9].	2	2	3	3	2						
I	**Vegetation and ground flora**	Recognisable NVC plant community[10] at ground layer present, strongly characterised by ancient woodland flora specialists.	Recognisable woodland NVC plant community[10] at ground layer present.	No recognisable woodland NVC plant community[10] at ground layer present.	1	1	1	1	3						
J	**Woodland vertical structure**	Three or more storeys across all survey plots, or a complex woodland[11].	Two storeys across all survey plots[11].	One or less storey across all survey plots[11].	1	2	1	1	2						
K	**Veteran trees**	Two or more veteran trees[12] per hectare.	One veteran tree[12] per hectare.	No veteran trees[12] present in woodland.	1	1	1	1	1						
L	**Amount of deadwood**	50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, branch stubs and stumps, or an abundance of small cavities[13].	Between 25% and 50% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	Less than 25% of all survey plots within the woodland parcel have deadwood, such as standing and fallen deadwood, large dead branches and or stems, stubs and stumps, or an abundance of small cavities[13].	1	1	1	1	3						
M	**Woodland disturbance**	No nutrient enrichment or damaged ground evident[14].	Less than 1 hectare in total of nutrient enrichment across woodland area, and or less than 20% of woodland area has damaged ground[14].	1 hectare or more of nutrient enrichment, and or 20% or more of woodland area has damaged ground[14].	1	1	2	1	2						
				Total Score (out of a possible 39)	23	25	25	26	34						

Condition Assessment Result	**Condition Assessment Score**	**Result Achieved**										
Total score >32 (33 to 39)	Good (3)					X						
Total score 26 to 32	Moderate (2)				X							
Total score <26 (13 to 25)	Poor (1)	X	X	X								

Suggested enhancement interventions to improve condition score

Version	Changes made	D
Version 1.0.0	Initial draft statutory version	2
Version 1.0.1	Individual trees tab – added wording to say *'Please see the separate Line of Trees condition sheet for rural trees. You should only use the Line of Trees condition assessment and record that habitat type in rural locations.'* Individual trees tab – Changed *'Canopies must overlap continuously'* to *'Canopies should predominantly overlap continuously'* Coastal tab – wording added to the list of 'General coastal species indicative of suboptimal condition' to say *'sea buckthorn (only outside its restricted native range)'* Scrub tab – wording added to Criterion A to say sea buckthorn can be 100% cover *'(only in its restricted native range)'* Instructions tab – changed date at top of sheet from 'November 2023' to 'February 2024' Habitat definitions tab – removed reference to 'see Technical Annex 2' from the table. Cells C11, C131 – C140. Hedgerow tab – 'See the Statutory Biodiversity Metric Technical Annex 2 and UK Habitat Classification' removed, leaving just the UKHab link. Intertidal biogenic reefs tab – changed 'see the Statutory Biodiversity Metric Technical Annex 2' to say 'see tab G1 of the Statutory Biodiversity Metric'. Intertidal hard structures tab – changed 'see the Statutory Biodiversity Metric Technical Annex 2' to say 'see tab G1 of the Statutory Biodiversity Metric'. Intertidal seagrass tab– changed 'see the Statutory Biodiversity Metric Technical Annex 2' to say 'see tab G1 of the Statutory Biodiversity Metric'. Intertidal sediment tab– changed 'see the Statutory Biodiversity Metric Technical Annex 2' to say 'see tab G1 of the Statutory Biodiversity Metric'. Pond tab– removed 'For ponds (non-priority) – see the Statutory Biodiversity Metric Technical Annex 2.' Habitat Definitions tab – cell E48 – removed reference to '<2ha' for Ornamental lake or pond. Habitat Definitions tab – cell E54, E55 – changed '<=2ha', from Ponds (priority) and Ponds (non-priority) to '<2ha'. Habitat Definitions tab - row 55 – removed references to Ponds (non-priority) having a definition different to that in UKHab.	1

The Statutory Biodiversity Metric
Start page

Project details			
Planning authority:	St Albans District Council		
Project name:	Woollam Park		
Applicant:	Hallam Land Management Ltd., St Albans School, and St Albans School Woollam Trust		
Application type:	Mixed Residential and Commercial Application		
Planning application reference:			
Completed by:	James Warren		
Date of metric completion:	05.12.2024		
Reviewer:	Oliver Grice Jackson		
Calculation iteration:	Draft 7		
Planning authority reviewer:			
Date of planning authority review:			
Target % net gain:	10%		
Irreplaceable habitat present at baseline:	Yes ⚠		
Total site area - including irreplaceable habitat area (hectares):	50.30	Irreplaceable habitat site area (hectares):	1.65
Total off-site area - including irreplaceable habitat area (hectares):	N/A	Irreplaceable habitat area off-site (hectares):	N/A

Main menu

Results

Cell style conventions	
⚠	Attention required
▲	Input error/rules and principles not met
	Use of this cell is not appropriate
	Enter data
	Automatic lookup
	Result

View all

Reset view

On-site baseline map — Insert

On-site baseline map reference number

On-site post intervention map — Insert

On-site post-intervention map reference number

Off-site baseline map — Insert

Off-site baseline map reference number

Off-site post intervention map — Insert

Off-site post-intervention reference number

The Statutory Biodiversity Metric
Main menu

Key

- Area habitats
- Hedgerows and lines of trees
- Watercourses

Start page | Technical data | Results

Start here

1 → 2 → 3 → 4

On-site baseline

- A-1 On-site Area Habitat Baseline
- B-1 On-site Hedge Baseline
- C-1 On-site Watercourse Baseline

On-site post development

- A-2 On-site Area Habitat Creation
- A-3 On-site Area Habitat Enhancement
- B-2 On-site Hedge Creation
- B-3 On-site Hedge Enhancement
- C-2 On-site Watercourse Creation
- C-3 On-site Watercourse Enhancement

Off-site baseline

- D-1 Off-site Area Habitat Baseline
- E-1 Off-site Hedge Baseline
- F-1 Off-site Watercourse Baseline

Off-site post development

- D-2 Off-site Area Habitat Creation
- D-3 Off-site Area Habitat Enhancement
- E-2 Off-site Hedge Creation
- E-3 Off-site Hedge Enhancement
- F-2 Off-site Watercourse Creation
- F-3 Off-site Watercourse Enhancement

Tree helper

Tree size	Number of trees and area (ha) for each condition state					
	Poor	Area	Moderate	Area	Good	Area
Small		0.0000		0.0000		0.0000
Medium		0.0000		0.0000		0.0000
Large		0.0000		0.0000		0.0000
Very large		0.0000		0.0000		0.0000
Total	0	0.0000	0	0.0000	0	0.0000

Woollam Park

Headline Results

Scroll down for final results ⚠

Return to results menu

On-site baseline	*Habitat units*	108.88	
	Hedgerow units	32.80	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	121.11	
	Hedgerow units	41.44	
	Watercourse units	0.00	
On-site net change (units & percentage)	*Habitat units*	12.23	11.23%
	Hedgerow units	8.65	26.37%
	Watercourse units	0.00	0.00%
Off-site baseline	*Habitat units*	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	*Habitat units*	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	12.23	
	Hedgerow units	8.65	
	Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions	*Habitat units*	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	

FINAL RESULTS

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	12.23
	Hedgerow units	8.65
	Watercourse units	0.00

Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)		
	Habitat units	11.23%
	Hedgerow units	26.37%
	Watercourse units	0.00%

Trading rules satisfied?	No - Check Trading Summaries ▲

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	108.88	119.77	0.00	No additional area habitat units required to meet target ✓
Hedgerow units	10.00%	32.80	36.08	0.00	No additional hedgerow units required to meet target ✓
Watercourse units	10.00%	0.00	0.00	0.00	No additional watercourse units required to meet target ✓

Input errors/rule breaks present in metric ▲

Project Name: Woollam Park Map Reference:

A-1 On-Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows | Main Menu

Area habitat summary	
Total Net Unit Change	12.23
Total Net % Change	11.93%
Trading Rules Satisfied	No - check trading summaries ▲

	Existing area habitats				Distinctiveness		Condition		Strategic significance				Ecological baseline							Bespoke compensation agreed for losses of VHDH or irreplaceable habitat	Comments		
Ref	Broad Habitat	Habitat Type	Irreplaceable habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier	Required Action to Meet Trading Rules	Total habitat units	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area habitat lost	Units lost		User comments	Planning authority comments	Habitat reference number
1	Cropland	Arable field margins cultivated annually	No	1.2588	Medium	4	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (2)	5.04	0	0	0.00	0.00	1.26	5.04				
2	Cropland	Cereal crops	No	35.342	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	70.68	0	0	0.00	0.00	35.34	70.68				
3	Cropland	Non-cereal crops	No	4.3947	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	8.79	0	0	0.00	0.00	4.39	8.79				
4	Grassland	Modified grassland	No	0.491	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	1.96	0	0	0.00	0.00	0.49	1.96				
5	Grassland	Modified grassland	No	3.9571	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	7.91	0.0436	0	0.09	0.00	3.91	7.83				
6	Grassland	Modified grassland	No	0	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required ≥	0.00	0	0	0.00	0.00	0.00	0.00				
7	Urban	Artificial unvegetated, unsealed surface	No	0.125	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0	0	0.00	0.00	0.13	0.00				
8	Urban	Artificial unvegetated, unsealed surface	No	0.0002	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0	0	0.00	0.00	0.00	0.00				
9	Urban	Developed land; sealed surface	No	0.881	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00	0.857	0	0.00	0.00	0.02	0.00				
10	Woodland and forest	Lowland mixed deciduous woodland	Yes	1.6505	High	6	Good	3	Formally identified in local strategy	High strategic significance	1.15	Bespoke compensation likely to be required	0.00	1.6505	0	Irreplaceable habitat - no units generated ⚠	0.00	0.00	0.00				
11	Woodland and forest	Other woodland; broadleaved	No	0.35	Medium	4	Moderate	2	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same broad habitat or a higher distinctiveness habitat required (2)	3.08	0.35	0	3.08	0.00	0.00	0.00				
12	Woodland and forest	Other woodland; broadleaved	No	0.5946	Medium	4	Poor	1	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same broad habitat or a higher distinctiveness habitat required (2)	2.62	0	0.5946	0.00	2.62	0.00	0.00				
13	Woodland and forest	Other woodland; broadleaved	No	0.0552	Medium	4	Poor	1	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same broad habitat or a higher distinctiveness habitat required (2)	0.24	0	0	0.00	0.00	0.06	0.24				
14	Woodland and forest	Other woodland; broadleaved	No	0.9115	Medium	4	Poor	1	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same broad habitat or a higher distinctiveness habitat required (2)	4.01	0	0.9115	0.00	4.01	0.00	0.00				
15	Woodland and forest	Other woodland; mixed	No	0.2918	Medium	4	Poor	1	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	Same broad habitat or a higher distinctiveness habitat required (2)	1.28	0	0.2918	0.00	1.28	0.00	0.00				
16	Individual trees	Urban tree	No	0.1629	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (2)	1.95	0.1629	0	1.95	0.00	0.00	0.00				
17	Individual trees	Urban tree	No	0.1629	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (2)	1.30	0.1629	0	1.30	0.00	0.00	0.00				
18–248																							
		Total habitat area		50.63									108.88	3.23	1.80	6.43	7.91	45.60	94.54				
		Site Area (Excluding area of individual trees, green walls, intertidal hard structures)		50.30																			

Total area lost (excluding area of individual trees, green walls and intertidal hard structures)	45.60

M² to hectares conversion tool:	Select a unit	Hectares	M²

Project Name: Woollam Park Map Reference:

A-2 On-Site Habitat Creation

Condense / Show Columns | Condense / Show Rows | Main Menu

Area habitat summary	
Total Net Unit Change	12.23
Total Net % Change	11.23%
Trading Rules Satisfied	No - check trading summaries ▲
Area Check	Area Acceptable ✓

									Post intervention habitats																		
				Distinctiveness		Condition		Strategic significance			Temporal multiplier					Difficulty multipliers						Comments				
Ref	Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier	Standard time to target condition (years)	Habitat created in advance (years)	Delay in starting habitat creation (years)	Standard or adjusted time to target condition	Final time to target condition (years)	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied	Habitat units delivered	User comments	Planning authority comments	Habitat reference number
1	Urban	Developed land; sealed surface	1.315	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Low	1	0.00	Commercial		
2	Urban	Developed land; sealed surface	12.3612	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Low	1	0.00	Residential		
3	Urban	Developed land; sealed surface	0.6496	V.Low	0	N/A - Other	0	Location ecologically desirable but not in local strategy	Medium strategic significance	1.1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Low	1	0.00	School		
4	Grassland	Modified grassland	1.2245	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	7			Standard time to target condition applied	7	0.779	Low	Standard difficulty applied	Low	1	5.73			
5	Grassland	Modified grassland	3.3886	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	4	0	0	Standard time to target condition applied	4	0.867	Low	Standard difficulty applied	Low	1	11.75			
6	Grassland	Modified grassland	5.2134	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	10.06			
7	Grassland	Other neutral grassland	3.1589	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	21.16			
8	Grassland	Other neutral grassland	0.0943	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	2	0	0	Standard time to target condition applied	2	0.931	Low	Standard difficulty applied	Low	1	0.35			
9	Grassland	Traditional orchards	0.2092	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	20	0	0	Standard time to target condition applied	20	0.490	Low	Standard difficulty applied	Low	1	1.23			
10	Heathland and shrub	Mixed scrub	2.0042	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	13.42			
11	Urban	Allotments	0.1974	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.75			
12	Urban	Artificial unvegetated, unsealed surface	0.0871	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Low	1	0.00			
13	Urban	Developed land; sealed surface	5.089	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0			Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Low	1	0.00			
14	Urban	Introduced shrub	1.0207	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	1.97			
15	Urban	Sustainable drainage system	2.1321	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5			Standard time to target condition applied	5	0.837	Medium	Standard difficulty applied	Medium	0.67	7.17			
16	Urban	Sustainable drainage system	0.2083	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0	0	Standard time to target condition applied	3	0.899	Medium	Standard difficulty applied	Medium	0.67	0.50			
17	Woodland and forest	Other woodland; broadleaved	1.5123	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	15	0	0	Standard time to target condition applied	15	0.586	Low	Standard difficulty applied	Low	1	7.09			
18	Woodland and forest	Other woodland; broadleaved	0.2227	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.75			
19	Individual trees	Urban tree	1.6001	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	27	0	0	Standard time to target condition applied	27	0.382	Low	Standard difficulty applied	Low	1	4.89			
20	Individual trees	Urban tree	1.3436	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10	0	0	Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1	3.76			
21	Urban	Introduced shrub	0.14611	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.28	Commercial Area to Introduced Shrub Ratio (90:10)		
22	Urban	Vegetated garden	5.2976	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	10.22	Residential Area to Vegetated Garden Ratio (70:30)		
23	Urban	Introduced shrub	0.0722	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.14	School Area to Introduced Shrub Ratio (90:10)		
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		Total habitat area	48.55																	Total Units	101.23			

Site Area (Excluding area of individual trees, green walls, intertidal hard structures)	45.60		
M² to hectares conversion tool:	Select a unit	Hectares	M²

Project Name: Woollam Park Map Reference:

A-3 On-Site Habitat Enhancement

Condenser / Show Columns | Condenser / Show Rows | Main Menu

Area habitat summary

Total Net Unit Change	17.21
Total Net % Change	113.83%
Trading Rules Satisfied	No - check trading summaries ▲

| Baseline habitats | | | | | | | | | | | Post intervention habitats | | | | | | | | | | |

Project Name: Woollam Park Map Reference:

B-1 On-Site Hedge Baseline

Condense / Show Columns | Condense / Show Rows | Main Menu

Hedgerow summary	
Total Net Unit Change	8.65
Total Net % Change	26.37%
Trading Rules Satisfied	Yes ✓

	Existing hedgerow habitats			Distinctiveness		Condition		Strategic significance				Ecological baseline							Comments		
Ref	Hedge number	Habitat type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier	Required Action to Meet Trading Rules	Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	User comments	Planning authority comments	Habitat reference number
1	H1	Species-rich native hedgerow with trees	0.169	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.03	0	0	0.00	0.00	0.17	2.03			
2	H2	Species-rich native hedgerow with trees	0.162	High	6	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.92	0.108	0	1.94	0.00	0.05	0.97			
3	H3	Species-rich native hedgerow	0.064	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.26	0	0	0.00	0.00	0.06	0.26			
4	H4	Species-rich native hedgerow with trees	0.371	High	6	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.23	0.371	0	2.23	0.00	0.00	0.00			
5	H5	Species-rich native hedgerow with trees	0.129	High	6	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	0.77	0.094	0	0.56	0.00	0.04	0.21			
6	H6	Species-rich native hedgerow with trees	0.625	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	7.50	0.582	0	6.98	0.00	0.04	0.52			
7	H7	Native hedgerow	0.336	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	1.34	0.328	0	1.31	0.00	0.01	0.03			
8	H8	Native hedgerow	0.233	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	1.40	0.233	0	1.40	0.00	0.00	0.00			
9	H9	Native hedgerow - associated with bank or ditch	0.244	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	1.95	0.226	0	1.81	0.00	0.02	0.14			
10	H10	Species-rich native hedgerow	0.236	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	2.83	0.23	0	2.76	0.00	0.01	0.07			
11	H11	Native hedgerow - associated with bank or ditch	0.504	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	4.03	0	0.458	0.00	3.66	0.05	0.37			
12	H12 (TL1)	Line of trees	0.163	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.65	0.163	0	0.65	0.00	0.00	0.00			
13	H13	Species-rich native hedgerow with trees	0.267	High	6	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	4.81	0.242	0	4.36	0.00	0.03	0.45			
14	H14	Native hedgerow	0.01	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.04	0	0	0.00	0.00	0.01	0.04			
15	H15	Native hedgerow	0.01	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.04	0	0	0.00	0.00	0.01	0.04			
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Project Name: Woollam Park Map Reference:

B-2 On-Site Hedge Creation

Condense / Show Columns | Condense / Show Rows | Main Menu

Hedgerow summary	
Total Net Unit Change	8.65
Total Net % Change	26.37%
Trading Rules Satisfied	Yes ✓

		Proposed habitats		Distinctiveness		Condition		Strategic significance			Temporal multiplier						Difficulty risk multipliers				Hedge units delivered	Comments		
Ref	New hedge number	Habitat type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier	Standard Time to target condition (years)	Habitat created in advance (years)	Delay in starting habitat creation (years)	Standard or adjusted time to target condition	Final time to target condition (years)	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		User comments	Planning authority comments	Habitat reference number
1		Native hedgerow	0.024	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.08			
2		Native hedgerow	0.017	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.06			
3		Native hedgerow	0.075	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.25			
4		Native hedgerow	0.015	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.05			
5		Native hedgerow	0.027	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.09			
6		Species-rich native hedgerow with trees	0.749	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10	0	0	Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1	6.29			
7		Native hedgerow	0.553	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	1.85			
8		Native hedgerow	0.005	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.02			
9		Native hedgerow	0.062	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.21			
10		Native hedgerow	0.017	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.06			
11		Native hedgerow	0.019	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.06			
12		Native hedgerow	0.036	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.12			
13		Native hedgerow	0.024	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.08			
14		Native hedgerow	0.023	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.08			
15		Native hedgerow	0.087	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.29			
16		Native hedgerow	0.077	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.26			
17		Native hedgerow	0.077	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.26			
18		Native hedgerow	0.13	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.44			
19		Native hedgerow	0.015	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.05			
20		Native hedgerow	0.025	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.08			
21		Native hedgerow	0.243	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.81			
22		Native hedgerow	0.175	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.59			
23		Native hedgerow	0.028	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.09			
24		Native hedgerow	0.023	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	0.08			
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Project Name: Woollam Park Map Reference:

B-3 On-Site Hedge Enhancement

Condenser / Show Columns | Condenser / Show Rows

Main Menu

Hedgerow summary	
Total Net Unit Change	6.65
Total Net % Change	59.11%
Trading Rules Satisfied	Yes ✓

	Baseline Habitats										Post intervention habitats																				Comments		
												Change in distinctiveness and condition			Distinctiveness		Condition		Strategic significance			Temporal multiplier					Difficulty / risk multipliers						
Baseline ref	Baseline habitat	Length (km)	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Required Action to Meet Trading Rules	Proposed habitat	Distinctiveness movement	Condition movement	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance multiplier	Strategic significance	Standard Time to target condition (years)	Habitat enhanced in advance (years)	Delay in starting habitat enhancement (years)	Standard or adjusted time to target condition	Final time to target condition (years)	Final Time to target multiplier	Standard difficulty of enhancement	Applied difficulty multiplier	Final difficulty of enhancement	Difficulty multiplier applied	Hedge units delivered	User comments	Planning authority comments	Habitat reference number
11	Native hedgerow - associated with bank or ditch	0.504	Medium	4	Moderate	2	Low Strategic significance	1	4.032	Same distinctiveness band or better	Species-rich native hedgerow - associated with bank or ditch	Medium - High	Lower Distinctiveness Habitat - Moderate	0.408	High	6	Moderate	2	Area/compensation not in local strategy/no local strategy	Low Strategic significance	1	5	0	0	Standard time to target condition applied	5	0.917	Low	Standard difficulty applied	Low	1	5.50			

Appendix 6.4: Breeding bird survey report

Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

Woollam Park

APPENDIX 6.4 - BREEDING BIRD SURVEY REPORT

October 2024

FPCR Environment and Design Ltd
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Rev	Issue Status	Prepared / Date	Checked / Date	Approved/Date
-	Draft	REM / 03.05.24	OJB / 13.09.24	
	Final	CHK / 29.10.2024		

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Figure 1: Breeding Bird Survey Results Plan: Distribution of Notable Species (Application Site)

Figure 2: Breeding Bird Survey Results Plan: Distribution of Notable Species (Farmland Bird Mitigation Area)

APPENDICES

Appendix A: Application Site Breeding Bird Survey Results 2022 & EOAC Criteria for Categorisation of Breeding Status

Appendix B: Farmland Birds Mitigation Area Breeding Bird Survey Results 2022

1.0 NON–TECHNICAL SUMMARY

1.1 FPCR were commissioned by Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust to conduct breeding bird surveys at a proposed development site on an area of land at Woollam Park. Proposals for the Application Site include up to 1000 homes, a primary school, a local centre, open space and drainage infrastructure.

1.2 A total of 31 bird species were recorded during the breeding bird surveys within the Application Site, of which 13 were considered 'notable' species and two were observed overflying the Application Site only. Of the species recorded, five were confirmed as breeding on the Application Site, ten were considered probable breeders, and the remaining 16 species were considered possible or non-breeders.

1.3 A total of 30 species were recorded within the Farmland Bird Mitigation Area, of which 14 were considered notable species and six were observed overflying the Site only. Six species were confirmed as breeding in this area, a further five species were considered probable breeders, and the remaining 19 species were possible or non-breeders only.

1.4 The breeding bird assemblages making use of the Application Site were typical of the habitats present, comprising common and widespread species. The presence of some specialist species of arable land and the potential value of the area for metapopulation connectivity is such the farmland bird assemblage was considered of **Local** importance. The breeding assemblage associated with hedgerows and woodland supported only small populations of expected species for such habitats in the region and was thus considered of **Site** importance.

1.5 Development of the Application Site will result in inevitable adverse impacts to some farmland specialist species, including skylark, linnet and yellowhammer. Retention of the boundary features and the provision of green infrastructure will ensure that the impact of habitat loss upon the remaining bird species recorded will be of beneficial or negligible significance.

1.6 Mitigation measures are recommended to minimise disturbance impacts to birds which includes the avoidance of vegetation clearance during the bird nesting season (March – August, inclusive). Where this cannot be avoided, an ecologist should make a check of any suitable breeding habitat prior to its clearance in the nesting season, with suitable stand-offs (as determined by the ecologist) retained around any active nests until dependant young have fledged.

1.7 A range of enhancement opportunities have been suggested based on the habitats and bird species recorded in order to achieve biodiversity gains. These include sensitive planting schemes and the provision of a range of nest boxes.

2.0 INTRODUCTION

2.1 The following report has been prepared by FPCR Environment & Design Ltd. on behalf of Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust and details the results of a suite of breeding bird surveys carried out on an area of land at Woollam Park, Hertfordshire (central OS Grid Reference TL154098) here after referred to as the 'Application Site'.

2.2 The proposals relating to the Application Site are for a residential development of up to 1000 new homes, a primary school and associated infrastructure. The green infrastructure will include the retained woodland and hedgerows along with new habitat creation.

2.3 A suite of ecological surveys have been undertaken on the Application Site and this report should be read in conjunction with the Environmental Statement (ES, FPCR, 2024).

Site Location and Context

2.4 The Application Site development boundary was c.50ha in size and consisted of five field compartments. These comprised four fields under agricultural cultivation and one field comprised amenity grassland currently utilised as a rugby pitch. The arable field compartments support a mixture of cereal and non-cereal crops, with narrow field margins and bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary of the application site is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment. The western boundary is bordered by the A1081 Harpenden Road, Sandridgebury Lane bisects the arable field compartments, and a railway line borders the eastern boundary.

2.5 The Farmland Bird Mitigation Area covers approximately 34ha split across two arable fields in a cereal crop rotation akin to that within the Application Site. The Farmland Bird Mitigation Area is approximately 400m north of the Application Site and connected to it via an established hedgerow network.

2.6 The Application Site is situated on the northern periphery of the city of St Albans, Hertfordshire. The area directly north of the application site was part of OA Sports Club, beyond this to the north and east of the site comprised arable land. To the south of the site a number of residential dwellings with associated gardens were situated, along with some commercial units and St Albans Girl's School.

Site Proposals

2.7 The proposals for the Application Site include relocation and replacement of existing playing fields and erection of pavilion annex; construction of up to 1000 new homes (use class C3) to include a mix of market housing, affordable housing, age restricted specialist accommodation for the elderly, and adult disability service units; an 80-bed care home (use class C2); a local centre (use classes E and F); a two-form entry primary school (use class F;) the laying out of green infrastructure including habitat creation, drainage infrastructure; earthworks; pedestrian and cycle routes; and a new means of access onto Harpenden Road and Sandridgebury Lane.

2.8 The Farmland Bird Mitigation Area is to remain in the current agricultural rotation and proposals are for the implementation of AHW4: Skylark Plots to provide local mitigation to address the loss of farmland birds from the Application Site.

Study Objectives

2.9 The Breeding Bird Surveys were carried out between 22/04/22 and 22/06/22. The objectives of the study were to:

- To identify the presence of any designated nature conservation sites that support notable breeding bird assemblages within or in the vicinity of the Application Site
- To identify the presence of any notable species/populations of breeding birds within or in the vicinity of the Application Site;
- Identify the presence, species and distribution of breeding birds on the Application Site and Farmland Bird Mitigation Area;
- Evaluate the conservation value of habitats on site to local bird populations and identify any areas of ornithological interest and;
- Make recommendations to minimize the potential impact of development and where feasible to consider opportunities for additional mitigation, compensation and enhancement where relevant.

3.0 LEGISLATION & STATUS

Legislation

3.1 Annex 1 of the EC Birds Directive lists rare and vulnerable species of regularly occurring or migratory wild birds that are subject to special conservation measures. The Directive also provides for the designation of Special Protection Areas (SPA) for the protection of these species which form part of the Natura 2000 networks of sites protected by European Wildlife Legislation.

3.2 The Wildlife and Countryside Act 1981 (as amended) is the principal legislation affording protection to UK wild birds. Under this legislation all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions to:

- Kill, injure or take any wild bird intentionally;
- Take, damage or destroy the nest of any wild bird while in use or being built;
- Take or destroy the egg of any wild bird.

3.3 Additional protection is afforded to species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), whereby intentional disturbance whilst building or occupying a nest or disturbance of dependent young is considered an offence.

3.4 The Natural Environment and Rural Communities (NERC) Act 2006 strengthens the WCA further with respect to the protection of the nests of certain birds listed on Schedule Z1a, even when they are not in use. The NERC Act also offers additional protection to birds released into the wild as part of a repopulation programme.

3.5 Certain species have also been identified as species of principal importance under Section 41 of the NERC Act 2006 (NERC S.41). The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Status

3.6 In addition to statutory protection, some bird species are classified according to their conservation status, such as their inclusion on the Red and Amber lists of Birds of Conservation Concern (BoCC) in the UK[1]:

- Red list (high conservation concern) species are those that are globally threatened according to IUCN criteria; those whose population has declined rapidly (50% or more) in recent years; and those that have declined historically and not shown a substantial recent recovery.
- Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately (between 25% and 49%) in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.
- Green list (low conservation concern) species fulfil none of the above criteria.

4.0 METHODOLOGY

Desk Study

4.1 In order to compile existing baseline information, a desktop survey was undertaken for existing ecological data regarding statutorily and non-statutorily habitats/sites of interest to nature conservation and protected bird species. The following organisations were contacted:

- Multi Agency Geographic Information for the Countryside (MAGIC) website
- Hertfordshire Environmental Records Centre (HERC)

4.2 Further inspection of colour 1:25000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) were also undertaken to provide additional landscape context and identify any features of potential importance for nature conservation in the wider countryside.

4.3 The search area for biodiversity information was related to the significance of designated sites and protected species and associated potential zones of influence. For local bird records (e.g., protected, or otherwise notable species) a 1km search area was adopted.

4.4 Datasets were restricted to the last ten years to ensure that recent and more relevant records of protected/notable species were considered. However, where protected/notable species have been documented over ten years ago and there are no recent accounts, these have been included.

Field Survey

4.5 The survey methodology employed was broadly based on that of territory mapping[2] as used for the British Trust for Ornithology (BTO) Common Bird Census (CBC). Standard BTO species codes and symbols for bird activities were used to identify birds and denote activity, sex and age where appropriate. Birds were considered to be holding a territory and therefore likely to be

[1] Eaton MA, Aebischer N, Brown A, Hearn R, Lock L, Musgrove A, Noble D, Stroud D and Gregory RD (2016) *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man*. British Birds 108, pp708-746
[2] Bibby, C.J., N.D. Burgess & D.A. Hill, 2000: Bird Census Techniques: 2nd Edition. London: Academic Press

utilizing the site for breeding activities if they were displaying breeding behaviours, such as: singing, nest building, food carrying or territorial defence. If birds did not display such behaviours, e.g. they were only recorded flying over the site, they were considered non breeders. Breeding evidence used in this report follows EOAC guidelines 1979, as shown in Appendix A.

4.6 To provide a reasonable level of accuracy for determining the population status of the breeding birds on the site, three surveys were undertaken between 05.00 and 11.00 during April, May and June 2022. One surveyor completed a walkover of the Application Site whilst a second surveyor concurrently completed a walkover of the Farmland Bird Mitigation Area, paying particular attention to any linear features, such as hedgerows and tree lines, and natural features such as areas of scrub and woodland. Bird surveys were not undertaken in unfavourable conditions, such as heavy rain or strong wind, which may negatively affect the results. Table 1 provides details of the survey dates and weather conditions.

Table 1: Survey Dates & Conditions

Date	Cloud Cover (%)	Rain	Wind	Visibility
22nd April 2022	100	None	Breeze	Good
24th May 2022	70	None	Light breeze	Very Good
22nd June 2022	10	None	Light breeze	Very Good

Species & Assemblage Assessment

4.7 The Chartered Institute of Ecology and Environmental Management (CIEEM) guidance on ecological impact assessment assesses nature conservation importance within a geographical context[3]. To attain each level of importance, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in Table 2. In some cases, professional judgment may be required to increase or decrease the allocation of importance, based upon local knowledge.

4.8 The recent county annual bird report the *Hertfordshire Bird Report 2020*[4] was consulted to inform the assessment. The abundance of species referred to by these reports is classified by the following criteria:

- Very rare – 1-10 records in the last 50 years;
- Rare – Occurs less than annually with 11-50 records in the last 50 years;
- Scarce – One or two records annually, or restricted to specific habitats with 51-100 records in the last 50 years;
- Uncommon – Occurs annually in small numbers;
- Frequent – Often occurs in small numbers in suitable habitat;
- Common – Occurs regularly and widely distributed in suitable habitat in moderate numbers;
- Abundant – Occurs in considerable numbers in suitable habitats and season.

[3] http://www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf
[4] Hertfordshire Ornithological Society 2021. *Hertfordshire Bird Report 2020.*

Table 2: Evaluation Criteria

Nature Conservation Value	Examples of Selection Criteria
International	A species which is part of the cited interest of an SPA and which regularly occurs in internationally or nationally important numbers. A species present in internationally important numbers (>1% of international population).
National	A species which is part of the cited interest of a SSSI and which regularly occurs in nationally or regionally important numbers. A nationally important assemblage of breeding or over-wintering species. A species present in nationally important numbers (>1% UK population). Rare breeding species (<300 breeding pairs in the UK).
Regional	Species listed as being of principal importance under NERC S.41 which are not covered above, and which regularly occurs in regionally important numbers. Species present in regionally important numbers (>1% of regional population). Sustainable populations of species that are rare or scarce within a region. Species on the BoCC Red List & which regularly occur in regionally important numbers.
County	Species listed as being of principal importance under NERC S.41 which are not covered above and which regularly occurs in county important numbers Species present in county important numbers (>1% of county population). Sustainable populations of species that are rare or scarce within a county, or are listed as being of principle importance under S41 of the NERC Act. A site designated for its county important assemblage of birds (e.g. a SINC Site). Species on the BoCC Red List & which regularly occur in county important numbers.
Local	Other species of conservation interest (e.g. all other species on the BoCC Red and Amber List or species listed as being of principal importance under NERC S.41 which are not covered above) regularly occurring in locally sustainable populations. Sustainable populations of species which are rare or scarce within the locality.
Site	Species that are common and widespread

5.0 RESULTS AND EVALUATION

Desk Top Study

Designated Sites

5.1 No statutory sites of international importance, including Special Protection Areas, and Ramsar wetlands, designated for supporting notable bird populations or species assemblages lie within 15km of the Application Site boundary.

5.2 No statutory sites of national importance, including Sites of Special Scientific Interest (SSSI), designated for supporting notable bird populations or species assemblages lie within 2km of the Application Site boundary.

Notable Bird Records

5.3 There were a large number of bird species records returned from HERC within 1km of the Application Site boundary (see Table 3). The vast majority of these records were from Langley

Wood Local Wildlife Site and ancient woodland located 860m north-east of the Application Site. The species records returned are typical of the farmland and woodland habitats surrounding the Application Site.

Table 3: Desk Study Records of Protected/Notable Species within 1km of the Application Site

Species	Dates	Relevant Legislation	Approximate Location Relative to Site
Bar-tailed Godwit *Limosa lapponica*	2018	BoCC Amb	One record, located within the site boundary
Common Reed Bunting *Emberiza schoeniclus*	2018	BoCC Amb, NERC41	One record, located 930 m NE
Cuckoo *Cuculus canorus*	2017	BoCC Red, NERC41	One record, 850 m NE
Eurasian Skylark *Alauda arvensis*	2016 – 2017	BoCC Red, NERC41	Two record, closest 860 m NE
Fieldfare *Turdus pilaris*	2016 - 2018	BoCC Amb	Six records, closest 600 m E
Grasshopper Warbler *Locustella naevia*	2016	BoCC Red, NERC41	One record, 710 m NE
Great Black-backed Gull *Larus marinus*	2018	BoCC Amb	One record, 900 m W
Grey Partridge *Perdix perdix*	2012 - 2016	BoCC Red, NERC41	Two records, closest located 860 m NE
Grey Plover *Pluvialis squatarola*	2015	BoCC Amb	One record, 860 m NE
Grey Wagtail *Motacilla cinerea*	2014	BoCC Red	One record, 860 m NE
Hawfinch *Coccothraustes coccothraustes*	2018	BoCC Red, NERC41	Two records, closest located 860 m NE
Hen Harrier *Circus cyaneus*	2016	BoCC Red WCA1	One record, 860 m NE
Kestrel *Falco tinnunculus*	2018	BoCC Amb	One record, 860 m NE
Lesser Redpoll *Acanthis cabaret*	2011 – 2018	BoCC Red, NERC41	Three records, closest 690 m SE
Lesser Spotted Woodpecker *Dryobates minor*	2018	BoCC Red	One record, 870 m N
Linnet *Linaria cannabina*	2014 – 2018	BoCC Red	Two records, closest 710 m E
Meadow Pipit *Anthus pratensis*	2015	BoCC Amb	One, record, 860 m NE
Mistle Thrush *Turdus viscivorus*	2012	BoCC Red	One, record 880 m W
Quail *Coturnix coturnix*	2013	BoCC Amb	One, record 860 m W

Species	Dates	Relevant Legislation	Approximate Location Relative to Site
Redwing *Turdus illiacus*	2016 - 2018	BoCC Amb	Five records, closest 660 m E
Short-eared Owl *Asio flammeus*	2016	BoCC Amb	One record, 860 m NE
Spotted Flycatcher *Muscicapa striata*	2018	BoCC Red, NERC41	One record, 850 m NE
Stock Dove *Columba oenas*	2014	BoCC Amb	One record 880 m W
Swift *Apus apus*	2011	BoCC Amb	One record, 820 m SE
Tawny Owl *Strix aluco*	2017	BoCC Amb	One record, 860 m NE
Western Barn Owl *Tyto alba*	2015	WCA1	One record, 860 m NE
Western Osprey *Pandion haliaetus*	2015	WCA1	One record, 860 m NE
Western Yellow Wagtail *Motacilla flava*	2011	BoCC Red	One record, 880 m E
Wheatear *Oenanthe oenanthe*	2016 – 2018	Bocc Amb	Two records, closest 690 m NE
Whinchat *Saxicola rubetra*	2014	BoCC Red	One record, 860 m NE
Willow Warbler *Phylloscopus trochilus*	2011 – 2018	BoCC Amb	Two records, closest 830 m NE
Yellowhammer *Emberiza citrinella*	2018	BoCC Red, NERC41	Two records, closest 860 m NE

Key: NERC41 – Section 41 of the Natural Environment and Rural Communities Act 2006; WCA1 – species listed on Schedule 1 of the Wildlife and Countryside Act 1981; BoCC5:Red/ BoCC5:Amber – Species of High or Medium Conservation Concern respectively.

Field Survey

Summary

5.4 A total of 31 bird species were recorded within the Application Site (for full list see Appendix A) of which two species; red kite *Milvus milvus* and buzzard *Buteo buteo* were recorded overflying the Site only.

5.5 A total of 30 species were recorded within the Farmland Bird Mitigation Area (Appendix B). Five of these species were recorded overflying the Site only and were not observed to interact with the habitats present and are not considered further as they would be unaffected by any proposed change in land use.

5.6 Of the species recorded onsite during the breeding bird surveys, 12 recorded within the Application Site and 12 recorded within the Farmland Bird Mitigation Area appear on one or more of the following and are hereinafter referred to as 'notable' species:

- Schedule 1 of the Wildlife & Countryside Act 1981 (as amended);
- BoCC Red or Amber lists;
- Section 41 of the NERC Act 2006; and/or
- LBAP for Hertfordshire.

5.7 Table 4 provides a summary of the notable bird species and their breeding status within the Application Site and within the Farmland Bird Mitigation Area whilst Figures 1 & 2 show the distribution of species.

Table 4: Protected/Notable Breeding Species in 2022 and Their Recent Status within Hertfordshire

Species	Legal/ Conservation status	Application Site		Farmland Bird Mitigation Area		Recent Status in Hertfordshire
		Peak Count / Number of Survey Occasions Recorded	Breeding Status†	Peak Count / Number of Survey Occasions Recorded	Breeding Status†	
Skylark *Alauda arvensis*	Red list NERC S.41	25 / 3	Probable breeder	5 / 3	Probable breeder	Common resident which has recently declined.
Whitethroat *Curruca communis*	Amber list	12 / 3	Probable breeder	4 / 2	Possible breeder	Very common summer visitor and passage migrant.
Starling *Sturnus vulgaris*	Red list NERC S.41	14 / 2	Possible breeder	(2 flyovers) / 1	Non-breeder	Abundant but declining resident and winter visitor.
Song Thrush *Turdus philomelos*	Amber list NERC S.41	2 / 1	Possible breeder	2 / 3	Probable breeder	Common but declining resident.
Mistle Thrush *Turdus viscivorus*	Red list	1 / 1	Possible breeder	N/A	N/A	Common resident.
Dunnock *Prunella modularis*	Amber list NERC S.41	6 / 3	Confirmed breeder	9 / 3	Possible breeder	Abundant resident and autumn visitor.
Willow Warbler *Phylloscopus trochilus*	Amber list	N/A	N/A	1 / 1	Possible breeder	Passage migrant and scarce summer visitor, though declining in numbers.
Yellow Wagtail *Motacilla flava*	Red list NERC S.41	1 / 1	Possible breeder	N/A	N/A	Common passage migrant and regular breeder in small numbers.
Wren *Trogolodytes trogolodytes*	Amber list	10 / 1	Probable breeder	10 / 3	Probable breeder	Abundant resident and winter visitor.
House Sparrow *Passer domesticus*	Red list NERC S.41	3 / 1	Possible breeder	2 / 2	Possible breeder	A common but declining resident.

Species	Legal/ Conservation status	Application Site		Farmland Bird Mitigation Area		Recent Status in Hertfordshire
		Peak Count / Number of Survey Occasions Recorded	Breeding Status†	Peak Count / Number of Survey Occasions Recorded	Breeding Status†	
Woodpigeon *Columba palumbus*	Amber list	39 / 3	Probable breeder	14 / 3	Possible breeder	Abundant and widespread resident.
Greenfinch *Chloris chloris*	Red list	N/A	N/A	3 / 2	Possible breeder	Common and widespread, but declining, resident and passage migrant.
Linnet *Carduelis cannabina*	Red list NERC S.41	4 / 1	Possible breeder	N/A	N/A	Common and widespread resident, winter visitor and passage migrant.
Yellowhammer *Emberiza citrinella*	Red list NERC S.41	8 / 3	Probable breeder	9 / 3	Confirmed breeder	Common and widespread but declining resident.

Application Site

5.8 Of the 31 species recorded during breeding bird surveys, five were confirmed as breeding including a single notable species, dunnock *Prunella modularis*, the remaining species were BoCC Green-listed species (low conservation concern). A further 10 species were considered to be probable breeders including skylark *Alauda arvensis*, woodpigeon *Columba palumbus*, wren *Trogolodytes trogolodytes*, whitethroat *Curruca communis* and yellowhammer *Emberiza citrinella*, with the remaining species of low conservation concern. 14 of the remaining 16 species were considered to be possible breeders, including notable species linnet *Linaria cannabina*, yellow wagtail *Motacilla flava*, house sparrow *Passer domesticus*, mistle thrush *Turdus viscivorus*, song thrush *Turdus philomelos*, and starling *Sturnus vulgaris*. The remaining species were non-breeders.

Farmland Bird Mitigation Area

5.9 Of the 26 species recorded within the Farmland Bird Mitigation Area, six were confirmed as breeding including a single notable species, yellowhammer, with the remaining five species of low conservation concern. Five species were considered probable breeders, including the notable species wren, song thrush, and skylark. The remaining 16 species were considered to be possible breeders (11) and non-breeders (5). The notable possible breeders were woodpigeon, willow warbler *Phylloscopus trochilus*, whitethroat, house sparrow, dunnock, and greenfinch *Chloris chloris*.

Bird Survey Results Description – Application Site

5.10 The majority of bird species recorded were typical of the range of habitats that dominate the site, including agricultural land, woodland and grassland. The internal parts of arable fields provided breeding opportunities for skylark, a declining farmland species that was recorded in moderate numbers, and yellow wagtail, recorded in low numbers. Breeding was considered probable by skylark with a small number of regularly defended territories, and considered possible for yellow wagtail due to a lack of breeding evidence other than a single singing male. Other species recorded within field interiors included foraging corvids (Corvidae) and pigeons (Columbidae).

5.11 The field boundaries also provided breeding habitat for small numbers of other common and widespread birds including yellowhammer and linnet with field interiors providing foraging resources. Breeding was considered probable by yellowhammer, with a small number of territories being defended, while linnet was considered a possible breeder, with an individual recorded singing towards the east of the site.

5.12 Hedgerows and woodland habitats across the site provided breeding and foraging opportunities for a number of common and widespread, generalist and woodland species including great spotted woodpecker *Dendrocopos major*, wren, blackbird *Turdus merula,* robin *Erithacus rubecula* and common tit, finch and warbler species recorded. Notable species, including willow warbler, song thrush, mistle thrush and dunnock were all recorded using onsite hedgerows/woodland features.

5.13 Other species recorded using onsite habitats during breeding bird surveys included house sparrow within close proximity to residential buildings to south of the site. This species has specific habitat requirements and is strongly associated with urban environs and while the site provided suitable foraging resources it did not provide suitable breeding habitat.

5.14 Buzzard and red kite were recorded flying over the site only, and it is possible they use the site to forage. The woodland habitats on site also supply some suitable breeding habitat for both species, although no breeding evidence was recorded.

Bird Survey Results Description – Farmland Bird Mitigation Area

5.15 Again, the bird species recorded were typical of the dominant habitat types, the majority of which is arable land and hedgerows. As with Application Site, the internal parts of the arable fields provided breeding opportunities for skylark which were considered probable breeder with a maximum of five possible territories recorded. Other species recorded within field interiors included foraging corvids (Corvidae) and pigeons (Columbidae).

5.16 The field boundaries and hedgerows also provided breeding and foraging habitat for a number of species including yellowhammer, greenfinch, whitethroat, song thrush and dunnock. The field interiors also provide foraging resources for many of these species. Yellowhammers were confirmed to be breeding in the off-site survey area, with up to five territories being defended.

5.17 Other species recorded using the Farmland Bird Mitigation Area habitats during the surveys included house sparrow within close proximity to stables and residential buildings to the west of the site.

5.18 Buzzard and red kite were recorded flying over the Farmland Bird Mitigation Area, and it is likely they use the site to forage. The mature trees and woodland features in this area also supply some suitable breeding habitat for both species, although no breeding evidence was recorded and so both species were considered non-breeders.

Evaluation

Bird Assemblage

5.19 Within the Application Site, arable habitats and their associated field margins provided suitable foraging and/or breeding habitat for a limited assemblage though one that did include several declining notable farmland species, including skylark, yellow wagtail, linnet, and yellowhammer. Breeding was considered probable by skylark and yellowhammer, and possible by linnet and yellow wagtail. Whilst the numbers of skylark were high in April (25 individuals), numbers fell to a stable size peaking thereafter at 7 in June. It is considered likely that the large number recorded in April represents pre-breeding flocking birds which later dispersed to similar habitats in the wider landscape to establish territories over a wider area and the peak count is not an accurate reflection of the breeding population of skylark on the Application Site. The other farmland specialist breeding species recorded were so in similarly low numbers, all with peak counts below ten individuals. While the breeding populations of species within the Application Site are relatively insignificant in relation to the maintenance of the status of these species at local or county scales, the location of the Application Site is such that it is considered of greater significance for connectivity between more expansive areas of arable farmland to the east and west of St Albans. Given this the Application Site is considered to be of **Local** level importance for the breeding bird assemblage associated with the arable farmland.

5.20 Hedgerows and woodland features on/or adjacent to the Application Site provided suitable breeding and/or foraging habitat for an assemblage of common and widespread generalist species throughout the year. The assemblage recorded was considered typical of the habitats present, which are a common feature of the surrounding landscape. While the assemblage included a number of notable species, these species are all Fairly Common to Abundant in Hertfordshire and the numbers recorded were all considered typical of the habitats present. The Application Site was therefore considered to be of no more than **Site** level importance for the generalist assemblage recorded.

5.21 The breeding bird assemblages associated with the Farmland Bird Mitigation Area were broadly consistent with those found within the Application Site being typical of arable farmland and associated hedgerow features in the region. The assemblage lacked any species typical of urban environments given the increased distance between the Farmland Bird Mitigation Area and any urban centres. The arable fields supported a very limited breeding bird assemblage limited to a

maximum of five skylark territories and single pheasant *Phasianus colchicus*. Adjacent hedgerows supported yellowhammer, another widespread farmland specialist.

5.22 Hedgerows and woodland edges bordering the Farmland Bird Mitigation Area provided suitable breeding and/or foraging habitat for an assemblage of common and widespread generalist species throughout the year. The assemblage recorded was considered typical of the habitats present, which are a common feature of the surrounding landscape. While the assemblage included a number of notable species, these species are all Fairly Common to Abundant in Hertfordshire and the numbers recorded were all considered typical of the habitats present.

Individual Species

5.23 Table 5 provides summarises those birds species recorded from the Application Site that are of at least **Local** importance.

5.24 The majority of the other breeding bird species were either recorded in small numbers, were noted in unsuitable breeding habitats, and/or are considered common and widespread breeding species found ubiquitously through similar habitat in the region. These individual species that make use of the available habitats are recognised as being of only Site importance.

Table 5: Birds of at least Local importance

Name		Status		Nature Conservation Value
		WCA Sch.1	NERC S.41	
BoCC Red List				
Skylark	*Alauda arvensis*		+	Local
Linnet	*Linaria cannabina*		+	Local
Yellowhammer	*Emberiza citrinella*		+	Local
Yellow Wagtail	*Motacilla flava*		+	Local
BoCC Amber List				
Dunnock	*Prunella modularis*		+	Local
Whitethroat	*Curruca communis*		+	Local

DISCUSSION AND RECOMMENDATIONS

6.1 The following section provides an assessment the potential impacts of the proposals upon breeding birds. Where appropriate, recommendations are provided for mitigation and enhancement that take account of the likely ecological effects. Throughout the evaluation, any recommendations for mitigation have been informed by the most up-to-date Development Framework Plan.

6.2 The proposed residential development will comprise approximately 24ha of green infrastructure comprised of habitat creation, including species-rich meadow grassland, mixed scrub and woodland habitats.

6.3 The recommendations below have been given with the aim of informing development proposals on how to best maintain the conservation status of bird species present.

Impact Assessment of Breeding Birds

6.4 The potential impact of the loss or change of habitat upon breeding bird species arising from the effects of development is based upon an understanding of each species' ecological requirements, the type of development, number of birds recorded on the Application Site, their nature conservation criteria based on legislation and current guidance, their county status according to *The Hertfordshire Bird Report 2020* and professional judgement.

6.5 The following potential impacts to the recorded bird populations and assemblage may result from the proposals:

- Direct loss / change of breeding habitat
- Disturbance during construction and/or operation

Habitat Loss

6.6 The proposals will lead to a total loss of arable habitats across the Application Site. The majority of hedgerows and woodland habitats are to be retained, including Long Spring Wood and the northern woodland belt. Only a small amount of hedgerow will be lost to allow for pedestrian links to the east and west. The proposed green infrastructure includes the species-rich meadow grassland, mixed scrub, and woodland habitats, connecting the Long Spring Wood LWS to woodland compartments on the northern boundary, and further to the Heartwood Forest complex in the north.

6.7 The individual species recorded on site that are arguably the most vulnerable to impacts from habitat loss/change are the six species that are considered to be of at least **Local** importance. These comprise notable species that are either specially protected, appear on the BoCC Red list and/or are listed as a NERC Priority Species and were recorded in at least locally important numbers.

6.8 The loss of arable habitats will lead to a loss of fifteen territories of skylark, a probable breeding species on site. The loss of these habitats will also reduce the overall availability of foraging resources and possible breeding habitat for yellow wagtail, yellowhammer, and linnet. It is therefore considered that, in the absence of mitigation, the development of the Application Site would lead to a **Minor Adverse** impact on these species at a local scale.

6.9 However, the enhancement of off-site habitat within the Farmland Bird Mitigation Area in the form of ten skylark plots designed in accordance with AHW4: Skylark Plots guidance, will help to mitigate for this loss of breeding habitat by prolonging the availability of suitable nesting sites and increasing the availability of invertebrate food. The anticipated elevation in skylark productivity associated with the implementation of these plots is considered sufficient to offset, and deliver a betterment over the loss of productivity that would arise from displacing the birds within the Application Site, such that the proposals including the bespoke mitigation is expected to have a **Minor Beneficial** impact on local skylark populations.

6.10 Skylark plots will also benefit the other constituent species of the farmland bird assemblage by increasing availability of optimal breeding and foraging habitat thereby increasing the carrying capacity of this land for these species to allow for displacement of birds from within the Application Site arising from the loss of foraging habitat despite hedgerow retention. Given the small populations of these species involved it is considered that this is mitigation is sufficient that

any residual impacts arising from the proposed development would be **Negligible** at any scales above site level.

6.11 The retention of the majority of hedgerows and woodland belts within the Application Site and the introduction of green infrastructure planting will continue to provide suitable foraging habitats for the generalist species recorded. This will include song thrush, mistle thrush, dunnock, and wren which will all readily habituate to human disturbance and would therefore be **Unaffected** by the change in land use of the surrounding arable land and could potentially benefit from new habitat within residential gardens and supplementary feeding though this cannot be secured.

6.12 Within the Application Site, the creation of an area of new habitat creation comprising a mosaic of scrub and woodland blocks situated throughout an area of species diverse grassland and interspersed with attenuation basins supporting wetland plant assemblages will provide suitable habitat for the majority of species that may potentially be adversely impacted by the proposed development. Scrub blocks with varied edge structures grading into seed-bearing grassland is optimal habitat for species such as linnet and yellowhammer and would work in combination with the skylark plots in the Farmland Bird Mitigation Area to deliver a **Minor Beneficial** outcome for these species. A number of other notable species recorded from within the Application Site would also benefit from the creation of this habitat including whitethroat, wren, song thrush, mistle thrush, and dunnock such that any realised impact of these species as a result of the proposed development would be **Negligible** at the site level.

6.13 The inclusion of wetland features, including attenuation basins and wet meadows, will provide additional foraging opportunities to the range of generalist species recorded while also providing potential habitat for additional species including reed bunting *Emberiza schoeniclus.* A number of notable species are likely to benefit from the proposals, including house sparrow with the inclusion of built environment and wetland features providing potential breeding sites and increased foraging for this urban species respectively.

Disturbance

Impacts

6.14 Construction operations have the potential to disturb birds using the site for roosting, foraging, and breeding. Operations likely to disturb breeding birds include noise from vegetation clearance, initial ground works and some construction activities, such as piling, which are of low frequency but of high amplitude. Active, high level, infrequent disturbance causes most birds to be displaced for short periods[5]. During the breeding season disturbance may lead to nest desertion or the avoidance of the area and reduce the suitability of retained nesting areas, such as the retained hedgerows or woodland edge. Whilst there is some potential for breeding success to be reduced, this is not expected to affect the local conservation status on the majority of the bird species using the site for breeding.

6.15 The increase in domestic animals during the operational phase, particularly cat, may lead to an effect on small bird populations. Recent research is inconclusive as to the actual effect that domestic cats can have on wild populations. However, (although some species may be more susceptible to predation than others) it is considered unlikely that the increased abundance of

[5] Hockin, D., Ounsted, M., Gorman, M., Hill, D., Keller, V., and Barker, M. 1992 Examination of the effects of disturbance on birds with reference to the role of environmental impact assessments. Journal of Environmental Management, 36, 253–286

cats would alter the conservation status of any of the breeding birds assemblages present in this instance, with the magnitude of any such impact reduced by the retention of hedgerows and scrub which will continue to provide cover and screening from potential predators. it is therefore considered that the impact of cats will be of negligible significance.

Mitigation

6.16 To avoid disturbance to breeding birds, ground clearance works and vegetation removal will be undertaken prior to the bird-breeding season (March to August, inclusive). If this is not possible, the area will be checked prior to removal of vegetation or ground works by an experienced ecologist. If active nests are found, vegetation will be left untouched and suitably buffered from works until all birds have fledged. Specific advice will be provided prior to undertaking the clearance. This would be a statutory requirement due to the protection of all nesting birds and their nests under the Wildlife and Countryside Act, 1981. A suitably qualified ecologist would supervise this.

Enhancements

6.17 Additional planting is to be incorporated into the sites green infrastructure and will provide additional foraging and breeding habitat for a range of bird species. Where possible it is recommended that consideration is given to the provision of native, fruit bearing species of local origin to provide an optimal foraging resource for a range of bird species including the thrush species recorded.

6.18 Attenuation features should be planted with an appropriate marginal vegetation mix that includes common reed *Phragmites australis*. This will provide good nesting opportunities for sedge warbler *Acrocephalus schoenobaenus* and reed bunting and encourage onsite breeding by these species.

6.19 In accordance with British Standard BS42021:2022 – Integral nest boxes – Selection and installation for new developments, the specification is provided on the number and type of bird boxes that should be sought within new developments. Under BS42021:2022 all new residential developments should provide new and enhanced opportunities for nesting via the installation of integrated nest boxes with the number of boxes to be at least equal to the number of dwellings. These boxes should be installed in clusters of 3-5 on suitable aspects close to open areas with scattered trees and shrubs.

6.20 Targeting swifts the provision of integral nest sites through hollow chambers fitted into the fabric of a building while in construction will also be used by house sparrows, tits and starlings so are considered a ‘universal brick".

6.21 External nest boxes are additional enhancements to the BS42021:2021 guidance and do not contribute towards the one nest box per dwelling requirement. Such enhancements that could be integrated with the on-going management of the Site include the erection of a mixture of nest box types within the retained woodland. The following provides details of suggested suitable nest box types:

- A mixture of small hole (26mm and 32mm) boxes placed along the retained habitat around the proposed development area will provide nesting opportunities for blue tit *Cyanistes caeruleus* and great tit *Parus major*. These boxes generally have a high uptake rate;

- Large hole (45mm) nest boxes suitable for starling *Sturnus* vulgaris should be placed on tree trunks or buildings at a height of at least 2.5m;
- Small open fronted nest boxes again should be placed throughout the site especially on trees which support a climber such as ivy which provides a degree of concealment. These boxes typically attract robin and blackbird;
- Consideration should subsequently be given to the provision of nest boxes for urban birds, including house sparrow, house martin, swallow and swift. Given the urbanised nature of the proposed development, opportunities exist to encourage these species to breed on site.

Appendix A: Woollam Park - 2022 Breeding Bird Survey Results & EOAC Criteria for Categorisation of Breeding Status

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection	Breeding status[6]
Pheasant	*Phasianus colchicus*	1	2	1 (+ 1 flyover)	Not Listed	Possible breeder - H
Ring-necked Parakeet	*Psittacula krameri*	1 (+ 1 flyover)	1	-	Not Listed	Possible breeder - H
Woodpigeon	*Columba palumbus*	39 (+ 10 flyovers)	7 (+ 2 flyovers)	3 (+ 4 flyovers)	Amber List	Probable breeder - T
Collared Dove	*Streptopelia decaocto*	-	-	2	Green List	Possible breeder - H
Red Kite	*Milvus milvus*	(2 flyovers)	-	-	Green List WCA Sch.1	Non- breeder - F
Buzzard	*Buteo buteo*	(1 flyover)	(1 flyover)	-	Green List	Non- breeder - F
Great Spotted Woodpecker	*Dendrocopos major*	2	1	-	Green List	Possible breeder - H
Magpie	*Pica pica*	3 (+ 1 flyover)	3	2	Green List	Confirmed breeder - FL
Jackdaw	*Coloeus monedula*	(3 flyovers)	3	(3 flyovers)	Green List	Possible breeder - H
Carrion Crow	*Corvus corone*	2 (+ 1 flyover)	2 (+ 1 flyover)	9 (+ 3 flyovers)	Green List	Possible breeder - H
Blue Tit	*Cyanistes caeruleus*	7	9	5	Green List	Confirmed breeder - FL
Great Tit	*Parus major*	12	5	3	Green List	Possible breeder – H/S
Skylark	*Alauda arvensis*	25 (+3 flyover)	6 (+ 1 flyover)	7 (+ 3 flyovers)	Red List NERC S.41	Probable breeder - T
Long-tailed Tit	*Aegithalos caudatus*	-	-	2	Green List	Confirmed breeder - FL
Chiffchaff	*Phylloscopus collybita*	15	5	3	Green List	Probable breeder - T
Blackcap	*Sylvia atricapilla*	3	4	1	Green List	Possible breeder – H/S
Whitethroat	*Curruca communis*	12	4	3	Amber List	Probable breeder - T
Wren	*Trogolodytes trogolodytes*	10	7	4	Amber List	Probable breeder - T
Nuthatch	*Sitta europaea*	1	2	-	Green List	Probable breeder - T
Starling	*Sturnus vulgaris*	14	-	2 (+ 6 flyovers)	Red List NERC S.41	Possible breeder - H

[6]European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection	Breeding status[6]
Song Thrush	*Turdus philomelos*	1	1 (+1 flyover)	2	Amber List NERC S.41	Possible breeder – H/S
Mistle Thrush	*Turdus viscivorus*	-	1	-	Red List	Possible breeder - H
Blackbird	*Turdus merula*	15	10	4	Green List	Confirmed breeder - FF
Robin	*Erithacus rubecula*	9	4	5	Green List	Probable breeder - T
House Sparrow	*Passer domesticus*	-	-	3 (+ 3 flyovers)	Red List NERC S.41	Possible breeder - H
Dunnock	*Prunella modularis*	3	6	5	Amber List NERC S.41	Confirmed breeder - FF
Yellow Wagtail	*Motacilla flava*	-	1	1 (+ 1 flyover)	Red List NERC S.41	Possible breeder – H/S
Chaffinch	*Fringilla coelebs*	9	8	7	Green List	Probable breeder - T
Linnet	*Linaria cannabina*	2	4	-	Red List NERC S.41	Possible breeder – H/S
Goldfinch	*Carduelis carduelis*	1 (+ 3 flyovers)	1	5	Green List	Probable breeder - T
Yellowhammer	*Emberiza citrinella*	1 (+ 2 flyovers)	8 (+ 3 flyovers)	7 (+ 3 flyovers)	Red List NERC S.41	Probable breeder - T
Total No. Species	31	**26**	**26**	**24**		

Breeding Status evidence can be broken down into four sections, each with their own codes, as defined by the European Ornithological Atlas Committee:

Confirmed breeder

DD – distraction display or injury feigning
UN – used nest or eggshells found from this season
FL – recently fledged young or downy young
ON – adults entering or leaving nest-site in circumstances indicating occupied nest
FF – adult carrying faecal sac or food for young
NE – nest containing eggs
NY – nest with young seen or heard

Probable breeder - Evidence accumulated during the survey indicates that the bird species is breeding on site.

P – pair in suitable nesting habitat
T – permanent territory (defended over at least 2 survey occasions)
D – courtship and display
N – visiting probable nest site
A – agitated behaviour
I – brood patch of incubating bird (from bird in hand)
B – nest building or excavating nest-hole

Possible breeder - Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders.

H – observed in suitable nesting habitat
S – singing male

Non-breeder

F – flying over
M – migrant
U – summering non-breeder
UH – observed in unsuitable nesting habitat

Appendix B: Woollam Park - Farmland Bird Mitigation Area - 2022 Breeding Bird Survey Results & EOAC Criteria for Categorisation of Breeding Status

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection	Breeding status[7]
Mallard	*Anas platyrhynchos*	(2 flyovers)	-	-	Amber List	Non-breeder - F
Pheasant	*Phasianus colchicus*	-	-	1	Not Listed	Possible breeder - H
Swift	*Apus apus*	-	-	(2 flyovers)	Red List	Non-breeder - F
Woodpigeon	*Columba palumbus*	14 (+ 13 flyovers)	5 (+ 13 flyovers)	3 (+ 19 flyovers)	Amber List	Possible breeder - H
Red Kite	*Milvus milvus*	(2 flyovers)	(3 flyovers)	-	Green List WCA Sch.1	Non- breeder - F
Buzzard	*Buteo buteo*	(1 flyover)	-	(1 flyover)	Green List	Non- breeder - F
Great Spotted Woodpecker	*Dendrocopos major*	1	-	-	Green List	Possible breeder - H
Magpie	*Pica pica*	-	1 (+ 3 flyovers)	1	Green List	Possible breeder - H
Jackdaw	*Coloeus monedula*	(7 flyovers)	3 (+ 2 flyovers)	(3 flyovers)	Green List	Possible breeder - H
Carrion Crow	*Corvus corone*	15	-	6 (+ 1 flyover)	Green List	Possible breeder - H
Coal Tit	*Periparus ater*	-	1	-	Green List	Possible breeder – H/S
Blue Tit	*Cyanistes caeruleus*	12	8	12	Green List	Confirmed breeder - FL
Great Tit	*Parus major*	3	5	4	Green List	Confirmed breeder - FL
Skylark	*Alauda arvensis*	4	6	6	Red List NERC S.41	Probable breeder - T
Long-tailed Tit	*Aegithalos caudatus*	1	1	1	Green List	Confirmed breeder - FL
Willow Warbler	*Phylloscopus trochilus*	1	-	-	Amber List	Possible breeder – H/S
Chiffchaff	*Phylloscopus collybita*	4	4	5	Green List	Probable breeder - T
Blackcap	*Sylvia atricapilla*	1	1	-	Green List	Possible breeder – H
Whitethroat	*Curruca communis*	4	6	-	Amber List	Possible breeder – H/S
Wren	*Trogolodytes trogolodytes*	6	7	11	Amber List	Probable breeder - T

[7]European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection	Breeding status[7]
Starling	*Sturnus vulgaris*	-	-	(2 flyovers)	Red List NERC S.41	Non-breeder - F
Song Thrush	*Turdus philomelos*	2	1	1	Amber List NERC S.41	Probable breeder - T
Blackbird	*Turdus merula*	4	3	6	Green List	Confirmed breeder - FF
Robin	*Erithacus rubecula*	5	7	9	Green List	Probable breeder - T
House Sparrow	*Passer domesticus*	-	2	(2 flyovers)	Red List NERC S.41	Possible breeder - H
Dunnock	*Prunella modularis*	6	9	7	Amber List NERC S.41	Possible breeder – H/S
Chaffinch	*Fringilla coelebs*	3	1 (+ 1 flyover)	4	Green List	Confirmed breeder - FF
Greenfinch	*Chloris chloris*	3	1	2	Red List	Possible breeder – H/S
Goldfinch	*Carduelis carduelis*	5 (+ 3 flyovers)	(3 flyovers)	7	Green List	Possible breeder - H
Yellowhammer	*Emberiza citrinella*	5	7	8	Red List NERC S.41	Confirmed breeder - FF
Total No. Species	30	**24**	**22**	**23**		

Appendix B: Woollam Park Mitigation Fields - 2022 Breeding Bird Survey Results & EOAC Criteria for Categorisation of Breeding Status

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection	Breeding status[1]
Mallard	*Anas platyrhynchos*	(1 flyover)	-	-	Amber List	Non-breeder - F
Pheasant	*Phasianus colchicus*	-	-	1	Not Listed	Possible breeder - H
Woodpigeon	*Columba palumbus*	14 (+ 9 flyovers)	5 (+ 9 flyovers)	3 (+ 17 flyovers)	Amber List	Possible breeder - H
Red Kite	*Milvus milvus*	-	(3 flyovers)	-	Green List WCA Sch.1	Non-breeder - F
Buzzard	*Buteo buteo*	(1 flyover)	-	-	Green List	Non-breeder - F
Magpie	*Pica pica*	-	(3 flyovers)	1	Green List	Possible breeder - H
Jackdaw	*Coloeus monedula*	(7 flyovers)	2 (+ 2 flyovers)	(3 flyovers)	Green List	Possible breeder - H
Carrion Crow	*Corvus corone*	11	-	5 (+ 1 flyover)	Green List	Possible breeder - H
Blue Tit	*Cyanistes caeruleus*	9	4	7	Green List	Confirmed breeder - FL
Great Tit	*Parus major*	3	3	-	Green List	Confirmed breeder - FL
Skylark	*Alauda arvensis*	3	5	4	Red List NERC S.41	Probable breeder - T
Long-tailed Tit	*Aegithalos caudatus*	1	-	1	Green List	Confirmed breeder - FL
Chiffchaff	*Phylloscopus collybita*	1	1	4	Green List	Probable breeder - T
Blackcap	*Sylvia atricapilla*	1	1	-	Green List	Possible breeder – H
Whitethroat	*Curruca communis*	4	4	-	Amber List	Possible breeder – H/S
Wren	*Trogolodytes trogolodytes*	5	4	10	Amber List	Probable breeder - T
Starling	*Sturnus vulgaris*	-	-	(2 flyovers)	Red List NERC S.41	Non-breeder - F
Song Thrush	*Turdus philomelos*	2	1	1	Amber List NERC S.41	Probable breeder - T
Blackbird	*Turdus merula*	3	2	5	Green List	Confirmed breeder - FF
Robin	*Erithacus rubecula*	3	6	8	Green List	Probable breeder - T

[1]European Ornithological Atlas Committee, 1979. *Categories of Breeding Bird Evidence*. European Ornithological Atlas Committee.

Species: British Common Name	Species: Latin name	Survey 1	Survey 2	Survey 3	Conservation Status & Protection	Breeding status[1]
House Sparrow	*Passer domesticus*	-	2	(2 flyovers)	Red List NERC S.41	Possible breeder - H
Dunnock	*Prunella modularis*	4	7	5	Amber List NERC S.41	Possible breeder – H/S
Chaffinch	*Fringilla coelebs*	3	1 (+ 1 flyover)	3	Green List	Confirmed breeder - FF
Greenfinch	*Chloris chloris*	3	-	2	Red List	Possible breeder – H/S
Goldfinch	*Carduelis carduelis*	5 (+ 3 flyovers)	(3 flyovers)	4	Green List	Possible breeder - H
Yellowhammer	*Emberiza citrinella*	5	6	9	Red List NERC S.41	Confirmed breeder - FF
Total No. Species	26	**21**	**19**	**20**		

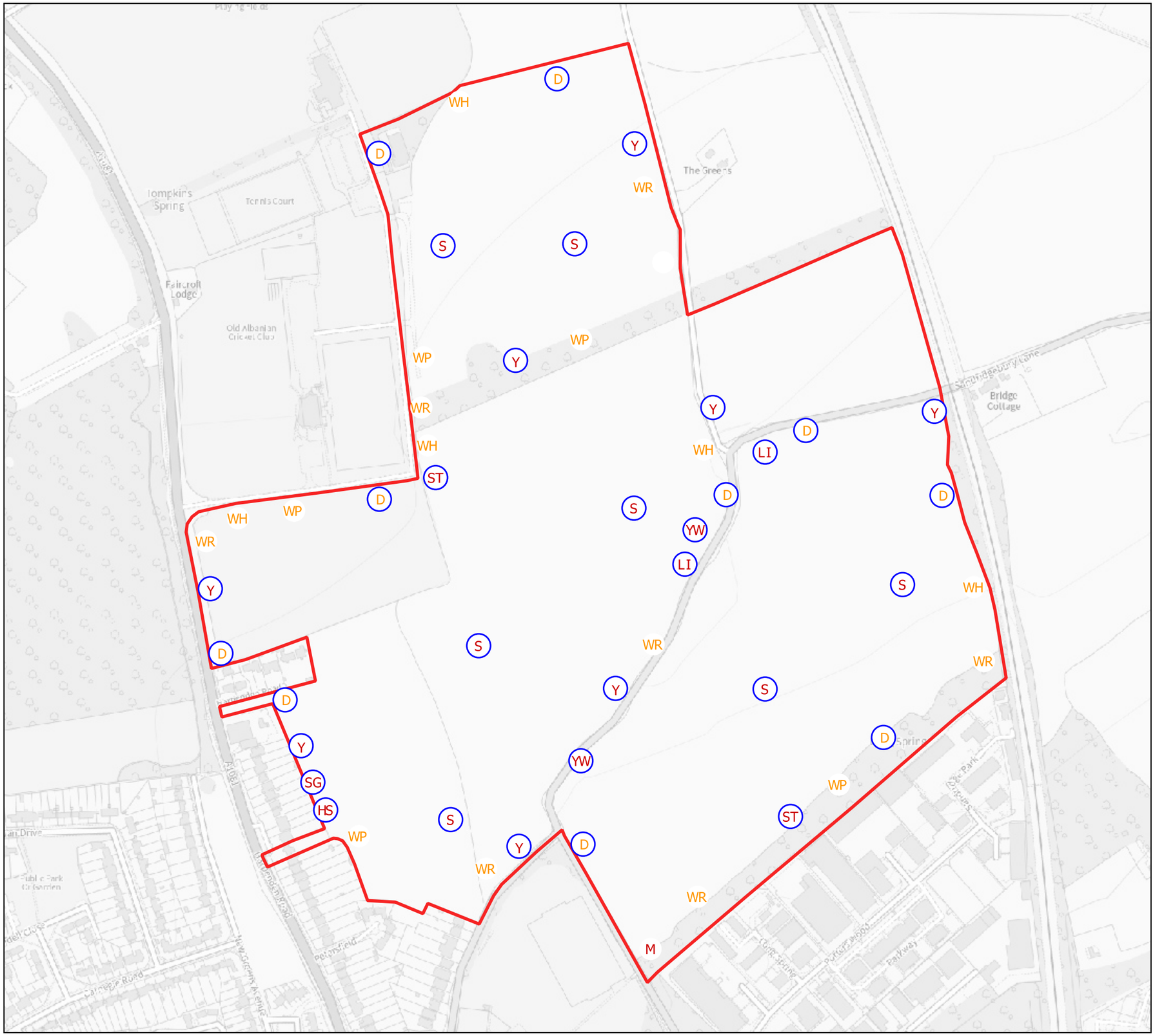
Breeding Status evidence can be broken down into four sections, each with their own codes, as defined by the European Ornithological Atlas Committee:

Confirmed breeder
DD – distraction display or injury feigning
UN – used nest or eggshells found from this season
FL – recently fledged young or downy young
ON – adults entering or leaving nest-site in circumstances indicating occupied nest
FF – adult carrying faecal sac or food for young
NE – nest containing eggs
NY – nest with young seen or heard

Probable breeder - Evidence accumulated during the survey indicates that the bird species is breeding on site.
P – pair in suitable nesting habitat
T – permanent territory (defended over at least 2 survey occasions)
D – courtship and display
N – visiting probable nest site
A – agitated behaviour
I – brood patch of incubating bird (from bird in hand)
B – nest building or excavating nest-hole

Possible breeder - Evidence accumulated during the survey indicates that the bird species could be breeding on site, but the evidence is less conclusive than that obtained for probable breeders.
H – observed in suitable nesting habitat
S – singing male

Non-breeder
F – flying over
M – migrant
U – summering non-breeder
UH – observed in unsuitable nesting habitat



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Key

Site boundary

Protected & Notable Specices

HS **House Sparrow**

LI **Linnet**

M **Mistle Thrush**

S **Skylark**

ST **Song Thrush**

SG **Starling**

YW **Yellow Wagtail**

Y **Yellowhammer**

BoCC Amber Listed Species

D **Dunnock**

WH **Whitethroat**

WP **Woodpigeon**

WR **Wren**

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Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

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BREEDING BIRD SURVEY RESULTS PLAN - DISTRIBUTION OF NOTABLE SPECIES (APPLICATION SITE)

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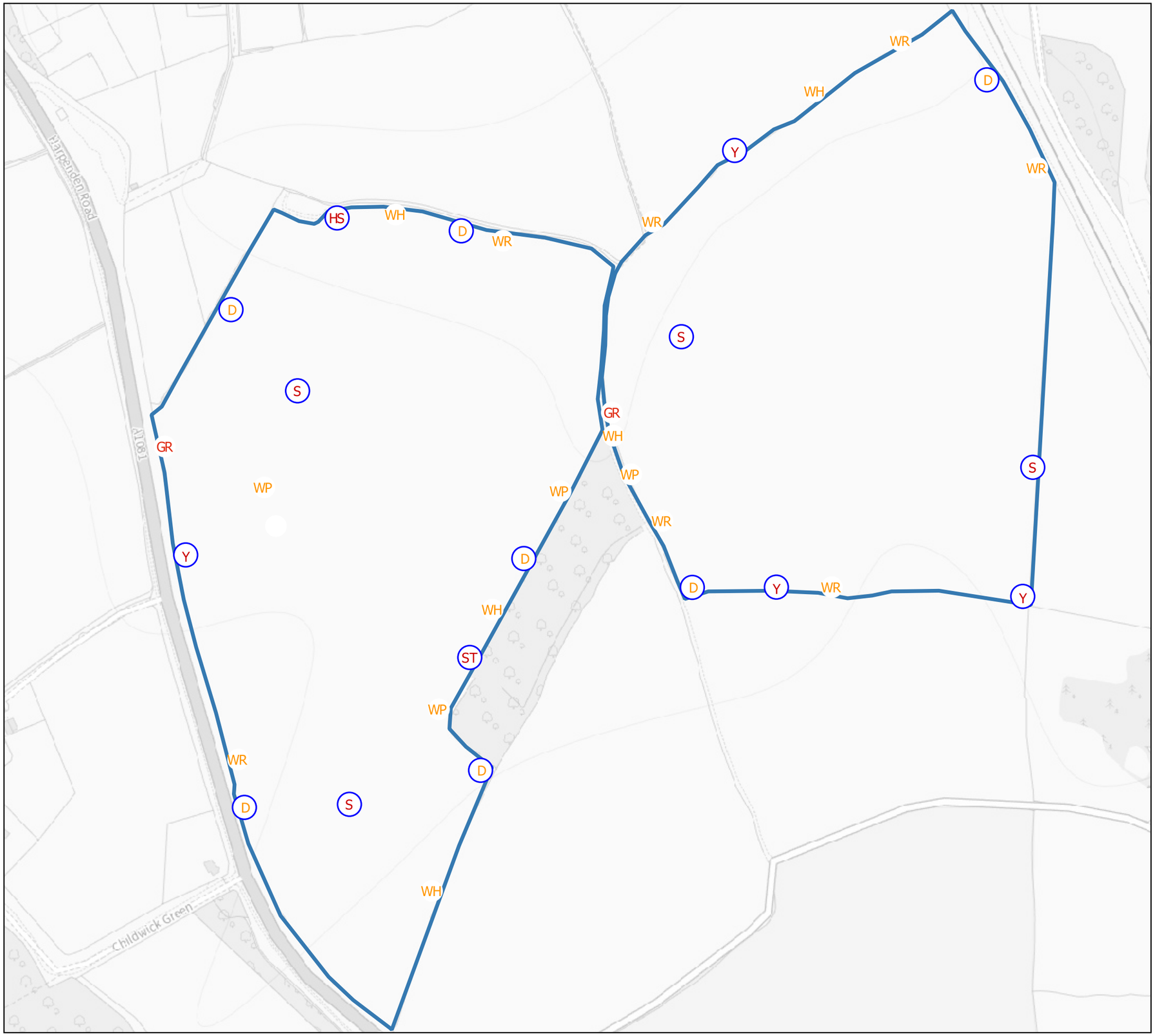

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Key

- Mitigation Fields
- NERC Species of Principal Importance

BoCC Red Listed Species

- GR Greenfinch
- HS House Sparrow
- S Skylark
- ST Song Thrush
- Y Yellowhammer

BoCC Amber Listed Species

- D Dunnock
- WH Whitethroat
- WP Woodpigeon
- WR Wren

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Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

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BREEDING BIRD SURVEY RESULTS PLAN - DISTRIBUTION OF NOTABLE SPECIES (FARMLAND BIRD MITIGATION AREA)

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Appendix 6.5: Dormouse survey report

Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

Woollam Park

APPENDIX 6.5 - HAZEL DORMOUSE REPORT

October 2024

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Figure 1: Dormouse Tube Locations and Habitat Plan

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Table 1: Index of Probability for Dormice in Nesting Tubes

Table 2: Dormice Survey Results 2018 & 2019

1.0 NON-TECHNICAL SUMMARY

1.1 The Site comprised five field compartments, bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment.

1.2 No records of dormice were returned by the data searches and no evidence was found during the presence/likely absence dormouse surveys undertaken in 2018 and 2019.

1.3 No update surveys were undertaken due to the absence of dormice on previous surveys and no records returned within the local area that could facilitate colonisation. This species is considered absent and does not pose a constraint to the proposals.

2.0 INTRODUCTION

2.1 The following report has been prepared by FPCR Environment and Design Ltd on behalf of Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust. It provides details of a hazel dormouse *Muscardinus avellanarius* survey undertaken at Woollam Park, Hertfordshire (central OS grid reference TL 15405 09810) hereafter referred to as 'the site'. This report summarises the dormouse surveys which were completed in October & November 2018 and May & September 2019.

2.2 A suite of ecological surveys have been undertaken on the Application Site and this report should be read in conjunction with the Environmental Statement (ES, FPCR, 2024).

Site Location and Context

2.3 The development boundary was c. 50ha in size and consisted of five field compartments. These comprised four fields under agricultural cultivation and one field comprised amenity grassland currently utilised as a rugby pitch. The arable field compartments support a mixture of cereal and non-cereal crops, with narrow field margins and bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment. The western boundary is bordered by the A1081 Harpenden Road, Sandridgebury Lane bisects the arable field compartments, and a railway line borders the eastern boundary.

2.4 The site was situated on the northern periphery of the city of St Albans, Hertfordshire. The area directly north of the application site was part of OA Sports Club, beyond this to the north and east of the site comprised arable land. To the south of the site a number of residential dwellings with associated gardens were situated, along with some commercial units and St Albans Girl's School.

Site Proposals

2.5 The proposals for the Application Site include relocation and replacement of existing playing fields and erection of pavilion annex; construction of up to 1000 new homes (use class C3) to include a mix of market housing, affordable housing, age restricted specialist accommodation for the elderly, and adult disability service units; an 80-bed care home (use class C2); a local centre (use classes E and F); a two-form entry primary school (use class F;) the laying out of green infrastructure including habitat creation, drainage infrastructure; earthworks; pedestrian and cycle routes; and a new means of access onto Harpenden Road and Sandridgebury Lane.

3.0 HAZEL DORMOUSE ECOLOGY

3.1 The hazel dormouse is a largely nocturnal rodent, found in deciduous woodland and overgrown hedgerows. It is mostly arboreal, spending much of its time climbing among tree branches in search of food and rarely coming to ground. Dormice need a variety of trees and shrubs within their habitat to provide the variety of food sources throughout the year. Food sources include flowers, pollen, fruits, insects and nuts.

3.2 Dormice are able to lower their body temperature and become torpid, allowing them to hibernate through winter. They can also use this strategy during the spring and summer, to wait out periods where food supply is short or bad weather prevents foraging. In the spring, dormice become active again about April or May.

3.3 During the day, dormice sleep in a nest. This can be in a hollow tree branch, a deserted bird nest or nestbox and in specific dormouse nest boxes or nest tubes. In winter, dormice hibernate in underground nests.

3.4 Dormice live at low population densities of less than 10 adults per hectare, even if habitats are of an optimal quality. Dormice can live up to five years in the wild, much longer than other comparable small mammals.

4.0 LEGISLATION

4.1 The hazel dormouse is listed under Annex IVa of the EC Habitats Directive and as a result is covered by Section 41 of the Conservation of Habitats and Species Regulations 2017 (as amended). It is also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these make it an offence to:

- deliberately capture or intentionally take a dormouse;
- deliberately or intentionally kill or injure a dormouse;
- to be in possession or control of any live or dead dormouse or any part of, or anything derived from a dormouse;
- damage or destroy a breeding site or resting place of a dormouse;
- Intentionally or recklessly obstruct access to any place that a dormouse uses for shelter or protection;
- intentionally or recklessly disturb a dormouse while it is occupying a structure or place that it uses for shelter or protection;
- deliberately disturb any dormouse in particular any disturbance which is likely to
    - impair their ability to survive, breed, reproduce or to rear or nurture their young; or in the case of hibernating or migratory species, to hibernate or migrate; or
    - to affect significantly the local distribution or abundance of the species to which they belong.

4.2 Although the law provides strict protection to dormice, it also allows derogation from this protection under Section 53 of the Conservation of Habitats and Species Regulations 2017 (as amended) through the issuing of EPSM licences for development works. These licences in England are currently determined by Natural England (NE).

4.3 Where a lawful operation is required to be carried out, which is likely to result in one of the above offences, an EPSM licence may be obtained from NE to allow the operation to proceed.

4.4 As part of the licence application process a number of 'Tests' have to be met by the application.

4.5 Natural England Guidance Note: European Protected Species and the Planning Process – Natural England's Application of the 'Three Tests' to Licence Applications (March 2011) states:

"In determining whether or not to grant a licence Natural England must apply the requirements of Regulation 535 of the Regulations and, in particular, the three tests set out in sub-paragraphs (2)(e), (9)(a) and (9)(b)6. (1) Regulation 53(2)(e) states: a licence can be granted for the purposes of "preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment".

(2) Regulation 53(9)(a) states: the appropriate authority shall not grant a licence unless they are satisfied "that there is no satisfactory alternative".

(3) Regulation 53(9)(b) states: the appropriate authority shall not grant a licence unless they are satisfied "that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range."

4.6 Conservation status is defined as “the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its population within its territory”. It is assessed as favourable when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- There is, or will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

4.7 These tests must not only reach agreement with Natural England when assessing a Licence application, they must also be assessed by the planning authority when determining a planning application.

4.8 The dormouse is listed as a “species of principle importance in England” in the Natural Environmental & Rural Communities Act 2006 (NERC).

5.0 METHODOLOGY

Desk Study

5.1 Consultations for existing ecological data regarding hazel dormouse were sought from the Herts Environmental Records Centre (HERC) on the 30th of March 2022.

5.2 A 1km search on Multi Agency Geographic Information for the Countryside (MAGIC) website[1] for any granted European Protected Species Mitigation Licences for dormice.

Field Surveys

Nesting Tubes

5.3 Dormouse presence surveys were undertaken in accordance with current good practice guidelines within The Dormouse Conservation Handbook[2]. Surveys involved installing standard dormouse nest tubes every 20m within suitable habitats, approximately 1.5m above ground. A total of 225 tubes were installed during August 2018 (*Figure 1*) and subsequent surveys were undertaken between September to November 2018 inclusive, and during May and September 2019.

5.4 The survey results will be used in conjunction with an index of probability, which indicates the likelihood of finding dormice during this period (see *Table 1*). The survey will be scored for effort according to the method developed from the South West Dormouse Project[3]. The scoring system provides an overall index of effort by multiplying the sum of the months the tubes were checked by the number of tubes used. A score of 20 (or above) is deemed a thorough survey.

Table 1. Index of Probability for Recording Dormice in Nesting Tubes

Month	Index of Probability
April	1
May	4
June	2
July	2
August	5
September	7
October	2
November	2

5.5 The number of tubes used is based on 50 as a standard (i.e. 50 = 1), with fewer tubes reducing the overall score and more tubes increasing the score (i.e. 25 tubes halves the score to 0.5 and 100 tubes doubles the score to 2).

[1] [Online]. http://magic.defra.gov.uk/
[2] The Dormouse Conservation Handbook (2006). Bright, Morris and Mitchell-Jones.
[3] Chanin and Woods 2003. *Surveying dormice using nest tubes: results and experiences from the South West Dormouse Project.* English Nature Research Report No 524. Peterborough: English Nature.

Constraints & Limitations

5.6 Owing to the late extension of the redline boundary, dormouse surveys have not been undertaken within field compartments F5 and F6. It is considered that sufficient data has been collected from adjacent habitats, including habitats of higher quality such as Long Spring Wood, in order to assess this species as likely absent from the proposed development site.

5.7 The 2018 September dormouse survey was undertaken on the 1st October, however this is not considered to affect the results as evidence of dormouse utilising nest tubes in September would continue to be present on 1st October, as outlined in the relevant guidelines.

6.0 RESULTS

Desk Study

6.1 The consultation records provided by HERC, returned no records for hazel dormouse within 1km of the site boundary.

6.2 A search on MAGIC returned no European Protected Species Mitigation licences for dormice within 1km of the site boundary.

Habitats (*Figure 1*)

6.3 The hedgerows, broadleaved woodland and mature trees around the Site comprised species including hazel *Corylus avellana*, hornbeam *Carpinus betulus*, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, and English oak *Quercus robur* which provide suitable foraging resources for dormice. In addition, dense vegetation, root systems and tree cavities provide hibernation features and opportunities for individuals in torpor. The network of suitable dormouse habitats is connected throughout the Site with connections to further suitable habitats in the surroundings, particularly to the north and east where further woodland and hedgerows adjoin the site.

Nesting Tubes

6.4 Dormice tubes were spread along suitable hedgerows and within the woodland compartments throughout the site (See *Figure 1*). The network of vegetative corridors provided dense canopy coverage, providing a continuous corridor of movement across the site and into the wider surrounding area, largely without gaps that would prevent individuals needing to access the ground.

6.5 Across the five surveys, no evidence of hazel dormouse was recorded.

Table 2: 2018 & 2019 Dormice Tube Survey Dates and Scores

Survey	Date (Score)	Dormouse Evidence Recorded
1	01/10/2018 (7)	None
2	22/10/2018 (2)	None
3	22/11/2018 (2)	None
4	23/05/2019 (4)	None
5	30/09/2019 (7)	None

6.6 The use of 225 tubes provisionally gives an index score of 22 (7+2+2+4+7), which is above the recommended survey effort for the number of boxes used, it is therefore envisaged that this is sufficient survey effort.

7.0 CONCLUSION

7.1 No evidence of dormice was recorded during 2018 and 2019 surveys.

7.2 No updated surveys were undertaken due to the absence of dormice on previous surveys and no data search results within the area that could facilitate colonisation. This species is considered absent and does not pose a constraint to the proposals.

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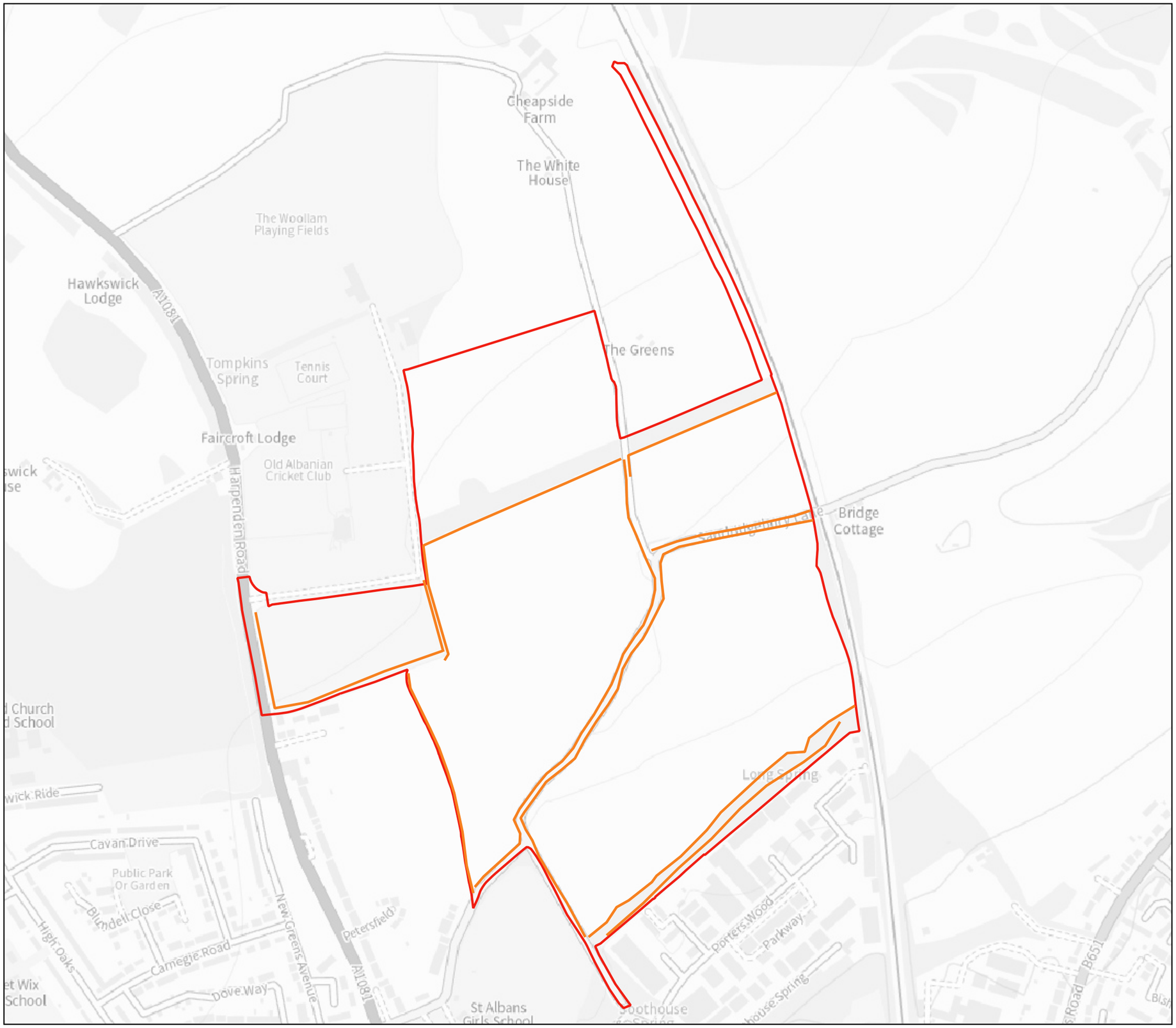
Key:

- Red Line Boundary
- Approximate Dormouse Tube locations



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client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

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Appendix 6.6: Reptile survey report

Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

Woollam Park

APPENDIX 6.6 - REPTILE SURVEY REPORT

November 2024

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1.0 NON -TECHNICAL SUMMARY

1.1 FPCR were commissioned by St Albans School, and St Albans School Woollam Trust to undertake reptile surveys at Woollam Park to provide an ecological baseline for the application site and determine presence of reptiles.

1.2 The Site has been subject to previous ecological assessments in 2018 and 2022. Summaries of these previous assessments have been included in this report where appropriate.

1.3 The proposals are for relocation and replacement of existing playing fields and erection of pavilion annex; construction of up to 1000 new homes (use class C3) to include a mix of market housing, affordable housing, age restricted specialist accommodation for the elderly, and adult disability service units; an 80-bed care home (use class C2); a local centre (use classes E and F); a two-form entry primary school (use class F;) the laying out of green infrastructure including habitat creation, drainage infrastructure; earthworks; pedestrian and cycle routes; and a new means of access onto Harpenden Road and Sandridgebury Lane.

1.4 Green infrastructure will include the retained woodland and hedgerows which will be strengthened with habitat creation particularly with buffers along these features. Habitat loss is predominantly restricted to modified grassland and arable land with low biodiversity value.

1.5 Presence/absence reptile surveys have been undertaken in April, May and June 2022 with a ‘low’ population of common lizards. Mitigation methods comprise vegetation management to passively move reptiles towards the retained boundary habitats.

1.6 Suitable reptile habitats within the Application Site will be retained and enhanced with species rich native tussock grassland providing new areas of high-quality habitat.

2.0 INTRODUCTION

2.0 The following report has been prepared by FPCR Environment & Design Ltd on behalf of Hallam Land Management Ltd., for the development proposals at Land North of St Albans, Hertfordshire (central OS grid reference TL 15417 09806). This report summarises the reptile surveys which were completed in April - September 2018, and updated April - June 2022.

2.1 A suite of ecological surveys have been undertaken on the application site and this report should be read in conjunction with the Environmental Statement (ES, FPCR, 2024).

Site Location and Context

2.2 The development boundary was c. 50ha in size and consisted of five field compartments. These comprised four fields under agricultural cultivation and one field comprised amenity grassland currently utilised as a rugby pitch. The arable field compartments support a mixture of cereal and non-cereal crops, with narrow field margins and bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary of the application site is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment. The western boundary is bordered by the A1081 Harpenden Road, Sandridgebury Lane bisects the arable field compartments, and a railway line borders the eastern boundary.

2.3 The site was situated on the northern periphery of the city of St Albans, Hertfordshire. The area directly north of the application site was part of OA Sports Club, beyond this to the north and east of the site comprised arable land. To the south of the site a number of residential dwellings with associated gardens were situated, along with some commercial units and St Albans Girl's School.

Site Proposals

2.4 The proposals are for the relocation and replacement of existing playing fields and erection of pavilion annex; construction of up to 1000 new homes (use class C3) to include a mix of market housing, affordable housing, age restricted specialist accommodation for the elderly, and adult disability service units; an 80-bed care home (use class C2); a local centre (use classes E and F); a two-form entry primary school (use class F;) the laying out of green infrastructure including habitat creation, drainage infrastructure; earthworks; pedestrian and cycle routes; and a new means of access onto Harpenden Road and Sandridgebury Lane.

3.0 LEGISLATION AND POLICY

Reptile Legislation

3.1 All widespread reptile species, including slow-worm *Anguis fragilis*, adder *Vipera berus*, common lizard *Zootoca vivipara* and grass snake *Natrix helvetica* are partially protected under Sections 9(1) and 9(5) of Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This legislation protects these animals from:

- intentional killing and injury;
- selling, offering for sale, possessing, or transporting for the purpose of sale or publishing advertisements to buy or sell a protected species.

3.2 The impact that this legislation has on the Planning system is outlined in ODPM 06/2005 Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System, this states:

'The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. Local authorities should consult English Nature [now Natural England] *before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned.'*

3.3 This partial protection does not directly protect the habitat of these reptile species. Where these animals are present on land that is to be affected by development, the implications of legislation are that providing that killing can reasonably be avoided then an operation is legal. Guidance provided by Natural England[1] and the Amphibian and Reptile Groups of the UK[2] recommends that this should be achieved by ensuring that:

- the animals are protected from injury or killing;
- mitigation is provided to maintain the conservation status of the species;
- population monitoring is carried out subsequent to operations.

[1] Reptiles: guidelines for developers, English Nature (2004). http://publications.naturalengland.org.uk/publication/76006?category=31018

[2] Maintaining best practise in reptile mitigation/translocation programmes: Herpetofauna Groups of Britain and Ireland. http://www.arguk.org/index.php?option=com_docman&task=cat_view&gid=13&Itemid=17

4.0 METHODOLOGY

Desk Study

4.1 In order to compile existing baseline information, relevant ecological information was requested from Herts Environmental Records Centre (HERC) on the 30th March 2022.

4.2 Further inspection of colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.

Reptile Survey

4.3 A full suite of survey work was completed on the site between September to October 2018, and subsequently updated in between April – June 2022.

4.4 The survey methodology was based on that detailed in the *Herpetofauna Workers Manual*[3] and *the Froglife Advice Sheet 10 - Reptile Survey*[4]. Methods involved a search for basking reptiles on/under naturally occurring and strategically positioned artificial refugia. The artificial refugia used were 0.5m^2 sections of bitumen roofing felt with a black upper side. These were placed in areas of suitable habitat on 7th April 2022 and allowed to 'bed down' prior to the first survey visit.

4.5 In line with guidance, refugia were installed at a minimum density of five refugia per hectare of suitable habitat (a greater density than this was used to further increase the likelihood of detection).

4.6 Survey visits were undertaken under suitable weather conditions i.e. air temperature between 10-18°C, no strong wind or heavy rain. The surveys also followed the guidelines recommendations by approaching refugia from downwind and avoiding casting a shadow and with care so as to not to harm or disturb basking animals when checking.

4.7 Seven reptile presence/absence surveys have been undertaken in line with current survey methodology. *Figure 1 Reptile Survey Plan* provides the locations of the refugia.

Timings/Conditions

4.8 The following are the weather conditions and timings for reptile surveys in 2018 and 2022, provided in *Table 1 & 2* below. In 2022 some surveys were conducted before 10:30am (AM survey) or after 16:30pm (PM survey), these were to account for the higher temperatures that were occurring during the period suggested within the above guidance documents, ensuring that temperature were never over 18°C.

[3] Herpetofauna Workers Manual, Gent and Gibson (1999). JNCC

[4] Froglife Advice Sheet 10: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation http://www.froglife.org/documents/FroglifeAdviceSheet10.pdf

Table 1: 2018 Reptile Survey Conditions

Survey Occasion	Date	Time	Weather Conditions
1	07.09.18	09:14	13ºC, bright, sunny, 0 – 10% cloud cover, light breeze
2	24.09.18	15:40	14ºC, bright, sunny, 10 – 20% cloud cover, light breeze
3	28.09.18	10:50	13ºC, bright, sunny, 60 – 70% cloud cover, gentle breeze
4	01.10.18	11:50	12ºC, bright, sunny, 20 – 30% cloud cover, gentle breeze
5	08.10.18	10:00	12ºC, bright, sunny, 30 – 40% cloud cover, light breeze
6	16.10.18	16:10	18ºC, bright, sunny, 50 – 60% cloud cover, gentle breeze
7	22.10.18	10:40	9.5ºC, bright, sunny, 0 – 10% cloud cover, gentle breeze

Table 2: 2022 Reptile Survey Weather Conditions

Survey Occasion	Date	AM or PM survey	Weather conditions
1	25.04.22	PM	30-40% cloud cover, 15°C, 1-2 BF, clear, bright
2	13.05.22	AM	50-60% cloud cover, 16°C, 2-3 BF, clear, bright sunny
3	16.05.22	AM	60-70% cloud cover, 16°C, 2-3 BF, bright, sunny, rain earlier in the day
4	31.05.22	AM	70-80% cloud cover, 13°C, 1-2 BF, clear, bright, heavy rain earlier in the day
5	09.06.22	PM	50-60% cloud cover, 17°C, 2-3 BF, bright
6	14.06.22	AM	30-40% cloud cover, 16°C, 1-2 BF, bright, sunny, clear
7	22.06.22	AM	0-10% cloud cover, 17°C, 1-2 BF, clear, bright, sunny

Population Assessment

4.9 Reptile populations are assessed in accordance with population level criteria as stated in the Key Reptile Site Register[5]. This system classifies populations of individual reptile species into three population categories assessing the importance of the population (*Table 3*). These categories are based on the total number of adult animals observed during individual survey occasions.

Table 3: Key Reptile Site Survey Assessment Categories (HGBI 1998)

Species	Low Population (No. of individuals)	Good Population (No. of individuals)	Exceptional Population (No. of individuals)
Adder	<5	5 - 10	>10
Common lizard	<5	5 - 20	>20
Grass snake	<5	5 - 10	>10
Slow worm	<5	5 - 20	>20

[5] HGBI (1998) Evaluating local mitigation/translocation programmes: Maintaining Best Practices and lawful standards. HGBI advisory notes for Amphibian and Reptile Groups (ARGs). Herpetofauna Groups of Britain and Ireland, c/o Froglife, Halesworth.

Limitations/notes

4.10 Surveys in 2018 were restricted to September and October owing to the period of being commissioned, although these periods are within the recommended period for reptile survey in south England, some temperature conditions were not optimal.

4.11 In 2022 the majority of the surveys were undertaken within the peak survey period May with some undertaken in April and June when the temperatures allowed. However, this is still considered to be an appropriate time for reptile surveys so is not a significant constraint.

5.0 RESULTS

Desk Study

5.1 HERC returned seven records of common lizards from 2018 and 2022 all located in Heartwood Forest, approximately 1.4 km to the east of the Application Site.

Habitats

5.2 The habitats within the Application Site consisted predominantly of arable fields with semi-improved grassland margins. Areas of unmanaged semi-improved grassland were also present which provide some suitable basking and foraging habitat for reptiles. The hedgerows and woodland edge also provide commuting opportunities for reptiles. An area of amenity grassland utilised as a rugby pitch was subject to intensive management and so provided little value to reptiles.

Reptile Survey (*Figure 1*)

Historic Surveys

5.3 During the 2018 surveys a single adult common lizard was recorded on 7th September 2018, along the field margin in the north-western corner of field F3, near to the offsite railway embankment.

Update Surveys 2022

5.4 A single common lizard was recorded on one occasion in the same rough location as that above, which can be seen in *Figure 1.*

6.0 DISCUSSION

6.1 The habitats within the Site boundary were generally considered to be sub-optimal for reptiles due to the highly managed nature of the habitats, particularly the the margins between arable plots which were regularly mown and treated with herbicide.

6.1 The number of common lizards observed has been assessed in accordance with population level criteria as stated in the Key Reptile Site Register, where the site supports a 'Low' population falling within the <5 adult individuals' level.

6.2 Reptiles will therefore be incorporated into the proposals, by retaining and enhancing habitats where the reptiles were observed and creating specific reptile habitats that are linked to the surroundings. Such areas include the retained treelines and margins and created open space grassland and the attenuation.

6.3 Prior to implementation of mitigation, there is potential for an adverse impact on reptile populations caused by (in the event that their presence is confirmed on-site):

- loss of habitat through vegetation clearance; and
- incidental harm during earthworks/site clearance.

6.4 Mitigation measures would aim to ensure that reptiles are not killed or injured during works and that their local conservation status is maintained. This will include passively moving reptiles into retained areas by removing vegetation in stages during the active period (March – September inclusive) to allow reptiles to disperse of their own autonomy.

7.0 METHOD STATEMENT

7.1 The following method statement and mitigation strategy will focus on the following aspects:

- Minimising risk to reptiles from the habitat clearance,
- Preventing reptiles entering affected areas during ongoing works, and
- Providing suitable replacement for reptile habitat as part of the operations as well as establishing habitats suitable for these species in the long-term.

7.2 Provided the below measures are adhered to it is considered that there will be no impact to the conservation status of reptiles on site, with the redevelopment providing habitats of benefit.

Good Practice Working Methods

7.3 The working area will be subject of a thorough passive displacement exercise which will focus on manipulation of affected habitats to reduce their suitability without harming the animals themselves.

7.4 The passive displacement/good practice clearance exercise will comprise the following:

a) A toolbox talk and information sheets (including identification documents) will be provided to the contractors to make them aware of the potential ecological issues;

b) Hand search of suitable affected vegetation where deemed appropriate (such as marginal tussocky habitats such as grassland, ruderal/hedges/scrub/woodpiles) by an ecologist on day each area is affected by works.

c) Strimming of the grassland down to 30cm/300mm under supervision from the on-site ecologist.

d) The strimmed area will be left for at least 2.5 hours and the cut areas will then be hand searched again by the on-site ecologist.

e) Following the second-hand search, the contractors will then carefully strim the vegetation down to ground level.

f) Piles of compacted rubble/earth and log piles will be searched under supervision from the on-site ecologist as carefully as possible.

g) In the event that reptiles are recorded in the working areas they will be moved a short distance to retained suitable habitat (such as the scrub in retained areas).

h) The main works (main clearance and site preparation for contractors) will then be undertaken the following day. Given that habitat of value for reptiles will have been removed by this point, this aspect of work will not require supervision. During this period, any vegetation in the working area should be kept to a low level (not above 10cm/100mm). This should prevent reptiles entering the working areas during operations.

i) Contact details will be left with on-site staff so in the unlikely event any animals are recorded during the subsequent unsupervised works, further advice can be sought.

j) In terms of timings, it is considered that vegetation removal should be undertaken outside of the main hibernation period (mid-October to mid-March) when temperatures are above 5°C overnight/9°C ambient daytime.

Enhancement

7.5 The Site will be enhanced for reptiles through provision of suitable habitats within the GI. These new habitats will provide links across the Site and into the wider area.

7.6 Enhancements which would benefit reptiles, amphibians and invertebrates in general include:

- The creation and maintenance of strips of informal tussock forming grassland, which will enhance commuting and foraging opportunities for reptiles.
- Linear features such as hedgerow and tree/shrub planting around the boundaries of the development providing cover for commuting around the site into surrounding areas;
- Long-term management to ensure the site continues to provide suitable habitat;
- A hibernacula at least 1m x 2m in size, created within the retained green infrastructure in the north-west corner of the Site. This feature will have a rubble/brick base with mounded earth and will be allowed to colonise naturally with vegetation;
- Two log pile style refugia at least 1m x 1m in size, situated in strategic locations. These features can be created using material removed during site clearance;
- The attenuation feature proposed will be designed to hold water year-round and should be planted with a diverse range of native species.

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Key

Red Line Boundary

Reptile Artificial Survey Refugia

Reptile Survey Results

2018 Survey - Common Lizard

2022 Survey - Common Lizard

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Appendix 6.7: Wintering bird survey report

Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

Woollam Park

APPENDIX 6.7 - WINTER BIRD SURVEY REPORT

October 2024

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Table 4: Protected/Notable Wintering Species in 2022-23 and Their Recent Status in Hertfordshire

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Figure 1: Wintering Bird Survey Results: Distribution of Notable Species (Application Site)

Figure 2: Wintering Bird Survey Results: Distribution of Notable Species (Farmland Bird Mitigation Area)

APPENDICES

Appendix A: Application Site Wintering Bird Survey Results 2022-23

Appendix B: Farmland Bird Mitigation Area Wintering Bird Survey Results 2022-23

1.0 NON-TECHNICAL SUMMARY

1.1 FPCR were commissioned by Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust to conduct wintering bird surveys at a proposed development site at Woollam Park. Proposals for the Application Site include up to 1000 homes, a primary school, a local centre, open space and drainage infrastructure.

1.2 A total of 36 bird species were recorded during wintering bird surveys within the Application Site, of which 18 were considered 'notable' species and six two were observed overflying the Application Site only.

1.3 A total of 32 species were recorded within the Farmland Bird Mitigation Area, of which 18 were considered notable species and four were observed overflying the site only.

1.4 The wintering bird assemblages making use of the Application Site are typical of the habitats present, comprising typically common and widespread generalists with only small numbers of a few more specialised species such as woodcock and skylark. All the wintering bird assemblages present within the Application Site are considered of no more than **Site** level importance.

1.5 Development of the Application Site will inevitably result in the total loss of arable land suitable for wintering skylark. Retention of the boundary features and the provision of green infrastructure will ensure that the impact of habitat loss upon the remaining bird species recorded will be beneficial or of negligible significance.

1.6 Mitigation measures are recommended to minimise disturbance impacts to birds which includes the avoidance of vegetation clearance during the bird nesting season (March – August, inclusive). Where this cannot be avoided, an ecologist should make a check of any suitable breeding habitat prior to its clearance in the nesting season, with suitable stand-offs (as determined by the ecologist) retained around any active nests until dependant young have fledged. No significant adverse effects over and above those already arising from habitat loss are anticipated for wintering birds.

1.7 A range of enhancement opportunities have been suggested based on the habitats and bird species recorded in order to achieve biodiversity gains. These include sensitive planting schemes and management prescriptions for green infrastructure to maximise the availability of foraging resources and roosting sites of value to the species present.

2.0 INTRODUCTION

2.1 The following report has been prepared by FPCR Environment & Design Ltd. on behalf of Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust and details the results of a suite of wintering bird surveys carried out on at Woollam Park, Hertfordshire (central OS Grid Reference TL154098) here after referred to as the 'Application Site'. This report should be read in conjunction with the Ecological Impact Assessment for the site.

2.2 The proposals are for a residential development of up to 1000 new homes, a primary school and associated infrastructure. The green infrastructure will include the retained woodland and hedgerows along with new habitat creation.

2.3 A suite of ecological surveys have been undertaken on the application site and this report should be read in conjunction with the Environmental Statement (ES, FPCR, 2024).

Site Location and Context

2.4 The Application Site development boundary was c.50ha in size and consisted of five field compartments. These comprised four fields under agricultural cultivation and one field comprised amenity grassland currently utilised as a rugby pitch. The arable field compartments support a mixture of cereal and non-cereal crops, with narrow field margins and bound by native hedgerows supporting occasional mature trees. Along the northern boundary there is mixed woodland and immature broadleaved woodland plantation, while along the southern boundary of the application site is Long Spring Wood Local Wildlife Site (LWS), an ancient woodland compartment. The western boundary is bordered by the A1081 Harpenden Road, Sandridgebury Lane bisects the arable field compartments, and a railway line borders the eastern boundary.

2.5 The Farmland Bird Mitigation Area covers approximately 34ha split across two arable fields in a cereal crop rotation akin to that within the Application Site. The Farmland Bird Mitigation Area is approximately 400m north of the Application Site and connected to it via an established hedgerow network.

2.6 The Application Site is situated on the northern periphery of the city of St Albans, Hertfordshire. The area directly north of the application site was part of OA Sports Club, beyond this to the north and east of the site comprised arable land. To the south of the site a number of residential dwellings with associated gardens were situated, along with some commercial units and St Albans Girl's School.

Site Proposals

2.7 The proposals comprise relocation and replacement of existing playing fields and erection of pavilion annex; construction of up to 1000 new homes (use class C3) to include a mix of market housing, affordable housing, age restricted specialist accommodation for the elderly, and adult disability service units; an 80-bed care home (use class C2); a local centre (use classes E and F); a two-form entry primary school (use class F;) the laying out of green infrastructure including habitat creation, drainage infrastructure; earthworks; pedestrian and cycle routes; and a new means of access onto Harpenden Road and Sandridgebury Lane.

2.8 The Farmland Bird Mitigation Area is to remain in the current agricultural rotation and proposals are for the implementation of AB4: Skylark Plots to provide local mitigation to address the loss of farmland birds from the Application Site.

Study Objectives

2.9 The Wintering Bird Surveys were carried out between 22/11/22 and 13/02/23. The objectives of the study were to:

- To identify the presence of any designated nature conservation sites that support notable breeding bird assemblages within or in the vicinity of the Application Site
- To identify the presence of any notable species/populations of wintering birds within or in the vicinity of the Application Site;
- Identify the presence, species and distribution of wintering birds on the Application Site and Farmland Bird Mitigation Area;
- Evaluate the conservation value of habitats on site to local bird populations and identify any areas of ornithological interest and;
- Make recommendations to minimize the potential impact of development and where feasible to consider opportunities for additional mitigation, compensation and enhancement where relevant.

3.0 LEGISLATION & STATUS

Legislation

3.1 Annex 1 of the EC Birds Directive lists rare and vulnerable species of regularly occurring or migratory wild birds that are subject to special conservation measures. The Directive also provides for the designation of Special protection Areas (SPA) for the protection of these species which form part of the Natura 2000 networks of sites protected by European Wildlife Legislation.

3.2 The Wildlife and Countryside Act 1981 (as amended) is the principal legislation affording protection to UK wild birds. Under this legislation all birds, their nests and eggs are protected by law and it is an offence, with certain exceptions to:

- Kill, injure or take any wild bird intentionally;
- Take, damage or destroy the nest of any wild bird while in use or being built;
- Take or destroy the egg of any wild bird.

3.3 Additional protection is afforded to species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), whereby intentional disturbance whilst building or occupying a nest or disturbance of dependent young is considered an offence.

3.4 The Natural Environment and Rural Communities (NERC) Act 2006 strengthens the WCA further with respect to the protection of the nests of certain birds listed on Schedule 1, even when they are not in use. The NERC Act also offers additional protection to birds released into the wild as part of a repopulation programme.

3.5 Certain species have also been identified as species of principal importance under Section 41 of the NERC Act 2006 (NERC S.41). The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Status

3.6 In addition to statutory protection, some bird species are classified according to their conservation status, such as their inclusion on the Red and Amber lists of Birds of Conservation Concern (BoCC) in the UK[1]:

- Red list (high conservation concern) species are those that are globally threatened according to IUCN criteria; those whose population has declined rapidly (50% or more) in recent years; and those that have declined historically and not shown a substantial recent recovery.
- Amber list (medium conservation concern) species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately (between 25% and 49%) in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations.
- Green list (low conservation concern) species fulfil none of the above criteria.

4.0 METHODOLOGY

Desk Study

4.1 In order to compile existing baseline information, a desktop survey was undertaken for existing ecological data regarding statutorily and non-statutorily habitats/sites of interest to nature conservation and protected bird species. The following organisations were contacted:

- Multi Agency Geographic Information for the Countryside (MAGIC) website
- Hertfordshire Environmental Records Centre (HERC)

4.2 Further inspection of colour 1:25000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) were also undertaken to provide additional landscape context and identify any features of potential importance for nature conservation in the wider countryside.

4.3 The search area for biodiversity information was related to the significance of designated sites and protected species and associated potential zones of influence. For local bird records (e.g., protected, or otherwise notable species) a 1km search area was adopted.

4.4 Datasets were restricted to the last ten years to ensure that recent and more relevant records of protected/notable species were considered. However, where protected/notable species have been documented over ten years ago and there are no recent accounts, these have been included.

Field Survey

4.5 Wintering bird surveys were undertaken to determine the nature of the wintering assemblage occurring within the Application Site and the Farmland Bird Mitigation Area. Four survey visits were conducted between November 2022 and February 2023, during which few notable species were recorded on site.

[1] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747

4.6 These surveys were conducted to ascertain the potential of the Application Site to support overwintering bird species, assessed to be of some conservation importance for their inclusion on the WCA Schedule 1, NERC S41 and/or BoCC Red or Amber lists. These species are considered likely to be at greatest threat in relation to further decline and are commonly referred to as 'notable' species.

4.7 The survey methodology employed was broadly based on that of territory mapping, as developed by the British Trust for Ornithology (BTO)[2]. All birds encountered (both seen or heard) were recorded on a field survey plan using standard BTO species codes and symbols to denote bird sex, age, and behaviour, wherever appropriate.

4.8 The Application Site and Farmland Bird Mitigation Area were concurrently walked over for one day per occasion by experienced ecologists, between sunrise and 16:00. Routes were mapped out prior to the survey being undertaken, with particular attention paid to linear features, such as hedgerows and tree lines, as well as other natural features, such as areas of scrub or waterbodies.

4.9 The surveys were not undertaken in unfavourable conditions such as heavy rain or strong wind, which may negatively affect the results. Table 1 provides details of the survey dates and weather conditions.

Table 1: Survey Dates & Conditions

Date	Cloud Cover (%)	Rain	Wind	Visibility
22nd November 2022	50	None	Light Breeze	Very Good
16th December 2022	0	None	Light Breeze	Very Good
18th January 2023	10	None	Light Breeze	Very Good
13th February 2023	0	None	Light Breeze	Very Good

Species & Assemblage Assessment

4.10 The Chartered Institute of Ecology and Environmental Management (CIEEM) guidance on ecological impact assessment assesses nature conservation importance within a geographical context[3]. To attain each level of importance, an ornithological resource or one of the features (species population or assemblage of species) should meet the criteria set out in *Table 2*. In some cases, professional judgment may be required to increase or decrease the allocation of importance, based upon local knowledge.

4.11 The recent county annual bird report the *Hertfordshire Bird Report 2020*[5] was consulted to inform the assessment. The abundance of species referred to by these reports is classified by the following criteria:

- Very rare – Fewer than ten records in the last 50 years;
- Rare – Between 11 and 50 records in the last 50 years, but less than annual;
- Scarce – One or two records annually, or restricted to specific habitats with 51 to 100 records in the last 50 years;
- Occasional/Uncommon – Occurs annually in small numbers;

[6] Bibby, C.J., N.D. Burgess & D.A. Hill, (2000). *Bird Census Techniques*: 2nd Edition. London: Academic Press
[3] http://www.cieem.net/data/files/Publications/EcIA_Guidelines_Terrestrial_Freshwater_and_Coastal_Jan_2016.pdf
[5]Hertfordshire Ornithological Society 2021. *The Hertfordshire Bird Report 2020.*

- Frequent – Often occurs in small numbers in suitable habitat;
- Common – Occurs regularly and widely distributed in suitable habitat in moderate numbers;
- Abundant – Occurs in considerable numbers in suitable habitat and season.

Table 2: Evaluation Criteria

Nature Conservation Value	Examples of Selection Criteria
International	A species which is part of the cited interest of an SPA and which regularly occurs in internationally or nationally important numbers. A species present in internationally important numbers (>1% of international population).
National	A species which is part of the cited interest of a SSSI and which regularly occurs in nationally or regionally important numbers. A nationally important assemblage of breeding or over-wintering species. A species present in nationally important numbers (>1% UK population). Rare breeding species (<300 breeding pairs in the UK).
Regional	Species listed as being of principal importance under NERC S.41 which are not covered above, and which regularly occurs in regionally important numbers. Species present in regionally important numbers (>1% of regional population). Sustainable populations of species that are rare or scarce within a region. Species on the BoCC Red List & which regularly occur in regionally important numbers.
County	Species listed as being of principal importance under NERC S.41 which are not covered above and which regularly occurs in county important numbers Species present in county important numbers (>1% of county population). Sustainable populations of species that are rare or scarce within a county, or are listed as being of principle importance under S41 of the NERC Act. A site designated for its county important assemblage of birds (e.g. a SINC Site). Species on the BoCC Red List & which regularly occur in county important numbers.
Local	Other species of conservation interest (e.g. all other species on the BoCC Red and Amber List or species listed as being of principal importance under NERC S.41 which are not covered above) regularly occurring in locally sustainable populations. Sustainable populations of species which are rare or scarce within the locality.
Site	Species that are common and widespread

5.0 RESULTS AND EVALUATION

Desktop Study

Designated Sites

6.1 No statutory sites of international importance, including Special Protection Areas, and Ramsar wetlands, designated for supporting notable bird populations or species assemblages lie within 15km of the Application Site boundary.

6.2 No statutory sites of national importance, including Sites of Special Scientific Interest (SSSI), designated for supporting notable bird populations or species assemblages lie within 2km of the Application Site boundary.

Notable Bird Records

6.3 There were a large number of bird species records returned from HERC within 1km of the Application Site boundary (see table 3). The vast majority of these records were from Langley Wood Local Wildlife Site and ancient woodland located 860m north-east of the Application Site. The species records returned are typical of the farmland and woodland habitats surrounding the Application Site.

Table 3: Records of notable/protected species within 1km of the Application Site

Species	Dates	Relevant Legislation	Approximate Location Relative to Site
Bar-tailed Godwit *Limosa lapponica*	2018	BoCC Amb	One record, located within the site boundary
Common Reed bunting *Emberiza schoeniclus*	2018	BoCC Amb, NERC41	One record, located 930 m NE
Cuckoo *Cuculus canorus*	2017	BoCC Red, NERC41	One record, 850 m NE
Eurasian Skylark *Alauda arvensis*	2016 – 2017	BoCC Red, NERC41	Two record, closest 860 m NE
Fieldfare *Turdus pilaris*	2016 - 2018	BoCC Amb	Six records, closest 600 m E
Grasshopper Warbler *Locustella naevia*	2016	BoCC Red, NERC41	One record, 710 m NE
Great Black-backed Gull *Larus marinus*	2018	BoCC Amb	One record, 900 m W
Grey partridge *Perdix perdix*	2012 - 2016	BoCC Red, NERC41	Two records, closest located 860 m NE
Grey Plover *Pluvialis squatarola*	2015	BoCC Amb	One record, 860 m NE
Grey Wagtail *Motacilla cinerea*	2014	BoCC Red	One record, 860 m NE
Hawfinch *Coccothraustes coccothraustes*	2018	BoCC Red, NERC41	Two records, closest located 860 m NE

Species	Dates	Relevant Legislation	Approximate Location Relative to Site
Hen Harrier *Circus cyaneus*	2016	BoCC Red WCA1	One record, 860 m NE
Kestrel *Falco tinnunculus*	2018	BoCC Amb	One record, 860 m NE
Lesser redpoll *Acanthis cabaret*	2011 – 2018	BoCC Red, NERC41	Three records, closest 690 m SE
Lesser Spotted Woodpecker *Dryobates minor*	2018	BoCC Red	One record, 870 m N
Linnet *Linaria cannabina*	2014 – 2018	BoCC Red	Two records, closest 710 m E
Meadow pipit *Anthus pratensis*	2015	BoCC Amb	One, record, 860 m NE
Mistle Thrush *Turdus viscivorus*	2012	BoCC Red	One, record 880 m W
Quail *Coturnix coturnix*	2013	BoCC Amb	One, record 860 m W
Redwing *Turdus illiacus*	2016 - 2018	BoCC Amb	Five records, closest 660 m E
Short-eared Owl *Asio flammeus*	2016	BoCC Amb	One record, 860 m NE
Spotted flycatcher *Muscicapa striata*	2018	BoCC Red, NERC41	One record, 850 m NE
Stock Dove *Columba oenas*	2014	BoCC Amb	One record 880 m W
Swift *Apus apus*	2011	BoCC Amb	One record, 820 m SE
Tawny Owl *Strix aluco*	2017	BoCC Amb	One record, 860 m NE
Western Barn Owl *Tyto alba*	2015	WCA1	One record, 860 m NE
Western Osprey *Pandion haliaetus*	2015	WCA1	One record, 860 m NE
Western Yellow Wagtail *Motacilla flava*	2011	BoCC Red	One record, 880 m E
Wheatear *Oenanthe oenanthe*	2016 – 2018	Bocc Amb	Two records, closest 690 m NE
Whinchat *Saxicola rubetra*	2014	BoCC Red	One record, 860 m NE
Willow warbler *Phylloscopus trochilus*	2011 – 2018	BoCC Amb	Two records, closest 830 m NE
Yellowhammer *Emberiza citrinella*	2018	BoCC Red, NERC41	Two records, closest 860 m NE

Species	Dates	Relevant Legislation	Approximate Location Relative to Site
Key: NERC41 – Section 41 of the Natural Environment and Rural Communities Act 2006; WCA1 – species listed on Schedule 1 of the Wildlife and Countryside Act 1981; BoCC5:Red/ BoCC5:Amber – Species of High or Medium Conservation Concern respectively.			

Field Survey

Summary

6.4 A total of 36 bird species were recorded within the survey area (for full list see Appendix A). Of these, six species were recorded overflying the Site only and therefore not considered to be impacted by any proposed development as they do not interact with the habitats present.

6.5 Eighteen of the species recorded appear on one or more of the following and are hereinafter referred to as 'notable' species.

- Schedule 1 of the Wildlife & Countryside Act 1981 (as amended)
- BoCC Red or Amber lists
- Section 41 of the NERC Act 2006

6.6 A total of 31 species were recorded within the Farmland Bird Mitigation Area (for full list see Appendix B), of which two were recorded overflying the site only and are not considered further, and 18 were notable species.

6.7 Table 3 provides a summary of the notable bird species whilst Figures 1 & 2 show the locations where they were recorded.

Table 3: Protected, Species of Principal Importance and BoCC Red and Amber Listed Bird Species Recorded during Wintering Bird Surveys 2022/23, and their Recent Status within Hertfordshire

Species	Legal/ Conservation status	Application Site - Peak Count / Number of Survey Occasions Recorded	Farmland Bird Mitigation Area - Peak Count / Number of Survey Occasions Recorded	Recent Status in Hertfordshire
Woodpigeon *Columba palumbus*	Amber list	27 / 4	78 / 4	Abundant and widespread resident.
Lapwing *Vanellus vanellus*	Red list NERC S.41	NA	(6 flyovers) / 1	Once frequent but now tending to scarce breeding species, common passage migrant and winter visitor.
Woodcock *Scolopax rusticola*	Red list	1 / 1	NA	Resident and seriously declining breeding species and regular winter visitor from the continent.

Species	Legal/ Conservation status	Application Site - Peak Count / Number of Survey Occasions Recorded	Farmland Bird Mitigation Area - Peak Count / Number of Survey Occasions Recorded	Recent Status in Hertfordshire
Black-headed gull *Chroicocephalus ridibundus*	Amber list	(5 flyovers) / 3	2 (+ 6 flyovers) / 3	Abundant all year.
Herring Gull *Larus argentatus*	Red list NERC S.41	(1 flyover) / 3	(3 flyovers) / 1	Common passage migrant and winter visitor, a few birds now breed.
Lesser Black-backed Gull *Larus argentatus*	Amber list	(6 flyovers) / 1	NA	Common winter visitor and passage migrant, breeding since 2009.
Sparrowhawk *Accipiter nisus*	Amber list	(1 flyover) / 1	NA	A common and widespread breeding resident.
Red kite *Milvus milvus*	Green list WCA Sch.1	1 / 2	1 / 2	An increasing resident and breeding species.
Kestrel *Falco tinnunculus*	Amber list	1 / 1	1 / 1	Common widely distributed breeding species.
Rook *Corvus frugilegus*	Amber list	NA	3 / 3	Common and widespread resident.
Skylark *Alauda arvensis*	Red list NERC S.41	21 / 4	20/ 3	Common resident which has recently declined.
Wren *Trogolodytes trogolodytes*	Amber list	8 / 3	2 / 4	Abundant resident and winter visitor.
Starling *Sturnus vulgaris*	Red list NERC S.41	11 / 3	NA	Abundant but declining resident and winter visitor.
Song thrush *Turdus philomelos*	Amber list NERC S.41	11 / 2	2 / 2	Common but declining resident.
Mistle thrush *Turdus viscivorus*	Red list	1 / 1	NA	Common resident.
Redwing *Turdus iliacus*	Amber List WCA Sch.1	19 / 4	8 (+ 1 flyover) / 3	Common autumn and winter visitor.
Fieldfare *Turdus piliaris*	Red List WCA Sch.1	25 / 3	4 / 3	Common autumn and winter visitor.
Dunnock *Prunella modularis*	Amber list NERC S.41	5 / 3	3 / 3	Abundant resident and autumn visitor.
Bullfinch *Pyrrhula pyrrhula*	Amber list NERC S.41	2 / 1	NA	Common and widespread but declining resident.
Meadow pipit *Anthus pratensis*	Amber list	NA	2 (+1 flyover) / 1	Scarce breeding species, and common passage migrant and winter visitor.

Species	Legal/ Conservation status	Application Site - Peak Count / Number of Survey Occasions Recorded	Farmland Bird Mitigation Area - Peak Count / Number of Survey Occasions Recorded	Recent Status in Hertfordshire
Greenfinch *Chloris chloris*	Red list	7 / 3	1 / 1	Common and widespread, but declining, resident and passage migrant.
Yellowhammer *Emberiza citrinella*	Red list	NA	1 / 1	Common and widespread but declining resident.

Bird Survey Results Description – Application Site

6.8 The majority of bird species recorded were typical of the range of habitats that dominate the site, including arable fields, woodland and grassland. The internal parts of the arable fields provided foraging opportunities for a variety of species including skylark *Alauda arvensis*, redwing *Turdus iliacus*, song thrush *Turdus philomelos* and woodpigeon *Columba palumbus*. Small groups of thrushes were recorded on every survey occasion, either within the arable fields or the hedgerow and woodland habitat.

6.9 Hedgerows and woodland habitats across the site provided habitat and foraging opportunities for a number of common and widespread, generalist and woodland species including great spotted woodpecker *Dendrocopos major*, wren *Troglodytes troglodytes,* blackbird *Turdus merula,* robin *Erithacus rubecula* and common tit and finch species recorded. Notable species, including bullfinch *Pyrrhula pyrrhula,* song thrush, greenfinch *Chloris chloris* and dunnock *Prunella modularis* were all recorded using onsite hedgerows/woodland features.

6.10 Other species recorded using habitats within the Application Site included, Buzzard *Buteo buteo*, kestrel *Falco tinnunculus*, sparrowhawk *Accipiter nisus* and red kite *Milvus milvus*, which were likely to be using the habitats to forage. Also recorded was a single woodcock *Scolopax rusticola* on the edge of the rugby pitch to the west of the Application Site.

Some species were recorded flying over the Application Site only, including black-headed gull *Chroicocephalus ridibundus*, grey heron *Ardea cinerea* and ring-necked parakeet *Psittacula krameri*.

Bird Survey Results Description – Farmland Bird Mitigation Area

6.11 Again, the bird species recorded were typical of the dominant habitat types, the majority of which is arable land and hedgerows. As with the Application Site, the internal parts of the arable fields provided foraging opportunities for skylark, meadow pipit *Anthus pratensis* and woodpigeon. The field boundaries and hedgerows also provided foraging habitat for a number of species including yellowhammer *Emberiza citrinella*, greenfinch, song thrush and dunnock.

6.12 Other species recorded within the boundaries of the Farmland Bird Mitigation Area were red kite, buzzard, kestrel and pied wagtail *Motacilla alba*.

6.13 A number of species recorded during the winter bird surveys were only recorded flying over the Farmland Bird Mitigation Area and were not recorded utilising the habitats within the boundary. These species included lapwing *Vanellus vanellus* and herring gull *Larus argentatus*.

Evaluation

Bird Assemblage

6.14 A single farmland bird species, skylark, was recorded using the arable habitats and their associated field margins. Numbers were largely consistent across all four survey occasions with a peak of 21 individuals recorded in December 2022. Other species recorded from these habitats were generalists found ubiquitously throughout the region namely winter thrushes song thrush *Turdus philomelos*, redwing *Turdus iliacus*, and fieldfare *Turdus piliaris* in addition to greenfinch *Chloris chloris* and other abundant and expected opportunistic foragers such as common finches. No other farmland specialist species were recorded. As a result, the Application Site was considered to be of no more than **Site** level importance for this wintering farmland bird assemblage.

6.15 A single woodcock *Scolopax rusticola*, a species typically associated with woodland, dense scrub, and often feeds on inundated or otherwise waterlogged ground was recorded on one survey occasion from the area currently used as sports pitches. The only other species recorded from this habitat were small numbers of woodpigeon *Columba palumbus* and fieldfare. There are extensive areas of more optimal habitat for woodcock within Langley Wood to the northeast and extensive similar grazing pastures to the east of the Application Site. Given the paucity of the recorded assemblage the wintering bird assemblage associated with this habitat is considered of **Site** importance only.

6.16 Hedgerows and woodland features on/or adjacent to the site provided suitable foraging habitat for a limited assemblage of common and widespread generalist species throughout the year. The assemblage recorded was considered typical of the habitats present, which are a common feature of the surrounding landscape. While the assemblage included a few notable species such as wren *Troglodytes troglodytes* and dunnock *Prunella modularis*, these species are all Fairly Common to Abundant in Hertfordshire and the numbers recorded were all considered typical of the habitats present. The Application Site was therefore considered to be of no more than **Site** level importance for the generalist assemblage recorded.

6.17 The wintering bird assemblages within the Farmland Bird Mitigation Area were broadly consistent with those found within the Application Site being typical of arable farmland and associated hedgerow features in the region. This predominantly consisted of skylark in the arable areas with small numbers of woodpigeon, black-headed gull *Chroicocephalus ridibundus*, rook *Corvus frugilegus*, and meadow pipit *Anthus pratensis*. The southwestern most compartment also supported foraging red kite and kestrel *Falco tinnunculus*. Boundary hedgerows supported a wintering assemblage equivalent to that from the same habitat on the Application Site comprising winter thrushes and finches including some notable species.

Individual Species

6.18 Table 4 provides summarises those birds species recorded from the Application Site that are of at least **Local** importance.

6.19 The majority of the other wintering bird species were either recorded in smaller numbers, were recorded flying over the Application Site, and/or are considered common and widespread wintering species. These individual species that make use of the available habitats are recognised as being of only **Site** importance.

Table 4: Birds of at least Local Importance

Name		Status		Nature Conservation Value
		WCA Sch.1	NERC S.41	
BoCC Red List				
Woodcock	*Scolopax rusticola*			Local
Skylark	*Alauda arvensis*		+	Local
Fieldfare	*Turdus pilaris*	+		Local
Greenfinch	*Chloris chloris*			Local
BoCC Amber List				
Wren	*Troglodytes troglodytes*			Local
Redwing	*Turdus iliacus*	+		Local
Song Thrush	*Turdus philomelos*		+	Local
Bullfinch	*Pyrrhula pyrrhula*		+	Local

DISCUSSION AND RECOMMENDATIONS

7.1 The following section provides an assessment of the potential impacts of the proposals upon wintering birds. Where appropriate, recommendations are provided for mitigation and enhancement that take account of the likely ecological effects. Throughout the evaluation, any recommendations for mitigation have been informed by the most up-to-date Development Framework Plan.

7.2 The proposed residential development will comprise approximately 24ha of green infrastructure comprised of habitat creation, including species-rich meadow grassland, mixed scrub and woodland habitats.

7.3 The recommendations below have been given with the aim of informing development proposals on how to best maintain the conservation status of bird species present.

Impact Assessment of Wintering Birds

7.4 The potential impact of the loss or change of habitat upon wintering bird species arising from the effects of development is based upon an understanding of each species' ecological requirements, the type of development, number of birds recorded on site, their nature conservation criteria based on legislation and current guidance, their county status according to *The Hertfordshire Bird Report 2020* and professional judgement.

7.5 The following potential impacts to the recorded bird populations and assemblage may result from the proposals:

- Direct loss/change of wintering habitat
- Disturbance during construction and/or operation

Habitat Loss

7.6 The proposals will lead to a total loss of arable habitats across the Application Site. The majority of hedgerows and woodland habitats are to be retained, including Long Spring Wood and the northern woodland belt. Only a small amount of hedgerow will be lost to allow for pedestrian links

to the east and west. The proposed green infrastructure includes the species-rich meadow grassland, mixed scrub and woodland habitats, connecting the Long Spring Wood LWS to woodland compartments on the northern boundary, and further to the Heartwood Forest complex in the north.

7.7 The individual species recorded on site that are arguably the most vulnerable to impacts from habitat loss/change are the eight species that are considered to be of at least **Local** importance. These comprise notable species that are either specially protected, appear on the BoCC Red list and/or are listed as a NERC Priority Species and were recorded in at least locally important numbers.

7.8 The total loss of arable habitats will lead to a loss of skylark as a wintering species on site which would result in a **Minor Adverse** impact at the local level in the absence of mitigation. Wintering skylark flocks are transient from season to season based on the crop rotation and the subsequent availability of suitable winter stubble and thus the Application Site will have varying suitability between seasons depending on the previous seasons' cropping regime. The implementation of skylark plots in the Farmland Bird Mitigation Area to the north which is to remain in agricultural use will help to mitigate for this loss of habitat through the insurance of regularly available areas of winter stubble and foraging resources. It is therefore considered that the development in conjunction with the proposed mitigation will have **No Effect** on the wintering populations of skylark locally.

7.9 The loss of these habitats will also reduce the overall availability of foraging resources for species such as redwing and greenfinch along with other thrush and finch species. The implementation of skylark plots will also benefit the entire farmland bird assemblage by improving both breeding and foraging habitat. Within the Application Site, the retention and creation of hedgerows will provide additional opportunities for many of these species that will reduce the overall impact of the loss of arable habitats. It is therefore considered that the development of the site will lead to a **Negligible** to **No Effect** on these species at a site scale.

7.10 The retention of most hedgerows, woodland features and the introduction of green infrastructure planting will continue to provide suitable foraging habitats for the generalist species recorded. This will include song thrush, bullfinch, dunnock, and wren which will all readily habituate to human disturbance. The losses to such habitats are considered insignificant given the total area present within the Site and ample such habitat will be present on the Application Site post-development to support the overwintering populations of these species such that any affects from these losses are anticipated to be **Negligible** at site level for the short term. Once established, the mosaic of scrub and woodland blocks situated throughout an area of species diverse grassland interspersed with attenuation basins supporting wetland plant assemblages will provide suitable habitat for the majority of species potentially adversely impacted by the proposed development and provide roosting and foraging habitat of higher quality than offered by the current hedgerows and thus produce a **Minor Beneficial** effect at the site level for these species.

7.11 The inclusion of wetland features, including attenuation basins and wet meadows, that will provide additional foraging opportunities for woodcock and the generalist species recorded while also providing potential habitat for additional species including snipe *Gallinago gallinago* and reed bunting *Emberiza schoeniclus.* A number of notable species are likely to benefit from the proposals, including house sparrow with the inclusion of built environment and wetland features providing potential breeding sites and increased foraging for this urban species. It is therefore considered

that development of the site will result in beneficial or negligible impact to the majority of the generalist bird populations recorded.

Disturbance

Impacts

7.12 Construction operations have the potential to disturb birds using the Application Site for roosting, foraging, and breeding. Operations likely to disturb winter birds include noise from vegetation clearance, initial ground works and some construction activities, such as piling, which are of low frequency but of high amplitude. Active, high level, infrequent disturbance causes most birds to be displaced for short periods[7]. During the breeding season disturbance may lead to nest desertion or the avoidance of the area and reduce the suitability of retained nesting areas, such as the retained hedgerows or woodland edge. Whilst there is some potential for breeding success to be reduced, this is not expected to affect the local conservation status of the majority of the species using the Application Site for breeding.

7.13 The increase in domestic animals during the operational phase, particularly cats, may lead to an effect on small bird populations. Recent research is inconclusive as to the actual effect that domestic cats can have on wild populations. However, although some species may be more susceptible to predation than others, it is considered unlikely that the increased abundance of cats would alter the conservation status of any of the wintering birds assemblages present in this instance, with the magnitude of any such impact reduced by the retention of hedgerows and scrub which will continue to provide cover and screening from potential predators. it is therefore considered that the impact of cats will be of negligible significance.

Mitigation

7.14 To avoid disturbance to breeding birds, ground clearance works and vegetation clearance will be undertaken prior to the bird-breeding season (March to August, inclusive) where possible. If this is not possible, the area will be checked prior to removal of vegetation or ground works by an experienced ecologist. If active nests are found, vegetation will be left untouched and suitably buffered from works until all birds have fledged. Specific advice will be provided prior to undertaking the clearance. This would be a statutory requirement due to the protection of all nesting birds and their nests under the Wildlife and Countryside Act 1981 (as amended). A suitably qualified ecologist would supervise this.

Enhancements

7.15 Additional planting is to be incorporated into the sites green infrastructure and will provide additional foraging and wintering habitat for a range of bird species. Where possible it is recommended that consideration is given to the provision of native, fruit bearing species of local origin to provide an optimal foraging resource for a range of bird species including the thrush species recorded.

7.16 Any 'gapping up' of retained hedgerows, consideration should be given to native and fruit/nut-bearing species, including, but not limited to field maple *Acer campestre*, hawthorn *Crataegus monogyna,* dogwood *Cornus sanguinea,* hazel *Corylus avellana,* honeysuckle *Lonicera periclymenum,* blackthorn *Prunus spinosa,* dog-rose *Rosa canina,* elder *Sambucus* nigra and holly *Ilex aquifolium*.

[7] Hockin, D., Ounsted, M., Gorman, M., Hill, D., Keller, V., and Barker, M. 1992 Examination of the effects of disturbance on birds with reference to the role of environmental impact assessments. Journal of Environmental Management, 36, 253–286

7.17 Where possible, attenuation features will be planted with an appropriate marginal vegetation mix that includes common reed *Phragmites australis*. This will provide good foraging opportunities and nesting for reed bunting.

Appendix A: Woollam Park – 2022/23 Wintering Bird Survey Results

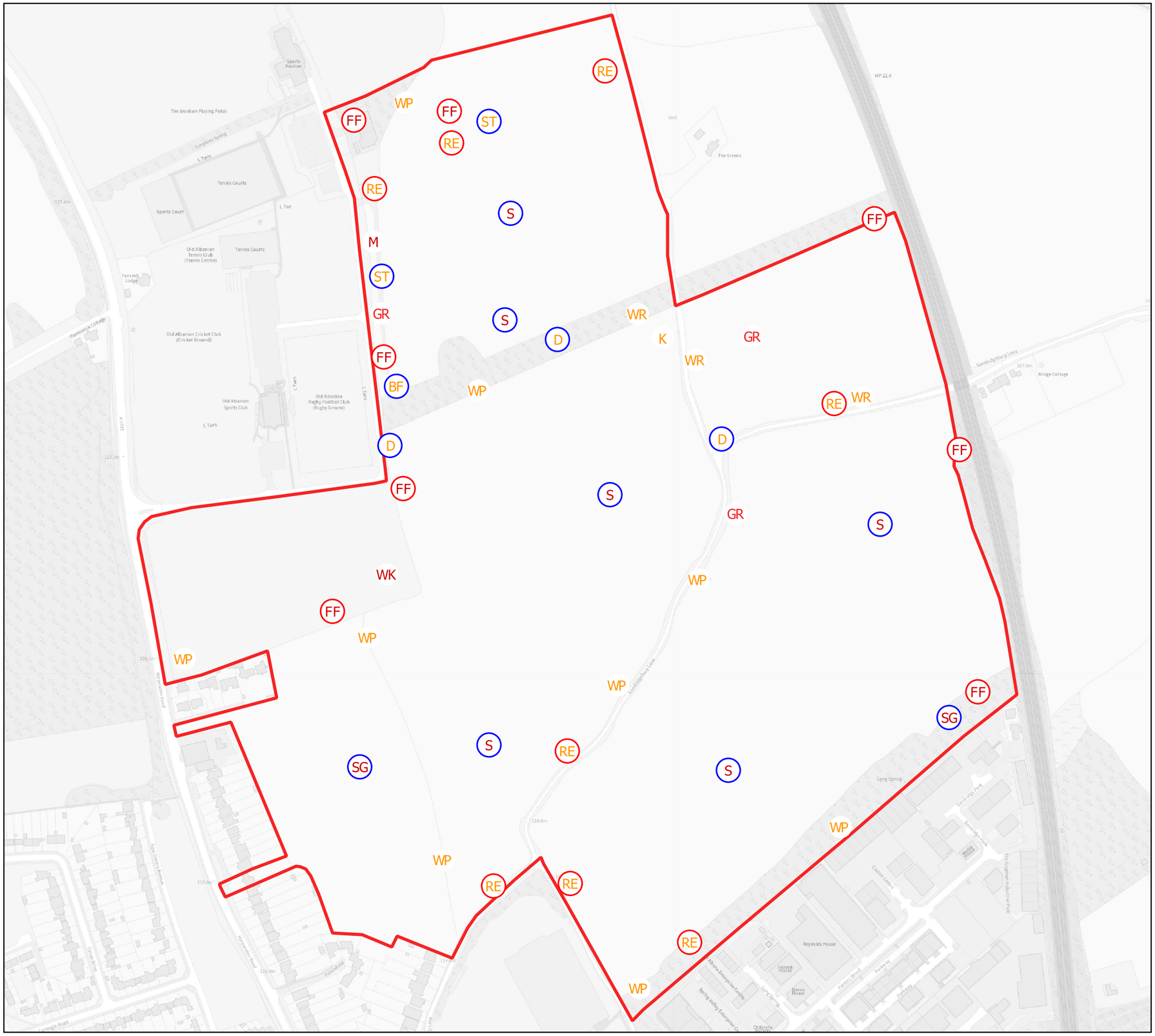
Species: British Common Name	Species: Scientific name	Survey 1	Survey 2	Survey 3	Survey 4	Conservation Status & Protection
Pheasant	*Phasianus colchicus*	-	2	-	4	Not Listed
Ring-necked Parakeet	*Psittacula krameri*	(1 flyover)	-	-	-	Not Listed
Woodpigeon	*Columba palumbus*	7 (+ 10 flyovers)	27 (+ 1 flyover)	4 (+ 7 flyovers)	25 (+ 36 flyovers)	Amber List
Woodcock	*Scolopax rusticola*	1	-	-	-	Red List
Black-headed Gull	*Chroicocephalus ridibundus*	(4 flyovers)	(1 flyover)	-	(5 flyovers)	Amber List
Herring Gull	*Larus argentatus*	-	(1 flyover)	(1 flyover)	(1 flyover)	Red List NERC S.41
Lesser Black-backed Gull	*Larus fuscus*	-	(6 flyovers)	-	-	Amber List
Grey Heron	*Ardea cinerea*	(1 flyover)	-	-	-	Green List
Sparrowhawk	*Accipiter nisus*	-	(1 flyover)	-	-	Amber List
Red kite	*Milvus milvus*	-	-	1	(3 flyovers)	Green List WCA Sch.1
Buzzard	*Buteo buteo*	-	1	2	(1 flyover)	Green List
Kestrel	*Falco tinnunculus*	-	-	1	-	Amber List
Jay	*Garrulus glandarius*	2	-	1	3	Green List
Magpie	*Pica pica*	7	7	7	12	Green List
Jackdaw	*Coleus monedula*	-	(9 flyovers)	1	5	Green List
Carrion Crow	*Corvus corone*	5	4	-	9 (+ 1 flyover)	Green List
Blue Tit	*Cyanistes caeruleus*	15	10	5	18	Green List
Great Tit	*Parus major*	8	8	5	8	Green List
Skylark	*Alauda arvensis*	19	21	7	12	Red List
Long-tailed Tit	*Aegithalos caudatus*	-	5	-	-	Green List
Goldcrest	*Regulus regulus*	1	1	-	-	Green List

Species: British Common Name	Species: Scientific name	Survey 1	Survey 2	Survey 3	Survey 4	Conservation Status & Protection
Wren	*Troglodytes troglodytes*	8	2	-	1	Amber List
Nuthatch	*Sitta europaea*	-	1	1	1	Green List
Starling	*Sturnus vulgaris*	1	11	1	-	Red List NERC S.41
Song Thrush	*Turdus philomelos*	-	1	11	-	Amber List NERC S.41
Mistle Thrush	*Turdus viscivorus*	-	1	-	-	Red List
Redwing	*Turdus iliacus*	19	10	7 (+ 3 flyovers)	5 (+ 6 flyovers)	Amber List WCA Sch.1
Blackbird	*Turdus merula*	4	9	1	2	Green List
Fieldfare	*Turdus pilaris*	7	9	25	-	Red List WCA Sch.1
Robin	*Erithacus rubecula*	17	2	4	11	Green List
Dunnock	*Prunella modularis*	1	2		5	Amber List NERC S.41
Pied Wagtail	*Motacilla alba*	(2 flyovers)	-	1 (+ 5 flyovers)	1	Green List
Chaffinch	*Fringilla coelebs*	21 (+ 1 flyover)	1	4	7	Green List
Bullfinch	*Pyrrhula pyrrhula*	-	2	-	-	Amber List NERC S.41
Greenfinch	*Chloris chloris*	2	1	4	1	Red List
Goldfinch	*Carduelis carduelis*	3 (+ 10 flyovers)	7 (+ 1 flyover)	-	3	Green List
Total No. Species		**23**	**29**	**21**	**23**	**36**

Appendix B: Woollam Park - Mitigation Fields – 2022/23 Wintering Bird Survey Results

Species: British Common Name	Species: Scientific name	Survey 1	Survey 2	Survey 3	Survey 4	Conservation Status & Protection
Woodpigeon	*Columba palumbus*	15 (+ 2 flyovers)	78 (+ 2 flyovers)	44 (+12 flyovers)	23 (+ 15 flyovers)	Amber List
Lapwing	*Vanellus vanellus*	-	(6 flyovers)	-	-	Red List NERC S.41
Black-headed Gull	*Chroicocephalus ridibundus*	2 (+ 6 flyovers)	(1 flyover)	-	(1 flyover)	Amber List
Herring Gull	*Larus argentatus*	-	(3 flyovers)	-	-	Red List NERC S.41
Red kite	*Milvus milvus*	1	-	(1 flyover)	-	Green List WCA Sch.1
Buzzard	*Buteo buteo*	4	3	1	1 (+ 2 flyovers)	Green List
Great Spotted Woodpecker	*Dendrocopos major*	1	-	-	-	Green List
Green Woodpecker	*Picus viridis*	2	-	-	-	Green List
Kestrel	*Falco tinnunculus*	-	-	-	1	Amber List
Jay	*Garrulus glandarius*	-	-	1	2	Green List
Magpie	*Pica pica*	(1 flyover)	-	1	5 (+ 3 flyovers)	Green List
Jackdaw	*Coleus monedula*	(7 flyovers)	7 (+ 5 flyovers)	-	(1 flyover)	Green List
Rook	*Corvus frugilegus*	1	(3 flyovers)	-	-	Amber list
Carrion Crow	*Corvus corone*	1	4 (+ 1 flyover)	2	10 (+ 1 flyover)	Green List
Blue Tit	*Cyanistes caeruleus*	3	1	6	17	Green List
Great Tit	*Parus major*	2	2	2	4	Green List
Skylark	*Alauda arvensis*	12	-	1	20	Red List
Long-tailed Tit	*Aegithalos caudatus*	3	-	2	2 + flock	Green List
Wren	*Troglodytes troglodytes*	1	2	1	2	Amber List
Song Thrush	*Turdus philomelos*	-	2	-	1	Amber List NERC S.41
Redwing	*Turdus iliacus*	-	3 (+ 1 flyover)	5	8 (+ 1 flyover)	Amber List WCA Sch.1
Blackbird	*Turdus merula*	5	1	-	4	Green List

Species: British Common Name	Species: Scientific name	Survey 1	Survey 2	Survey 3	Survey 4	Conservation Status & Protection
Fieldfare	*Turdus pilaris*	4	1	2 (+ 1 flyover)	-	Red List WCA Sch.1
Robin	*Erithacus rubecula*	4	3	1	7	Green List
Dunnock	*Prunella modularis*	-	3	1	1	Amber List NERC S.41
Pied Wagtail	*Motacilla alba*	(1 flyover)	1	-	(1 flyover)	Green List
Meadow Pipit	*Anthus pratensis*	-	-	-	2 (+ 1 flyover)	Amber List
Chaffinch	*Fringilla coelebs*	-	-	-	1	Green List
Greenfinch	*Chloris chloris*	-	-	-	1	Red List
Goldfinch	*Carduelis carduelis*	-	2 (+ 2 flyovers)	-	(5 flyovers)	Green List
Yellowhammer	*Emberiza citrinella*	-	-	-	1	Red List NERC S.41
Total No. Species	**31**	**19**	**19**	**15**	**24**	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Sports Pavilion
The Woollam Playing Fields
Tomkins Spring
L Twrs
Tennis Courts
Sports Court
L Twr
Old Albanian Tennis Club (Tennis Centre)
Tennis Courts
Fairacre Lodge
Hawkcourt Cottage
Old Albanian Cricket Club (Cricket Ground)
Old Albanian Sports Club
Old Albanian Rugby Football Club (Rugby Ground)
L Twrs
L Twrs
A 1081
MP 22.9
Well
The Greens
Sandridgebury Lane
Bridge Cottage
Leng Spring
Sandridgebury Park
Gosmore Centre
The Gyratron Industrial Park
Reynolds House
Fairtech House
Verno House
Alpha Enterprise Centre
Spring Valley Enterprise Centre
Long Spring
Dunton Wood
Parkway
Parkway
Childwick Nursery
Leng Spring
Sandridgebury Park
Gosmore Centre
The Gyratron Industrial Park
Reynolds House
Fairtech House
Verno House
Alpha Enterprise Centre
Spring Valley Enterprise Centre
Long Spring
Dunton Wood
Parkway
Parkway
Childwick Nursery
Cotton Drive
Fairfield
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Cotton Drive
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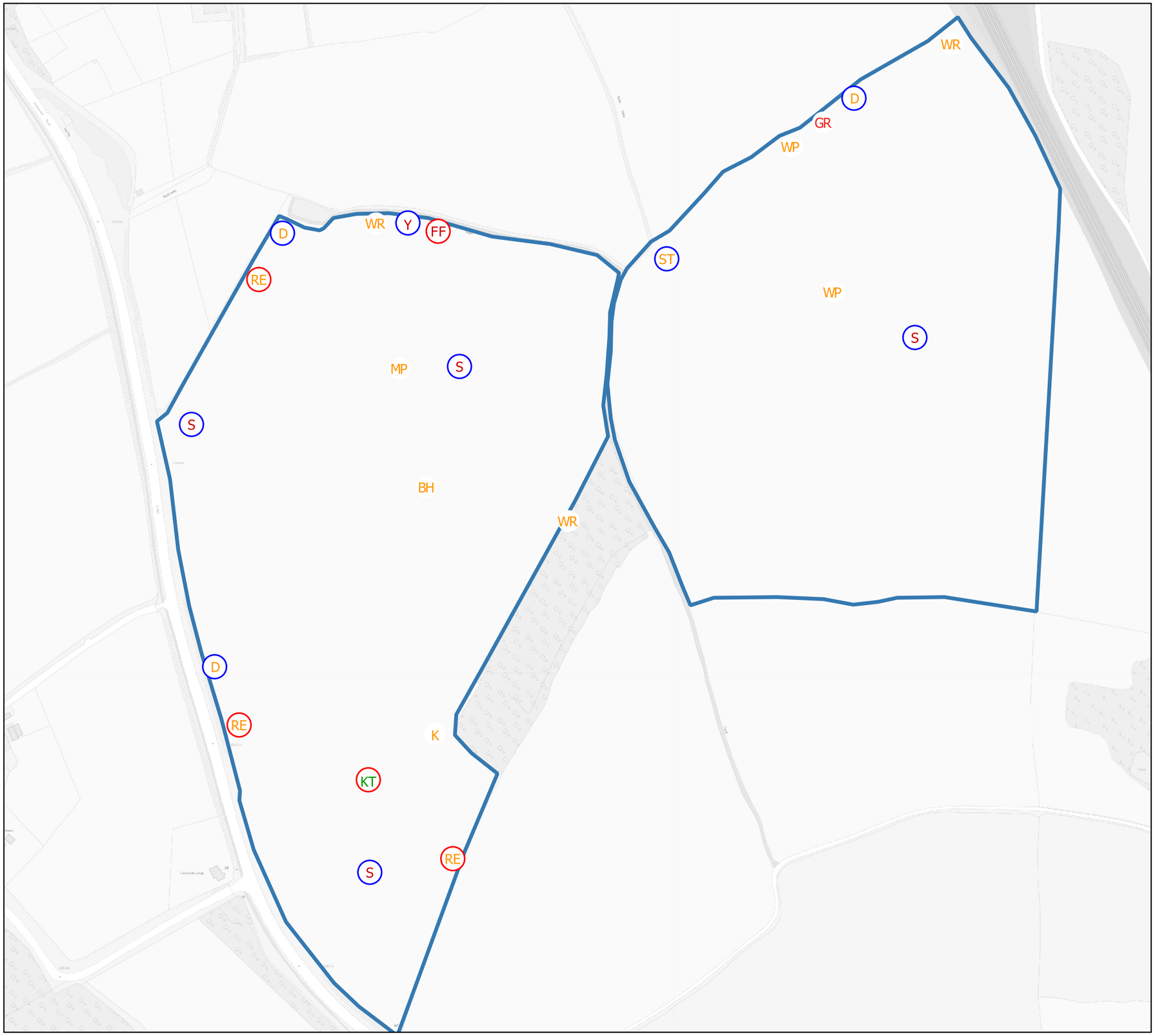

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Key

- Site boundary
- NERC Species of Principal Importance
- Schedule 1 Species

BoCC Red Listed Species

- FF **Fieldfare**
- GR **Greenfinch**
- S **Skylark**
- Y **Yellowhammer**

BoCC Amber Listed Species

- BH **Black-headed Gull**
- D **Dunnock**
- K **Kestrel**
- MP **Meadow Pipit**
- RE **Redwing**
- ST **Song Thrush**
- WP **Woodpigeon**
- WR **Wren**

BoCC Green Listed Species

- KT **Red Kite**

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client
Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust

project
Woollam Park

drawing title
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1:3,500

drawn
REM / CHK

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Figure 2

rev
8575-E-01

Appendix 6.8: Arboricultural impact assessment

ST ALBANS SCHOOL

Hallam Land

PART OF HENRY BOOT

WOOLLAM PARK

North St Albans

ARBORICULTURAL IMPACT ASSESSMENT

DECEMBER 2024

Hallam Land Management Limited, St Albans School and

St Albans School Woollam Trust

Woollam Park North St. Albans

Arboricultural Assessment

December 2024

FPCR Environment and Design Ltd
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PLANS

Tree Survey Plan (8575-T-01, 8575-T-02, 8575-T-03, 8575-T-04)

Tree Retention Plan – Main Development (8575-T-05, 8575-T-06, 8575-T-07, 8575-T-08)

Tree Retention Plan Detailed access (8575-T-09 Main access of Harpenden Road, 8575-T-10 Sandridgebury Lane Access, 8575-T-11 Turning loop off Sandridgebury Lane)

APPENDICES

Appendix A: Tree Schedule

Appendix B: Protective Fencing Specifications

Appendix C: Copy of Tree Preservation Order

1.0 INTRODUCTION

1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Hallam Land Management Limited, St Albans School and St Albans School Woollam Trust to present the findings of an Arboricultural Assessment and survey of trees located on Land at North St Albans St Albans, AL3 6DD (hereafter referred to as the site), OS Grid Ref TL 15426 09857.

1.2 The survey was carried out on 27th September 2023.

Scope of Assessment

1.3 The tree survey and assessment of existing trees has been carried out in accordance with guidance contained within British Standard 5837:2012 *'Trees in Relation to Design, Demolition and Construction - Recommendations'* (hereafter referred to as BS5837). The guidelines set out a structured assessment methodology to assist in determining which trees would be deemed either as being suitable or unsuitable for retention.

1.4 The guidance also provides recommendations for considering the relationship between existing trees and how those trees may integrate into designs for development; demolition operations and future construction processes so that a harmonious and sustainable relationship between any retained trees and built structures can be achieved.

1.5 The purpose of the report is therefore to firstly, present the results of an assessment of the existing trees' arboricultural value, based on their current condition and quality and to secondly, provide an assessment of impact arising from the proposed development of the site.

1.6 This report has been produced to accompany an outline planning application for a residential led mixed use development and has included an assessment of any impact to the tree cover. The survey has therefore focused on any trees present within or bordering the site that may potentially be affected by the future proposals or will pose a constraint to any proposed development.

Site description

1.7 The site is situated in located to the north of St. Albans in the county of Hertfordshire. To the north of the site is arable agricultural land with the railway line between St. Albans City and Harpenden to the east. To the west is the Old Albanians Rugby Football Club training ground with club house, and to the Porters Wood Industrial Estate.

1.8 The site itself comprised of several arable fields and a sports pitch with the majority tree cover assessed comprised of boundary features, continuous hedgerows with standard individual trees within them. To the south of the site was a woodland, Long Spring Wood. Tree species on site included but was not limited to English oak *Quercus robur,* common ash *Fraxinus excelsior,* Field Maple *Acer campestre*, Hawthorn *Crataegus monogyna*, Hornbeam *Carpinus betulus*, Sycamore *Acer pseudoplatanus,* and Hazel *Corylus avellana*.

2.0 PLANNING POLICY

National Planning Policy Framework December 2023

2.1 National Planning Policy is defined by the National Planning Policy Framework (NPPF). This sets out the Government's most current and up to date planning policies for England and how these should be applied. The current NPPF is dated December 2023.

2.2 Paragraphs 10 and 11 of the NPPF state that there is a presumption in favour of sustainable development and states that for decision making, the LPA should be 'c) approving development proposals that accord with an up-to-date development plan without delay'.

2.3 In relation to arboriculture, the NPPF states that:

- 136 'Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined (footnote 53), that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users'. (footnote 53: unless, in specific cases, there are clear, justifiable and compelling reasons why this would be inappropriate)
- 186 (c) 'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons (footnote 67) and a suitable compensation strategy exists'.

  and provides specific guidance that:

- 186 (d) 'development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate'.

2.4 With reference to paragraph 186 (c), examples of what is deemed to be 'wholly exceptional' are included within Footnote 67 and provides the examples of 'infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat'.

Statutory Considerations

2.5 Local authorities have a Duty under the Town and Country Planning Act to create Tree Preservation Orders (TPO) in order to protect and preserve specific trees and woodlands that bring significant amenity benefit to a particular site or location. Under a TPO it is a criminal offence to cut down, top, lop, uproot or wilfully destroy a tree protected by that Order, or to cause or permit such actions, if carried out without the prior written consent of the acting LPA. Anyone found guilty of such an offence is liable and in serious cases, may result in prosecution and incur an unlimited fine.

2.6 Following consultation with the Local Planning Authority, St. Albans City and District Council, it is understood that there is a Tree Preservation Order, namely 1569 25/04/2016, Long Spring Wood, North of Porters Wood Industrial Estate, which applies to one woodland present within the assessment site and therefore statutory constraints apply to the development in respect of trees. A plan detailing trees covered by the TPO has been included within the report as Appendix C and further details are given in Chapter 4.

2.7 Information provided on Tree Preservation Orders and Conservation Areas is accurate to the date of this assessment and cannot be assumed to remain unchanged. The last check was carried out on the 26th September 2024.

3.0 SURVEY METHODOLOGY

BS5837 Categories

3.1 Trees have been divided into one of four categories based on Table 1 of BS5837, *'Cascade chart for tree quality assessment'*. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).

3.2 Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds. Categories A, B and C are applied to trees that should be of material considerations in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.

3.3 **Category (U) – (Red):** Trees which are unsuitable for retention and are in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Trees within this category are:

- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.
- Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.
- Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low quality trees suppressing adjacent trees of better quality.
- Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.

3.4 **Category (A) – (Green):** Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years with potential to make a lasting contribution. Such trees may comprise:

- Sub category (i) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.
- Sub category (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
- Sub category (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.

3.5 **Category (B) – (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years with potential to make a significant contribution. Such trees may comprise:

- Sub category (i) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.

- Sub category (ii) trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.
- Sub category (iii) trees with material conservation or other cultural value.

3.6 **Category (C) – (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:

- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
- Sub category (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
- Sub category (iii) trees with no material conservation or other cultural value.

Site Plans

3.7 The individual positions of trees and groups have been shown on the Tree Survey Plan. The positions of trees are based on a topographical / land survey, as far as possible, supplied by the client. Where topographical information has not identified the position of trees these have been plotted using a global positioning system and aerial photography to provide approximate locations. The crown spread, root protection area and shade pattern (where appropriate) are also indicated on this plan.

3.8 As part of this assessment, a Tree Retention Plan has been prepared to show the proposed layout in relation to the existing tree cover allowing an assessment of any potential conflicts. The plan also identifies which trees would be required to be removed or retained as part of the proposed development.

Tree Constraints and Root Protection Areas

3.9 Below ground constraints to future development are represented by tree roots and the soil environment in which they grow which needs to be protected if the tree is to be retained. Tree rooting systems are essential for the uptake of water and nutrients, serving the storage of carbohydrates for the future growth and function of the tree, and form structural anchorage and support for the stem and crown. The perceived rooting area of the tree; referred to as the root protection area (RPA) needs to be protected if the tree is to be retained.

3.10 The RPA is a notional area considered to be the minimum zone that must be protected to avoid any adverse impacts on retained trees. The RPA has been calculated in accordance with Annex C, D and Section 4.6 of BS5837:2012 and requires suitable protection in order for the tree to be successfully incorporated into any future scheme. As such, the RPA of existing trees is an important material consideration when considering site constraints and planning development activities.

3.11 Where applicable the shape of the Root Protection Area has been modified to consider the presence of any nearby obstacles (existing or past) which may have restricted root growth and

the likely root distribution i.e. the presence of hard standing, structures and underground apparatus. Where groups of trees have been assessed, the Root Protection Area has been shown based on the maximum sized tree in any one group and so may exceed the Root Protection Area required for some of the individual specimens within the group. Further detailed inspection of the individual trees forming a group may be required where development impacts upon the group.

3.12 Whilst it is generally accepted that a tree's roots may extend far greater distances than the notional RPA, with the distribution of the root system relating directly to the availability of suitable conditions for growth (namely oxygen, water and nutrients), with roots predominantly located in the upper 1,000 mm of the soil horizon; the RPA offers an accepted protective buffer from development.

3.13 Above ground constraints such as the current crown spread of the trees and an illustration of the shade pattern (where appropriate) have been considered and identified within the Tree Survey Plan and Tree Retention Plan indicates their potential area of shading influence.

Considerations and Limitations of the Tree Survey

3.14 The survey was completed from ground level only and from within the boundary of the site. Aerial tree inspections or an assessment of the internal condition of the stem/s or branches were not undertaken at this stage as this level of survey is beyond the scope of the initial assessment.

3.15 The statements made in this report regarding the assessed trees does not take into account the effects of extreme / adverse weather conditions, changes in land use prior to the site's development, unforeseen accidents or anti-social behaviours, such as vandalism, which occur since the date of the survey. As such, the assessment of tree condition given within applies to the date of survey and cannot be assumed to remain unchanged.

3.16 It will be necessary to review all comments and observations made within this report, in accordance with sound arboricultural practice, within two years of the date of survey (unless explicitly stated elsewhere within this report). Further review may also be necessary where site conditions change or works to trees are carried out which have not been specified in detail within this report.

3.17 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The tree survey conducted, in accordance with BS5837, does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.

3.18 It may be necessary during detailed design to undertake further assessment and accurate positioning of woody species within tree groups and hedgerows to assist structural calculations for foundation design of structures in accordance with current building regulations. The exact position of individual trees or species included as part of a tree group should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths in accordance with NHBC Chapter 4.2 Building near Trees.

3.19 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by a suitably qualified and experienced arboriculturist

and has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable and systematic way.

3.20 Trees have been assessed as groups, hedgerows or woodland where it has been determined appropriate.

- The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture.
- For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime.
- For the purposes of this assessment woodland is described as a habitat where 'trees are the dominant plant form. The individual tree canopies generally overlap and interlink, often forming a more or less continuous canopy'[1]. Woodlands however, are not just formed of trees and generally include a great variety of other plants. These will include 'mosses, ferns and lichens, as well as small flowering herbs, grasses and shrubs'[2].

3.21 An assessment of individual trees within groups, hedgerows or woodland has been made where a clear need to differentiate between them, for example, in order to highlight significant variation between attributes including physiological or structural condition or where a potential conflict may arise.

Ancient and Veteran Trees

3.22 Veteran trees and Ancient Woodland are important components of the landscape, their importance can be for a number of reasons including that of their ecological, social, cultural and historic value.

3.23 Veteran Trees and Ancient Woodlands are material considerations within the planning process and their importance is specifically recognised within the National Planning Policy Framework (NPPF) 2023, which defines the terms ancient or veteran tree as:

'A tree which, because of its age, size and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient, but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.'[3]

3.24 Various published methodologies are currently available which, due to the complexity and subjectivity of the process of defining and assessing these trees, often have conflicting definitions. This assessment, and the criteria used for defining ancient/veteran trees and the identification of attributable ancient/veteran features, has been based on a range of currently published guidance and resources.

[1] http://www.countrysideinfo.co.uk/woodland_manage/whatis.htm
[2] http://www.countrysideinfo.co.uk/woodland_manage/whatis.htm
[3] Ministry of Housing, Communities and Local Government. (2021). *National Planning Policy Framework*. London: Ministry of Housing, Communities and Local Government.

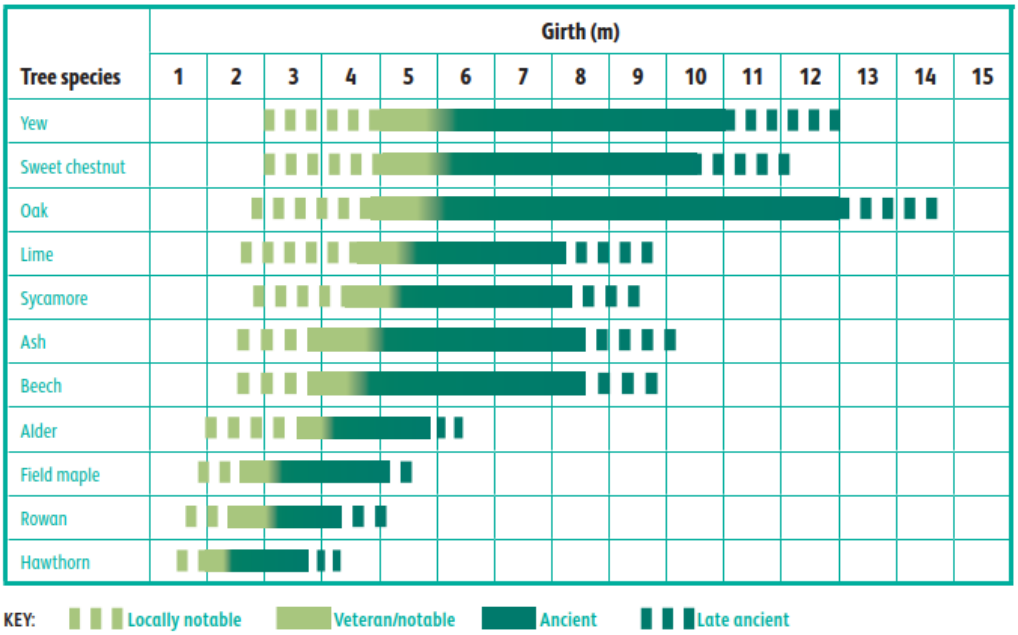


Figure 1: The chart of girth in relation to age and development classification of trees, as shown in Lonsdale (2013)[4].

Veteran Trees

3.25 The definition of a veteran tree has been based on within Lonsdale (2013) as a tree:

'which has survived various rigours of life and thereby shows signs of ancientness, irrespective of its age'.

3.26 However, for the purpose of the BS5837:2012 assessment, to qualify as a veteran tree, the tree concerned requires a stem girth which is considered large for its species (within the range set out in Fig. 1 above) and shows signs of crown retrenchment and evidence of decay processes in stem, branches or roots such as dead and decaying wood or fungal fruiting bodies of heart-rot (wood decay) species. These trees should also possess significant amounts of dead wood in the crown or fallen about the ground beneath the trees crown.

3.27 In principle, reference has been made to Owen & Alderman (2008) and *Reed, H. (2000). Veteran Trees: A Guide to Good Management. English Nature* and more recently *Lonsdale, D (ed.) (2013) Ancient and other Veteran Trees: Further Guidance on Management, The Tree Council & Ancient Tree Forum* for guidance on the recognition of both ancient and veteran trees.

3.28 Level 3 of the Specialist Survey Method (SSM) of de Berker & Fay (2004)[5] has also been utilised for gathering survey information as this provides a standardised framework for recording characteristic ancient/veteran features.

[4] Lonsdale, D. (Ed.). 2013). Ancient and other veteran trees: further guidance on management. London: The Tree Council.
[5] de Berker, N., & Fay, N. (2004). English Nature Research Report Number 529 – Evaluation of the Specialist Survey Method for Veteran Tree Recording. Bristol: Treework Environmental Practice.

Ancient Woodland

3.29 Ancient woodland in England is defined as an area that has been continuously wooded since at least 1600 AD. 'Continuously wooded' does not require there to have been a continuous cover of trees and shrubs across the entire area. Habitats such as glades, deer lawns, rides, ponds and streams, as well as gaps created by natural occurrences, and forestry may all occur within woodland.

3.30 Ancient woodland includes both ancient semi-natural woodland and plantations on ancient woodland sites:

- Ancient semi-natural woodland (ASNW) is where the stands are composed predominantly of trees and shrubs native to the site that do not obviously originate from planting. However, woodlands with small planting of trees native to the site would still be included in this category. The stands may have been managed by coppicing or pollarding or the tree and shrub layer may have grown up by natural regeneration.
- Plantations on ancient woodland sites (PAWS) these are areas of ancient woodland where the former native tree cover has been felled and replaced by planted trees, predominantly of species not native to the site. These sites often retain some of the ancient woodland features such as soils, ground flora, fungi and woodland archaeology.

3.31 Ancient woodland is a resource of great importance for its wildlife, soils, recreation, cultural value, history and the contribution to diverse landscapes.

4.0 RESULTS

4.1 A total of fifteen individual trees, ten groups of trees, one woodland and nine hedgerows were surveyed as part of the Arboricultural Assessment. Trees were surveyed as individual trees and groups of trees where examples are clearly present as per the description. Refer to the Tree Survey Plan and Appendix A – Tree Schedule for full details of the trees included in this assessment. The table below summarises the trees assessed.

Tree Schedule

4.2 Appendix A presents details of any individual trees, groups, hedgerows and woodlands found during the assessment including heights, diameters at 1.5m from ground level, crown spread (given as a radial measurement from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention and the root protection area.

4.3 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

4.4 Several of the trees have been discussed in more detail following the table, owing to their physical condition or arboricultural significance.

Results Summary

Table 1: Summary of Trees by Retention Category

	Individual Trees	Total	Groups of Trees / Woodlands	Total
Category U - Unsuitable	-	0		0
Category A (High Quality / Value)	T2, T7, T14, T15	4	G8, W1	2
Category B (Moderate Quality / Value	T1, T3, T5, T6, T8, T9, T10, T12, T13	9	G3, G5, G6, G7, G9, G10, H5, H6, H7, H8, H9	11
Category C (Low Quality / Value)	T4, T11	2	G1, G2, G4, H1, H2, H3, H4	7

Category A Trees & Groups

4.5 Four Category A trees, one group and one woodland were recorded on the site, these were high value in terms of their landscape value and arboricultural quality. All the individual trees were mature English oak with these also being abundant within W1 and G8. Features typical of their age class resulting from natural abscission of material creating branch stubs, broken branches, branch socket cavities and bark wounds. Dead branches were also regularly observed in various proportions.

Category B Trees and Groups

4.6 Nine trees, six groups and five hedgerows were recorded as Category B. English oak was the most abundant species recorded as individual specimens, these being downgraded from Category A due to the presence of either minor structural or physiological conditions.

4.7 Tree groups regarded as Category B contained a mix of native species forming established field boundaries providing visual arboricultural features on the landscape.

Category C Trees and Groups

4.8 Two trees, three groups and four hedgerows were surveyed as retention Category C. These were generally unremarkable groups offering little contribution to visual amenity and induvial trees in poor condition.

Ancient and Veteran Trees

4.9 T14 met the criteria to qualify as a veteran tree, a stem girth which is considered large for its species and shows signs of crown retrenchment and evidence of decay processes in stem, branches or roots such as dead and decaying wood or fungal fruiting bodies of heart-rot (wood decay) species. A significant amount of dead wood in the crown was also noted.

4.10 For the purpose of affording these trees greater protection the RPA calculation has been calculated in accordance with the guidelines detailed within Ancient and other Veteran Trees: Further Guidance on Management (Lonsdale, D (ed.) (2013). The Tree Council & Ancient Tree Forum. The RPA is defined as a distance equal to 15 times the trees stem diameter, or five metres beyond the canopy, whichever is the greater (Read, 2000).

4.11 Where this assessment has identified veteran trees, further survey work of those trees and their communities will be required. From an ecological perspective veteran trees provide a rare and specialist niche habitat and therefore preservation of this habitat is considered highly important. Veteran trees and many of their associated specialised species are becoming increasingly rare within the landscape and therefore some veteran tree landscapes and their associated species are now protected, both nationally and Europe wide through the Natura 2000 Directive.

Woodlands

4.12 W1, Long Spring Wood, has been identified as ASNW.

4.13 W1 is also classed as Priority Habitat Inventory - Deciduous Woodland (England) – '*a Lowland mixed deciduous woodland includes woodland growing on the full range of soil conditions… Quercus robur is generally the commoner oak (although Quercus petraea may be abundant locally) and may occur with virtually all combinations of other locally native tree species'* [2]

Statutory Constraints

4.14 The following table details which trees are included in the St. Albans City and District Council Tree Preservation Order (TPO), 1569 25/04/2016, Long Spring Wood, North of Porters Wood Industrial Estate. The woodland identified within the TPO are protected by law from felling or uprooting, pruning including 'topping/lopping' and wilful damage or destruction. The granting of

full planning permission would override the protection afforded by the Tree Preservation Order to those trees shown as removed to facilitate the proposals within the approved plans.

Table 2: Tree Preservation Order details

Tree No. taken from FPCR	TPO reference no.
W1	W1

4.15 Prior to any tree surgery and / or felling of protected trees it will be necessary to apply to the relevant local planning authority to gain consent for the works. For more information regarding Tree Preservation Orders it is advised that contact is made with the Local Planning Authority's arboricultural officer, or other such relevant person.

5.0 ARBORICULTURAL IMPACT ASSESSMENT

5.1 The following paragraphs present a summary of the tree survey and discussion of particular trees and groups recorded in the context of any proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report.

5.2 The AIA has been based upon the Framework Plan and highways plans (drawing no. 05920-CI-A-01-P04, 09520-SK-008, 0950-SK-006-P1) and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The drawing shows the proposals for a mixed use development. An overlay of the layout has been incorporated in the Tree Retention Plan to assist in identifying the relationship and any potential conflicts between the proposals and the existing trees and hedgerows.

Table 3: Summary of Impact on Tree Stock

	Trees to be Removed	Reasons for removal	Total
Category U - Unsuitable			0
Category A (High Quality / Value)			0
Category B (Moderate Quality / Value	G10 H5 G5 H5, H6, H7, H8 G3, G7	G10 –Removed to facilitate access off Harpenden Road H5 – Part removed to facilitate access off Sandridgebury Lane G5 – Part removed to facilitate turning loop off Sandridgebury Lane H5, H6, H7, H8 G3, G7– indicative positions of openings shown to provide active travel connectivity	8
Category C (Low Quality / Value)	H4	H4 – Part removed to facilitate access off Sandridgebury Road	1

5.3 The proposed development will see the majority of trees retained and incorporated into the proposals, with all high-quality specimens retained.

5.4 W1, Longspring Wood, identified as Ancient and Semi Natural woodland has been provided a 15 metre buffer within the Masterplan to avoid any detrimental impacts that development may cause.

5.5 As with any development of such a scale, there will inevitably be tree losses. However, these losses have been kept to a minimum due to the constraint led design process and by virtue of many trees and hedgerows being in peripheral locations confined to the field boundaries. A large

proportion of the required losses are primarily associated with the proposed access points and are necessary to facilitate entry points into the new development. The following sections set out the tree losses to facilitate the development proposals.

ACCESS

5.6 Three Detailed Access Plans (8575-T-09, 8575-T-10, 8575-T-11) have been prepared by FPCR as part of this Arboricultural Impact Assessment. These are based on the proposed access drawings for determination as part of the outline planning application, these are listed below along with a list of the access drawings upon which they are based on. The access plans have been overlaid with the Tree Survey to show losses resulting from implementation of the site access points:

FPCR Tree Retention Plans

- Drawing no. 8575-T-09 Main Vehicle Access off Harpenden Road
- Drawing no. 8575-T-10 Sandridgebury Lane Access
- Drawing no. 8575-T-11 Turning loop off Sandridgebury Lane

PJA Proposed Access Plans

- Proposed Junction Access General Arrangement (drawing no 05920-CI-A-001 Rev P04)
- Potential arrangement of Sandridgebury Lane to the west of the railway bridge (drawing no 05920-SK-008 Rev P0)
- Potential turning loop arrangements off Sandridgebury Lane (drawing no 05920-SK-006 Rev P10)

5.7 The details in the following paragraphs expand on Table 3 above and describe the tree losses required as a result of the proposed access points. Details of tree losses for those access provisions not for determination at this stage such as internal access arrangements and pedestrian and cycleway links are also described.

5.8 Mitigation for the loss of tree and hedgerow cover as a result of the required access points should be provided as part of the extensive GI supporting the development through new tree and hedgerow planting

Main Vehicle Access Points

Main Vehicle Access off Harpenden Road

5.9 In the western section of the site, the main access point will be off Harpenden Road via a junction which will include a signal-controlled junction and a shared footway/cycleway.

5.10 To facilitate the access G10 will require removal.

5.11 Arboriculturally, G10 was regarded as retention category B due to its visual amenity along Harpenden Road. The development provides adequate space to mitigate for the loss of this tree group. Furthermore, the new bus stops, cycling infrastructure and pedestrian footpaths will improve public transportation access and encourage more people to use sustainable modes of

transport. These measures align with the active travel strategy set out in the St Albans City and District Council Local Cycling and Walking Infrastructure Plan (2023).

Sandridgebury Lane Access

5.12 Access off Sandridgebury Lane to the east of the site will require sections of tow hedgerows to be removed, H4 and H5, these were regarded as retention category C and B respectively.

5.13 The loss of these sections of hedgerow should not raise an objection from an arboricultural perspective with the development being able to implement replanting to mitigate for the losses.

Turning loop off Sandridgebury Lane

5.14 The application is seeking to provide a turning loop off Sandridgebury Lane in the southern part of the site blocking off vehicular access along the lane.

5.15 To facilitate the turning loop will require the removal of a section of G5, regarded as retention category B. G5 was a linear tree group formed from an outgrown hedgerow, collectively the group was moderate quality, but individual trees were of no significant interest.

5.16 Again, the loss of this small amount of vegetation can be compensated for within the development as part of the landscape proposals.

Other Access Points and internal road layout

5.17 There are several indicative pedestrian/cycle access points and internal road links between parcels that affect trees within the site. The exact extent of losses would need to be further quantified once the positions have been fixed at the Reserved Matters stage. These removals are listed below,

5.18 H5, H6, H8 – sections indicated as removed to facilitate internal road layout

5.19 H5, H6, H7, H8 – openings to provide pedestrian/cycle connectivity

5.20 G3 - two small openings indicated for pedestrian/cycle access.

5.21 G7 - access point shown through group to a proposed development adjacent to the site.

5.1 Any losses will be kept to a minimum as to only that which is necessary and mitigated for through new tree and hedgerow planting in the vicinity of the access locations.

Discussion

5.2 In summary, the small amount of tree material required for removal in order to facilitate the proposals would not be considered from an arboricultural perspective to significantly reduce the overall amenity value provided at present. The majority of trees will be retained and will provide a high-quality setting for the proposed new development.

Tree Management

5.3 The layout of the development is currently reserved for subsequent approval. In the course of a reserved matters application pursuant to layout, a review of the relationship between the layout

and the retained trees should be undertaken by a qualified arboriculturist to assess the existing tree cover and prepare a schedule of tree works.

5.4 All retained trees should be subjected to sound arboricultural management as recommended within section 8.8.3 of BS5837 *Post Development Management of Existing Trees,* where there is a potential for public access in order to satisfy the landowner's duty of care. Additionally, inspections annually and following major storms should be carried out by an experienced arboriculturist or arborist to identify any potential public safety risks and to agree remedial works as required.

5.5 All tree works undertaken should comply with British Standard 3998:2010 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.

5.6 All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - September inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist.

General Design Principles in Relation to Retained Trees

5.7 In a subsequent Reserved Matters application following the final layout of the scheme, assessment of the distance of proposed development in relation to the calculated root protection area of retained trees should be made which will inform the final layout.

5.8 The routing of below ground services should also be considered with regard to the retained trees. As recommended by the guidance given in section 7.7 of BS5837 services, where possible, should not encroach within the Root Protection Areas of retained trees. If below-ground services are proposed within a Root Protection Area, modifications to the alignment of the service route may need to be made in order to minimise adverse effects on root stability and overall tree health.

5.9 Consideration may also need to be given to the potential for tree roots of newly planted trees and hedgerows to affect or compromise the future services. As far as feasible, it would be preferable that proposed services near both the existing and any new planting should be ducted for ease of access and maintenance and grouped together to minimise any future disturbance.

6.0 NEW TREE AND HEDGEROW PLANTING

Trees

6.1 The landscaping scheme should consider the use of both native tree species (for their low maintenance requirements and nature conservation value) and ornamental species (for their contribution to urban design and amenity value). Species choices should be selected on the basis of their suitability for the final site use. Furthermore, during the design process consultation should be made with the Local Planning Authority to obtain information on their tree strategy and incorporate the planting proposals with any local policies and initiatives and/or Biodiversity Action Plans (BAP).

6.2 In line with the NPPF all schemes should aim to achieve a net gain in biodiversity value. Nationally recognised biodiversity metrics allow for the inclusion of, not limited to, newly planted scattered trees, woodlands and hedgerows as a means of compensating for loss of habitat as part of the development. Tree and shrub planting can therefore be used to contribute to this biodiversity gain.

6.3 To maximise biodiversity value (and contribution to net gain) native species or varieties should be specified. Such provisions can be incorporated into both the hard and soft landscaping of the scheme. It is recommended that tree and hedgerow specifications are made following consultation with guidance published by the Local Planning Authority.

6.4 When deciding upon suitable tree species, careful consideration would need to be given to the following: ultimate height and canopy spread, form, habit, density of crown, potential shading effect, colour, water demand, soil type and maintenance requirements in relation to both the built form of the new development and existing properties.

6.5 Through careful species selection, the landscape scheme shall reduce the risk of trees being removed in the future on the grounds of nuisance. Nuisance can be perceived in a number of ways and vary from person to person however most commonly, within the context of trees, low overhanging branches, excessive shading, seasonal leaf fall and the misinformed perception that trees close to buildings cause damage.

Hedgerows

6.6 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Consequently, it is important that the proposed scheme delivers a net gain in terms of linear hedgerows through new planting to compensate for any losses. Species should be native, and characteristic of the locality.

6.7 Recommended species for native hedgerow planting are as follows:

- *Crataegus monogyna*
- *Prunus spinosa*
- *Cornus sanguinea*
- *Corylus avellana*
- *Acer campestre*

- *Euonymus europaeus*

General Planting Recommendations

6.8 Wherever possible, following discussions with the developer and utility companies, common service trenches should be specified to minimise land take associated with underground service provision and facilitation access for future maintenance.

6.9 Tree planting should be avoided where they may obstruct overhead power lines or cables. Any underground apparatus should be ducted or otherwise protected at the time of construction to enable trees to be planted without resulting in future conflicts.

7.0 TREE PROTECTION MEASURES

7.1 Retained trees will be adequately protected during works ensuring that the calculated root protection area for all retained trees can be appropriately protected through the erection of the requisite tree protection barriers. Measures to protect trees should follow the guidance in BS5837 and will be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout. These have been broadly summarised below.

General Information and Recommendations

7.2 All trees retained on site will be protected by suitable barriers or ground protection measures around the calculated RPA, crown spread of the tree or other defined constraints of this assessment as detailed by section 6 and 7 of BS5837.

7.3 Barriers will be erected prior to commencement of any construction work and before demolition including erection of any temporary structures. Once installed, the area protected by fencing or other barriers will be regarded as a construction exclusion zone. Fencing and barriers will not be removed or altered without prior consultation with the Project Arboriculturist.

7.4 Any trees that are not to be retained as part of the proposals should be felled prior to the erection of protective barriers. Particular attention needs to be given by site contractors to minimise damage or disturbance to retained specimens.

7.5 Where it has been agreed, construction access may take place within the root protection area if suitable ground protection measures are in place. This may comprise single scaffold boards over a compressible layer laid onto a geo-textile membrane for pedestrian movements. Vehicular movements over the root protection area will require the calculation of expected loading and the use of proprietary protection systems.

7.6 Confirmation that tree protective fencing or other barriers have been set out correctly should be gained prior to the commencement of site activity.

Tree Protection Barriers

7.7 Tree protection fencing should be fit for the purpose of excluding any type of construction activity and suitable for the degree and proximity of works to retained trees. Barriers must be maintained to ensure that they remain rigid and complete for the duration of construction activities on site.

7.8 In most situations, fencing should comprise typical construction fencing panels attached to scaffold poles driven vertically into the ground. For particular areas where construction activity is anticipated to be of a more intense nature, supporting struts, acting as a brace should be added and fixed into position through the application of metal pins driven into the ground to offer additional resistance against impacts.

7.9 Where site circumstances and the risk to retained trees do not necessitate the default level of protection an alternative will be specified appropriate to the level / nature of anticipated construction activity. The recommended methods of fencing specifications for this site have been illustrated in Appendix B.

7.10 It may be appropriate on some sites to use temporary site offices, hoardings and lower level barrier protection as components of the tree protection barriers. Details of the specific protection barriers for the site can be provided should the application be approved, as part of a site specific Arboricultural Method Statement for a Reserved Matters application and in accordance with the guidance contained within BS5837.

Protection outside the exclusion zone

7.11 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.

7.12 All weather notices should be attached to the protective fencing to indicate that construction activities are not permitted within the fenced area. The area within the protective barriers will then remain a construction exclusion zone throughout the duration of the construction phase of the proposed development. Protection fencing signs can be provided upon request.

7.13 Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles where they are in close proximity to retained trees.

7.14 Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree stem. No concrete should be mixed within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.

7.15 Fires on sites should be avoided if possible. Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches. The potential size of a fire and the wind direction should be taken into account when determining its location, and it should be attended at all times until safe enough to leave.

7.16 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.

7.17 Any trees which need to be felled adjacent to or are present within a continuous canopy of retained trees, must be removed with due care (it may be necessary to remove such trees in sections).

Protection of Trees Close to the Site

7.18 A number of trees were located on the boundaries of the site and therefore the root protection area and crown spread of these trees will need to be protected in the same way as all the retained trees within the site. All trees located outside the boundaries of the assessment site yet within close proximity to works should be adequately protected during the course of the development by barriers or ground protection around the calculated root protection area.

7.19 Any trees which are to be retained and whose Root Protection Areas may be affected by the development should be monitored, during and after construction, to identify any alterations in quality with time and to assess and undertake any remedial works required as a result.

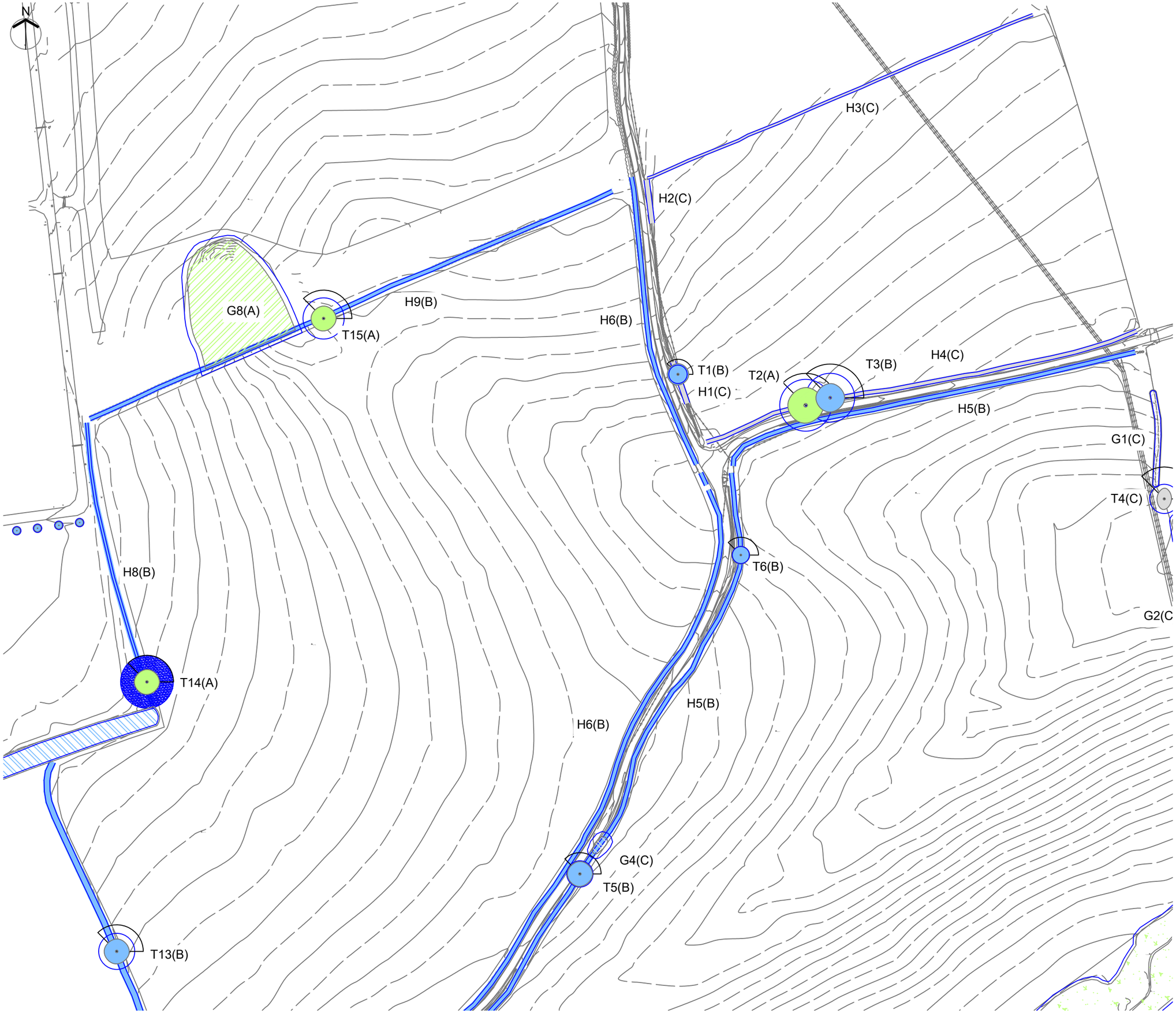
Protection for Aerial Parts of Retained Trees

7.20 Where it is deemed necessary to operate wide or tall plant within close proximity to trees it is best advised that appropriate, but limited tree surgery, be carried out beforehand to remove any

obstructive branches as any such equipment would have potential to cause damage to parts of the crown material, i.e. low branches and limbs, of retained trees within the protective barriers. This is termed as 'access facilitation pruning' within BS5837. Any such pruning should be undertaken in accordance with a specification prepared by an arboriculturist.

7.21 A pre-commencement site meeting with contractors who are responsible for operating machinery is advised to firstly highlight the potential for damage occurring to tree crowns and to ensure that extra care is applied when manoeuvring machinery during such operations within close proximity to retained trees to avoid any contact.

7.22 In the event of having caused any branch or limb damage to retained trees it is strongly recommended that suitable tree surgery be carried out, in accordance with British Standard 3998:2010 and in agreement with the Local Planning Authority prior to correcting the damage, upon completion of development.



KEY

- Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
- Category A - Trees / Groups of High Quality (BS 5837:2012)
- Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
- Category C - Trees / Groups of Low Quality (BS 5837:2012)
- Hedgerow (Colour indicates BS5837:2012 Category)
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- Veteran Tree Root Protection Area (in accordance with Ancient and Other Veteran Trees: Further Guidance on Management)
- T1 (A) G1 (A) — Individual / Group Number and BS5837:2012 Category
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

Scale 1:2000 @ A3

0 50 100m

NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule.

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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A	17.10.24	Update topo	RG

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client
Hallam Land Management

project
Harpenden Road
North St. Albans

drawing title
TREE SURVEY PLAN

scale	drawn	date
1:2000 @ A3	NC /	October 2024

drawing number
8575-T-01

rev
A

CAD file: K:\8500\8575\ARB\Residential\2023\Plans\8575-T-01 Tree Survey Plan.dwg



KEY

- Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
- Category A - Trees / Groups of High Quality (BS 5837:2012)
- Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
- Category C - Trees / Groups of Low Quality (BS 5837:2012)
- Hedgerow (Colour indicates BS5837:2012 Category)
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- Veteran Tree Root Protection Area (in accordance with Ancient and Other Veteran Trees: Further Guidance on Management)
- T1 (A) G1 (A) — Individual / Group Number and BS5837:2012 Category
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

Scale 1:2000 @ A3

0 50 100m

NOTES

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North St. Albans

drawing title
TREE SURVEY PLAN

scale	drawn	date
1:2000 @ A3	NC /	October 2024

drawing number
8575-T-02

rev
A

CAD file: K:\8500\8575\ARB\Residential\2023\Plans\8575-T-01 Tree Survey Plan.dwg



KEY

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Scale 1:2000 @ A3

0 50 100m

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drawing title
TREE SURVEY PLAN

scale	drawn	date
1:2000 @ A3	NC /	October 2024

drawing number
8575-T-03

rev
A

CAD file: K:\8500\8575\ARB\Residential\2023\Plans\8575-T-01 Tree Survey Plan.dwg

N

G8(A)

T15(A)

H9(B)

H6(B)

T1(

H1(

G9(B)

H8(B)

T14(A)

G10(B)

G7(B)

H5(B)

H6(B)

G4(C)

T5(B)

T13(B)

H7(B)

T7(A)

G6(B)

H6(B)

T8(B)

H5(B)

T12(B)

KEY

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Scale 1:2000 @ A3

0 50 100m

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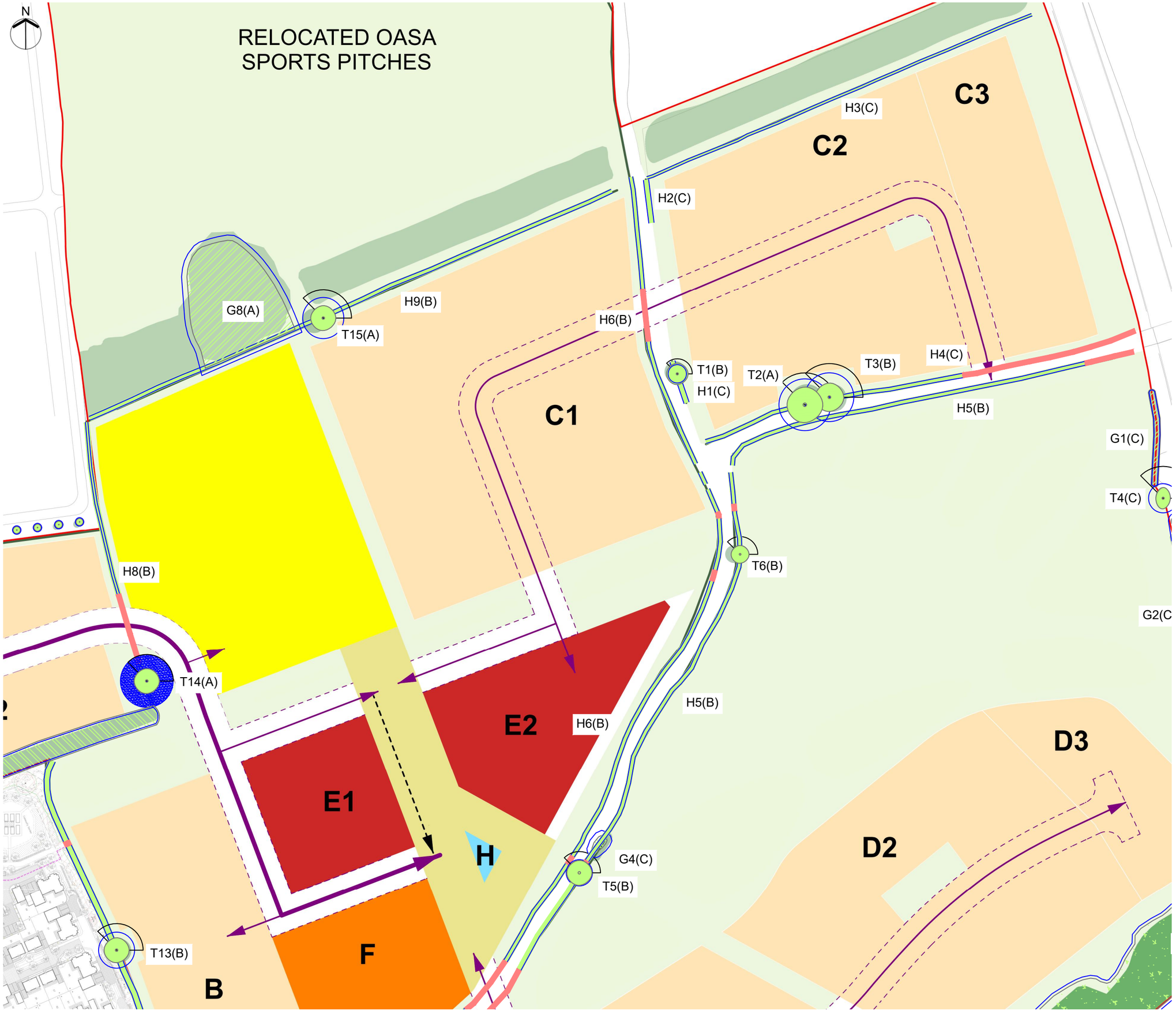
drawing title
TREE SURVEY PLAN

scale	drawn	date
1:2000 @ A3	NC /	October 2024

drawing number
8575-T-04

rev
A

CAD file: K:\8500\8575\ARB\Residential\2023\Plans\8575-T-01 Tree Survey Plan.dwg



KEY

- Tree/Group to be Retained
- Tree/Group to be removed to facilitate the proposals
- Category U - Unsuitable for retention on arboricultural grounds
- Hedgerow Proposed to be Retained and Incorporated into the New Development
- Hedgerow Proposed to be Removed to Facilitate the Development upon Approval of the Application
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Scale 1:2000 @ A3

0 50 100m

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Hallam Land Management

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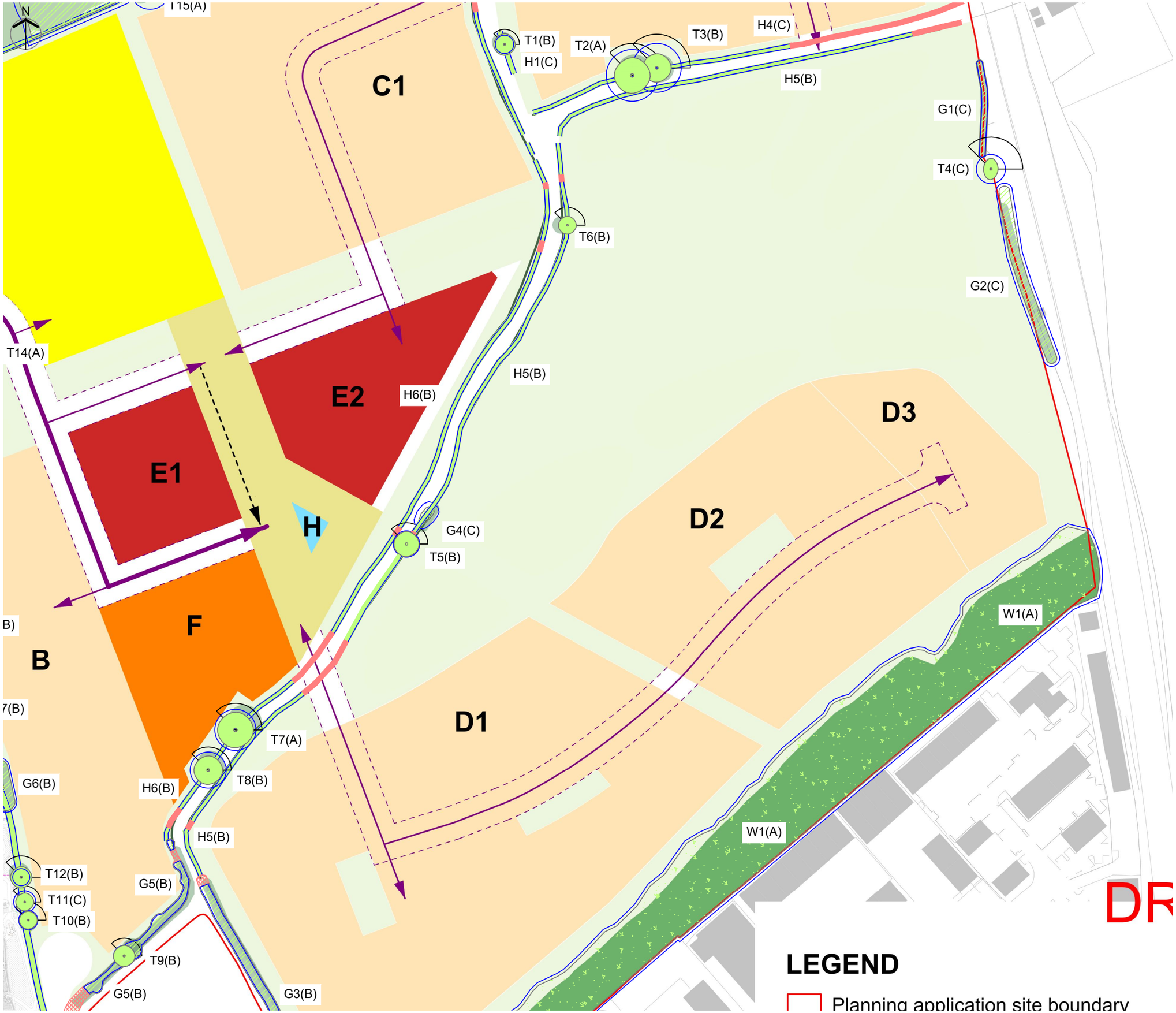
drawing title
TREE RETENTION PLAN

scale	drawn	date
1:2000 @ A3	RG	October 2024

drawing number
8575-T-05

rev
-

CAD file: K:\8500\8575\ARB\Residential\2023\Plans\Tree Retention Plan.dwg



KEY

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Scale 1:2000 @ A3

0 50 100m

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North St. Albans

drawing title
TREE RETENTION PLAN

scale	drawn	date
1:2000 @ A3	RG	October 2024

drawing number
8575-T-06

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-

CAD file: K:\8500\8575\ARB\Residential\2023\Plans\Tree Retention Plan.dwg

DR

LEGEND

Planning application site boundary

N

H6(B)

T14(A)

2

E1

E2

H6(B)

H5(B)

H

G4(C)

T5(B)

D3

D2

F

B

T13(B)

H7(B)

D1

T7(A)

OPOSED
ELL TRUST
ELOPMENT

G6(B)

H6(B)

T8(B)

H5(B)

T12(B)

T11(C)

T10(B)

G5(B)

T9(B)

G5(B)

G3(B)

W1(A)

W1(A)

RIDGEBURY LANE

PORTERS WOOD
INDUSTRIAL ESTATE

G2(

KEY

- Tree/Group to be Retained
- Tree/Group to be removed to facilitate the proposals
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Scale 1:2000 @ A3

0 50 100m

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LEGEND

- Planning applicatic
- Residential
  Including as required: a
  pedestrian/cycle links a
- Primary school
  Includes school buildin
  infrastructure
- Neighbourhood Ce
  With potential of:
  - commercial and retail

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North St. Albans

drawing title
TREE RETENTION PLAN

scale	drawn	date
1:2000 @ A3	RG	October 2024

drawing number
8575-T-07

rev
-

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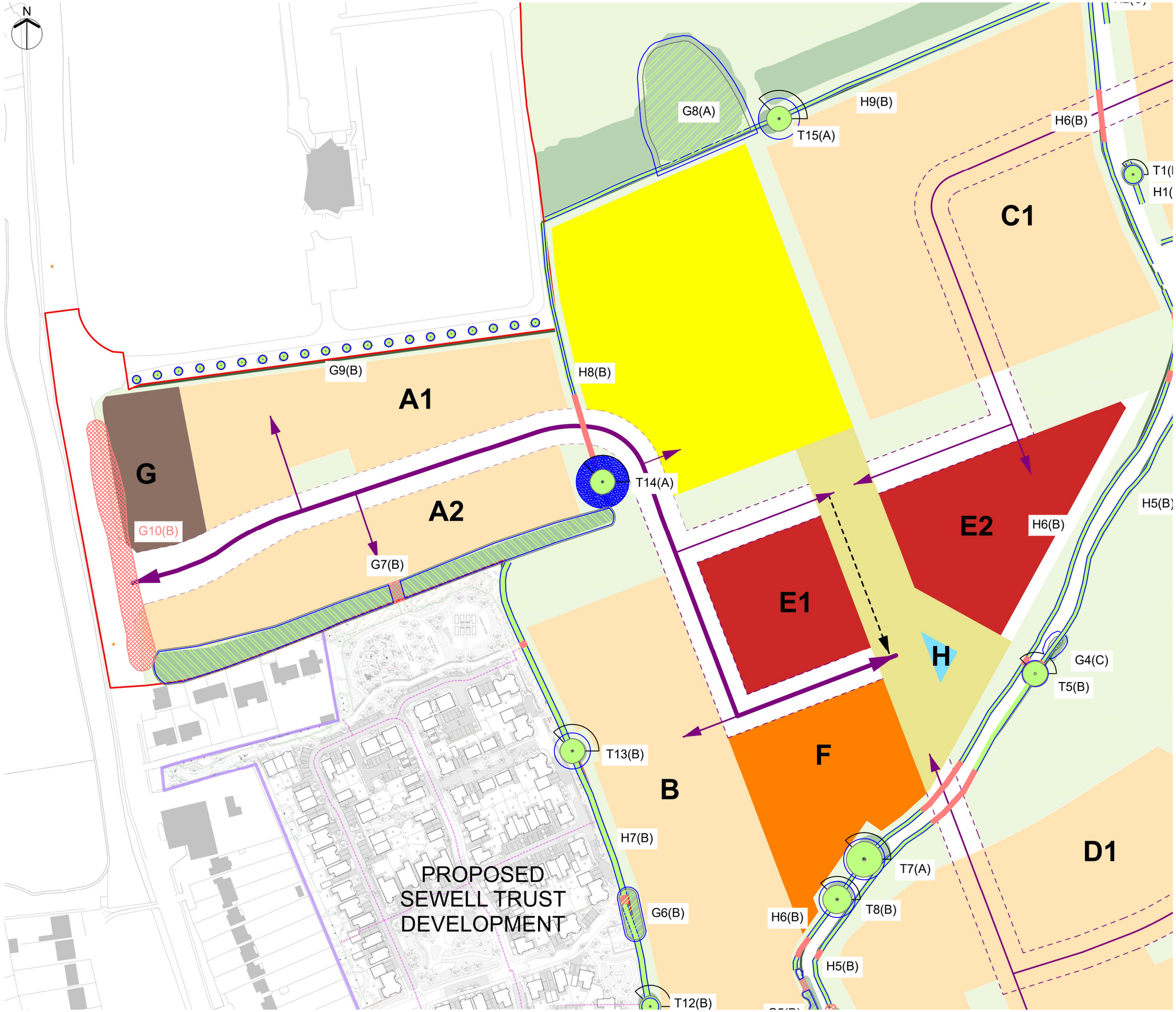

KEY

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Scale 1:2000 @ A3

0 50 100m

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project
Harpenden Road
North St. Albans

drawing title
TREE RETENTION PLAN

scale	drawn	date
1:2000 @ A3	RG	October 2024

drawing number
8575-T-08

rev
-

CAD file: K:\8500\8575\ARB\Residential\2023\Plans\Tree Retention Plan.dwg

N

G9(B)

G10(B)

G7(B)

KEY

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Scale 1:1000 @ A3

0 25 50m

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project
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drawing title
TREE RETENTION PLAN
Harpenden Road Access

scale	drawn	date
1:1000 @ A3	RG	October 2024

drawing number
8575-T-09

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Scale 1:500 @ A3

0 10 20 30m

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client
Hallam Land Management

project
Harpenden Road
North St. Albans

drawing title
TREE RETENTION PLAN
Sandridgebury Lane Access

scale	drawn	date
1:1500 @ A3	RG	October 2024

drawing number
8575-T-10

rev
-

CAD file: K:\8500\8575\ARB\Residential\2023\Plans\Tree Retention Plan.dwg



KEY

- Tree/Group to be Retained
- Tree/Group to be removed to facilitate the proposals
- Category U - Unsuitable for retention on arboricultural grounds
- Hedgerow Proposed to be Retained and Incorporated into the New Development
- Hedgerow Proposed to be Removed to Facilitate the Development upon Approval of the Application
- Root Protection Area (Shown for retained trees only)
- T1 (A) G1 (A) — Individual / Group Number and BS Category
- Indicative Shade Pattern (where appropriate)

Scale 1:500 @ A3

0 10 20 30m

NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule.

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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rev	date	description	by
-	17.10.24	First Issue	RG

masterplanning
environmental assessment
landscape design
urban design
ecology
architecture
arboriculture

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project
Harpenden Road
North St. Albans

drawing title
TREE RETENTION PLAN
Sandridgebury Lane Turning Loop

scale	drawn	date
1:1500 @ A3	RG	October 2024

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8575-T-11

rev
-

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Appendix A - Tree Schedule

Measurements	Age Classes	Quality Assessment of BS Category	ULE (relates to BS Category)
Height - Measured using a digital laser clinometer (m)	**YNG**: Establishing, typically with good vigour and fast growth rates and strong apical dominance; c. less than 1/3 life expectancy	**Category U -** Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	<10 years
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837	**SM:** Semi-mature trees less than 1/3 life expectancy	**Category A -** Trees of high quality with an estimated remaining life expectancy of at least 40 years.	40+ years
Crown Radius - Measured using a digital laser clinometer radially from the main stem (m)	**EM:** Established, typically vigorous and increasing in apical height and lateral spread; 1/3 - 2/3 life expectancy. Offers landscape significance	**Category B -** Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	20-40 years
Abbreviations est - Estimated stem diameter avg - Average stem diameter for multiple stems upto - Maximum stem diameter of a group	**M:** Fully established over 2/3 life expectancy, generally good vigour and achieving full height potential with crown still spreading	**Category C -** Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	10-20 years
	OM: Fully mature, at the extremes of expected life expectancy, vigour decreasing, declining or moribund	Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value	
	V: biological, cultural or aesthetic value comprising niche saproxylic habitat. Individuals of large proportions (stem girth) in comparison to trees of the same species/surviving beyond the typical age range for their species.	**The BS category particular consideration has been given to the following:** • The presence of any structural defects in each tree/group and its future life expectancy • The size and form of each tree/group and its suitability within the context of a proposed development • The location of each tree relative to existing site features e.g. its screening value or landscape features • Age class and life expectancy	

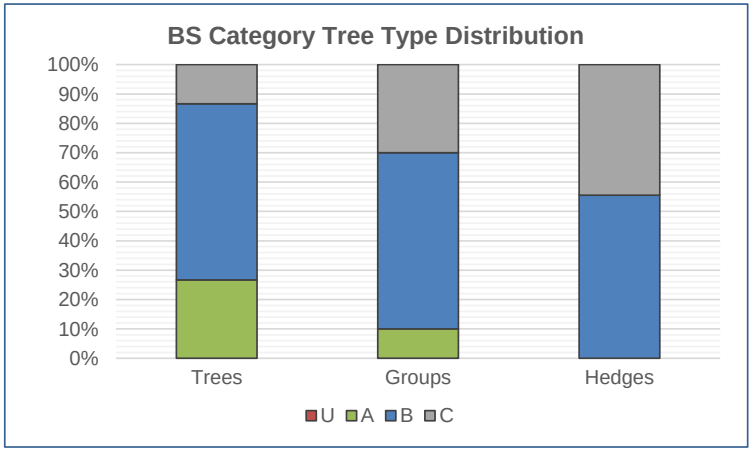
Structural Condition	Physiological Condition	Root Protection Area (RPA)
Good - No significant structural defects	**Good -** No significant health problems	• The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). • The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the rooting area required for a tree to be successfully retained. Tree roots extend beyond the calculated RPA in many cases and where possible a greater distance should be protected. • Where veteran trees have been identified the RPA has been calculated in accordance with Natural England guidance i.e. 15x the stem diameter, uncapped.
Fair - Structural defects that can be remediated	**Fair -** Symptoms of ill-health that can be remediated	
Poor - Significant defects beyond remediation, present a risk of failure in the foreseeable future	**Poor -** Significant ill-health. Unlikely the tree will recover in the long term	
Dead - Dead tree with structural integrity of tree severely compromised	**Advanced Decline / Dead -** Advanced state of decline and unlikely to recover or Dead	

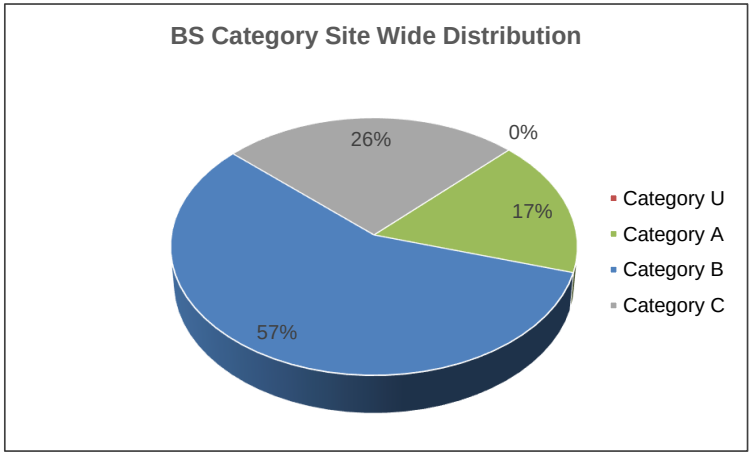
Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U		0		0
Category A	T2, T7, T14, T15	4	G8, W1	2
Category B	T1, T3, T5, T6, T8, T9, T10, T12, T13	9	G3, G5, G6, G7, G9, G10, H5, H6, H7, H8, H9	11
Category C	T4, T11	2	G1, G2, G4, H1, H2, H3, H4	7
	Total	15	**Total**	20

BS Category Tree Type Distribution displays the proportion of trees assessed in each type to enable a better understanding of the category distribution.

BS Category Site Wide Distribution shows the proportion of trees assessed in each category across the whole site which allows an interpretation of the site's overall quality.





Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	English Oak Quercus robur	9	est 380 200 90	6	EM	F	Basal suckers present Branch stubs evident Flail damage evident Low crown form Multi leadered form Multi stemmed from base Overhead cables	87	5.3	B (i)
T2	English Oak Quercus robur	18	est 1225	10	M	F / G	Bark wounds noted Branch stubs evident Broken branches evident Crossing and rubbing branches Dense ivy cover on main stem Epicormic growth evident within the crown Hazard beam present Bark wound from vehicle damage Number of large crossing and rubbing branches above road	679	14.7	A (i)
T3	English Oak Quercus robur	19	est 1130	8	M	P / F	Dense ivy cover on main stem Dieback of the crown observed Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Pruning wounds noted Sparse crown Large dead limb to east above road Large exposed root in layby at base	578	13.6	B (i)
T4	English Oak Quercus robur	18	est 640 250	N - 6 S - 6 E - 3 W - 3	M	P	Branch stubs evident Broken branches evident Crown had been heavily reduced Epicormic growth evident within the crown Overhead cables Pruning wounds noted Heavily reduced to east and west	214	8.2	C (i)
T5	English Oak Quercus robur	12	est 635	7	M	F	Branch stubs evident Broken branches evident Dense ivy cover on main stem Dense undergrowth at the base Low crown form Situated within banked hedgerow	182	7.6	B (i)
T6	English Oak Quercus robur	10	est 410	5	EM	F	Branch stubs evident Broken branches evident Flail damage evident Multi leadered form Situated within verge	76	4.9	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T7	English Oak Quercus robur	15	est 990	10	M	G	Characteristic for species Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi leadered form	443	11.9	A (i)
T8	English Oak Quercus robur	13	est 900	8	M	F / G	Crossing and rubbing branches Dense ivy cover on main stem Hazard beam present Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse crown Hung up branch	366	10.8	B (i)
T9	English Oak Quercus robur	10	est 500	6	EM	F / G	Broken branches evident Characteristic for species Flail damage evident Minor dead wood evident in the crown (<75mm) Multi leadered form	113	6.0	B (i)
T10	English Oak Quercus robur	10	est 475	5	EM	F	Characteristic for species Flail damage evident Minor dead wood evident in the crown (<75mm) Multi leadered form	102	5.7	B (i)
T11	English Oak Quercus robur	9	est 540	5	EM	P	Branch socket cavities observed Dieback of the crown observed Light ivy cover Limited future potential Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi leadered form Possible hollow stem	132	6.5	C (i)
T12	Ash Fraxinus excelsior	12	est 200 200 200 200	6	M	F	Coppiced form Flail damage evident Minor dead wood evident in the crown (<75mm) Multi leadered form Multi stemmed from base Outgrown hedgerow specimen	72	4.8	B (i)
T13	English Oak Quercus robur	15	est 870	7	M	F	Dieback of the crown observed Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse crown Main leadered has died back receding crown	342	10.4	B (i)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
T14	English Oak Quercus robur	15	est 990	7	V	F	Basal cavity observed Close cultivation of the soil Delaminating bark on main stem Dieback of the crown observed Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Sparse crown Woodpecker holes observed Receding crown Single dead butress root with decay extending up main stem	693	14.9	A (iii)
T15	English Oak Quercus robur	16	est 970	7	M	G	Broken branches evident Characteristic for species Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi leadered form	426	11.6	A (i)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Hawthorn Crataegus monogyna	7	avg 130	2	EM	P	Dead trees noted Dense ivy cover on main stem Etiolated form Situated offsite Limited screening value	8	1.6	C (ii)
G2	Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna	7.5	avg 550	N - 5 S - 5 E - 1 W - 5	EM	P	Branch stubs evident Broken branches evident Crown had been heavily reduced Pruning wounds noted Situated offsite Crowns have been heavily reduced to east for railway line clearance	137	6.6	C (ii)
G3	Ash Fraxinus excelsior Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus Dogwood Cornus sanguinea	8	avg 100 100 100 100	3	EM / M	F / G	Branch stubs evident Broken branches evident Coppiced form Dense undergrowth at the base Flail damage evident Gaps present in hedgerow Multi stemmed from base Outgrown hedgerow Un-maintained hedgerow Moderate screening value	18	2.4	B (ii)
G4	Holly Ilex aquifolium Hornbeam Carpinus betulus	8	upto 470	3	M	F	Bark wounds noted Basal suckers present Coppiced form Dense ivy cover on main stem Flail damage evident Interlocking crowns Outgrown section of hedgerow	100	5.6	C (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G5	Ash Fraxinus excelsior Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hazel Corylus avellana Holly Ilex aquifolium	9	avg 100 100 100 100	3	EM / M	F / G	Branch stubs evident Broken branches evident Coppiced form Dense undergrowth at the base Flail damage evident Gaps present in hedgerow Multi stemmed from base Outgrown hedgerow Un-maintained hedgerow Moderate screening value	18	2.4	B (ii)
G6	English Oak Quercus robur Sycamore Acer pseudoplatanus Hornbeam Carpinus betulus	14	upto 500	5	EM	G	Branch stubs evident Broken branches evident Epicormic growth evident within the crown Interlocking crowns Multi leadered form Squirrel damage observed Small boundary tree group beyond hedgerow	113	6.0	B (ii)
G7	Ash Fraxinus excelsior Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Hawthorn Crataegus monogyna Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus Midland hawthorn Crataegus laevigata	6	avg 100	2	SM	G	Characteristic for species Interlocking crowns Typical crown form Buffer planting group close spacing between specimens	5	1.2	B (ii)
G8	Ash Fraxinus excelsior English Oak Quercus robur Common Larch Larix decidua	20	est 350	5	EM	G	Characteristic for species Etiolated form Interlocking crowns No major defects were noted Situated offsite Unable to gain access	55	4.2	A (ii)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G9	English Oak Quercus robur	9	avg 200	2	SM	G	Characteristic for species No major defects were noted Linear group with uniform spacing	18	2.4	B (ii)
G10	Ash Fraxinus excelsior English Oak Quercus robur Sycamore Acer pseudoplatanus	18	avg 350 350	5	EM / M	F	Interlocking crowns Minor dead wood evident in the crown (<75mm) Multi stemmed from base Pruning wounds noted Linear tree group adjacent to carriageway	111	5.9	B (ii)

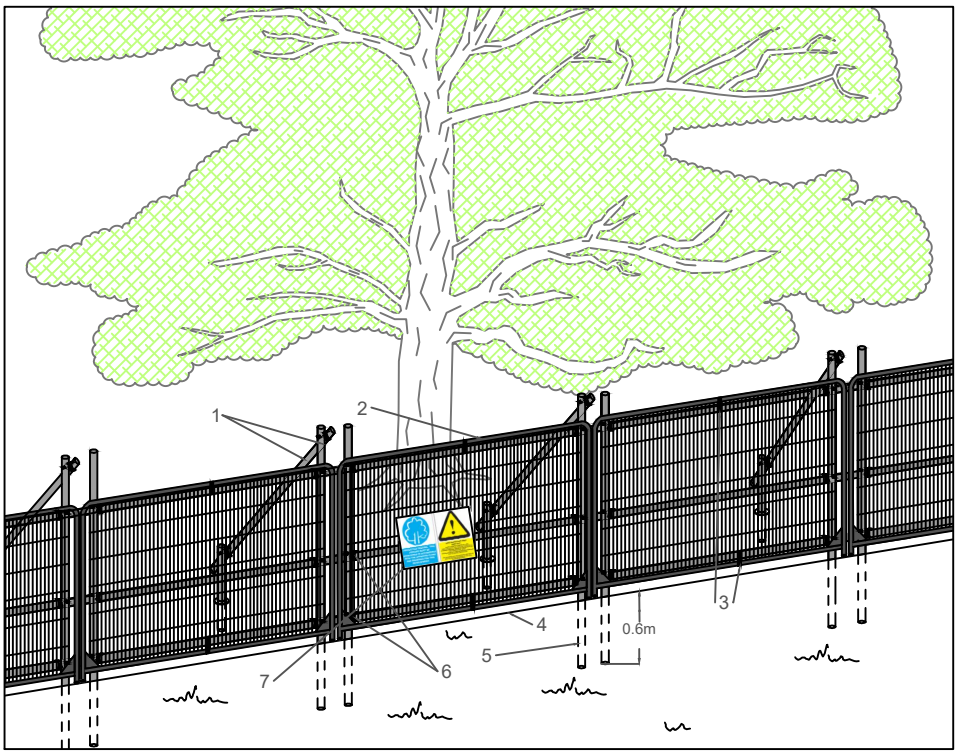
Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Blackthorn Prunus spinosa Hazel Corylus avellana Dogwood Cornus sanguinea	3	avg 6x 50	1.5	M	F	Dense undergrowth at the base Maintained hedgerow Small section of hedgerow	7	1.5	C (ii)
H2	English Oak Quercus robur Hawthorn Crataegus monogyna Hazel Corylus avellana Hornbeam Carpinus betulus Dogwood Cornus sanguinea	3	avg 6x 50	1.5	M	F	Dense undergrowth at the base Maintained hedgerow Small section of hedgerow	7	1.5	C (ii)
H3	Hawthorn Crataegus monogyna Dogwood Cornus sanguinea	3	avg 60	1	SM	G	Recently planted hedgerow stakes and guards still present	2	0.7	C (ii)
H4	Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana	4	10x 30	1.5	M	G	Coppiced form Dense undergrowth at the base Maintained hedgerow Multi stemmed from base	4	1.1	C (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
H5	Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus	4	10x 30	1.5	M	G	Coppiced form Dense undergrowth at the base Maintained hedgerow Multi stemmed from base Sections of recent planting and occasional outgrown specimens	4	1.1	B (ii)
H6	Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus	4	10x 30	1.5	M	G	Coppiced form Dense undergrowth at the base Maintained hedgerow Multi stemmed from base Sections of recent planting and occasional outgrown specimens	4	1.1	B (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
H7	Blackthorn Prunus spinosa English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna English Elm Ulmus procera Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus Goat willow Salix caprea	6	avg 20x 30	2	M	F	Coppiced form Dead trees noted Flail damage evident Gaps present in hedgerow Maintained hedgerow Multi stemmed from base Outgrown hedgerow Unmanaged height	8	1.6	B (ii)
H8	Ash Fraxinus excelsior Blackthorn Prunus spinosa Field Maple Acer campestre Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Hazel Corylus avellana Hornbeam Carpinus betulus Dogwood Cornus sanguinea	6	avg 60	1.5	SM	G	Recently planted hedgerow Stakes and guards Moderate screening value	2	0.7	B (ii)

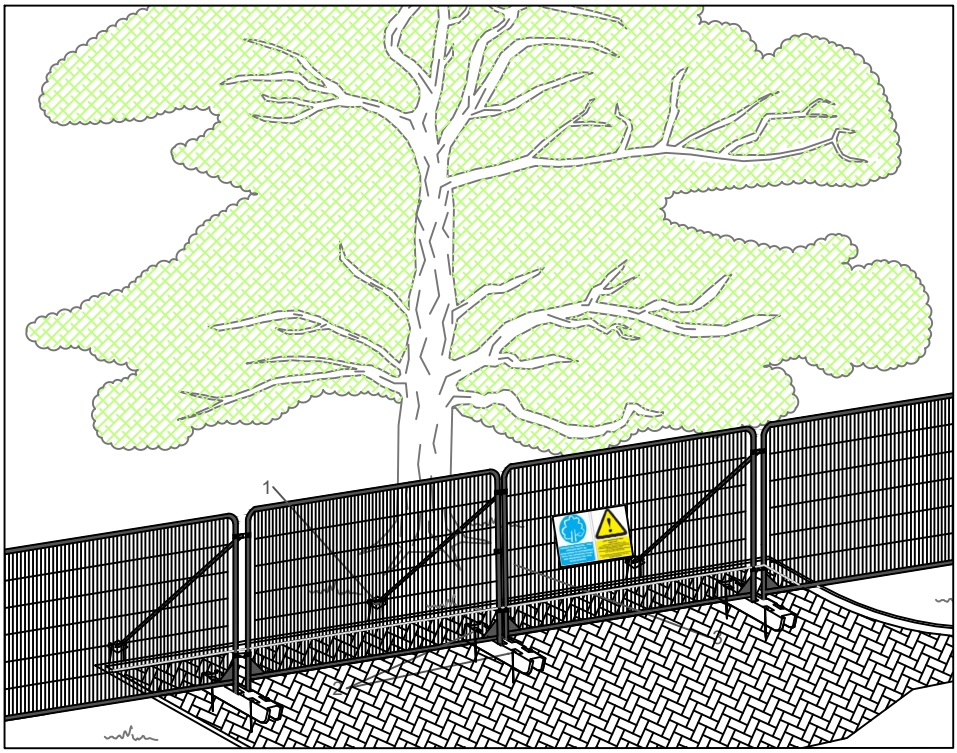
Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
H9	Blackthorn Prunus spinosa Elder Sambucus nigra Field Maple Acer campestre Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Wild Cherry Prunus avium	4	10x 30	1.5	M	G	Maintained hedgerow Multi stemmed from base	4	1.1	B (ii)

Wood No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
				WOODLANDS						
W1	Ash Fraxinus excelsior Beech Fagus sylvatica Blackthorn Prunus spinosa Elder Sambucus nigra English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Silver Birch Betula pendula Sycamore Acer pseudoplatanus Wild Cherry Prunus avium Crab Apple Malus sylvestris Hazel Corylus avellana Holly Ilex aquifolium Hornbeam Carpinus betulus Rowan Sorbus aucuparia Dogwood Cornus sanguinea	17	upto 630	6	M	G	Branch socket cavities observed Dead trees noted Failed trees Major dead wood evident in the crown (>75mm) Strip of ancient woodland along site boundary Predominantly oak with occasional mature hornbeam Coppiced hazel Public footpath through woodand Bramble ground cover Areas of extensive holly growth Areas of bracken cover Owl box noted	180	7.6	A (iii)



Standard specification for protective barrier

1. Standard scaffold poles
2. Heavy gauge 2m tall galvani□ed tube and welded mesh infill panels
3. Panels secured to scaffold frame with wire ties
4. Ground level
5. Uprights driven into the ground until secure (min depth of 0.6m)
6. Standard scaffold clamps
7. Construction Exclusion □one signs



Above ground stabilising systems

1. Stabiliser strut with base plate secured with ground pins
2. Feet blocks secured with ground pins
3. Construction Exclusion □one signs

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APPENDIX B
PROTECTIVE FENCING SPECIFICATIONS

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A4150

Tree Preservation Order

Town and Country Planning Act 1990

The St Albans City and District Council Tree Preservation Order No 1569 25/04/2016, Long Spring Wood, North of Porters Wood Industrial Estate

The St Albans City and District Council, in exercise of the powers conferred on them by section 198 of the Town and Country Planning Act 1990 make the following Order—

Citation

1. This Order may be cited as TPO 1569, Long Spring Wood, North of Porters Wood Industrial Estate 2016.

Interpretation

2.— (1) In this Order "the authority" means the St Albans City and District Council.

(2) In this Order any reference to a numbered section is a reference to the section so numbered in the Town and Country Planning Act 1990 and any reference to a numbered regulation is a reference to the regulation so numbered in the Town and Country Planning (Tree Preservation)(England) Regulations 2012.

Effect

3.— (1) Subject to article 4, this Order takes effect provisionally on the date on which it is made.

(2) Without prejudice to subsection (7) of section 198 (power to make tree preservation orders) or subsection (1) of section 200 (tree preservation orders: Forestry Commissioners) and, subject to the exceptions in regulation 14, no person shall—

(a) cut down, top, lop, uproot, wilfully damage, or wilfully destroy; or

(b) cause or permit the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of,

any tree specified in the Schedule to this Order except with the written consent of the authority in accordance with regulations 16 and 17, or of the Secretary of State in accordance with regulation 23, and, where such consent is given subject to conditions, in accordance with those conditions.

Application to trees to be planted pursuant to a condition

4. In relation to any tree identified in the first column of the Schedule by the letter "C", being a tree to be planted pursuant to a condition imposed under paragraph (a) of section 197 (planning permission to include appropriate provision for preservation and planting of trees), this Order takes effect as from the time when the tree is planted.

Dated this day 25th of April 2016

[Signed on behalf of the St Albans City and District Council

[redacted] .....

Authorised by the Council to sign in that behalf]

CONFIRMATION OF ORDER

[This Order was confirmed by St Albans City and District Council without modification on the day of 25th August 2016

OR

~~[This Order was confirmed by the St Albans City and District Council, subject to the modifications indicated by , on the day of 2016~~

~~[Signed on behalf of the St Albans City and District Council~~

Signed on behalf of the St Albans City and District Council

[redacted]

Authorised by the Council to sign in that behalf]

[DECISION NOT TO CONFIRM ORDER

[A decision not to confirm this Order was taken by St Albans City and District Council on the day of 2016

[Signed on behalf of the St Albans City and District Council

.....

Authorised by the Council to sign in that behalf]

[VARIATION OF ORDER

[This Order was varied by the St Albans City and District Council on the day of 2016 by a variation order under reference number [*insert reference number to the variation order*] a copy of which is attached]

[Signed on behalf of the St Albans City and District Council

.....

Authorised by the Council to sign in that behalf]

[REVOCATION OF ORDER

[This Order was revoked by the St Albans City and District Council on the day of 2016

[Signed on behalf of the St Albans City and District Council

.....

SCHEDULE

SPECIFICATION OF TREES

Trees specified individually
(encircled in black on the map)

Reference on map	Description	Situation
None		

Trees specified by reference to an area
(within a dotted black line on the map)

Reference on map	Description	Situation
None		

Groups of trees
(within a broken black line on the map)

Reference on map	Description	Situation
None		

Woodlands
(within a continuous black line on the map)

Reference on map	Description	Situation
W1	Broadleaved Mixed Woodland	



Location: Long Spring Wood, North of Porters Wood Industrial Estate			
Schedule: Tree Preservation Order No. 1569			
Individual Trees: None Groups: None Areas: None Woodlands: W1 - Broadleaved Mixed Woodland			
© Crown copyright and database rights 2016 Ordnance Survey 100018953	Scale:- 1:2000	Drawn By J.A	Date 25th April 2016

St Albans City & District Council

Dated this 25th April 2016

.....

Authorised by the Council to sign in that behalf

ST ALBANS SCHOOL

Hallam Land

PART OF HENRY BOOT

WOOLLAM PARK

North St Albans

ARBORICULTURAL IMPACT ASSESSMENT

DECEMBER 2024

Hallam Land Management Limited, St Albans School and

St Albans School Woollam Trust

Woollam Park North St Albans

Sports Pitch Relocation

Arboricultural Assessment

December 2024

FPCR Environment and Design Ltd
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Company No. 07128076. [T] 01509 672772 [F] 01509 674565 [E] mail@fpcr.co.uk [W] www.fpcr.co.uk

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-	Draft	RG / 25.09.24	HR / 18.10.24
	Final	RG / 05.12.24	HCK / 05.12.24

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APPENDICES

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1.0 INTRODUCTION

1.1 This report has been prepared by FPCR Environment and Design Limited on behalf of Hallam Land Management Limited, St Albans School and St Albans School Woollam Trust to present the findings of an Arboricultural Assessment and survey of trees located at Land North of St Albans (hereafter referred to as the site), OS Grid Ref TL 152 101.

Site Description

1.2 The site is situated to the north of St Albans comprising of an arable field parcel.

1.3 Existing sports pitches are situated on land to the west of the application site with land to the north and east being of agricultural usage. Field parcels to the south form part of an outline application for a residential development.

1.4 Tree cover associated with the site is predominantly confined to a tree belt on the southern boundary.

Scope of Assessment

1.5 A tree survey and assessment of existing trees was carried out by FPCR Environment and Design on the 17th of November 2023 in accordance with guidance contained within British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations' (hereafter referred to as BS5837).

1.6 This report has been produced to accompany a full planning application for residential led mixed use development.

1.7 The purpose of this report is therefore to firstly, present the results of this assessment of the existing trees' arboricultural value, based on their current condition and quality and to secondly, provide an assessment of impact arising from the proposed development of the site.

2.0 PLANNING POLICY

National Planning Policy Framework December 2023

2.1 National Planning Policy is defined by the National Planning Policy Framework (NPPF). This sets out the Government's most current and up to date planning policies for England and how these should be applied. The current NPPF is dated December 2023.

2.2 Paragraphs 10 and 11 of the NPPF state that there is a presumption in favour of sustainable development and states that for decision making, the LPA should be 'c) approving development proposals that accord with an up-to-date development plan without delay'.

2.3 In relation to arboriculture, the NPPF states that:

- 136 'Trees make an important contribution to the character and quality of urban environments, and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined (footnote 53), that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted

trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users'. (footnote 53: unless, in specific cases, there are clear, justifiable and compelling reasons why this would be inappropriate)

- 186 (c) 'development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons (footnote 67) and a suitable compensation strategy exists'.

and provides specific guidance that:

- 186 (d) 'development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate'.

2.4 With reference to paragraph 186 (c), examples of what is deemed to be 'wholly exceptional' are included within Footnote 67 and provides the examples of 'infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat'.

3.0 SURVEY METHODOLOGY

3.1 The survey of trees has been carried out in accordance with the criteria set out in Chapter 4 of BS5837. The survey has been undertaken by a suitably qualified and experienced arboriculturist and has recorded information relating to all those trees within the site and those adjacent to the site which may be of influence to any proposals. Trees were assessed for their arboricultural quality and benefits within the context of the proposed development in a transparent, understandable, and systematic way.

3.2 Trees have been assessed as groups, hedgerows or woodland where it has been determined appropriate.

- The term group has been applied where trees form cohesive arboricultural features either aerodynamically, visually or culturally including biodiversity or habitat potential for example parkland or wood pasture.
- For the purposes of this assessment, a hedgerow is described as any boundary line of trees or shrubs less than 5m wide at the base and are managed under a regular pruning regime.
- For the purposes of this assessment woodland is described as a habitat where 'trees are the dominant plant form. The individual tree canopies generally overlap and interlink, often forming a more or less continuous canopy'[1]. Woodlands however, are not just formed of trees and generally include a great variety of other plants. These will include 'mosses, ferns and lichens, as well as small flowering herbs, grasses and shrubs'[2].

3.3 An assessment of individual trees within groups, hedgerows and woodland has been made where a clear need to differentiate between them, for example, to highlight significant variation

[1] http://www.countrysideinfo.co.uk/woodland_manage/whatis.htm
[2] http://www.countrysideinfo.co.uk/woodland_manage/whatis.htm

between attributes including physiological or structural condition or where a potential conflict may arise.

BS5837 Categories

3.4 Trees, groups, hedgerows, and woodland have been divided into one of four categories based on Table 1 of BS5837, *'Cascade chart for tree quality assessment'*. For a tree to qualify under any given category it should fall within the scope of that category's definition (see below).

3.5 Category U trees are those which would be lost in the short term for reasons connected with their physiology or structural condition. They are, for this reason not considered in the planning process on arboricultural grounds.

3.6 Categories A, B and C are applied to trees that should be of material consideration in the development process. Each category also having one of three further sub-categories (i, ii, iii) which are intended to reflect arboricultural, landscape and cultural or conservation values accordingly.

3.7 **Category (U) ï (Red):** Trees which are unsuitable for retention and are in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years. Trees within this category are:

- Trees that have a serious irremediable structural defect such that their early loss is expected due to collapse and includes trees that will become unviable after removal of other category U trees.
- Trees that are dead or are showing signs of significant, immediate or irreversible overall decline.
- Trees that are infected with pathogens of significance to the health and/ or safety of other nearby trees or are very low quality trees suppressing adjacent trees of better quality.
- Certain category U trees can have existing or potential conservation value which may make it desirable to preserve.

3.8 **Category (A) ï (Green):** Trees that are considered for retention and are of high quality with an estimated remaining life expectancy of at least 40 years with potential to make a lasting contribution. Such trees may comprise:

- Sub category (i) trees that are particularly good examples of their species, especially if rare or unusual, or are essential components of groups such as formal or semi-formal arboricultural features for example the dominant and/or principal trees within an avenue.
- Sub category (ii) trees, groups or woodlands of particular visual importance as arboricultural and / or landscape features.
- Sub category (iii) trees, groups or woodlands of significant conservation, historical, commemorative or other value for example veteran or wood pasture.

3.9 **Category (B) ï (Blue):** Trees that are considered for retention and are of moderate quality with an estimated remaining life expectancy of at least 20 years with potential to make a significant contribution. Such trees may comprise:

- Sub category (i) trees that might be included in category A but are downgraded because of impaired condition for example the presence of significant though remediable defects, including unsympathetic past management and storm damage.
- Sub category (ii) trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.
- Sub category (iii) trees with material conservation or other cultural value.

3.10 **Category (C) ï (Grey):** Trees that are considered for retention and are of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm. Such trees may comprise:

- Sub category (i) unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
- Sub category (ii) trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value or trees offering low or only temporary / transient screening benefits.
- Sub category (iii) trees with no material conservation or other cultural value.

Ancient and Veteran Trees

3.11 Various published methodologies are currently available for the identification of Ancient and Veteran trees which, due to the complexity and subjectivity of the process of defining and assessing these trees, often have conflicting definitions.

3.12 This assessment and the criterion for defining a veteran tree is based upon the definition within BS:5837.

Tree that, by recognized criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned .

NOTE These characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem

3.13 Stem girth is the most reliable guide when determining the age of trees and in normal growing conditions, ancient and veteran trees are those which have a large girth by comparison with other trees of the same species. To inform the assessment of chronological age reference has been made to the chart provided within Lonsdale (2013) (shown below in Figure 1).

3.14 BS:5837 does not provide a definition for ancient trees and therefore the assessment and the criterion being used for identifying ancient tree is based upon government guidance on, *Ancient woodland, ancient trees and veteran trees: advice for making planning decisions*[3] which states.

All ancient trees are veteran trees, but not all veteran trees are ancient. The age at which a tree becomes ancient, or veteran will vary by species because each species ages at a different rate.

3 Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)

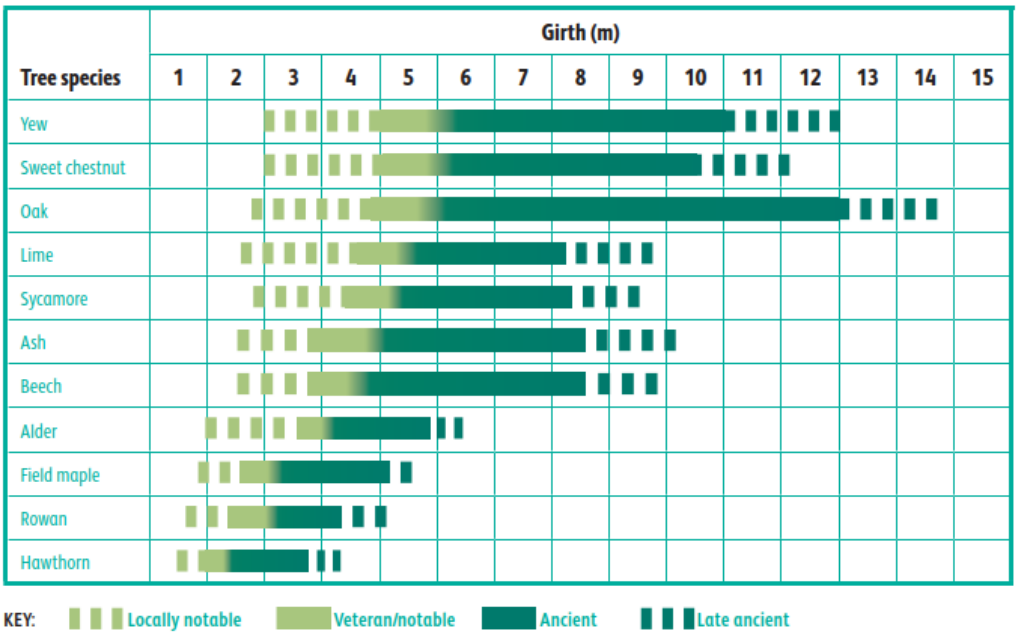


Figure 1: The chart of girth in relation to age and development classification of trees, as shown in Lonsdale (2013)[4].

3.15 Ancient and veteran trees are also material considerations within the planning process and their importance is specifically recognised within the National Planning Policy Framework (NPPF) 2023, which includes its own definition of ancient and veteran trees:

'A tree which, because of its age, size, and condition, is of exceptional biodiversity, cultural or heritage value. All ancient trees are veteran trees. Not all veteran trees are old enough to be ancient but are old relative to other trees of the same species. Very few trees of any species reach the ancient life-stage.'[5]

Considerations and Limitations of the Tree Survey

3.16 The survey was completed from ground level only and from within the boundary of the site. Aerial tree inspections or an assessment of the internal condition of the stem/s or branches were not undertaken at this stage as this level of survey is beyond the scope of the initial assessment.

3.17 The statements made in this report regarding the assessed applies to the date of survey and cannot be assumed to remain unchanged. It will be necessary to review all comments and observations made within this report, in accordance with sound arboricultural practice, within two years of the date of survey (unless explicitly stated elsewhere within this report). Further review may also be necessary where site conditions change or works to trees are carried out which have not been specified in detail within this report.

3.18 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The tree survey conducted, in accordance with BS5837, does not assess hedgerows against the Hedgerow Regulations 1997 or specifically from an ecological perspective, and is outside the scope of this assessment.

[4] Lonsdale, D. (Ed.). 2013). Ancient and other veteran trees: further guidance on management. London: The Tree Council.
[5] Ministry of Housing, Communities and Local Government. (2019). *National Planning Policy Framework.* London: Ministry of Housing, Communities and Local Government.

3.19 It may be necessary during detailed design to undertake further assessment and accurate positioning of woody species within tree groups and hedgerows to assist structural calculations for foundation design of structures in accordance with NHBC Chapter 4.2 Building near Trees.

4.0 RESULTS

4.1 A total of four individual trees, five groups of trees and three hedgerows were surveyed as part of the Arboricultural Assessment. Trees were surveyed as individual trees, groups and hedgerows as per the survey methodology.

4.2 Appendix A presents details of all individual trees, groups and hedgerows recorded during the assessment including heights, diameters at 1.5m from ground level, crown spread (given as a radial measurement from the stem), age class, comments as to the overall condition at the time of inspection, BS5837 category of quality and suitability for retention and the root protection area (RPA), calculated in accordance with Annex C, D and Section 4.6 of BS5837:2012.

4.3 General observations particularly of structural and physiological condition for example the presence of any decay and physical defect and preliminary management recommendations have also been recorded where appropriate.

4.4 The individual positions of trees, groups and hedgerows have been shown on the Tree Survey Plan. The positions of trees are based on a topographical / land survey, as far as possible, supplied by the client. Where topographical information has not identified the position of trees these have been plotted using a global positioning system and aerial photography to provide approximate locations. The crown spread, root protection area and shade pattern (where appropriate) are also indicated on this plan.

Results Summary

4.5 Table 1 below summarises the trees assessed and several of the trees have been discussed in more detail following the table, owing to their physical condition or arboricultural significance.

Table 1: Summary of Trees by Retention Category

	Individual Trees	Total	Groups of Trees	Total
Category U - Unsuitable		0		0
Category A (High Quality / Value)	T3, T4	2	G5,	2
Category B (Moderate Quality / Value		0	G1, G3, G4, H3	4
Category C (Low Quality / Value)	T1, T2	2	G2, H1, H2	3

4.6 Two individual trees and one group were recorded as high value and retention Category A. T3 and T4 were both mature ash *Fraxinus excelsior* specimens and found to be good overall condition, with features typical of their age class resulting from natural abscission of material creating branch stubs, broken branches, branch socket cavities and bark wounds. Dead branches were also regularly observed in various proportions.

4.7 G5 a high-quality tree group in terms of its value to the landscape and arboricultural quality contained specimens of ash, English oak *Quercus robur* and common larch *Larix decidua,* recorded as retention Category A. Due to the close proximity to each other, the majority of these trees have formed conjoining crowns which would limit the possibility of removing some specimens without impact upon others.

4.8 Two planted tree groups formed the southern boundary of the site, G1 and G2. These contained a native planting mix with G1 regarded as being of higher overall quality and graded retention Category B. G2 had been left largely unmanaged with dead trees and dense brambles prolific throughout the group, due to this it was being of limited quality and retention Category C.

4.9 Hedgerows on the site were of native species and managed to a height of between two to five metres.

4.10 G3 and G4 were situated beyond the application boundary but included in the site survey for completeness and to assess any potential conflicts.

Ancient and Veteran Trees

4.11 None of the assessed trees were considered as ancient or veteran trees in accordance with our veteran survey methodology.

Statutory Considerations

4.12 Local authorities have a Duty under the Town and Country Planning Act to create Tree Preservation Orders (TPO) to protect and preserve specific trees and woodlands that bring significant amenity benefit to a particular site or location.

4.13 Under a TPO it is a criminal offence to cut down, top, lop, uproot or wilfully destroy a tree protected by that Order, or to cause or permit such actions, if carried out without the prior written consent of the acting LPA.

4.14 It is understood having used the online search facility on the website for the Local Planning Authority, St Albans City & District Council, that there are no Tree Preservation Orders and Conservation Areas that would apply to any trees present on, or in close proximity to the assessment site and therefore no statutory constraints would apply to the development in respect of trees. Before any tree works are undertaken confirmation of the online information should be sought from the Local Authority.

4.15 Information provided on Tree Preservation Orders and Conservation Areas is accurate to the date of this assessment and cannot be assumed to remain unchanged. The last check was carried out on the 25th of September 2024.

5.0 ARBORICULTURAL IMPACT ASSESSMENT

5.1 The following paragraphs present a summary of the tree survey and discussion of particular trees and groups recorded in the context of any proposed development in the form of an Arboricultural Impact Assessment in accordance with section 5.4 of BS5837. Any final tree retentions will need to be reconciled with the advice contained within this report.

5.2 The AIA has been based upon the Pitch Layout Plan and seeks to outline the relationship between the proposals and the existing trees and hedgerows. The drawing shows the proposals for the development of sports pitches and parking area.

5.3 An overlay of the layout has been incorporated in the Tree Retention Plan to assist in identifying the relationship and any potential conflicts between the proposals and the existing trees and hedgerows. The plan also identifies which trees would be required to be removed or retained as part of the proposed development.

5.4 Table 2 below summarises the impact on tree stock and these impacts have been discussed in more detail following the table.

Table 2: Summary of Impact on Tree Stock

	Trees to be Removed	Reasons for Removal	Total
Category U - Unsuitable			0
Category A (High Quality / Value)			0
Category B (Moderate Quality / Value			0
Category C (Low Quality / Value)	T1, T2	Removed to facilitate parking area	2

5.5 The proposed development will see the majority of trees retained and incorporated into the proposals. Where trees are shown for removal, these are of low quality and can be mitigated for through new tree planting across the site.

5.6 T1 and T2, both Category C coppiced goat willow were low quality trees, the loss of these should not pose a constraint to the development and are shown to be mitigated for by boundary planting along the northern and eastern boundaries.

6.0 NEW TREE AND HEDGEROW PLANTING

6.1 A detailed landscaping scheme, including an advanced planting specification, is being provided as part of the application. This scheme outlines the types of plants, trees, and shrubs to be introduced, along with their placement and size at planting. The advanced planting specification aims to ensure the establishment of vegetation, enhancing the site's visual appeal and promoting biodiversity from the outset. The landscaping plan also considers the long-term growth and sustainability of the planted areas, contributing to the overall environmental quality of the development.

6.2 The success of any landscaping scheme relies on an adequate provision of a high-quality rooting environment within which trees can thrive and reach their full potential. Planting trees with due care and consideration can, in the long term, provide a greater return on a schemes green investment and ensure trees remain healthy and grow to mature proportions.

6.3 Wherever possible, following discussions with the developer and utility companies, common service trenches should be specified to minimise land take associated with underground service provision and facilitation access for future maintenance.

6.4 Tree planting should be avoided where they may obstruct overhead power lines or cables. Any underground apparatus should be ducted or otherwise protected at the time of construction to enable trees to be planted without resulting in future conflicts.

6.5 The landscaping scheme should consider the use of both native tree species (for their low maintenance requirements and nature conservation value) and ornamental species (for their contribution to urban design and amenity value). Species choices should be selected on the basis of their suitability for the final site use. Furthermore, during the design process consultation should be made with the Local Planning Authority to obtain information on their tree strategy and incorporate the planting proposals with any local policies and initiatives and/or Biodiversity Action Plans (BAP).

6.6 When deciding upon suitable tree species, careful consideration would need to be given to the following: ultimate height and canopy spread, form, habit, density of crown, potential shading effect, colour, water demand, soil type and maintenance requirements in relation to both the built form of the new development and existing properties.

6.7 Through careful species selection, the landscape scheme shall reduce the risk of trees being removed in the future on the grounds of nuisance. Nuisance can be perceived in a number of ways and vary from person to person however most commonly, within the context of trees, low overhanging branches, excessive shading, seasonal leaf fall and the misinformed perception that trees close to buildings cause damage.

6.8 Hedgerows are identified as a Habitat of Principal Importance (HPI) as listed within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Consequently, it is important that the proposed scheme delivers a net gain in terms of linear hedgerows through new planting to compensate for any losses. Species should be native, and characteristic of the locality.

Rooting Environment and Soil Volumes

6.9 The success of any landscaping scheme relies on an adequate provision of a high-quality rooting environment within which trees can thrive and reach their full potential. Planting trees with due care and consideration can, in the long term, provide a greater return on a schemes green

investment and ensure trees remain healthy and grow to mature proportions. Healthy mature trees integrate well into the built environment; increase the maturity of the landscape; help provide a natural green and leafy urban environment in which people would want to reside whilst also benefiting local wildlife.

6.10 The planting of trees within confined urban environments should consider the use of appropriately designed planting pits specifically engineered to promote tree health and longevity. Crucially the aim will be to provide an adequate volume of quality soil for roots to suitably develop by calculating the amount of available soil volumes needed and selecting species whose mature size is compatible with the site. This is an integral component of the planning stage (Lindsey & Bassuk, 1991).

General Planting Recommendations

6.11 Wherever possible, following discussions with the developer and utility companies, common service trenches should be specified to minimise land take associated with underground service provision and facilitation access for future maintenance.

6.12 Tree planting should be avoided where they may obstruct overhead power lines or cables. Any underground apparatus should be ducted or otherwise protected at the time of construction to enable trees to be planted without resulting in future conflicts.

7.0 TREE PROTECTION MEASURES

7.1 Retained trees should be adequately protected during works through the erection of the requisite tree protection measures. These protection measures should be details as part of a site-specific Arboricultural Method Statement, which could be imposed as a condition of planning approval.

7.2 Measures to protect trees should follow the guidance in BS5837 and be applied where necessary for the purpose of protecting trees within the site whilst allowing sufficient access for the implementation of the proposed layout. These have been broadly summarised below.

General Information and Recommendations

7.3 All trees retained on site should be protected by suitable barriers or ground protection measures around the calculated RPA, crown spread of the tree or other defined constraints of this assessment as detailed by section 6 and 7 of BS5837.

7.4 Barriers should be erected prior to commencement of any construction work and once installed, the area protected by fencing or other barriers will be regarded as a construction exclusion zone.

7.5 Any trees that are not to be retained as part of the proposals should be felled prior to the erection of protective barriers. Particular attention needs to be given by site contractors to minimise damage or disturbance to retained specimens.

7.6 Construction access may take place within the root protection area if suitable ground protection measures are in place. This may comprise single scaffold boards over a compressible layer laid onto a geo-textile membrane for pedestrian movements. Vehicular movements over the root protection area will require the calculation of expected loading and the use of proprietary protection systems.

Tree Protection Barriers

7.7 Tree protection fencing should be fit for the purpose of excluding any type of construction activity and suitable for the degree and proximity of works to retained trees. Barriers must be maintained to ensure that they remain rigid and complete for the duration of construction activities on site.

7.8 In most situations, fencing should comprise typical construction fencing panels attached to scaffold poles driven vertically into the ground. As illustrated in Appendix B.

7.9 Where site circumstances and the risk to retained trees do not necessitate the default level of protection an alternative will be specified appropriate to the level / nature of anticipated construction activity.

Protection outside the exclusion zone

7.10 Once the areas around trees have been protected by the barriers, any works on the remaining site area may be commenced providing activities do not impinge on protected areas.

7.11 All weather notices should be attached to the protective fencing to indicate that construction activities are not permitted within the fenced area. The area within the protective barriers will then remain a construction exclusion zone throughout the duration of the construction phase of the proposed development.

7.12 Wide or tall loads etc should not come into contact with retained trees. Banksman should supervise transit of vehicles where they are near retained trees.

7.13 Oil, bitumen, cement or other material that is potentially injurious to trees should not be stacked or discharged within 10m of a tree stem. No concrete should be mixed within 10m of a tree. Allowance should be made for the slope of ground to prevent materials running towards the tree.

7.14 Notice boards, telephone cables or other services should not be attached to any part of a retained tree.

7.15 Any trees which need to be felled adjacent to or are present within a continuous canopy of retained trees, must be removed with due care (it may be necessary to remove such trees in sections).

8.0 TREE MANAGEMENT

8.1 All retained trees should be subjected to sound arboricultural management as recommended within section 8.8.3 of BS5837 *Post Development Management of Existing Trees,* where there is a potential for public access to satisfy the landowner's duty of care.

8.2 Landowners responsible for trees; especially those within the public domain, have a legal 'duty of care' to ensure that visitors and neighbours of their land are reasonably safe and that nobody comes to harm or injury, by his or her negligence, through taking measures to (The Health and Safety at Work Act 1974).

8.3 To ensure that risks are reduced as far as is 'reasonably practicable' it will be necessary that, a review of the relationship between retained trees and the new development should be undertaken by a qualified arboriculturist to assess the retained tree cover and prepare a schedule of tree works.

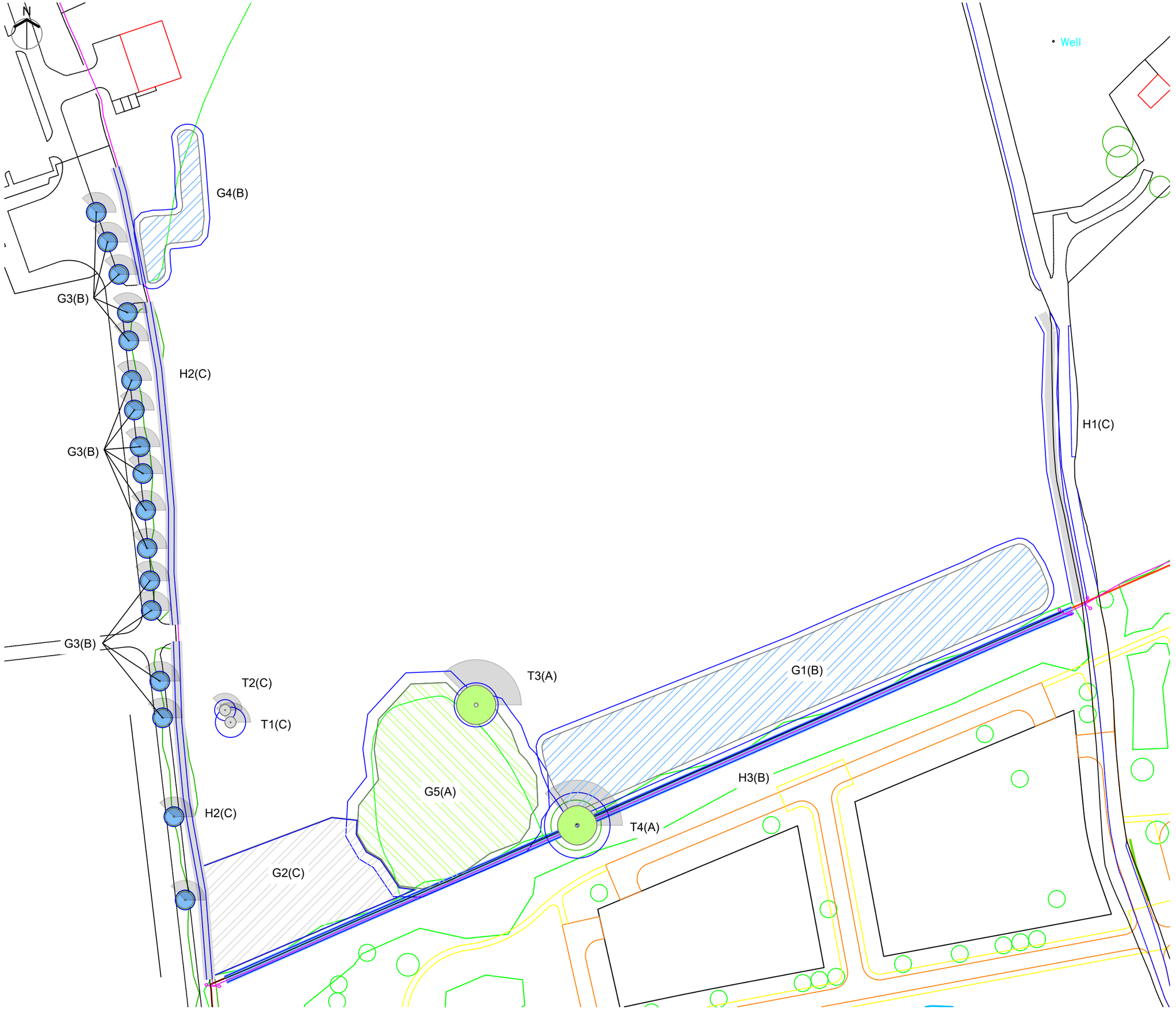
8.4 The Occupiers Liability Act (1957 and 1984) also places a ‘duty of care’ to ensure that no reasonably foreseeable harm takes place due to tree defects. That duty of care should be reasonable, proportionate, and reasonably practicable when managing the risk[6].

8.5 It is currently expected that a suitably qualified Arboriculturalist or tree surveyor should inspect trees with an appropriate level of regularity. The purpose of the inspections is to determine whether a tree could foreseeably cause harm by virtue of its size and physical condition.

8.6 All tree works undertaken should comply with British Standard 3998:2010 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association Approved Contractors as this is the recognised authority for certification of tree work contractors.

8.7 All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - September inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist.

[6] The Health and Safety at Work Act 1974



KEY

- Category U - Trees / Groups Unsuitable for Retention (BS 5837:2012)
- Category A - Trees / Groups of High Quality (BS 5837:2012)
- Category B - Trees / Groups of Moderate Quality (BS 5837:2012)
- Category C - Trees / Groups of Low Quality (BS 5837:2012)
- Hedgerow (Colour indicates BS5837:2012 Category)
- Root Protection Area (The RPA has been altered where appropriate to reflect underground constraints)
- T1 (A) G1 (A) — Individual / Group Number and BS5837:2012 Category
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

Scale 1:1250 @ A3

0 25 50 75m

NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule.

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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Sports Pitch Relocation
North St. Albans

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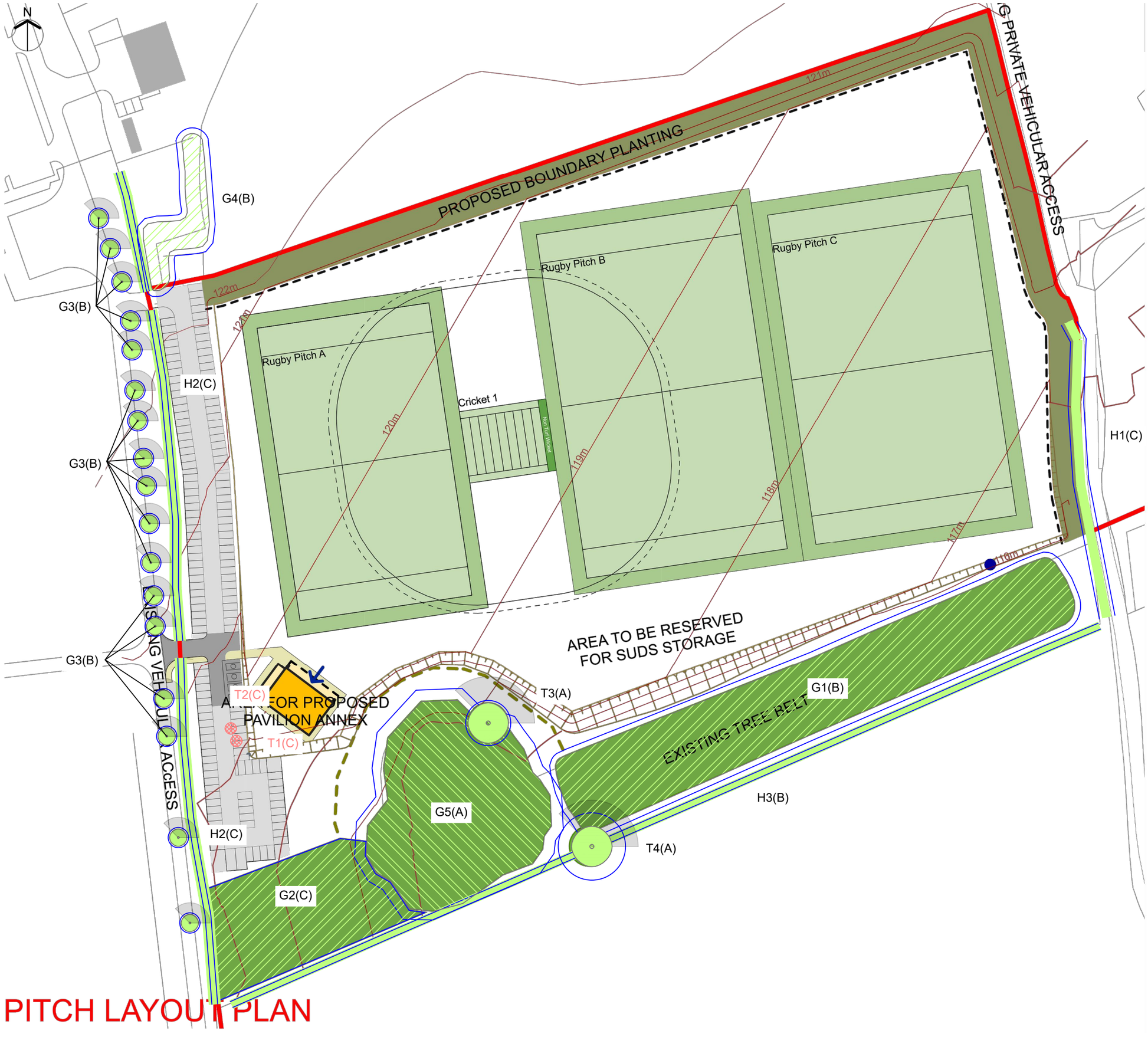

PITCH LAYOUT PLAN

KEY

- Tree/Group to be Retained
- Tree/Group proposed to be removed subject to relevant permissions
- Hedgerow Proposed to be Retained and Incorporated into the New Development
- Root Protection Area (Shown for retained trees only)
- T1 (A) G1 (A) — Individual / Group Number and BS Category
- T1 (A) G1 (A) — Individual / Group Number to be Removed and BS 5837:2012 Category
- Indicative Shade Pattern (in accordance with BS5837:2012 where appropriate)

Scale 1:1250 @ A3

0 25 50 75m

NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with project Arboriculturalist. Drawing to be read in conjunction with Arboricultural Assessment and Appendix A - Tree Schedule.

Drawing has been produced in colour and is based on digital information in .dwg format, aerial images and/or GPS location where appropriate. A monochrome copy should not be relied upon. The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken. Further survey work would be required for calculating foundation depths.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the project Arboriculturalist should works commence 12 months after the date of this survey.

SOME TREES MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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rev	date	description	by
-	18.10.24	First Issue	RG

masterplanning
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client
Hallam Land Management

project
Sports Pitch Relocation
North St. Albans

drawing title
TREE RETENTION PLAN

scale	drawn/checked	date
1:1250 @ A3	RG / HR	October 2024

drawing number
8575-T-13

rev
-

CAD file: K:\8500\8575\ARB\Sports Pitches\Plans\Tree Retention Plan.dwg

Appendix A - Tree Schedule

Measurements	Age Classes	Quality Assessment of BS Category	ULE (relates to BS Category)
Height - Measured using a digital laser clinometer (m)	**YNG**: Establishing, typically with good vigour and fast growth rates and strong apical dominance; c. less than 1/3 life expectancy	**Category U -** Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	<10 years
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837	**SM:** Semi-mature trees less than 1/3 life expectancy	**Category A -** Trees of high quality with an estimated remaining life expectancy of at least 40 years.	40+ years
Crown Radius - Measured using a digital laser clinometer radially from the main stem (m)	**EM:** Established, typically vigorous and increasing in apical height and lateral spread; 1/3 - 2/3 life expectancy. Offers landscape significance	**Category B -** Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	20-40 years
Abbreviations est - Estimated stem diameter avg - Average stem diameter for multiple stems upto - Maximum stem diameter of a group	**M:** Fully established over 2/3 life expectancy, generally good vigour and achieving full height potential with crown still spreading	**Category C -** Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.	10-20 years
	OM: Fully mature, at the extremes of expected life expectancy, vigour decreasing, declining or moribund	Sub-categories: (i) - Mainly arboricultural value (ii) - Mainly landscape value (iii) - Mainly cultural or conservation value	
	V: biological, cultural or aesthetic value comprising niche saproxylic habitat. Individuals of large proportions (stem girth) in comparison to trees of the same species/surviving beyond the typical age range for their species.	**The BS category particular consideration has been given to the following:** • The presence of any structural defects in each tree/group and its future life expectancy • The size and form of each tree/group and its suitability within the context of a proposed development • The location of each tree relative to existing site features e.g. its screening value or landscape features • Age class and life expectancy	

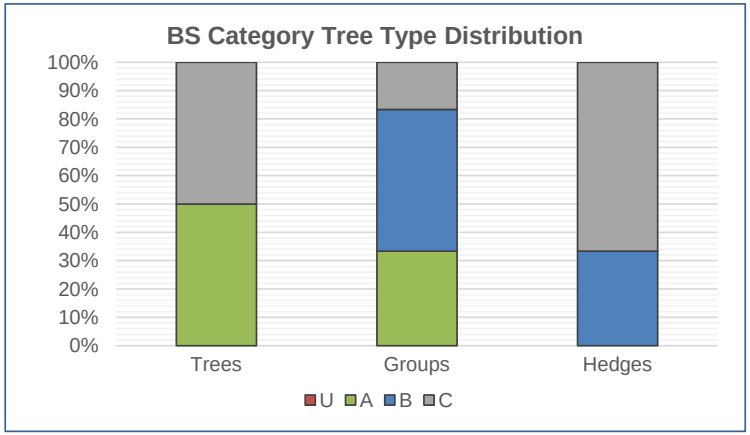
Structural Condition	Physiological Condition	Root Protection Area (RPA)
Good - No significant structural defects	**Good -** No significant health problems	• The RPA Radius column provides the extent of an equivalent circle from the centre of the stem (m). • The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the rooting area required for a tree to be successfully retained. Tree roots extend beyond the calculated RPA in many cases and where possible a greater distance should be protected. • Where veteran trees have been identified the RPA has been calculated in accordance with Natural England guidance i.e. 15x the stem diameter, uncapped.
Fair - Structural defects that can be remediated	**Fair -** Symptoms of ill-health that can be remediated	
Poor - Significant defects beyond remediation, present a risk of failure in the foreseeable future	**Poor -** Significant ill-health. Unlikely the tree will recover in the long term	
Dead - Dead tree with structural integrity of tree severely compromised	**Advanced Decline / Dead -** Advanced state of decline and unlikely to recover or Dead	

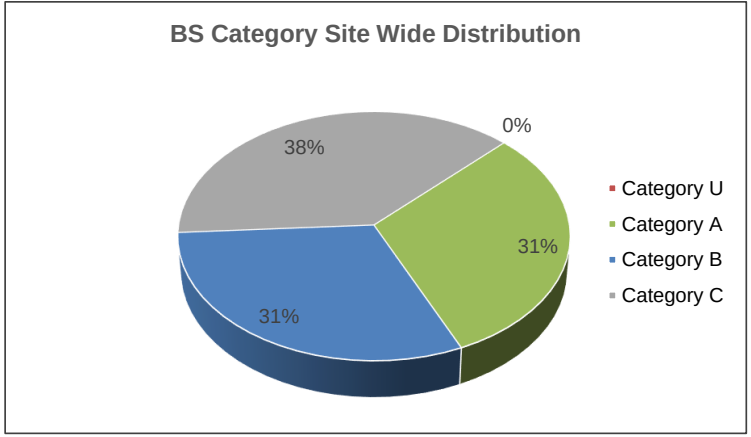
Appendix Summary

	Individual Trees	Totals	Tree Groups and Hedgerows	Totals
Category U		0		0
Category A	T3, T4	2	G5,	2
Category B		0	G1, G3, G4, H3	4
Category C	T1, T2	2	G2, H1, H2	3
	Total	4	**Total**	9

BS Category Tree Type Distribution displays the proportion of trees assessed in each type to enable a better understanding of the category distribution.

BS Category Site Wide Distribution shows the proportion of trees assessed in each category across the whole site which allows an interpretation of the site's overall quality.



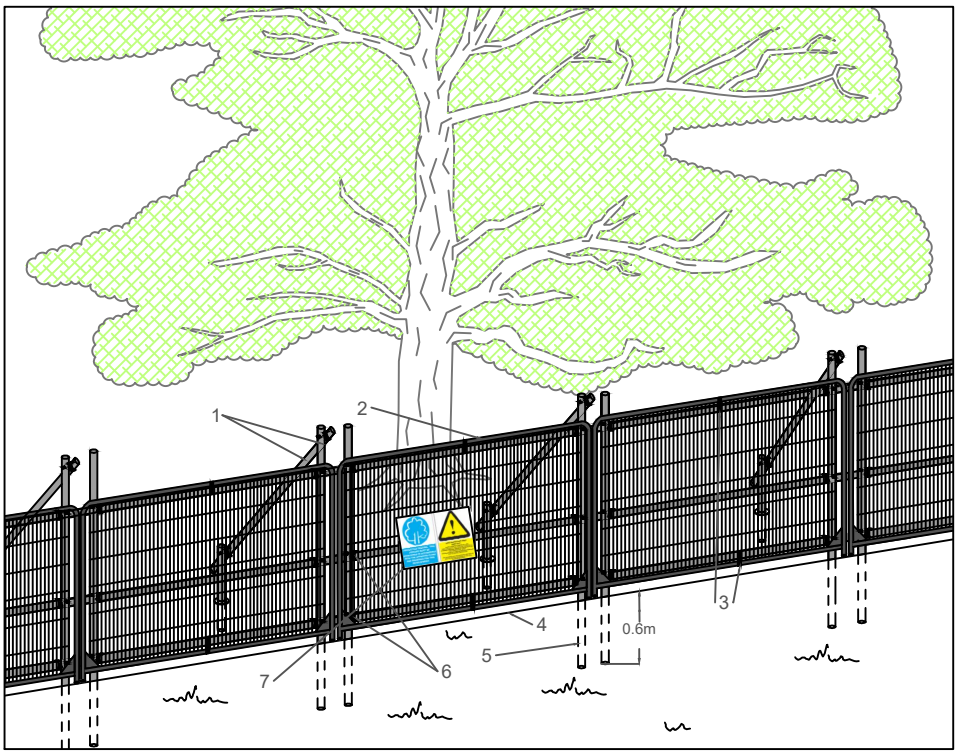


Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	Goat Willow Salix caprea	7	est 20x 100	2	EM	F	Coppiced form	90	5.4	C (i)
T2	Goat Willow Salix caprea	6	est 15x 80	2	EM	F	Coppiced form	43	3.7	C (i)
T3	Ash Fraxinus excelsior	16	est 650	7	M	G	Growing on edge of Cat A group. Appears in good health and displaying good form. Major deadwood in ash in group. Possible ADD but too late in year to assess fully. Scots pine also in group	191	7.8	A (i)
T4	English Oak Quercus robur	16	est 970	7	M	G	T15 in main site survey. Broken branches evident Characteristic for species Epicormic growth evident within the crown Major dead wood evident in the crown (>75mm) Minor dead wood evident in the crown (<75mm) Multi leadered form	426	11.6	A (i)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
GROUPS OF TREES										
G1	Hazel Corylus avellana Sweet Chestnut Castanea sativa Field Maple Acer campestre English Oak Quercus robur	5	est 200	2	SM	F	Coppiced form Hazel coppice with oak sweet chestnut and field maple standards. Planned planting growing well with some minor management needed - removal of old tree guards.	18	2.4	B (ii)
G2	English Oak Quercus robur Field Maple Acer campestre Hawthorn Crataegus monogyna Apple Malus domestica Ash Fraxinus excelsior Hazel Corylus avellana	6	est 150	2	SM	F	Groups appears largely unmaintained with dead trees and prolific bramble present. Dog rose also recorded.	10	1.8	C (ii)
G3	English Oak Quercus robur	7	est 290	3	SM	F	Excellent linear group of oak between existing access road and arable field. Hesitant to mark as Cat A as unlikely they will all make it to long term maturity due to being closely planted	38	3.5	B (ii),A (ii)
G4	English Oak Quercus robur Ash Fraxinus excelsior Wild Cherry Prunus avium Field Maple Acer campestre	10	est 300	3	SM	F / G	Diverse group with ash oak and field maple standards and hazel and hawthorn under storey. Could be improved with management - removal of tree guards thinning etc. but growing well in current condition.	41	3.6	B (ii)

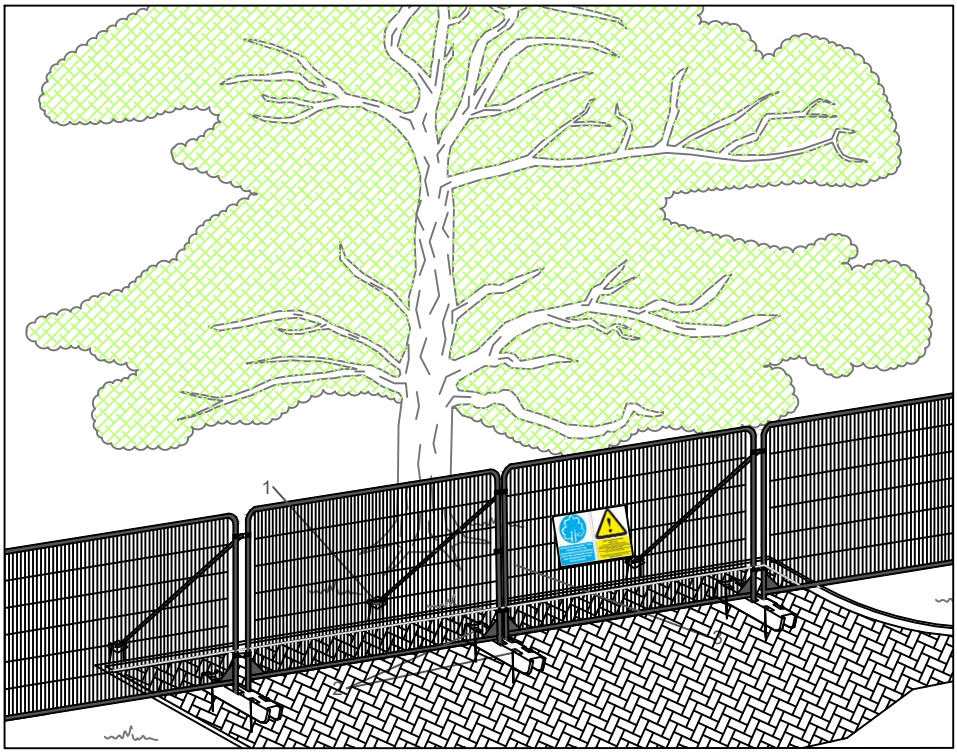
Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
G5	Ash Fraxinus excelsior English Oak Quercus robur Common Larch Larix decidua	20	est 650	5	EM	G	G8 in main site survey. Characteristic for species Rooted around a bowl landform which could be an old pond. Steep banks to bowl unable to gain access. Interlocking crowns	191	7.8	A (ii)

Hedge No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA	RPA Radius	BS5837 Cat
HEDGEROWS										
H1	Hawthorn Crataegus monogyna Hazel Corylus avellana Blackthorn Prunus spinosa Field Maple Acer campestre	2	est 75	1	EM	F	Maintained hedgerow Boundary hedge adjacent to road. Threshed recently.	3	0.9	C (ii)
H2	Blackthorn Prunus spinosa Hawthorn Crataegus monogyna Holly Ilex aquifolium Field Maple Acer campestre Hazel Corylus avellana	5	est 80	2	EM / SM	F	Boundary lapses hedge adjacent to existing access road. Managed to approximately 2.5m top left long.	3	1.0	C (ii)
H3	Blackthorn Prunus spinosa Elder Sambucus nigra Field Maple Acer campestre Hawthorn Crataegus monogyna Sycamore Acer pseudoplatanus Wild Cherry Prunus avium	4	10x 30	1.5	M	G	H9 in main site survey. Maintained hedgerow Multi stemmed from base	4	1.1	B (ii)



Standard specification for protective barrier

1. Standard scaffold poles
2. Heavy gauge 2m tall galvani□ed tube and welded mesh infill panels
3. Panels secured to scaffold frame with wire ties
4. Ground level
5. Uprights driven into the ground until secure (min depth of 0.6m)
6. Standard scaffold clamps
7. Construction Exclusion □one signs



Above ground stabilising systems

1. Stabiliser strut with base plate secured with ground pins
2. Feet blocks secured with ground pins
3. Construction Exclusion □one signs

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drawing title

APPENDIX B
PROTECTIVE FENCING SPECIFICATIONS

CAD file: S:\Arb resources\Basic Templates\Tree Protection\Appendix B - Protective Fencing A4.dwg

Appendix 7.1 Assessment methodology

Define.

WOOLLAM PARK

HALLAM LAND MANAGEMENT, ST ALBANS SCHOOL, AND ST ALBANS SCHOOL WOOLLAM TRUST

APPENDIX 7.1: ASSESSMENT METHODOLOGY

NOVEMBER 2024

A.1 INTRODUCTION

The methodology used to produce this Landscape and Visual Impact Appraisal (LVIA) follows the principles and approaches set out by the Landscape Institute and the Institute of Environmental Management and Assessment in the third edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA3) (Routledge 2013) and associated clarifications published by the GLVIA panel.

LVIA is *"a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and on people's views and visual amenity"*.

The purpose of LVIA is to identify environmental effects on:

- The elements that make up the landscape;
- The specific aesthetic or perceptual qualities of the landscape;
- The character of the landscape; and
- People who will be affected by changes in views or visual amenity.

LVIAs differ from other specialist studies because they are generally undertaken by professionals who are also involved in the design of the landscape and the preparation of subsequent management proposals. This can allow the assessment to proceed as an integral part of the overall scheme design rather than a discrete study carried out once the proposals have been finalised.

In LVIA environmental effects are determined by:

- Identifying potential landscape and visual receptors to an environmental effect;
- Considering the value and susceptibility, or sensitivity, of those receptors to the type of change proposed;
- Determining the magnitude of change that would be experienced by those or at those receptors; and
- Applying professional judgement to advise the significance that should be attributed to that effect.

Landscape and visual assessments are separate, although linked procedures. The landscape baseline, its analysis and the assessment of landscape effects all contribute to the baseline for visual assessment studies.

GLVIA3 recognises a clear distinction between the 'impact,' as the action that is being taken, and the 'effect,' as the change resulting from that action, and advises that the term 'impact' should not be used to mean a combination of several effects.

A.2 PROFESSIONAL JUDGEMENT

Professional judgement is a very important part of LVIA. While there is some scope for quantitative measurement of some relatively objective matters (e.g. the loss of a number of trees), much of the assessment will rely on qualitative judgements that involve a degree of subjective opinion (e.g. the assessment of landscape values or what effect a development will have on visual amenity).

Professional judgements must be based on both training and experience and be supported by clear evidence and reasoned argument. Accordingly, it is recommended that suitably qualified and experienced professionals carry out LVIAs.

This assessment of landscape and visual effects is based on the consensus professional judgement of two individual assessors, both of whom have considerable experience of undertaking LVIAs.

A.3 STUDY AREA

The study area for assessing both the landscape and visual effects of the proposed development extends around 3km from the eastern edge of the site. This study area was defined through a survey of the pattern of existing land use, landform and land cover within the landscape surrounding the site, through field survey activities and through the preparation of bare earth Zone of Theoretical Visibility (ZTV) mapping.

The boundary of the study area does not define the area beyond which there will be no effect, rather it contains the area within which any 'likely significant' landscape and visual effects are predicted to occur.

A.4 LANDSCAPE ASSESSMENT (OVERVIEW)

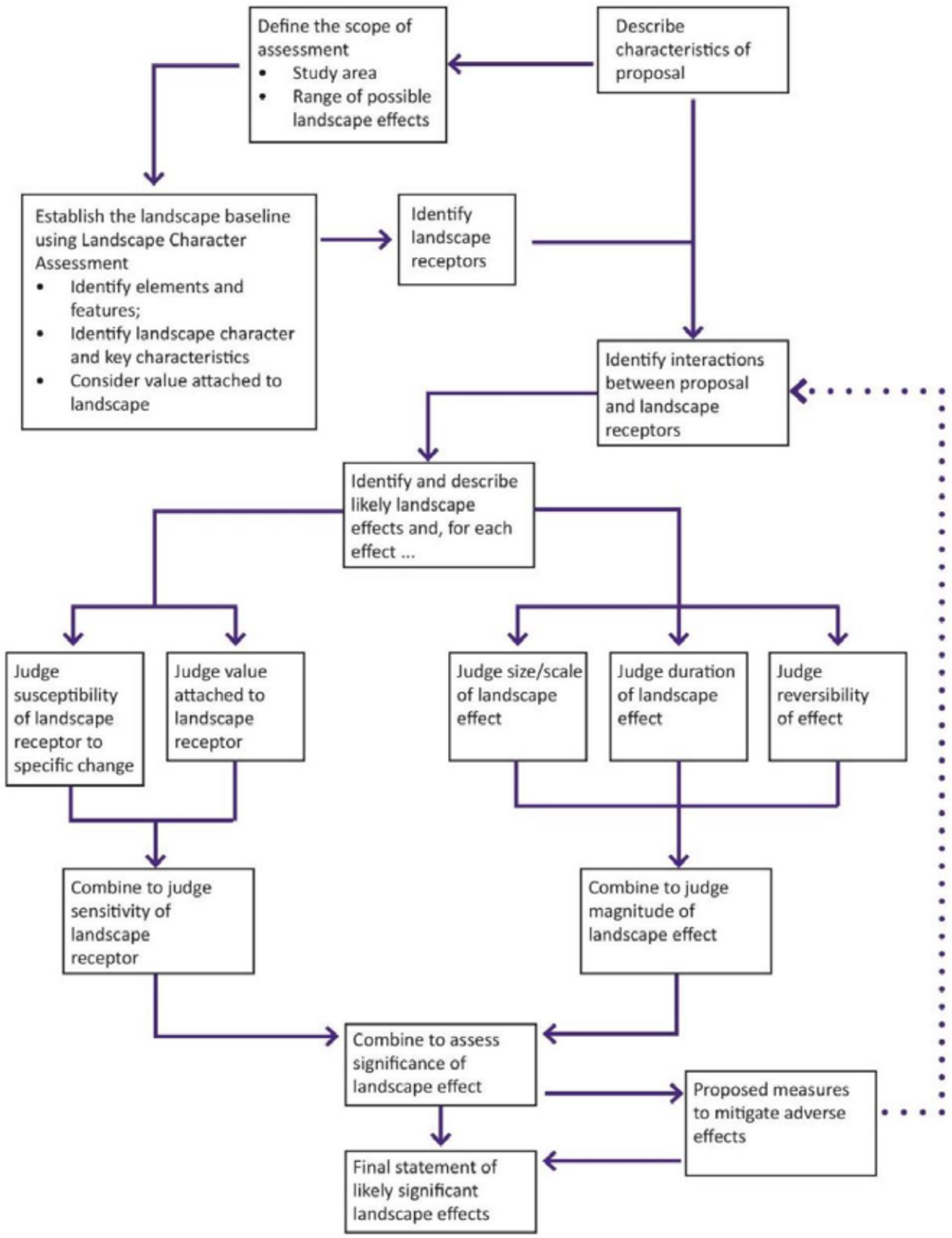
The landscape assessment considers the potential effect of the development on:

- the constituent elements of the landscape;
- the specific aesthetic or perceptual qualities of the landscape; and
- the character of the landscape.

The significance of a landscape effect is assessed through professional judgement, combining the sensitivity of the receptor with the magnitude of impact. The process of assessing the landscape effects is shown at Inset 1 overleaf.

Inset 1

Steps in assessing landscape effects
Taken from Figure 5.1 'Guidelines for Landscape and Visual Impact Assessment (Third Edition 2013)'



A.5 VISUAL ASSESSMENT (OVERVIEW)

The visual assessment considers the potential effect of the proposed development on visual amenity; as experienced by people within the study area. They relate to changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity.

Effects on visual amenity are assessed through the consideration of potential effects on receptors. Visual receptors include people in their homes, at work, undertaking recreational activities or when travelling through an area i.e. using roads, railways, footpaths etc., where they would be likely to experience a change in the existing view as a result of the construction and operation of the proposed development.

Visual effects may include a change to an existing view, sequential views, or wider visual amenity as a result of development or the loss of particular elements or features already present in the view. Cumulative visual effects may result when receptors gain views of other developments, which combine to have a cumulative visual effect.

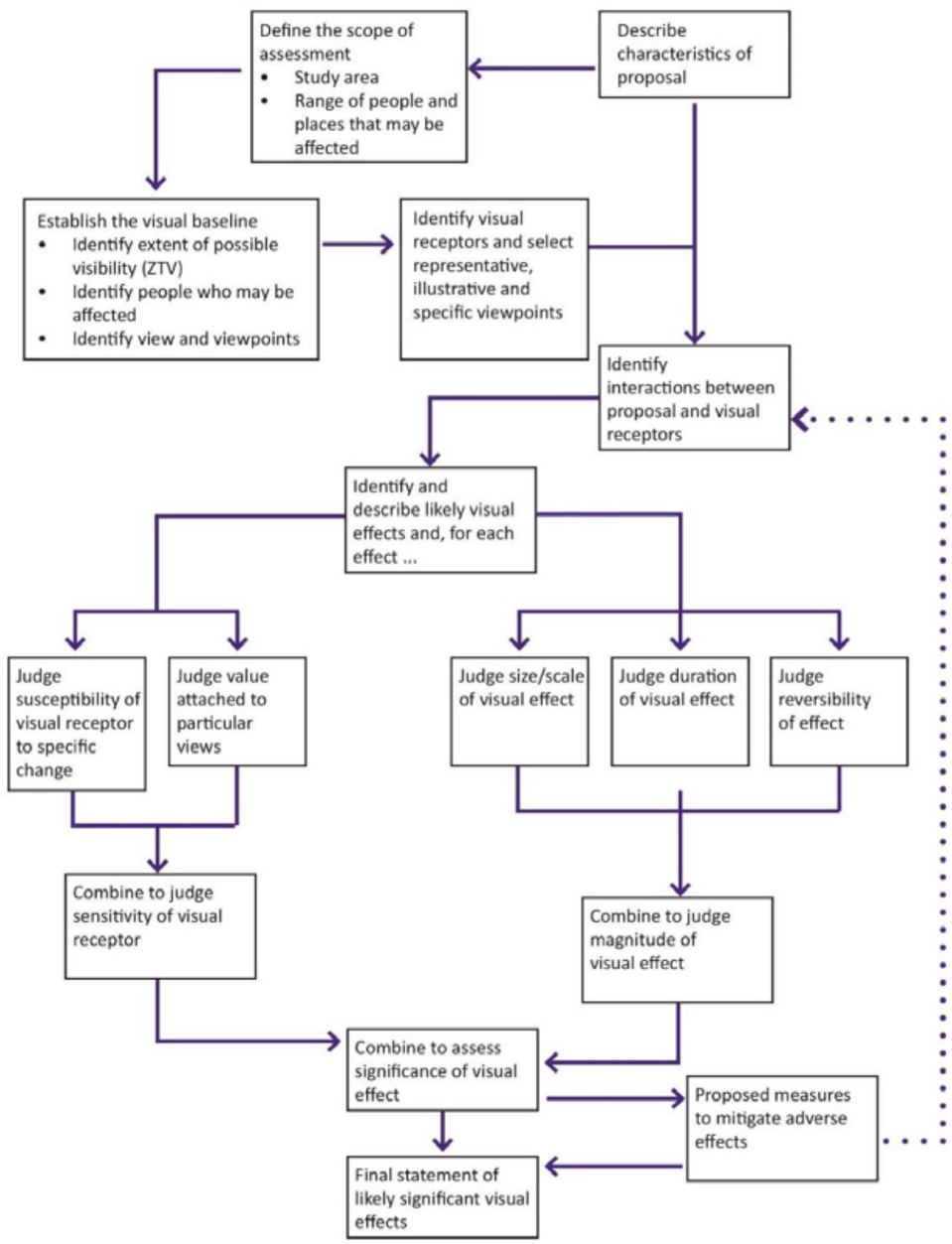
The assessment of the visual baseline within the study area takes into consideration the following:

- the area within which the proposed development may be visible;
- the different groups of people within the study area who may experience views of the proposed development;
- the identification of specific viewpoints; and
- the nature of views at the viewpoints.

The process of assessing the visual effects is shown at Inset 2 overleaf.

Inset 2

Steps in assessing visual effects
Taken from Figure 6.1 'Guidelines for Landscape and Visual Impact Assessment (Third Edition 2013)'



Potentially sensitive landscape receptors may include:

- physical influences on the constituent elements of the landscape (e.g. geology, soils, landform, drainage and waterbodies);
- land cover of the landscape (e.g. the different types of vegetation and patterns and types of tree cover);
- influences of human activity on the landscape (e.g. the land use and its management, the character of settings and buildings and the patterns and types of fields and enclosures);
- aesthetic or perceptual qualities of the landscape (e.g. its scale, its complexity, its openness, its tranquillity or its wildness); and/or
- the character of the landscape (i.e. any distinctive landscape character types or areas that can be identified), which may include published character assessment reports and / or defined character areas identified as part of the assessment process.

IDENTIFICATION OF LIKELY LANDSCAPE EFFECTS

The second step is to identify interactions between the landscape receptors and the different components of the development at all its different stages, including construction and operational stages.

Potential landscape effects that could occur during the construction and operational periods may include, but are not restricted to, the following:

- changes to landscape elements: the addition of new elements or the removal of existing landscape elements;
- changes to landscape qualities: degradation or erosion of landscape elements and patterns and perceptual characteristics, particularly those that form key characteristic elements of defined landscape character types or areas, or contribute to the landscape value; and
- changes to landscape character: landscape character may be affected through the incremental effect on characteristic elements, landscape patterns and qualities and the cumulative addition of new features, the magnitude of which is sufficient to alter the overall landscape character of a particular area.

SENSITIVITY OF RECEPTOR LIKELY TO BE AFFECTED

The value and the susceptibility of each landscape receptor to the specific change is then judged, and these two judgements combined to determine the sensitivity of each landscape receptor.

The value of a landscape receptor is a reflection of the value that society attaches to that landscape. Judgements of landscape value are classified as high, medium or low and consider environmental, historical and cultural aspects; physical and visual components; any statutory and non-statutory designations; and other experiential values that the landscape may have to society, which may be expressed by the local community or consultees (e.g. cultural associations, recreational value or contributions to nature conservation or archaeology).

The susceptibility of a landscape receptor to change is a reflection of its ability (whether it be the overall character or quality/condition of a particular area, or individual element and/or feature) to accommodate the changes that will occur as a result of the Proposed Development without undue consequences for the maintenance of the baseline situation and/or the achievement of the landscape planning policies and strategies. Judgements of landscape susceptibility are classified as high, medium or low and consider the robustness of the landscape to accommodate the form of change proposed; its scale, openness, prominence context and rationale; the degree to which it may be reinstated; and whether there exists associated development or perceptual qualities that are particularly distinctive.

Tables A.1, A.2 and A.3 below and on the following pages, set out the framework for decision making with regard to landscape value, susceptibility and sensitivity. The relative importance to be attached to indicators of landscape value, susceptibility and sensitivity may however vary across different landscapes. Overall judgements are therefore based on professional experience, considering the overall 'weight of evidence' available.

Table A.1: Combining Judgements for Landscape Sensitivity

Landscape Sensitivity		**Landscape Susceptibility**		
		High	**Medium**	**Low**
Landscape Value	**High**	High	High-Medium	Medium
	Medium	High-Medium	Medium	Medium-Low
	Low	Medium	Medium-Low	Low

Table A.2: Landscape Value Criteria

Landscape Value Criteria	Level of value ranging from 'High' to 'Medium' to 'Low'		
	High	**Medium**	**Low**
Designation	Designated landscapes/elements with national policy level protection or defined for their natural beauty. Evidence that the landscape/element is valued or used substantially for recreational activity.	Designated landscapes/elements with local policy level protection or landscapes without formal designation, but with some evidence of its being valued by the community. Evidence that the landscape/element may be valued or used to some extent for recreational activity and/or contains few uncharacteristic features.	Landscapes without formal designation. Despoiled or degraded landscape with little or no evidence of being valued by the community. Elements that are uncharacteristic such as non-natives or self-seeded vegetation that may need to be cleared.
Quality / Condition	High quality landscapes that are in good physical condition/intactness with regard to individual elements and that exhibit a strong landscape structure and absence of detracting / incongruous features.	Moderate quality landscapes that are in reasonable physical condition/intactness with regard to individual elements and that exhibit some landscape structure and a general absence of detracting / incongruous features.	Low quality landscapes that are in poor physical condition/intactness with regard to individual elements and that exhibit a weak landscape structure and presence of detracting / incongruous features.
Rarity / Distinctiveness	Landscapes exhibiting a strong sense of place or identity. Landscapes with distinctive, rare or unique landscape features, or which make an important contribution to the characteristics of a place.	Landscapes that may exhibit some sense of place or identity, but which include also more common landscape features that provide only a modest contribution to the characteristics of a place.	Unremarkable landscapes containing common landscape features, which contribute little to the characteristics of a place.
Recreational	Landscapes offering good opportunities for outdoor recreation and the appreciation of one's surroundings.	Landscapes offering some opportunities for outdoor recreation and the appreciation of one's surroundings.	Landscapes offering limited opportunities for outdoor recreation and the appreciation of one's surroundings.
Aesthetic / Scenic	Landscapes that contain strong aesthetic or scenic qualities (e.g. dramatic or striking landform, harmonious combinations of land cover or natural lines) that contribute positively to landscape character.	Landscapes containing a mixture of both positive and detracting features that contribute only moderately to landscape character.	Landscapes dominated by detracting features with few aesthetic or scenic qualities.
Perceptual Qualities	Landscapes exhibiting strong perceptual qualities (e.g. links to nature, wildness, remoteness, seclusion, openness, tranquillity or dark night skies) and an absence of intrusive or inharmonious development.	Landscapes exhibiting some perceptual qualities alongside some degree of intrusive or inharmonious development.	Landscapes exhibiting few perceptual qualities and an evident presence of intrusive or inharmonious development.
Natural Heritage	Landscapes with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to landscape character.	Landscapes exhibiting evidence of ecological, geological, geomorphological or physiographic interest, but where these aspects may not contribute greatly to landscape character.	Landscapes containing little ecological, geological, geomorphological or physiographic interest.
Cultural Associations	Landscapes which are connected with notable people, events or the arts. Landscapes with strong cultural associations that contribute to their scenic quality.	Landscapes that may be more tenuously associated with notable people, events or the arts or landscapes with some cultural associations that contribute in part to their scenic quality.	Landscapes with few cultural associations.
Functional	Landscapes and landscape elements that form an important part of a multifunctional Green Infrastructure network, which contribute to the healthy functioning of a landscape or support the appreciation of designated landscapes.	Landscapes and landscape elements that partially contribute to the functionality of the Green Infrastructure network, healthy functioning of a landscape or appreciation of designated landscapes.	Landscapes and landscape elements that contribute little to the functionality of the Green Infrastructure network, healthy functioning of the landscape or appreciation of designated landscapes.

The Landscape Value criteria has been informed by the Landscape Institute Technical Guidance Note 02/21 'Assessing landscape value outside national designations'.

Table A.3: Landscape Susceptibility Criteria

Landscape Susceptibility Criteria	Level of susceptibility ranging from 'High' to 'Medium' to 'Low'		
	High	**Medium**	**Low**
Strength and Robustness	A fragile landscape vulnerable and lacking the ability to accommodate change.	A landscape with an ability to accommodate a modest degree of change or loss of features without undue adverse effects.	A robust landscape, able to accommodate change or loss of features without undue adverse effects.
Landscape Scale	A smaller scale and complex landscape that may require further engineering to accommodate the proposed development.	A landscape of a scale that may require only a modest degree of engineering to accommodate the proposed development.	A landscape of a suitably large enough scale and simplicity to accommodate the proposed development.
Openness/ Enclosure	An open landscape with limited screening and higher susceptibility to the proposed development.	A landscape containing some degree of screening and a moderate susceptibility to the proposed development.	An enclosed landscape with screening and lower susceptibility to the proposed development.
Reinstatement	Higher value, characteristic land cover and elements that cannot be easily reinstated or replaced.	Landscapes that contain some land cover and elements that cannot be easily reinstated or replaced, alongside other features more capable of rapid reinstatement.	Lower value, non-characteristic land cover and elements capable of rapid reinstatement or replacement.
Skyline	Distinctive undeveloped skylines with landmark features.	Undeveloped or unremarkable skylines absent of landmark features	Developed, non-distinctive skylines.
Association	Weak and indirect association. Other development may be of a smaller scale or historic.	Landscapes where existing developments/landscape character exhibits some association to the form of development proposed.	Strong or direct association other similar contemporary developments/landscape character.
Rationale	Landscape with numerous environmental and technical constraints and fewer environmental measures.	Landscapes with few environmental and technical constraints that have only a modest requirement for design and/or environmental measures.	Strong landscape rationale and opportunity with high degree of design quality and/or environmental measures.
Perceptual Qualities	Perceptual qualities associated with particular scenic qualities, wildness or tranquillity.	Landscapes where perceptual qualities contribute to some extent.	Contemporary, cultivated/settled or developed landscapes are likely to have a lower susceptibility.
Landscape Context	Adjacent landscape character context connected by borrowed character and views.	Host landscape character is largely separated from surrounding/adjacent landscape character, with few borrowed characteristics or views.	Host landscape character is separate from surrounding/adjacent landscape character.

A.7 ESTABLISHING THE VISUAL BASELINE

The visual baseline records the internal site arrangements and key views out from the site towards landscape or built features, but also establishes the area in which the site and the Proposed Development may be visible, the different groups of people who may experience the views, the places where they will be affected and the nature, character and amenity of those views.

As described in section A.3, a ZTV was used to test initial visibility. The visual baseline conditions within the study area was then recorded through the analysis of viewpoints.

The selection of viewpoints was based on the following criteria:

- A requirement to provide an even spread of representative, viewpoints within the Primary Visual Envelope.
- A need to include locations which represent a range of near, middle and long-distance views.
- A need to include views from sensitive receptors within designated, historic or cultural landscapes or heritage assets.
- A requirement to include strategic / important / designed views and vistas identified in published documents.

In accordance with the GLVIA3, the viewpoint locations also took account of:

- the potential number, accessibility and sensitivity of viewers who may be affected;
- the viewing direction, distance (i.e. short, medium and long-distance views) and elevation;
- the nature of the viewing experience (for example static views, views from settlements and views from sequential points along routes);
- the view type (for example panoramas, vistas, glimpses); and
- the potential for cumulative views of the Proposed Development in conjunction with other developments.

For the purposes of this baseline assessment the distance of the viewpoint towards the Application Site is measured to the nearest proposed visible feature.

SENSITIVITY OF VISUAL RECEPTOR

The sensitivity of a visual receptor is considered by combining judgements about the value attached to a particular view and the susceptibility of the visual receptor to changes in that view.

The value of a view or series of views reflects the recognition and importance attached either formally through identification on mapping or being subject to planning designations, or informally through the value which society attaches to the view(s). Judgements over the value of a view are classified as high, medium or low.

Susceptibility of a visual receptor relates to the nature of the viewer experiencing the view and how susceptible they are to the potential effects of the Proposed Development. Judgements over susceptibility are classified as high, medium or low and are mainly a function of:

- the occupation or activity of people experiencing the view at particular locations; and
- the extent to which their attention or interest may be focussed on views and the visual amenity they experience at particular locations.

Tables A.4, A.5 and A.6 below and on the following page, describe the framework for decision making with regard to the value attached to particular views and the susceptibility and sensitivity of visual receptors. Judgements are however ultimately based on professional experience, considering the overall 'weight of evidence' available.

Table A.4: Combining Judgements for Visual Sensitivity

Visual Sensitivity		**Visual Susceptibility**		
		High	**Medium**	**Low**
Value of the View	**High**	High	High-Medium	Medium
	Medium	High-Medium	Medium	Medium-Low
	Low	Medium	Medium-Low	Low

Table A.5: Value of a View Criteria

Value of a View Criteria	Level of value ranging from 'High' to 'Medium' to 'Low'		
	High	**Medium**	**Low**
Map / Tourist Information	Specific viewpoint identified in OS maps and/or tourist information and signage.	Intermediate category which would typically share similar attributes to 'Low' with reference its specific identification in maps, signage, planning policy, art or literature, but which may partially overlook a designated or valued landscape or which is recognised to hold some scenic qualities relating to the content and composition of the visible landscape.	Viewpoint not identified in OS information or signage.
Facilities	Facilities provided at viewpoint to aid the enjoyment of the view.		No facilities provided at viewpoint to aid enjoyment of the view.
Planning Recognition	View afforded protection in planning policy.		View is not afforded protection in planning policy.
Landscape Value	View is within or overlooks a designated or valued landscape, which implies a higher value to the visible landscape.		View is not within, nor does it overlook, a designated or valued landscape.
Recognition	View has informal recognition and is well-known at a local level as having particular scenic qualities.		View has no informal recognition and is not known as having particular scenic qualities.
Art / Literature	View or viewpoint is recognised through references in art or literature.		View or viewpoint is not recognised in references in art or literature.
Scenic Quality	View has high scenic qualities relating to the content and composition of the visible landscape.		View has low scenic qualities relating to the content and composition of the visible landscape.

Table A.6: Visual Susceptibility Criteria

Visual Susceptibility Criteria	Level of susceptibility ranging from 'High' to 'Medium' to 'Low'		
	High	**Medium**	**Low**
Activity of the Viewer	A viewer who is likely or liable to be influenced by the Proposed Development such as residents, walkers, or tourists (including road users on designated tourist routes), whose main attention and interest may be on their surroundings.	Intermediate category which might share similar attributes with both the 'Low' and 'High' criteria, but where the viewer is likely to be only partially influenced by the Proposed Development and have only a partial interest in their surroundings (e.g. road users not travelling on a designated tourist route), and where viewers may be expected to experience only a moderate level of visual amenity due to the overall pleasantness or attractiveness of a location.	A viewer who is unlikely or less likely to be influenced by the Proposed Development such as viewers whose attention is not focused on their surroundings (e.g. people at work, or team sports).
Nature of the View	Residents that gain static, long-term views of the development in their principal outlook.		Mobile viewers whose views are transient or dynamic (e.g. travelling in cars or on trains with glimpsed views).
Direction / Field of View	A view that is focussed in a specific directional vista, with notable features of interest in a particular part of the view.		Open views with no specific points of interest.
Visual Amenity	A view where viewers at a location are focussed on the experience of a high level of visual amenity due to its overall pleasantness as an attractive visual setting or backdrop to activities.		A view where the visual amenity experienced by viewers at a location is less pleasant or attractive than might otherwise be the case.

A.8 MAGNITUDE OF LANDSCAPE & VISUAL EFFECTS

GLVIA3 recognises a clear distinction between the 'impact,' as the action that is being taken, and the 'effect,' as the change resulting from that action, and advises that the term 'impact' should not be used to mean a combination of several effects.

Judgements of magnitude of landscape and visual effects are classified as high, medium-high, medium, low-medium, low, negligible or no effect and consider the following criteria:

- Size or scale: The extent to which the removal or addition of landscape features alters the existing landscape character; or the extent of change to a view in respect of the loss or addition of features and changes to its visual composition (including the proportion of view occupied by the proposed development, whether views to the proposed development would be full, partial or glimpsed, and whether the character and context in which the proposed development would be experienced would contrast or integrate with its surroundings).

- Geographical extent: The area over which effects on landscape would be evident; or the extent of the area over which the changes would be visible, the orientation of the affected view in relation to the main activity of a visual receptor and the distance of the receptor from the site.

- Duration of the effect: Whether effects would be experienced in the short (0-5yrs), medium (5-10yrs) or long term (10-25yrs); and whether effects would be permanent, temporary, intermittent or continuous.

- Reversibility: The ability of effects caused by the proposed development to be reversed.

Impacts that would be considered permanent are those typically occurring over the long term, such as the construction of buildings and re-profiling of land as these cannot practicably be reversed. Vegetation removal is also considered to be permanent where it cannot be planted in the same location and reach maturity over the short or medium term. Mitigation planting has the potential to compensate for the loss of existing vegetation if similar types and species are planted and could provide similar benefits over the medium to long term. There are instances where mitigation planting could not compensate for the loss of existing vegetation such as the removal of Ancient Woodland or instances where there are rare species which form a unique habitat.

Temporary effects typically occur over a short to medium term duration and mainly occur during the construction period. Development that may result in temporary effects would typically include the introduction of temporary site security fencing, temporary hard standing areas, construction machinery, temporary buildings and compounds, haul roads, earthmoving and stockpiles, lighting etc.

With regard to reversibility, Paragraph 5.52 of GLVIA 3 explains that where developments have a limited life and could eventually be removed and/or the land reinstated the effects could be considered reversible. The reversibility and consideration of temporary effects is however linked to the duration of that effect such as short term (0-5yrs), medium term (5-10yrs) and long term (10-25yrs).

Table A.7: Magnitude of Landscape and Visual Change

Value	Size / Scale	Geographic Extent	Duration and Permanence	Reversibility
High	Total or large-scale change to distinctive landscape elements, key characteristic features or perceptual qualities of a landscape, or the large-scale removal or addition of numerous new and uncharacteristic features or elements that would affect the landscape character and the special landscape qualities of a landscape designation; or a substantial and immediately apparent change to a view that would involve the loss or addition of a large number of features or elements and/or which introduces a strong degree of contrast with its surroundings with little or no screening. A major change overall.	Changes that affect the wider setting of a landscape (e.g. effects evident at a district or regional level), changes that effect large proportions of a single or several landscape character areas, or changes that would impact a great proportion of a site or its immediate setting; or changes to typically middle-distance or close range views that affect a large vertical and wide horizontal field of view, which would be readily noticed by visual receptors given their main activity, or which may be continuously and sequentially visible over a large area or length/proportion of a route.	Short (0-5yrs), medium (5-10yrs) or long term (10-25yrs) changes that may be permanent, temporary, intermittent or continuous.	Reversible or irreversible changes
Medium - High	Intermediate rating with a combination of criteria from high or medium magnitude			
Medium	A partial or noticeable change to landscape elements, key characteristic features or perceptual qualities of a landscape, or the partial removal or addition of some new uncharacteristic features or elements that could partially affect landscape character or the special landscape qualities of a landscape designation; or a visible and recognisable change to a view that would involve the loss or addition of a number of features or elements and/or which contrasts with its surroundings and may benefit from some screening. A moderate change overall.	Changes that would affect part of a single or several landscape character areas, or changes that would impact only a proportion of a site or its immediate setting; or changes to typically long-distance views, less prominent middle-distance views, or close-range views that may be obscured and accordingly less readily noticed by visual receptors given their main activity, or which may only be intermittently and sequentially visible over an area or length/proportion of a route.		
Low - Medium	Intermediate rating with a combination of criteria from high or medium magnitude			
Low	A small-scale change to landscape elements, key characteristic features or perceptual qualities of a landscape, or the small-scale removal or addition of few new features or elements of limiting characterising influence on landscape character or designations; or a small change to a view that may be easily missed by the casual observer and/or which blends with its surroundings with only a modest amount of screening needed. A minor change overall.	Changes that would affect only a small part of a single or several landscape character areas, or changes that would impact only a small proportion of a site or its immediate setting; or changes to typically long-distance views, less prominent middle-distance views, or close-range views that affect a small vertical and a narrow horizontal field of view, and accordingly pass largely unnoticed by visual receptors given their main activity, or which are intermittently and infrequently visible over an area or length/proportion of a route.		
Negligible	A barely noticeable change to landscape elements, characteristic features or perceptual qualities of a landscape, or very-small scale removal or addition of features or elements of limiting characterising influence on landscape character or designations; or a nearly imperceptible change to a view experienced by a visual receptor which would be assimilated into its surroundings and be well-screened. A negligible change overall.	Changes that would barely affect a single or several landscape character areas, or changes that would impact only a very small proportion of a site or its immediate setting; or changes to typically long distance views, or less prominent middle-distance views that would affect only a small vertical and very narrow horizontal field of view, and accordingly pass substantially unnoticed by visual receptors given their main activity, or which are very intermittently and infrequently visible over an area or length/proportion of a route.		
No effect	No alteration to landscape elements, characteristic features or perceptual qualities of a landscape; or where no part of the project would be discernible in views experienced by a visual receptor.	N/A	N/A	N/A

A.9 ASSESSING OVERALL EFFECT AND SIGNIFICANCE

Overall effects are determined by combining the sensitivity of a landscape or visual receptor with its magnitude of change. The manner in which judgements of sensitivity and magnitude of change can be combined to reach a judgement of overall effect are set out in Table A.8. This is however only a framework for decision making and each judgement is considered on a case-by-case basis against the criteria of what is meant by each grade of overall effect judgement provided in Table A.9.

Landscape and visual effects are also judged at this stage as to whether they would be positive (beneficial), neutral, or negative (adverse) in their consequences. Neutral effects occur where a development fits with the existing landscape character or visual amenity and neither contributes nor detracts from the landscape and visual resource and can be accommodated with neither beneficial or adverse effects, or where the effects are so limited that the change is hardly noticeable (negligible magnitude). A change to the landscape and visual resource is not considered to be adverse simply because it constitutes an alteration to the existing situation.

Table A.8: Combination of Judgements to Determine Overall Effect

Magnitude	**Landscape and Visual Receptor Sensitivity**		
	High	**Medium**	**Low**
High	Major	Moderate-Major	Moderate
Medium	Moderate-Major	Moderate	Moderate-Minor
Low	Moderate	Moderate-Minor	Minor
Negligible	Minor-Negligible	Minor-Negligible	Negligible
No Change	No Effect	No Effect	No Effect

Table A.9 - Definitions of Landscape and Visual Effects

Effect	Criteria
Major	Significant change to the landscape elements, key characteristic features and perceptual qualities; Major change to a static open or partial view. Adverse: Where the proposals could cause the total or significant loss of or alteration to key mature landscape elements and characteristic features; or introduce elements considered uncharacteristic of the area; a major deterioration in the character and amenity of the view in terms of perceptual qualities and where the proposals would result in a significant deterioration or dominant element to close or medium distance views, or more notable change in more distant views, considering the character and amenity of the view from a range of visual receptors. Beneficial: Where the proposals would result in a significant enhancement to the key mature landscape elements or characteristic features; or introduce new elements characteristic of the area; a significant improvement in the character and amenity of the close or middle-distance view in terms of perceptual qualities.
Moderate -Major	Intermediate rating with a combination of criteria from major or moderate effect
Moderate	Some change to the landscape elements, key characteristic features and perceptual qualities. Moderate or major change to static or kinetic, partial view. Adverse: Where the proposals would cause the partial loss or moderate alteration of some of the key landscape elements and characteristic features; introduce elements considered uncharacteristic of the area; and a barely perceived deterioration in the character and amenity of the view from the range of visual receptors and a range of distances. Beneficial: Where the proposals would cause a moderate enhancement to the key landscape elements or characteristic features; or introduce elements considered characteristic of the area; results in a noticeable improvement in the character and amenity of the existing view from a range of visual receptors and range of distances.
Moderate -Minor	Intermediate rating with a combination of criteria from moderate or minor effect
Minor	Some change to the townscape elements, key characteristic features and perceptual qualities; Minor change to a static or kinetic partial or glimpsed view. Adverse: Where the proposals would cause a minor loss of or slight alteration to some landscape elements or characteristic features; introduce elements considered in part uncharacteristic of the area; and a barely perceptible deterioration in the character and amenity of the view from the range of visual receptors and range of distances. Beneficial: Where the proposals would result in a minor enhancement, alteration or improvement of some elements or characteristic features; introduce elements considered characteristic; and cause a barely perceptible improvement in the character and amenity of the existing view for the range of receptors and range of distances.
Minor-Negligible	Intermediate rating with a combination of criteria from minor or negligible effect
Negligible	Where the proposals would have no discernible deterioration or improvement in the existing baseline situation in terms of landscape elements or view.

A.10 MITIGATION AND COMPENSATORY MEASURES

MITIGATION

The purpose of mitigation is to avoid, reduce and where possible, remedy or offset, any significant negative (adverse) effects on the landscape and visual receptors arising from the Proposed Development. Mitigation is not solely concerned with 'damage limitation' but may also consider measures that could compensate for unavoidable residual effects.

Mitigation measures may be considered under three categories:

- Primary measures: Those developed through the iterative design process, which have become integrated or embedded into the project design.
- Standard construction and operational management practices for avoiding and reducing environmental effects.
- Secondary measures: Those designed to specifically address any residual adverse effects remaining after the primary measures and standard construction practices have been incorporated into the scheme.

Strategies to address likely negative (adverse) effects include:

- avoiding the impact by changing the form of development;
- reducing the impact by changing the form of development;
- remedying the impact, e.g. by screen planting;
- compensating for the impact e.g. by replacing felled trees with new trees; or
- enhancement e.g. by creation of new landscape or habitat.

ENHANCEMENT

While mitigation is linked to significant landscape and visual effects, enhancement is not a requirement of the EIA regulations. It means proposals that seek to improve the landscape resource and the visual amenity of the Proposed Development site and its wider setting, over and above its baseline condition. Enhancement may take many forms, including improved land management or creation of new landscape, habitat and recreational features. Through such measures environmental enhancement can make a very real contribution to sustainable development and the overall quality of the environment.

A.11 ZONE OF THEORETICAL VISIBILITY METHODOLOGY

The ZTV was created by making a digital topographical model of the bare earth's surface, using terrain building software (VectorWorks)and 'bare earth' Ordnance Survey at 5m resolution LIDAR DTM (Digital Terrain Model) data, and selecting points within the application site at the proposed roof levels as target source points. 'Light' from the target source points was then cast over the terrain such that it registers as a brighter area where it hits the surface and a shadow is cast where screened by intervening landform.

The ZTV accordingly assumes an observer's eye height at ground level and not between 1.5 and 1.7m above ground level, as advised within GLVIA3. The ZTV is nonetheless considered to provide useful guidance of the likely visibility within the Study Area and an effective starting point for further verification in the field.

A.12 PHOTOGRAPHIC METHODOLOGY

Viewpoint photography reflects guidance set out in the Landscape Institute's Technical Guidance Note 06/19 'Visual Representation of Development Proposals'. Further detail concerning the preparation of viewpoint photography is provided in Appendix 7.4.

Define.

Appendix 7.2: Supporting figures

Define.

WOOLLAM PARK

HALLAM LAND MANAGEMENT, ST ALBANS SCHOOL, AND ST ALBANS SCHOOL WOOLLAM TRUST

APPENDIX 7.2: SUPPORTING FIGURES

DECEMBER 2024

Define.

LEGEND

- Site Boundary
- 3km from eastern Site Boundary

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Ordnance Survey 0100031673

0m 100 200 300 500 1000

N

1 - FIGURE

Site & Study Area - TITLE

1:20,000 @A3 - SCALE

Define.

LEGEND

Site Boundary

Contour Heights

- 75-80m AOD
- 80-85m AOD
- 85-90m AOD
- 95-100m AOD
- 100-105m AOD
- 105-110m AOD
- 110-115m AOD
- 115-120m AOD
- 120-125m AOD
- 125-130m AOD
- 130-135m AOD

100 300
0m 200 500 1000

N

2 - FIGURE
Topography - TITLE
1:20,000 @A3 - SCALE

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Ordnance Survey 0100031673

Define.

Bush Wood
Heartwood Forest
Langley Wood
3Km
Green Wood
HARPENDEN ROAD A1081
MIDLAND MAIN LINE RAILWAY
SANDRIDGE
Woollam Playing Fields
Townshend Church of England Secondary School
Longspring Wood
PORTERS WOOD ESTATE
Ladies Grove Wood
NEW GREENS ESTATE
St Albans Girls' School
ST ALBANS
Wick Wood

LEGEND

- Site Boundary
- Trees and Hedgerows
- Ancient Replanted Woodland
- Ancient & Semi-Natural Woodland
- Cat A Veteran Trees within the site
- Cat A Trees within the site
- Cat B Trees within the site

0m 50 100 150 250 500

N

3 - FIGURE
Vegetation & Land Use - TITLE
1:10,000 or 5 @A3 - SCALE

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Ordnance Survey 0100031673

Define.

Heartwood Forest

Jersey Farm Park Woodland

Longspring Wood

Informal open space

St Albans Girls' School

3Km

HARPENDEN ROAD A1081

MIDLAND MAIN LINE RAILWAY

WHEATHAMPSTEAD 047

ST MICHAEL RURAL 015

SANDRIDGE 008

SANDRIDGE 009

HERTFORDSHIRE WAY

ST MICHAEL RURAL 001A

ST MICHAEL RURAL 001

SANDRIDGEBURY LANE

ST ALBANS CITY 096

SANDRIDGE 027

SANDRIDGE 012

SANDRIDGE 028

ST MICHAEL RURAL 017

ST ALBANS CITY 075

ST ALBANS CITY 094

Valley Road

LEGEND

- Site Boundary
- Recreational route
- Footpath
- Bridleway
- Byway
- Open Access Land
- Heartwood Forest

0m 100 200 300 500 1000

N

4 - FIGURE

Public Access & Transport Routes - TITLE

20,000 @A3 - SCALE

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Ordnance Survey 0100031673

Define.

HARPENDEN

HARPENDEN ROAD A1081

MIDLAND MAIN LINE RAILWAY

3Km

SANDRIDGE

Childwick Green

Childwick Bury House

PORTERS WOOD

Bath Wood Moat

Beech Bottom Dyke

ST ALBANS

ST ALBANS DISTRICT

SANDRIDGE CP

Heartwood Forest

LEGEND

- Site Boundary
- Listed Buildings
- Conservation areas
- Heritage Assets

100 300
0m 200 500 1000

N

5 - FIGURE

Culture and Heritage - TITLE

1:20,000 @A3 - SCALE

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Ordnance Survey 0100031673

Define.

Rothamsted Plateau and Kinsbourne Green

HARPENDEN

Harpenden (No LCA)

Harpenden Common

Nomansland Common

Ayres End Valleys and Ridges - B

Heartwood Forest

3Km

Symondshyde Ridge

SANDRIDGE

Childwick Green

Childwick Plateau

Upper Vea Valley

ST ALBANS DISTRICT

Gorhambury Estate

ST ALBANS

Verulamium

St Stephens Plateau

De Havilland Plain

Ayres End Valleys and Ridges - A

LEGEND

Site Boundary

Landscape Character Assessment

Hertfordshire Landscape Character Assessment undertaken between 2000 & 2005

- LCA Ayres End Valleys and Ridges - B
- LCA Childwick Plateau
- LCA Upper Vea Valley
- LCA Gorhambury Estate
- LCA St Stephens Plateau
- LCA Verulamium
- LCA De Havilland Plain
- LCA Symondshyde Ridge
- LCA Ayres End Valleys and Ridges - A
- LCA Nomansland Common
- LCA Harpenden Common
- LCA Rothamsted Plateau and Kinsbourne Green
- LCA Rothamsted Plateau and Kinsbourne Green

0m 100 200 300 500 1000

N

6 – FIGURE

Landscape Character Areas – TITLE

1:20,000 @A3 – SCALE

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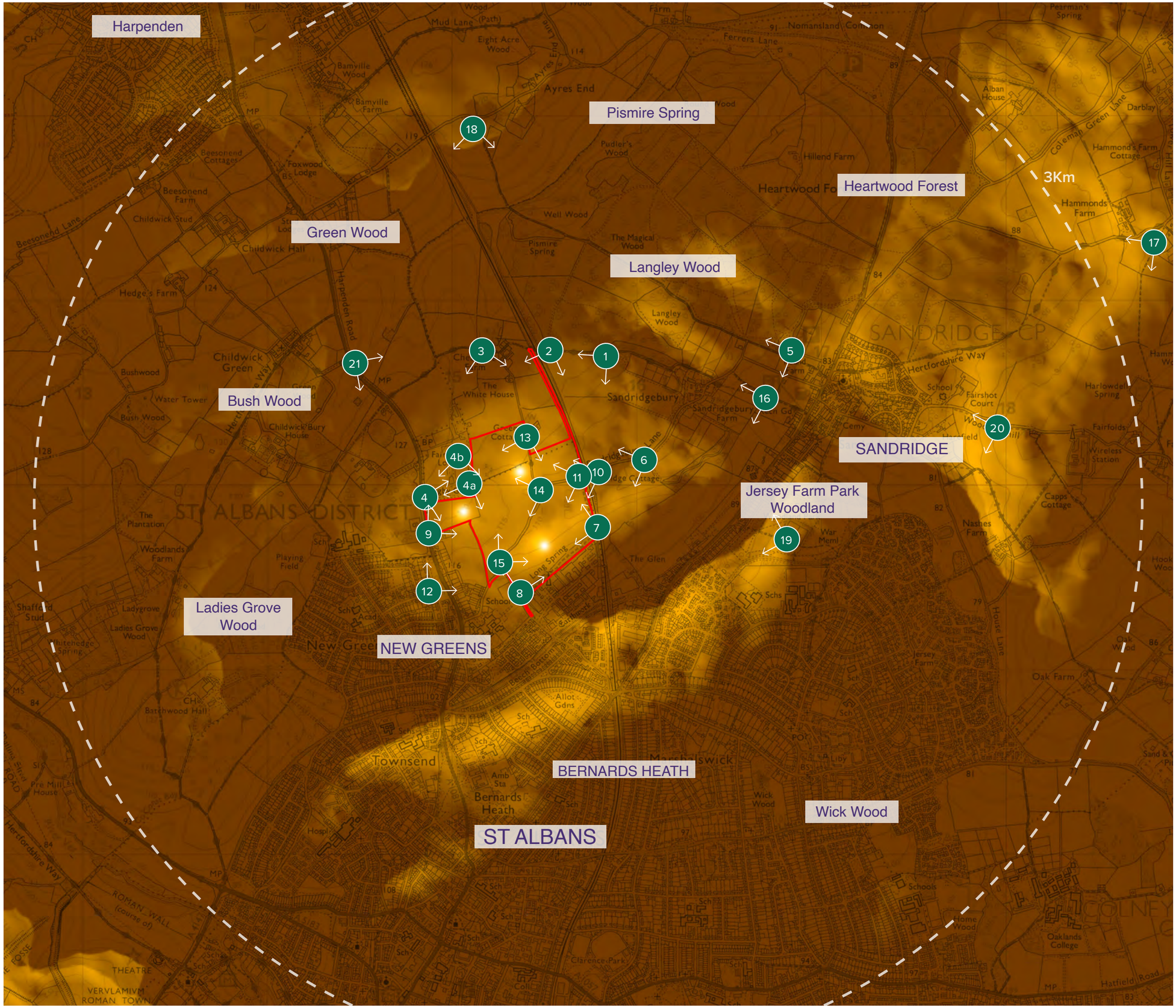
Ordnance Survey 0100031673

Define.



LEGEND

- Site Boundary
- ZTV Light Source (8m above ground)
- Visibility more likely ↓ Visibility less likely
- Viewpoint Locations

ZTV based on DTM terrain data was used to inform potential locations for representative viewpoints and to guide further fieldwork activities

0m 100 200 300 500 1000

N

7 - FIGURE
Zone of Theoretical Visibility - TITLE
1:20,000 @A3 - SCALE

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Ordnance Survey 0100031673

Define.

1. 15m buffer zone from Longspring Wood
2. Structure planting to provide screening in views from north east and east
3. Protection and infilling of boundary vegetation
4. Hedgerow screening along southern boundary of Woollam Playing Fields
5. Tree planting groups and avenues; to break up massing of built form and provide additional greening

20 60
0m 40 100 200

N

8 - FIGURE
Landscape Mitigation - TITLE
1:4000 @A3 - SCALE

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Ordnance Survey 0100031673

Define.

Appendix 7.3: Extracts from published character guidance

Define.

WOOLLAM PARK

HALLAM LAND MANAGEMENT, ST ALBANS SCHOOL, AND ST ALBANS SCHOOL WOOLLAM TRUST

APPENDIX 7.3: EXTRACTS FROM PUBLISHED CHARACTER GUIDANCE

NOVEMBER 2024

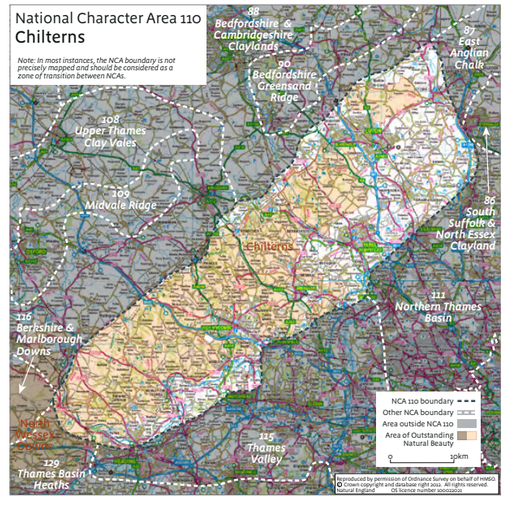
National Character Area profile: **110. Chilterns**

Summary

The extensively wooded and farmed Chilterns landscape is underlain by chalk bedrock that rises up from the London Basin to form a north-west-facing escarpment offering long views over the adjacent vales. From the vales, the River Thames breaches the escarpment in the south at the Goring Gap and flows on past riverside towns such as Henley. Small streams flow on chalk down some of the dip slope valleys or from the scarp foot, passing through numerous settlements. The major sources of public water supply for the Chilterns and the London area are the chalk aquifer and the Thames.

The countryside is a patchwork of mixed agriculture with woodland, set within hedged boundaries. Furthest from London, the natural and built features of the countryside are recognised as special and attractive in approximately half the National Character Area (NCA) by the designation of the Chilterns Area of Outstanding Natural Beauty (AONB) and, in a small area south of the River Thames, by the North Wessex Downs AONB. Outside the AONBs there are major settlements that incorporate extensive urban fringe and growth areas, including Luton, Hemel Hempstead and High Wycombe. Motorways and railways make the area very accessible to visitors and connect the Chilterns to nearby London. Opportunities for residents and visitors to enjoy the outdoors are wide-ranging, including extensive rights of way; open access commons, woods and downland; Registered Parks and Gardens open to the public; golf courses; shooting estates; and urban green spaces. The Ridgeway and the Thames Path National Trails pass through the Chilterns, and the River Thames and Grand Union Canal are major water-based recreation corridors.

Human history dates back to the Palaeolithic, as evidenced by flint scatters. Farming of the valleys and escarpment began in the Neolithic and continues to this day as a major land use. Arable farming is concentrated on deep, well-drained soils found in the valleys, along the scarp foot and beneath the hills in the north. Nucleated settlements, often featuring historic buildings dating back to medieval times, are found in the valleys and along the scarp foot, as are the major routes. Chalk streams are found only in the main valleys and can be dry in their upper reaches.



Click map to enlarge; click again to reduce.

Above the valley floors, cultivation is made difficult by steep slopes, convoluted terrain and extensive clay-with-flint soils on the dip slope ridges. This has given rise to a diversity of land management practices throughout history, including mixed farming, woodland, extensively grazed downland and common land. Settlement on the plateau is characterised by dispersed farmsteads and villages linked by historic, small-scale routes including sunken lanes.



Walkers can enjoy an extensive rights of way network across farmland and woodland.

Today, common land and downland exist as fragments of their former extents. Commons are numerous across the plateau, providing green space near to people's homes. Historic downland is largely confined to the scarp and is strongly associated with prehistoric archaeology; its species-rich grassland and scrub include areas designated as a National Nature Reserve (NNR) and Special Areas of Conservation (SAC). Woodland cover accounts for 14 per cent of the NCA and makes the Chilterns one of the most wooded lowland landscapes in the country. Woods are found on poor agricultural soils, on commons and 'hanging' on steep slopes. A long history of a wood-based economy has helped to maintain many woodlands on ancient sites and generate rich woodland archaeology. More recently, local demand for wood fuel is helping to maintain the woodland resource. Chilterns NCA is renowned for its native beechwoods, a number of which are designated as SAC for their ecological interest.

Throughout the area, historic buildings and also some more recent constructions display locally distinctive uses of local materials, particularly brick and flint. Large mansions and follies are frequent in the countryside, many relating to Registered Parks and Gardens.

Statements of Environmental Opportunity

- **SEO 1**: Manage the wooded landscape, the woodlands (including internationally important Chilterns beechwoods), hedgerows, commons and parklands with the aims of conserving and enhancing biodiversity and the historic landscape and its significant features; maximising the potential for recreation; and securing sustainable production of biomass and timber.

- **SEO 2**: In pockets of historic land use where natural and cultural heritage are both particularly rich, aim to restore and strengthen the historic landscape, ecological resilience and heterogeneity, and to conserve soils. Ensure that species-rich habitats are conserved and extended, including internationally important species-rich Chiltern downland. Secure environmentally and economically sustainable management to ensure conservation in the long term.

- **SEO 3**: Conserve the Chilterns' groundwater resource, River Thames and chalk streams by working in partnership to tackle inter-related issues at a catchment scale and also across the water supply network area. Seek to secure, now and in the future, sustainable water use and thriving flood plain landscapes that are valued by the public.

- **SEO 4**: Enhance local distinctiveness and create or enhance green infrastructure within existing settlements and through new development, particularly in relation to the urban fringe and growth areas such as Luton. Ensure that communities can enjoy good access to the countryside.



Remnant downland is rich with orchids and other flowering plants.

National Character Area profile:

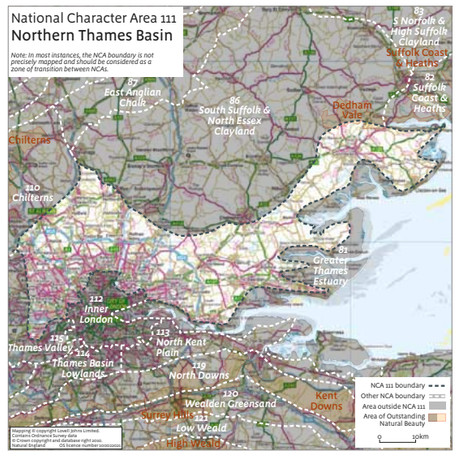
111: Northern Thames Basin

Summary

The Northern Thames Basin is a diverse area which extends from Hertfordshire in the west to the Essex coast in the east. It is separated from the North Sea and Thames Estuary by a narrow band of land that makes up the Greater Thames Estuary National Character Area (NCA). Included within this NCA are the suburbs of North London and also historic towns and cities including St. Albans and Colchester, as well as new and planned towns such as Welwyn Garden City, Hatfield and Basildon. Although arable agriculture is a large industry in the area the soil quality ranges from good to poor quality. The London Clay provides a poor quality soil that becomes waterlogged in winter and cracks and shrinks in summer. Better quality soil is found in areas that contain alluvial deposits from the Thames and other rivers in the area as they formed and changed position over time.

The Northern Thames Basin is an area rich in geodiversity, archaeology and history and diverse landscapes ranging from the wooded Hertfordshire plateaux and river valleys, to the open landscape and predominantly arable area of the Essex heathlands, with areas of urbanisation mixed in throughout. Urban expansion has been a feature of this area since the 16th century when wealthy merchants who were conducting business in London built homes on its outskirts, mainly in the Hertfordshire area. This trend increased dramatically from the mid-19th century as infrastructure improved and people could travel to work in London from the surrounding areas in an hour or less. This has put increased pressure on the area in terms of extra housing developments, schools and other necessities for expanding populations, with a consequential reduction in tranquillity. Tranquil areas can still be found in parts of Hertfordshire and Essex in areas that have a more dispersed settlement pattern broken up by arable land and semi-natural habitats.

There are a wide variety of semi-natural habitats in the area and these support many important species. However, the habitats have become fragmented over time and a landscape-scale approach is needed to connect them so that they can be sustained and provide beneficial functions including; increasing pollinating insects, acting as flood defences and water storage areas, preventing soil erosion and helping to improve soil and water quality as well as maintaining the area’s sense of place and history. This NCA includes many internationally and nationally designated sites including 72 Sites of Special Scientific Interest (20 of which are designated wholly or in part for their national geological importance), 6 Ramsar sites, 6 Special Protection Areas, 3 Special Areas of Conservation and 2 National Nature Reserves. The majority of these sites are estuaries and woodlands. The estuaries support migrating and overwintering birds as well as rare or locally important plants and invertebrates. The selected woodlands are ancient and have a long history of management through coppicing and pollarding, which has allowed rich ground flora to develop and also supports rare mosses and deadwood invertebrates.



Click map to enlarge; click again to reduce.

The main changes to the area have resulted from increased construction and commercial-scale farming. Both of these have increased pressures on water availability, water flow, soil quality, biodiversity and sense of place. Although housing, other construction and agriculture are significant for the area it is important that these are developed in a sustainable way so that predicted changes in climate and the effects on the area's character are considered and sense of place and history are preserved.

The main opportunities available to this area are the continuation of the agricultural tradition, but within this land management should consider methods that are more sustainable in terms of water use and soil quality in order for it to continue to be a viable industry in the future. The areas of various semi-natural habitats also present opportunities to improve water storage and soil quality for surrounding agricultural land as well as to increase advantageous species that will aid pollination and reduce pest species. In addition to this the woodlands in the area could be an important resource to supply timber and fuel to the local area if they were managed effectively.



Farmland next to the River Colne in Essex.

Statements of Environmental Opportunity

SEO 1: Manage rivers and river valleys to protect and improve water quality and help to alleviate flooding in the downstream urban areas, while also helping to improve aquifer recharge and provide a sufficient store of water to meet future need, especially with predicted climatic changes. Conserve the riparian landscapes and habitats, for their recreational and educational amenity for their internationally significant ecological value.

SEO 2: Manage the agricultural landscape and diverse range of soils which allow the Northern Thames Basin to be a major food provider, using methods and crops that retain and improve soil quality, water availability and biodiversity.

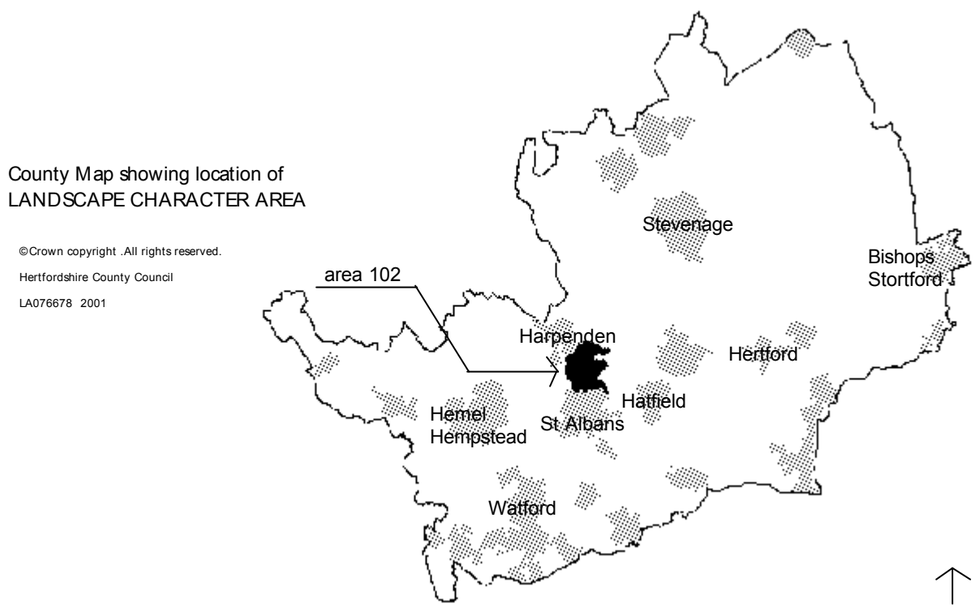
SEO 3: Protect and appropriately manage the historic environment for its contribution to local character and sense of identity and as a framework for habitat restoration and sustainable development, ensuring high design standards (particularly in the London Green Belt) which respect the open and built character of the Thames Basin. Enhance and increase access between rural and urban areas through good green infrastructure links to allow local communities recreational, health and wellbeing benefits.

SEO 4: Manage and expand the significant areas of broadleaf woodland and wood pasture, and increase tree cover within urban areas, for the green infrastructure links and important habitats that they provide, for the sense of tranquillity they bring, their ability to screen urban influences and their role in reducing heat island effect and sequestering and storing carbon.



Ancient woodland at Pound Wood in Benfleet, Essex.

‘Ayres End Valleys and Ridges’ – LCA



LOCATION

This area is bounded by the A1081 to the west, Harpenden and Wheathampstead to the north and Sandridge and St. Albans to the east and south. The area is split into two unequal parts by the linear settlement of Sandridge along the B651.

LANDSCAPE CHARACTER

A network of dry interconnecting valleys with a sense of rural seclusion despite the close proximity of settlements on the higher ground to the rear of the smaller plateau areas on the fringes of this area. The visual containment is aided by the prominent small and medium sized woods located on the upper reaches of the valley sides. Narrow lanes and equestrian activities create a relatively relaxed feel. The plateau areas are more open, with large arable fields and intermittent clipped hedgerows. On the fringes of the adjacent urban settlements there is a greater emphasis on recreational activities, including playing fields, equestrian activity, golf and community woodland.



KEY CHARACTERISTICS

- open dry valleys overlooked by smaller areas of plateau on the fringes
- quiet area with few visual detractors except the A1081 and mainline railway to the west
- small woods on the upper slopes emphasize the valleys
- area served by narrow, winding roads lined by dense mixed hedgerows
- mixed arable, pasture and recreational land uses
- number of equestrian establishments associated with small country houses, including The Grove and Sandridgebury
- locally prominent built edges to adjacent settlements
- isolated properties or small clusters of dwellings, generally with strong vernacular architecture

DISTINCTIVE FEATURES

- new playing fields for St Albans School and Old Albanians at Cheapside Farm off A1081
- Ayres End Green
- St Pancras- Sheffield mainline railway and gantries
- new golf course at Long Acre Farm
- Jersey Farm woodland park, St Albans
- St. Leonards Church, Sandridge, with flint and shingle tower
- enclosed high sided hedgerow north of Sandridge on B651

Paddocks off Pipers Lane
(J.Billingsley)

PHYSICAL INFLUENCES

Geology and soils. The chalk bedrock geology is overlaid by clay-with-flints on the higher/ plateau areas and by undifferentiated chalky drift on the slopes. The valleys contain sand and gravels while on the plateau area the acidic clay loams are stagnogleyic paleo-argillic brown earths with slowly permeable subsoils and slight seasonal waterlogging with some well drained clayey soils over chalk, variably flinty (Batcombe association). In the valley bottoms and lower slopes between Harpenden and St Albans there are typical argillic brown earths, well drained fine silty soils, locally very flinty, some shallow over flint gravel (Charity 2 association). These dry valleys also contain river terrace gravels and areas of sandy soils between St. Albans and Nomansland Common. (See also Area 103).

Topography. This markedly undulating landscape of plateau areas and dry valleys separates St. Albans and Harpenden. A small section in the south is cut off from the rest of the area by Sandridge, which is on a subtle ridge. Slopes are slightly steeper in the northern half of the area, where the landscape is more rolling. In comparison the southern half comprises a plateau area with a south-east facing slope.

Degree of slope. To the north the slopes average 1 in 32 while from the central plateau to the south east they are typically 1 in 20.

Altitude range. 85m in the south east; 125m in the plateau areas of the north, north west and centre.

Hydrology. Standing water is rare in this area of high ground and dry valleys. Local wood names suggest springs, wells or wet areas, e.g. Long Spring, Pismire Spring, Pudler's Wood and Secret Spring. There is a pond at Cheapside Farm, a well at Green Cottages and a pond and wet drain near the playground at Jersey Farm. Nearby House Lane is susceptible to flooding north of the roundabout, as is the B651 north of Sandridge.

Land cover and land use. The primary land use is arable cropping. However there is also a good proportion of equestrian pasture, including sites at Sandridgebury and Pipers Lane. Around the perimeter of the area and adjacent to the settlements of Harpenden and St. Albans there is a range of leisure-related land uses, including extensive new playing fields for the St Albans School and Old Albanians on the A1081, the pay and play golf course at Long Acre Farm and the Jersey Farm Woodland Park north of St. Albans. There is a small orchard at Cheapside Farm

Vegetation and wildlife. The area contains a number of small to medium sized discrete woods, some of which are ancient, e.g. Thames Wood, Langley Wood, Pudler's Wood, Clappers Wood and Eight Acre Wood. The main species mix is oak/ hornbeam with variable amounts of elm. There are also a number of later plantations, e.g. Pismire Spring, where species include cherry, ash and larch. The main hedgerow species are hawthorn/ blackthorn and elm with smaller amounts of hazel, holly and field maple. Hedgerow trees are mainly oak, holly and ash. Sunken lanes and tall overgrown hedges are common on the steeper slopes, e.g. Pipers Lane. Mud Lane is a notable green lane with interesting ground flora including bluebell. On the arable plateau areas the hedges are tightly clipped and the landscape more open, however there has been tree planting around Cheapside Farm. Remnant natural grasslands e.g. Ayres End Meadows are dominated by Creeping Soft Grass, Bents and Red Fescue. Locally important rare species include Creeping Formentii (Potentilla angelica) at Ayre's End and the Natterer's Bat.

HISTORICAL AND CULTURAL INFLUENCES

On the east of the area a finger of sandy soils from the north-eastern outskirts of St Albans, through Sandridge to Nomansland Common, led to early exploitation. Remains of burial mounds dating to the 2nd millennium BC lie west of Sandridge. On the southern edge of the area, adjacent to f St. Albans, is a short length of the Beech Bottom dyke whcih dates from the early 1st century AD. It has been suggested that the pronounced hedgebank on the west side of the B 651 between Sandridge and Wheathampstead, which marks the line of the medieval parish boundary, also marks a prehistoric boundary between Beech Bottom Dyke and the Devils Dyke in Wheathampstead. The most notable historic feature of the landscape, first mentioned in the late Saxon period, is a long, curving boundary, marked by fields and tracks, from the western end of Nomansland Common to northwest of Cheapside farm. There is a manorial site within Thames Wood.

Field pattern. Field patterns derive mainly from the pre 18th-century irregular enclosure. There was some later parliamentary enclosure, but the significant impact has been the creation of large prairie fields in the later part of the 20th century, particularly to the south of the area. To the north of Nomansland are a few former unenclosed common arable fields. Field sizes are medium to the north while to the south west and south east they are larger and more regular in shape. Locally there are some reasonably intact portions of hedgerow networks, e.g. at Cross Farm immediately south of Harpenden. Smaller paddocks have been created by sub-dividing larger fields with temporary fencing to serve local equestrian activity, e.g. along Pipers Lane and Sandridgebury.

Transport pattern. Narrow winding lanes with narrow verges are typical and where they rise up the steeper slopes to the plateau there are some pronounced sunken lanes. The exceptions to this pattern are the busy A1081 to the west of the area and the B651which runs between St. Albans and Wheathampstead. The London to Sheffield main line railway is mainly in cutting as it crosses from north to south.

Settlements and built form.

There is a dispersed settlement pattern with small hamlets e.g. Amwell and Ayres End , isolated farms and occasional white rendered cottages. Traditional building materials such as clay tile and brick are prevalent. Cross Farm, originally a Saxon hall, has a 17th-century gable brick front . An impressive range of brick, weatherboard and clay tile barns can be seen from Cross Lane. The parish church of St. Leonard is a distinctive feature in the landscape with its flint tower and chamfered shingle spire.

VISUAL AND SENSORY PERCEPTION

The area is generally both visually contained and coherent. Despite the close proximity of a number of towns the distant and enclosing views are largely formed and framed by vegetation or landform. This a peaceful area with few detractors, particularly in the central core. The harmonious blend of dwellings using traditional materials adds to the appeal of the area. The central ridge between Cheapside Farm and Hillend Farm is more exposed. The most significant noise source is from the main line railway. **Rarity and distinctiveness.** The landscape type is frequent within the county.

VISUAL IMPACT

Locally there are some relatively raw built edges to the open countryside , e.g. along Cross Lane , Harpenden, to the southern boundary of Wheathampstead and from parts of Sandridge. However, the wider countryside is protectd from the full impact of the more extensive residential areas, which are either set back from the ridgelines or screened by belts of trees, which in some cases include a relatively high proportion of conifers, e.g. north of Amwell. While the new playing fields on the A1081 represent a substantial development in the open countryside, the planting proposals include a number of copses, small woods and new hedges which respect the local pattern and native species mixes. Recreational land uses on the edge of St. Albans, e.g. Jersey Farm Woodland Park, include significant areas of new woodland. Within the equestrian areas the use of temporary fencing is discordant with the traditional pattern of hedgerows. The overhead gantries, associated earthworks and structures along the main line railway are only locally intrusive features, as much of the route is in cutting.

ACCESSIBILITY

Total length of Public Rights of Way - 16,094m
Total length of Other Public Access - n/a
Total length of Designated Cycle Routes - 5,184m
Total length of all public access - 21,278
Area of LCA in square metres - 11,125,144
Length to area ratio - 1:523

COMMUNITY VIEWS

This area is widely regarded for its distinctive landscapes, particularly as a setting to Nomansland Common (and some would not see such a marked boundary between the two character areas), but also for locations in the north and west of the area. The impact of more recent changes in and around the area, however, has the occasional critic: "Sandridge- Subtopian clutter in a village that has ribboned out to join St. Albans....Opposite the church, Pound Farm, mellow and ivy-smothered, is guarded by four grotesquely truncated oaks" R. M. Healey in "Hertfordshire, A Shell Guide" Faber & Faber 1982.

LANDSCAPE RELATED DESIGNATIONS

Greenbelt
Landscape Conservation Area (north of Cheapside Farm and Hillend Farm)
Amwell Conservation Area
Childwickbury Conservation area (north-west corner)
Sandridge Conservation Area

CONDITION	
Land cover change:	**localized**
Age structure of tree cover:	**mixed**
Extent of semi-natural habitat survival:	**fragmented**
Management of semi-natural habitat:	**not obvious**
Survival of cultural pattern:	**declining**
Impact of built development:	**low**
Impact of land-use change:	**moderate**

ROBUSTNESS	
Impact of landform:	**prominent**
Impact of land cover:	**apparent**
Impact of historic pattern:	**interrupted**
Visibility from outside:	**locally visible**
Sense of enclosure:	**contained**
Visual unity:	**coherent**
Distinctiveness/rarity:	**frequent**

CONDITION	WEAK	MODERATE	STRONG
GOOD	Strengthen and reinforce	Conserve and strengthen	Safeguard and manage
MODERATE	Improve and reinforce	**Improve and conserve**	Conserve and restore
POOR	Reconstruct	Improve and restore	Restore condition to maintain character

ROBUSTNESS

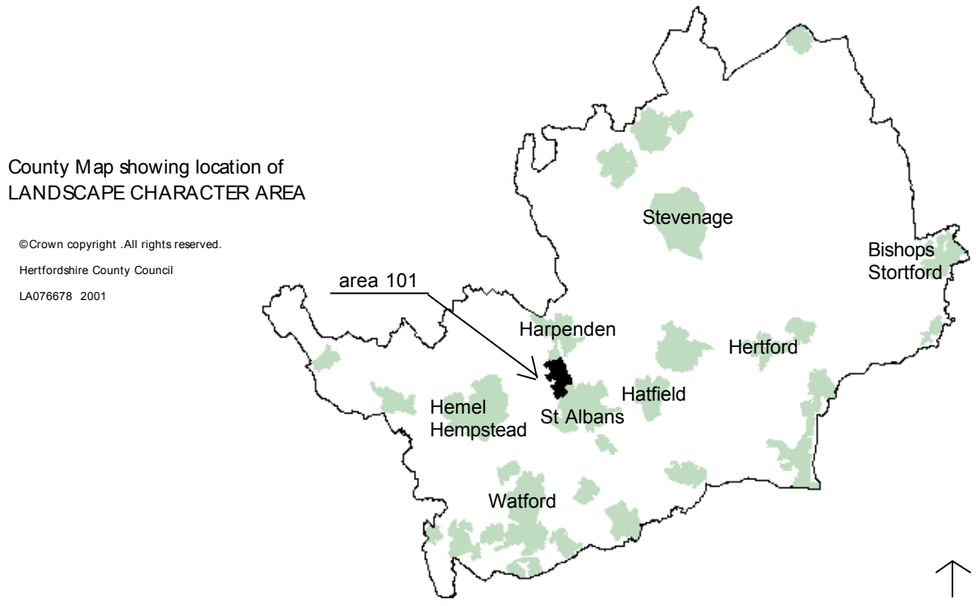
STRATEGY AND GUIDELINES FOR MANAGING CHANGE: IMPROVE AND CONSERVE

- promote the appropriate management of coppice woodland in order to re-establish a rich ground flora and the distinction between different management systems, such as high forest, coppice and coppice-with-standards
- utilize ancient hedge, field and woodland boundaries to establish the most appropriate location for wood restoration and expansion and creating eco-corridors. Build on the pattern of woodland on the upper slopes of the valley sides
- use indigenous species and native stock of local provenance wherever possible
- promote hedgerow restoration and creation throughout the area , particularly in the south , to provide visual and ecological links between existing and proposed woodland areas. Pattern to follow historic field boundaries where possible
- promote both the creation of new ponds and the retention/enhancement for wildlife of existing ponds
- improve public access arrangements including the scope for circular walks from adjacent settlements and access to woodlands
- provide new uncropped or grass field margins to link areas of wildlife importance and/or existing and proposed rights of way
- promote the retention and restoration of existing orchards and the creation of new orchards
- encourage the reuse of existing agricultural buildings for equestrian activity and introduce native planting schemes to integrate them into the landscape
- promote the use of traditional field enclosure where land is converted to equestrian pasture. Introduce new copses within areas of pasture e.g. Sandridgebury and Pipers Lane
- conserve unimproved and semi-improved grassland, e.g. at Ayres End,, wherever possible, avoiding agricultural improvements, so as to maintain their nature conservation value
- avoid over-grazing and heavy public pressure on areas of semi-improved grassland
- ensure that ancient lanes and their associated hedgerows are retained, protected, enhanced and integrated into any new development with due regard to their historic, ecological and landscape value
- ensure that the surroundings of converted and new buildings are designed and maintained to be in keeping with their agricultural surroundings. 'Garden' details are to be screened from view where possible and native species used for hedging and tree planting on the perimeter
- within golf courses a high proportion of the total area shall be dedicated to and maintained as wildlife habitat, building upon established areas of wildlife interest already present. Landscape management plans to be an integral part of the planning consent and maintenance
- new buildings and structures to be in keeping with the local vernacular and remaining historic character of the site .
- ensure all existing and proposed recreational land uses include appropriate measures to manage and enhance the existing landscape setting and historical and ecological value. Developments on the urban edge to be integrated by the use of native woodland, copses and hedgerows.
- promote planting schemes that will reduce the impact of existing urban development on the landscape of adjacent areas
- promote planting to screen the impact of the mainline railway and A1081
- maintain and develop the traditional pattern of roadside verges as a local feature and a wildlife resource Where development is likely to affect verges and damage is unavoidable, development should include details of protection of the remaining verge and replacement of its nature conservation value within the proposed scheme. This is particularly important where verges include hedgebanks, sunken lanes, ditches and hedges.

- Ayres End (E. Anderson)



‘Childwick Plateau’ – LCA



LOCATION

This area is situated between St Albans to the south, Harpenden to the north, the A1081 to the east and the Ver valley to the west.

LANDSCAPE CHARACTER

There is a marked estate feel to this plateau landscape. To the north it has a more open character with fields mainly to pasture/ grassland and a stud farm at Childwick Hall, with a combination of traditional metal fences and clipped hedges with intermittent field trees. In the centre a traditional parkland landscape cocoons the secluded Childwick Bury. The busy A1081 Harpenden Road lies to the east, but otherwise there is a private estate character with limited public access.

To the south there are more urban influences, including the golf club, country club and night club at Batchwood Hall. Residential areas at New Green and the associated schools and playing fields have local influence but are generally visually contained.

KEY CHARACTERISTICS

- strong plateau character with largely contained views
- formal estate character with common architectural detailing
- mature parkland and plantation woodlands concentrated around Childwick Bury and Batchwood Hall
- mixed species including conifers create varied skylines
- impact of adjacent urban areas generally well screened or integrated
- Childwick, particularly the stud and Childwick Bury, have strong private feel

DISTINCTIVE FEATURES

- Childwick Bury village green
- ornamental water tower
- ornamental lodges on Harpenden Road
- rare breed livestock at Childwick Bury
- Batchwood Hall country club and golf course



Estate cottage at Childwick Green (HCC Landscape Unit)

PHYSICAL INFLUENCES

Geology and soils. The chalk bedrock geology is predominantly overlaid with a clay-with-flints drift, with areas of undifferentiated solid rock at the edges of the plateau area and chalk at the surface at the south-east end.The acidic clays loams are stagnogleyic paleo-argillic brown earths, fine silty and loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some well drained clayey soils over chalk, variably flinty (Batcombe association).

Topography. This area lies on the elevated plateau east of the Ver Valley. The area is mainly flat with some minor local variations in landform caused by the brick and chalk pits in the parkland . At Batchwood Hall, slopes form the head of a dry valley which is part of the Ver Valley system.

Degree of slope. The dry valley in the north east is very shallow, with average slopes of 1 in 57. The dry valley in the southern section has steeper slopes, averaging 1 in 24. The rest of the area is mainly flat.

Altitude range. 130m in the centre; 95m in the north east.

Hydrology. There is little standing water in this area of high ground - a pond east of Ladygrove Wood, a well at Childwick Green and small pond in the south of the area at Batchwood golf course.. A local habitat of note is the wood of Kilmart's Spring, indicating a rising spring.

Land cover and land use. The primary land cover is grassland with the main land use being pasture on either parkland or within fields- there is an equestrian stud at Childwick. To the south the parkland landscape combines with woodland, ornamental grounds and recreational uses, including a golf course at Batchwood and playing fields to the north of St. Albans. There is a limited amount of arable in the extreme north.

Vegetation and wildlife. There are a number of small to medium sized woods in the centre and south of the area, giving an interlocking characterto the Childwick Bury parkland. There are some ancient woodlands, e.g. Batch Wood and Ladies Grove. Speciesin the south comprise an oak/ ash/ beech mix with hazel and cherry. Throughout the parklands there are more ornamental species and features, including a lime avenue and specimen sweet chestnut and cedar. Rhododendrons have been introduced to the understorey at Green Wood. In the north the mix is oak/ hornbeam/ elm with some modern introductions of linear belts of conifers by Childwick Stud.

Hedges are typically clipped and a mix of hawthorn, blackthorn and elm, however within the estate pasture to the north many of the hedges are predominantly hawthorn with few hedgerow trees. There is virtually no semi-natural grassland except where locally present within hedgerows. Locally important rare species include the Greater Butterfly Orchid and Solomon's Seal. There are several rare fungi and bryophytes in Batch Wood.

HISTORICAL AND CULTURAL INFLUENCES

A Roman villa lies on the edge of the plateau a short distance west of Bush wood, overlooking the Ver Valley, but otherwise prehistoric and Roman settlement in the area seems to have been sparse. By the later middle ages the pattern of dispersed farms and hamlets characteristic of much of the plateau areas in the district had emerged. Childwick appears to have been one such small hamlet. The site of the medieval moated manor of Batch Wood or Childwicksay, now a Scheduled Ancient Monument, lies to the north east of Batchwood Hall. In later centuries the estates have exerted a strong influence on the cultural pattern. Childwick Bury’s manorial history dates back to Saxon times and it was the property of St. Albans Abbey until the Dissolution. Its significant gardens and parkland are shown on maps of 1766. By 1881 the manor consisted of 14,000 acres of farms, woodland and parks. The Prince of Wales entertained guests at the mansion and in the late 20th century the estate was owned by Stanley Kubrick, creator of such films as 2001 A Space Odyssey and Clockwork Orange. Childwick Stud was introduced by Sir John Blundell in the late 19th century and was expanded from1903 by the diamond millionaire Jack Joel, who bred many great horses. Lord Grimthorpe (1816-1903), responsible for the the clock mechanism for Big Ben, also restored St. Albans Abbey, which he could view from his home at Batchwood Hall.

Field pattern. Most of the area to the south is informal fenced parkland. To the north there is a mix of regular fields around Childwick Hall and Childwick Stud with a pattern of pre 18th-century irregular enclosure and isolated prairie fields towards the upper slopes of the Ver valley. Throughout the Childwick Estate traditional metal railing fences provide enclosure.

Transport pattern. The area is firmly marked to the east by the A1081 Harpenden Road. Elsewhere there are only private estate tracks and narrow minor roads with minimal verges.

Settlements and built form. This dispersed pattern of settlement has concentrations around the Halls and estate farms. Clusters of distinctive 19th-century brick-built estate cottages add character. at Beesonend and Childwick Green. The latter, with the domestic scaled St Mary's church by Gilbert Scott and a miniature Jacobean house, forms a picturesque hamlet grouped around an enclosed village green and well. Flint is used locally in boundary walls. Childwick Bury is a large late 17th-century mansion, probably built by Joshua Lomax and altered in the 18th century, 1854 and 1900. On the Harpenden Road the ornamental iron gate of a distinctive elaborately detailed red brick and terracotta lodge (1897) matches those at the entrance to the mansion within the parkland. The stables associated with Childwick Stud make a positive contribution to the locality.

Batchwood Hall was built by Lord Grimthorpe in a neo-Georgian style in the late 19th century. Remains of parts of its Victorian garden are of note.

Other sources of area specific information. "ChildwickBury- Adream of loveliness" Daphne Hutchins, Herts Countryside Vol.34 No.239 1979 March p22-3

Conservation Area Character Statement

VISUAL AND SENSORY PERCEPTION

To the south the interlocking character of the woodland, particularly on the fringes of the area, helps to create a strong sense of containment and privacy from the surrounding areas, including the New Greens estate at St. Albans. This is a medium scale and coherent landscape with limited intrusion from adjacent noises except for the A1081.To the north where the enclosure is limited there are open views to the Ver valley, e.g. from Beesonend Lane.

Rarity and distinctiveness. The parklands and estate landscapes are relatively unusual in this part of the county. The retention of the livestock grazing, including some rare breeds within the parkland, is a distinctive feature.

VISUAL IMPACT

The only significant impacts on the area are from adjacent built development. These include Hatching Green to the north, where there are some incongruous ornamental trees in rear gardens and to the south at New Greens estate with its associated secondary school. However, in the latter boundary hedges and woodland are relatively strong features of the landscape. Within the area the current uses at Batchwood Hall comprise some visually intrusive structures and poorly maintained parking areas.

ACCESSIBILITY

Two bridleways cross the area and Beesonend Lane drops down to the ford at Redbournbury on the Ver. Otherwise there is limited access and much of the Childwickbury estate is noticeably marked as 'private' . The main hall is concealed from the adjacent bridleway by dense planting, possibly a function of the former owner's reclusive personality.

Total length of Public Rights of Way - 6,807m
Total length of Other Public Access - 1,345m
Total length of Designated Cycle Routes - 1,345m
Total length of all public access - 9,497m
Area of LCA in square metres - 4,751,569
Length to area ratio -1:500

COMMUNITY VIEWS

This area is widely recognised for its distinctiveness.

" Childwick in daffodil time, with the wild cherry blossom in the woods beyond, is a dream of loveliness to which those who have once seen it make a yearly pilgrimage" .
Constance Toulmin in 'Happy Memories', Faith Press 1960. p.11.

LANDSCAPE RELATED DESIGNATIONS

Greenbelt
Landscape Conservation Area (except north of Childwick Stud and playing fields and school at New Green)
Childwickbury Conservation Area (covers much of the estate)
Scheduled Ancient Monument- Batch Wood moated manorial site

CONDITION	
Land cover change:	**localised**
Age structure of tree cover:	**mixed**
Extent of semi-natural habitat survival:	**fragmented**
Management of semi-natural habitat:	**not obvious**
Survival of cultural pattern:	**interrupted**
Impact of built development:	**low**
Impact of land-use change:	**low**

ROBUSTNESS	
Impact of landform:	**apparent**
Impact of land cover:	**prominent**
Impact of historic pattern:	**interrupted**
Visibility from outside:	**concealed**
Sense of enclosure:	**contained**
Visual unity:	**coherent**
Distinctiveness/rarity:	**unusual**

CONDITION	WEAK	MODERATE	STRONG
GOOD	Strengthen and reinforce	Conserve and strengthen	Safeguard and manage
MODERATE	Improve and reinforce	Improve and conserve	**Conserve and restore**
POOR	Reconstruct	Improve and restore	Restore condition to maintain character

ROBUSTNESS

STRATEGY AND GUIDELINES FOR MANAGING CHANGE: CONSERVE AND RESTORE

- ensure landscape improvements respect the historic context of existing features and the form and character of parkland and gardens. Ornamental species should only be used to replace damaged or over-mature specimens. New planting is encouraged to maintain age diversity and the removal of inappropriate planting should be encouraged
- survey and manage parkland and veteran trees for biodiversity value
- within the historic estates of Childwick and Batchwood hard landscaping details such as gates, metal railings, steps and balustrades, should be conserved. Lodges, follies, obelisks, terraces and boundary walls should contribute to the planned landscape and its setting. Replacement, renovated or new features should be architect designed and in keeping with their original setting
- restrict ploughing of grasslands within parklands and encourage reversion from arable uses to pasture and grassland
- improve public access arrangements across whole area, providing circular walks from adjacent residential areas and access to woodlands
- promote the appropriate management of coppice woodland in order to re-establish a rich ground flora and the distinction between different management systems, such as high forest and coppice-with standards.
- promote the expansion of existing woodland, especially where this will help in creating habitat links and develop a sense of visual containment to the north and north west of the area
- use native indigenous species and wherever possible stock of local provenance. Prevent the spread of invasive species such as Rhododendron ponticum
- promote hedgerow restoration and creation to the north of the area to provide visual and ecological links. Pattern to follow historic field boundaries where possible. Hedges to the south to be maintained high and strengthened to restrict the visual impact of adjacent residential areas
- promote both the creation of new ponds and the retention/enhancement for wildlife of existing ponds
- provide new uncropped or grass field margins to link areas of wildlife importance and /or existing and proposed rights of way
- encourage the retention of existing stables for equestrian activity
- promote the use of traditional field enclosure by metal fencing or hedges where land is converted to equestrian pasture
- ensure that new development, conversions and their surroundings within estates are designed and maintained to be in keeping with their historic settings. Car parks should be sensitively sited and use appropriate materials.
- where new development is permitted native tree species only should be planted on boundaries, with exotic/ornamental species only in close proximity to the dwellings
- golf courses should only be permitted within historic parklands where the original layout and features of the grounds are retained, all existing trees are retained and adequate provision is made for their maintenance and management. Particular attention should be given to ensure earthworks proposals complement the natural landform patterns
- an appropriate buffer zone can be created around any historic artefacts, such as mansions, lodges, walls, etc., to protect their historic integrity
- ensure all existing and proposed recreational land uses include appropriate measures to manage and enhance the existing landscape setting and historical and ecological value. To include golf courses and playing fields
- maintain and manage the verges of existing roads for nature conservation interest.



- Childwick Bury parkland (J. Billingsley)

‘Harpenden Common’ – LCA

VISUAL AND SENSORY PERCEPTION

The common is largely concealed from surrounding areas with limited links to the surrounding countryside. Views of the common from neighbouring houses are equally limited to those directly adjacent . There is a medium to small scale in the landscape pattern . The visual unity is generally coherent, however the range of recreational activities and management measures create some incongruous elements in the landscape. There is noise intrusion from the local roads that intersect the common, however there is generally a relaxed atmosphere as open space meets town . Most of the views to the town are framed by secondary woodland and the distant horizons to the north and east are also defined by mature vegetation.

Rarity and distinctiveness. The close proximity of a large common to a town is rare if not unique to the County.

VISUAL IMPACT

As development has been carefully controlled there are few intrusive built features around the fringes of the common. In fact the adjacent houses and the many mature trees in private gardens are significant components of the character of the area. Within the common there are some features that visually jar to varying degrees including: the small car park to the north, the golf club and the transient amusement fairs.

ACCESSIBILITY

There is open access over the common with the exception of most of the golf course. Harpenden Town Council has created a permisive bridleway around the common to guide recreational users.

Total length of Public Rights of Way - 1,360m
Total length of Other Public Access - 5m
Total length of Designated Cycle Routes - 1,495m
Total length of all public access - 2,860m
Area of LCA in square metres - 1,170,250
Length to area ratio - 1:409

COMMUNITY VIEWS

Research undertaken in 2002 identified Harpenden Common as a highly valued landscape, particularly as a “country” amenity for the town [A].

"We were exceedingly struck with the beauty of the village as we entered it for the first time..... After breakfast we unpacked and took a walk on the Common with Mr Phillips, there is a delightful view of the village from the hill."

Elizabeth Read's Journal, quoted in "A view of Harpenden in 1821", Harpenden and District Local History Society No.9 April 1976

LANDSCAPE RELATED DESIGNATIONS

Greenbelt
County Wildlife Site
Harpenden Conservation Area (most of the common and surrounding built up area)
Landscape Conservation Area (south west corner - no overlap with Conservation Area)

CONDITION	
Land cover change:	**localised**
Age structure of tree cover:	**mixed**
Extent of semi-natural habitat survival:	**widespread**
Management of semi-natural habitat:	**good**
Survival of cultural pattern:	**interrupted**
Impact of built development:	**low**
Impact of land-use change:	**moderate**

ROBUSTNESS	
Impact of landform:	**apparent**
Impact of land cover:	**prominent**
Impact of historic pattern:	**interrupted**
Visibility from outside:	**concealed**
Sense of enclosure:	**contained**
Visual unity:	**coherent**
Distinctiveness/rarity:	**unique**

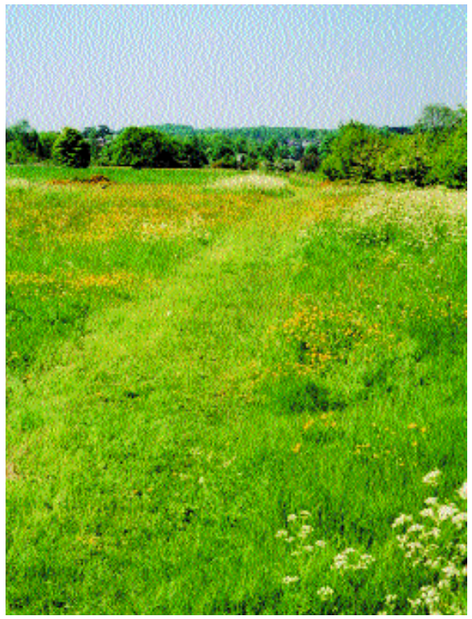
CONDITION	WEAK	MODERATE	STRONG
GOOD	Strengthen and reinforce	**Conserve and strengthen**	Safeguard and manage
MODERATE	Improve and reinforce	Improve and conserve	Conserve and restore
POOR	Reconstruct	Improve and restore	Restore condition to maintain character

ROBUSTNESS

STRATEGY AND GUIDELINES FOR MANAGING CHANGE: CONSERVE AND STRENGTHEN

- support the current management plan for the common to conserve the mix of habitat types and the balance between nature conservation,recreation and public access. Promote local initiatives for further improvements and encourage traditional management measures wherever feasible
- encourage the retention of ponds to the north east and to enhance their visual and wildlife value. To monitor and promote measures to improve the water quality of ponds on the common in liaison with the Environment Agency
- conserve unimproved and semi-improved grassland wherever possible, avoiding the use of fertilizers to reduce their acid nature, in order to maintain their nature conservation value.
- for areas of semi-improved acid grassland avoid over-grazing, heavy public pressure, damage from vehicles, pollution and invasion by alien species
- promote a planting strategy to provide a framework to visually integrate both the permanent structures e.g. Club houses and the transient recreational activities on the common e.g. fairs
- support the conservation area status of the common . To restrict any new built development and control development adjacent to the common that may affect either its ecology or amenity value
- promote the development of a strategy for recreation associated parking on the common so as to minimize the visual impact of parked vehicles on the setting of the common while allowing for safety and accessibility
- improve and update the interpretive material to illustrate the nature conservation value and history of the common
- maintain ditches adjacent to roads to prevent unauthorized vehicular access
- monitor and control dog fouling
- restrict further encroachment on the common by secondary and scrub woodland
- improve public access and safety within existing woodlands
- promote the appropriate management of secondary woodland in order to re-establish a rich ground flora and the distinction between different management systems, such as high forest, coppice, coppice with standards and wood pasture
- seek to resolve conflicts arising from competing uses on the common including golf and walking
- prevent of the spread of invasive and non native species
- use locally indigenous species and native stock of local provenance wherever possible. The use of exotic species should be prevented
- promote traffic calming measures on minor roads where considered necessary. Materials and designs must be of a scale and design that relates to the local landscape character of the area.
- for all formal recreational facilities including the Harpenden Golf Course and the Cricket Club, a long-term management plan should be produced and adhered to rigorously. Liaison with local groups is to be encouraged to deal with changing circumstances, via annual meetings of interested parties. A high proportion of the total area shall be dedicated to and maintained as wildlife habitat, building upon established areas of wildlife interest already present
- ensure all existing and proposed recreational land uses include appropriate measures to manage and enhance the existing landscape setting and historical and ecological value. Particular attention should be given to ensure earth work proposals complement the natural landform patterns.
- promote initiatives to increase the extent of heathland plant communities, and thereby promote the BAP objectives for the locality
- encourage where feasible the reintroduction of traditional grazing methods on the common
- promote the educational value of the common with local schools and youth groups
- support a programme of rotational scrub management to maintain a healthy mosaic of habitats
- promote clear and safe routes for walkers , cyclists and equestrians through the common particularly through areas where there are potential conflicts with nature conservation and recreation e.g. by providing cut paths through hay meadows

- Toward Harpenden (J.Billingsley)



County Map showing location of LANDSCAPE CHARACTER AREA

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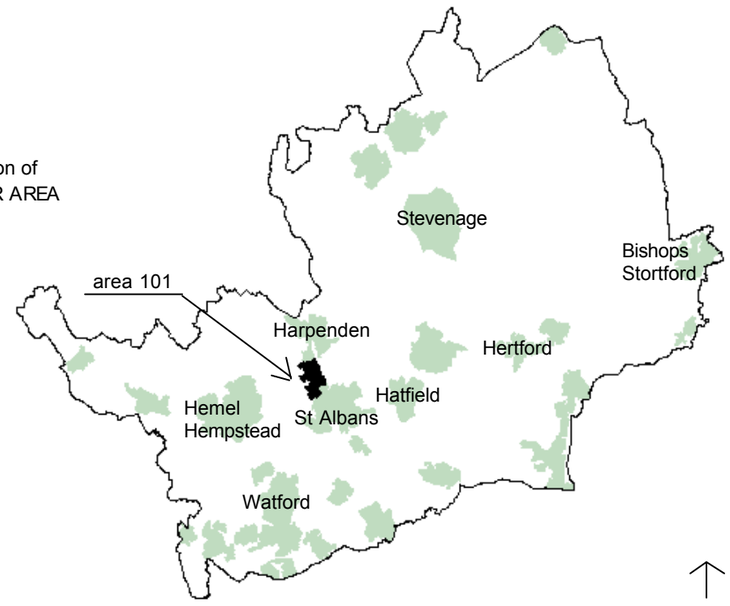


LOCATION

This area is situated between St Albans to the south, Harpenden to the north, the A1081 to the east and the Ver valley to the west.

LANDSCAPE CHARACTER

There is a marked estate feel to this plateau landscape. To the north it has a more open character with fields mainly to pasture/ grassland and a stud farm at Childwick Hall, with a combination of traditional metal fences and clipped hedges with intermittent field trees. In the centre a traditional parkland landscape cocoons the secluded Childwick Bury. The busy A1081 Harpenden Road lies to the east, but otherwise there is a private estate character with limited public access.

To the south there are more urban influences, including the golf club, country club and night club at Batchwood Hall. Residential areas at New Green and the associated schools and playing fields have local influence but are generally visually contained.

KEY CHARACTERISTICS

- strong plateau character with largely contained views
- formal estate character with common architectural detailing
- mature parkland and plantation woodlands concentrated around Childwick Bury and Batchwood Hall
- mixed species including conifers create varied skylines
- impact of adjacent urban areas generally well screened or integrated
- Childwick, particularly the stud and Childwick Bury, have strong private feel

DISTINCTIVE FEATURES

- Childwick Bury village green
- ornamental water tower
- ornamental lodges on Harpenden Road
- rare breed livestock at Childwick Bury
- Batchwood Hall country club and golf course



Estate cottage at Childwick Green (HCC Landscape Unit)

PHYSICAL INFLUENCES

Geology and soils. The chalk bedrock geology is predominantly overlaid with a clay-with-flints drift, with areas of undifferentiated solid rock at the edges of the plateau area and chalk at the surface at the south-east end.The acidic clays loams are stagnogleyic paleo-argillic brown earths, fine silty and loamy over clayey soils with slowly permeable subsoils and slight seasonal waterlogging. Some well drained clayey soils over chalk, variably flinty (Batcombe association).

Topography. This area lies on the elevated plateau east of the Ver Valley. The area is mainly flat with some minor local variations in landform caused by the brick and chalk pits in the parkland . At Batchwood Hall, slopes form the head of a dry valley which is part of the Ver Valley system.

Degree of slope. The dry valley in the north east is very shallow, with average slopes of 1 in 57. The dry valley in the southern section has steeper slopes, averaging 1 in 24. The rest of the area is mainly flat.

Altitude range. 130m in the centre; 95m in the north east.

Hydrology. There is little standing water in this area of high ground - a pond east of Ladygrove Wood, a well at Childwick Green and small pond in the south of the area at Batchwood golf course.. A local habitat of note is the wood of Kilmart's Spring, indicating a rising spring.

Land cover and land use. The primary land cover is grassland with the main land use being pasture on either parkland or within fields- there is an equestrian stud at Childwick. To the south the parkland landscape combines with woodland, ornamental grounds and recreational uses, including a golf course at Batchwood and playing fields to the north of St. Albans. There is a limited amount of arable in the extreme north.

Vegetation and wildlife. There are a number of small to medium sized woods in the centre and south of the area, giving an interlocking characterto the Childwick Bury parkland. There are some ancient woodlands, e.g. Batch Wood and Ladies Grove. Speciesin the south comprise an oak/ ash/ beech mix with hazel and cherry. Throughout the parklands there are more ornamental species and features, including a lime avenue and specimen sweet chestnut and cedar. Rhododendrons have been introduced to the understorey at Green Wood. In the north the mix is oak/ hornbeam/ elm with some modern introductions of linear belts of conifers by Childwick Stud.

Hedges are typically clipped and a mix of hawthorn, blackthorn and elm, however within the estate pasture to the north many of the hedges are predominantly hawthorn with few hedgerow trees. There is virtually no semi-natural grassland except where locally present within hedgerows. Locally important rare species include the Greater Butterfly Orchid and Solomon's Seal. There are several rare fungi and bryophytes in Batch Wood.

HISTORICAL AND CULTURAL INFLUENCES

A Roman villa lies on the edge of the plateau a short distance west of Bush wood, overlooking the Ver Valley, but otherwise prehistoric and Roman settlement in the area seems to have been sparse. By the later middle ages the pattern of dispersed farms and hamlets characteristic of much of the plateau areas in the district had emerged. Childwick appears to have been one such small hamlet. The site of the medieval moated manor of Batch Wood or Childwicksay, now a Scheduled Ancient Monument, lies to the north east of Batchwood Hall. In later centuries the estates have exerted a strong influence on the cultural pattern. Childwick Bury's manorial history dates back to Saxon times and it was the property of St. Albans Abbey until the Dissolution. Its significant gardens and parkland are shown on maps of 1766. By 1881 the manor consisted of 14,000 acres of farms, woodland and parks. The Prince of Wales entertained guests at the mansion and in the late 20th century the estate was owned by Stanley Kubrick, creator of such films as 2001 A Space Odyssey and Clockwork Orange. Childwick Stud was introduced by Sir John Blundell in the late 19th century and was expanded from1903 by the diamond millionaire Jack Joel, who bred many great horses. Lord Grimthorpe (1816-1903), responsible for the the clock mechanism for Big Ben, also restored St. Albans Abbey, which he could view from his home at Batchwood Hall.

Field pattern. Most of the area to the south is informal fenced parkland. To the north there is a mix of regular fields around Childwick Hall and Childwick Stud with a pattern of pre 18th-century irregular enclosure and isolated prairie fields towards the upper slopes of the Ver valley. Throughout the Childwick Estate traditional metal railing fences provide enclosure.

Transport pattern. The area is firmly marked to the east by the A1081 Harpenden Road. Elsewhere there are only private estate tracks and narrow minor roads with minimal verges.

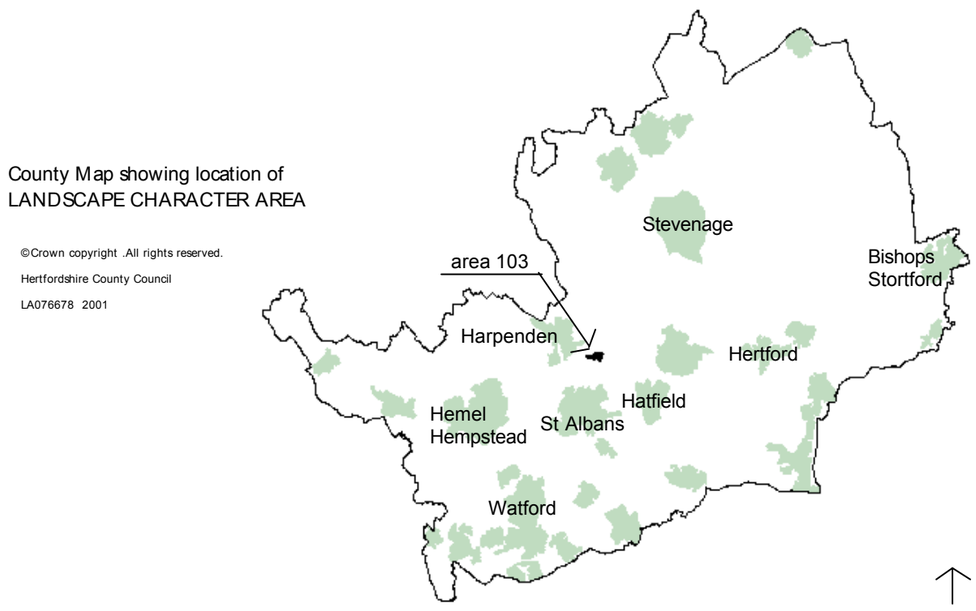
Settlements and built form. This dispersed pattern of settlement has concentrations around the Halls and estate farms. Clusters of distinctive 19th-century brick-built estate cottages add character. at Beesonend and Childwick Green. The latter, with the domestic scaled St Mary's church by Gilbert Scott and a miniature Jacobean house, forms a picturesque hamlet grouped around an enclosed village green and well. Flint is used locally in boundary walls. Childwick Bury is a large late 17th-century mansion, probably built by Joshua Lomax and altered in the 18th century, 1854 and 1900. On the Harpenden Road the ornamental iron gate of a distinctive elaborately detailed red brick and terracotta lodge (1897) matches those at the entrance to the mansion within the parkland. The stables associated with Childwick Stud make a positive contribution to the locality.

Batchwood Hall was built by Lord Grimthorpe in a neo-Georgian style in the late 19th century. Remains of parts of its Victorian garden are of note.

Other sources of area specific information. "ChildwickBury- Adream of loveliness" Daphne Hutchins, Herts Countryside Vol.34 No.239 1979 March p22-3

Conservation Area Character Statement

‘Nomansland Common’ – LCA



LOCATION

A small area off the B651 between Sandridge and Wheathampstead

LANDSCAPE CHARACTER

A small but distinctive area located in a dry valley and surrounded by farmland. Due to locally poor soils the area has historically been cleared and used as a common. Today this is a popular location for informal recreation, notably dog walkers. There are similarities with Harpenden Common but the area exhibits a more remote feel, largely detached from urbanising influences.

KEY CHARACTERISTICS

- narrow low-lying valley feature with open aspects
- acid gravel soils with chalk and clay exposures
- important for historic and contemporary recreational uses
- acidic grassland and heathland communities
- regenerating scrub oak and hawthorn woodland over areas of former clay and chalk extraction
- clusters of small hamlets on fringes of the common

DISTINCTIVE FEATURES

- ditch and banks to common edges
- poorly visually integrated car park off Ferrers Lane
- Wheathampstead Cricket Club



Towards Symondshyde Ridge (HCC Landscape Unit)

PHYSICAL INFLUENCES

Geology and soils. The underlying bedrock geology is chalk. Although locally evident at the surface, the chalk is generally overlaid by either sand and terrace gravels on the valley bottom or undifferentiated solid rock overlaid by clay-with-flints on the slopes to the north and south. The valley soils are light acidic soils, which influence the distinctive land cover, and typical argillic brown earths, which are well drained fine silts, locally very flinty, some shallow over flint gravel (Charity 2 association). On the slopes to north and south are small areas of stagnogleyic paleo-argillic brown earths, fine silty and loamy soils with slowly permeable subsoils and slight seasonal waterlogging. Some well drained clayey soils over chalk, variably flinty (Batcombe association).

Topography. A number of dry valleys all converge in this small area and continue towards the south east. As a valley bottom it is relatively flat with gentle undulations. The northern slope is wooded and settled. The overgrown pits that exist on the common today are clay pits dating from the 18th century. Brick kilns are recorded on the common in 1759 and brick making was an important local industry.

Degree of slope. The slopes of Nomansland common have an average gradient of 1 in 23.

Altitude range. 105m on the south slope of Nomansland common; 95m in the valley bottom to the south east

Hydrology. This confluence of dry valleys has no standing water or wells.

Land cover and land use. In ancient times the area would have been wooded, however at some point it was cleared for grazing, which continued until the 1930s. Due to the light quality of the acidic soils the area largely escaped cultivation, apart from during WWII when part of South Common was ploughed for crops. Today the common comprises a mix of rough grassland and scrub woodland. Although there are still grazing rights on the common the land use today is mainly for informal recreation, including dog walking and model aircraft enthusiasts. Wheathampstead Cricket Clubhouse and pitch is located to the north, adjacent to the B651.

Vegetation and wildlife. In the absence of grazing a considerable proportion of the acidic grassland to the north has reverted to hawthorn scrub and secondary oak/ birch woodland. Hornbeam,ash, aspen, cherry and sycamore are minor species in the woodland mix. The grassland communities are a key component of the landscape and are dominated by Creeping Bent/ Red Fescue. Locally rare flora species include Petty Whin, Heather, Dwarf Gorse and Thatch Moss. On the road verges there tends to be a more rank vegetation.The northern grasslands tend to be more acidic while those to the south are neutral. There are no hedges within the core of the are,a however on the perimeter there is an hawthorn/ hornbeam/ elm mix. The common supports a range of uncommon invertebrates, including Mottled Grasshoppers, solitary bees/ wasps, beetles and spiders. Lizards have also been recorded.

HISTORICAL AND CULTURAL INFLUENCES

In the middle ages there were frequent disputes over the common between the abbeys of St Albans and Westminster, as part of the common lay in Wheathamstead parish (owned by Westminster) and part in Sandridge parish (owned by St Albans). In 1429 the problem was resolved when it was agreed that both parishes should have grazing rights. At some time a large boulder of puddingstone was placed on the common to mark the boundaries of the parishes. It was due to these disputes over ownership that the name 'No Mans Land' was given. In 1461, during the Wars of the Roses, the Yorkist army had a camp here and it became the site of some of the fighting during the Second Battle of St. Albans, which may be the explanation for the cannon balls and 25 skeletons supposedly found on the common in the 19th century. Although the common fell into private ownership in the 17th century, the local population retained the grazing rights. The common has long been used for sports and leisure activities. In the 18th century hunting was popular while in the early 19th century cricket was introduced. The common also became a venue for brutal prize fighting, sometimes with fatal consequences, and hosted horse racing between 1829 and 1837 which was supported by nobility: in 1829 George IV won the St. Albans Cup on the course. Since the heydays of formal sports on the common the area has provided a location for more passive recreational activities. During WW II Field Marshal Montgomery reviewed his troops here prior to making an assault on the Second Front. In 1965 the common was registered under the Commons Registration Act.

Field pattern. The area is unified by its historical origin as an unenclosed open margined common. Some leisure uses have locally disrupted this pattern e.g. Cricket Club.

Transport pattern. A number of roads converge on the common. These include the B651 and a number of other minor lanes which historically would have provided access for the common grazing. Verges are typically narrow and marked by ditches to prevent unauthorized access.

Settlements and built form. On the northern edge of the common there are a few small hamlets or clusters of dwellings. These include the settlement of Nomansland and West End Farm. Part of the village seems to be carved out of the former common. The properties are largely hidden by the scrub woodland that dominates the northern part of the common.

Other sources of area-specific information.

Management Plan - Countryside Management Service (Document is reviewed on a 5 year cycle, next period 2001-2006)

VISUAL AND SENSORY PERCEPTION

This small character area is visually unified. The scale is small to medium in the open areas of the common but much more confined within the regenerating scrub woodland. The common is generally concealed from views outside the area and therefore provides an unexpected and pleasant contrast when passing through from the adjacent landscapes. Away from the B651 this is a peaceful, low key area.

Rarity and distinctiveness. The common is a relatively unusual landscape type within the county.The northern half of the common is one of the best remaining dry acidic heaths in Hertfordshire.

VISUAL IMPACT

There are few detractors within the area. Exceptions include the cricket club clubhouse, and the central car park with its unattractive height restriction barrier. The car park is occasionally adumping site for disused and stolen cars. Fly tipping can also be a problem. Adjacent properties are well integrated into the small-scale landscape.

ACCESSIBILITY

There is an informal and permissive network of paths across the common, including rights for pedestrians, cyclists and equestrians.
Total length of Public Rights of Way - 444m
Total length of Other Public Access - n/a
Total length of Designated Cycle Routes - n/a
Total length of all public access - 444m
Area of LCA in square metres - 606,158
Length to area ratio - 1:1365

COMMUNITY VIEWS

This site is regarded as singularly distinctive and is one of the most remarked upon locations in the county.
"This disputed territory between St. Albans and Wheathamsted was...both a battlefield and a venue for bare-knuckle fighters. There is, however, little in the landscape to remind us of these violent happenings in bygone days; indeed when passing through it recently I thought how peaceful it looked." Letter from Rudolph Robert in Hertfordshire Countryside V.22 No 102, October 1967.

LANDSCAPE RELATED DESIGNATIONS

County Wildlife Site
Greenbelt
Landscape Conservation Area

CONDITION

Land cover change:	**insignificant**
Age structure of tree cover:	**young**
Extent of semi-natural habitat survival:	**widespread**
Management of semi-natural habitat:	**good**
Survival of cultural pattern:	**intact**
Impact of built development:	**low**
Impact of land-use change:	**low**

ROBUSTNESS

Impact of landform:	**apparent**
Impact of land cover:	**prominent**
Impact of historic pattern:	**continuous**
Visibility from outside:	**concealed**
Sense of enclosure:	**partial**
Visual unity:	**unified**
Distinctiveness/rarity:	**unusual**

CONDITION	WEAK	MODERATE	STRONG
GOOD	Strengthen and reinforce	**Conserve and strengthen**	Safeguard and manage
MODERATE	Improve and reinforce	Improve and conserve	Conserve and restore
POOR	Reconstruct	Improve and restore	Restore condition to maintain character

ROBUSTNESS

STRATEGY AND GUIDELINES FOR MANAGING CHANGE: SAFEGUARD AND MANAGE

- support the current management plan for the common to conserve the mix of habitat types and to achieve a balance between nature conservation, recreation and public access
- conserve, enhance and extend heathland habitats to achieve BAP targets
- control over-grazing, heavy public pressure, damage from vehicles and motorcycles in areas of semi-improved acid grassland
- promote the development of a strategy for recreation-associated parking on the common so as to restrict parking on adjacent narrow roads and minimize the visual impact of parked vehicles on the setting of the common while allowing for public safety and accessibility
- maintain ditches adjacent to roads to prevent unauthorized vehicular access and develop the ecological value of the verges
- monitor and control dog fouling and littering
- restrict further encroachment on the common by secondary and scrub woodland unless part of rotational scrub
- improve public access and safety within existing woodlands
- develop a site interpretation strategy to illustrate the nature conservation value and local history of the common
- promote the appropriate management of secondary woodland in order to re-establish a rich ground flora and the distinction between different management systems, such as high forest, coppice, coppice-with-standards and wood pasture
- prevent the spread of and seek to remove invasive non native species
- use locally indigenous species and native stock of local provenance wherever possible. The use of exotic species should be prevented
- promote traffic calming measures on minor roads where considerestyle that relate to the local the landscape character of the area.
- ensure all existing and proposed recreational land uses include appropriate measures to manage and enhance the existing landscape setting and its historical and ecological value. Discourage inappropriate receational uses
- maintain and improve the pattern of hedgerows and banks on the perimeter of the area
- look for opportunities to extend acidic grassland and heathland communities to similar soil types in adjacent areas, e.g. to the south east, currently under arable cropping
- promote the creation of links from and to the area by additional rights of way into the adjacent areas
- restrict built development on or adjacent to the common
- encourage traditional management measures wherever feasible
- conserve and enhance and unimproved and semi-improved acidic and neutral grassland habitats



- Heath and scrub woodland (J.Billingsley)

‘Symondshyde Ridge’ – LCA



LOCATION

This area runs from the Lea Valley east of Wheathampstead, southwards to St Albans.

LANDSCAPE CHARACTER

An undulating north/south ridge with dominant arable land cover. To the north and east both extensive ancient and discrete plantation woodlands create a contained and coherent landscape. To the west and south the landscape is much more open with extensive and distant views to and from the area. There is a quiet and detached feel .The sparse farmsteads, narrow twisting lanes with hedgebanks and the wooded enclosure of Coleman Green add to the relaxed character.

KEY CHARACTERISTICS

- extensive woodland areas on eastern slopes
- small settlements and individual properties well assimilated into the landscape
- large arable fields with relic hedgerows
- narrow lanes (some sunken) with hedgebanks
- distant views to south east, west and north

DISTINCTIVE FEATURES

- wireless station masts on ridge to south
- massive Iron Age ditches (including Devil's Dyke)
- chalk pits
- pick-your-own-fruit farm



Devil's Dyke •
(J. Billingsley)

PHYSICAL INFLUENCES

Geology and soils. The local geology is a chalky till, with deep fine loamy over clayey and clayey soils with slowly permeable subsoils and slight seasonal waterlogging (Hornbeam 3 series). Calcareous subsoils exist in places.
Topography. The area comprises a moderate ridge 4km in length from north to south and 2km from east to west. The landform gently undulates with some stronger valley features to the north. There are a number of chalk pits, e.g. Chalk Dell Farm.
Degree of slope. 1 in 25 to 1 in 40 on the slopes and less than 1 in 100 along the ridge.
Altitude range. 81-96m on the perimeter and 111-119m on the ridgeline.
Hydrology. A few springs rise on the slopes, e.g. Dogsheart Spring and Pearman's Spring. Local woods also suggest springs rising, eg. Long Spring Grove and Wet Grove. To the south east of the 'Belgic Oppidum' a series of linear ponds follow a shallow valley to the north and then part of the manmade earthworks at 'The Slad'. There are some ponds and wells associated with farmsteads.
Land cover and land use. The primary land use is arable farming on both the slopes and the narrow plateau. Woodland is the major secondary land use to the eastern and northern slopes. Small areas of pasture for cattle and horses remain in association with farmsteads, e.g. Fairfold's Farm and Symondshyde Farm. Poor hedges have often been replaced by fencing, which gives a temporary feel.
Vegetation and wildlife. Extensive woods include Symondshyde, Furze Field, Chalk Dell and Titnol's Woods, many of them ancient with a natural acidic oak/hornbeam/birch mix. Sessile oak is also a feature of the woods, planted by the Gascoigne-Cecil Estate. Ash and oak form wood banks to the edges. Coppice is a feature to the north west of the area. At Symondshyde areas of botanically rich remnant heath survive in the rides. Plantations have also been added to either connect with the ancient woods or as discrete areas, e.g. David's Dingle. There is a large proportion of softwoods (both larch and pine) throughout and these are actively managed. The fine mature lime avenue from Brocket Hall terminates at Benstead's Wood.
At Coleman Green there are areas of heathy grassland, but much of the area has reverted to semi-natural woodland. The hedges are variable, being locally prominent on hedgebanks with the underlying gravels often visible in some of the lanes. In contrast there has been extensive hedge removal in the fields, and those that do exist are relic and in a state of decline. Hedgerow species are mixed and include hornbeam, field maple, holly, elm and some bracken to the small plateau area. Hedgerow trees include oak, ash and holly.

HISTORICAL AND CULTURAL INFLUENCES

Just outside Wheathampstead are massive late Iron Age ditches including Devils Dyke. Symondshyde derives its name in part from a 'hyde', a 120-acre Saxon free tenement. John Bunyan is recorded to have visited a cottage at Coleman Green.
Field pattern. The historic field pattern varies. To the north and east the mainly pre-18th century organic enclosure pattern is largely intact, although hedgerow loss makes the area seem more open. Field units are generally irregular in shape and medium to large in size. There has been some limited enlargement to prairie fields. To the south and east there is an historic pattern of parliamentary enclosure, which has subsequently been extensively altered by both 20th-century enclosure and a loss of former boundaries from post-1950 enlargements.
Transport pattern. The transport pattern comprises narrow winding lanes twisting slowly across the landform.
Settlements and built form. The settlement pattern is sparse and scattered. There is one small hamlet at Coleman's Green which with its now regenerated wooded common has a secluded feel. There is a mix of building materials, including red and gault brick, timber frame and clay tile. There are no notable large houses and most are well integrated into the wooded arable landscape.

VISUAL AND SENSORY PERCEPTION

This moderately elevated area is visible from the surrounding landscape with the woods forming a key feature from the east. The more open farmland to the south is particularly visible from the edge of St.Albans. Within the area the views are framed and generally contained by hedgerows, woodland and the undulating landform. From the south of the area near Nashe's Farm there are distant views across the Vale of St Albans and as far as the Shenley Ridge.

Rarity and distinctiveness. This landscape type is frequent. Its most distinctive feature is the quiet relaxed character.

VISUAL IMPACT

There has been a widespread shift from pasture to arable, but there are very few detracting elements in the landscape. The exceptions are the radio masts to the south, temporary earth bunding at Sutton's Farm and the built edge of St Albans to the south. Areas of fly-tipping at Symondshyde detract from the woods. Chalk Dell Fruit Farm off Marford Road has a strong visual impact with its ordered narrow plots contrasting with the surrounding arable areas.

ACCESSIBILITY

There is a moderate network of rights of way, particularly to the east. The Hertfordshire Way passes through the area. Symondshyde Woods, run by Countryside Management Services provide informal recreation opportunities including parking and picnic facilities.

COMMUNITY VIEWS

This area generally appears not to be valued for its distinctiveness, except for the wooded landscapes around Symonshyde (C).

LANDSCAPE RELATED DESIGNATIONS

Landscape Conservation Area (part).
SAM: Wheathampstead earthwork (including Devil's Dyke and The Slad).

CONDITION

Land cover change:	**widespread**
Age structure of tree cover:	**mature or young**
Extent of semi-natural habitat survival:	**fragmented**
Management of semi-natural habitat:	**good**
Survival of cultural pattern:	**declining**
Impact of built development:	**moderate**
Impact of land-use change:	**high**

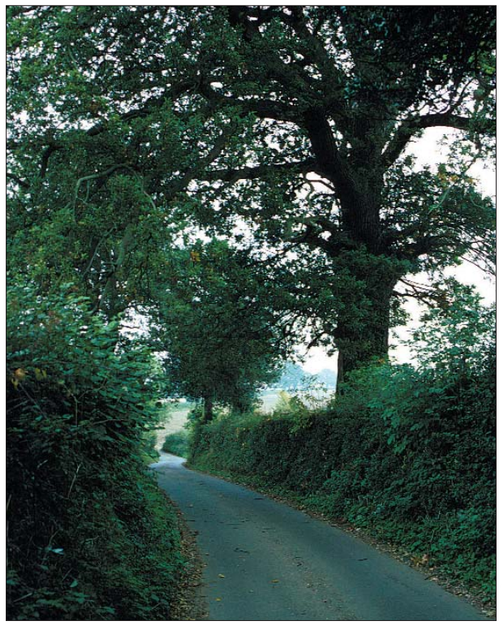
ROBUSTNESS

Impact of landform:	**prominent**
Impact of land cover:	**prominent**
Impact of historic pattern:	**interrupted**
Visibility from outside:	**locally visible**
Sense of enclosure:	**partial**
Visual unity:	**coherent**
Distinctiveness/rarity:	**frequent**

CONDITION	STRENGTH OF CHARACTER: WEAK	MODERATE	STRONG
GOOD	Strengthen and reinforce	Conserve and strengthen	Safeguard and manage
MODERATE	Improve and reinforce	**Improve and conserve**	Conserve and restore
POOR	Reconstruct	Improve and restore	Restore condition to maintain character

STRATEGY AND GUIDELINES FOR MANAGING CHANGE: IMPROVE AND CONSERVE

- extend the network of woodlands to the south and west of the area, including plantations to screen the built edge of St Albans, reduce the impact of masts and mitigate the impact of mineral extraction
- within existing woodlands encourage the replacement of softwoods with indigenous native deciduous communities
- maintain and extend public access arrangements to woodlands with improvements to car park design and public safety
- promote the appropriate management of coppice woodland in order to maintain a rich ground flora and the distinction between different management systems, such as high forest, coppice, coppice-with-standards and wood pasture
- encourage heath habitats within woodlands by creating glades and maintaining open rides
- promote the expansion of woodland beyond ancient woodland boundaries, especially where this will help in creating habitat links
- promote management plans for Coleman Green to maintain a balance between wildlife and public access. Promote local initiatives for traditional management to create areas of acidic heath
- promote the creation of buffer zones between intensive arable production and important semi-natural habitats and the creation of links between semi-natural habitats
- promote hedgerow restoration and creation throughout the area to provide visual and ecological links between existing and proposed woodland areas. Pattern to follow historic field boundaries and/or rights of way and to include additional hedgerow trees
- promote crop diversification and the restoration of mixed livestock/arable farming where possible
- promote both the creation of new ponds and the retention/enhancement for wildlife of existing ponds
- promote the use of traditional hedged field enclosure in place of timber or wire fencing where land is converted to pasture
- protect the traditional pattern of local lanes, hedgebanks, verges and hedges as a local feature and wildlife resource
- maintain the peaceful qualities of the area and protect it from active recreation and development



• Lane near Coleman Green (HCC Landscape Unit)

Define.

Appendix 7.4: Viewpoint photography

Define.

WOOLLAM PARK

HALLAM LAND MANAGEMENT, ST ALBANS SCHOOL, AND ST ALBANS SCHOOL WOOLLAM TRUST

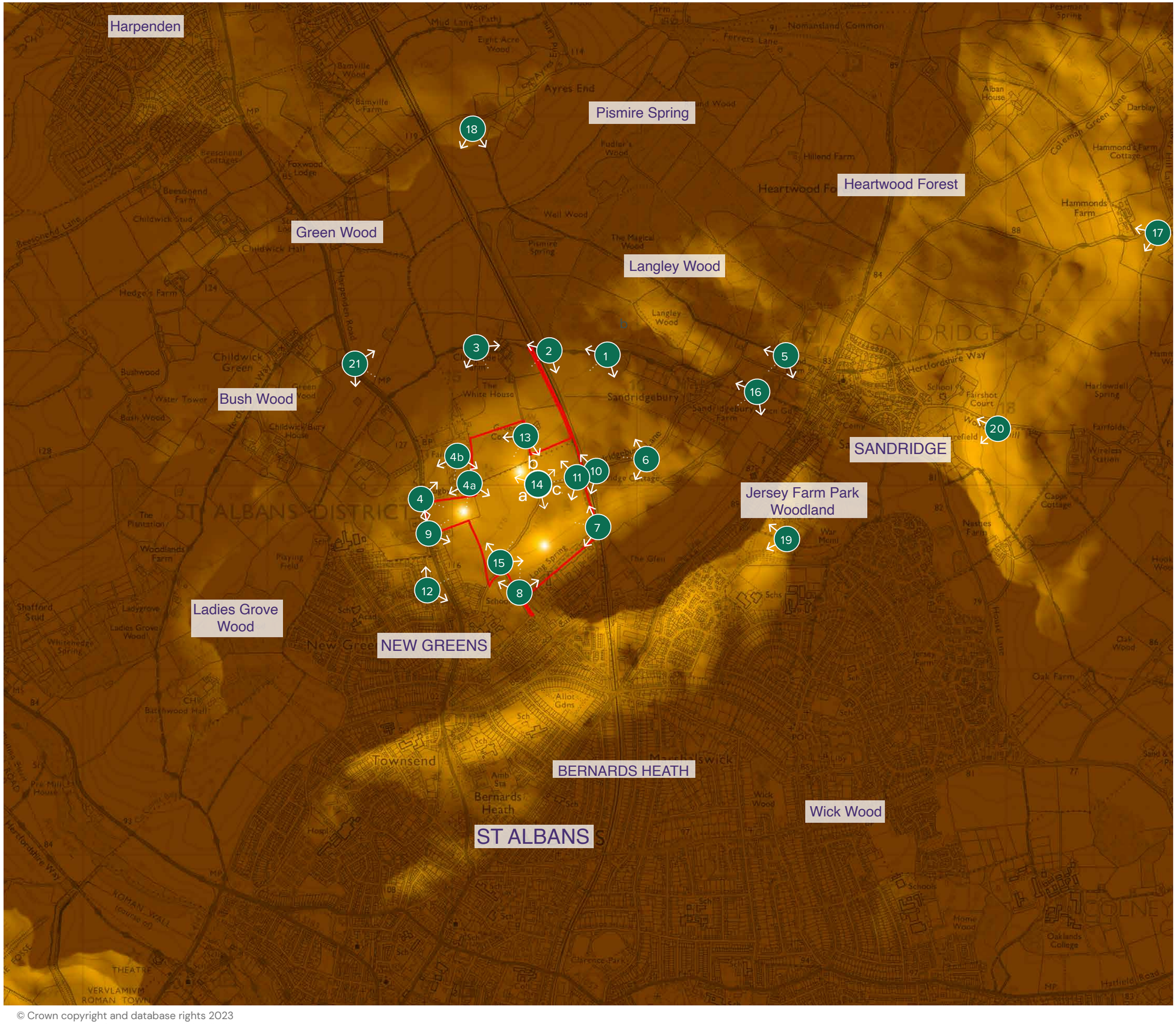
APPENDIX 7.4: VIEWPOINT PHOTOGRAPHY

NOVEMBER 2024

Table of Representative Viewpoints in relation to Visual Receptors

Visula Receptors	**Representative Viewpoint numbers of Receptors**
Users of public footpath St Albans City 096	Viewpoints 7 and 8
Users of the permissive path through the Site	Viewpoints 11, 14 and 15
Users of public bridleway Sandridge 009	Viewpoint 3
Users of public footpath Sandridge 011	Viewpoint 16
Users of rights of way east and northeast of Sandridge	Viewpoints 20 and 17
Users of Sandridgebury Lane	Viewpoints 10 and 6
Users of the Midland Main Line railway	N/A
Users of Old Albanians Rugby Club	Viewpoint 4
Visitors to the Heartwood Forest.	Viewpoint 5
Visitors to the St Albans Girls School	Viewpoint 12
Visitors to Jersey Farm Park Woodland	Viewpoint 19
Users and residents of Harpenden Road	Viewpoints 4 and 9
Residents of Childwick Green	Viewpoint 21

Define.



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LEGEND

Site Boundary

X Viewpoint Locations

100 300
0m 200 500

N

1 – FIGURE

Viewpoint Location Plan – TITLE

1:20,000 @A3 – SCALE

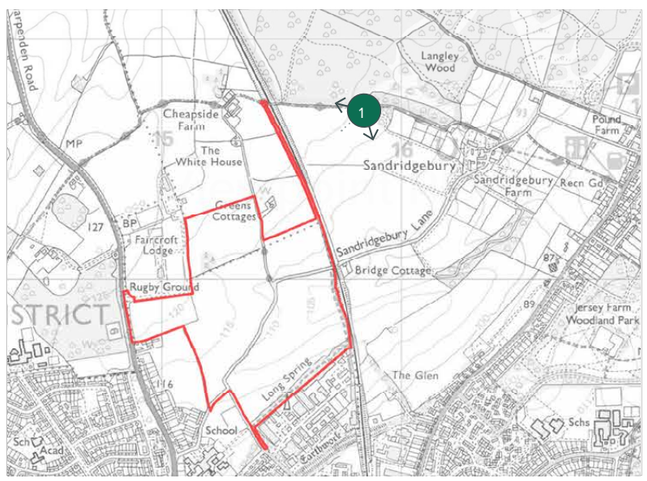
VIEWPOINT 1: View looking south west from Bridleway Sandridge 009/Hertfordshire Way

Define.



Viewpoint 1: Context Panorama left

Continued





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Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 13:35	Distance from Site / Feature	312.7m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515837 N: 210720
Vertical Field of View	21°	Eye Level AOD	121.4m	Visualisation Type / Projection	Type 1 / Cylindrical

VIEWPOINT 1:

Define.



Continued
Context Panorama right

VIEWPOINT 1



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 13:35	Distance from Site / Feature	312.7m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515837 N: 210720
Vertical Field of View	26.3°	Eye Level AOD	121.4m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

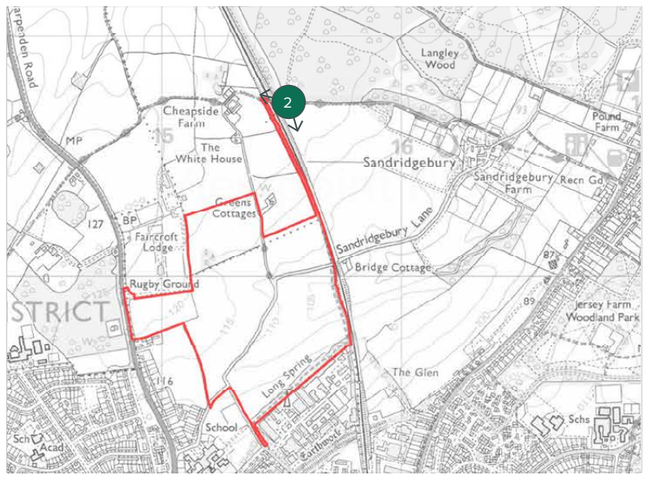
VIEWPOINT 2: View looking south west from Bridleway Sandridge 009/Hertfordshire Way

Define.



Viewpoint 2: Context Panorama left

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 13:45	Distance from Site / Feature	32.4m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515522 N: 210732
Vertical Field of View	21°	Eye Level AOD	126.9m	Visualisation Type / Projection	Type 1 / Cylindrical

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VIEWPOINT 2:

Define.



Continued
Context Panorama right

VIEWPOINT 2



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 13:45	Distance from Site / Feature	32.4m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515522 N: 210732
Vertical Field of View	26.3°	Eye Level AOD	126.9m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

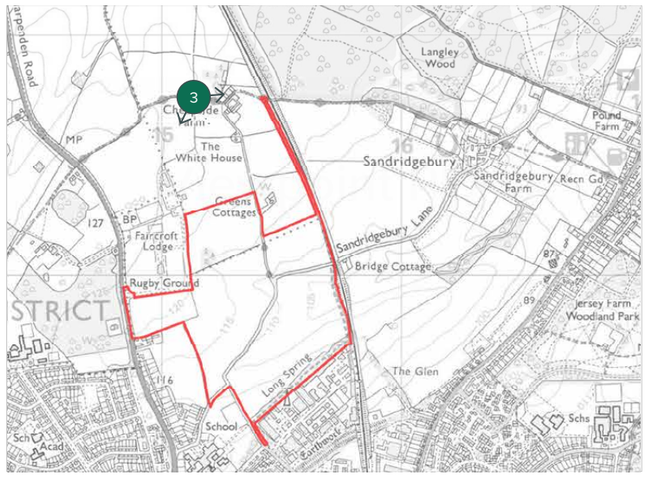
VIEWPOINT 3: View looking south east from Bridleway Sandridge 009/Hertfordshire Way

Define.



Viewpoint 3: Context Panorama left

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 13:55	Distance from Site / Feature	304.3m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515143 N: 210748
Vertical Field of View	21°	Eye Level AOD	127.1m	Visualisation Type / Projection	Type 1 / Cylindrical

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VIEWPOINT 3:

Define.



Continued
Context Panorama right

VIEWPOINT 3



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 13:55	Distance from Site / Feature	304.3m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515143 N: 210748
Vertical Field of View	26.3°	Eye Level AOD	127.1m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

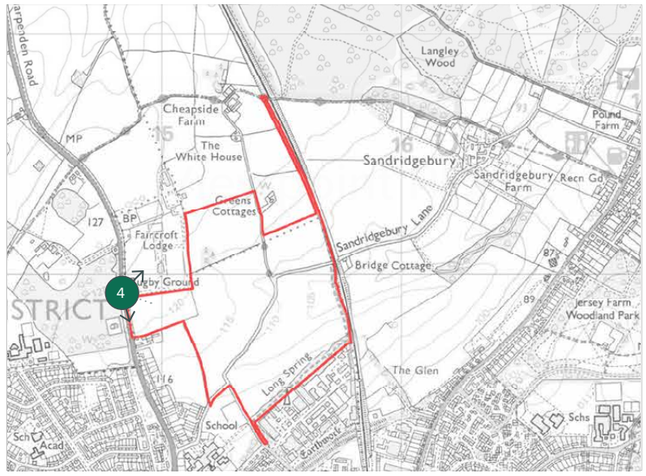
VIEWPOINT 4: View looking south east towards rugby club entrance

Define.



Viewpoint 4: Context Panorama left

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:29	Distance from Site / Feature	20.4m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 514843 N: 209928
Vertical Field of View	21°	Eye Level AOD	123.8m	Visualisation Type / Projection	Type 1 / Cylindrical

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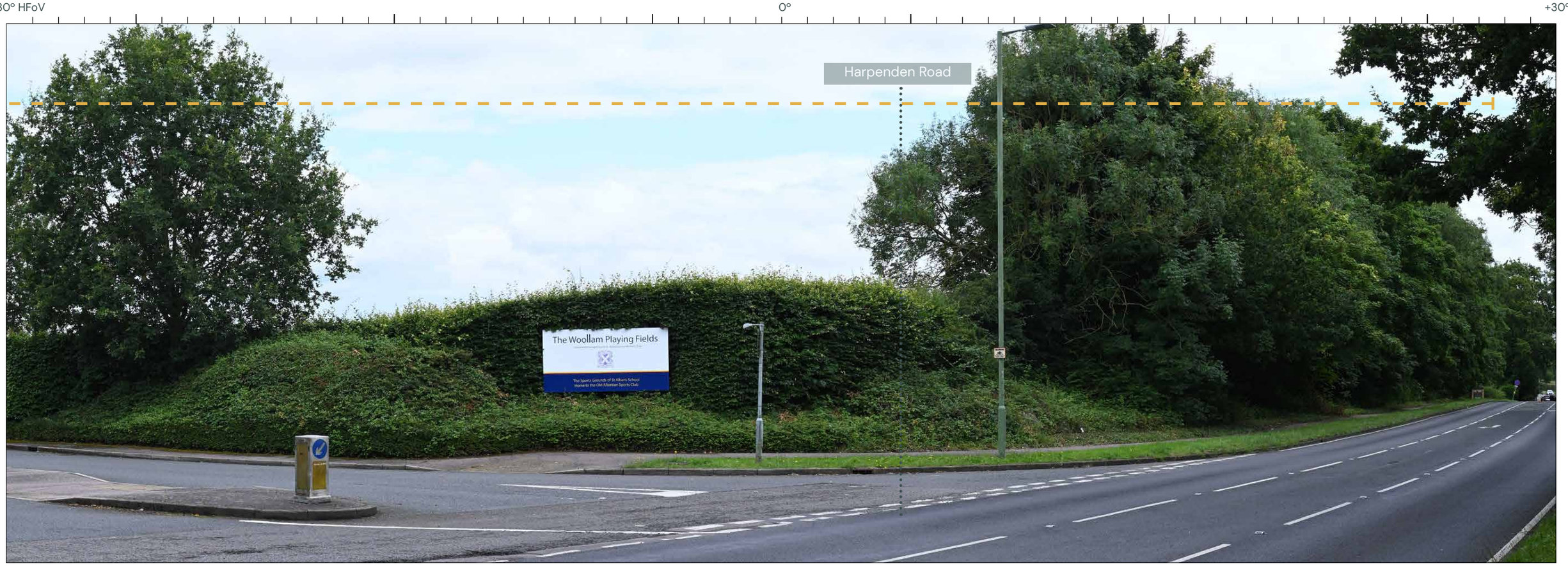
VIEWPOINT 4:

Define.



Continued
Context Panorama right

VIEWPOINT 4

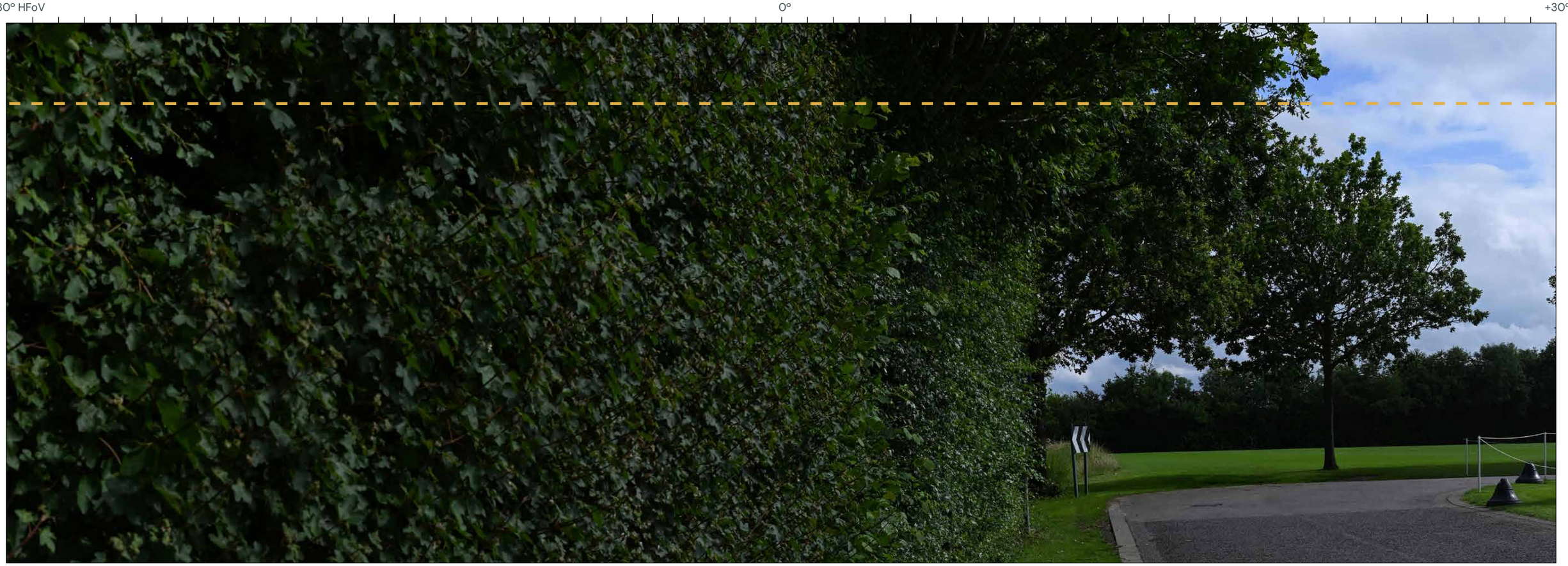


Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:29	Distance from Site / Feature	20.4m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 514843 N: 209928
Vertical Field of View	26.3°	Eye Level AOD	123.8m	Visualisation Type / Projection	Type 1 / Single Frame

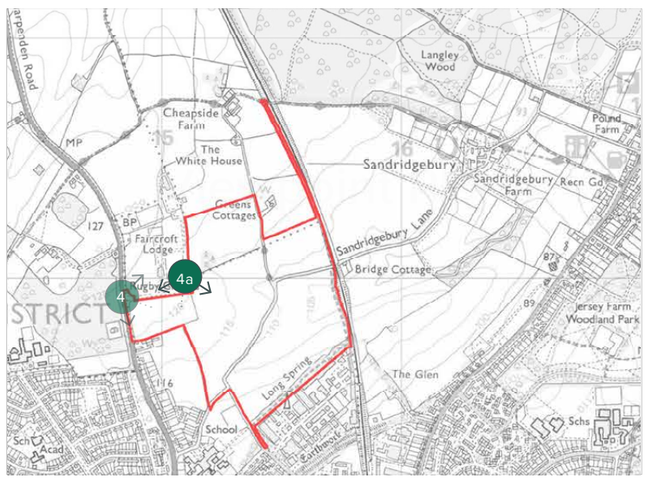
Define.

VIEWPOINT 4a: View looking south from inside the rugby club

Define.



Viewpoint 5: Context Panorama left





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Key for Approximate extent of site

Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:29	Distance from Site / Feature	28.5mm
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515122, N: 209928
Vertical Field of View	21°	Eye Level AOD	121.9m m	Visualisation Type / Projection	Type 1 / Single Frame

VIEWPOINT 4a:

Define.

-30° HFoV 0° +30° HFoV



Continued
Context Panorama right

VIEWPOINT 4a



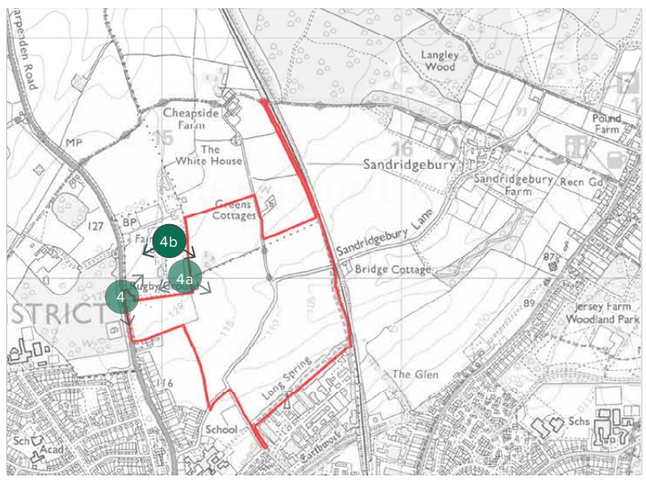
Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:29	Distance from Site / Feature	8.5m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515122, N: 209928
Vertical Field of View	26.3°	Eye Level AOD	121.9m	Visualisation Type / Projection	Type 1 / Single Frame

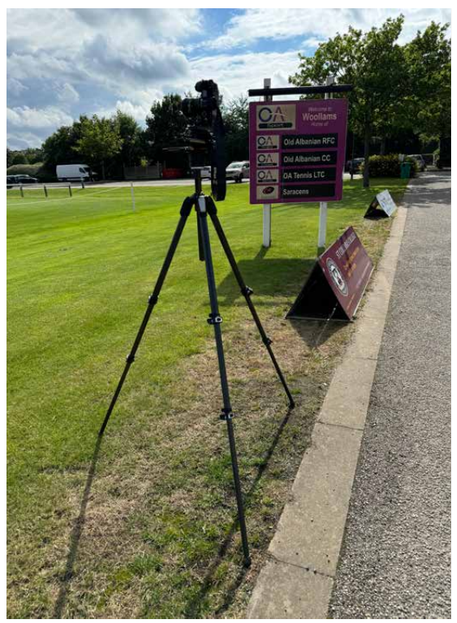
Define.

VIEWPOINT 4b: View looking south from inside the rugby club

-30° HFoV 0° +30° HFoV







Key for Approximate extent of site

Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 16.43	Distance from Site / Feature	73m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515041 , N: 210117
Vertical Field of View	21°	Eye Level AOD	123.2m	Visualisation Type / Projection	Type 1 / Single Frame

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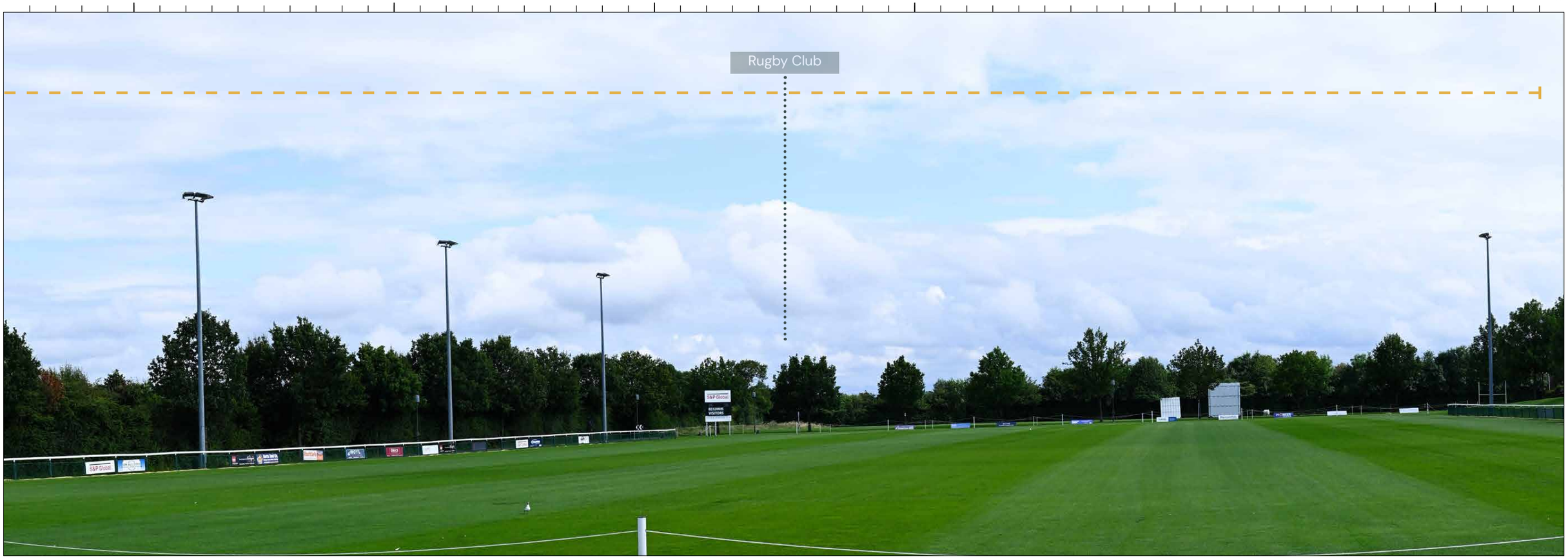
Define.

-30° HFoV 0° +30° HFoV



Continued
Context Panorama right

VIEWPOINT 4b



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 16.43	Distance from Site / Feature	73m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515041 , N: 210117
Vertical Field of View	26.3°	Eye Level AOD	123.2m	Visualisation Type / Projection	Type 1 / Single Frame

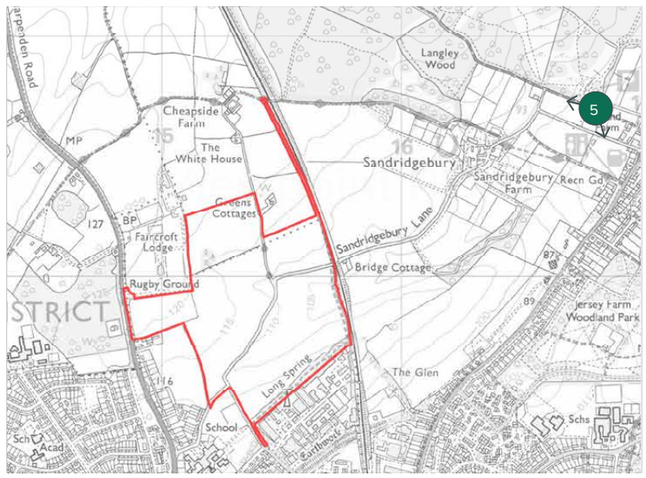
Define.

VIEWPOINT 5: View looking south west from Bridleway Sandridge 008

Define.



Viewpoint 5: Context Panorama



Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 12:50	Distance from Site / Feature	1.2km
Horizontal Field of View	60°	Camera Height	1.65m	Coordinates	E: 516761 , N: 210720
Vertical Field of View	21°	Eye Level AOD	90.5m	Visualisation Type / Projection	Type 1 / Cylindrical



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VIEWPOINT 5



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 12:50	Distance from Site / Feature	1.2km
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 516764 , N:210724
Vertical Field of View	26.3°	Eye Level AOD	90.5m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

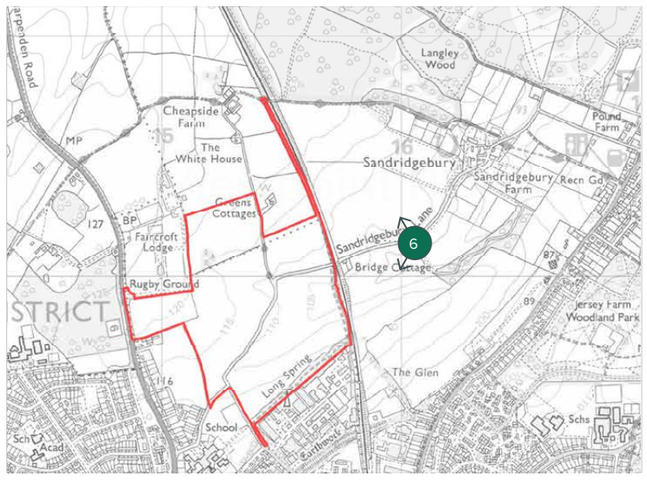
VIEWPOINT 6: View looking west from Sandridgebury Lane

Define.



Viewpoint 6: Context Panorama left

Continued



Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	West
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:40	Distance from Site / Feature	319.5m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 516039 N:210158
Vertical Field of View	21°	Eye Level AOD	106.6m	Visualisation Type / Projection	Type 1 / Cylindrical



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VIEWPOINT 6:



Continued
Context Panorama right

VIEWPOINT 6



Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	West
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:40	Distance from Site / Feature	319.5m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 516039 N:210158
Vertical Field of View	26.3°	Eye Level AOD	106.6m	Visualisation Type / Projection	Type 1 / Cylindrical

Define.

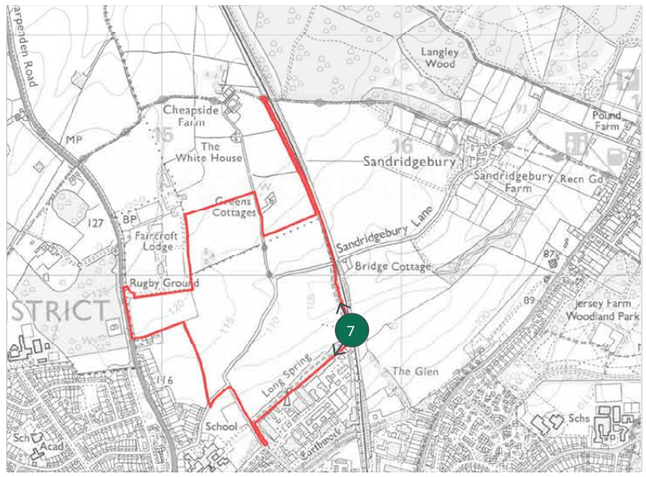
VIEWPOINT 7: View looking north west from Footpath St Albans City 096

Define.



Viewpoint 7: Context Panorama left

Continued



Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:11	Distance from Site / Feature	Within site boundary
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515779 N:209767
Vertical Field of View	21°	Eye Level AOD	113.5m	Visualisation Type / Projection	Type 1 / Cylindrical



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VIEWPOINT 7:

Define.



Continued
Context Panorama right

VIEWPOINT 7



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:11	Distance from Site / Feature	Within site boundary
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515779 N:209767
Vertical Field of View	26.3°	Eye Level AOD	113.5m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

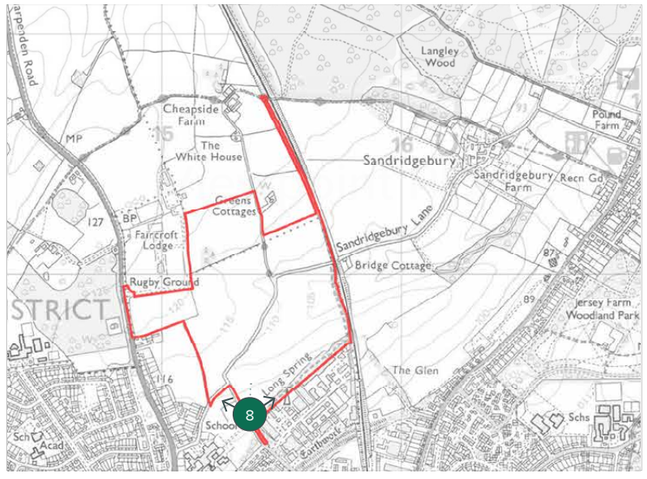
VIEWPOINT 8: View looking north from Footpath St Albans City 096

Define.



Viewpoint 8: Context Panorama left

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 11:12	Distance from Site / Feature	Within site boundary
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515372 N: 209420
Vertical Field of View	21°	Eye Level AOD	116.2	Visualisation Type / Projection	Type 1 / Cylindrical

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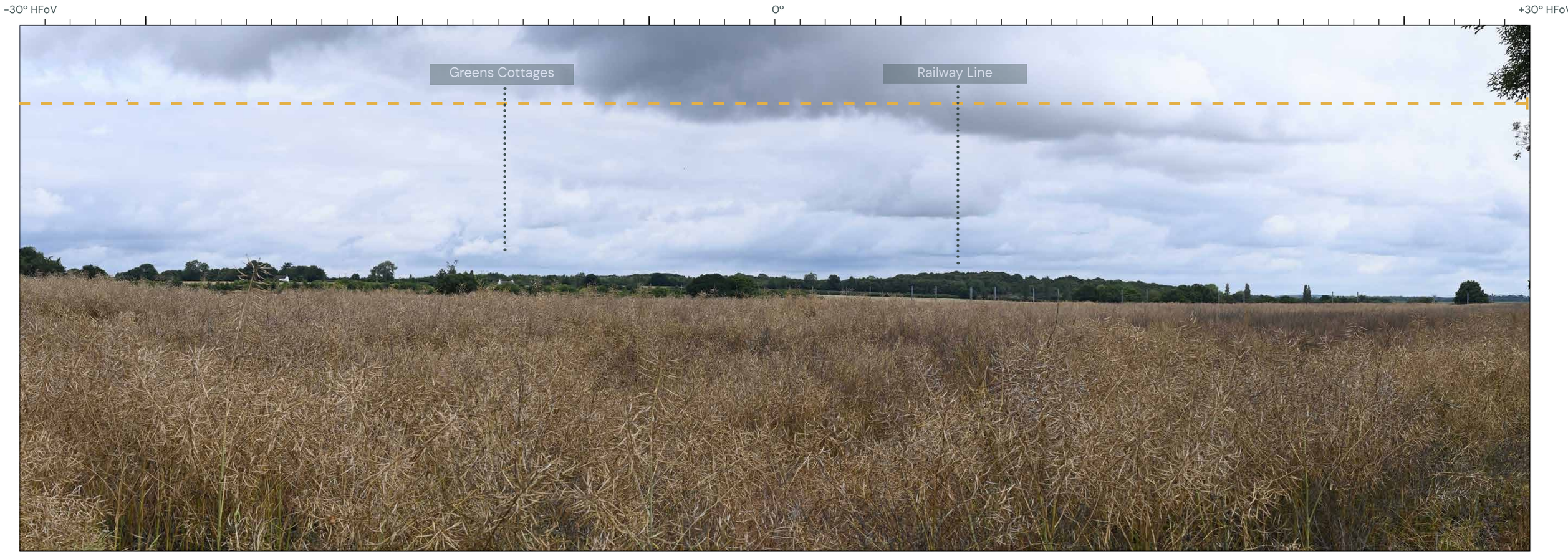
VIEWPOINT 8:

Define.



Continued
Context Panorama right

VIEWPOINT 8



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 11:12	Distance from Site / Feature	Within site boundary
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515372 N: 209420
Vertical Field of View	26.3°	Eye Level AOD	116.2	Visualisation Type / Projection	Type 1 / Single Frame

Define.

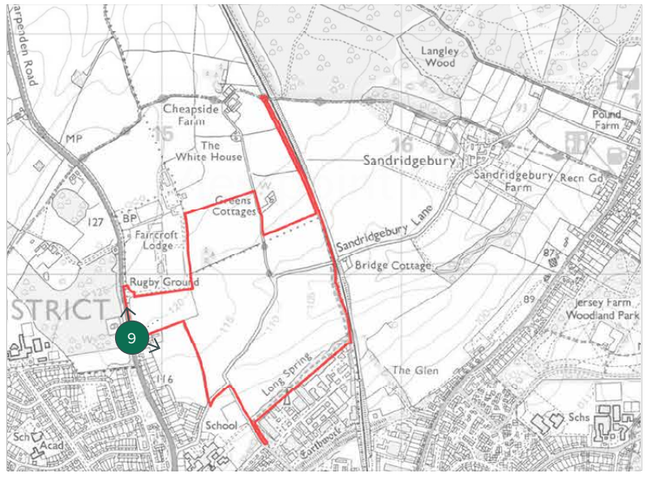
VIEWPOINT 9: View looking north east from Harpenden Road

Define.



Viewpoint 9: Context Panorama left

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & shaded	Direction of View	North east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 16:23	Distance from Site / Feature	10m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 514877 N: 209740
Vertical Field of View	21°	Eye Level AOD	121.9m	Visualisation Type / Projection	Type 1 / Cylindrical

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VIEWPOINT 9:

Define.



Continued
Context Panorama right

VIEWPOINT 9



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & shaded	Direction of View	North east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 16:23	Distance from Site / Feature	10m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 524877 N: 209740
Vertical Field of View	26.3°	Eye Level AOD	121.9m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

VIEWPOINT 10: View looking West from Sandridgebury Lane

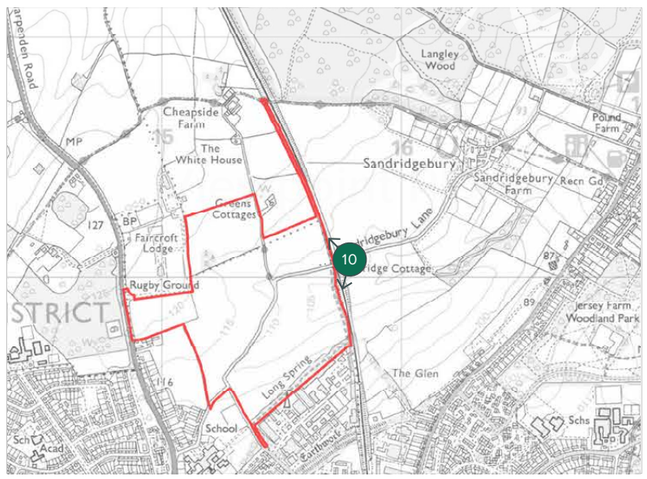
Define.

-30° HFoV 0° +30° HFoV



Viewpoint 10: Context Panorama left

Continued



Key for Approximate extent of site



Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	West
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:51	Distance from Site / Feature	36.8m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515778 N: 210078
Vertical Field of View	21°	Eye Level AOD	110.9m	Visualisation Type / Projection	Type 1 / Cylindrical



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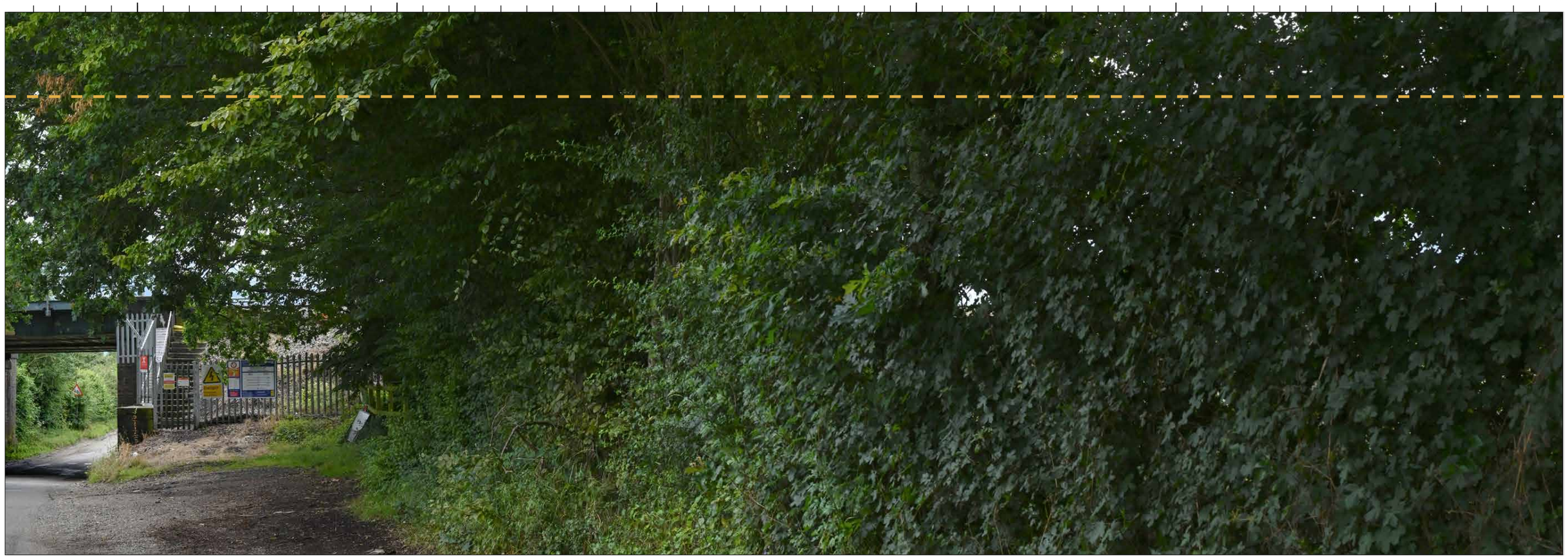
VIEWPOINT 10: View looking West from Sandridgebury Lane

Define.

-30° HFoV 0° +30° HFoV



Continued
Context Panorama right

VIEWPOINT 10



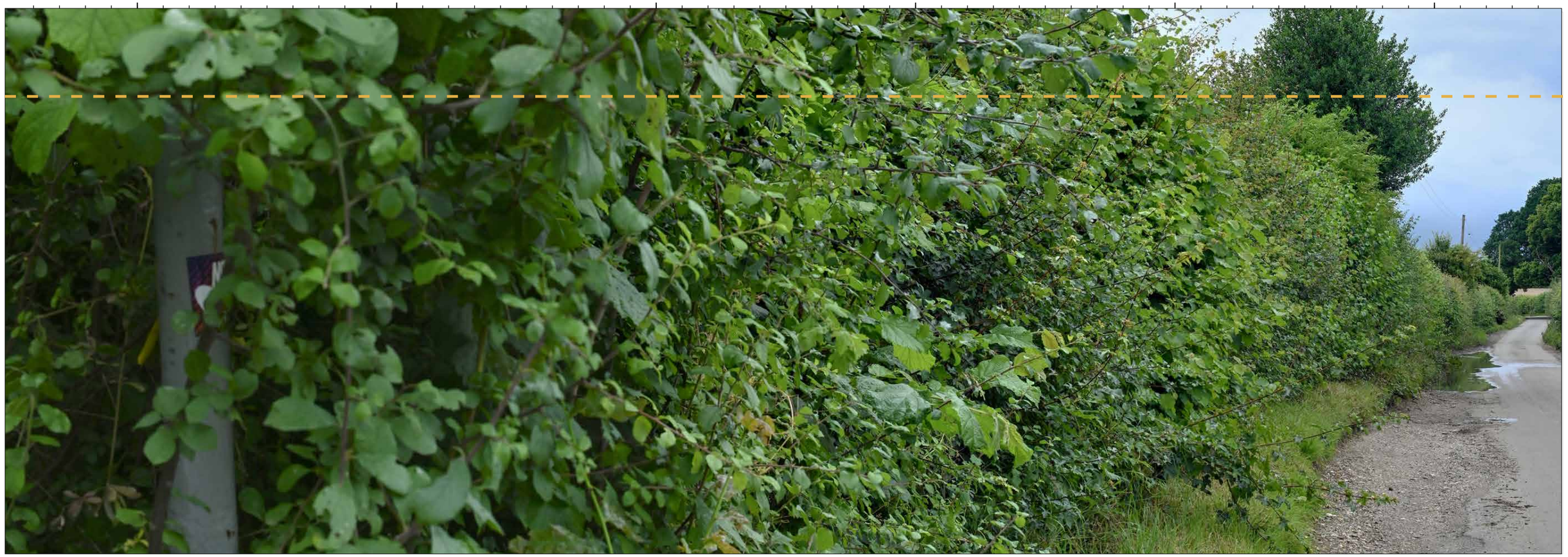
Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	West
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:51	Distance from Site / Feature	36.8m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515778 N: 210078
Vertical Field of View	26.3°	Eye Level AOD	110.9m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

VIEWPOINT 11: View looking west from Sandridgebury Lane

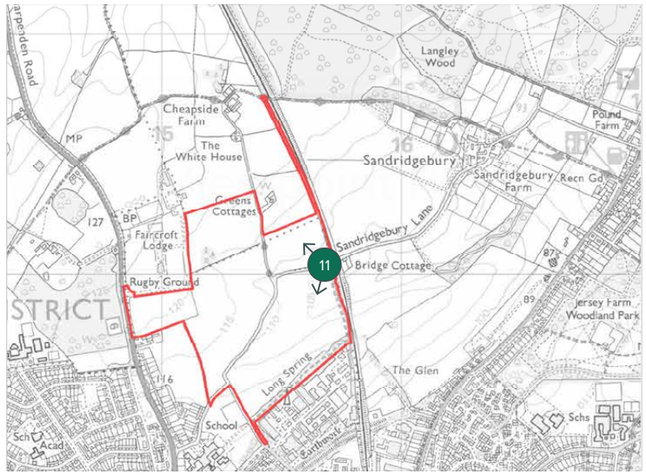
Define.

-30° HFoV 0° +30° HFoV



Viewpoint 11: Context Panorama left

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	West
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:59	Distance from Site / Feature	Within site boundary
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515714 N: 210050
Vertical Field of View	21°	Eye Level AOD	109.3m	Visualisation Type / Projection	Type 1 / Cylindrical

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VIEWPOINT 11:



Continued
Context Panorama right

VIEWPOINT 11



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	West
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 14:59	Distance from Site / Feature	Within site boundary
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515714 N: 210050
Vertical Field of View	26.3°	Eye Level AOD	109.3m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

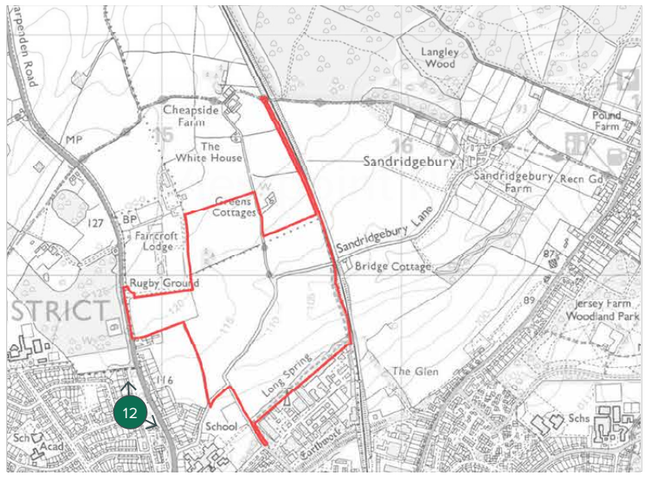
VIEWPOINT 12: View looking north east from New Greens Avenue

-30° HFoV 0° +30° HFoV



Viewpoint 12: Context Panorama left

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 16:15	Distance from Site / Feature	286m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 514913 N: 209412
Vertical Field of View	21°	Eye Level AOD	119.4m	Visualisation Type / Projection	Type 1 / Cylindrical

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VIEWPOINT 12:

-30° HFoV | 0° | +30° HFoV



Continued
Context Panorama right

VIEWPOINT 12



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 16:15	Distance from Site / Feature	286m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 514913 N: 209412
Vertical Field of View	26.3°	Eye Level AOD	119.4m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

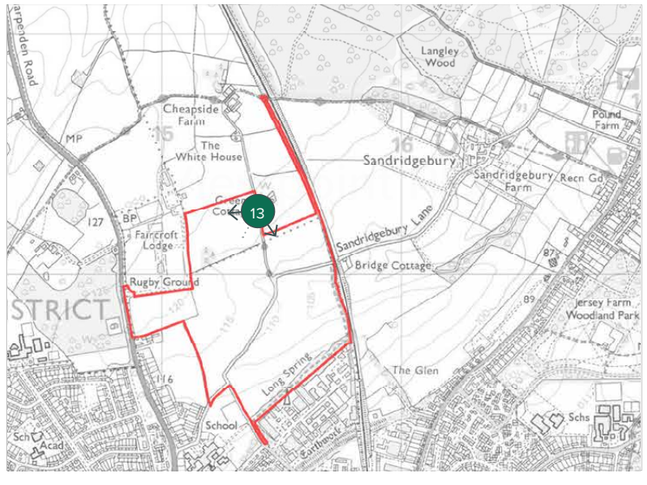
VIEWPOINT 13: View looking south west from Green Cottages

-30° HFoV 0° +30° HFoV



Viewpoint 13: Context Panorama left

Continued



Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:45	Distance from Site / Feature	Within site boundary
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515416 N: 210185
Vertical Field of View	21°	Eye Level AOD	117m	Visualisation Type / Projection	Type 1 / Cylindrical



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VIEWPOINT 13:

-30° HFoV 0° +30° HFoV



Continued
Context Panorama right

VIEWPOINT 13



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:45	Distance from Site / Feature	Within site boundary
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515416 N: 210185
Vertical Field of View	26.3°	Eye Level AOD	117m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

VIEWPOINT 14a: View looking south west from Sandridgebury Lane

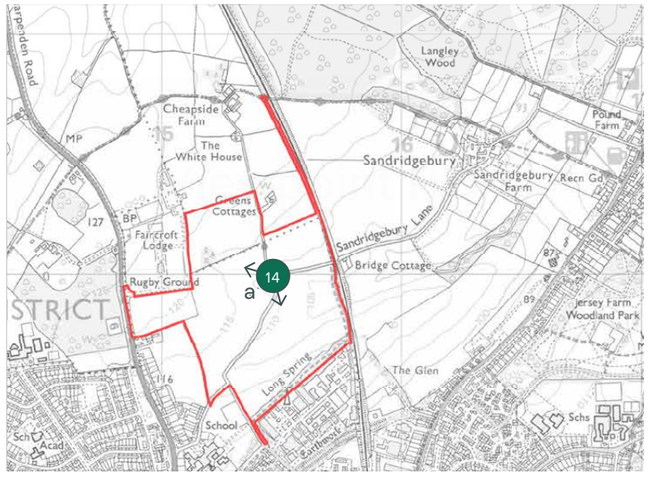
Define.

-30° HFoV 0° +30° HFoV



Viewpoint 14: Context Panorama left

Continued





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Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:27	Distance from Site / Feature	Within site boundary
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515467 N: 209981
Vertical Field of View	21°	Eye Level AOD	110.5m	Visualisation Type / Projection	Type 1 / Cylindrical

VIEWPOINT 14a:



Continued
Context Panorama right

VIEWPOINT 14a



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:27	Distance from Site / Feature	Within site boundary
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515467 N: 209981
Vertical Field of View	26.3°	Eye Level AOD	110.5m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

VIEWPOINT 14b: View looking north from Sandridgebury Lane

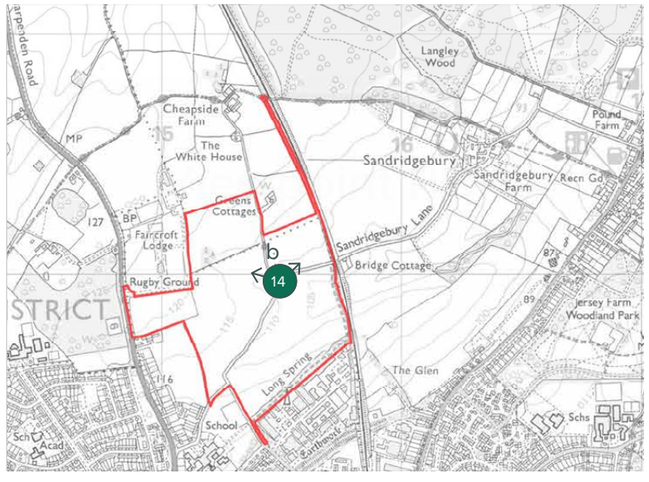
Define.

-30° HFoV 0° +30° HFoV



Viewpoint 14: Context Panorama left

Continued



Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:27	Distance from Site / Feature	Within site boundary
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515467 N: 209981
Vertical Field of View	21°	Eye Level AOD	110.5m	Visualisation Type / Projection	Type 1 / Cylindrical



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VIEWPOINT 14a:

Define.

-30° HFoV 0° +30° HFoV



Continued
Context Panorama right

VIEWPOINT 14b



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:27	Distance from Site / Feature	Within site boundary
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515467 N: 209981
Vertical Field of View	26.3°	Eye Level AOD	110.5m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

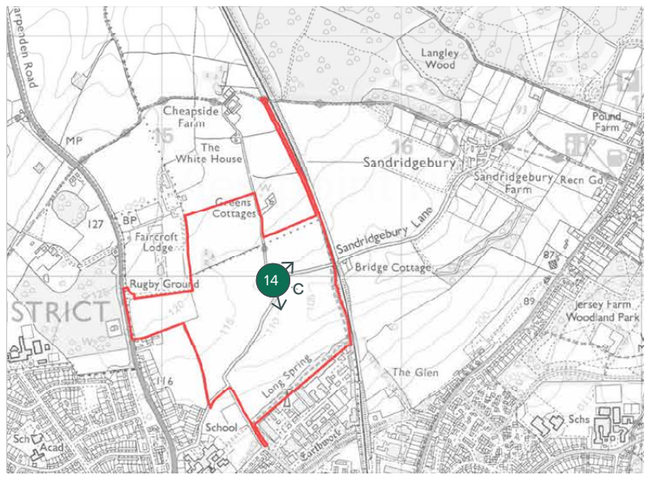
VIEWPOINT 14c: View looking south east from Sandridgebury Lane

-30° HFoV 0° +30° HFoV



Viewpoint 14: Context Panorama left

Continued



Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:27	Distance from Site / Feature	Within site boundary
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515467 N: 209981
Vertical Field of View	21°	Eye Level AOD	110.5m	Visualisation Type / Projection	Type 1 / Cylindrical



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VIEWPOINT 14c:

Define.



Continued
Context Panorama right

VIEWPOINT 14c



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 15:27	Distance from Site / Feature	Within site boundary
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515467 N: 209981
Vertical Field of View	26.3°	Eye Level AOD	110.5m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

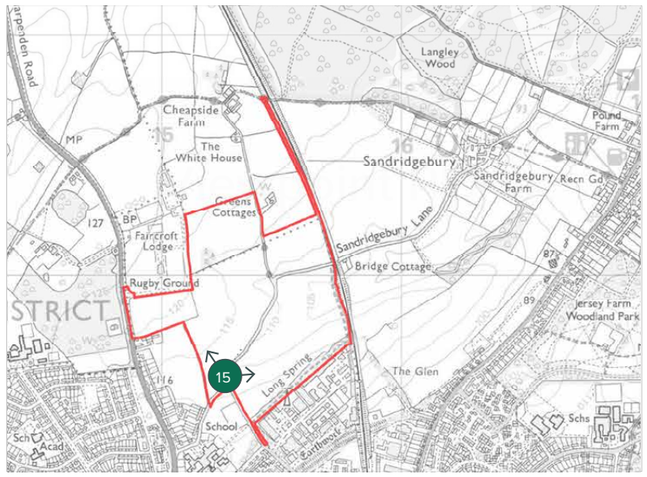
VIEWPOINT 15: View looking north east from Valley Road

-30° HFoV | 0° | +30° HFoV



Viewpoint 15: Context Panorama left

Continued



Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 11:21	Distance from Site / Feature	Within site boundary
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 515284 N: 209544
Vertical Field of View	21°	Eye Level AOD	112.9m	Visualisation Type / Projection	Type 1 / Cylindrical



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VIEWPOINT 15:

Define.



Continued
Context Panorama right

VIEWPOINT 15



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 11:21	Distance from Site / Feature	Within site boundary
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515284 N: 209544
Vertical Field of View	26.3°	Eye Level AOD	112.9m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

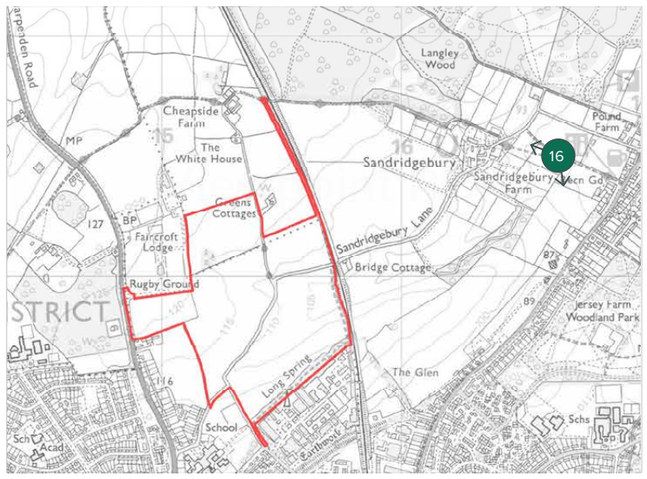
VIEWPOINT 16: View looking south west from Footpath Sandridge 011

-30° HFoV 0° +30° HFoV



Viewpoint 16: Context Panorama left

Continued



Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 13:09	Distance from Site / Feature	1.2km
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 516694 N: 210499
Vertical Field of View	21°	Eye Level AOD	90.1m	Visualisation Type / Projection	Type 1 / Cylindrical



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VIEWPOINT 16:

Define.



Continued
Context Panorama right

VIEWPOINT 16



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 13:09	Distance from Site / Feature	1.2km
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 516694 N: 210499
Vertical Field of View	26.3°	Eye Level AOD	90.1m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

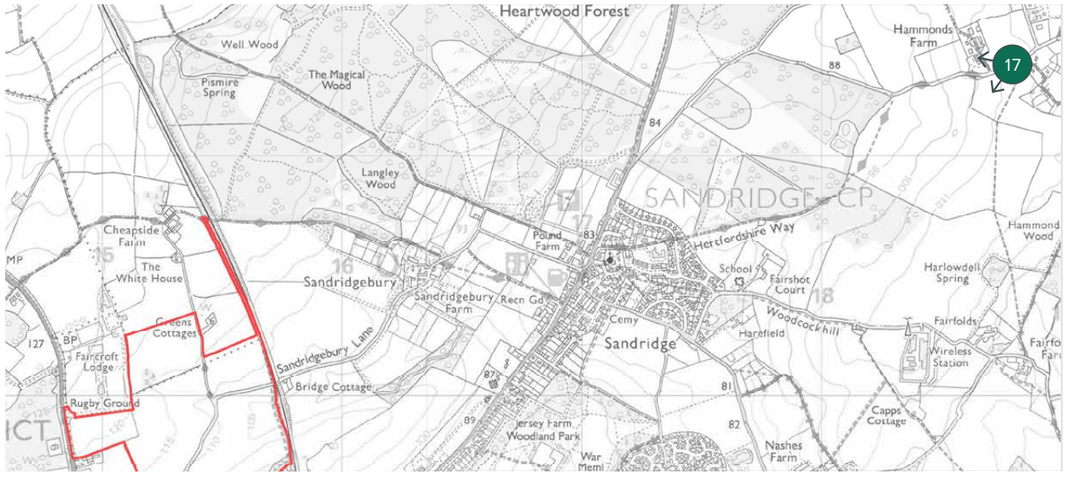
VIEWPOINT 17: View looking south west from Hammond Lane

Define.



Viewpoint 17: Context Panorama left

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 12:25	Distance from Site / Feature	3.2km
Horizontal Field of View	60°	Camera Height	1.65m	Coordinates	E: 518845 N: 211375
Vertical Field of View	21°	Eye Level AOD	115.4m	Visualisation Type / Projection	Type 1 / Cylindrical

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VIEWPOINT 17



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 12:25	Distance from Site / Feature	3,227.35m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 518845 N: 211375
Vertical Field of View	26.3°	Eye Level AOD	115.4m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

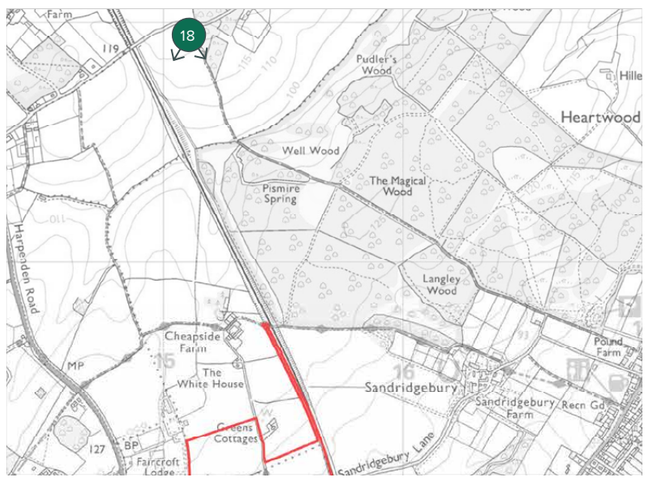
VIEWPOINT 18: View looking south Ayres End Lane & Bridleway Sandridge 008

Define.



Viewpoint 18: Context Panorama left

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 17:07	Distance from Site / Feature	1.3km
Horizontal Field of View	60°	Camera Height	1.65m	Coordinates	E: 515065 N: 211986
Vertical Field of View	21°	Eye Level AOD	123.6m	Visualisation Type / Projection	Type 1 / Cylindrical

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VIEWPOINT 18



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 17:07	Distance from Site / Feature	1.3km
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 515065 N: 211986
Vertical Field of View	26.3°	Eye Level AOD	123.6m	Visualisation Type / Projection	Type 1 / Single Frame

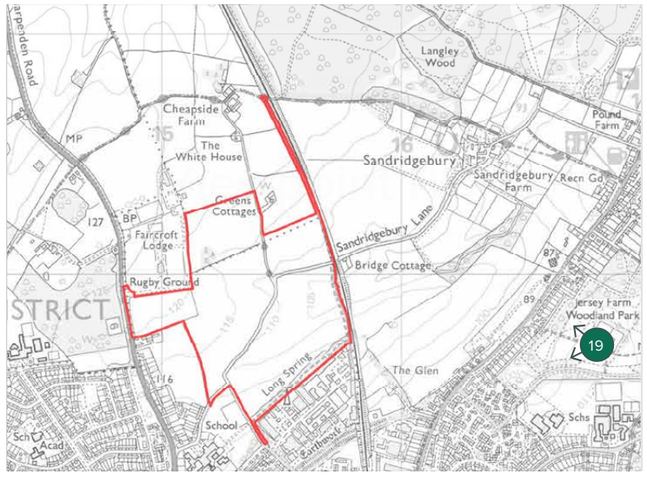
Define.

VIEWPOINT 19: View looking north west from Footpath Sandridge 027

-30° HFoV | 0° | +30° HFoV



Viewpoint 19: Context Panorama





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Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 11:51	Distance from Site / Feature	995.52m
Horizontal Field of View	60°	Camera Height	1.65m	Coordinates	E:516877 , N:209672
Vertical Field of View	21°	Eye Level AOD	111m	Visualisation Type / Projection	Type 1 / Cylindrical

VIEWPOINT 19



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	North west
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 11:51	Distance from Site / Feature	995.5m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: , N:
Vertical Field of View	26.3°	Eye Level AOD	111m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

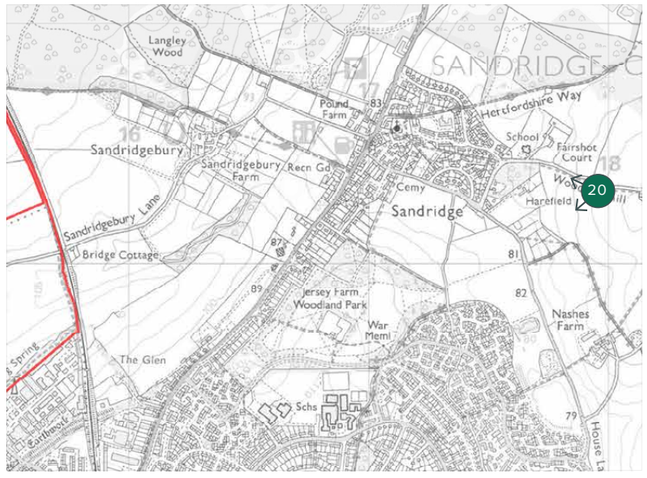
VIEWPOINT 20: View looking west from Woodcock Hill

Define.



Viewpoint 20: Context Panorama

Continued





Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	West
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 12:11	Distance from Site / Feature	2.3km
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E:517982 , N:210324
Vertical Field of View	21°	Eye Level AOD	109m	Visualisation Type / Projection	Type 1 / Cylindrical

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VIEWPOINT 20



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	West
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 12:11	Distance from Site / Feature	2,211.8m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E:517982 , N:210324
Vertical Field of View	26.3°	Eye Level AOD	109m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

VIEWPOINT 21: View looking south east from Harpenden Road

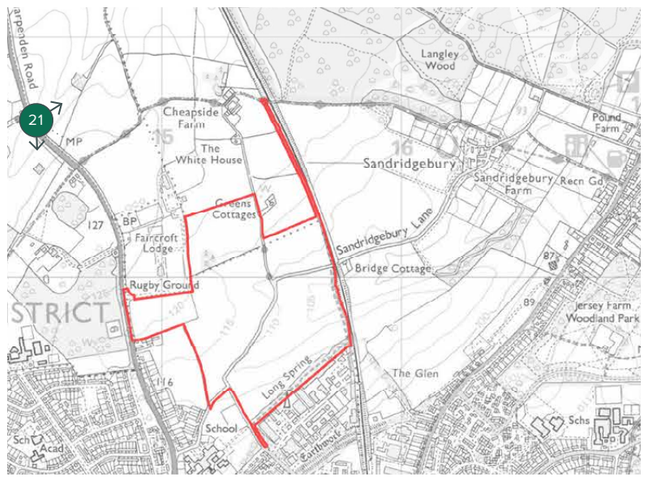
Define.

-30° HFoV 0° +30° HFoV



Viewpoint 21: Context Panorama left

Continued



Key for Approximate extent of site

Camera and Sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 16:53	Distance from Site / Feature	789.92m
Horizontal Field of View	120°	Camera Height	1.65m	Coordinates	E: 514442 N: 210682
Vertical Field of View	21°	Eye Level AOD	121.5m	Visualisation Type / Projection	Type 1 / Cylindrical

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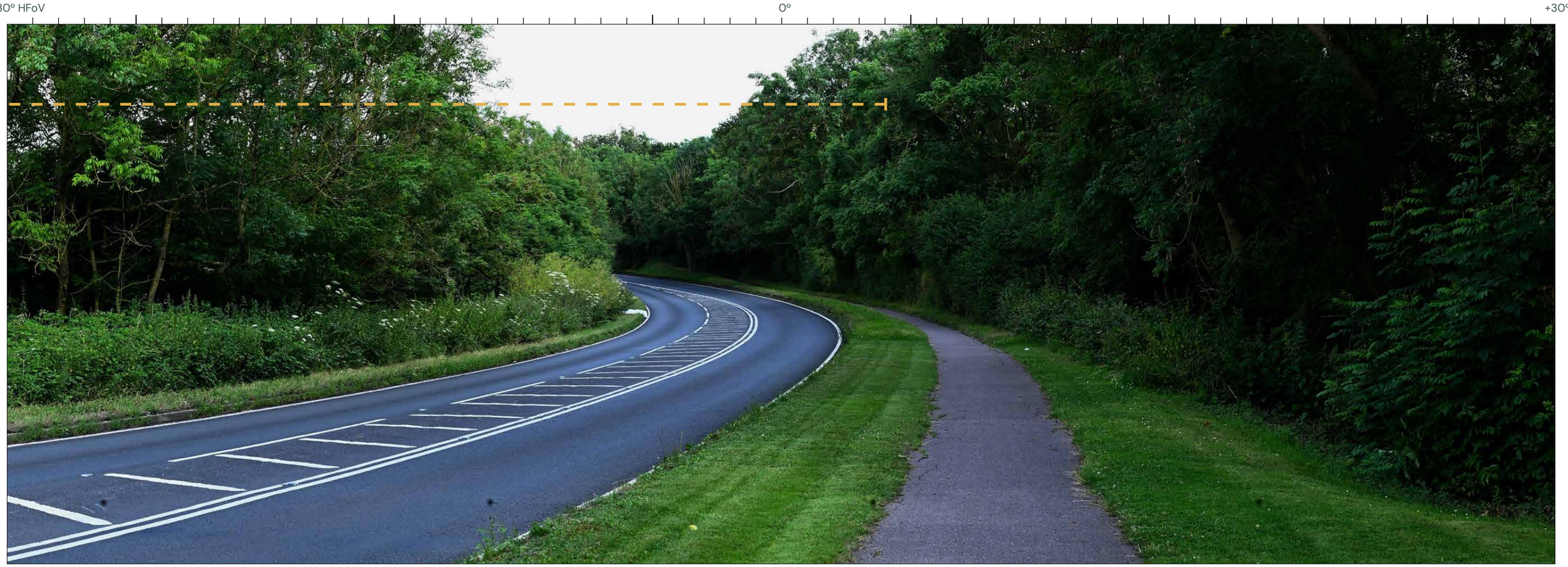
VIEWPOINT 21:

Define.



Continued
Context Panorama right

VIEWPOINT 21



Camera and sensor	Nikon Z6 with 24.5 MP BSI-CMOS	Weather and Lighting	Cloudy & bright	Direction of View	South east
Lens	Nikon Fixed 50mm	Date and Time	16.07.24 at 16:53	Distance from Site / Feature	789.92m
Horizontal Field of View	39.6°	Camera Height	1.65m	Coordinates	E: 514442 N: 210682
Vertical Field of View	26.3°	Eye Level AOD	121m	Visualisation Type / Projection	Type 1 / Single Frame

Define.

Define.

Appendix 7.5: Assessment of landscape value

Define.

WOOLLAM PARK

HALLAM LAND MANAGEMENT, ST ALBANS SCHOOL, AND ST ALBANS SCHOOL WOOLLAM TRUST

APPENDIX 7.5: ASSESSMENT OF LANDSCAPE VALUE

NOVEMBER 2024

Value Factors	Evaluation
Natural Heritage	The site is primarily an arable landscape, in keeping with the characteristics of the Ayres End Valleys and Ridges - B Landscape Character Area. There are no notable geological, geomorphological or pedological features which contribute to a sense of place, although Longspring Wood to the south of the site is designated as Ancient Woodland and is recognised as a County Wildlife Site. The site also contains several largely intact hedgerows (some of which containing hedgerow trees), one of which is recorded to be an 'important hedgerow'. The site and its setting are considered to have a **Medium-High** value against this factor.
Cultural Heritage	The site is located immediately to the north of the Cathedral City of St Albans but does not contain any evidence of archaeological, historical or cultural interest which contribute positively to the landscape. Surrounding the site there are several designated heritage assets, including a cluster of grade II listed buildings around Childwick Bury House and Childwick Green; a cluster of grade II listed buildings in Sandridge; Beech Bottom Dyke, an iron age territorial boundary; and Bath Wood, a moated manorial site. The site is however not closely relevant to the setting for any of these assets. The site and its setting are considered to have a **Low** value against this factor.
Landscape Condition	The site contains mostly intact field margins and the majority of trees and hedgerows within the site are classed as being Category B (good), although several are considered to be Category A (very good) and one tree is classed as a veteran. Longspring Wood in the southern part of the site is designated as Ancient Woodland and is a County Wildlife Site. The site and its setting are considered to have a **Medium-High** value against this factor.
Association	The site has no known associations with notable people, events or the arts. The site and its setting are considered to have **No value** against this factor.
Distinctiveness	The site is reflective of its local character and is in good physical condition but is not considered to have a strong sense of place and does not contain particularly distinctive or rare features that convey a strong sense of identity. The site and its setting are considered to have a **Low-Medium** value against this factor.

Value Factors	Evaluation
Recreational	The site is crossed in its south east by a public footpath (St Albans 096), which aligns through Longspring Wood before heading north to Sandridgebury Lane; and a permissive path, which follows the northern edge of Longspring Wood. There are also several rights of way within the surrounding landscape to the north and east of the site, including the Hertfordshire Way; and several area of publicly accessible areas within the wider landscape, including Heartwood Forest. Apart from the public right of way and permissive footpath, the site provides little recreational value. The site and its setting are considered to have a **Low-Medium** value against this factor.
Perceptual (scenic)	People within the site and its setting experience some pleasant views, notably views to the east toward the Heartwood Forest. The landscape of the site and its setting does not comprise any strong aesthetic or scenic qualities, and there are detracting features perceivable such as the Midland Main Line railway. The site and its setting are considered to have a **Medium** value against this factor.
Perceptual (wildness and tranquillity)	Land in the north and east of the site is largely rural and is noted to exhibit a degree of tranquillity, with birdsong intermittently audible. The site's proximity to the Midland Main Line railway and Harpenden Road, alongside other visual and/or audible detractors (e.g. flood lighting and built form within the Woollam Playing Fields and St Albans Girls' School) however reduce its sense of remoteness and tranquillity to some extent. The site and its setting are considered to have a **Medium** value against this factor.
Functional	The public footpath and permissive path through the site provides some recreational function and, classified as principally Grade 3 (Good to Moderate) agricultural land, it also has a function as farmland and reflects local character. It does not however contribute highly to the functioning of the landscape (including hydrological systems, soil carbon sequestration, habitats and the connection to nearby designated landscapes). The site and its setting are considered to have a **Medium** value against this factor.

Based on the above evaluation, the Site has a few elements that are of value and therefore it is concluded that the Site is of a **Medium** overall value.

Define.

Appendix 7.6: Detailed landscape and visual assessment

Define.

WOOLLAM PARK

HALLAM LAND MANAGEMENT, ST ALBANS SCHOOL, AND ST ALBANS SCHOOL WOOLLAM TRUST

APPENDIX 7.6: DETAILED LANDSCAPE AND VISUAL ASSESSMENT

NOVEMBER 2024

Ayres End Valleys and Ridges LCA

Description
Key Characteristics of the 'Ayres End Valleys and Ridges - B' LCA include:
- Open dry valleys overlooked by smaller areas of plateau on the fringes
- Quiet area with few visual detractors except the A1081 and mainline railway to the west
- Small woods on the upper slopes emphasise the valleys
- Area served by narrow, winding roads lined by dense mixed hedgerows
- Mixed arable, pasture and recreational land uses
- Number of equestrian establishments associated with small country houses, including The Grove and Sandridgebury
- Locally prominent built edges to adjacent settlements
- Isolated properties or small clusters of dwellings, generally with strong vernacular architecture

Sensitivity
Landscape within the Ayres End Valleys and Ridges LCA is of good overall quality, with some designated and valued landscape elements alongside a few detractors. The value of this LCA is accordingly judged to be medium. Most of this LCA would have limited ability to accommodate the form of development proposed without undue consequence for its landscape character. As the part of this LCA within which the site is located is at the edge of this LCA, adjacent to the built edge of St Albans and between the A1081 and Mainline railway, this receptor's susceptibility is considered to be lessened slightly and accordingly judged to be medium-high. In combination of value and susceptibility, this LCA is judged to be of medium-high sensitivity.

Magnitude
Construction Phase:
The proposed development would result in the localised removal of characteristic arable land uses and introduction of uncharacteristic engineering and construction activities that would noticeably deteriorate the south-western part of this LCA's existing character. These changes would only directly affect a small part of the LCA and would be perceptible principally from land within the site and its immediate setting. Some changes are however likely to be perceptible from a few more distant parts of this LCA. The magnitude of effect on this receptor during the construction phase is assessed to be medium.

Operational Phase - At Completion:
Construction activities associated with the proposed development would have ceased by this stage and proposed improvements to public access would be made available for use by the public, locally enhancing the recreational value of this LCA. Direct change associated with the proposed development would however remain locally evident and may be perceived more strongly in the evenings and overnight from a few surrounding parts of this LCA than within the construction period. Introduced planting would also be at a relatively early stage of establishment, so would not therefore materially mitigate harms to existing vegetation cover caused within the earlier stage. The magnitude of effect on this receptor at completion is accordingly assessed to remain medium.

Operational Phase - 15 years after completion:
Inherent mitigation planting would have established to partially screen and break up the massing of introduced built form, increase characteristic vegetation cover within this LCA and reduce the extent over which uncharacteristic aspects of the proposed development may be perceived from surrounding parts of this LCA at this stage. The magnitude of effect on this receptor 15 years after completion is accordingly assessed to be low / medium.

Significance
Construction Phase:
In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate-major adverse** significance in the construction phase, which is **significant**. This effect recognising that the proposed development would directly change part of the Ayres End Valleys and Ridges LCA, locally adjusting its pre-existing landform and impacting some of the more common features of this LCA, and introducing uncharacteristic features which would be locally noticeable both within the site and from some other parts of this LCA. The effects of the proposed development during this period would be temporary and of medium duration. Many of the changes resulting from the proposed development will however be permanent and irreversible.

Operational Phase - At Completion:
In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate adverse** significance at completion, which is **not significant**. This effect recognising that, although some elements of the proposals will remain incongruous, the developed site will contrast less with the pre-existing characteristics of this LCA and will deliver some strengthen to landscape character (e.g. strengthening to public access). This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate adverse** significance 15 years after completion, which is **not significant**. This effect recognising that, although on balance the proposed development would still cause harm to this LCA, proposed mitigation planting and changes to landscape management would strengthen vegetation coverage and public access. This effect is assessed to be permanent, irreversible and of long duration.

Landscape elements within the site

Description
Refer to site description in the Baseline Conditions section of the LVIA ES chapter.

Sensitivity
The site is in reasonable physical condition, containing some distinctive and valued landscape elements that contribute to the functionality of the local Green Infrastructure network and support local biodiversity and landscape character. Much of the site however comprises Grade 3 arable farmland, which is found commonly throughout much of the surrounding area, and the site is not believed to include any elements noted for their particular cultural importance. The overall value of the landscape elements within the site is judged to be medium.

The site is largely undeveloped, and has a strong network of mature hedgerows and woodland vegetation at its margins, many of which cannot be reinstated or replaced. The value of the landscape elements within the site receptor is judged to be medium-high. There are however few environmental or technical constraints to delivering the form of development proposed across much of the site. The overall susceptibility of the landscape elements within the site receptor is accordingly judged to be medium. In combination of value and susceptibility, this receptor is judged to be of medium-high sensitivity.

Magnitude
Construction Phase:
Construction phase activities would include the clearance, stripping and storage of soils within existing farmland areas, localised re-grading of landform and removal of approximately 143m of identified Category B 'important' hedgerow, bordering Harpenden Road; 155m of other Category B and C mixed-species hedgerows throughout the site; 39 Category B trees; and 2 Category C trees. Effects in this period would however principally affect the lesser valued landscape features of the site, with most site hedgerows and trees retained, the Ancient Woodland protected and the functionality of existing rights of way across the site. The magnitude of effect on this receptor is assessed to be medium-high during construction.

Operational Phase - At Completion:
Construction activities associated with the development would have ceased at this stage and soil profiles across landscape areas would have been re-instated. Residual impacts on landform and vegetation cover and the effects from introducing additional built form would however remain at this stage and introduced planting would be at a relatively early stage of its establishment, so would not therefore materially mitigate harms to existing vegetation cover caused within the earlier phase. The magnitude of effect on this receptor against the baseline situation is assessed to be medium at completion.

Operational Phase - 15 years after completion:
Inherent mitigation planting would have established by this stage, compensating for affected vegetation cleared during the construction phase and delivering an increase to characteristic vegetation cover within the site. The magnitude of effect on this receptor against the baseline situation is assessed to be medium 15 years after completion.

Significance
Construction Phase:
In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate-major adverse** significance in the construction phase, which is **significant**. This effect recognising particularly the additional harms to soils and landform that may be expected within this period, over and above the physical losses to vegetation and addition of introduced built form. The effects of the proposed development during this period would be temporary and of medium duration. Many of the changes resulting from the proposed development will however be permanent and irreversible.

Operational Phase - At Completion:
In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate-major adverse** significance at completion, which is **significant**. This effect recognising the residual harm to vegetation loss, notwithstanding the restoration of soil profiles, the planting up of landscaped areas and the delivery of enhanced public access within the site at this stage. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate beneficial** significance 15 years after completion, which is **not significant**. This effect recognising the strengthening to habitat connectivity and further enhancing of the surroundings for those undertaking recreation within the site at this stage. This effect is assessed to be permanent, irreversible and of long duration.

Users of public footpath St Albans City 096

Description
This footpath provides a connection through Longspring Wood, within but near to the southern boundary of the site, before connecting northward within the site to Sandridgebury Lane; close to the railway and eastern boundary to the site. Views into the farmed areas of the site from within the woodland are heavily screened in the foreground by intervening vegetation (particularly during summer months) but become open for a ca. 300m section between this woodland and Sandridgebury Lane.

Sensitivity
Users of this right of way may be expected to have a particular interest in the view or landscape that surrounds them (high susceptibility); and overlook a predominantly farmed landscape with relatively few detracting features (medium value). Users of this right of way are judged to be of medium-high overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would introduce site hoarding, engineering activities and construction operations into the foreground of views experienced by this receptor during this phase. These works will mostly appear glimpsed where moving within the Ancient Woodland, but will be prominent and immediately apparent in the section between the woodland and Sandridgebury Lane. The magnitude of change during the construction phase is assessed to be high.

Operational Phase - At Completion:
Construction activities associated with the proposed development would have ceased by this stage and introduced built form is likely to be more visually permeable and in keeping with existing character than during the construction phase. Inherent mitigation planting, proposed as a buffer to the woodland, near to the southern boundary of the site and adjoining this route to the east of Area D3, is however likely to be at a relatively early stage of its establishment. Introduced built form, street lighting and operational uses are therefore likely to remain prominent and immediately apparent, where looking northward or westward, for a ca. 200-300m section of this route and noticeable or glimpsed through other sections. The magnitude of change at completion is assessed to be medium-high.

Operational Phase - 15 years after completion:
Scrub and woodland vegetation introduced as buffer planting to the ancient woodland and within landscape areas to the north and east of Area D3 would have established to further reduce introduced buildings from within Longspring Wood and to reduce the prominence of introduced development where moving between this woodland and Sandridgebury Lane at this stage. The magnitude of change 15 years after completion is accordingly assessed to be low/medium.

Significance:
Construction Phase:
Construction activities associated with the proposed development will form a prominent change, which would be immediately apparent to users of this footpath and which is considered to detract from the predominantly farmed pre-existing scene that can be experienced by this receptor. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **major adverse** in the construction phase, which is **significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The introduced development would remain evident in views experienced by this receptor and is again considered to deteriorate what is presently a predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate-major adverse** significance at completion, which is **significant**. This effect is assessed to be permanent, irreversible and of medium duration.

Operational Phase - 15 years after completion:
Mitigation planting introduced adjoining this route would have established to enhance the foreground appearance and break up the massing of introduced built form at this stage. The proposed development is, on balance, nonetheless considered to still deteriorate the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate adverse** significance, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Users of the permissive path through the site

Description
This permissive path follows the northern edge of Longspring Wood (within the site) and provides an alternative connection to that offered through this area of woodland by public footpath St Albans City 096. Existing views experienced by those using this path are unobstructed by foreground vegetation and overlook the site and wider landscape to its east.

Sensitivity
Users of this permissive path may be expected to have a particular interest in the landscape that surrounds them (high susceptibility); and overlook a predominantly farmed landscape with relatively few detracting features (medium value). Users of this permissive path are judged to be of medium/high overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would introduce site hoarding, engineering activities and construction operations into the foreground of views experienced by this receptor during this phase. These works would be immediately apparent in the foreground of views experience by this receptor for the entirety of the route. The magnitude of change during the construction phase is accordingly assessed to be high.

Operational Phase - At Completion:
Construction activities associated with the proposed development would have ceased by this stage and introduced built form is likely to be more visually permeable and in keeping with existing character than during the construction phase. Inherent mitigation planting, proposed as a buffer to the woodland, near to the southern boundary of the site, is however likely to be at a relatively early stage of its establishment. Introduced built form, street lighting and operational uses are therefore likely to remain prominent and immediately apparent, where looking northward from this route. The magnitude of change at completion is accordingly assessed to remain high.

Operational Phase - 15 years after completion:
Scrub and tree vegetation introduced within landscape areas immediately to the north of this path will have established to help direct views more linearly along this route and to further break up the massing of introduced built form, street lighting and operational uses within close-distance northward views by this stage. Introduced development would nonetheless remain an evident feature from much of this route. The magnitude of change 15 years after completion is assessed to be medium.

Significance:
Construction Phase:
Construction activities associated with the proposed development will form a prominent change, which would be immediately apparent to users of this path and which is considered to detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience and effect of **major adverse** significance in the construction phase, which is **significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The introduced development would remain prominent in views experienced by this receptor and is again considered to detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude this receptor is accordingly assessed to experience and effect of **moderate-major adverse** significance at completion, which is **significant**. This effect is assessed to be permanent, irreversible and of medium duration.

Operational Phase - 15 years after completion:
Mitigation planting introduced adjoining this route would have established to enhance the foreground appearance and break up the massing of built form at this stage. The proposed development is, on balance, nonetheless considered to still detract from the predominantly framed pre-existing scene. In combination of sensitivity and magnitude this receptor is assessed to experience an effect of **moderate adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Users of public bridleway Sandridge 009

Description
The bridleway runs along the south-eastern boundary of the Heartwood Forest and connects the village of Sandridge to the A1081 (Harpenden Road). It also forms part of the Hertfordshire Way long-distance footpath. The site is evident in frequently sequential, elevated and middle-distance south-westerly views experienced by users of this public bridleway, between breaks in a gappy hedgerow which adjoins this route. Existing views toward the site contain principally arable farmland and woodland vegetation, but include also railway infrastructure and some taller man-made structures in the distance; although most of the city remains screened by intervening vegetation.

Sensitivity
Users of this public bridleway may be expected to have a particular interest in the view or landscape that surrounds them (high susceptibility); and overlook a predominantly farmed landscape with relatively few detracting features (medium value). Users of the right of way are accordingly judged to be of medium-high overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would introduce engineering activities and construction operations, which would be frequently evident in the middle-distance and between gaps in foreground vegetation, across a considerable portion of the view experienced by those travelling westbound along this route. The magnitude of change in the construction phase is accordingly judged to be medium-high.

Operational Phase - At Completion:
Construction activities associated with the proposed development would have ceased at this stage and introduced built form is likely to be less prominent and more in keeping with the surrounding context than during the construction phase. Existing shelterbelt vegetation in the north-eastern part of the site is also expected to have increased in height by this stage, providing some further screening to some areas within the site. Inherent mitigation planting proposed within the site is however likely to remain at a relatively early stage of its establishment and provide limited screening to built form introduced to the south of Sandridgebury Lane and north east part of the site. Some additional street lighting effects are also likely to be noticeable. The magnitude of change at completion is accordingly judged to be medium.

Operational Phase - 15 years after completion:
Existing shelterbelt vegetation in the north-eastern part of the site is expected to have further increased in height by this stage and scrub and woodland vegetation to be delivered as part of the proposed development would have established to help screen and break up the massing of introduced built form to the south of Sandridgebury Lane and north east of the site at this stage. It is considered that these changes will help to better assimilate the proposed development into its surrounding context. The magnitude of change to this receptor 15 years after completion is nonetheless judged to be remain medium.

Significance:
Construction Phase:
Construction activities associated with the proposed development would form a fairly prominent change, which may be readily noticed by users of this bridleway and which is considered to detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate-major adverse** significance, which is **significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The introduced development would remain evident in middle-distance views experienced by this receptor and is again considered to detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience and effect of **moderate-major adverse** significance, which is **significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
Existing planting and proposed mitigation planting would have established to partially screen and break up the massing of introduced built form at this stage. The proposed changes are nonetheless anticipated to still remain evident at this stage and to detract from the predominantly farmed pre-existing screen. In combination of sensitivity and magnitude, this receptor is therefore assessed to remain with an effect of **moderate-major adverse** significance, which is **significant**. This effect is assessed to be permanent, irreversible and of long duration.

Users of public footpath Sandridge 011

Description
This public footpath provides a connection between the village of Sandridge and public bridleway Sandridge 009, approximately 1km to the east of the site. The footpath runs across the bottom of the valley and views toward the site are restricted along much of its length by mature existing vegetation, landform and raised earthworks associated with the mainline railway; although it is visible beyond this through a short section.

Sensitivity
Users of this public footpath may be expected to have a particular interest in the view or landscape that surrounds them (high susceptibility); and overlook a predominantly farmed landscape with few detracting features (medium value). Users of the right of way are accordingly judged to be of medium-high overall sensitivity.

Magnitude:
Construction Phase:
The proposed development will introduce engineering activities and construction operations, which would be noticeable in middle- to long-distance views experienced by this receptor, where moving within the central part of this right of way and looking in a westerly direction, and would contrast with the pre-existing scene. The magnitude of change during the construction phase is judged to be low-medium.

Operational Phase - At Completion:
Construction activities would have ceased at this stage and, whilst inherent mitigation planting in front of proposed built form is likely to remain at a relatively early stage of its establishment and provide limited screening to introduced built form, it is anticipated that the introduced development would be less noticeable at this stage. The magnitude of change at completion is accordingly judged to be low.

Operational Phase - 15 years after completion:
Proposed scrub, woodland and tree planting to be delivered adjoining Sandridgebury Lane and within the eastern part of the site will have established and are anticipated to reduce the appearance of built development at this stage. The magnitude of change 15 years after completion is accordingly judged to be low-negligible.

Significance:
Construction Phase:
Construction activities associated with the proposed development would be noticeable in views experienced by users of this public footpath and will detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience and effect of **moderate adverse** significance, which is **not significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development would remain evident in views experienced by this receptor when moving along a short-section of this right of way. In combination of sensitivity and magnitude, this receptor is accordingly assessed to again experience an effect of **moderate adverse** significance at completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
Mitigation planting would have established to partially screen and break up the massing of any visible built form at this stage. In combination of sensitivity and magnitude this receptor is accordingly assessed to experience an effect of **minor-moderate adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Users of rights of way east and northeast of Sandridge

Description
These rights of way connect Sandridge with Symondshyde Great Wood, east of the village. Views from these rights of way are wide and expansive over the predominantly farmed landscape. There are several woodland blocks within the view towards the site, with relatively few detracting features, including the mast on the Porters Wood industrial estate. The site is likely to be visible from a few locations along these rights of way, but in long distance views further east moving up the hill, away from the development.

Sensitivity
Users of these rights of way are likely to have their primary focus on the surrounding wider landscape with expansive views across the valley towards the site (high susceptibility); and overlook a predominantly farmed landscape with woodland blocks, which contains relatively few detracting features (medium-high value). Users of these rights of way are accordingly judged to be of high overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would be largely screened in views experienced by this receptor. Glimpses of construction activities and introduced built form will however be discernible from a few locations in long-distance views and where moving towards the site within this period. The magnitude of change in the construction phase is judged to be low.

Operational Phase - At Completion:
Construction activities would have ceased at this stage, but introduced built form is likely to remain discernible from a few locations. The magnitude of change at completion is accordingly judged to remain low.

Operational Phase - 15 years after completion:
Introduced planting may break up the massing and screen proposed built form within the site to some extent at this stage. The magnitude of change 15 years after completion is nonetheless judged to remain low.

Significance:
Construction Phase:
Construction activities associated with the proposed development would occasionally be noticeable in views experienced by users of these rights of way and would detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude this receptor is assessed to experience an effect of **moderate adverse** significance, which is **not significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development would remain evident in glimpsed views experienced by this receptor and is considered to detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude this receptor is assessed to experience an effect of **moderate adverse** significance, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
In combination of sensitivity and magnitude this receptor is assessed to experience an effect of **moderate adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Users of Sandridgebury Lane (within site)

Description
Sandridgebury Lane provides a link between Harpenden Road and the village of Sandridge and divides the site in two. Views from within the site are obscured from much of this route during summer months by 4-5m high hedgerows located on either side of the road, but are likely to be more permeable in winter. Field openings create more expansive views over the farmed areas of the site.

Sensitivity
Users of Sandridgebury Lane within the site are likely to have their primary focus on surrounding traffic but are likely to be aware of the view or landscape that surrounds them (medium susceptibility); and overlook a predominantly farmed landscape in good condition and with relatively few detracting features (medium value). Users of this lane are accordingly judged to be of medium overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would introduce engineering activities and construction operations, which would be immediately evident beyond the foreground hedgerows in views experienced by those moving within this section of Sandridgebury Lane. The magnitude of change in the construction phase is accordingly judged to be high.

Operational Phase - At Completion:
Construction activities would have ceased and this section of Sandridgebury Lane would be stopped up to vehicular traffic at this stage, but inherent mitigation to be planted into areas adjoining this route is likely to remain at a relatively early stage of its establishment and built form and operational uses are therefore likely to remain evident beyond existing hedgerow vegetation, in the foreground of views experienced by this receptor. The magnitude of change at completion is accordingly judged to be medium / high.

Operational Phase - 15 years after completion:
Proposed scrub, woodland and hedgerow tree vegetation to be planted into the land adjoining this route would have established to reduce the prominence of introduced built form at this stage. The magnitude of change to this receptor 15 years after completion is accordingly judged to be medium.

Significance:
Construction Phase:
Construction activities associated with the proposed development will form a prominent change, which would be immediately apparent to users of this route and which is considered to detract from the otherwise rural pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate-major adverse** significance, which is **significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development would remain evident in views experienced by this receptor and is again considered to detract from the predominantly rural pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate-major adverse** at completion, which is **significant**. This effect is assessed to be permanent, irreversible and of medium duration.

Operational Phase - 15 years after completion:
Mitigation planting would have established to partially screen and break up the massing of introduced built form by this stage, and the strengthening of landscape margins adjoining this route following the removal of vehicular traffic would be evident. In combination of sensitivity and magnitude, this receptor is nonetheless assessed to experience an effect of **moderate adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Users of Sandridgebury Lane (beyond the site)

Description
Sandridgebury Lane provides a link between Harpenden Road and the village of Sandridge. Views toward the site from beyond the site are typically obscured by mature hedgerow vegetation and/or intervening earthworks associated with the mainline railway embankment.

Sensitivity
Users of Sandridgebury Lane (beyond the site) are likely to have their primary focus on surrounding traffic but may be aware of the view or landscape that surrounds them (medium susceptibility); and overlook a predominantly farmed landscape in good condition and with relatively few detracting features (medium value). Users of this road is accordingly judged to be of medium overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would be largely screened in views experienced by this receptor. Glimpses of site hoarding, new built form and construction activities may however be discernible in views when approaching the site from the east. The magnitude of change in the construction phase is judged to be low.

Operational Phase - At Completion:
Construction activities would have ceased at this stage, but introduced built form and operational uses are likely to remain visible in occasional glimpsed views through hedgerow vegetation experienced by this receptor. The magnitude of change at completion is judged to be low/negligible.

Operational Phase - 15 years after completion:
Scrub and woodland vegetation introduced into the development would have established to further reduce the appearance of built development at this stage. The magnitude of change to this receptor 15 years after completion is nonetheless judged to remain low/negligible.

Significance:
Construction Phase:
Construction activities associated with the proposed development would form a noticeable change from a few locations along this route and would detract from the otherwise rural pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **minor-moderate adverse** significance during the construction phase, which is **not significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development would remain occasionally visible in glimpsed views experienced by this receptor. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **minor adverse** significance at completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
Mitigation planting would have established to further screen and break up the massing of introduced built form discernible in glimpsed views experienced by this receptor. In combination of sensitivity and magnitude, this receptor is nonetheless again assessed to experience an effect of **minor adverse** significance, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Users of Harpenden Road

Description
Harpenden Road is located on the western edge of the site and connects the city of St Albans, in the south, to Harpenden in the north. There are limited views through the existing hedgerow vegetation and into Woollam Playing Fields where this road passes the site. Glimpsed views are however possible further in the north west corner, at the entrance into these playing fields. The site is entirely screened by intervening vegetation and built form further to the south on this route.

Sensitivity
Users of Harpenden Road are likely to have their primary focus on surrounding traffic and may also be aware of the view or landscape that surrounds them (medium susceptibility); and overlook a predominantly vegetated landscape close to the settlement edge but in good condition and with relatively few detracting features (medium-high value). Users of this road are accordingly judged to be of medium overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would necessitate the clearance of a large section of existing hedgerow that fronts onto Harpenden Road, immediately to the south of the access into Woollam Playing Fields, and would introduce site hoarding, new built form and construction activities, which would be evident in views experienced by this receptor over this section of the route. The magnitude of change in the construction phase is judged to be high.

Operational Phase - At Completion:
Construction activities would have ceased at this stage, but the loss of existing vegetation and introduction of built form and operational uses will remain evident in views. The magnitude of change at completion is accordingly judged to be medium/high.

Operational Phase - 15 years after completion:
Hedgerow and hedgerow tree vegetation introduced into the foreground of views experienced by this receptor would have established to reduce the appearance of built development at this stage. The magnitude of change to this receptor 15 years after completion is accordingly judged to be medium.

Significance:
Construction Phase:
Users of the Harpenden Road would experience tree losses, highway changes, construction activities and works associate with delivering a new vehicular access. In combination of significance and magnitude, this receptor is assessed to experience an effect of **moderate-major adverse** significance during the construction phase, which is **significant**. This effect is assessed to be temporary, irreversible and of short duration.

Operational Phase - At Completion:
The proposed development would remain evident in views experienced by this receptor and would detract from the pre-existing largely vegetated scene. The introduced built form would however be more appropriate in character to the neighbouring townscape at this stage. In combination of sensitivity and magnitude, this receptor is again assessed to experience an effect of **moderate adverse** significance at completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
Mitigation planting along the Harpenden Road will have established by this stage to partially screen introduced built form. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Users of the Midland Main Line railway

Description
The Midland Main Line railway runs north-south along the eastern boundary of the site and overlooks it where on embankment, near to Sandridgebury Lane.

Sensitivity
Users of the Midland Main Line railway are likely be travelling at speed and may therefore be expected to experience only glimpsed views into the site (low-medium susceptibility); and overlook a predominately farmed landscape with relatively few detracting features (medium value). Users of the Midland Main Line railway are accordingly judged to be of medium overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would introduce engineering activities and construction operations, which would be immediately (if only briefly) evident when passing the site in views experienced by this receptor. The magnitude of change in the construction phase is judged to be medium.

Operational Phase - At Completion:
Construction activities would have ceased at this stage, but inherent mitigation planting may be at a relatively early stage of its establishment, and built form and operational uses are therefore likely to remain evident in glimpsed views experienced by this receptor. The magnitude of change at completion is accordingly judged to remain medium.

Operational Phase - 15 years after completion:
Scrub and woodland vegetation to be introduced into the foreground of views experienced by this receptor would have established to break up the massing and slightly reduce the appearance of built development by this stage. The magnitude of change to this receptor 15 years after completion is accordingly judged to be low/medium.

Significance:
Construction Phase:
Construction activities associated with the proposed development would form a noticeable change in glimpsed views experienced by users of this railway and would detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience and effect of **moderate adverse** significance in the construction phase, which is **not significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development would remain evident in views experienced by this receptor at this stage and is again considered to detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is again assessed to experience an effect of **moderate adverse** significance at completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
Mitigation planting would have established to partially screen and break up the massing of introduced built form at this stage. The proposed changes are nonetheless still considered to detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is accordingly assessed to experience an effect of **minor-moderate adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Users of the Old Albanians Rugby Club

Description
Users of the Old Albanians Rugby Club (The Woolllam Playing Fields) experience limited views across the majority of the site, due to belts of existing tree planting. The westernmost part of the site however extends into the south of these playing fields, and arable farmland to the north of the site borders the eastern boundary of these playing fields.

Sensitivity
Users of the Old Albanians Rugby Club are likely to have their primary focus on sporting activities but may be expected to have some awareness of the view or landscape that surrounds them (low-medium susceptibility); and overlook a relatively attractive landscape in good condition with relatively few detracting features (medium value). User of this rugby club are accordingly judged to be of medium overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would introduce site hoarding, engineering activities and construction operations associated with the delivery of replacement sports facilities and residential built form, which would be immediately apparent in the foreground of views experienced by this receptor over an extended period of time. The magnitude of change in the construction phase is accordingly judged to be high.

Operational Phase - At Completion:
Construction activities would have ceased at this stage and early works to deliver the replacement sports facilities would have reached a degree of maturity by this stage. Inherent mitigation planted in association with the residential development may however remain at a relatively early stage of its establishment, and built form, fencing and operational uses are therefore likely to remain prominent in views experienced by this receptor at this stage. The magnitude of change at completion is accordingly judged to be medium-high.

Operational Phase - 15 years after completion:
Planting introduced into the northwest part of the site and into the foreground of views experienced by this receptor when entering or moving within the southern part of these playing fields, would have established to further assimilate the proposed replacement sports facilities and to reduce the appearance of built development at this stage. The magnitude of change to this receptor 15 years after completion is accordingly judged to be medium.

Significance:
Construction Phase:
Construction activities would form a prominent change, which would be immediately apparent to users of this rugby club and would detract from the pre-existing scene in this period. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate-major adverse** significance during construction, which is **significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development would remain evident in views experienced by this receptor as mitigation planting is yet to establish and would again detract from the pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate adverse** significance at completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of medium duration.

Operational Phase - 15 years after completion:
Mitigation planting introduced along the boundary of the Old Albanians Rugby Club would have established to partially screen introduced built form at this stage. The proposed development is nonetheless still considered to detract from the pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **moderate adverse** significance, 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Visitors to the Heartwood Forest

Description
The Heartwood Forest is a 347-hectare area of publicly accessible woodland, which is owned and managed by the Woodland Trust and is located around 400m to the northeast of the site. The rolling landscape and intervening railway embankment, mature hedgerows and areas of woodland screen views from almost the entirety of this area.

Sensitivity
Visitors to the Heartwood Forest are likely to have their primary focus on the managed landscape that surrounds them (high susceptibility); and overlook an attractive landscape in good condition with few detracting features (medium-high value). Visitors to the Forest are accordingly judged to be of high sensitivity.

Magnitude
Construction Phase:
Construction activities associated with the proposed development would be almost entirely screened in views experienced by this receptor. Glimpsed views between foreground vegetation may however be discernible from a couple of locations. The magnitude of change in construction is judged to be low/negligible.

Operational Phase - At Completion:
Construction activities would have ceased at this stage and the introduced development is likely to be barely noticeable at this stage. The magnitude of change at completion is judged to be negligible.

Operational Phase - 15 years after completion:
The magnitude of change to this receptor 15 years after completion is judged to remain negligible.

Significance
Construction Phase:
Construction activities associated with the proposed development may be occasionally noticeable in views experienced by visitors to this area of managed woodland and would detract from the predominantly farmed pre-existing scene. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **minor adverse** significance in the construction phase, which is **not significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development is unlikely be discernible in views experienced by this receptor following completion. In combination of sensitivity and magnitude this receptor is assessed to experience an effect of **minor-negligible adverse** significance at completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
Mitigation planting introduced would have established to further reduce the appearance of any built form in views from this location. In combination of sensitivity and magnitude, this receptor is again assessed to experience an effect of **minor-negligible adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Visitors to the St Albans Girls School

Description
The grounds of St Albans Girls School adjoin the south-western corner of the site. Visitors to the Girls School may experience glimpsed views towards the site from the playing fields. 4-5m high hedgerows and tree planting are however anticipated to shield most views into the site.

Sensitivity
Visitors to the St Albans Girls School are likely to have their primary focus on other activities, with some awareness of the landscape that surrounds them (low-medium susceptibility); and overlook a predominantly suburban landscape with relatively few detracting features (medium value). Visitors to the St Albans Girls School are accordingly judged to be of low/medium sensitivity.

Magnitude:
Construction Phase:
The proposed development would introduce engineering activities and construction operations, which may be discernible in glimpsed views experienced by this receptor, above and between intervening hedgerow vegetation bordering Sandridgebury Lane and Valley Road. The magnitude of change in the construction phase is judged to be low/medium.

Operational Phase - At Completion:
Construction activities would have ceased at this stage but built form and operational uses may remain discernible in glimpsed views experienced by this receptor, particularly where near to the boundary with Valley Road. The magnitude of change at completion is judged to be low.

Operational Phase - 15 years after completion:
The magnitude of change to this receptor 15 years after completion is judged to remain low.

Significance:
Construction Phase:
Construction activities associated with the proposed development are anticipate to be noticeable in glimpsed views experienced by this receptor and would detract from the pre-existing scene. In combination of sensitivity and magnitude this receptor is assessed to experience an effect of **minor-moderate adverse** significance during construction, which is **not significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development may remain discernible in glimpsed views from a few locations experienced by this receptor. In combination of sensitivity and magnitude this receptor is assessed to experience and effect of **minor adverse** significance at completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
In combination of sensitivity and magnitude, this receptor is again assessed to experience an effect of **minor adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Visitors to Jersey Farm Park Woodland

Description
Jersey Farm Park Woodland is a 55-acre area of mixed woodland and meadow grassland around 750m to the southeast of the site. The site is screened by foreground vegetation from most of this area of open space but is discernible in glimpsed views from a couple of locations.

Sensitivity
Visitors to Jersey Farm Park Woodland are likely to have their primary focus on the landscape that surrounds them (high susceptibility); and overlook an attractive landscape in good condition with few detracting features (medium-high value). Visitors to this area of open space are accordingly judged to be of high sensitivity.

Magnitude:
Construction Phase:
The proposed development would be almost entirely screened in views for this receptor by existing intervening vegetation and landform. The movement of some taller construction equipment and the introduction of built form into the northeast of the site is however likely to be discernible in views from a small part of this open space during this period. The magnitude of change during construction is judged to be low/negligible.

Operational Phase - At Completion:
Construction activities would have ceased at this stage but introduced built form is however anticipated to remain discernible in very glimpsed views experienced by those within a small part of this open space. The magnitude of change at completion is judged to be negligible.

Operational Phase - 15 years after completion:
The magnitude of change to this receptor 15 years after completion is judged to remain negligible.

Significance:
Construction Phase:
Construction activities associated with proposed development would be discernible in glimpsed views experienced by visitors to this area of open space. In combination of sensitivity and magnitude this receptor is assessed to experience an effect of **minor adverse** significance in the construction phase, which is **not significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development would be almost entirely screened in views experienced by this receptor at this stage. In combination of sensitivity and magnitude this receptor is assessed to experience an effect of **minor- negligible adverse** significance at completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
In combination of sensitivity and magnitude this receptor is again assessed to experience an effect of **minor-negligible adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Residents of Harpenden Road

Description
Harpenden Road is located on the western edge of the site and connects the city of St Albans, in the south, to Harpenden in the north. Residents fronting onto Harpenden Road are likely to experience glimpsed views across the site, through intervening vegetation and from upper storeys.

Sensitivity
Residents of Harpenden Road are likely to have an awareness and interest in their surroundings but are anticipated to experience views toward the site from upper storeys only and not from principal rooms (medium-high susceptibility); and are likely to overlook a predominantly treed landscape with farmland beyond (medium value). Residents of this road are accordingly judged to be of medium-high overall sensitivity.

Magnitude:
Construction Phase:
The proposed development would introduce engineering activities and construction operations, which may be discernible in glimpsed views experienced by this receptor, above and between intervening tree and hedgerow vegetation. The magnitude of change in the construction phase is judged to be low/medium.

Operational Phase - At Completion:
Construction activities would have ceased at this stage but built form and operational uses are likely to remain discernible beyond intervening vegetation and in glimpsed views experienced by this receptor. The magnitude of change at completion is judged to be low.

Operational Phase - 15 years after completion:
The magnitude of change to this receptor 15 years after completion is judged to remain low.

Significance:
Construction Phase:
Construction activities associated with the proposed development are anticipate to be noticeable in glimpsed views experienced by this receptor and would detract from the pre-existing scene. In combination of sensitivity and magnitude this receptor is assessed to experience an effect of **moderate adverse** significance during construction, which is **not significant**. This effect is assessed to be temporary, irreversible and of medium duration.

Operational Phase - At Completion:
The proposed development is likely to remain discernible in glimpsed views experienced by this receptor. In combination of sensitivity and magnitude this receptor is assessed to experience and effect of **minor-moderate adverse** significance at completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Operational Phase - 15 years after completion:
In combination of sensitivity and magnitude, this receptor is again assessed to experience an effect of **minor-moderate adverse** significance 15 years after completion, which is **not significant**. This effect is assessed to be permanent, irreversible and of long duration.

Residents of Childwick Green

Description
Childwick Green sits approximately 900m north west of the site and is home to a cluster of grade II listed buildings around Childwick Bury House and Childwick Green. Views toward the site from the entrance driveway to Childwick Green are screened by existing mature vegetation along the Harpenden Road.

Sensitivity
Residents of Childwick Green are likely to have their primary focus on immediate surrounding landscape views towards the site are obscured by established vegetation and hedgerows along Harpenden Road (high susceptibility); and overlook a parkland landscape with large woodland blocks in good condition and with very few detracting features (medium-high value). This receptor is accordingly judged to be of high overall sensitivity.

Magnitude:
Construction Phase:
The proposed development is anticipated to be almost entirely screened in views experienced by residents of Childwick Green. The movement of some taller construction equipment may however be discernible during the period. The magnitude of change in the construction phase is judged to be negligible.

Operational Phase - At Completion:
Construction activities would have ceased at this stage and it is anticipated that this receptor would then experience no view towards new built form or operational activities. The magnitude of change is accordingly judged to remain no effect.

Operational Phase - 15 years after completion:
The magnitude of change to this receptor 15 years after completion is judged to remain no effect.

Significance:
Construction Phase:
Construction activities associated with the proposed development are anticipated to be barely noticeable in views experienced by these residents. The introduction of such activities may however detract from the pre-existing scene to some extent. In combination of sensitivity and magnitude, this receptor is assessed to experience an effect of **minor-negligible adverse** significance during construction, which is **not significant**. This effect is assessed to be temporary, irreversible and of short duration.

Operational Phase - At Completion:
The proposed development is not likely to be visible in views experienced by this receptor at this stage. In combination of sensitivity and magnitude this receptor is assessed to experience **no effect** at completion, which is **not significant**.

Operational Phase - 15 years after completion:
In combination of sensitivity and magnitude this receptor is again assessed to experience **no effect** 15 years after completion, which is **not significant**.

Define.

Appendix 8.1: Agricultural Land Classification

March 2023

Hallam Land Management Ltd and St Albans School

North St Albans
Agricultural Land Classification and Soil Resources

Beechwood Court,
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1. Introduction

1.1. Reading Agricultural Consultants Ltd (RAC) is instructed by Hallam Land Management Ltd and St Albans School to investigate the Agricultural Land Classification (ALC) and soil resources of land north of St Albans by means of a detailed survey of site and soil characteristics; to consider the value and importance of the soils within the site; and to assess the quality of agricultural land within the local context of agricultural land surrounding St Albans.

1.2. Guidance for assessing the quality of agricultural land in England and Wales is set out in the Ministry of Agriculture, Fisheries and Food (MAFF) revised guidelines and criteria for grading the quality of agricultural land[1], and summarised in Natural England's Technical Information Note 049[2].

1.3. Agricultural land in England and Wales is graded between 1 and 5, depending on the extent to which physical or chemical characteristics impose long-term limitations on agricultural use. The principal physical factors influencing grading are climate, site conditions and soil which, together with interactions between them, form the basis for classifying land into one of the five grades.

1.4. Grade 1 land is excellent quality agricultural land with very minor or no limitations to agricultural use. Grade 2 is very good quality agricultural land, with minor limitations which affect crop yield, cultivations or harvesting. Grade 3 land has moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield, and is subdivided into Subgrade 3a (good quality land) and Subgrade 3b (moderate quality land). Grade 4 land is poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields. Grade 5 is very poor quality land, with severe limitations which restrict use to permanent pasture or rough grazing.

1.5. Land which is classified as Grades 1, 2 and 3a in the ALC system is defined as best and most versatile (BMV) agricultural land.

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[1] **MAFF (1988).** *Agricultural Land Classification of England and Wales. Revised guidelines and criteria for grading the quality of agricultural land*. MAFF Publications.

[2] **Natural England (2012).** *Technical Information Note 049 - Agricultural Land Classification: protecting the best and most versatile agricultural land*, Second Edition.

1.6. As explained in Natural England's TIN049, the whole of England and Wales was mapped from reconnaissance field surveys in the late 1960s and early 1970s to provide general strategic guidance on agricultural land quality for planners. This Provisional Series of maps was published on an Ordnance Survey base at a scale of One Inch to One Mile (1:63,360) and is now available at 1:250,000. The Provisional ALC map shows the site as undifferentiated Grade 3. However, TIN049 explains that:

> *"These maps are not sufficiently accurate for use in assessment of individual fields or development sites, and should not be used other than as general guidance. They show only five grades: their preparation preceded the subdivision of Grade 3 and the refinement of criteria, which occurred after 1976. They have not been updated and are out of print. A 1:250 000 scale map series based on the same information is available. These are more appropriate for the strategic use originally intended …"*

1.7. TIN049 goes on to explain that a definitive ALC grading should be obtained by undertaking a detailed survey according to the published ALC guidelines and criteria, at an observation density of one boring per hectare.

1.8. A large area of the site has previously been surveyed in detail by ADAS on behalf of MAFF in 1994 and was classified as a mix of Subgrades 3a and 3b[3]. The area not previously surveyed by ADAS has been surveyed by RAC in June 2022, together with some verification observations of the ADAS survey points, and the findings of both the 1994 and the 2022 detailed surveys are included within this report.

[3] **ADAS Statutory Resource Planning Team (1994).** *Agricultural Land Classification survey. Land at Cheapside Farm, Sandridge Lane, St Albans, Hertfordshire.*

2. Site and climatic conditions

General features, land form and drainage

2.1. The site extends to approximately 49.7ha of mostly arable land in four fields and includes part of the Old Albanian RFC pitches in its west. The site is intersected by Sandridgebury Lane which runs from the southern to the north-eastern boundary. The site is bordered to the west by Harpenden Road, to the north-west by the Old Albanian RFC, to the east by the Midland Main Line and to the south-east by industrial units along Porters Wood. Other agricultural land borders to the north.

2.2. Topography across the site is gently sloping from the north, west and southern boundaries to the east. The highest elevation at the site is in the north, at approximately 120m above Ordnance Datum (AOD), falling to approximately 102m AOD at the eastern boundary.

2.3. Land drains primarily through the soil profile.

Agro-climatic conditions

2.4. Agro-climatic data for the site have been interpolated from the Meteorological Office's standard 5km grid point dataset at a representative altitude of 113m AOD and are given in Table 1. The site has a moderate climate and moderate to moderately large moisture deficits. The number of Field Capacity Days (FCD) is lower than is average for lowland England (150) and is favourable for providing opportunities for agricultural field work.

Table 1: Local agro-climatic conditions

Parameter	Value
Average Annual Rainfall	676mm
Accumulated Temperatures >0°C	1,368 day°
Field Capacity Days	138 days
Average Moisture Deficit, wheat	105mm
Average Moisture Deficit, potatoes	95mm

Soil parent material and soil type

2.5. The underlying geology mapped by the British Geological Survey[4] across the site is undifferentiated Lewes Nodular Chalk Formation And Seaford Chalk Formation, comprising chalk with varied flint seams.

2.6. Superficial deposits of the Clay-with-flints Formation are mapped across the north and west of the site. These deposits comprise clay, silt, sand and gravel.

2.7. Deposits of the Kesgrave Catchment Subgroup are mapped across the south, across a large part of the centre, and in a small area in the north. These deposits comprise sand and gravel.

2.8. The Soil Survey of England and Wales soil association mapping[5] (1:250,000 scale) shows the Batcombe association across most of the site, which is composed of fine silty over clayey and fine loamy over clayey soils with slowly permeable subsoils. Soils are variably flinty. Soils are typically occasionally waterlogged, assessed as Wetness Class (WC) II[6].

[4] **British Geological Survey (2022).** *Geology of Britain viewer*, http://mapapps.bgs.ac.uk/geologyofbritain/home.html

[5] **Soil Survey of England and Wales (1984).** *Soils of South East England* (1:250,000), Sheet 6.

[6] **Jarvis et al (1984).** *Soils and Their Use in South East England*. Soil Survey of England and Wales Bulletin 15, Harpenden.

3. Agricultural land quality

Soil survey methods

3.1. For the 2022 survey, eight soil profiles were examined within the northern, previously unsurveyed part of the site using an Edelman (Dutch) auger at an observation density of approximately one per hectare in accordance with the established recommendations for ALC surveys[2]. In addition, seven soil profiles were examined within the area previously surveyed by ADAS. Although the auger was impeded at many of these locations by very dry ground conditions, information recorded at these points match that reported by ADAS. One observation pit was also excavated to examine subsoil structures in the northern part of the site. The locations of observations are shown on Figure RAC/9625/1. At each observation point the following characteristics were assessed for each soil horizon up to a maximum of 120cm or any impenetrable layer:

- soil texture;
- significant stoniness;
- colour (including localised mottling);
- consistency;
- structural condition;
- free carbonate; and
- depth.

3.2. One topsoil sample was submitted for laboratory determination of particle size distribution, pH, organic matter content and nutrient contents (P, K, Mg). Results are presented in Appendix 1.

3.3. Soil WC was determined from the matrix colour, presence or absence of, and depth to, greyish and ochreous gley mottling, and slowly permeable subsoil layers at least 15cm thick, in relation to the number of Field Capacity Days at the location.

3.4. Soil droughtiness was investigated by the calculation of moisture balance equations (given in Appendix 2). Crop-adjusted Available Profile Water (AP) is estimated from texture, stoniness and depth, and then compared to a calculated moisture deficit (MD) for the standard crops wheat and potatoes. The MD is a function of potential evapotranspiration and rainfall. Grading of the land can be affected if the AP is insufficient to balance the MD and droughtiness occurs.

Agricultural land classification and site limitations

3.5. Assessment of land quality has been carried out according to the revised ALC guidelines[1]. Soil profiles have been described according to Hodgson[7] which is the recognised source for describing soil profiles and characteristics according to the revised ALC guidelines.

3.6. There are two soil types present at the site.

Soil type 1

3.7. The first soil type comprises heavy clay loam over clay at a varied depth.

3.8. The topsoil comprises very dark greyish brown or dark brown (10YR3/2 or 10YR3/3 in the Munsell soil colour charts[8]) heavy clay loam, with one recording of heavy silty clay loam. Stone content is moderate, at 16-25%. The topsoil has a medium subangular blocky structure and a friable consistency.

3.9. The upper subsoil comprises yellowish brown (10YR5/4) or strong brown (7.5YR5/6), heavy clay loam or clay. Stone content is very slight to slight, at 5-15%. The upper subsoil has a medium subangular blocky structure and a firm consistency.

3.10. The lower subsoil comprises strong brown (10YR5/4) clay. Stone content is very slight, up to 5%. The lower subsoil has a medium angular blocky to prismatic structure and is predominantly firm. Ochreous mottling and ferri-manganiferous nodules are observed within this horizon indicating prolonged periods of wetness. Clay within this horizon is weakly developed and slowly permeable.

3.11. The findings of the 2022 survey, described above, match those described in the ADAS report as soil type 1. The ADAS report describes these soils as follows:

> *"Soil type 1 covers most of the 3 sites, except for a small area in the south. These soils typically comprise slightly to moderately stony, non calcareous medium or heavy clay loam (occasionally medium or heavy silty clay loam) topsoils over similar or heavier upper subsoils with virtually the same stone content. Lower subsoils consist of non calcareous clays which are typically less stony than the upper horizons. Topsoil stone content within this area is variable with the stone content ranging between 7 and 20% soil volume with 5-*

[7] **Hodgson, J. M. (Ed.) (1997).** *Soil survey field handbook.* Soil Survey Technical Monograph No. 5, Silsoe.

[8] **Munsell Color (2009).** *Munsell Soil Color Book*. Grand Rapids, MI, USA

14% of the stones exceeding 2 cm in size. Stone content tends to be highest on the brows of the dry valleys and lowest in the field adjacent to Faircroft Lodge (sites A and B)."

3.12. Profiles with these characteristics are predominantly assessed as WC II with a slowly permeable horizon at depth and no gleying within 40cm. This land is restricted to Subgrade 3a by soil wetness. Soil profiles with this soil type are commonly limited to the same extent by topsoil stoniness.

3.13. An area to the north-east of the site has been limited further by topsoil stone content to Subgrade 3b.

3.14. Land in the west of the site had also been assessed by ADAS as Subgrade 3b, restricted by soil wetness. This area is now part of the Old Albanian RFC and classified as non-agricultural land but was described by ADAS as follows:

"Secondly an area (associated with soil type 1) to the south of Faircroft Lodge has been mapped as subgrade 3b. The soil wetness class has been assessed as III or IV depending upon the depth to the slowly permeable clay horizon (typically 30/45 cm). The combination of poorly drained soils and medium/heavy clay loam (occasionally medium/heavy silty clay loam) topsoils act to impose significant wetness and workability imperfections which restrict the land to subgrade 3b (moderate quality agricultural land)."

<u>Soil type 2</u>

3.15. The second soil type is found in the south and south-east of the site. Profiles comprise medium sandy loam over loamy medium sand or sand at varying depths. This soil type has been reported by ADAS and described as:

"Soil type 2 is found along the southem boundary of site C and broadly correlates with the glacial gravel drift deposits mapped in this area. Soils typically comprise slightly stony, non calcareous medium sandy loam topsoils over similar or lighter textured upper subsoils. Lower subsoils comprise medium sand or loamy medium sands, occasionally interspersed with clay lenses. Stone content in the subsoils is variable ranging from slightly to moderately stony. Topsoil stone content increases eastwards and is in the range 7 to 20% soil volume with 5-17% of the stones exceeding 2 cm in size."

3.16. Soils with these characteristics have been assessed as Subgrade 3a or Subgrade 3b. Profiles to the east and along the brow of the hill are limited to Subgrade 3b by topsoil stone content. Where topsoil stone is lower, profiles are assessed within the ADAS report as Subgrade 3a and are restricted by droughtiness.

3.17. The ALC distribution across the whole site is shown in Figure RAC/9625/2 and the areas of each grade are given in Table 2.

Table 2: ALC areas

Grade	Description	Area (ha)	%
Subgrade 3a	Good quality	31.7	64
Subgrade 3b	Moderate quality	9.1	18
Non-Agricultural		8.9	18
Total		49.7	100

4. Value and importance of soils

4.1. Soil is a finite resource that fulfils many important functions and services in addition to the production of food and fibre, principally as a medium for producing biomass; for storage and cycling of water and carbon; and for supporting habitats and biodiversity.

4.2. There are two distinct soil types present at the site which possess different qualities and are variably susceptible to damage. The first is a heavy clay loam over clay; the second is a medium sandy loam over loamy medium sand or sand and found in the south and south-east of the site. The soil types and textures are incompatible with each other and would need to be managed separately in order to best retain their qualities.

4.3. If the development was to proceed, there would be a requirement for the topsoils and upper subsoils within each of the two soil types to be separately stripped, stored and eventually replaced.

4.4. Soil structures are disrupted by handling and trafficking. To minimise any potential impacts such as compaction and smearing, the soil should only be handled under appropriate conditions. There are field tests and rainfall criteria that are used as a guide for determining when handling should and should not take place, which would be detailed in a Soil Resources Management Plan (SRMP).

4.5. The site survey information already obtained would be used to determine the appropriate depths of soil stripping, and can be used to estimate the volumes of each type that would need to be stockpiled. Every effort should be made to strip the full depth of the topsoil resource whilst taking care to not incorporate notable volumes of upper subsoil.

4.6. Reinstatement of soil profiles would also follow the same handling principles. Monitoring of the replaced soils throughout a period of aftercare may be necessary, to determine how well the ecological soil functions are resuming, thus maintaining the value of the original soil resource.

5. Local Context

5.1. The Provisional ALC mapping shows the agricultural land quality around St Albans mainly as undifferentiated Grade 3, with areas of Grade 2 on the eastern and north-eastern edges. Since the provisional maps were produced, the north-eastern area of Grade 2 has been developed and is now non-agricultural (in residential use). The eastern area of Grade 2 primarily covers the grounds of Oaklands College.

5.2. This pattern is largely applicable across the locality, centred on St Albans and extending to the settlements of Hemel Hempstead, Watford, Potters Bar, Hatfield, Welwyn Garden City and Harpenden. The provisional ALC grading is shown in Plate 1.

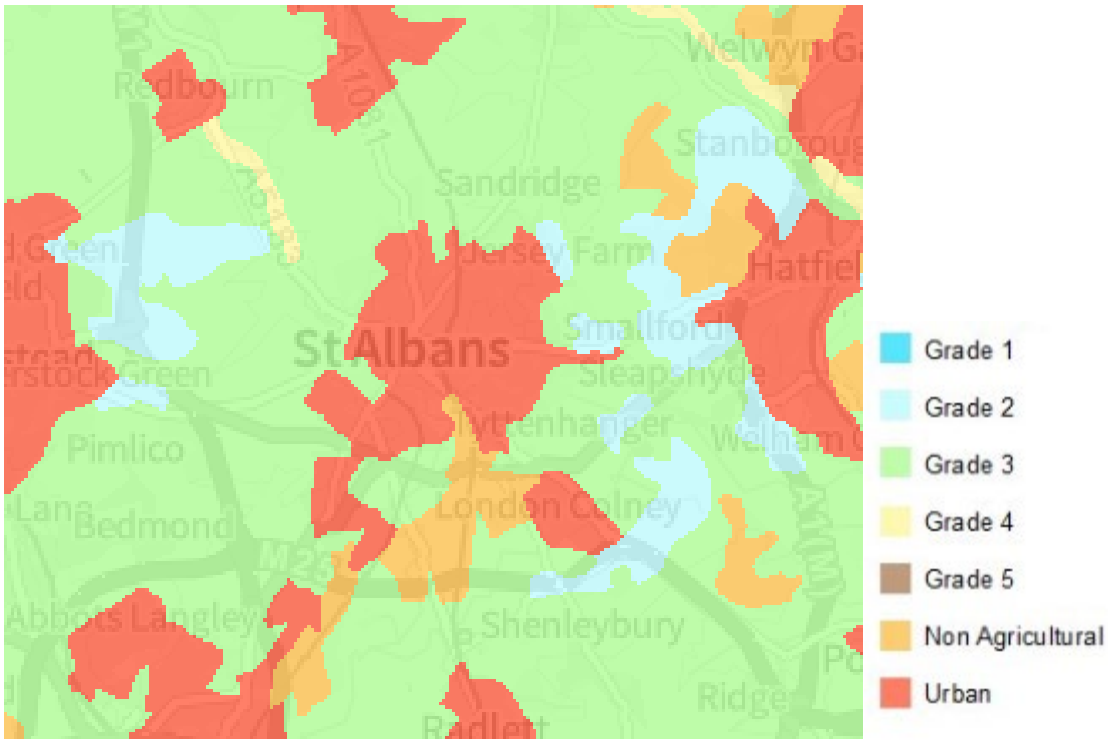


Plate 1 – Provisional ALC taken from Magic (2023,. https://magic.defra.gov.uk/MagicMap.aspx

5.3. Three areas around the immediate periphery of the town have been surveyed in detail (shown in Plate 2), including the present site and the land at Oaklands College. The ALC at North St Albans is detailed above and is confirmed as a mix of Subgrade 3a and Subgrade 3b.

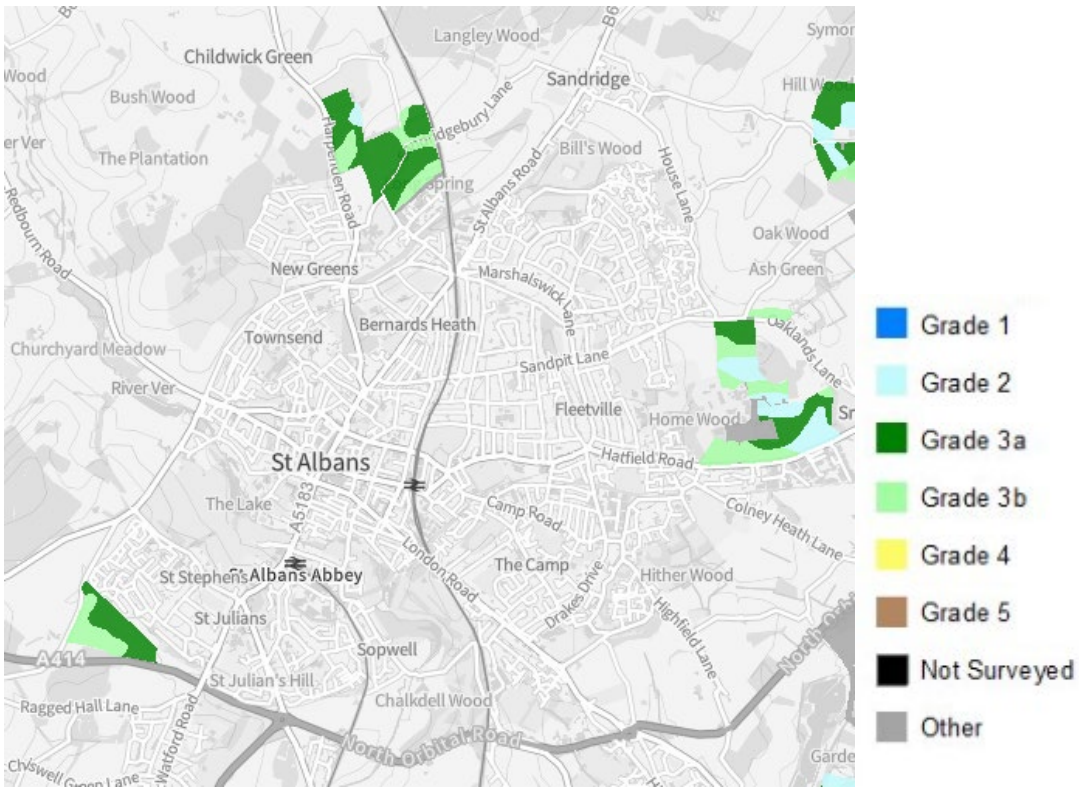


Plate 2 - Detailed ALC data on the edge of St Albans, taken from Magic (2023), https://magic.defra.gov.uk/MagicMap.aspx

5.4. The land at Oaklands College was surveyed by MAFF in 1997[9]. The survey identified five different soil types, although most are very similar and generally comprise medium clay loam, medium silty clay loam or heavy clay loam topsoil over progressively heavier textured subsoils which have localised gravels at variable depth.

5.5. One differing soil type includes medium sandy silt loam topsoil over stony, medium sandy silt loam or sandy loam. Limitations to the ALC include wetness, droughtiness and topsoil stone content. The land is limited variably to Grade 2 (33%), Subgrade 3a (27%) and Subgrade 3b (40%).

5.6. Land to the south-west of St Albans was surveyed by ADAS on behalf of MAFF in 1992[10]. The survey identified two soil types, distinguished by subsoil stone content, but mainly comprising

[9] **MAFF (1997).** *Oaklands College, St Albans, Hertfordshire. Agricultural Land Classification and Soil Physical Characteristics Report.* RPT Job Number: 64/97. MAFF Ref.: EL18/2539

[10] **ADAS (1992).** *Agricultural Land Classification, Semi-detailed Survey. Bedmond Lane, St Albans.* Ref.: 027/92

medium clay loam topsoil over well drained clay. The land is limited by topsoil stone content to Subgrade 3a (57%) and Subgrade 3b (43%).

5.7. The survey data correspond with the provisional classification and confirm Grade 2 to the east and south-east of St Albans, and that the provisional Grade 3 consists of a roughly equal mix of the Subgrades 3a and 3b.

5.8. The pattern continues beyond the periphery of St Albans, with Subgrade 3a and 3b prevalent on the east side of Hemel Hempstead; Grade 2 and 3a on the west side of Hatfield; and Grades, 1, 2, 3a and 3b south-east of St Albans at Tyttenhanger, shown in Plate 3.

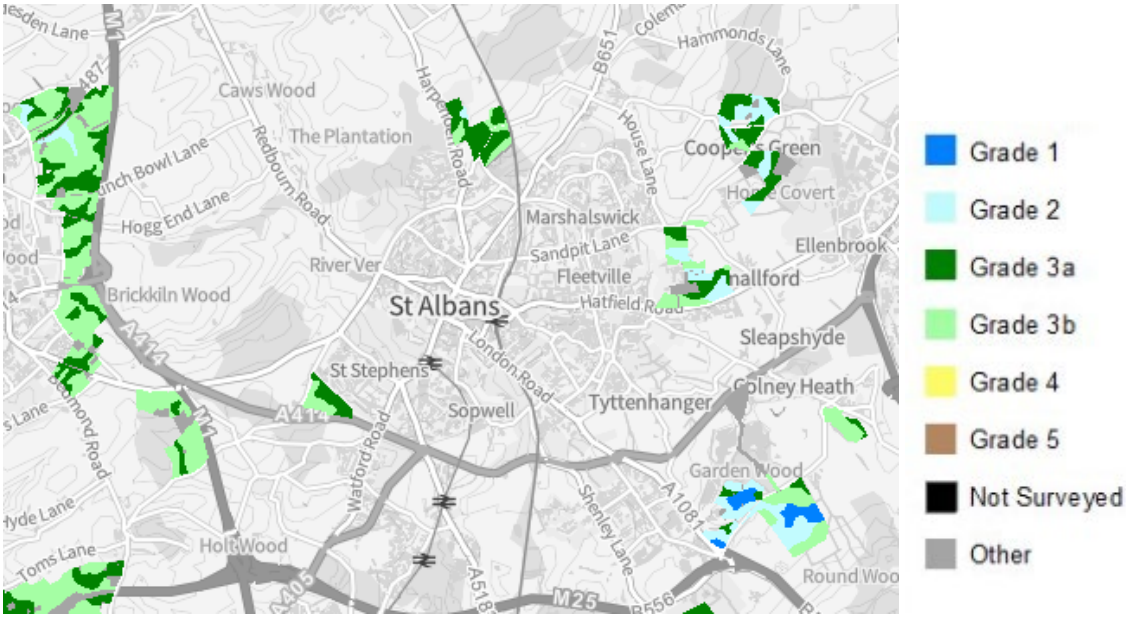


Plate 3 - Detailed ALC data in the locality of St Albans, taken from Magic (2023), https://magic.defra.gov.uk/MagicMap.aspx

5.9. It is therefore reasonable to assume that any development in the locality of St Albans would involve the loss of some BMV agricultural land. Sites to the east and south-east of St Albans are more likely to include Grade 2, and sites to the south, west and north are more likely to include Subgrade 3a, which is the lowest of the BMV grades.

5.10. Directing development to the north of St Albans would accord with national planning policy: footnote 58 of the NPPF indicates that "*where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality."* Although still BMV, the site North of St Albans represents some of the lower quality land available.

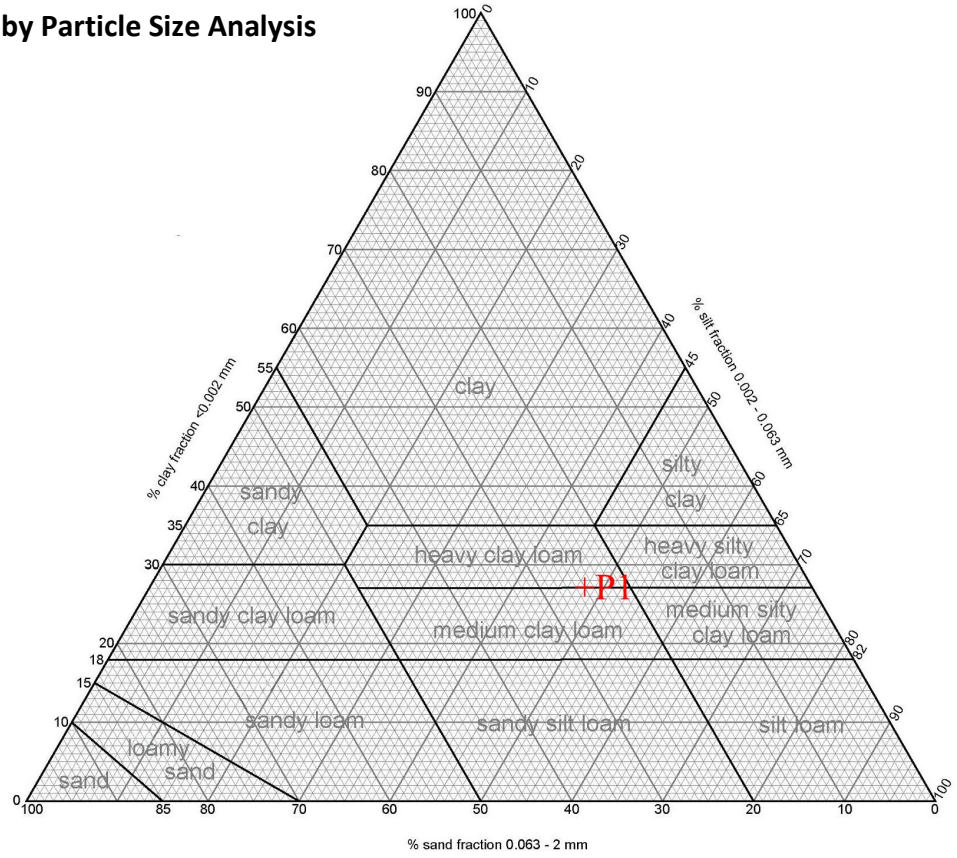
Appendix 1: Laboratory Data

Determinand	1 TS	Units
Sand 2.00-0.063 mm	25	% w/w
Silt 0.063-0.002 mm	48	% w/w
Clay <0.002 mm	27	% w/w
Organic Matter	3.9	% w/w
Texture	Heavy clay loam	

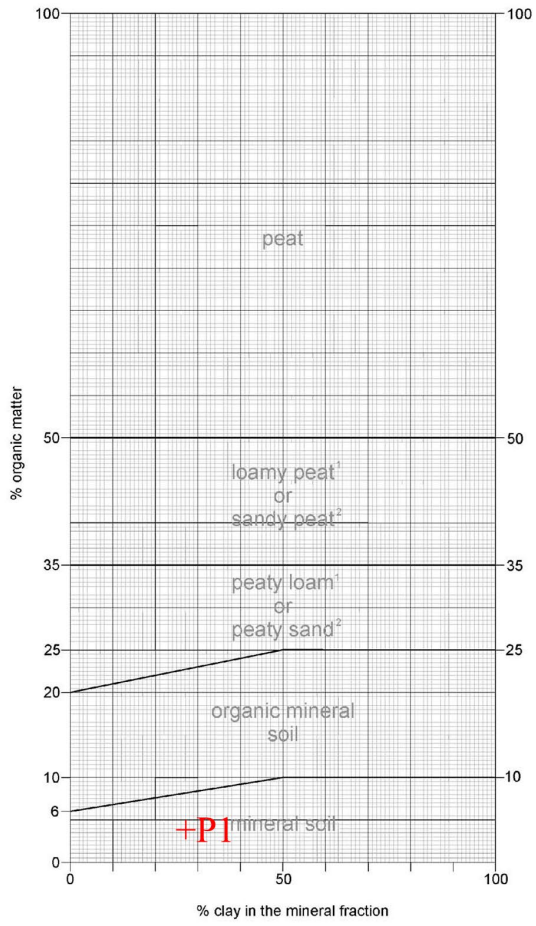
Determinand	1 TS	Units
Soil pH	6.7	
Phosphorus (P)	18.4	Mg/l (av)
Potassium (K)	159	Mg/l (av)
Magnesium (Mg)	69.7	Mg/l (av)

Determinand	1 TS	Units
Phosphorus (P)	2	ADAS Index
Potassium (K)	2-	ADAS Index
Magnesium (Mg)	2	ADAS Index

Soil Texture by Particle Size Analysis



Organic Matter Class



[1] Less than 50% sand in the mineral fraction

[2] 50% sand or more in the mineral fraction

Appendix 2: Soil Profile Summaries and Droughtiness Calculations

Wetness / workability limitations are determined according to the methodology given in Appendix 3 of the ALC guidelines, MAFF 1988

Droughtiness calculations are made according to the methodology given in Appendix 4 of the ALC guidelines, MAFF 1988.

Grades are shown for drought, wetness and any other soil or site factors which are relevant. The overall Grade is set by the most limiting factor and shown on the right.

Stone types		
%	TAv	EAv
hard	1	0.5
N/A		

Climate Data	
MDwheat	105
MDpotato	95
FCD	138
AAR	676

Wetness Class Guidelines	*II*	*III*	*IV*	*V*
SPL within 80cm, gleying within 40cm	>65cm	37-65cm	<37cm	
SPL within 80cm, gleying at 40-70cm	>47cm	<47cm		
No SPL but gleying within 40cm	coarse subsoil	*I*	other cases	*II*

Climate
1,368
Limitation
Grade 1

hard flint & pebble

Maximum depth of auger penetration is underlined

Site No.		Depth cm		Texture	$CaCO_3$	Colour	Mottle colour	abund-ance	stone% hard	stone% N/A	Struct-ure	APwheat mm	AP potato mm	Gley	SPL	WC	Wetness grade WE	Final Grade	Limiting Factor(s)
1	T	0	28	hCL		10YR3/3			23	0		39	39	n	n	*II*	3a	**3a**	WE ST
		28	56	hCL		10YR5/4			10	0		37	41	n	n				
		56	120	C		7.5YR5/6	Femn	Many	3	0	poor	44	18	(y)	y				
											Total	**120**	**98**		ST>2cm= 13		3a		
											MB	15	3						
									Droughtiness grade (DR)			2	2						
2	T	0	28	hCL		10YR3/3			19	0		41	41	n	n	*II*	3a	**3a**	WE
		28	60	hCL		10YR5/4			5	0		43	49	n	n				
		60	120	C		7.5YR5/6	Femn	Many	3	0	poor	41	13	(y)	y				
											Total	**125**	**103**		ST>2cm= 9 Grade 2				
											MB	20	8						
									Droughtiness grade (DR)			2	2						
3	T	0	30	hCL		10YR3/2			25	0		41	41	n	n	*II*	3a	**3b**	ST
		30	65	C		7.5YR5/6			7	0		41	52	n	n				
		65	120	C		7.5YR5/6	Mn	com	5	0	poor	37	6	n	y				
											Total	**119**	**100**		ST>2cm= 16		3b		
											MB	14	5		Borderline 3a/3b				

								Droughtiness grade (DR)			2	2							
P1	T	0	30	hCL	10YR3/2			25	0		41	41	n	n	//	3a	**3b**	ST	
		30	55	C	7.5YR5/6	Mn	few	7	0		34	37	n	n					
		55	72	C	7.5YR5/6	Mn	com	7	0		13	22	n	n					
		72	120	C	7.5YR5/6	Femn	com	5	0	poor	32	0	(y)	y					
										Total	**120**	**101**		ST>2cm= 16 3b					
										MB	15	6		Borderline 3a/3b					
								Droughtiness grade (DR)			2	2							
4	T	0	27	hCL	10YR3/2			22	0		39	39	n	n	//	3a	**3a**	WE ST	
		27	52	C	10YR5/4	Mn	few	15	0		33	34	n	n					
		52	60	C	10YR5/4	Mn	few	15	0		6	11	n	n					
		60	120	C	7.5YR5/6	Femn	com	5	0	poor	40	12	(y)	y					
										Total	**117**	**96**		ST>2cm= 12 3a					
										MB	12	1							
								Droughtiness grade (DR)			2	2							
5	T	0	28	hCL	10YR3/3			21	0		40	40	n	n	//	3a	**3a**	WE	
		28	67	hCL	10YR5/4	Mn	few	5	0		50	59	n	n					
		67	120	C	7.5YR5/6	Femn	com	3	0	poor	36	4	(y)	y					
										Total	**126**	**104**		ST>2cm= 9 Grade 2					
										MB	21	9		USS-hCL/Clay					
								Droughtiness grade (DR)			2	2							
6	T	0	20	hZCL	10YR3/3			19	0		30	30	n	n	//	3a	**3a**	WE ST	
		20	65	hCL	10YR5/4	Mn	few	5	0		60	69	n	n					
		65	120	C	7.5YR5/6	Femn	com	3	0	poor	37	6	(y)	y					
										Total	**127**	**104**		Too dry stopped in TS					
										MB	22	9		ST>2cm= 10 Grade 2/3a					
								Droughtiness grade (DR)			2	2							
7	T	0	15	hCL	10YR3/3			16	0		23	23	n	n	//	3a	**3a**	WE	
		15	30	hCL	10YR3/3			16	0		20	20	n	n					
		30	65	C	10YR5/4	Mn	few	5	0		42	53	n	n					

		65	120	C	7.5YR5/6	Femn	com	3	0	poor	37	6	(y)	y						
										Total	**123**	**103**		Too dry stopped in TS						
										MB	18	8		ST>2cm= 6 Grade 2						
									Droughtiness grade (DR)		2	2								
8	T	0	30	hCL	10YR3/3			17	0		45	45	n	n	//	3a	**3a**		WE	
		30	63	C	7.5YR5/6	Mn	few	5	0		40	50	n	n						
		63	120	C	7.5YR5/6	Femn	com	2	0	poor	39	9	(y)	y						
										Total	**125**	**105**		ST>2cm= 7 Grade 2						
										MB	20	10								
									Droughtiness grade (DR)		2	2								
9	T	0	26	hCL	10YR3/3			18	0		39	39	n	n	//	3a	**3a**		WE	
		26	62	C	7.5YR5/6, 7.5YR5/3			7	0		45	54	n	n						
		62	120	C	7.5YR5/6	Femn	com	3	0	poor	39	10	(y)	y						
										Total	**123**	**103**		ST>2cm= 7 Grade 2						
										MB	18	8								
									Droughtiness grade (DR)		2	2								
10	T	0	28	hCL	10YR3/3			20	0		41	41	n	n	//	3a	**3a**		WE ST	
		28	40	hCL	7.5YR5/6, 7.5YR5/3			7	0		18	18	n	n						
		40	60	hCL	7.5YR5/6			7	0		24	30	n	n						
		60	120	C	7.5YR5/6	Femn	com	3	0	poor	41	13	(y)	y						
										Total	**124**	**101**		Stopped at 40cm too dry						
										MB	19	6		ST>2cm= 10 2/3a						
									Droughtiness grade (DR)		2	2		See MAFF grading and description						
11	T	0	20	mSL	10YR4/2			17	0				n	n						
		20	120										n	n						
										Total				Stopped too dry				TS ST>2cm 12%-3a		
										MB				MAFF grading 3b across hill brown-high ST						
									Droughtiness grade (DR)					See MAFF grading and description						

12	T	0	10	mSL	10YR4/2			22	0				n	n					
		10	120										n	n					
										Total				Stopped too dry					
										MB				TS ST>2cm 16%-3b					
										Droughtiness grade (DR)				See MAFF grading and description					
13	T	0	15	hCL	10YR3/3			28	0				n	n					
		15	120										n	n					
										Total				Stopped too dry					
										MB				ST>2cm= 14 2/3a 3a					
										Droughtiness grade (DR)				See MAFF grading and description					
14	T	0	10	hCL	10YR3/3			20	0				n	n					
		10	120										n	n					
										Total				Stopped too dry					
										MB				ST>2cm= 10 2/3a					
										Droughtiness grade (DR)				See MAFF grading and description					
15	T	0	30	hCL	10YR3/3			21	0		43	43	n	n	//	3a	**3a**	WE ST	
		30	56	C	7.5YR5/6			7	0		34	39	n	n					
		56	120	C	7.5YR5/6	Fe/red	many	2	0	poor	44	18	(y)	y					
										Total	**122**	**100**		ST>2cm= 15 3a/3b					
										MB	17	5		Edge of MAFF 3b unit					
										Droughtiness grade (DR)	2	2		OSR					

Appendix 3: Site Photographs



Pit 1: Pit wall



Pit 1: Pit overview



Pit 1: Topsoil



Example of flints in topsoil



Pit 1: Upper subsoil



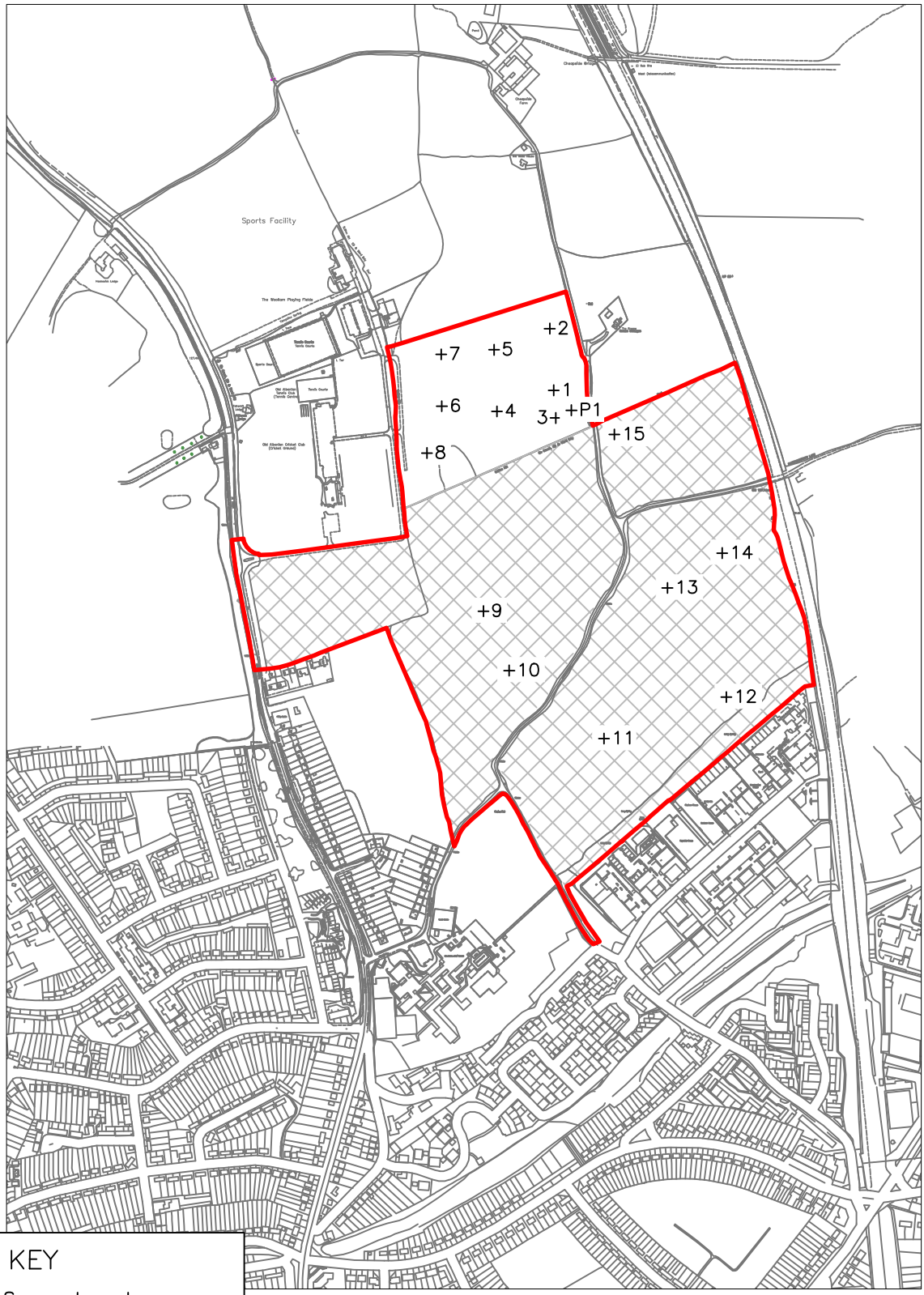
Pit 1: Lower subsoil



Typical profile horizons by auger



Typical profile horizons by auger



KEY

Survey boundary

Area surveyed by ADAS

+1 2022 Observations

+P 2022 Pit

1:10,000

0 200m 400m

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Contract LAND AT SANDRIDGEBURY LANE, ST ALBANS, HERTFORDSHIRE	Drawn by AGM	Checked by AIF			
	Scales 1:10,000@A4	Date 07/2022	Rev.	Comment	Date

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www.reading-ag.com
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KEY

Grade 1		Grade 4	
Grade 2		Grade 5	
Subgrade 3a		Non–agricultural	
Subgrade 3b		Not present	

1:10,000

0 200m 400m

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Contract LAND AT SANDRIDGEBURY LANE, ST ALBANS, HERTFORDSHIRE	Drawn by AGM	Checked by AIF			
	Scales 1:10,000@A4	Date 07/2022	Rev.	Comment	Date

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Appendix 9.1: Historic environment desk-based assessment (HEDBA)

Woollam Park, North St Albans, Herts
Heritage Desk Based Assessment
September 2024

Woollam Park, North St Albans, Herts
Heritage Desk Based Assessment
September 2024

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Report
Heritage Desk-Based Assessment

Site
Woollam Park, North St Albans, Herts

Client
Hallam Land Management

Date
September 2024

Planning Authority
St Albans City and District Council

Site Centred At
515366, 209775

Prepared By
Helen MacQuarrie MA MPhil MCIfA

Approved By
Rob Bourn BA MA MCIfA

Report Status
Final

Orion Ref
PN1875/2024/1

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Executive Summary

1.0 Introduction
2.0 Statutory and Planning Policy Framework
3.0 Archaeological and Historical Background
4.0 Proposed Development and Predicted Impact on Heritage Assets
5.0 Summary and Conclusions

Sources Consulted

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Figure 2 Non-designated Heritage Assets Mapping
Figure 3 Designated Heritage Assets Mapping
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Figure 5 1805 Ordnance Survey Drawing
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Figure 13 Aerial View of Study Site (from Google Earth)

Timescales Used in This Report

Prehistoric

Palaeolithic	450,000 -12,000 BC
Mesolithic	12,000 - 4,000 BC
Neolithic	4,000 - 2,200 BC
Bronze Age	2,200 - 700 BC
Iron Age	700 - AD 43

Historic

Roman	43 - 410AD
Saxon/Early Medieval	410 - 1066AD
Medieval	1066 - 1485AD
Post Medieval	1486 - 1901AD
Modern	1901 - Present Day

Executive Summary

This heritage desk-based assessment consider land north of St Albans, Hertfordshire (Figure 1). The site is located at grid reference 515366, 209775. The site is hereafter referred to as the study site.

This assessment has been commissioned to support an outline planning application and will form the technical appendix to an Archaeology and Cultural Heritage ES Chapter. The site is allocated in the draft Local Plan for the provision of 1,146 housing units, at least two 50+ extra care schemes, a 2FE primary school, transport network and a new neighbourhood centre. This includes the Hunston planning permission of us to 150 which has been granted planning permission (5/2021/0423).

The study site contains no known non-designated heritage assets. The potential for below ground archaeological remains within the site is informed by an assessment of known archaeological remains in the vicinity of the site, fieldwalking survey (CA 2019; Appendix B) and geophysical survey (SUMO 2024). Based on an assessment of available evidence there is considered to be low-medium potential for prehistoric and Romano-British sub-surface archaeological evidence within the study site. There is considered low potential for significant remains from all other periods.

Further archaeological assessment is considered likely to be needed to confirm the conclusions of this assessment. The scope and timing of such works will be discussed and agreed with the LPA Planning Archaeologist.

The proposed development includes off site transport improvements to the south of the main site within the extent of the scheduled Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136), in particular where the scheduled monument crosses Valley Road and the Ancient Briton junction.

A site visit and settings assessment has been undertaken as part of this assessment. The proposed changes require very minor alterations to the existing ground surfaces for the creation of improved foot/cycle paths. On the basis that these will not require substantial groundworks and no re-modelling of the existing topography, such proposals would not result in any impact the archaeological integrity or landscape appreciation of this national significant Iron Age monument. Scheduled Monument Consent will be requested to Historic England in advance of the application.

The setting and significance of identified designated assets in the vicinity of the study site have been assessed. Whilst the study site forms part of the wider rural landscape of these assets, the contribution that the study site makes to the significance/experience of these assets is considered negligible. As such, the effect of the proposed development on the following designated heritage assets is considered to be non-material in that it would not result in a change to the significance of the assets: Batch Wood, Moated Manorial Site (NHLE 1012407); Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136); the ten Grade II listed buildings at Childwick Green, the Grade II listed Childwick Bury House and seven associated listed buildings, Childwickbury Conservation Area and Sandridge Conservation Area and St Albans Conservation Area.

The study site makes a negligible/minor contribution to the significance/experience of the two Grade II listed buildings at Sandridgebury. This relates to the south-west corner of the study site which forms part of the distant skyline when experiencing these assets from Sandridgebury Lane. Consideration of the detailed treatment (height and density) of the south-east part of the study site and the introduction of screening along the eastern

boundary to ensure that new development is visually recessive has the potential to preserve the setting of these listed buildings.

1.0 Introduction

1.1 This heritage desk-based assessment consider land north of St Albans, Hertfordshire (Figure 1). The site is located at grid reference 515366, 209775. The site is hereafter referred to as the study site.

1.2 This assessment has been commissioned to support an outline planning application and will form the technical appendix to an Archaeology and Cultural Heritage ES Chapter. The site is allocated in the draft Local Plan for the provision of 1,146 housing units, at least two 50+ extra care schemes, a 2FE primary school, transport network and a new neighbourhood centre. This includes the Hunston planning permission of us to 150 which has been granted planning permission (5/2021/0423).

1.3 In accordance with the Standard and Guidance for Historic Environment Desk Based Assessments (Chartered Institute for Archaeologists 2020), the assessment draws together available information on designated and non-designated heritage assets, topographic and land-use information so as to establish the potential for non-designated archaeological heritage assets within the study site and the potential effect on the significance of nearby designated heritage assets. The assessment includes the results of an examination of published and unpublished records and charts historic land-use through a map regression exercise.

1.4 As a result, the assessment enables relevant parties to assess the significance of heritage/archaeological assets on and close to the study site and consider the potential for hitherto undiscovered archaeological assets, thus enabling potential impacts on assets to be identified along with the need for design, civil engineering or archaeological solutions.

Location, Topography and Geology

1.5 The study site comprises an irregular parcel of land c. 49.9 ha north of St Albans, immediately east of Harpendon Road (A1081). The study site comprises enclosed agricultural land with Sandridgebury Lane running south-west to north-east through the centre of the study site.

1.6 A roughly east-west shallow dip characterises the central part of the study site, resulting in change in height from 120m OD in the north-west of the study site to 105m in the east.

1.7 The study site is underlain by Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated) (chalk). The north-west part of the study site is overlain by Clay-with-flints Formation (clay, silt, sand and gravel), with Kesgrave Catchment Subgroup (sand and gravel) partially overlying the eastern part of the study site.

1.8 A consideration of off-site travel improvements are also considered as part of this assessment due to their location in relation to the scheduled Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136). In particular, this relates to where the scheduled monument crosses Valley Road and the Ancient Briton junction.

2.0 Aims, Objectives & Methodology

2.1 The principal aims of the desk-based assessment is to:

- Gain an understanding of the archaeological potential of the study site;
- Identify any archaeological constraints to the development of the study site; and to;
- Assess the likely impact of the proposed development.

2.2 The results of the archaeological desk-based assessment will inform an archaeological strategy for further on-site assessment and formulation of a mitigation strategy, as appropriate to the archaeological potential of the study site.

2.3 This desk-based assessment conforms to the requirements of the National Planning Policy Framework 2023 and it has been designed in accordance with current best archaeological practice, and the appropriate national and local standards and guidelines, including:

- Management of Recording Projects in the Historic Environment: MORPHE (English Heritage 2015);
- Code of Conduct (Chartered Institute for Archaeologists [CIfA] [revised edition] 2022); and
- Standard and Guidance for Historic Environment Desk-Based Assessment (CIfA January 2020).

2.4 It is noted that the Chartered Institute for Archaeologists defines desk-based assessment as:

"a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage assets and, in England, the nature, extent and quality of the known or potential archaeological, historic, architectural and artistic interest. Significance is to be judged in a local, regional, national or international context as appropriate."

2.5 The Chartered Institute for Archaeologists Standard for desk-based assessment states that:

"Desk-based assessment will determine, as far as is reasonably possible from existing records, the nature, extent and significance of the historic environment within a specified area. Desk-based assessment will be undertaken using appropriate methods and practices which satisfy the stated aims of the project, and which comply with the Code of conduct and other relevant regulations of CIfA. In a development context desk-based assessment will establish the impact of the proposed development on the significance of the historic environment (or will identify the need for further evaluation to do so) and will enable reasoned proposals and decisions to be made whether to mitigate, offset or accept without further intervention that impact."

2.6 The archaeological desk-based assessment will include:

- Map regression based on Ordnance Survey maps and tithe/enclosure maps and apportionments held at Hertfordshire Archives and Local History (HALS);
- Examination of material currently held in the Hertfordshire Historic Environment Record (May 2024), the study site and for a 1km search radius; and
- Consultation of the National Heritage List for England.

2.7 Archaeological investigations undertaken to inform the assessment include:

- Site inspection and settings assessment;
- Fieldwalking (CA 2019; Appendix B); and
- Geophysical Survey (SUMO 2024)

3.0 Planning Background and Development Plan Framework

3.1 Where any development may have a direct or indirect effect on designated heritage assets, there is a legislative framework to ensure the proposals are considered with due regard for their impact on the historic environment.

Ancient Monuments & Archaeological Areas Act 1979

3.2 The Ancient Monuments & Archaeological Areas Act 1979 (as amended) protects the fabric of Scheduled Monuments, but does not afford statutory protection to their settings.

Planning (Listed Building and Conservation Areas) Act 1990

3.3 The Planning (Listed Building and Conservation Areas) Act 1990 sets out broad policies and obligations relevant to the protection of listed buildings and conservation areas and their settings.

3.4 Section 66(1) states:
'In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses'.

3.5 Section 69 of the Act requires local authorities to define as conservation areas any *'areas of special architectural or historic interest the character or appearance of which it is desirable to preserve or enhance'* and Section 72 gives local authorities a general duty to pay special attention *'to the desirability of preserving or enhancing the character or appearance of that area'* in exercising their planning functions. These duties are taken to apply only within a Conservation Area. The Act does not make specific provision with regard to the setting of a Conservation Area that is provided by the policy framework outlined in section 2.2, below.

National Planning Policy Framework (NPPF) & National Planning Practice Guidance (NPPG)

3.6 Government policy in relation to the historic environment is outlined in Section 16 of the National Planning Policy Framework (NPPF), entitled 'Conserving and Enhancing the Historic Environment' (DLUHC, December 2023). This provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets. Overall, the objectives of Section 16 of the NPPF can be summarised as seeking the:

- Delivery of sustainable development;
- Understanding the wider social, cultural, economic and environmental benefits brought by the conservation of the historic environment;
- Conservation of England's heritage assets in a manner appropriate to their significance; and
- Recognition of the contribution that heritage assets make to our knowledge and understanding of the past.

3.7 Section 16 of the NPPF recognises that intelligently managed change may sometimes be necessary if heritage assets are to be maintained for the long term.

3.8 Paragraph 200 states that planning decisions should be based on the significance of the heritage asset, and that the level of detail supplied by an applicant should be proportionate to the importance of the asset and should be no more than sufficient

to understand the potential impact of the proposal upon the significance of that asset.

3.9 Paragraph 209 requires the decision-maker to take into account the effect on the significance of non-designated heritage assets and to take a balanced judgement having regard to the scale of harm or loss and the significance of the asset(s) potentially affected.

3.10 *Heritage Assets* are defined in Annex 2 as a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing).

3.11 *Archaeological Interest* is defined as a heritage asset which holds, or potentially could hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.

3.12 *Designated Heritage Assets* comprise: A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Parks and Garden, Registered Battlefield or Conservation Areas designated under the relevant legislation.

3.13 *Significance* is defined as the value of a heritage asset to this and future generations because of its heritage interest. This interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting.

3.14 *Setting* is defined as the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.

3.15 The NPPF is supported by the PPG (July 2019). In relation to the historic environment, paragraph 002 (002 Reference ID: 18a-002-20190723) states that: *"Where changes are proposed, the National Planning Policy Framework sets out a clear framework for both plan-making and decision-making in respect of applications for planning permission and listed building consent to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner that is consistent with their significance and thereby achieving sustainable development. Heritage assets are either designated heritage assets or non-designated heritage assets."*

3.16 Paragraph 18a-001 makes a clear statement that any decisions relating to Listed Buildings and their settings and Conservation Areas must address the statutory considerations of the Planning (Listed Buildings and Conservation Areas) Act 1990, as well as satisfying the relevant policies within the National Planning Policy Framework and the Local Plan.

3.17 Paragraph 18a-009 outlines that the assessment of the impact of a proposed development on the setting of a heritage asset needs to take into account and be

proportionate to the significance of the asset being considered, and the degree to which the proposed development enhances or detracts from the significance of the asset and the ability to appreciate the significance.

3.18 Paragraph 18a-013 (Paragraph: 013 Reference ID: 18a-013-20190723) outlines that although the extent and importance of setting is often expressed in visual terms, it can also be influenced by other factors such as noise, dust and vibration. Historic relationships between places can also be an important factor stressing ties between places that may have limited or no intervisibility with each other. This may be historic as well as aesthetic connections that contribute or enhance the significance of one or more of the heritage assets.

3.19 Paragraph 18a-013 concludes:
"*The contribution that setting makes to the significance of the heritage asset does not depend on there being public rights or an ability to access or experience that setting. This will vary over time and according to circumstance. When assessing any application for development which may affect the setting of a heritage asset, local planning authorities may need to consider the implications of cumulative change. They may also need to consider the fact that developments which materially detract from the asset's significance may also damage its economic viability now, or in the future, thereby threatening its on-going conservation."*

3.20 The key test in NPPF paragraphs 205-208 is whether a proposed development will result in substantial harm or less than substantial harm to a designated asset. However, substantial harm is not defined in the NPPF. Paragraph 18a-017 (Paragraph: 018 Reference ID: 18a-018-20190723) of the PPG provides additional guidance on substantial harm. It states:
"What matters in assessing whether a proposal might cause harm is the impact on the significance of the heritage asset. As the National Planning Policy Framework makes clear, significance derives not only from a heritage asset's physical presence, but also from its setting.

3.21 Proposed development affecting a heritage asset may have no impact on its significance or may enhance its significance and therefore cause no harm to the heritage asset. Where potential harm to designated heritage assets is identified, it needs to be categorised as either less than substantial harm or substantial harm (which includes total loss) in order to identify which policies in the National Planning Policy Framework (paragraphs 199-202) apply.

3.22 Within each category of harm (which category applies should be explicitly identified), the extent of the harm may vary and should be clearly articulated.

3.23 Whether a proposal causes substantial harm will be a judgment for the decision-maker, having regard to the circumstances of the case and the policy in the National Planning Policy Framework. In general terms, substantial harm is a high test, so it may not arise in many cases. For example, in determining whether works to a listed building constitute substantial harm, an important consideration would be whether the adverse impact seriously affects a key element of its special architectural or historic interest. It is the degree of harm to the asset's significance rather than the scale of the development that is to be assessed. The harm may arise from works to the asset or from development within its setting.

3.24 While the impact of total destruction is obvious, partial destruction is likely to have a considerable impact but, depending on the circumstances, it may still be less

than substantial harm or conceivably not harmful at all, for example, when removing later additions to historic buildings where those additions are inappropriate and harm the buildings' significance. Similarly, works that are moderate or minor in scale are likely to cause less than substantial harm or no harm at all. However, even minor works have the potential to cause substantial harm, depending on the nature of their impact on the asset and its setting."

3.25 Paragraph 202 of the NPPF outlines that where a proposed development results in less than substantial harm to the significance of a heritage asset, the harm arising should be weighed against the public benefits accruing from the proposed development. Paragraph 18a-020 of the PPG (Paragraph: 020 Reference ID: 18a-020-20190723) outlines what is meant by public benefits:

"Public benefits may follow from many developments and could be anything that delivers economic, social or environmental objectives as described in the National Planning Policy Framework (paragraph 8). Public benefits should flow from the proposed development. They should be of a nature or scale to be of benefit to the public at large and not just be a private benefit. However, benefits do not always have to be visible or accessible to the public in order to be genuine public benefits, for example, works to a listed private dwelling which secure its future as a designated heritage asset could be a public benefit.

Examples of heritage benefits may include:

- *sustaining or enhancing the significance of a heritage asset and the contribution of its setting;*
- *reducing or removing risks to a heritage asset; and*
- *securing the optimum viable use of a heritage asset in support of its long-term conservation."*

3.26 In considering any planning application for development, the planning authority will be mindful of the framework set by government policy, in this instance the NPPF, by current Development Plan Policy and by other material considerations.

Local Planning Policy

3.27 The Council is developing a new Local Plan. Planning applications have to be decided in line with the St Albans District Council Development Plan which includes the following policies relevant to heritage from the District Local Plan Review (1994):

Policy 109: Scheduled Ancient Monuments
Planning applications for development which would adversely affect a Scheduled Ancient Monument, as defined on the proposals map and listed below, will be refused on archaeological grounds unless prior scheduled monument consent has been obtained from the Secretary of State for the Environment. If scheduled monument consent has been granted, the District Council will seek to preserve the amenity of ancient monuments by resisting proposals within scheduled areas which would detract from their character…'

Policy 110: Archaeological Sites for Local Preservation
Planning permission will not be granted for development which would adversely affect the remains within, or the character of, the sites for local preservation as defined on the proposals map and listed below. Development may be permitted in exceptional circumstances, following evaluation, if the Council is satisfied that important remains would not be destroyed or the character of the site adversely affected. The evaluation, which may involve limited excavation or other work (e.g. geophysical survey) is to be carried out by the Council or an archaeologist

approved by the Council. Planning permissions will normally be subject to conditions requiring facilities for the Council to record remains by excavation in advance of construction and/or during construction. 'Voluntary agreements will be sought (e.g. under section 106) to cover the cost of work, including any initial evaluation, and to ensure that finds made during the course of such work are donated to the Council. Voluntary agreements will also be sought to ensure the continued preservation and management of important remains.

Policy 110: Archaeological Sites for Local Preservation
Within the sites listed below and defined on the Proposals Map, the District Council will not normally refuse planning applications on archaeological grounds. However, following evaluation, planning permissions may be subjected to a condition requiring facilities for the Council to record remains by excavation in advance of construction and/or during construction. The evaluation, which may involve limited excavation or other work (e.g. geophysical survey) is to be carried out by the Council or an archaeologist approved by the Council. 'Voluntary agreements will be sought (e.g. under section 106) to cover the cost of work, including any initial evaluation, and to ensure that finds made during the course of such work are donated to the Council.

Guidance

Historic Environment Good Practice Advice In Planning Note Managing Significance in Decision-Taking in the Historic Environment (Historic England 2015)

3.28 The purpose of this document is to provide information to assist local authorities, planning and other consultants, owners, applicants and other interested parties in implementing historic environment policy in the NPPF and NPPG. It outlines a 6-stage process to the assembly and analysis of relevant information relating to heritage assets potentially affected by a proposed development.

- Understand the significance of the affected assets;
- Understand the impact of the proposal on that significance;
- Avoid, minimise and mitigate impact in a way that meets the objectives of the NPPF;
- Look for opportunities to better reveal or enhance significance
- Justify any harmful impacts in terms of the sustainable development objective of conserving significance and the need for change;
- Offset negative impacts on aspects of significance by enhancing others through recording, disseminating and archiving archaeological and historical interest of the important elements of the heritage assets affected.

Historic Environment Good Practice Advice In Planning Note 3 The Setting of Heritage Assets (Historic England 2017)

3.29 Historic England's Historic Environment Good Practice Advice in Planning Note 3 provides guidance on the management of change within the setting of heritage assets.

3.30 The document restates the definition of setting as outlined in Annex 2 of the NPPF. Setting is also described as being a separate term to curtilage, character and context; while it is largely a visual term, setting, and thus the way in which an asset is experienced, can also be affected by noise, vibration, odour and other factors. The document makes it clear that setting is not a heritage asset, nor is it a heritage designation, though land within a setting may itself be designated. Its importance lies in what the setting contributes to the significance of a heritage asset.

3.31 The Good Practice Advice Note sets out a five-staged process for assessing the implications of proposed developments on setting:

1. Identification of heritage assets which are likely to be affected by proposals;
2. Assessment of whether and what contribution the setting makes to the significance of a heritage asset;
3. Assessing the effects of proposed development on the significance of a heritage asset;
4. Maximising enhancement and reduction of harm on the setting of heritage assets; and
5. Making and documenting the decision and monitoring outcomes

4.0 Archaeological and Historical Background

4.1 The Hertfordshire Historic Environment Record (HHER) records the following features adjacent the study site boundary:

- Railway Bridge Sandridgebury Lane (HHER 5585)

4.2 The study site does not lie within a Hertfordshire County Council Archaeological Alert Area. The closest Archaeological Alert Area to the study site lies 30m east of the study site in an area where Roman tile has been recovered (HHER 656).

4.3 The Hertfordshire Historic Landscape Characterisation (HLC) survey identifies the study site as pre-18th century 'irregular enclosure.

4.4 The locations of sites mentioned in the text are shown on Figures 2 and 3.

Previous Archaeological Investigations

4.5 The study site has not been subject to previous archaeological intrusive investigation. The site has been subject to fieldwalking, undertaken by Cotswold Archaeology in 2019 (Appendix B). The survey recorded 70 sherds of pottery, eight fragments of iron and 2265 fragments of undiagnostic ceramic building material. No concentrations of material likely to be indicative of, or derived from sub-surface features were identified, and no lithics were recovered to suggest a continuation of Neolithic and Bronze Age flint scatters previously identified to the west of the site, at the former Cheapside Farm. Recovered flint comprised just four pieces, all subsequently determined to be unworked/ of natural origin (CA 2019; Appendix B).

4.6 Only two sherds of pottery, one sherd of locally produced Roman pottery and a single sherd of Midlands purple ware, of broad late 14th to 16th century date, were of archaeological significance. Both of these sherds are likely to have derived from manuring processes. The remaining pottery was of later post-medieval and modern date (18th to 20th century) and, as with the other material recovered, is again almost certainly derived from manuring processes (CA 2019; Appendix B).

4.7 A magnetometer survey of the site was undertaken in August/September 2024 (Sumo 2024). The survey recorded no magnetic responses that could be interpreted as being of definite archaeological interest. Responses of uncertain origin were detected; while archaeological origins cannot be entirely discounted for some of the anomalies, the majority are probably due to natural and agricultural processes. Geological and pedological responses dominated the results and include former palaeochannels meandering across the site. Two service pipes have been marked in the west of Area 3 and ferrous responses plus zones of magnetic disturbance in Area 2 are due to sports pitches.

4.8 The archaeological investigation in closest vicinity to the study site is fieldwalking at Cheapside Farm (HHER EHT4355), 250m north of the study site boundary. The fieldwalking recovered a large assemblage of worked flint, largely of late Neolithic date but also including early Neolithic and early Bronze Age pieces (HHER 9607). Some burnt flint was also retrieved, indicating the possible presence of a settlement of Neolithic date in the vicinity.

4.9 Intrusive archaeological investigation within the study area is largely associated with the area around scheduled Beach Bottom Dyke, at Townsend and various phases of work at 150 St Albans Road. Localised investigations have also occurred within the settlement of Townsend.

Non-Designated Heritage Assets (Figure 2)

Undated

4.10 The HHER records no finds or features of unknown date within or immediately adjacent to the study site boundary. Two cropmarks of unknown date are recorded within the 1km study area (HHER 6007 and 16538), between 830m and 1km north-east of the study site.

Prehistoric

4.11 The BSER records no prehistoric finds or features within or immediately adjacent to the study site. The earliest evidence for human occupation within the study area dates to the Palaeolithic: two flint tools were recovered at Bernards Heath Brickfield (BHER 1052) and a Palaeolithic handaxe was recovered from 86 Beech Road (BHER 13540), 450m+ south of the study site.

4.12 Fieldwalking at Cheapside Farm (HHER 9607), 250m north of the study site recovered a large assemblage of worked flint, largely of late Neolithic date but also including early Neolithic and early Bronze Age pieces (HHER 9607). Some burnt flint was also retrieved, indicating the possible presence of a settlement of Neolithic date in the vicinity.

4.13 The study site lies c. 250m north of the Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136) survives as a deep, dry ditch entrenchment. The known section is 1.98km long, 1.58km of which is clearly visible in the landscape. It consists of a ditch up to 30m wide, and 10m deep, with a bank on each side. It forms a major component of the late Iron Age landscape surrounding the important nucleated settlements near St Albans (Verlamion) and Wheathampstead.

4.14 Verlamion is located on the western bank of the River Ver, within and to the south of Prae Wood and beneath and to the north of the later Roman town of Verulamium. Excavations have shown the site to have been the trading and administrative centre for the Catuvellauni, the most powerful tribe in south eastern England prior to the Roman Conquest. The Wheathampstead settlement is considered to have been a possible precursor to Verlamion and later a satellite of the main centre, perhaps serving as a place of refuge and defence, although defence may have become less important as the Catuvellauni extended and consolidated their territory in the early first century AD.

4.15 Beech Bottom Dyke, possibly in association with other less durable markers, is thought to have defined the boundary of a substantial estate, perhaps that which supported the domestic economy of the tribal centre or its most prominent inhabitants. Given its impressive dimensions, the Dyke must have served as a considerable symbol of authority, and it will provide significant insights into the nature of the society by whom it was constructed. Assessment of the geological setting concludes that this is 'entirely a Holocene (late Iron Age?) man-made feature, modifying the floor of the earlier subglacial channel' in which it is set (BHER 14606). The dyke has been archaeologically investigated at specific locations.

4.16 Evidence of Iron Age finds or features north of the dyke include a late Iron Age Gold Coin recovered from the Sandridgebury (BHER 29870) and an Iron Age –

medieval copper-alloy mount has been recovered, c.160m north of the study site (BHER 24875).

4.17 Readily available oblique and vertical aerial photographic sources (Bing Maps, Google Earth and Google maps) and LiDAR imagery (Environment Agency) were consulted to identify previously unrecorded features. No easily identifiable prehistoric features were identified.

Romano-British

4.18 The study site contains no known Romano-British finds or features.

4.19 The study site lies c. 1.8km north of the Roman town of Verulamium, the scheduled remains of which are located in the southwest of the modern city of St Albans. The Roman settlement is located on the route of Watling Street which passed through the city. The study site is located to the east of Watling Street, however the Roman road from Verulamium to Braughing passes c. 100m south of the study site. This line of the Roman road at this location, and the surrounding field is covered by an Archaeological Alert Area. An assemblage of Roman tile has been recovered within this locality which may suggest the presence of associated Roman buildings (HHER 656). The possible point at which the Roman road to Colchester crossed Beech Bottom is located at Batchwood Drive, to the south of the study site (HHER 14627).

4.20 The remaining HHER entries relate to residual find spots which have been recovered across the study area and include pottery (HHER 30061, 20708, 10722) coins (HHER 14549, 19542, 29874) and an Early - Late Roman copper-alloy umbonate brooch (HHER 19542). The broach and a coin were recovered from the field east of the study site.

4.21 Readily available oblique and vertical aerial photographic sources (Bing Maps, Google Earth and Google maps) and LiDAR imagery (Environment Agency) were consulted to identify previously unrecorded features. No easily Romano-British features were identified.

Early Medieval

4.22 The study site is located within the ancient parish of Sandridge, which is first recorded in documentary sources to the 8th century when the manor was granted by Egfrid son of Offa to St. Albans in 796. It remained in this ownership until the Dissolution. The Manor of Childwick, is also known to have been in existence in the early medieval period, recorded as belonging to the Abbot and Monks of St Albans and continued so until the dissolution of the monastery. The name Childwick derives from ‘the dwellings by the well.’ The scheduled remains of the medieval moated manorial site at Batch Wood (NHLE 1012407) may be the site of the manor of Childwicksay, although no early medieval phases are recorded in the scheduled description. A well has been identified in the north-western corner of the island.

4.23 The study site contains no known early medieval finds or features.

4.24 Possible early medieval finds or features from the study site include a Late Saxon Copper-Alloy Winchester style strap-end (HHER 28864), registered common land ‘wastes’ along Sandpit Lane (HHER 12409) and woodland earthworks at Langely Wood (HHER 16528).

Medieval

4.25 The historical development of the study site is complicated by the fact that the eastern part of the study site lies in the parish of Sandridge, with the western part of the study site falling within the parish of St Michael (St Albans). The part of the study site within Sandridge is recorded as owned by Earl Spencer in the post-medieval period (the Spencer archives held at Northamptonshire Records Office). The western part of the study site is recorded as part of Cheapside Farm in the post-medieval (and possibly medieval) period which formed part of the Childwickbury Estate. As such the historical development of the study site considers both Sandridge and Childwick/Childwickbury.

4.26 At the time of the Domesday Survey there was a mill at Sandridge, probably on the River Lea, worth 10s, and an associated fishery was present by the fourteenth century, leased with the manor to Robert Albyn of Hemel Hempstead for life. At the end of the fourteenth century the mill was rebuilt, but is no longer extant.

4.27 In 1331 the manor of Sandridge, with a water-mill and fishery, was granted by the abbot and convent to Robert Albyn of Hemel Hempstead for life. Following the Dissolution the manor was granted to Ralph Rowlatt, senior, passing to his wife when he died three years later, and then to his son Sir Ralph. It remained with the family until passing to the Spencer family by marriage in the 17th century. The manor of Sandridge subsequently descended with the title of Earl Spencer.

4.28 Between the 13th and 19th centuries the manor of Childwick it descended through various hands, including in the 13th century Geoffrey de Childwyk, a bailiff of St Albans. The scheduled remains of the medieval moated manorial site at Batch Wood (NHLE 1012407) may be the site of the manor of Childwicksay. It comprises a square shaped moat measuring c.87m east-west by c.85m north-south surrounded by an outer enclosure covering an area of approximately 5.5 hectares. The moat arms are dry and measure c.7m to c.10m in width and c.1m in depth. The entrance causeway, which is approximately 12m wide, is situated on the southern side of the moat.

4.29 The study site contains no known early medieval finds or features.

4.30 Possible medieval finds or features from the study site include registered common land ‘wastes’ along Sandpit Lane (HHER 12409) and woodland earthworks at Langely Wood (HHER 16528).

Post-medieval

4.31 Following the Dissolution the Manor of Sandridge was granted to Ralph Rowlatt, senior, passing to his wife when he died three years later, and then to his son Sir Ralph. It remained with the family until passing to the Spencer family by marriage in the 17th century. The manor of Sandridge subsequently descended with the title of Earl Spencer (VCH 1908).

4.32 Following the Dissolution in 1540 the manor of Childwick became Crown property and was granted in the same year to Sir William Cavendish, and his wife Margaret (VCH). In 1550 the manor was conveyed to Thomas Rowce or Rouse, of Ayot St. Lawrence whose family retained it until 1666 when it was sold to Joshua Lomax of Lancashire. The Lomax family owned the manor until in 1854 the estate was offered for sale and was bought by Henry Heyman Toulmin, a merchant shipping owner (Aitken, 2011). In 1883 the Childwickbury estate was put up for sale and was purchased by furniture retailer John Blundell Maple of London. He donated

Clarence Park and The Sisters Hospital to the citizens of St Albans and enlarged the Church and schoolroom (VCH 1908).

4.33 In 1906 Lady Maple put the Childwickbury Estate up for sale, and it was purchased by diamond and gold merchant Jack B Joel, passing to his son Harry 'Jim' Joel after his death in 1940. The Joels were renowned as being amongst the most successful British owner/breeders for almost all of the 20th century (Aitken, 2011). In 1978 the Childwickbury Estate of 1100 acres was sold and was purchased bought by a property company who re-sold it in lots at auction. Cheapside Farm was bought by the Luton Hoo Estate and almost all of the estate houses became privately owned.

4.34 County maps dates from 1766 (Dury and Andrews map of Hertfordshire; Figure 4) which record the road systems which survive to date. No historic structures are recorded within the study site although it is noted that the north-eastern part of the study site, south of Greens Farm is recorded as woodland.

4.35 The 1790 Faden map (not illustrated) does not record the aforementioned woodland in the north-eastern part of the study site.

4.36 The 1805 Ordnance Survey Drawing (Figure 5) records no structures within the study site, although details the enclosure of the agricultural land in more detail. Woodland is recorded along the southern boundary of the study site.

4.37 The 1840 tithe map of St Michaels records the study site as arable and in the ownership of Richard Forman and William Stead and leased to George Dickinson. Field 883 is called Ten Acres and 884 Fourteen Acres. Some loss if previous field boundaries are noted in the western part of the study site.

4.38 The 1883-1884 (Figure 7) record the study site as enclosed agricultural land bound by the Midland railway line. The bridge over the railway is recorded adjacent to the study site (HHER 5585). Porter wood is recorded along the southern limit of the study site. The estate of Hawkswick is recorded west of Harpenden Road.

4.39 No changes are recorded on the 1897 Ordnance Survey (Figure 8). The 1938 Ordnance Survey (Figure 9) records the beginning of suburban development along Harpenden Road to the south of the study site, which is further recorded on the 1955-60 (Figure 10).

4.40 The study site contains no known post-medieval finds or features.

4.41 Post-medieval assets recorded from the wider study area include Childwickbury Park and Garden (BHER 9568), c.535m west of the study site boundary. The 18th century park with 1856 gardens by Edward Kemp belonged in to the Toulmin family of St Albans in the 19th century.

4.42 The 19th century estate of Marshalswick (HHER 15775) is located within St Albans to the south of the study site.

4.43 Post-medieval finds or features include industrial sites, for example numerous brickworks, clay pits and the site of a tallow works. Agricultural assets include early post-medieval timber farm buildings and farmsteads. Closest to the study site is a post-medieval mile stone recorded on Harpenden Road (HHER 5024), 113m north of the study site boundary.

Site visit, past Impacts, summary of identified / potential archaeological assets and statement of significance

4.44 The proposed development site was visited on the 9th July 2019 to assess the existing land use and the potential for heritage constraints. The conditions were dry and overcast. It was possible to walk along Harpenden Road along the western boundary of the study site, the public road which runs through the centre of the site and public right of ways along the eastern and southern part of the site, as these are publicly accessible. The majority of the study site was under crop so it was not possible to walk across the fields. The study site contains no building stock. No previously unrecorded extant heritage assets were identified during the site walkover.



Plate 1 View from the south-east corner of study site looking north



Plate 2 View from the south-east corner of study site looking west



Plate 3 View from the southern limit of the study site (by Valley Road and Long String Wood) looking north

4.45 The available evidence has been assessed in an attempt to determine the nature and extent of any previous impacts upon any potential below ground archaeological deposits, which may survive within the bounds of the proposed development site.

4.46 No earlier phases of construction are recorded within the study site, past impacts restricted to historic ploughing / agricultural activity.

4.47 The potential for below ground archaeological remains within the site is informed by an assessment of known archaeological remains in the vicinity of the site, fieldwalking survey (CA 2019; Appendix B) and geophysical survey (SUMO 2024). The estimated potential for finds and features is as follows:

- Low-medium potential for prehistoric evidence. An assemblage of Neolithic worked flint was recovered from Cheapside Farm, 250m north of the study site which suggests the possible presence of Neolithic settlement in the vicinity. A review of available sources has not indicated the presence of such a site within the study area. However, remains of prehistoric date cannot be ruled out as systematic archaeological investigation in the area is relatively limited. Similarly, the study site lies c. 250m north of the scheduled Beech Bottom Dyke and evidence of Iron Age agricultural activity / land-management cannot be ruled out entirely. However, based on available evidence well-preserved deposits of a level that would warrant preservation *in situ* are not expected.
- Low – medium potential for Romano British occupation in the south-eastern part of the site, close to the Roman road to Braughing. Based on available evidence well-preserved deposits of a level that would warrant preservation *in situ* are not expected.
- Low potential for prehistoric, early medieval, medieval finds and features across the study site. The site forms part of the agricultural hinterland of known historic settlement, as such finds or features from the early medieval, medieval and post-medieval periods are likely to comprise evidence of agricultural activity only.

5.0 Location of Heritage Assets

Introduction

5.1 This section will consider the potential effects of development within the study site on the significance of designated heritage assets, including through effects to their settings. This will include heritage assets within the study site, and those in the surrounding area, whose setting may be affected.

5.2 Heritage assets and potential impacts will be assessed using best practice, including that set out in Historic England's Good Practice Advice Note 3, The Setting of Heritage Assets. The heritage assets which require assessment have been selected with reference to the National Heritage List for England (NHLE) database held by Historic England, as well as information held by the LPA on conservation areas.

5.3 Stage 1 of Historic England's five-stage settings assessment (HistE 2017) requires the assessor to "Identify which heritage assets and their settings are affected" (HistE 2017). There are no strict parameters for the setting of study areas. This has been defined based on the results of the site visit, professional judgement and experience of potential significant direct and indirect effects likely to arise from the Proposed Development:

- A radius of 1 km from the boundary of application site has been used for assessing indirect effects on all non-designated and designated heritage assets.

5.4 In some limited cases, some particular assets can have a wider setting which is sensitive, therefore the wider area outside of the search radius was also considered in the preparation of this assessment. The 1km study area includes parts of Childwickbury Conservation Area, Childwick Green and Childwick Bury Manor, the study area was extended to include all the designated heritage assets within these groups.

5.5 Not all designated heritage assets within this radius will require full assessment for impacts on an individual basis; where a heritage asset has been excluded, a clear justification will be provided, for example if the asset is sufficiently far, and well screened from the study area. Also, not all assets will require the same level of assessment. As set out in paragraph 199 of the NPPF, the level of detail will be sufficient to inform the nature and degree of effect of development within the study area on the significance of the heritage asset in question.

5.6 No statutory designations (Conservation Areas, Listed Buildings, Scheduled Ancient Monuments, Registered Battlefields or World Heritage Sites) are located within the study site boundary. The study area contains two scheduled monuments, twenty listed buildings and one conservation area.

5.7 A site walkover was undertaken on the 9th of July 2019 to assess the setting of nearby designated heritage assets. The conditions were dry and overcast. It was possible to walk along Harpenden Road along the western boundary of the study site, the public road which runs through the centre of the site and public right of ways along the eastern and southern part of the site, as these are publicly accessible. An assessment of the setting of Grade II listed Sandridgebury House

and associated listed buildings, Childwickbury Manor and Beach Bottom Dyke (NHLE 1019136) was also undertaken from nearby public rights of ways.

Scheduled Monuments

5.8 A total of two scheduled monuments are located within the 1km study area: Batch Wood, Moated Manorial Site (NHLE 1012407), 800m west of the study site and the Iron Age Territorial Boundary known as Beech Bottom Dyke (NHLE 1019136), c. 250m south of the study site.

Batch Wood, Moated Manorial Site (NHLE 1012407)

5.9 As described in the listing description, the moated manorial site at Batch wood occupies an area of approximately 5.5 hectares 500m north-east of Batchwood Hall, c.800m west of the study site. It comprises a square-shaped moat measuring c.87m east-west by c.85m north-south surrounded by an outer enclosure. Earthworks which are considered to represent the remains of buildings are located inside the entrance to the outer enclosure. A trackway, measuring between 20m and 10m in width, is visible running to the south and west of the enclosure. Three additional enclosures can be seen to the south-east, south and west, separated from the main enclosure by the trackway. The moat is identified as the site of the manor of Childwicksay or Bachesworth.

5.10 The earthworks are located within an area of woodland which encloses the visual experience of the monument. The modern housing estate of New Greens lies between the scheduled earthworks and the study site.

5.11 The significance of the monument lies in its archaeological and historical value as a medieval manorial site. The study site forms part of the wider rural landscape of the monument. Taking into consideration the distance, degree of separation created by the intervening sub-urban development and the lack of intervisibility, the study site makes a negligible contribution to the significance of the monument.

Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136)

5.12 As described in the listing description, the monument includes a substantial Late Iron Age boundary ditch, or dyke, extending some 1.4km to the north-east and 250m to the west of the junction of Beech Road and Harpenden Road and lies within three areas of protection. Beech Bottom Dyke forms a major component of the Late Iron Age landscape surrounding the important nucleated settlements near St Albans (Verlamion) and Wheathampstead. Beech Bottom Dyke, possibly in association with other less durable markers, is thought to have defined the boundary of a substantial estate.

5.13 The majority of the ditch is located within a woodland corridor which is enclosed by modern suburban development. As such the woodland corridor provides the principal setting for the majority of the earthwork. Modern buildings, traffic and noise form part of the experience of the monument at the edge of the woodland areas (Plate 4). It was not possible to access the easternmost section of the ditch, however, the listing description states that it runs within the rear property boundaries of Nos 138 to 128 St Albans Road and is largely infilled. The extent of the buried feature is known from earlier maps, and it can still be detected as a very slight depression in the garden of No 130.

5.14 At its closest, the main part of the Application Site is c.250m south and down-slope of the study site at Valley Road. The site walkover confirmed that there was no intervisibility from the study site towards the scheduled monument due to the

woodland along the southern boundary of the study site, the topography and the railway line along the eastern edge of the study site.

5.15 The significance of the monument lies in its archaeological and historical value as an Iron Age political and social boundary and symbol of authority. Whilst the main Application Site forms part of the wider rural landscape of the monument, the main Application Site does not form part of the experience of the monument. Taking into consideration the distance, degree of separation created by the intervening sub-urban development and the lack of intervisibility, the main Application Site makes a negligible contribution to the significance of the monument.

5.16 The proposed development includes off site transport inclusions to the south of the main site. The proposed works include transport improvements where the scheduled monument crosses Valley Road and the Ancient Briton junction. As such, an additional site walkover was undertaken in September 2024 to assess the ground conditions and setting of the monument at these locations.

5.17 The area north-east of Ancient Briton junction is visible as an extant earthwork, albeit within dense woodland. An information board provides context for the monument a short distance from the junction. The area of the proposed works is flat and occupied by grass with a north-west to south-east concrete footpath (Plate 4). The junction is well-lit with sub-urban housing lining each road, with the exception of a Harvester public house which occupies the south-eastern plot adjacent to the junction. The scheduled area west of the junction occupies the grass verge and existing pathway south of Batchwood Drive. The eastern edge of the scheduled area has a very slight slope which becomes more pronounced when travelling west. Occasional mature tree is noted, towards the northern edge of the grass verge and scheduled area. The existing pathway is tarmacked with occasional streetlight and utility access noted within the grass verge. A small car parking area also forms part of the scheduled area. The proposed foot/cycle path extension lies immediately adjacent to the existing footpath. This area is consistently at the flattest point within the corridor currently utilised for utilities. No additional earthworks or features associated with the scheduled monument were noted (Plate 5-7). There is potential for buried archaeological remains associated with the scheduled monument below the existing infrastructure / grass verge. Changes to the existing topography / profile of the grass verge has the potential to reduce the legibility of the monument at this location and harm its significance.

5.18 At Valley Road the scheduled monument survives as an extant and impressive earthwork, albeit within dense woodland. An information board provides context for the monument on the edge of the highway. The scheduling covers the whole of the highway at this location. The pathway comprises a tarmacked surface with grass on either side. These areas have been completely infilled and are flat; no earthworks associated with the monument are located within the highway extent. There is potential for buried archaeological remains associated with the scheduled monument below the existing infrastructure. Changes to the existing topography has the potential to reduce the legibility of the monument at this location and harm its significance.



Plate 4 View of a section of Beach Bottom Dyke (NHLE 1019136) north of Beech Road and east of Harpenden Road (dir. east)



Plate 5 View of a section of Beach Bottom Dyke (NHLE 1019136) south of Batchwood Drive and north of Batchwood Gardens (dir. east)



Plate 6 View of a section of Beach Bottom Dyke (NHLE 1019136) south of Batchwood Drive (dir. west)



Plate 7 View of a section of Beach Bottom Dyke (NHLE 1019136) south of Batchwood Drive (dir. east)



Plate 8 View of a section of Beach Bottom Dyke (NHLE 1019136) by Valley Road (dir. west)



Plate 9 View of a section of Beach Bottom Dyke (NHLE 1019136), north-east edge of Valley Road (dir. south-east)



Plate 10 View of a section of Beach Bottom Dyke (NHLE 1019136), south-west edge of Valley Road (dir. south-east)

Listed Buildings

5.19 A total of twenty grade II listed buildings and one conservation Area are recorded within the 1km study area. This includes ten listed buildings at Childwick Green (including Childwick Lodge), c. 850m north-northwest of the study site, eight listed buildings at Childwick Bury House c. 900m north-west of the study site and two listed buildings associated with Sandridgebury, c. 700m east of the study site boundary.

Childwick Green and associated listed buildings

5.20 A total of ten grade II listed buildings are recorded at Childwick Bury Green which includes the Grade II listed Childwick Lodge (NHLE 1102920), Grade II listed Entrance Gates, Railings and Piers at Childwick Lodge (NHLE 1175239), Grade II listed Forge Cottage (NHLE 1347237), Grade II Listed Lamp Standard F immediately north-east of Wellhead on the Green to south-east of Church of St Mary (NHLE 1347238), Grade II listed Wellhead on the Green to the south-east of the Church of St Mary (NHLE 1102881), Grade II listed 6-9 Harpenden Road (NHLE 1347236), Grade II listed Church of St Mary and Adjoining School Building (NHLE 1102879), Grade II listed Viccars House (NHLE 1102882), Grade II listed 12-15 Harpenden Road (NHLE 1102880), Grade II listed Park Lodge (NHLE 1102883).



Plate 11 General view of Childwick Green (dir. east)

5.21 The listed buildings at Childwick Green date to the 19th century, are accessed from Harpenden Road and form an attractive group of buildings on the edge of the historic estate of Childwickbury Manor. The buildings occupy an area of higher ground with the study site downslope to the south-east. Due to the topography and intervening vegetatation, there is no intervisibility with the study site. The site walkover considered the listed lodges on Harpenden Road, however, no direct or distant views were identified. From within the study site, the buildings of Childwick Green were screened by surrounding vegetation and were not individually visible on the horizon (Plate 12).



Plate 12 View towards Childwick Bury Green / Childwickbury Manor beyond OA Sport from the southern limit of the study site (dir. north-west)

5.22 The significance of these buildings relates to their architectural and historical value as a 19th-century domestic and religious buildings. The surrounding rural landscape and the Childwickbury Estate form part of the setting of these listed building and contribute to their significance. The study site forms part of the wider rural landscape of this group of listed assets, on balance, this is considered to make a negligible contribution to their significance.

Childwick Bury Manor and associated listed buildings

5.23 A total of eight grade II listed buildings are recorded at Childwick Bury Manor which includes the Grade II listed piers and entrance gates to Childwick Bury Manor (NHLE 1102884), Grade II listed Childwick bury Manor including former stable ranges (NHLE 1347239), Grade II Estate Office at Childwick Bury Manor (NHLE 1175311), Grade II listed Water storage tower in courtyard on south-east side of Childwick Bury Manor (NHLE 1347240), Grade II listed Dairy 30m north west of Coach House and Stable Court at Childwick Bury (NHLE 1102886), Grade II listed farm buildings adjoining and to north-east of walled garden at Childwick Bury (NHLE 1102885), Grade II listed coach house and stable court to east of Childwick Bury Manor (NHLE 1175303), Grade II listed garden wall to south-east of Childwick Bury Manor (NHLE 1175292).

5.24 Childwick Bury Manor is believed to have been constructed in the late 17th century for Joshua Lomax. As outlined in the listing description it was altered in the 18th century, remodelled after 1854 for H. H. Toulman (a wealthy shipowner, High Sheriff of Hertfordshire and Major of St Albans), with additions after 1883 for Sir John Blundell Maple. Film director Stanley Kubrick bought the manor in 1978 and used the estate as a home and a centre for his film productions. Kubrick is interred in the estate grounds together with his eldest daughter and his widow lives in the manor house. The estate hosts the Childwickbury Arts festival and a Christmas Market in November.



Plate 13 General view of Childwickbury Manor and grounds (dir. west)

5.25 The buildings occupy an area of higher ground with the study site downslope to the south-east. Childwickbury Manor itself located within an enclosed, private, designed gardens with the surrounding parkland enclosed by dense woodland. Due to the topography and intervening vegetatation, there is no intervisibility with the study site. The site walkover considered the listed lodges on Harpenden Road, however, no direct or distant views were identified. From within the study site, the buildings of Childwickbury Manor were screened by surrounding vegetation and were not individually visible on the horizon (Plate 12).

5.26 It is noted that the western part of the study site forms part of the Childwickbury Estate, so the study site shares historical context with the main estate buildings. The HHER maps the extent of the formal parkland (HHER 9568) which surrounds the main estate buildings. It is noted that there is 500m of agricultural land between the study site and the edge of the parkland. This provides agricultural and rural context to the parkland.

5.27 The significance of these buildings relates to their architectural, historical, aesthetic and communal value as a 17th to 20th-century county house. The surrounding Childwickbury Estate forms part of the setting of these listed buildings and contributes to their significance. The surrounding rural landscape also forms part of the wider setting, however, the study site itself makes a negligible contribution to their significance due to distance and restricted intervisibility.

Sandridgebury House, Sandridgebury Court and the Old School (NHLE 1102836) and barn and stable range on the south side of stable yard at Sandridgebury Farm (NHLE 1347255)

5.28 Grade II listed Sandridgebury House, Sandridgebury Court and the Old School (NHLE 1102836) and barn and stable range on the south side of stable yard at Sandridgebury Farm (NHLE 1347255) are located c. 700m east of the study site boundary.

5.29 Sandridgebury House is a small country house dating to the late 17th century with 19th and 20th-century renovations. It is a two-storey red brick building within private gardens enclosed by dense vegetation. Direct views of the property from Sandridgebury Lane of the study site were not possible. It is noted from desk-based GIS analysis that a substantial hedge line screens views south-west of the property.

5.30 The listed barn and stable range is early 18th century in date, extended in the mid-19th century. It is timbered framed, clad in weatherboarding with some exposed red brick. It has a plain slate roof. The buildings are located immediately adjacent to and are visible from Sandridgebury Lane.

5.31 The immediate setting of these buildings is rural, with existing topography and vegetation largely restricting the visual experience along the road. Rail traffic was noted.

5.32 The listed assets are screened by a substantial and high hedge along the western edge. There is 600m+ agricultural land between the hedge boundary and the railway which forms the eastern edge of the study site. This provides agricultural and rural context to these listed buildings. From within the study site, there is an area of high ground in the south-east of the study site where views towards Sandridgebury are noted. As such the study site the study forms part of the wider rural landscape of these listed buildings. The development has the potential to change part of the distant skyline when experiencing these assets from Sandridgeby Lane. This is considered a negligible/minor contribution to the significance/experience of the listed buildings.



Plate 14 General view of Childwickbury Manor and grounds (dir. west)



Plate 15 General view of Childwickbury Manor and grounds (dir. west)

Conservation Areas

5.33 Childwickbury Conservation Area is located c. 680m to the north west of the study site at its closest point. The site is separated from the conservation area by an area of playing fields on the east side of the A1081 and an area of wood/scrub land and pasture fields. There is no intervisibility between the study site and the conservation area and also no known historic associations between the study site and the conservation area. Consequently, the proposed development will have no effect on the significance of the Childwickbury Conservation Area.

5.34 Sandridge Conservation Area is located c. 1.1km to the north east of the study site at its closest point. The study site is considered to be located well beyond the

setting of the conservation area. Consequently, the proposed development will have no effect on the significance or character of the conservation area.

5.35 The St Albans Conservation Area is located 1.3km south of the study site. The intervening area is suburban in character and the study site there is no intervisibility between the Conservation Area and the study site. It is clear no harm to the Conservation Area will result from the development of the study site.

6.0 Proposed Development and Predicted Impact on Heritage Assets

Site Conditions

6.1 The study site comprises an irregular parcel of land c. 49.9 ha north of St Albans, immediately east of Harpendon Road (A1081). The study site comprises enclosed agricultural land with Sandridgebury Lane running south-west to north-east through the centre of the study site.

6.2 The aerial photograph (Figure 12) records the agricultural character of the study site.

The Proposed Development

6.3 This assessment has been commissioned to support an outline planning application and will form the technical appendix to an Archaeology and Cultural Heritage ES Chapter. The site is allocated in the draft Local Plan for the provision of 1,146 housing units, at least two 50+ extra care schemes, a 2FE primary school, transport network and a new neighbourhood centre. This includes the Hunston planning permission of us to 150 which has been granted planning permission (5/2021/0423).

6.4 The proposed development includes off site transport improvements to the south of the main site. Of relevance in terms of archaeology are proposed changes which have the potential to effect the scheduled Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136), in particular where the scheduled monument crosses Valley Road and the Ancient Briton junction. At Valley Road the existing highway falls within the scheduled monument, therefor any below ground impact including within the existing highway boundary, would require scheduled monument consent. At the Ancient Briton junction, the extent of the scheduled monument has been plotted on the draft proposals, which suggests that the proposed widening of the foot/cycle paths south-west of the junction would require re-surfacing within the scheduled monument. A site walkover of these areas has been undertaken as part of this assessment (see Section 5).

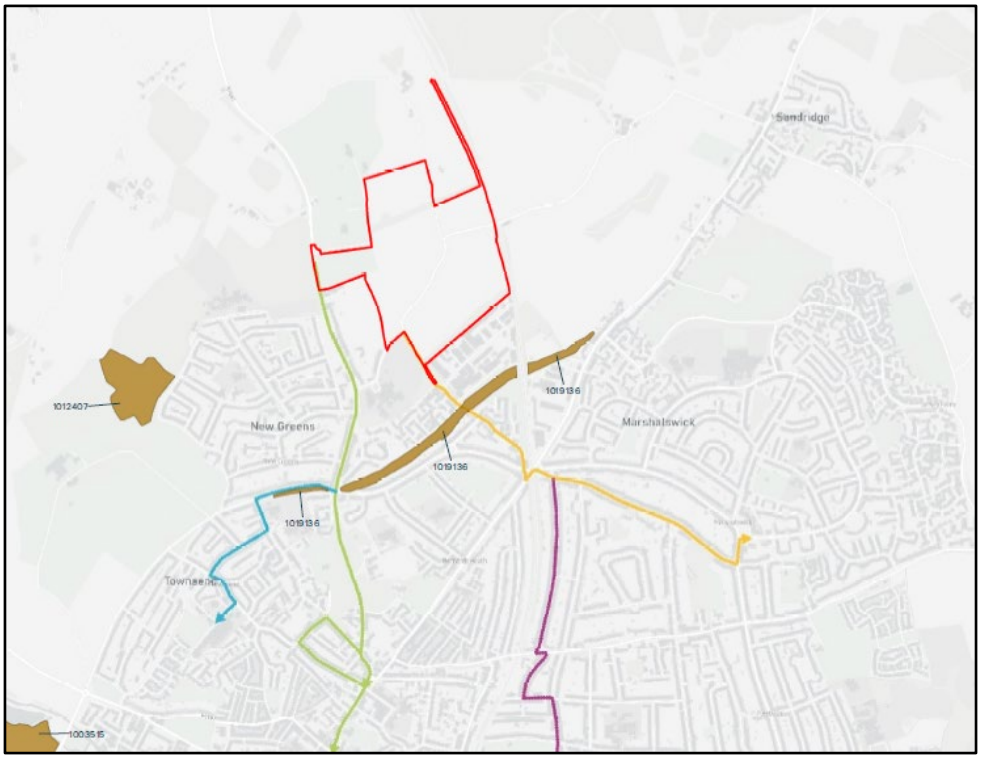

Plate 16 Proposed off site traffic improvements and scheduled monuments (shown in brown)

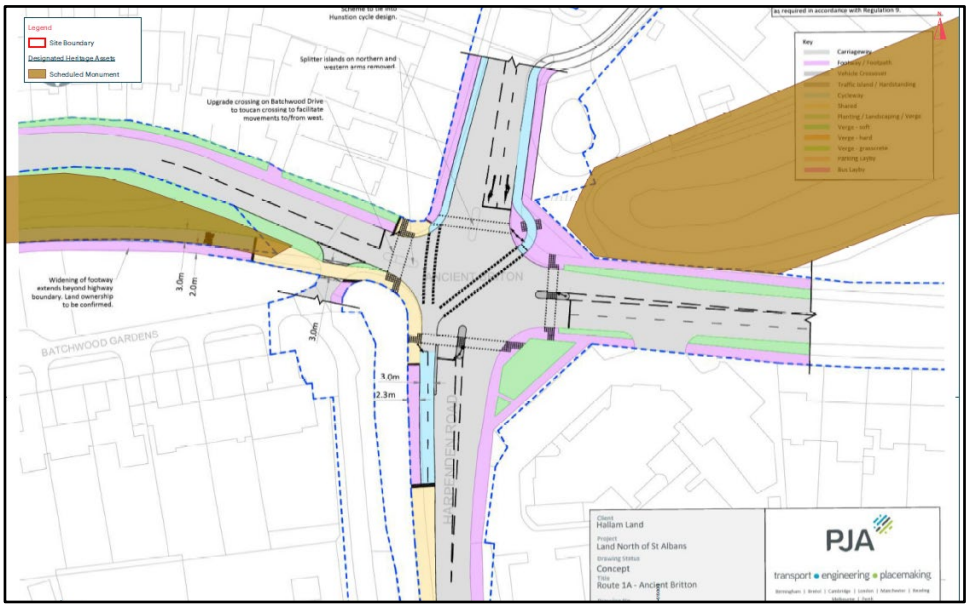

Plate 17 Proposed off site traffic improvements at Ancient Briton junction and scheduled Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136)

Potential Non-Designated Heritage & Archaeological Constraints & Recommendations

6.5 The potential for below ground archaeological remains within the site is informed by an assessment of known archaeological remains in the vicinity of the site, fieldwalking survey (CA 2019; Appendix B) and geophysical survey (SUMO 2024). Based on an assessment of available evidence there is considered to be low-medium potential for prehistoric and Romano-British sub-surface archaeological evidence within the study site. There is considered low potential for significant remains from all other periods.

6.6 Further archaeological assessment is considered likely to be needed to confirm the conclusions of this assessment. The scope and timing of such works will be discussed and agreed with the LPA Planning Archaeologist.

Potential Designated Heritage Constraints & Recommendations

6.7 The proposed development includes off site transport improvements to the south of the main site within the extent of the scheduled Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136), in particular where the scheduled monument crosses Valley Road and the Ancient Briton junction.

6.8 A site visit and settings assessment has been undertaken as part of this assessment. The proposed changes require very minor alterations to the existing ground surfaces for the creation of improved foot/cycle paths. On the basis that these will not require substantial groundworks and no re-modelling of the existing topography, such proposals would not result in any impact the archaeological integrity or landscape appreciation of this national significant Iron Age monument. Scheduled Monument Consent will be requested to Historic England in advance of the application.

6.9 The previous section discussed the setting and significance of the identified designated assets within the study area. Whilst the study site forms part of the wider rural landscape of these assets, the contribution that the study site makes to the significance/experience of these assets is considered negligible. As such, the effect of the proposed development on the following designated heritage assets is considered to be non-material in that it would not result in a change to the significance of the assets: Batch Wood, Moated Manorial Site (NHLE 1012407); Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136); the ten Grade II listed buildings at Childwick Green, the Grade II listed Childwick Bury House and seven associated listed buildings, Childwickbury Conservation Area and Sandridge Conservation Area and St Albans Conservation Area.

6.10 The study site makes a negligible/minor contribution to the significance/experience of the two Grade II listed buildings at Sandridgebury. This relates to the south-west corner of the study site which forms part of the distant skyline when experiencing these assets from Sandridgebury Lane. Consideration of the detailed treatment (height and density) of the south-east part of the study site and the introduction of screening along the eastern boundary to ensure that new development is visually recessive has the potential to preserve the setting of these listed buildings.

7.0 Summary and Conclusions

7.1 This heritage desk-based assessment consider land north of St Albans, Hertfordshire (Figure 1). The site is located at grid reference 515366, 209775. The site is hereafter referred to as the study site.

7.2 This assessment has been commissioned to support an outline planning application and will form the technical appendix to an Archaeology and Cultural Heritage ES Chapter. The site is allocated in the draft Local Plan for the provision of 1,146 housing units, at least two 50+ extra care schemes, a 2FE primary school, transport network and a new neighbourhood centre. This includes the Hunston planning permission of us to 150 which has been granted planning permission (5/2021/0423).

7.3 The study site contains no known non-designated heritage assets. The potential for below ground archaeological remains within the site is informed by an assessment of known archaeological remains in the vicinity of the site, fieldwalking survey (CA 2019; Appendix B) and geophysical survey (SUMO 2024). Based on an assessment of available evidence there is considered to be low-medium potential for prehistoric and Romano-British sub-surface archaeological evidence within the study site. There is considered low potential for significant remains from all other periods.

7.4 Further archaeological assessment is considered likely to be needed to confirm the conclusions of this assessment. The scope and timing of such works will be discussed and agreed with the LPA Planning Archaeologist.

7.5 The proposed development includes off site transport improvements to the south of the main site within the extent of the scheduled Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136), in particular where the scheduled monument crosses Valley Road and the Ancient Briton junction.

7.6 A site visit and settings assessment has been undertaken as part of this assessment. The proposed changes require very minor alterations to the existing ground surfaces for the creation of improved foot/cycle paths. On the basis that these will not require substantial groundworks and no re-modelling of the existing topography, such proposals would not result in any impact the archaeological integrity or landscape appreciation of this national significant Iron Age monument. Scheduled Monument Consent will be requested to Historic England in advance of the application.

7.7 The setting and significance of identified designated assets in the vicinity of the study site have been assessed. Whilst the study site forms part of the wider rural landscape of these assets, the contribution that the study site makes to the significance/experience of these assets is considered negligible. As such, the effect of the proposed development on the following designated heritage assets is considered to be non-material in that it would not result in a change to the significance of the assets: Batch Wood, Moated Manorial Site (NHLE 1012407); Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136); the ten Grade II listed buildings at Childwick Green, the Grade II listed Childwick Bury House and seven associated listed buildings, Childwickbury Conservation Area and Sandridge Conservation Area and St Albans Conservation Area.

7.8 The study site makes a negligible/minor contribution to the significance/experience of the two Grade II listed buildings at Sandridgebury. This relates to the south-west

corner of the study site which forms part of the distant skyline when experiencing these assets from Sandridgebury Lane. Consideration of the detailed treatment (height and density) of the south-east part of the study site and the introduction of screening along the eastern boundary to ensure that new development is visually recessive has the potential to preserve the setting of these listed buildings.

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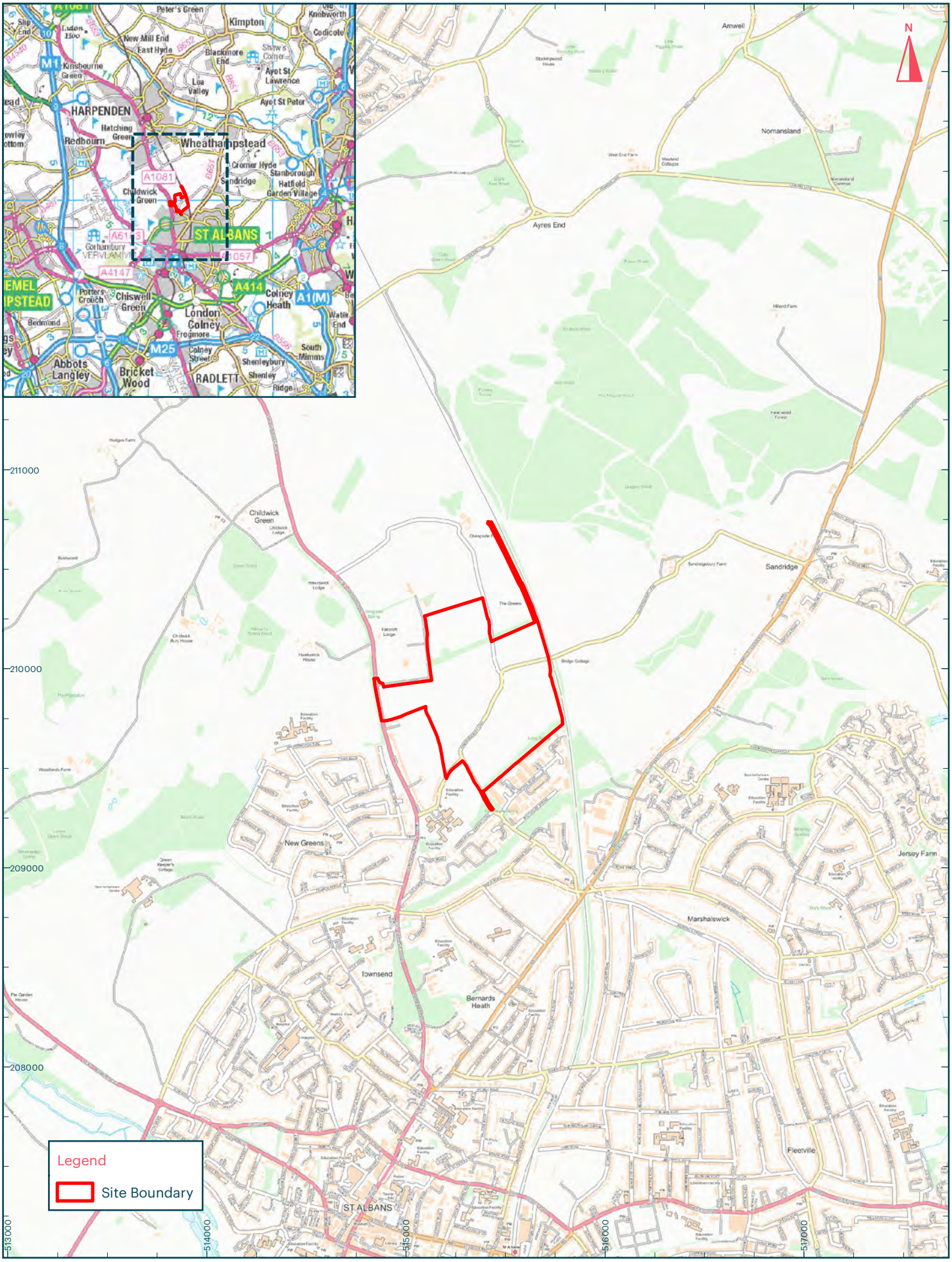

Title:
Figure 1: Site Location
Address:
Woollam Park, North St Albans

Scale at A4: 1:25,000
0 1,000m

orion.

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Legend

- Site Boundary
- Search Buffer 1km

Non-Designated Heritage Assets

HER Record (Point)
- Monument
- Find Spot
- PAS Find Spot
- Historic Building
- Landscape

HER Record (Linear)
- Monument

HER Record (Polygon)
- Monument
- Find Spot
- Landscape
- Area of Archaeological Significance

16536
DHT1103
16506
16537
16539
16507
16538
16541
16540
7963
7964
DHT1105
20708
20707
28864
16528
16550
6007
MHT23638
15197
15196
9871
29871
29870
29874
19540
19542
19541
19539
31214
9501
9568
9607
24875
5025
4615
5585
MHT34030
656
DHT1110
MHT39100
14606
30601
6534
5024
DHT1111
14606
New Greens
30061
25119
13540
15775
14627
14549
MHT38176
17927
18812
18812
DHT1112
MHT38072
10722
Off-site travel improvements at Ancient Briton
9624
7062
7060
1052
12409
7062
7061
14537
7061

Sandridge
Jersey Farm
New Greens

211500
211000
210500
210000
209500
209000
208500

512500
513000
513500
514000
514500
515000
515500
516000
516500
517000
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518000

Title:
Figure 2a: HER Data Plot

Address:
Woollam Park, North St Albans

Scale at A3: 1:15,000

0 500m

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Legend

Site Boundary

Search Buffer 1km

Previous Archaeological Work

Event Record (Point)

Event Record (Polygon)

N

EHT1586

EHT8233

EHT4355

EHT2149

EHT8362

EHT8363

EHT8362

EHT7084

EHT6484

EHT6625

EHT6475

EHT6475

EHT4216

EHT6487

EHT6579

EHT7837

Off-site travel improvements at Ancient Briton

EHT6621

EHT6578

EHT6662

EHT6484

EHT6484

211500

211000

210500

210000

209500

209000

208500

512500

513000

513500

514000

514500

515000

515500

516000

516500

517000

517500

518000

Title:

Figure 2b: Event Data Plot

Address:

Woollam Park, North St Albans

Scale at A3: 1:15,000

0 500m

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Legend

Site Boundary

Search Buffer 1km

Designated Heritage Assets

Scheduled Monument

Conservation Area

Listed Building

Grade II

1102920

1175239

1175311

1347240

1102886

1347239

1175303

1102885

1175292

Childwickbury CA

1102836

1347255

1012407

1019136

1019136

1019136

Off-site travel improvements at Ancient Briton

St Albans CA

N

211500

211000

210500

210000

209500

209000

208500

512500

513000

513500

514000

514500

515000

515500

516000

516500

517000

517500

518000

Childwick Green

Sandridge

New Greens

Marshalswick

Jersey Farm

Bernards Heath

Townsend

Title:

Figure 3: Designated Heritage Assets

Address:

Woollam Park, North St Albans

Scale at A3: 1:15,000

0 500m

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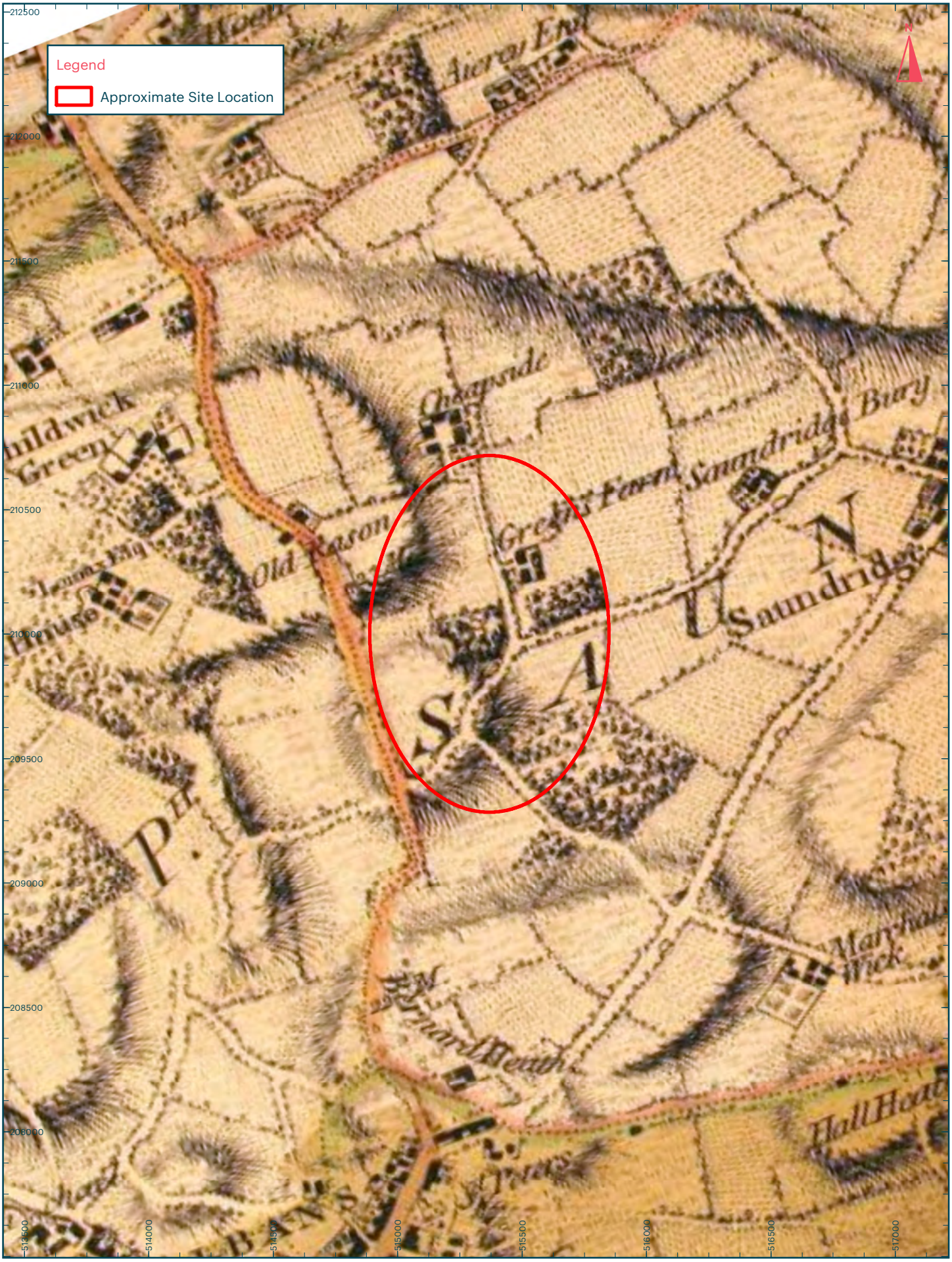

Title:
Figure 4: 1766 Dury and Andrews Map of Hertfordshire
Address:
Woollam Park, North St Albans

Scale at A4: 1:20,000
0 500m

orion.

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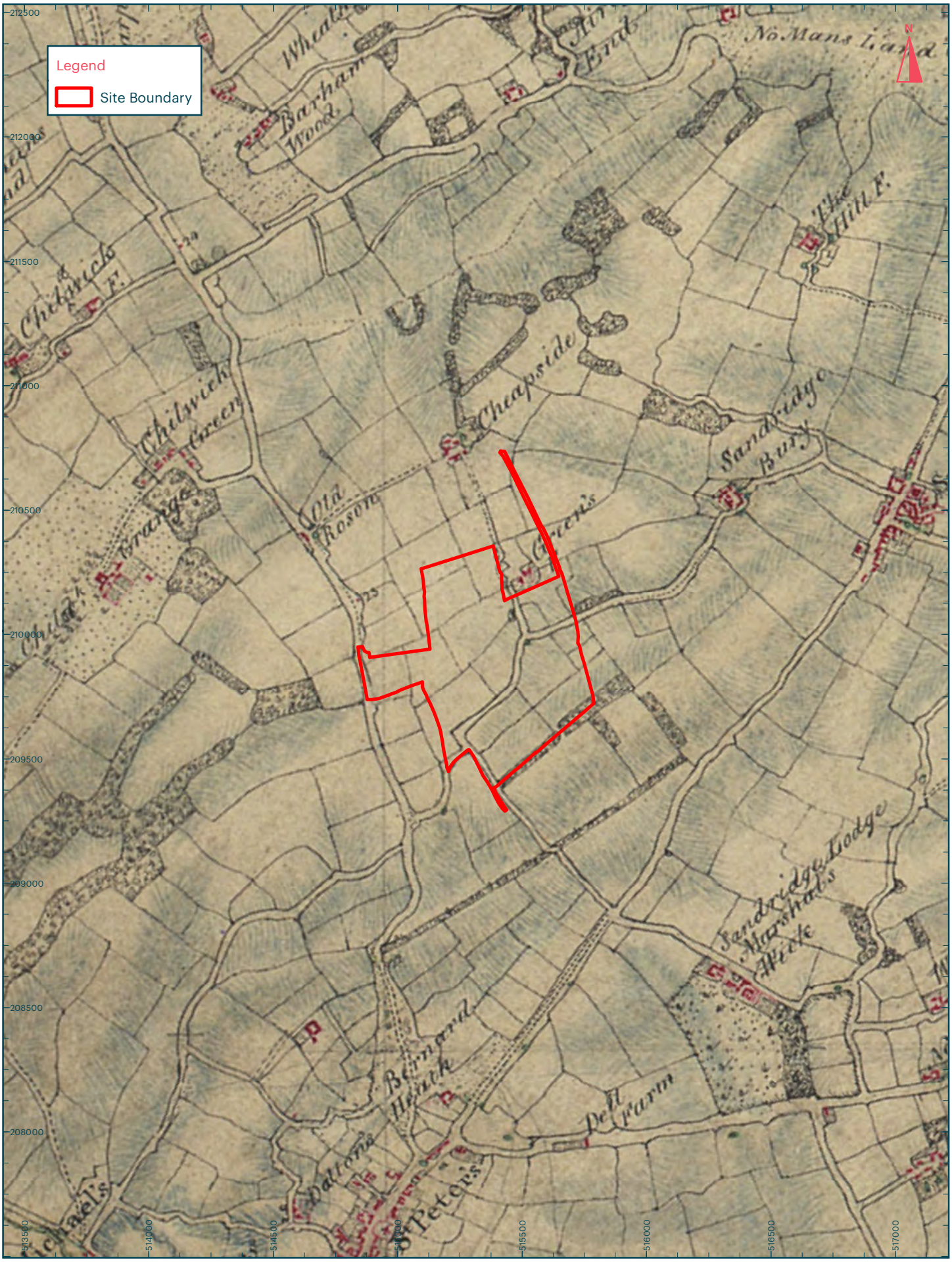

Title:
Figure 5: 1805 Ordnance Survey Drawing
Address:
Woollam Park, North St Albans

Scale at A4: 1:20,000
0 500m

orion.

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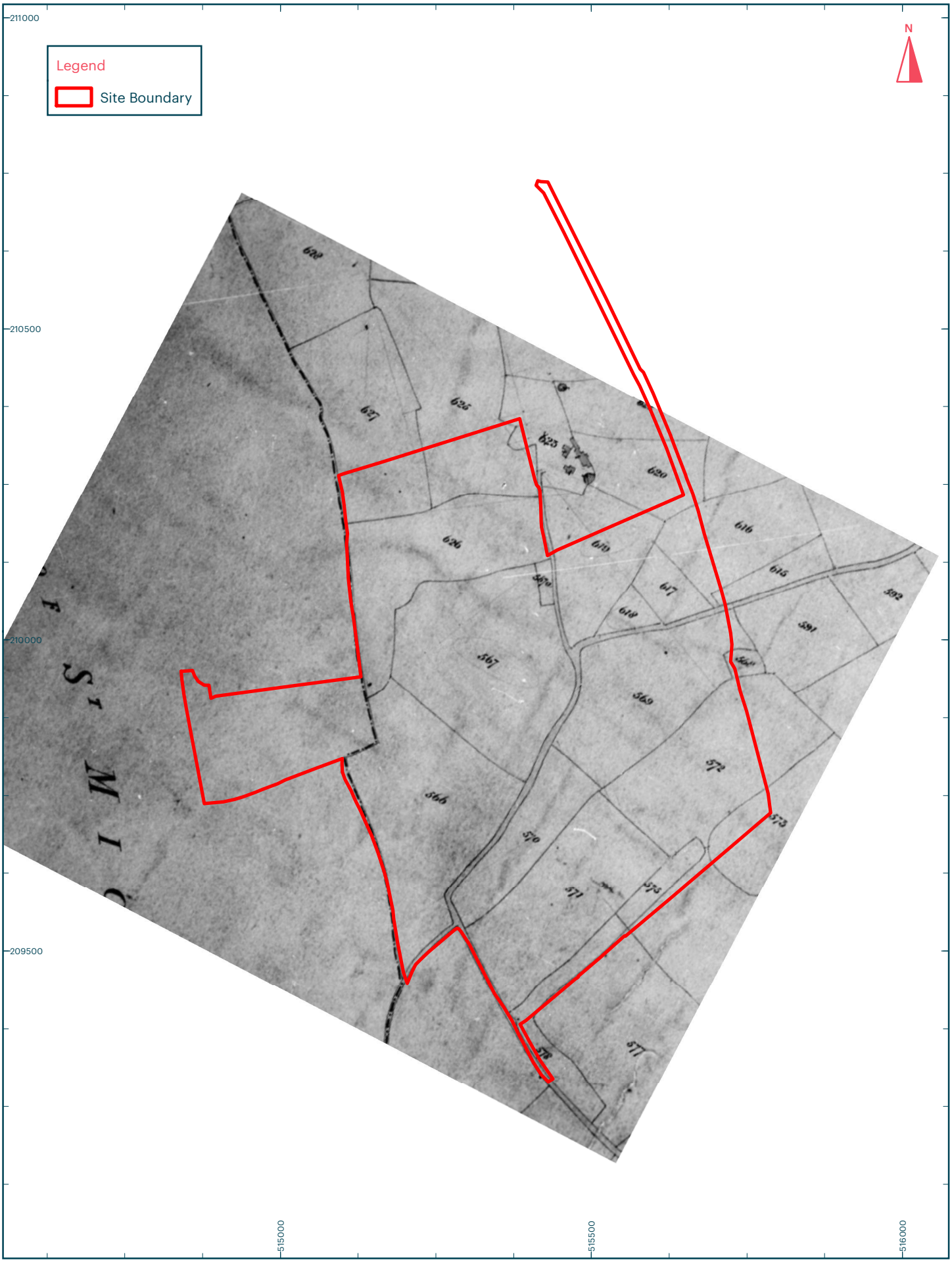

Title:
Figure 6: 1843 Sandridge Tithe Map
Address:
Woollam Park, North St Albans

Scale at A4: 1:8,000
0 250m

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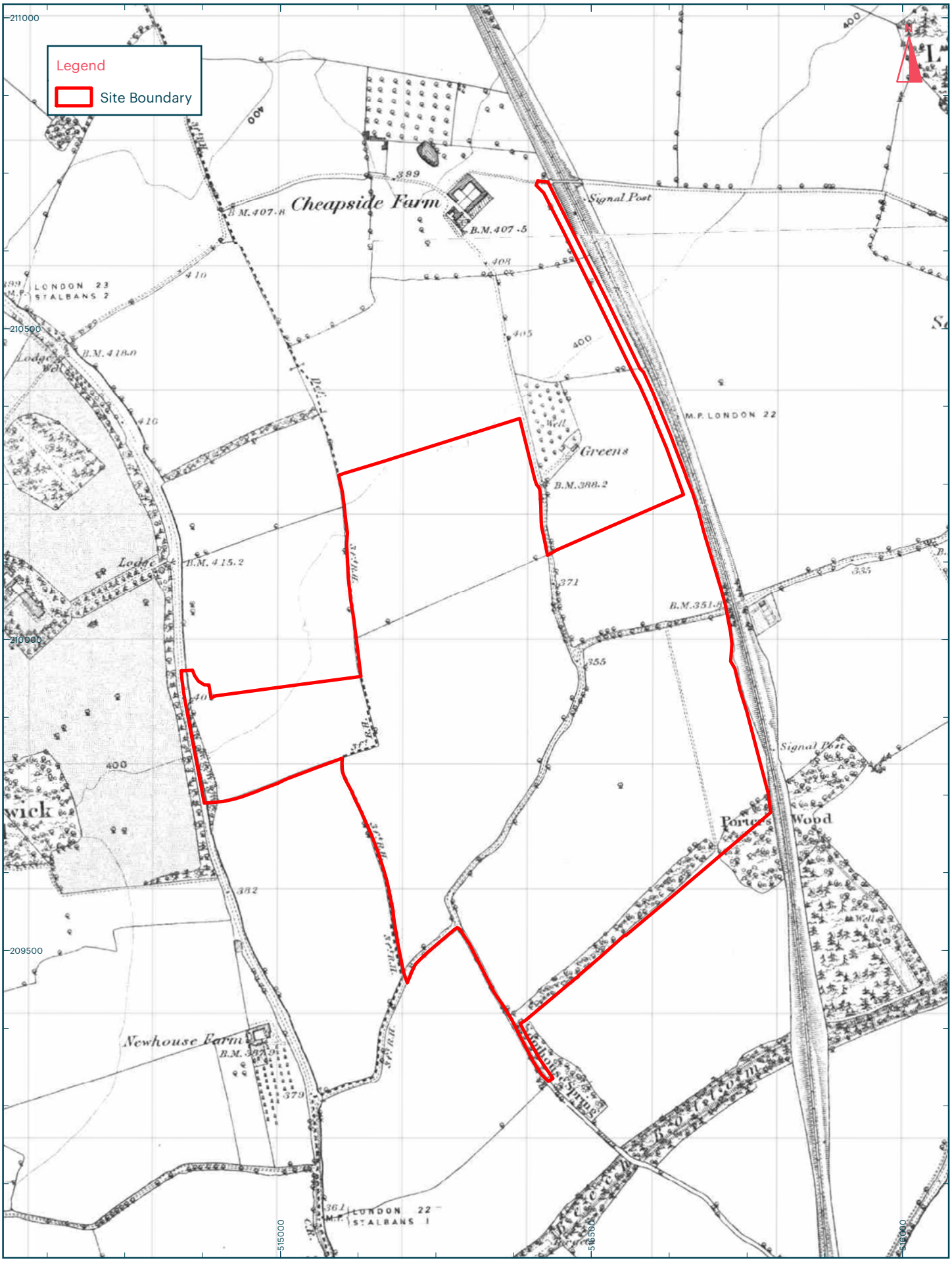

Title:
Figure 7: 1883-1884 Ordnance Survey 1:10,560 Scale Map
Address:
Woollam Park, North St Albans

Scale at A4: 1:8,000
0 250m

orion.

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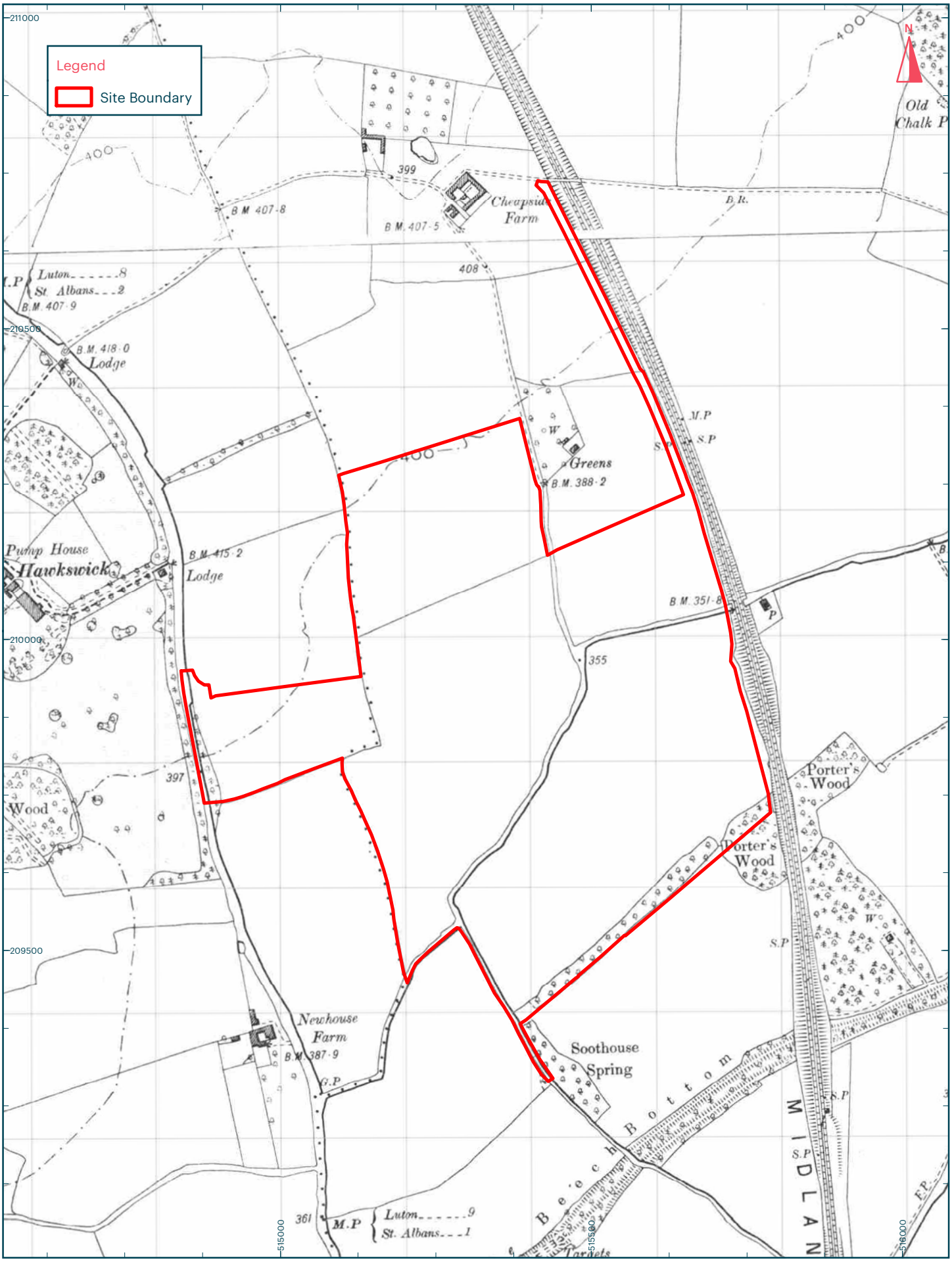

Title:
Figure 8: 1897 Ordnance Survey 1:10,560 Scale Map
Address:
Woollam Park, North St Albans

Scale at A4: 1:8,000
0 250m

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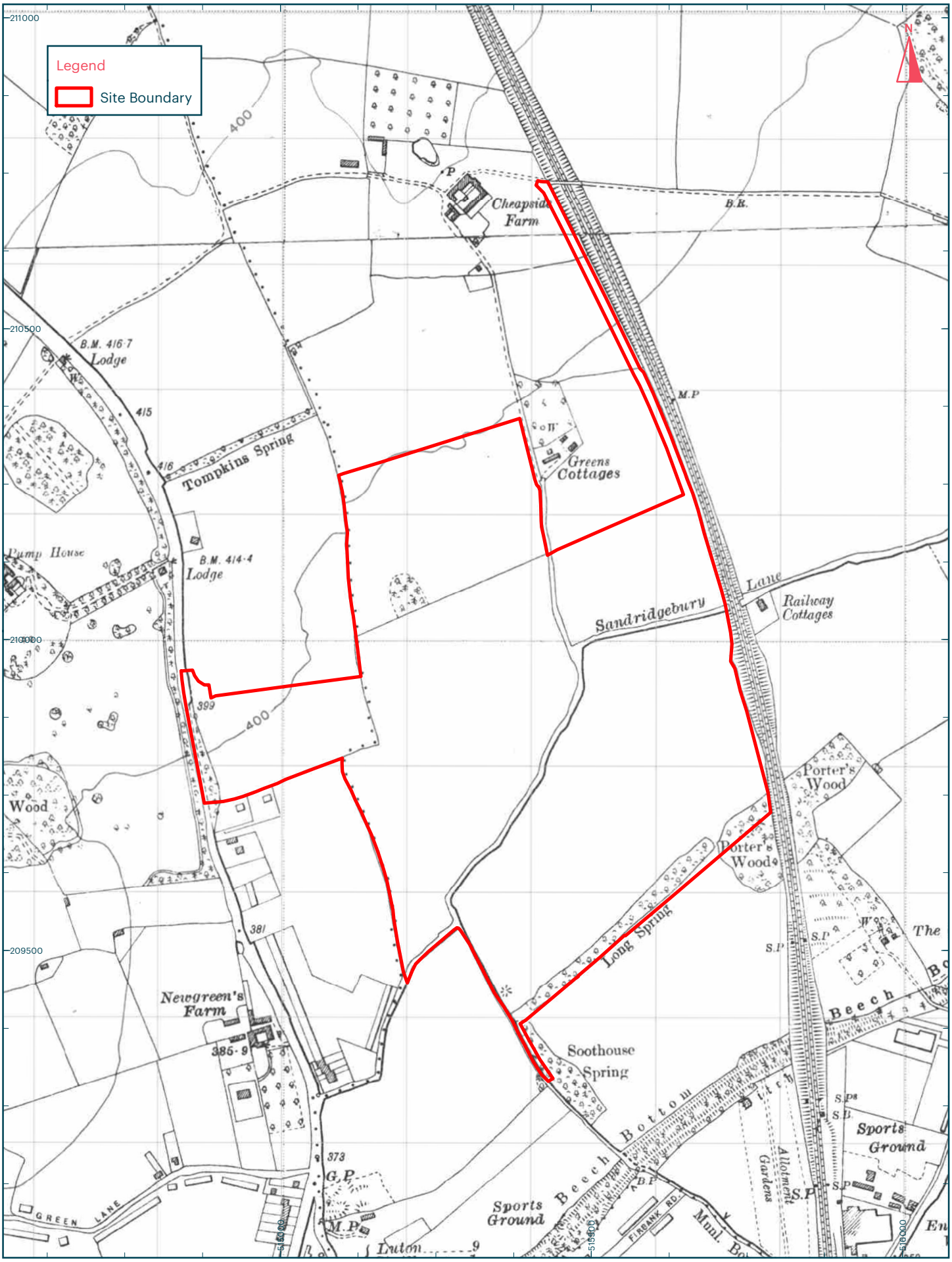

Title:
Figure 9: 1938 Ordnance Survey 1:10,560 Scale Map
Address:
Woollam Park, North St Albans

Scale at A4: 1:8,000
0 250m

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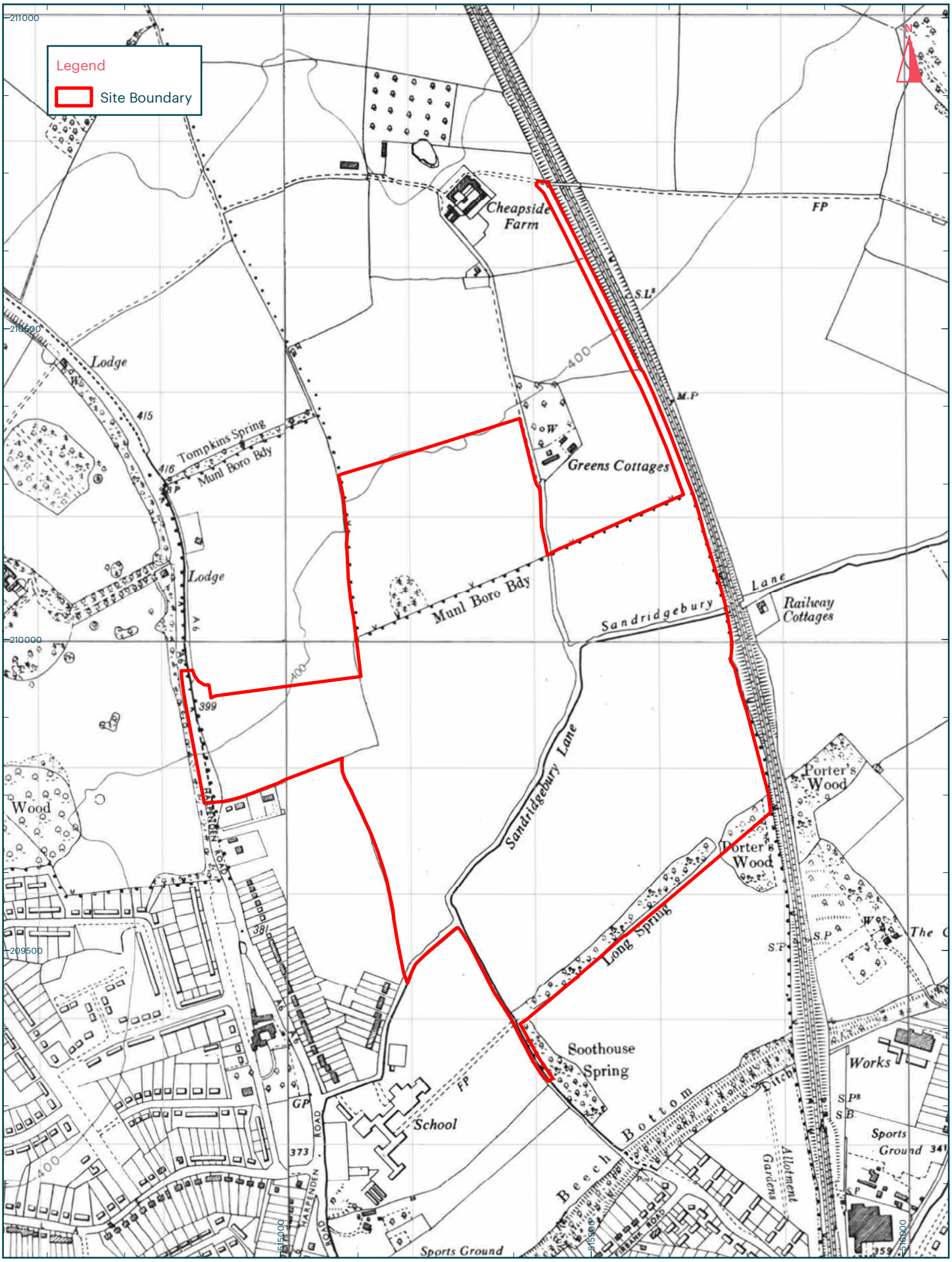

Title:
Figure 10: 1955-1960 Ordnance Survey 1:10,000 Scale Map
Address:
Woollam Park, North St Albans

Scale at A4: 1:8,000
0 250m

orion.

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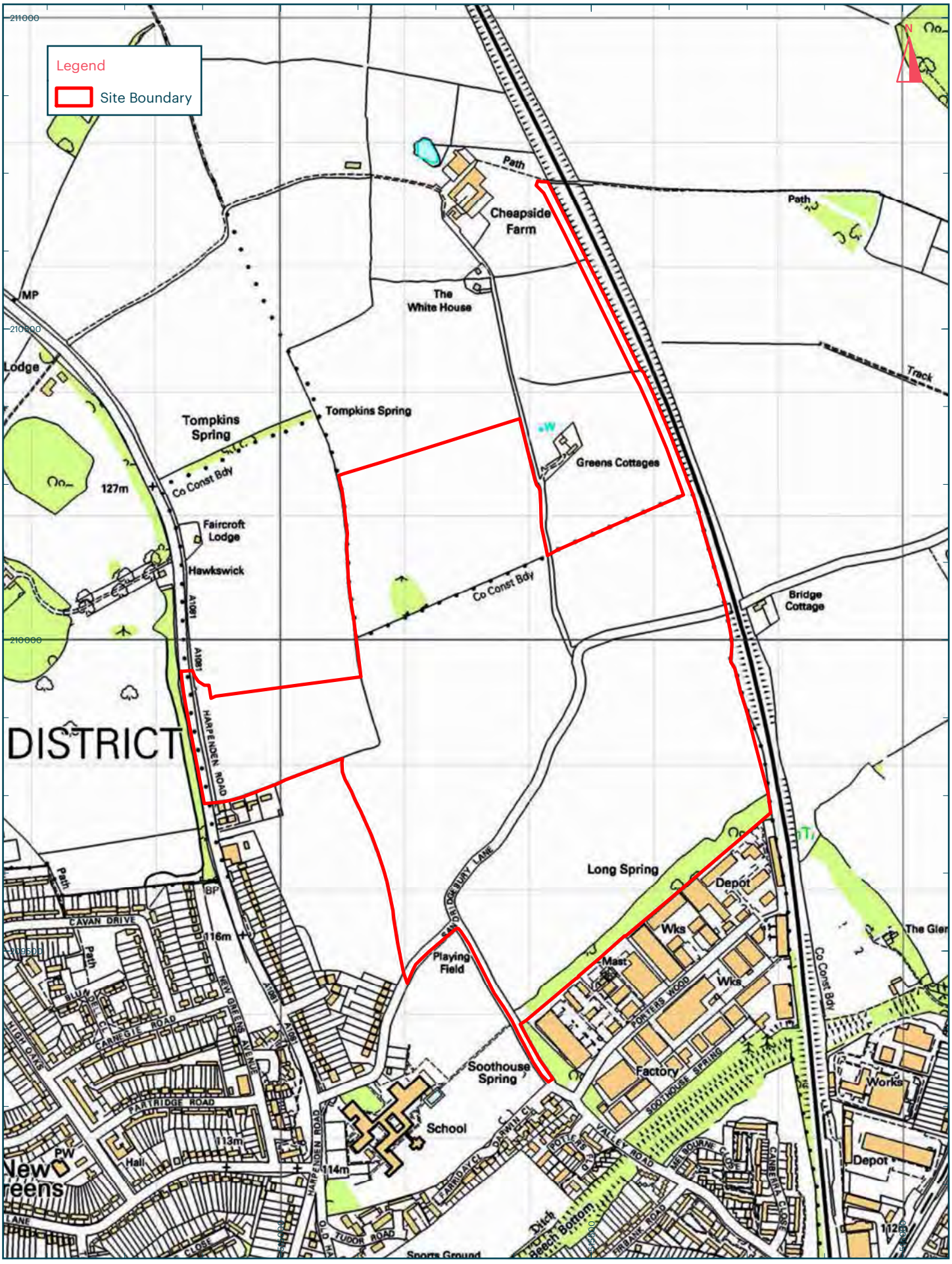

Title:
Figure 11: 2002 Ordnance Survey 1:10,000 Scale Map
Address:
Woollam Park, North St Albans

Scale at A4: 1:8,000
0 250m

orion.

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Title:
Figure 12: Aerial View of Study Site (from Google Earth)
Address:
Woollam Park, North St Albans

Scale at A4: 1:8,000
0 250m

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APPENDIX A - GAZATTEER OF NON-DESIGNATED HERITAGE ASSETS (Figure 2)

In order to understand the nature and extent of the surrounding archaeological resource, a study area of a 1km radius from the study site boundary was adopted. The following gazetteer represents all of the entries from the Hertfordshire Historic Environment Record (May 2024). Where previously unrecorded heritage assets are identified, these will be given an Orion reference e.g. (Orion X), otherwise these will be referenced by the Hertfordshire Historic Environment Record or English Heritage reference number.

Abbreviations:
HHER: Hertfordshire Historic Environments Record
Prefref: Hertfordshire Historic Environments Record monument identification reference number

HHER Prefref / ORION REF.	NAME	MONUMENT TYPE	PERIOD
6007	CROPMARK OF A POLYGONAL ENCLOSURE AND ASSOCIATED FEATURES, SANDRIDGEBURY	MACULA, POLYGONAL ENCLOSURE	UNKNOWN
MHT23638		PAS	Unknown
MHT38176	ST. ALBANS (BEECH BOTTOM DYKE) (KNOWN AS)	PAS	Unknown
16538	CROPMARK OF A RING DITCH, SE OF WELL WOOD, SANDRIDGE	RING DITCH, ROUND BARROW?	UNKNOWN / NEOLITHIC - BROZNE AGE
1052	TWO PALAEOLITHIC TOOLS, BERNARDS HEATH BRICKFIELD, ST ALBANS	FINDSPOT	PALEOLITHIC
13540	PALAEOLITHIC HANDAXE FROM 86 BEECH ROAD, ST ALBANS	FINDSPOT	PALEOLITHIC
20707	MESOLITHIC-NEOLITHIC FLINT BLADE CORE, SANDRIDGE	FINDSPOT	MESOLITHIC - NEOLITHIC
9568	CHILDWICKBURY PARK AND GARDENS, ST MICHAEL RURAL	PARK, ORNAMENTAL GARDEN	NEOLITHIC AND BRONZE AGE
9607	NEOLITHIC AND BRONZE AGE WORKED FLINT ASSEMBLAGE, CHEAPSIDE FARM	SITE	NEOLITHIC AND BRONZE AGE
14606	BEECH BOTTOM DYKE, ST ALBANS	LINEAR EARTHWORK	IRON AGE
28864	LATE SAXON COPPER-ALLOY WINCHESTER STYLE STRAP-END, SANDRIDGE	FINDSPOT	IRON AGE
29870	LATE IRON AGE GOLD COIN, SANDRIDGEBURY	FINDSPOT	IRON AGE
24875	IRON AGE - MEDIEVAL COPPER-ALLOY MOUNT, ALDENHAM	FINDSPOT	IRON AGE - MEDIEVAL
16550	PREHISTORIC AND LATER POTTERY, SOUTH OF LANGLEY WOOD, SANDRIDGE	FINDSPOT, FINDSPOT	PREHISTORIC
MHT39100	SANDRIDGE (KNOWN AS)	PAS	EARLY ROMAN
14549	ROMAN COIN HOARD, BEECH BOTTOM DYKE	FINDSPOT	ROMAN
14627	POSSIBLE COURSE OF ROMAN ROAD, BATCHWOOD DRIVE, ST ALBANS	ROAD?	ROMAN
656	ROMAN TILE FRAGMENTS, NEAR SANDRIDGE	SITE	ROMAN
10722	ROMAN SHERD, GARDENS FIELDS JMI SCHOOL, TOWNSEND DRIVE, ST ALBANS	FINDSPOT	ROMAN

HHER Prefref / ORION REF.	NAME	MONUMENT TYPE	PERIOD
19541	EARLY - EARLY LATE ROMAN COPPER-ALLOY UMBONATE BROOCH, SANDRIDGE	FINDSPOT	ROMAN
19542	EARLY ROMAN COPPER-ALLOY COIN, SANDRIDGE	FINDSPOT	ROMAN
29874	ROMAN COPPER-ALLOY COIN (2), SANDRIDGEBURY	FINDSPOT	ROMAN
30061	ROMAN POTTERY, GREEN LANE, NEW GREENS, ST ALBANS	FINDSPOT	ROMAN
20708	MID - LATE 1ST CENTURY CERAMIC VESSEL BODY SHERD, SANDRIDGE	FINDSPOT	ROMAN
4615	ROMAN ROAD FROM VERULAMIUM TO BRAUGHING	ROAD	ROMAN
29871	EARLY MEDIEVAL - MEDIEVAL COPPER-ALLOY BUCKLE, SANDRIDGEBURY	FINDSPOT	EARLY MEDIEVAL - MEDIEVAL
12409	SANDRIDGE ROAD WASTES, ST ALBANS	COMMON LAND	EARLY MEDIEVAL, MEDIEVAL, POST-MEDIEVAL
16528	WOODLAND EARTHWORKS AT LANGLEY WOOD, SANDRIDGE	WOOD BANK, BOUNDARY BANK, CHALK PIT	EARLY MEDIEVAL, MEDIEVAL, POST-MEDIEVAL
14537	BERNARD'S HEATH	BATTLEFIELD	MEDIEVAL
6534	EARTHWORKS OF MANORIAL COMPLEX, BATCHWOOD, ST ALBANS	MOAT, MANOR HOUSE	MEDIEVAL
9871	MANORIAL ESTATE OF SANDRIDGE, SANDRIDGEBURY	MANOR HOUSE	MEDIEVAL - POST-MEDIEVAL
19539	LATE MEDIEVAL - POST-MEDIEVAL COPPER-ALLOY VESSEL FRAGMENT, SANDRIDGE	FINDSPOT	MEDIEVAL - POST-MEDIEVAL
19540	LATE MEDIEVAL - POST-MEDIEVAL COPPER-ALLOY VESSEL, SANDRIDGE	FINDSPOT	MEDIEVAL - POST-MEDIEVAL
9568	CHILDWICKBURY PARK AND GARDENS, ST MICHAEL RURAL	PARK, ORNAMENTAL GARDEN	POST-MEDIEVAL
15775	SITE OF MARSHALSWICK, MARSHAL'S DRIVE, ST ALBANS	COUNTRY HOUSE, ORNAMENTAL GARDEN	POST-MEDIEVAL
7062	SITE OF BRICK AND TILE WORKS, SANDRIDGE ROAD (FONTMELL CLOSE), ST ALBANS	BRICKWORKS, CLAY PIT, LIME KILN, CHALK PIT	POST-MEDIEVAL
7061	KLONDYKE BRICKFIELD & POSSIBLE CHALK MINE, BERNARDS HEATH, ST ALBANS	BRICKFIELD, CLAY PIT, LIME KILN, MINE?	POST-MEDIEVAL
17924	SITE OF TOWNSEND FARM, TOWNSEND DRIVE, ST ALBANS	FARMSTEAD, FARMHOUSE	POST-MEDIEVAL
5025	MILESTONE, OPPOSITE CHILDWICK BURY PARK, REDBOURN	MILEPOST	POST-MEDIEVAL
5585	RAILWAY BRIDGE, SANDRIDGEBURY LANE, SANDRIDGE	BRIDGE	POST-MEDIEVAL
9624	SITE OF CLAY PIT, GARDEN FIELDS JMI SCHOOL, ST ALBANS	CLAY PIT	POST-MEDIEVAL
18812	SITE OF 19TH CENTURY RIFLE RANGE, BEECH BOTTOM, ST ALBANS	RIFLE RANGE	POST-MEDIEVAL
15196	TIMBER FARM BUILDINGS AT SANDRIDGEBURY FARM, SANDRIDGEBURY, SANDRIDGE	TIMBER FRAMED BARN, STABLE, TIMBER FRAMED BUILDING, STABLE	POST-MEDIEVAL

HHER Prefref / ORION REF.	NAME	MONUMENT TYPE	PERIOD
15197	TIMBER FARM BUILDINGS AT CHEAPSIDE FARM, SANDRIDGEBURY LANE, SANDRIDGE	TIMBER FRAMED BARN, OUTBUILDING, SHELTER, STOREHOUSE?	POST-MEDIEVAL
16541	POST-MEDIEVAL DITCH AND UNDATED QUARRY PIT, SOUTH OF PISMIRE SPRING, SANDRIDGE	DITCH, CHALK PIT	POST-MEDIEVAL
30601	SITE OF NEWHOUSE FARM, HARPENDEN ROAD, ST ALBANS	FARMSTEAD	POST-MEDIEVAL
17927	SITE OF POST-MEDIEVAL BRICK KILN, BATCHWOOD GARDENS, ST ALBANS	BRICK KILN, CLAY PIT	POST-MEDIEVAL
5024	MILEPOST, OLD HARPENDEN ROAD, BERNARDS HEATH, ST ALBANS	MILEPOST	POST-MEDIEVAL
7062	SITE OF BRICK AND TILE WORKS, SANDRIDGE ROAD (FONTMELL CLOSE), ST ALBANS	BRICKWORKS, CLAY PIT, LIME KILN, CHALK PIT	POST-MEDIEVAL
7061	KLONDYKE BRICKFIELD & POSSIBLE CHALK MINE, BERNARDS HEATH, ST ALBANS	BRICKFIELD, CLAY PIT, LIME KILN, MINE?	POST-MEDIEVAL
18812	SITE OF 19TH CENTURY RIFLE RANGE, BEECH BOTTOM, ST ALBANS	RIFLE RANGE	POST-MEDIEVAL
7060	SITE OF TALLOW WORKS, BERNARDS HEATH, ST ALBANS	TALLOW FACTORY, WATER TANK	POST-MEDIEVAL - MODERN

GAZATTEER OF ARCHAEOLOGICAL EVENTS (Figure 3)

The following gazetteer represents all events recorded by the HHER within in 1km study area.

Abbreviations:
HHER: Hertfordshire Historic Environments Record
EVUID: Hertfordshire Historic Environments Record event identification reference number

HHER EVUID	NAME
EHT2149	AIR PHOTO
EHT4216	WATCHING BRIEF AT GARDEN FIELDS JMI SCHOOL, ST ALBANS, 1999
EHT4355	FIELDWALKING AT CHEAPSIDE FARM, HARPENDEN ROAD, ST ALBANS
EHT6475	RECORDING AT BEECH BOTTOM DYKE, ST ALBANS, 1932
EHT6484	THE VIATORES' SURVEY OF POSSIBLE ROMAN ROADS IN THE ST ALBANS AREA, 1958-59
EHT6487	OBSERVATION AT BATCHWOOD DRIVE/HARPENDEN ROAD JUNCTION, 1965
EHT6578	GARDEN FIELDS SCHOOL; 93/13
EHT6579	OBSERVATION AT MENTMORE SCHOOL, ST ALBANS, 1994
EHT6621	THE ANCIENT BRITON
EHT6625	33 OLD HARPENDEN ROAD
EHT6662	WATCHING BRIEF AT GARDEN FIELDS JMI, ST ALBANS, 1998
EHT7084	EVALUATION AT 150 ST ALBANS ROAD, SANDRIDGE, 2011
EHT7837	GARDEN FIELDS JMI SCHOOL, TOWNSEND DRIVE, ST ALBANS
EHT8362	GEOPHYSICAL SURVEY AT 138 ST ALBANS ROAD, SANDRIDGE, 2017
EHT8363	TEST PITTING AT 138 ST ALBANS ROAD, SANDRIDGE, 2017
EHT8233	BUILDING RECORDING OF THE WATER TOWER, CHILDWICKBURY, 2004
EHT1586	STAGE 2 EVALUATION OF LAND FOR HEARTWOOD FOREST, SANDRIDGE, 2009

GAZATTEER OF DESIGNATED HERITAGE ASSETS and LOCALLY LISTED BUILDINGS (Figure 4)

The following gazetteer represents all known designated assets (listed buildings, scheduled monuments, conservation areas, registered parks and gardens, registered battlefields).

Abbreviations:
NHLE: National Heritage List for England

NHLE REF.	NAME	DESIGNATION
1102836	SANDRIDGEBURY HOUSE, SANDRIDGEBURY COURT AND THE OLD SCHOOL	II
1102885	FARM BUILDINGS ADJOINING AND TO NORTH EAST OF WALLED GARDEN AT CHILDWICK BURY	II
1102886	DAIRY 30 METRES NORTH WEST OF COACH HOUSE AND STABLE COURT AT CHILDWICK BURY	II
1102920	CHILDWICK LODGE	II
1175239	ENTRANCE GATES, RAILINGS AND PIERS AT CHILDWICK LODGE	II
1175292	GARDEN WALL TO SOUTH EAST OF CHILDWICK BURY MANOR	II
1175303	COACH HOUSE AND STABLE COURT TO EAST OF CHILDWICK BURY MANOR	II
1347255	BARN AND STABLE RANGE ON SOUTH SIDE OF STABLE YARD AT SANDRIDGEBURY FARM	II
1012407	BATCH WOOD, MOATED MANORIAL SITE	SM
1019136	IRON AGE TERRITORIAL BOUNDARY KNOWN AS BEACH BOTTOM DYKE	SM

APPENDIX B – FIELDWALKING REPORT (CA 2019)

Cotswold Archaeology

Cheapside, St Albans
Hertfordshire

Archaeological Fieldwalking Survey



for
Orion Heritage

CA Project: MK0130

CA Report: MK0130_2

Hertfordshire Museums site code: WPF19

November 2019

Andover Cirencester Exeter Milton Keynes Suffolk

Cheapside, St Albans
Hertfordshire

Archaeological Fieldwalking Survey

CA Project: MK0130
CA Report: MK0130_2

Document Control Grid						
Revision	Date	Author	Checked by	Status	Reasons for revision	Approved by
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2	21/11/19	SJS	APS	Draft	-	APS

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Fig. 2 Finds distribution plot (1:5000)

Fig. 3 Distribution of Ceramic Building Material (1:5000)

Fig. 4 Field 1: photographs

Fig. 5 Fields 2 and 3: photographs

Fig. 6 Fields 4 and 5: photographs

SUMMARY

Project Name:	Cheapside
Location:	St Albans, Hertfordshire
NGR:	515295 - 210357
Type:	Fieldwalking survey
Date:	30 September-9 October 2019
Location of Archive:	Verulamium Museum
Accession Number:	Verulamium Museum site code: WPF19
Site Code:	WPF19

An archaeological fieldwalking survey was undertaken by Cotswold Archaeology between 30 September and 9 October 2019 at Cheapside, St Albans, Hertfordshire. The fieldwalking survey was undertaken to support a forthcoming planning application.

The fieldwalking survey was undertaken across five fields totalling 60.73ha within which, prior to commencement, approximately 50.5ha was anticipated to be suitable for survey. Allowing for ground constraints, in total 47ha was surveyed across the five fields.

The survey recorded 70 sherds of pottery, eight fragments of iron and 2265 fragments of undiagnostic ceramic building material. No concentrations of material likely to be indicative of, or derived from sub-surface features were identified, and no lithics were recovered to suggest a continuation of Neolithic and Bronze Age flint scatters previously identified to the west of the site, at the former Cheapside Farm. Recovered flint comprised just four pieces, all subsequently determined to be unworked/ of natural origin.

Only two sherds of pottery, one sherd of locally produced Roman pottery and a single sherd of Midlands purple ware, of broad late 14th to 16th century date, were of archaeological significance. Both of these sherds are likely to have derived from manuring processes. The remaining pottery was of later post-medieval and modern date (18th to 20th century) and, as with the other material recovered, is again almost certainly derived from manuring processes.

1. INTRODUCTION

1.1 In September and October 2019 Cotswold Archaeology (CA) carried out an archaeological fieldwalking survey for Orion Heritage at Cheapside, St Albans, Hertfordshire (centred at NGR: 515295 – 210357*:* Fig. 1). The fieldwalking survey was undertaken to support a forthcoming planning application*.* Pre-application advice regarding the site provided by Simon West, District Archaeologist (DA), archaeological advisor to the local planning authority, St Albans City & District Council (SACDC), recommended a programme of archaeological works, including the fieldwalking survey, to inform the application.

1.2 The extent and scope of the fieldwalking survey was defined during discussions between Orion Heritage (Rob Bourn) and the DA and comprised 50.5 hectares (ha) of survey across the proposed application site (henceforth referred to as 'the Site'), which totals 60.73ha.

1.3 The fieldwalking survey was carried out in accordance with an agreed Written Scheme of Investigation (CA 2019), approved by the DA. The fieldwork also followed the *Standard and guidance for archaeological field evaluation* (CIfA 2014).

The site

1.4 The Site is located immediately north of the urban area of St Albans and lies within the administrative area of St Albans City and District Council. The majority of the Site is arable land in agricultural use and measures approximately 60.73ha in size, situated between the A1081 Harpenden Road to the west and the mainline London St Pancras to Leicester railway line to the east. Sandridgebury Lane runs southwest to northeast through the site. The area that was subjected to fieldwalking initially comprised four arable fields of varying size (Fields 1 – 4), with an additional field (Field 5) also surveyed, once the initial fieldwalking survey had commenced, at the request of the client.

1.5 The bedrock geology of the Site is mapped as chalk of the Lewes Nodular Chalk Formation and Seaford Chalk Formation (undifferentiated), overlain by superficial deposits of Clay-with-flints Formation (clay, silt, sand, gravel) and areas of Kesgrave Catchment Subgroup sand and gravel (BGS 2019).

2. ARCHAEOLOGICAL BACKGROUND

2.1 The Site has been the subject of a Heritage Desk Based Assessment (Orion Heritage 2019) and the following section utilises information contained in that document.

2.2 The Hertfordshire Historic Environment Record (HHER) does not record any known findspots or heritage assets of archaeological interest within the Site, which had not been subject to any form of archaeological investigation to date.

2.3 Fieldwalking and trial trenching was undertaken in 1997 and 1998 respectively, in advance of the creation of the sports facilities immediately to the west of the Site, at the former Cheapside Farm. The fieldwalking identified an artefact scatter that included a large number of late Neolithic flint tools, as well as some early Neolithic and Bronze Age worked flints and undiagnostic burnt flint (Vaughan 1997 & HHER MHT9607). A total of 727 struck flints and 10.4kg of burnt flint was recovered. Subsequent trial trenching produced limited results, with only three of the sixteen excavated trenches containing archaeological features, in the form of three small pits. Two contained very small quantities of ceramic building material of likely post-medieval or later date, while the third, and smallest, produced no dating evidence, suggesting the majority of the prehistoric archaeology was contained within the plough zone (Steadman and Bright 1998).

2.4 While the Site contains no know remains of Roman date it is located c.1.8km to the north of the Roman town of Verulamium, which is located on the route of Watling Street, a major routeway of the period running from Dover to London and northwest via St. Albans (Verulamium) to Wroxeter (Viroconium). Although the Site is located to the east of Watling Street, a Roman road from Verulamium to Braughing passes c.100m to the south of the Site, where the line of the road and surrounding field is covered by an Archaeological Alert Area for planning purposes. An assemblage of Roman tile has been recovered from this area, suggesting the presence of an associated Roman building (HHER 656).

2.5 Stray finds of Roman cultural material including pottery and coins have been made from the wider vicinity of the Site (e.g. pottery - HHER 30061, 20708 & 10722; coins-14549, 19542, 29874), reflective of the location in the hinterland of the Roman town.

2.6 No finds or heritage assets of archaeological interest of early medieval, medieval and post-medieval date are identified within the Site by the Heritage Desk Based Assessment (Orion Heritage 2019), which is likely to have comprised agricultural land and woodland during these periods.

3. AIMS AND OBJECTIVES

3.1 The objectives of the survey were to provide information about the likely archaeological resource within the site, including its presence/absence, character, extent and date. Combined with the results of any other archaeological investigations to be carried out at the site, this information will enable the DA to identify and assess the significance of the heritage resource within the site, to consider the impact of the proposed development upon that significance, and to avoid or minimise conflict between conservation of the heritage resource and any aspect of the development proposal. This process is in line with policies contained in the National Planning Policy Framework (MHCLG 2019).

4. METHODOLOGY

4.1 The fieldwalking survey was undertaken across five fields (Fields 1 – 5), totalling 60.73ha, within which approximately 50.5ha was anticipated to be suitable for survey (Fig. 1). Allowing for ground constraints, in total 47ha was surveyed across the five fields (see section 5 below).

4.2 The fields walked within the Site were individually numbered (Fields 1 – 5: Fig 2). Each field was divided into single hectare grids (100m by 100m) and individually numbered (Hectares 1-91, allowing for partial grid squares within the overall 50.5ha survey area), prior to the commencement of the fieldwalking. Each hectare was laid out on site using a Leica GPS. Within each hectare square, a series of 10 transects were established and set at 10m intervals apart. The first transect (i.e. Hectare 1, Transect 1) set at the southwest corner of each hectare grid and aligned roughly north/south with the subsequent transects located at 10m intervals to the east (Hectare 1, Transect 1, 2, 3 etc). These fieldwalking transects were marked out on Site using temporary markers such as canes and flags, in accordance with *CA Technical Manual 4: Survey Manual* (2012). Fieldwalking transects were generally

aligned parallel to the north/south boundary of the individual field being surveyed and were spaced at 10m intervals. Transects have been tied in to the OS grid.

4.3 The length of each north/south transect was subdivided into 10m 'Runs' starting at 0-10m to the southern end of each transect, and extending northwards (10-20m, 20-30m etc). Artefacts recovered from each individual 10m Run were bagged together. Bags were marked with the CA site code (WPF19), the Field Number, the Hectare Number and the Run Number (e.g. WPF19, Field 1, Ha.1, Run 10-20m). All designated hectares contained a maximum of 10 transects each with a maximum of 10 runs (totalling up to 100 runs per hectare square) that were numbered sequentially (Transect 1, Run 0-10m, 10-20m, 20-30m through to 90-100m, Transect 2, Run 0-10m through to 90-100m etc) from the south to the north and the west to the east (i.e. from the south-west to the north-east corners of each numbered hectare).

4.4 The fieldwalking team walked each transect within each individual hectare square from south to north and west to east and observed a 2m-wide corridor centred on each individual transect as a basis for artefact collection. Not all hectares/part hectares were fieldwalked as to the unploughed nature of the ground surfaces (see separate field descriptions below). Some areas were grassed, tracks or roads and were not suitable for finds recovery. See Fig 2 for limit of the actual fieldwalked areas.

4.5 The archive and artefacts from the evaluation are currently held by CA at their office in Milton Keynes. Subject to the agreement of the legal landowner the finds will be deposited with Verulamium Museum along with the site archive. A summary of information from this project, set out within Appendix B, will be entered onto the OASIS online database of archaeological projects in Britain.

5. RESULTS (FIGS 2-6)

5.1 This section provides an overview of the fieldwalking results including detailed summaries of the fields. This includes information on geology, topography and ground conditions and archaeological visibility. The finds assemblage is reported on below in Section 6 and detailed in Appendix A.

5.2 The fieldwalking survey covered five separate fields (Fields 1 -5).

Field 1 (15.06ha – total area of the field that was fieldwalked)

5.3 This field is situated on gently undulating ground to the south-eastern part of the Site (Fig. 4). The highest point of the field, to the south lay at *c*.115.87m (aOD) and the lowest part of the field, forming a wide, shallow, east/west depression across the whole field was at 103.72m (aOD). The field was demarcated by hedgerows bounding Sandridgebury Lane to the north and west, woodland to the south and the railway line to the east. The topsoil was characterised by a loose mid brown silty clay with frequent naturally occurring sub-angular and angular flint fragments (<10mm), this topsoil was consistent throughout the other four fields. The archaeological visibility was generally very good. A single sherd (3g) of possibly locally produced Roman sandy grey ware (UNS GW) was recorded from hectare 25 (Transect 2, 40-50m). Hectares 4, 5 and 6 were outside of the ploughed area and were not walked.

Field 2 (12.94ha)

5.4 Located to the southwest of the site, this field was bounded on all sides by hedgerows, with those to the south and east forming the boundary of Sandridgebury Lane. The field was gently undulating, but with a slight slope down to the east. The lowest part of this field lay ay at 109.19m (aOD) to the east, were access to Sandridgebury Lane was gained. The highest part of the field was located to the far northwest corner, at 118.60m (aOD). The archaeological visibility was generally very good; however, there was significantly more vegetation cover to the south (Hectares 32, 33, 34, 35, 36, 37, 38 and 39; see photograph, Fig. 5), though it was still possible to fieldwalk these hectares. Hectare 31 was completely outside the ploughed area and was not walked.

Field 3 (10.63ha)

5.5 This field consisted of predominantly level ground, with a slight slope to the south; the highest point was to the north, at 123.93m (aOD) and dropped down to 116.19m (aOD) to the southeast (Fig. 5). The field was bounded by hedgerows to the north, west and south and single tracked tarmacked private road to the east. The archaeological visibility was generally very good. Hectares 51, 55, 59 and 60 were outside the ploughed area and were not walked.

Field 4 (4.12ha)

5.6 Bounded by the railway line to the east and hedgerows on all other sides, the field sloped gently to the south from 113.18m (aOD) to the north and c.107m (aOD) to the southern boundary (Fig. 6). The archaeological visibility was generally very good throughout the whole field.

Field 5 (3.74ha)

5.7 This field was also bounded by the railway line to the east and hedgerows on all other sides (Fig. 6). The northwest corner of the field was grassland - Hectares 87, 89, 90 and 91 were not walked. The highest point of the field was to the north, at c. 122m (aOD) and sloped gently down to the south to c. 114m (aOD). The archaeological visibility was generally very good.

6. THE FINDS (FIGS 2-3)

6.1 The artefactual material is recorded from unstratified surface deposits (Appendix B). The material was recovered by hand. The survey recorded 70 sherds (662g) of pottery, eight fragments (877g) of iron and 2265 fragments (58,926g) of ceramic building material (CBM), The distribution of the pottery and iron fragments is shown on Figure 2 and the distribution of the CBM on Figure 3.

Pottery

6.2 The pottery recovered from the fieldwalking survey is recorded in Appendix B and discussed below. Recording of the finds assemblage was direct to an Excel spreadsheet; this now forms the basis of Appendix B (Table 1). The pottery was examined by context, using a x10 binocular microscope and quantified according to sherd count and weight per fabric type. The fabrics are described in Appendix B (Table 2) in accordance with the Historic England guidelines (Barclay *et al*. 2016).

6.3 The assemblage comprises 70 sherds (662g) of pottery. The condition of the assemblage is poor; surfaces and fractures exhibit signs of heavy abrasion. The mean sherd weight is 9.1g and sherd size is small for a largely post-medieval assemblage.

Roman

6.4 One sherd (3g) of Roman sandy grey ware (UNS GW) is recorded from hectare 25 in field 1. The source of manufacture of the sherd is not known but it has most likely been produced locally.

Medieval

6.5 One sherd (15g) of Midlands purple ware (MIDP), dating to between the late 14th and 16th centuries, is recorded from Hectare 72 in Field 4.

Post Medieval/Modern

6.6 A total of 68 sherds (644g) of pottery dating to the post-medieval period are recorded. The majority of the post-medieval pottery is made in refined red earthenware fabrics (REFR). A total of 35 sherds (327g) of refined red earthenwares are recorded from numerous hectares across all five fields in the survey. Beaded, bevelled, simple upright, expanded and out-curving rims are all recorded. This material dates to between the late 18th and 20th centuries AD. Glazed red earthenwares (GRE) account for 13 sherds (149g) of the assemblage. The majority of the glazed red earthenwares are recorded from Fields 1 and 3. Although one fragment is recorded from both Field 2 and Field 5, this material is not recorded from Field 4. Glazed red earthenwares date to between the 16th and 18th centuries. A total of 12 sherds (94g) of coarse red earthenware (CRE) are recorded from Fields 1, 2, 3 and 4. Beaded rims are recorded from Fields 2 and 3. The material dates to between the 18th and 20th centuries. Three sherds (9g) of transfer printed earthenware (TPE) are recorded from Fields 2 and 5. They are body sherds with blue printed geometric or 'floral' decoration dating to between the 18th and 20th centuries. One sherd (12g) of Frechen stoneware (GSW4), dating to between the 16th and 17th centuries, is recorded from Field 3. The base of a small bowl or cup with a ring of moulded dots made in black basalt stoneware (BLSW) is recorded from Field 3. This black stoneware dates to between the late 18th and 20th centuries. A rim sherd (37g), probably from a colander, made in Lambeth stoneware (LMSW) and dating to either 19th or 20th century is recorded from Field 1. An undiagnostic body sherd (6g) made in an unprovenanced stoneware (UNS SW) is recorded from Field 3. One sherd (4g) made in an unprovenanced slipware (UNS SLP) with a moulded dot and linear decoration is recorded from Field 2. Both sherds date to between the 19th and 20th centuries.

Summary

6.7 The pottery evidence suggests that the bulk of the activity of at the site took place during the post-medieval period from the 18th to 20th century. Due to the unstratified nature of the material it is not possible to draw any further meaningful conclusions from the group beyond noting that the small sherd size and abraded condition of the material suggests that it has been deposited in the field via manuring practices.

Ceramic Building Material

6.8 A total of 2265 fragments (58,926g) of ceramic building material are recorded from the site. Due to the large quantity of material recovered and an absence of diagnostic fragments the material was only counted and weighed (unwashed) prior to plotting. The location of this material when plotted was found to be evenly distributed across the five fields (Fig. 3).

Metalwork

6.9 Eight fragments (877g) of iron are recorded; all are heavily encrusted and corroded. Three horseshoes are recorded from hectare 18 in Field 1 and hectares 56 and 62 from Field 3. A round shafted iron nail is recorded from Hectare 61 in Field 3. A flat strip of iron, rectangular in plan and slightly curved is recorded from hectare 38, Field 2. It is approximately 160mm long and 35mm wide but is fractured at both ends. Its function is uncertain, but it may be part of a binding hoop from a wooden barrel. A curved rod of iron is recorded from Hectare 47, Field 2. Its function is uncertain; however, it may be part of a door handle. A small circular fragment of iron is recorded from Hectare 35, Field 2. Its function is unknown.

7. DISCUSSION

7.1 The survey recorded 70 sherds (662g) of pottery, eight fragments (877g) of iron and 2265 fragments (58,926g) of undiagnostic CBM. No concentrations of material likely to be indicative of, or derived from sub-surface features were identified, and no lithics were recovered to suggest a continuation of the Neolithic and Bronze Age flint scatters identified at the former Cheapside Farm site, to west (Vaughan 1997 & HHER MHT9607). Recovered flint comprised just four pieces, all subsequently determined to be unworked/ of natural origin.

7.2 Only two sherds of pottery, one (3g) sherd of locally produced Roman pottery and single sherd (15g) of Midlands purple ware, dating to between the late 14th and 16th century, were of archaeological significance. Both of these sherds are likely to have derived from manuring processes. The remaining pottery was of later post-medieval and modern date (18th to 20th century) and, as with the CBM is again almost certainly derived from manuring processes.

8. CA PROJECT TEAM

Fieldwork was undertaken by Simon Sworn, assisted by Eilidh Barr, Molly Agnew-Henshaw, Harriet Farr, Susanna Ferron, Enrico Ravanetti and Callum Ruse. The report was written by Simon Sworn. The finds report was written by Peter Banks. The illustrations were prepared by Amy Wright. The archive has been compiled by Emily Evans, and prepared for deposition by Hazel O'Neill. The project was managed for CA by Adrian Scruby.

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APPENDIX A: THE FINDS

Context	Class	Description	Fabric Code	Count	Weight (g)	Spot-date
F1H10.5 90-100m	Modern Pottery	Lambeth Stoneware	LMSW	1	37	C19-C20
F1H11.1 0-10m	Post-medieval Pottery	Refined red earthenware	REFR	1	10	LC18-C20
F1H12.10 10-20m	Post-medieval Pottery	Refined red earthenware	REFR	1	13	LC18-C20
F1H15.8 50-60m	Post-medieval Pottery	Glazed red earthenware	GRE	1	12	C16-C18
F1H15.9 60-70m	Post-medieval Pottery	Refined red earthenware	REFR	1	11	LC18-C20
F1H16.7 10-20m	Post-medieval Pottery	Refined red earthenware	REFR	1	25	LC18-C20
F1H17.8 0-10m	Post-medieval Pottery	Glazed red earthenware	GRE	1	31	C16-C18
F1H18.2 70-80m	Iron	Horseshoe		1	76	
F1H18.5 60-70m	Post-medieval Pottery	Glazed red earthenware	GRE	1	22	C16-C18
F1H23.3 30-40m	Post-medieval Pottery	Glazed red earthenware	GRE	1	3	C16-C18
F1H24.9 0-10m	Post-medieval Pottery	Refined red earthenware	REFR	1	9	LC18-C20
F1H25.2 40-50m	Roman Pottery	Sandy grey ware	UNS GW	1	3	RB
F1H25.9 10-20m	Post-medieval Pottery	Refined red earthenware	REFR	1	53	LC18-C20
F1H8.1 80-90	Post-medieval Pottery	Refined red earthenware	REFR	1	8	LC18-C20
F1H8.1 90-100m	Post-medieval Pottery	Refined red earthenware	REFR	1	3	LC18-C20
F1H8.3 10-20m	Post-medieval Pottery	Glazed red earthenware	GRE	1	23	C16-C18
F1H8.4 80-90m	Post-medieval Pottery	Refined red earthenware	REFR	1	6	LC18-C20
F1H8.5 50-60m	Post-medieval Pottery	Glazed red earthenware	GRE	1	13	C16-C18
F1H9.10 0-10m	Post-medieval Pottery	Coarse red earthenware	CRE	1	5	C18-C20
F1H9.2 90-100m	Post-medieval Pottery	Glazed red earthenware	GRE	1	3	C16-C18
F2H34.5 60-70m	Modern Pottery	Unprovenanced slipware	UNS SLP	1	4	C19-C20
F2H35.7 0-10m	Iron	Object		1	22	
F2H37.5 0-10m	Post-medieval Pottery	Refined red earthenware	REFR	1	25	LC18-C20
F2H38.1 20-30m	Iron			1	49	
F2H38.10 60-70m	Post-medieval Pottery	Refined red earthenware	REFR	1	7	LC18-C20
F2H38.3 90-100m	Post-medieval Pottery	Refined red earthenware	REFR	1	6	LC18-C20
F2H38.4 40-50m	Post-medieval Pottery	Coarse red earthenware	CRE	1	8	C18-C20
F2H38.4 90-100m	Iron	Object		1	212	
F2H38.6 40-50m	Post-medieval Pottery	Transfer printed earthenware	TPE	1	1	C18-C20
F2H43.2 0-10m	Post-medieval Pottery	Coarse red earthenware	CRE	1	3	C18-C20
F2H44.5 50-60m	Post-medieval Pottery	Coarse red earthenware	CRE	1	11	C18-C20
F2H44.8 90-100m	Post-medieval Pottery	Coarse red earthenware	CRE	1	4	C18-C20
F2H47.7 90-100m	Iron	Object		1	77	
F2H47.8 20-30m	Post-medieval Pottery	Glazed red earthenware	GRE	1	19	C16-C18
F2H47.9 0-10m	Post-medieval Pottery	Transfer printed earthenware	TPE	1	5	C18-C20
F2H48.1 90-100m	Post-medieval Pottery	Refined red earthenware	REFR	1	2	LC18-C20
F2H49.10 30-40m	Post-medieval Pottery	Refined red earthenware	REFR	1	5	LC18-C20
F3H52.7 90-100m	Modern Pottery	Unprovenanced stoneware	UNS SW	1	6	C19+
F3H56.2 20-30m	Iron	Horseshoe		1	343	
F3H56.7 40-50m	Post-medieval Pottery	Glazed red earthenware	GRE	1	6	C16-C18
F3H57.10 20-30m	Post-medieval Pottery	Coarse red earthenware	CRE	1	6	C18-C20
F3H57.10 20-30m	Post-medieval Pottery	Refined red earthenware	REFR	1	7	LC18-C20
F3H57.3 70-80m	Post-medieval Pottery	Refined red earthenware	REFR	1	4	LC18-C20
F3H57.4 70-80m	Post-medieval Pottery	Black basalt stoneware	BLSW	1	6	LC18-C20
F3H57.4 70-80m	Post-medieval Pottery	Glazed red earthenware	GRE	1	3	C16-C18
F3H57.5 30-40m	Post-medieval Pottery	Refined red earthenware	REFR	1	1	LC18-C20
F3H57.6 20-30m	Post-medieval Pottery	Refined red earthenware	REFR	1	5	LC18-C20
F3H57.6 40-50m	Post-medieval Pottery	Refined red earthenware	REFR	1	1	LC18-C20
F3H57.8 20-30m	Post-medieval Pottery	Coarse red earthenware	CRE	1	3	C18-C20
F3H58.1 80-90m	Post-medieval Pottery	Coarse red earthenware	CRE	1	8	C18-C20

F3H61.3 50-60m	Post-medieval Pottery	Glazed red earthenware	GRE	1	5	C16-C18
F3H61.7 20-30m	Iron	Nail		1	28	
F3H62.4 30-40m	Post-medieval Pottery	Refined red earthenware	REFR	1	7	LC18-C20
F3H62.5 30-40m	Iron	Horseshoe		1	70	
F3H62.8 30-40m	Post-medieval Pottery	Refined red earthenware	REFR	1	5	LC18-C20
F3H62.9 20-30m	Post-medieval Pottery	Refined red earthenware	REFR	1	5	LC18-C20
F3H63.1 20-30m	Post-medieval Pottery	Refined red earthenware	REFR	1	9	LC18-C20
F3H63.5 20-30m	Post-medieval Pottery	Coarse red earthenware	CRE	1	25	C18-C20
F3H63.5 60-70m	Post-medieval Pottery	Refined red earthenware	REFR	2	10	LC18-C20
F3H63.6 0-10m	Post-medieval Pottery	Refined red earthenware	REFR	1	6	LC18-C20
F3H63.8 70-80m	Post-medieval Pottery	Glazed red earthenware	GRE	1	3	C16-C18
F3H65.8 0-10m	Post-medieval Pottery	Refined red earthenware	REFR	1	14	LC18-C20
F3H65.8 90-100m	Post-medieval Pottery	Frechen stoneware	GSW4	1	12	C16-C17
F3H66.10 90-100m	Post-medieval Pottery	Refined red earthenware	REFR	1	5	LC18-C20
F3H66.4 30-40m	Post-medieval Pottery	Refined red earthenware	REFR	1	4	LC18-C20
F3H66.8 10-20m	Post-medieval Pottery	Refined red earthenware	REFR	1	3	LC18-C20
F3H66.9 0-10m	Post-medieval Pottery	Coarse red earthenware	CRE	1	9	C18-C20
F4H72.10 10-20m	Medieval Pottery	Midlands purple ware	MIDP	1	15	LC14-C16
F4H72.2 50-60m	Post-medieval Pottery	Coarse red earthenware	CRE	1	3	C18-C20
F4H73.8 20-30m	Post-medieval Pottery	Refined red earthenware	REFR	1	4	LC18-C20
F4H74.2 20-30m	Post-medieval Pottery	Refined red earthenware	REFR	1	12	LC18-C20
F4H74.3 10-20m	Post-medieval Pottery	Refined red earthenware	REFR	1	9	LC18-C20
F4H74.5 60-70m	Post-medieval Pottery	Coarse red earthenware	CRE	1	9	C18-C20
F5H79.5 90-100m	Post-medieval Pottery	Refined red earthenware	REFR	1	11	LC18-C20
F5H82.4 50-60m	Post-medieval Pottery	Refined red earthenware	REFR	1	22	LC18-C20
F5H83.7 70-80m	Post-medieval Pottery	Transfer printed earthenware	TPE	1	3	C18-C20
F5H85.3 40-50m	Post-medieval Pottery	Glazed red earthenware	GRE	1	6	C16-C18

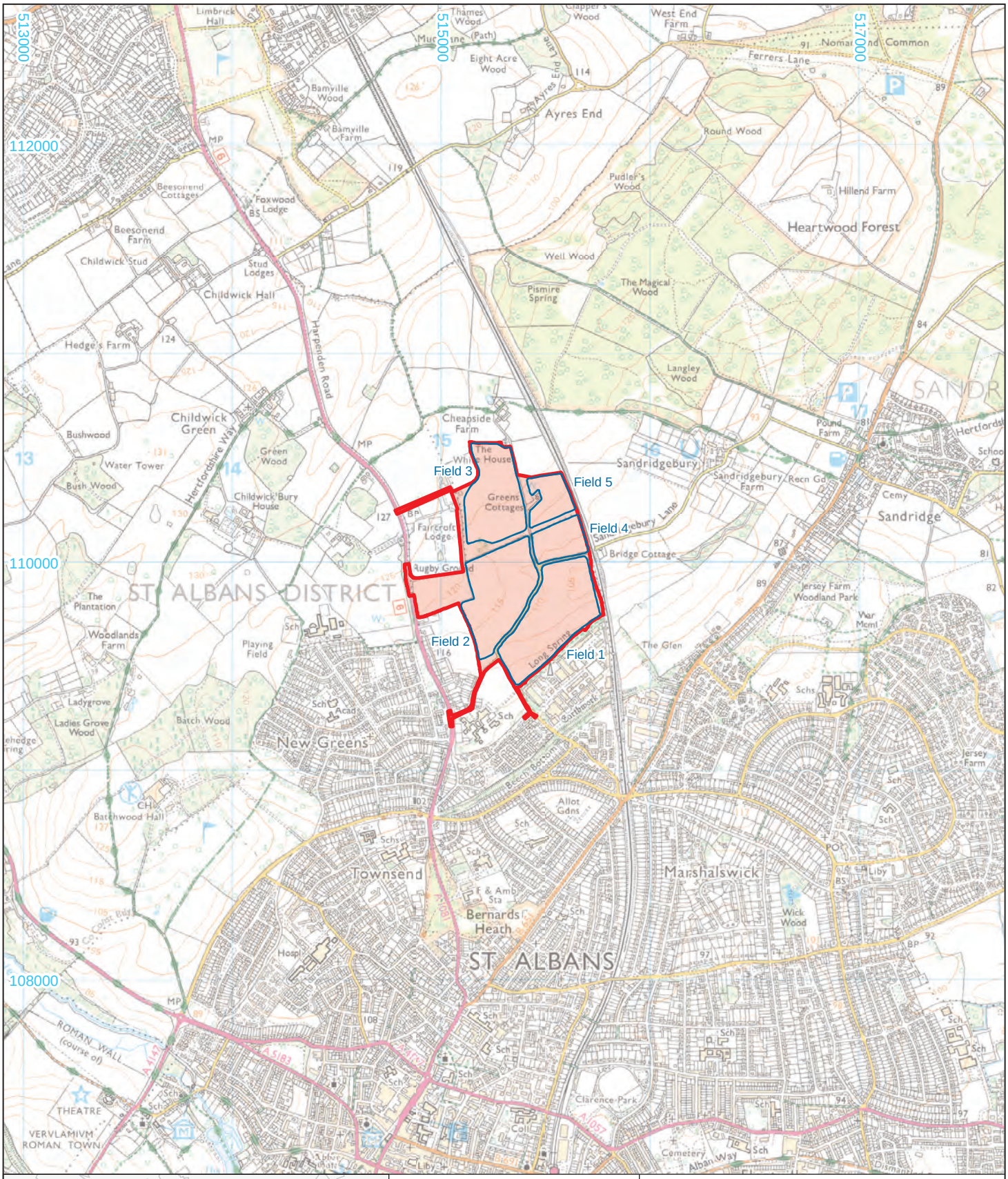
Table 1: Finds Concordance

Period	**Fabric Description**	**Fabric Code**	**Count**	**Weight (g)**
Roman Pottery	Sandy grey ware	UNS GW	1	3
Medieval Pottery	Midlands purple ware	MIDP	1	15
Post-medieval/Modern Pottery	Black basalt stoneware	BLSW	1	6
	Coarse red earthenware	CRE	12	94
	Glazed red earthenware	GRE	13	149
	Frechen Stoneware	GSW4	1	12
	Refined red earthenware	REFR	35	327
	Transfer printed earthenware	TPE	3	9
	Lambeth Stoneware	LMSW	1	37
	Unprovenanced Slipware	UNS SLP	1	4
	Unprovenanced stoneware	UNS SW	1	6
Grand Total			70	662

Table 2: Fabric Descriptions

APPENDIX B: OASIS REPORT FORM

PROJECT DETAILS		
Project Name	Cheapside, St Albans	
Short description	An archaeological fieldwalking survey was undertaken by Cotswold Archaeology between 30 September and 9 October 2019 at Cheapside, St Albans, Hertfordshire. The fieldwalking survey was undertaken to inform the heritage chapter of an Environmental Statement to support a forthcoming planning application. The fieldwalking survey was undertaken across five fields totalling 60.73ha within which, prior to commencement, approximately 50.5ha was anticipated to be suitable for survey. Allowing for ground constraints, in total 47ha was surveyed across the five fields. The survey recorded 70 sherds of pottery, eight fragments of iron and 2265 fragments of undiagnostic ceramic building material. No concentrations of material likely to be indicative of, or derived from sub-surface features were identified, and no lithics were recovered to suggest a continuation of Neolithic and Bronze Age flint scatters previously identified to the west of the site, at the former Cheapside Farm. Recovered flint comprised just four pieces, all subsequently determined to be unworked/ of natural origin. Only two sherds of pottery, one sherd of locally produced Roman pottery and a single sherd of Midlands purple ware, of broad late 14th to 16th century date, were of archaeological significance. Both of these sherds are likely to have derived from manuring processes. The remaining pottery was of later post-medieval and modern date (18th to 20th century) and, as with the other material recovered, is again almost certainly derived from manuring processes.	
Project dates	30 September – 9 October 2019	
Project type	Fieldwalking Survey	
Previous work	None	
Future work	Unknown	
PROJECT LOCATION		
Site Location	St Albans, Hertfordshire	
Study area (M^2/ha)	46.69ha	
Site co-ordinates	515295 – 210357	
PROJECT CREATORS		
Name of organisation	Cotswold Archaeology	
Project Brief originator	N/A	
Project Design (WSI) originator	Cotswold Archaeology	
Project Manager	Adrian Scruby	
Project Supervisor	Simon Sworn	
MONUMENT TYPE	None	
SIGNIFICANT FINDS	None	
PROJECT ARCHIVES	Intended final location of archive (museum/Accession no.)	Content (e.g. pottery, animal bone etc)
Physical	Verulamium Museum	Ceramics and metalwork
Paper	Verulamium Museum	Fieldwalking sheets,
Digital	Verulamium Museum	Digital photographs
BIBLIOGRAPHY		
CA (Cotswold Archaeology) 2019 *Cheapside, St Albans, Hertfordshire: Archaeological Fieldwalking Survey.* CA typescript report **MK0130_1**		





N

Site boundary

Field boundary

0 1km

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Ordnance Survey 0100031673

Cotswold Archaeology

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PROJECT TITLE

Cheapside, St Albans, Hertfordshire: Fieldwalking Survey

FIGURE TITLE

Site location plan

DRAWN BY	AW	PROJECT NO.	MK0130	FIGURE NO.
CHECKED BY	DJB	DATE	08.11.19	1
APPROVED BY	SS	SCALE@A4	1:25,000	

514800
515200
515600
516000
210400
210000
209600
Harpenden Road
Railway
Sandridgebury Lane
Field 1
Field 2
Field 3
Field 4
Field 5
N
Site boundary
Fieldwalking area
Iron
Roman pottery
Medieval pottery
Post-medieval pottery
Modern pottery
0
1:500
25m
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Cotswold Archaeology
Andover 01264 347630
Cirencester 01285 771022
Exeter 01392 573970
Milton Keynes 01908 564660
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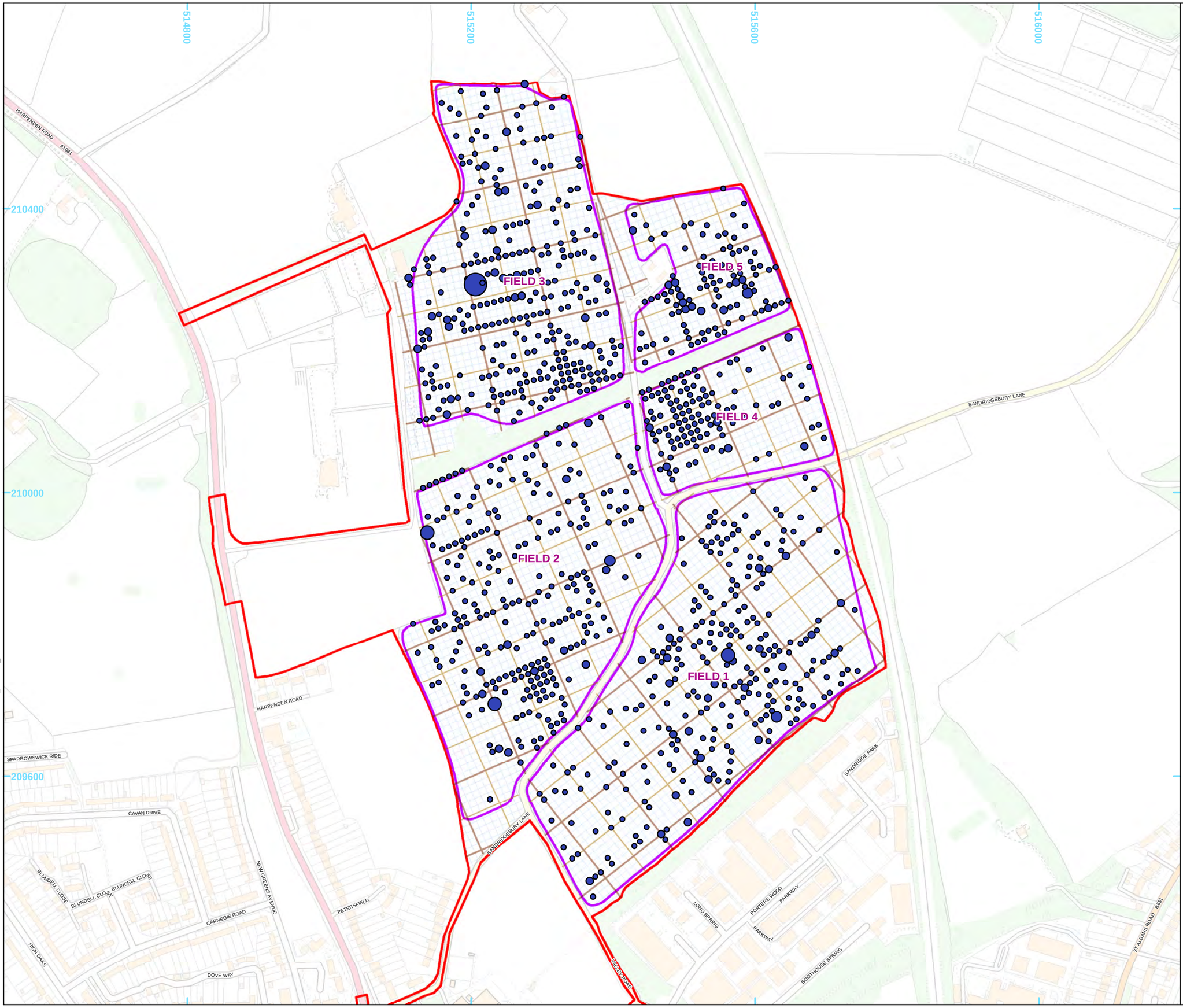
PROJECT TITLE
Cheapside, St Albans, Hertfordshire: Fieldwalking Survey
FIGURE TITLE
Finds distribution plot
DRAWN BY AW
CHECKED BY DJB
APPROVED BY SS
PROJECT NO. MK0130
DATE 08.11.19
SCALE@A3 1:5000
FIGURE NO. 2



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PROJECT TITLE

Land North of St Albans
Hertfordshire

FIGURE TITLE

Distribution of Ceramic Building Material

DRAWN BY	**JSJ**	*PROJECT NO*	**MK0130**	*FIGURE NO.*
CHECKED BY	**DB**	*DATE*	**01/11/2019**	**3**
APPROVED BY	**AS**	*SCALE@A3*	**1:5,000**	

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Field 1, looking south-east



Field 1, southern boundary, looking east



Feild 1 from south-east corner, looking north-west



Field 1, Hectare 9, looking north-east



Field 1, Hectare 9, detail of ground conditions, looking north-east

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PROJECT TITLE

Cheapside, St Albans, Hertfordshire: Fieldwalking Survey

FIGURE TITLE

Field 1: Photographs

DRAWN BY	**AW**	*PROJECT NO.*	**MK0130**	*FIGURE NO.*
CHECKED BY	**DJB**	*DATE*	**08.11.19**	**4**
APPROVED BY	**SS**	*SCALE@A3*	**NA**	



Field 2 from north-east corner, looking south-west



Field 2 from southern boundary, looking north



Crop cover to the south of Field 2, looking north-east



Field 3 from south-east corner, looking west



Field 3, Hectare 56, looking north-east



Field 3, Hectare 56, detail of ground conditions, looking north-east

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PROJECT TITLE

Cheapside, St Albans, Hertfordshire: Fieldwalking Survey

FIGURE TITLE

Fields 2 and 3: Photographs

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CHECKED BY	**DJB**	*DATE*	**08.11.19**	**5**
APPROVED BY	**SS**	*SCALE@A3*	**NA**	



Field 4 from western boundary, looking east



Field 4, Hectare 74, looking north-west



Field 4, Hectare 74, detail of ground conditions looking north-west



Field 5 from north-west corner, looking south-east



Field 5, Hectare 85, looking north-east



Field 5, Hectare 85, detail of ground conditions, looking north-east

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PROJECT TITLE

Cheapside, St Albans, Hertfordshire: Fieldwalking Survey

FIGURE TITLE

Fields 4 and 5: Photographs

DRAWN BY	**AW**	*PROJECT NO.*	**MK0130**	*FIGURE NO.*
CHECKED BY	**DJB**	*DATE*	**08.11.19**	**6**
APPROVED BY	**SS**	*SCALE@A3*	**NA**	

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Appendix 9.2: Geo-physical survey results

GEOPHYSICAL SURVEY REPORT

Woolam Park, North St Albans, Herts

Client

Orion Heritage Ltd

For

Hallam Land Management

Survey Report

18646

OASIS Ref. No.

sumogeop1-527956

Date

12 September 2024

Survey Report 18646: Woolam Park, North St Albans, Herts

Survey dates	27-30 August 2024
Field co-ordinator	Robert Ottolangui MSc
Field Team	William Vernon BA (Hons)
Report Date	12 September 2024
CAD Illustrations	Thomas Cockcroft MSc MCIfA
Report Author	Thomas Cockcroft MSc MCIfA
Project Manager	Thomas Cockcroft MSc MCIfA
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Appendix B	Technical Information: Magnetic Theory
Appendix C	OASIS Data Collection Sheet
Appendix D	Data Management Plan & Archive Selection Strategy

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3 SURVEY TECHNIQUE

3.1 Detailed magnetic survey (magnetometry) was chosen as the most efficient and effective method of locating the type of archaeological anomalies which might be expected at this site. All survey techniques followed the guidance set out by CIfA (2020) and the European Archaeology Council (EAC) (2016).

Bartington Cart System Traverse Interval 1.0m Sample Interval 0.125m

The only processes performed on data are the following unless specifically stated otherwise:

Zero Mean Traverse	This process sets the background mean of each traverse within each grid to zero. The operation removes instrument striping effects and edge discontinuities over the whole of the data set.

4 EXECUTIVE SUMMARY OF RESULTS

4.1 A magnetometer survey of 45.5 hectares of land at Woolam Park, North St Albans has not recorded any magnetic responses that could be interpreted as being of definite archaeological interest. Responses of uncertain origin have been detected in the survey and while archaeological origins cannot be entirely discounted for some of the anomalies, the majority are probably due to natural and agricultural processes. Geological and pedological responses dominate the results and include former palaeochannels meandering across the site. Two service pipes have been marked in the west of Area 3 and ferrous responses plus zones of magnetic disturbance in Area 2 are due to sports pitches. Magnetic disturbance in the west of Area 1 has probably been caused by spreads of debris / made ground.

5 INTRODUCTION

5.1 **SUMO GeoSurveys** was commissioned to undertake a geophysical survey of an area outlined for development. This survey forms part of an archaeological investigation being undertaken by **Orion Heritage Ltd** on behalf of **Hallam Land Management.**

5.2 Site Details

NGR / Postcode	TL 15403 09873 / AL3 6JE
Location	The site is located 8km east of Hemel Hempstead and 2km north of St Albans. The survey area is bounded to the west by Harpenden Road (A1081), to the south by Porter Wood industrial estate and to the easy by a railway line.
HER	Hertfordshire HER
OASIS Ref. No.	sumogeop1-527956
District	St. Albans District
Parish	Sandridge Civil parish / Non-Civil Parish
Topography	Generally flat
Land Use	Playing field / arable
Geology (BGS 2024)	Bedrock: Lewes Nodular Chalk Formation and Seaford Chalk Formation - Chalk Superficial: Kesgrave Catchment Subgroup - Sand and gravel. Clay-with-flints Formation - Clay, silt, sand and gravel.
Soils (CU 2024)	Soilscape 8: Slightly acid loamy and clayey soils with impeded drainage
Survey Methods	Magnetometer survey (fluxgate gradiometer)
Study Area	45.5 ha

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5.3 ***Archaeological Background*** *(OH 2024)*

5.3.1 A heritage desk-based assessment has been carried out by Orion Heritage. The study area does not contain any designated or non-designated heritage assets. The site has been subject to fieldwalking, undertaken by Cotswold Archaeology in 2019. The survey recorded 70 sherds of pottery, eight fragments of iron and 2265 fragments of undiagnostic ceramic building material. No concentrations of material likely to be indicative of, or derived from sub-surface features were identified, and no lithics were recovered to suggest a continuation of Neolithic and Bronze Age flint scatters previously identified to the west of the site, at the former Cheapside Farm. Only two sherds of pottery, one sherd of locally produced Roman pottery and a single sherd of Midlands purple ware, of broad late 14th to 16th century date, were of archaeological significance. Both of these sherds are likely to have derived from manuring processes. The remaining pottery was of later postmedieval and modern date (18th to 20th century) and, as with the other material recovered, is again almost certainly derived from manuring processes.

5.3.2 The BSER records no prehistoric finds or features within or immediately adjacent to the study site. The earliest evidence for human occupation within the study area dates to the Palaeolithic: two flint tools were recovered at Bernards Heath Brickfield (BHER 1052) and a Palaeolithic handaxe was recovered from 86 Beech Road (BHER 13540), 450m+ south of the study site. Fieldwalking at Cheapside Farm (HHER 9607), 250m north of the study site recovered a large assemblage of worked flint, largely of late Neolithic date but also including early Neolithic and early Bronze Age pieces (HHER 9607). The study site lies c. 250m north of the Iron Age territorial boundary known as Beech Bottom Dyke (NHLE 1019136) survives as a deep, dry ditch entrenchment. The known section is 1.98km long, 1.58km of which is clearly visible in the landscape.

5.3.3 The study site lies c. 1.8km north of the Roman town of Verulamium, the scheduled remains of which are located in the southwest of the modern city of St Albans. The study site is located to the east of Watling Street, however the Roman road from Verulamium to Braughing passes c. 100m south of the study site.

5.3.4 The study site is located within the ancient parish of Sandridge, which is first recorded in documentary sources to the 8th century when the manor was granted by Egfrid son of Offa to St. Albans in 796. The scheduled remains of the medieval moated manorial site at Batch Wood (NHLE 1012407) may be the site of the manor of Childwicksay, although no early medieval phases are recorded in the scheduled description.

5.3.5 The study site contains no known early medieval finds or features. Possible medieval finds or features from the study site include registered common land ‘wastes’ along Sandpit Lane (HHER 12409) and woodland earthworks at Langely Wood (HHER 16528).

5.3.6 The study site contains no known post-medieval finds or features. Post-medieval assets recorded from the wider study area include Childwickbury Park and Garden (BHER 9568), c.535m west of the study site boundary. The 18th century park with 1856 gardens by Edward Kemp belonged into the Toulmin family of St Albans in the 19th century.

5.4 ***Aims and Objectives***

5.4.1 To locate and characterise any anomalies of possible archaeological interest within the study area.

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6 RESULTS

6.1 *The survey has been divided into five survey areas (Areas 1-5).*

6.2 ***Probable / Possible Archaeology***

6.2.1 No magnetic responses have been recorded that could be interpreted as being of definite archaeological interest.

6.3 ***Uncertain***

6.3.1 Numerous trends and a discrete response have been detected in the magnetic data which have been assigned to the category of *Uncertain*. They generally lack the defined morphology of anomalies that would ordinarily warrant an archaeological interpretation. However, in places, some of the anomalies in the north-east of Area 5 appear to form rectangular patters. This could be evidence that they may have anthropogenic origins but the responses have been difficult to interpret with confidence due to the natural responses that are visible throughout the survey (see 6.4). The majority of the uncertain anomalies are probably due to a combination of underlying geological variations or agricultural processes. Linear band in Area 5 aligned SW-NE coincides with feature on LiDAR and on APs – while this could also be a natural channel (see below) it partially coincides with boundary on Tithe map (see Figure 19)

6.4 ***Natural / Geological / Pedological***

6.4.1 Numerous discrete anomalies, amorphous bands of increased response and sinuous trends are visible throughout the magnetic data which have been caused by variations / weathering of the underlying geology and possible palaeochannels.

6.5 ***Service***

6.5.1 Two linear dipolar ferrous responses have been recorded in the west of Area 3 which mark the routes of service pipes.

6.6 ***Ferrous / Magnetic Disturbance***

6.6.1 Numerous ferrous anomalies and zone of increased response have been detected in Area 2. That land parcel is currently a playing field, so the majority of the responses are probably due to landscaping, goal posts and cricket pitch foundations. These are visible on 2020 aerial imagery (see Figure 20).

6.6.2 Magnetic disturbance in the west of Area 1 has been caused by an area of hardstanding which is visible on aerial imagery (see Figure 20).

6.6.3 Ferrous responses close to boundaries are due to adjacent fences and gates. Smaller scale ferrous anomalies ("iron spikes") are present throughout the data and are characteristic of small pieces of ferrous debris (or brick / tile) in the topsoil; they are commonly assigned a modern origin. Only the most prominent of these are highlighted on the interpretation diagram.

7 DATA APPRAISAL & CONFIDENCE ASSESSMENT

7.1 Historic England Table 4 (EH 2008) states that the typical magnetic response on the local soils / geology is generally good. The results from this survey indicate the presence of a number of responses of uncertain origin; consequently, there is no *a priori* reason why archaeological features would not have been detected. However, the underlying geological responses have made interpreting some of the weaker uncertain responses difficult.

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8 CONCLUSION

8.1 The magnetometer survey has not recorded any magnetic responses that could be interpreted as being of definite archaeological interest. Numerous trends and a discrete linear response have been detected in the survey which have been categorised as being of uncertain origin. While archaeological origins cannot be discounted, the anomalies have probably been caused by variations in the underlying geology and/or agricultural processes and possibly a former boundary. Discrete anomalies, sinuous trends and amorphous bands of increased response have been caused by underlying geological variations including palaeochannels. The routes of two service pipes have been marked in the west of Area 3. Ferrous responses and zones of magnetic disturbance in Area 2 are likely to be associated with sports pitches, goal post foundations, a cricket pitch and landscaping. Magnetic disturbance in the west of Area 1 has probably been caused by spreads of debris / made ground.

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9 REFERENCES

BGS 2024 *Geology of Britain Viewer,* British Geological Survey*,* website: (http://www.bgs.ac.uk/opengeoscience/home.html?Accordion1=1#maps)

CIfA 2020 *Standard and Guidance for Archaeological Geophysical Survey.* 2014 amended 2020. CIfA Guidance note. Chartered Institute for Archaeologists, Reading https://www.archaeologists.net/sites/default/files/CIfAS%26GGeophysics_3.pdf

CU 2024 *The Soils Guide*. www.landis.org.uk. Cranfield University, UK. website: http://mapapps2.bgs.ac.uk/ukso/home.html

EAC 2016 *EAC Guidelines for the Use of Geophysics in Archaeology,* European Archaeological Council, Guidelines 2.

EH 2008 *Geophysical Survey in Archaeological Field Evaluation.* English Heritage, Swindon (now withdrawn, but used for evaluating suitability of soil types)

OH 2024 *Woollam Park, North St Albans, Herts Heritage Desk Based Assessment.* Orion Heritage Ltd, Andover

10 ARCHIVE

10.1 The minimally processed data, data images, XY traces and a copy of this report are stored in **SUMO GeoSurveys'** digital archive, on an internal RAID configured NAS drive in the Midlands Office. These data are also backed up to the Cloud for off-site storage**.**

10.2 The Grey Literature will be archived with OASIS and the relevant HER within a period of 12 months.

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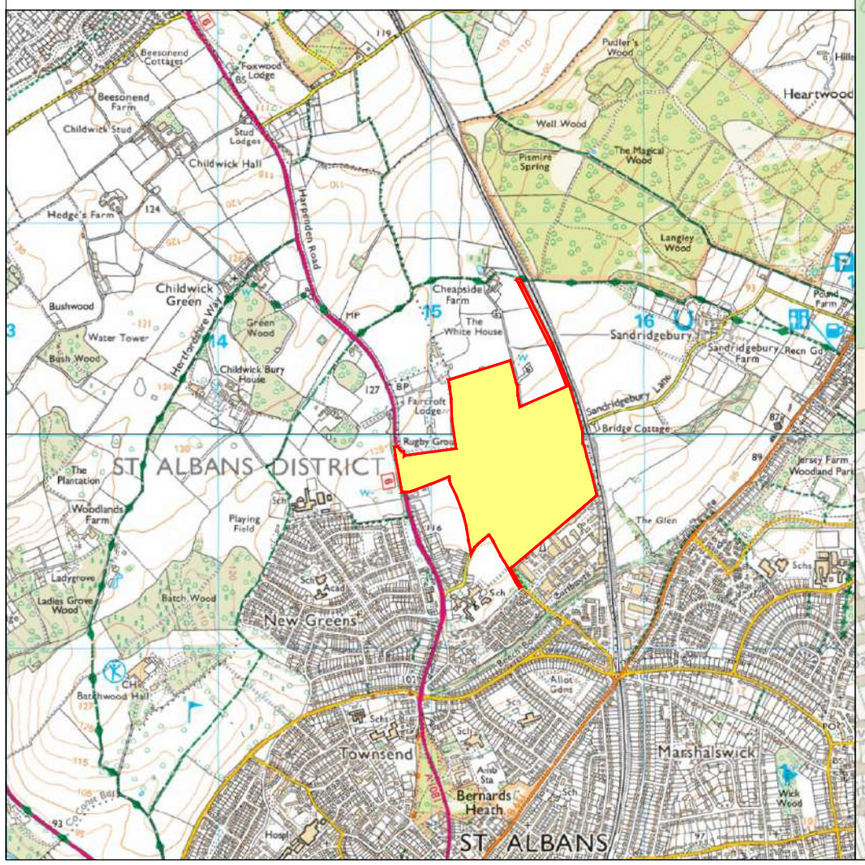

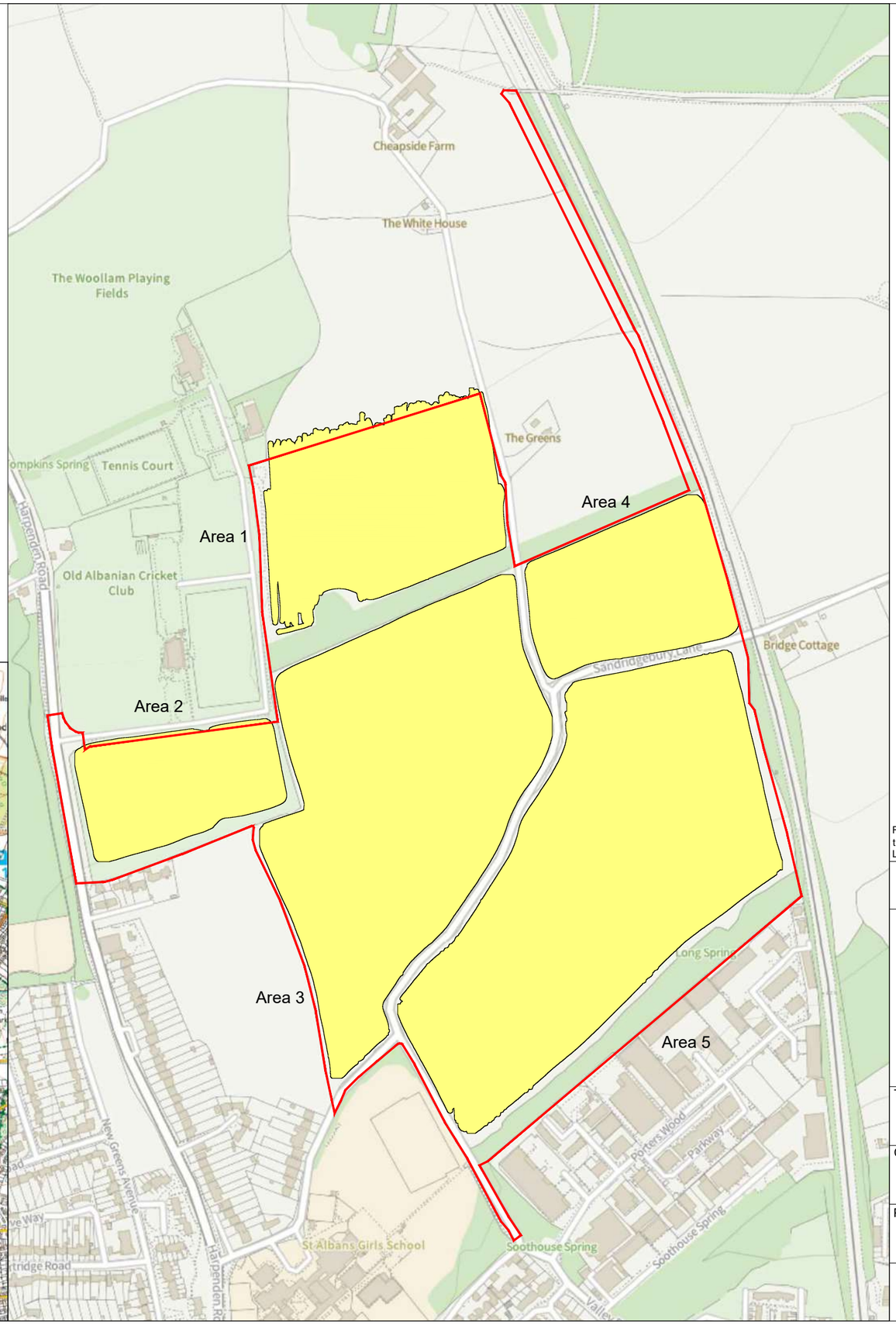

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Survey Areas

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Site Location

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
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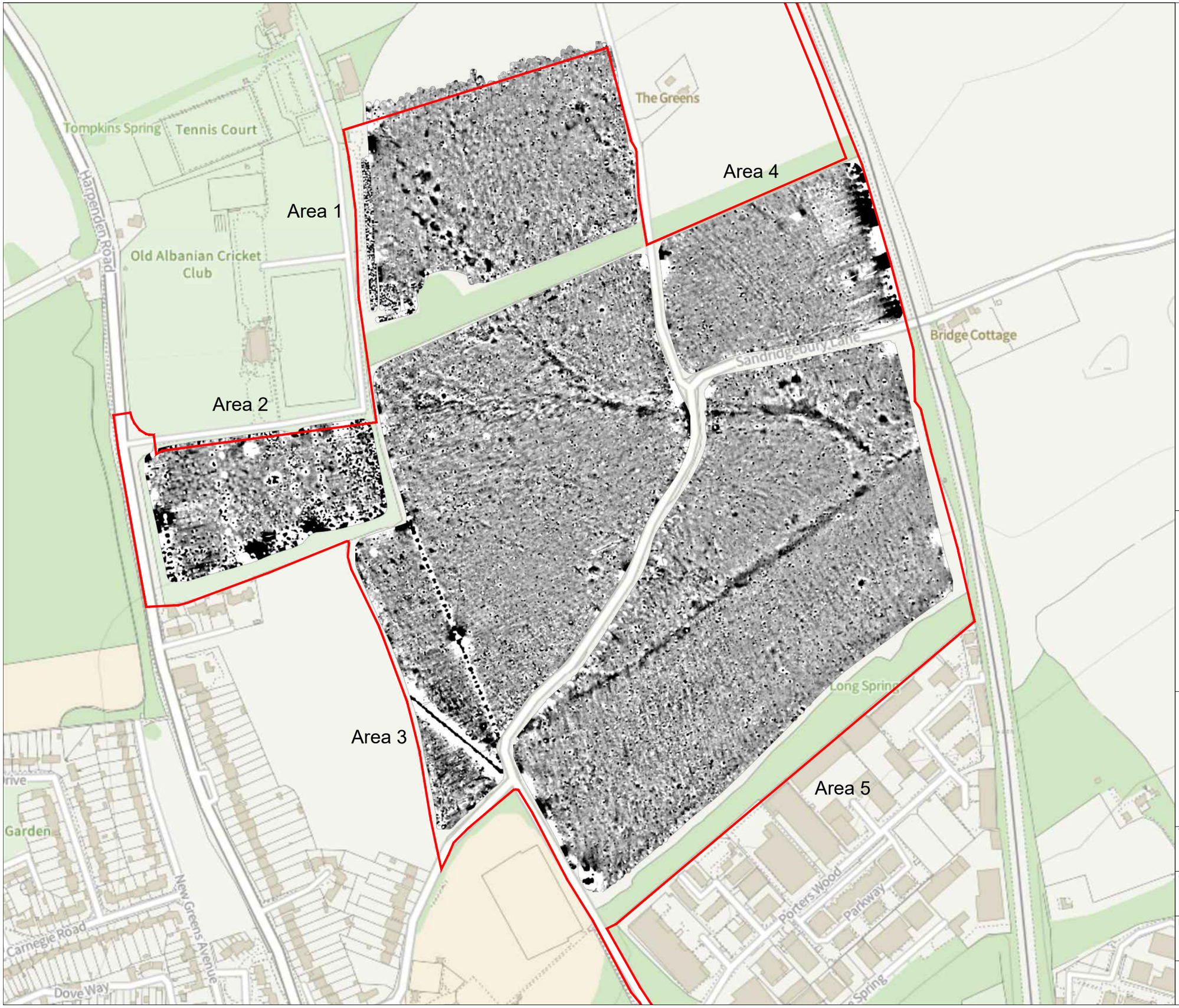

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-1nT

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Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

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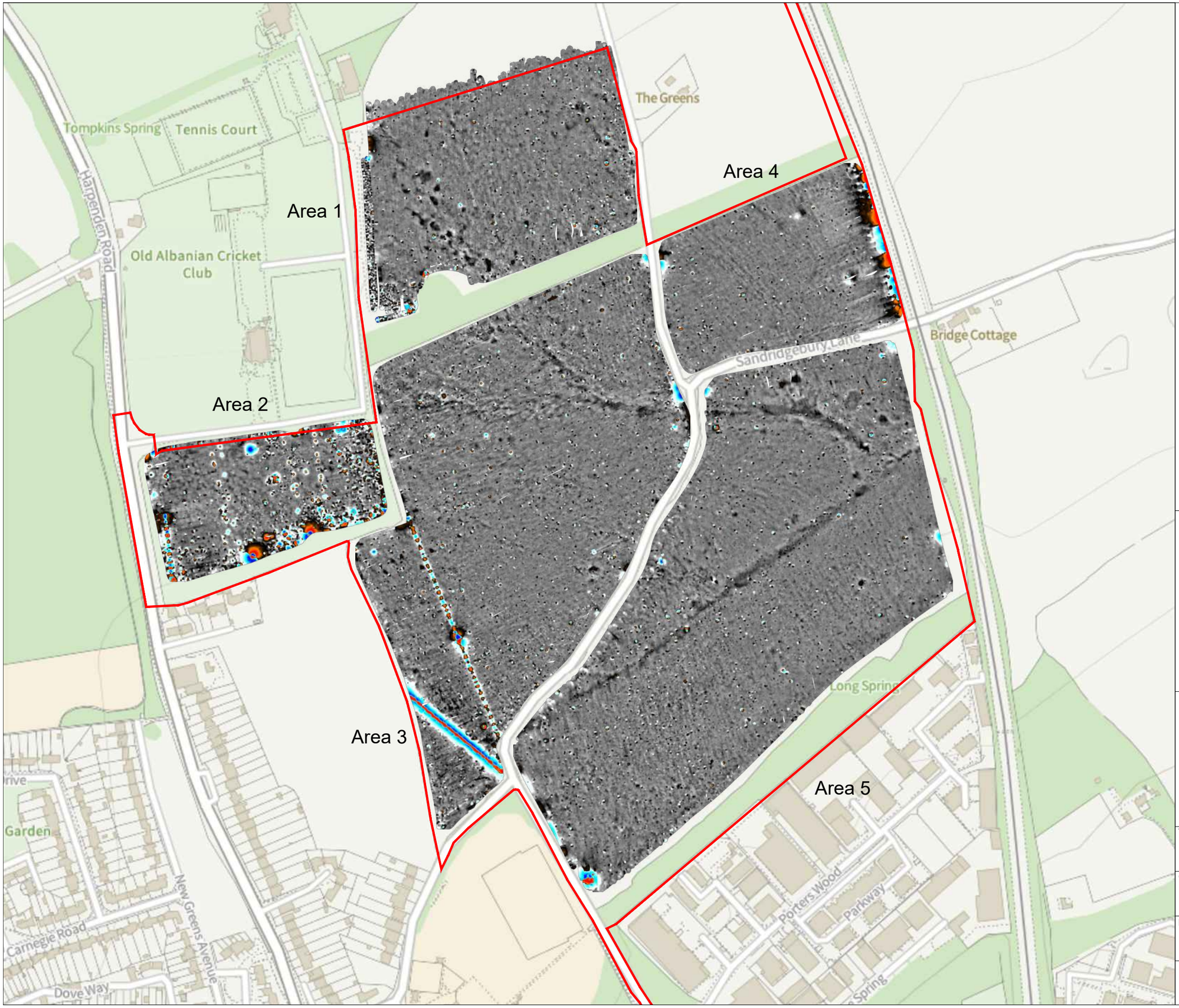

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Title:
Magnetometer Survey - Colour Plots

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 200
1:4000 @ A3

Fig No:
03

Area 1

Area 2

Area 3

Area 4

Area 5

Tompkins Spring

Tennis Court

Harpenden Road

Old Albanian Cricket Club

The Greens

Sandridgebury Lane

Bridge Cottage

Long Spring

Garden

Carnegie Road

New Greens Avenue

Dove Way

Porters Wood

Parkway

Spring

N

KEY

	Uncertain Origin (discrete anomaly / trend / increased response)
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

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Title:
Magnetometer Survey - Interpretation

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

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Fig No:
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+2nT

-1nT

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Magnetometer Survey - Greyscale Plot (Area 1)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

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Magnetometer Survey - Colour Plot (Area 1)

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Project:
18646 - Woolam Park, North St Albans, Herts

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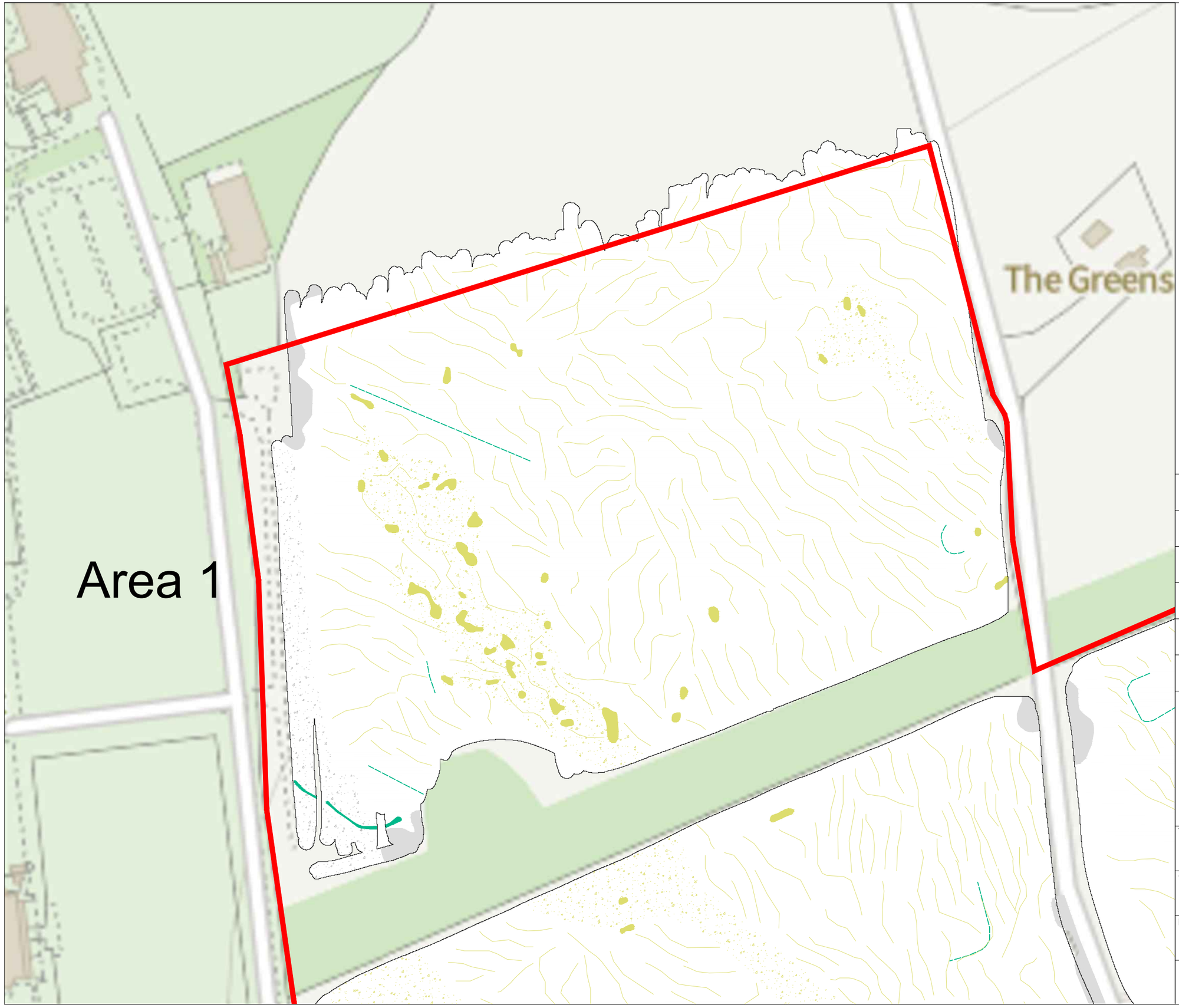

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	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation (Area 1)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
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1:1500 @ A3

Fig No:
07



N

+2nT

-1nT

sumo GeoSurveys

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Magnetometer Survey - Greyscale Plot (Area 2)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

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-100nT

sumo GeoSurveys

Title:
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Project:
18646 - Woolam Park, North St Albans, Herts

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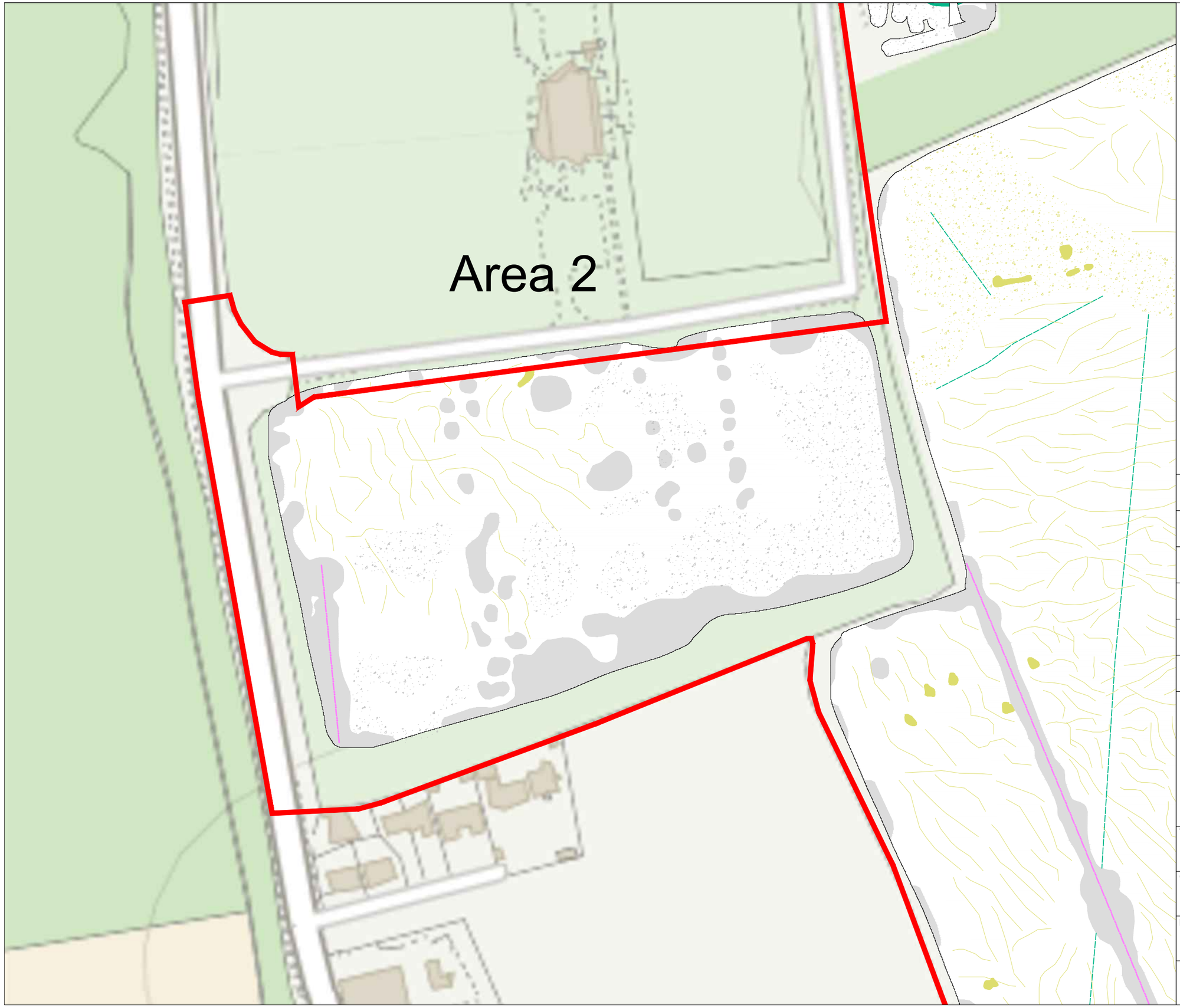

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	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation (Area 2)

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Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

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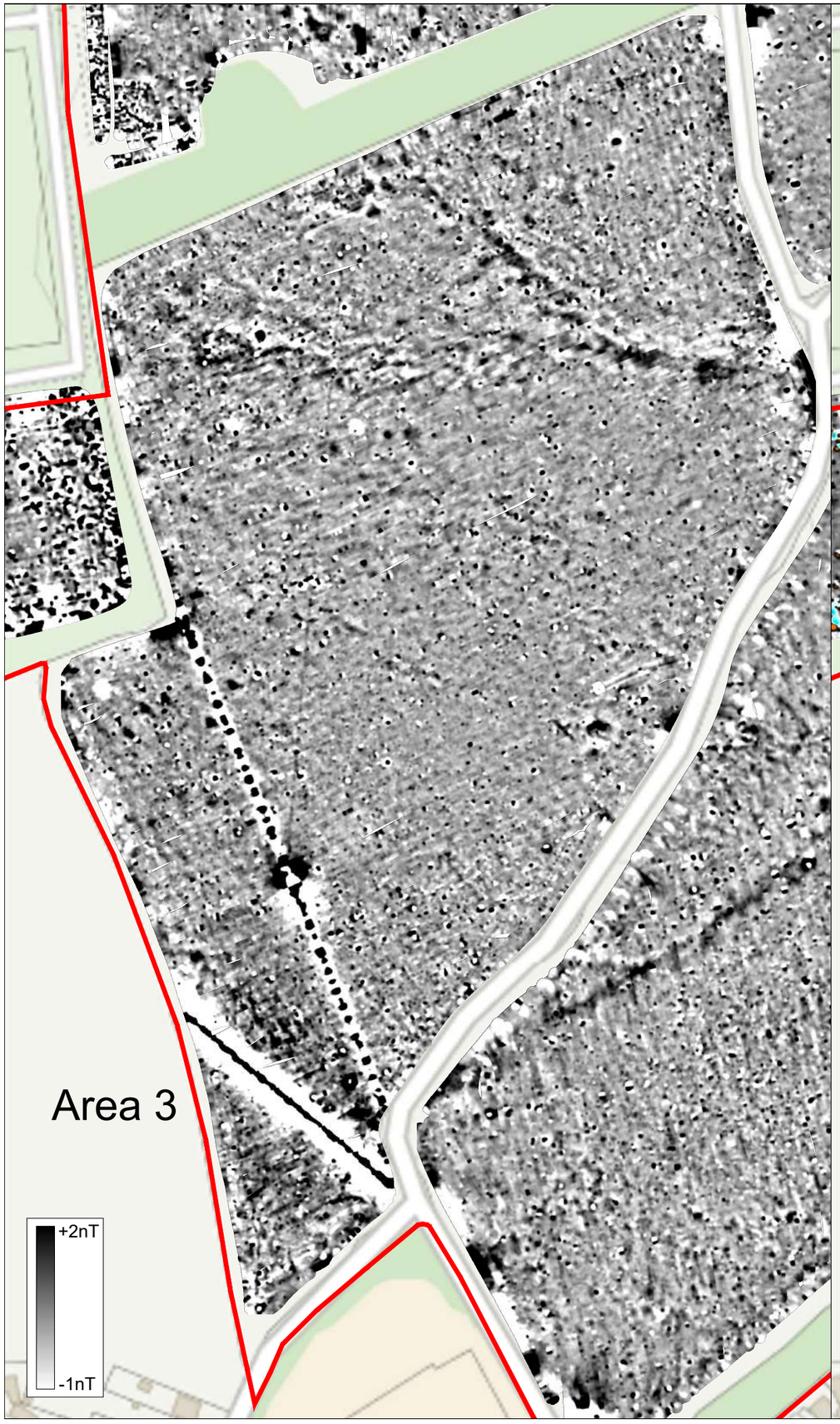

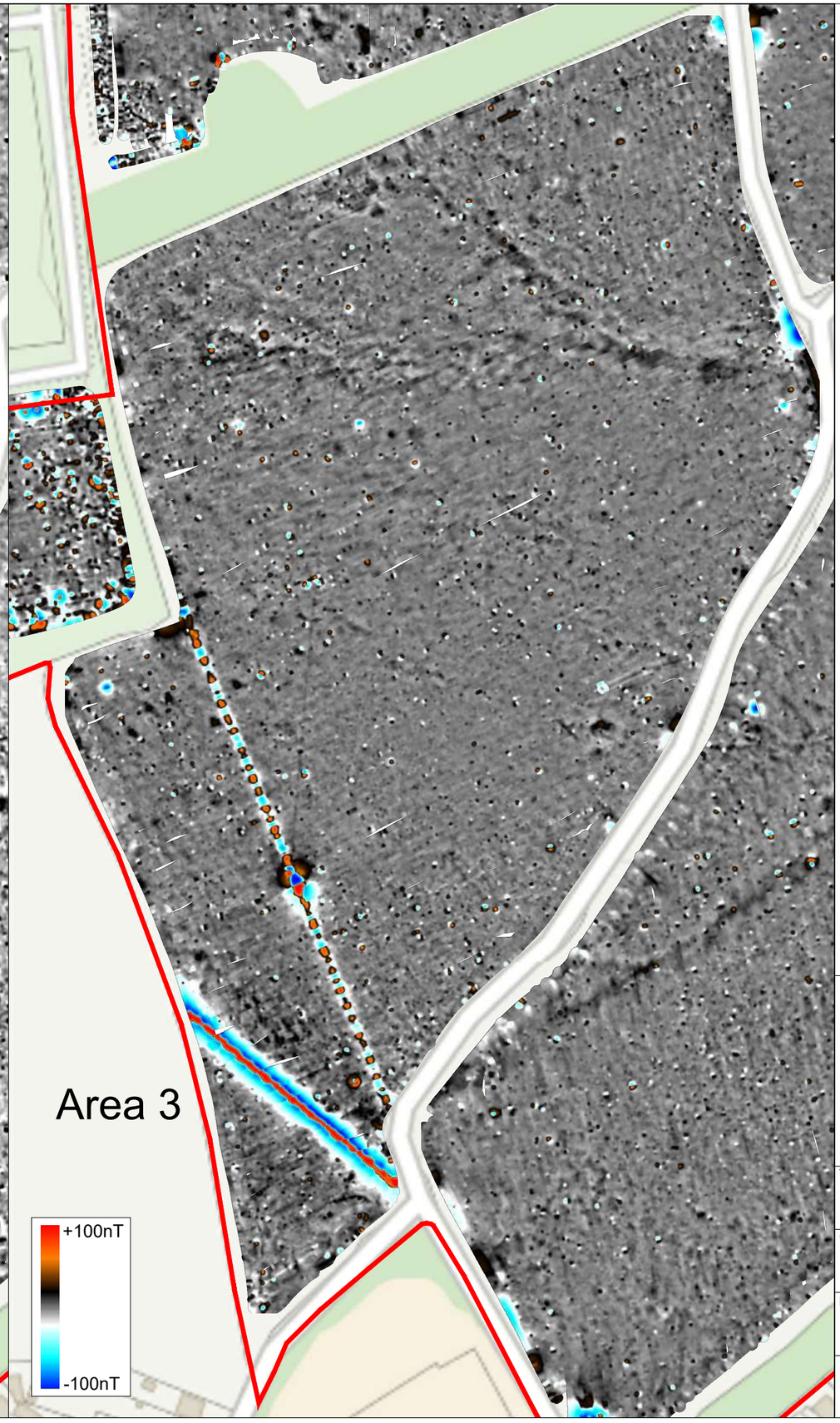

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sumo GeoSurveys

Title: Magnetometer Survey - Greyscale and Colour Plots (Area 3)

Client: Orion Heritage Ltd

Project: 18646 - Woolam Park, North St Albans, Herts

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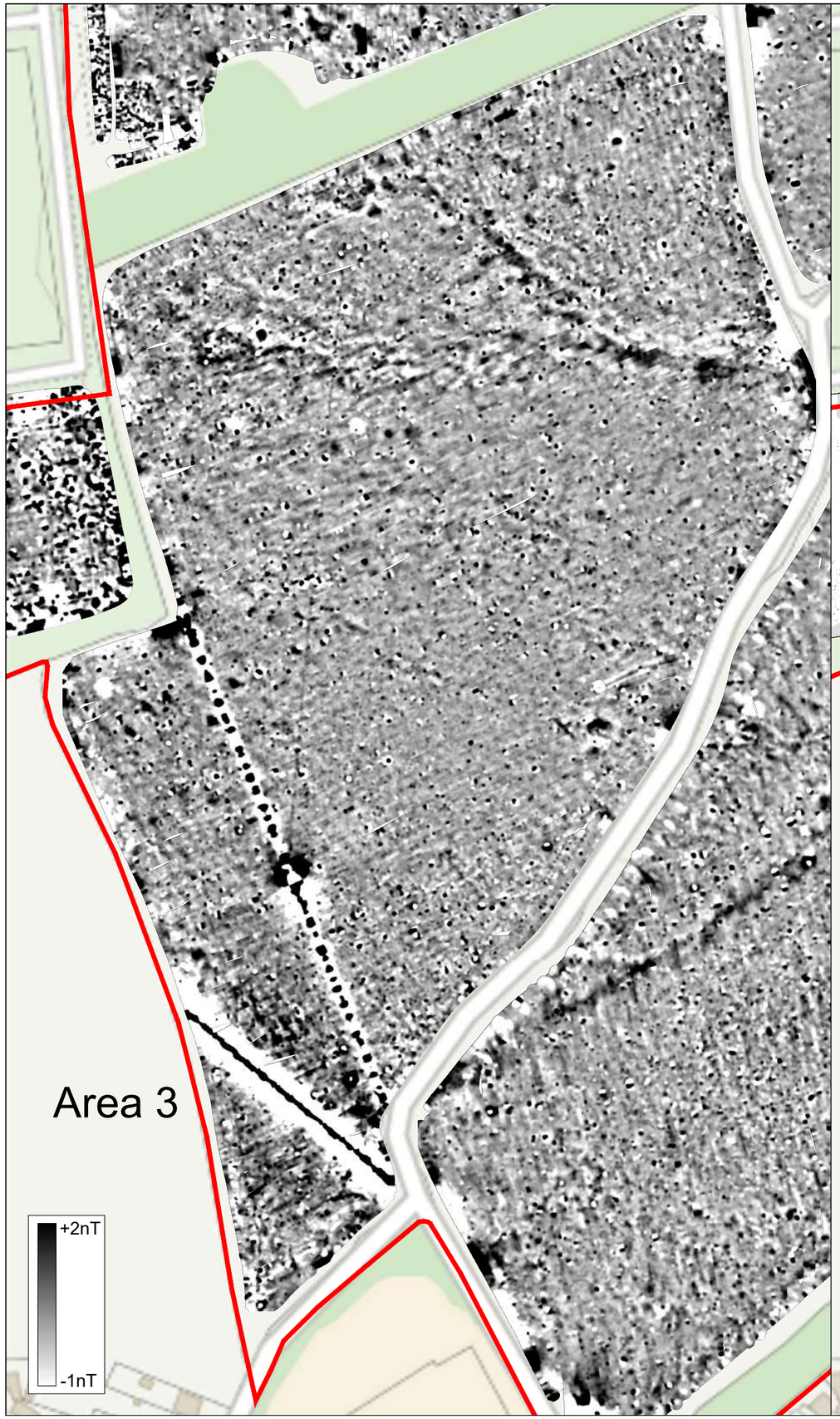

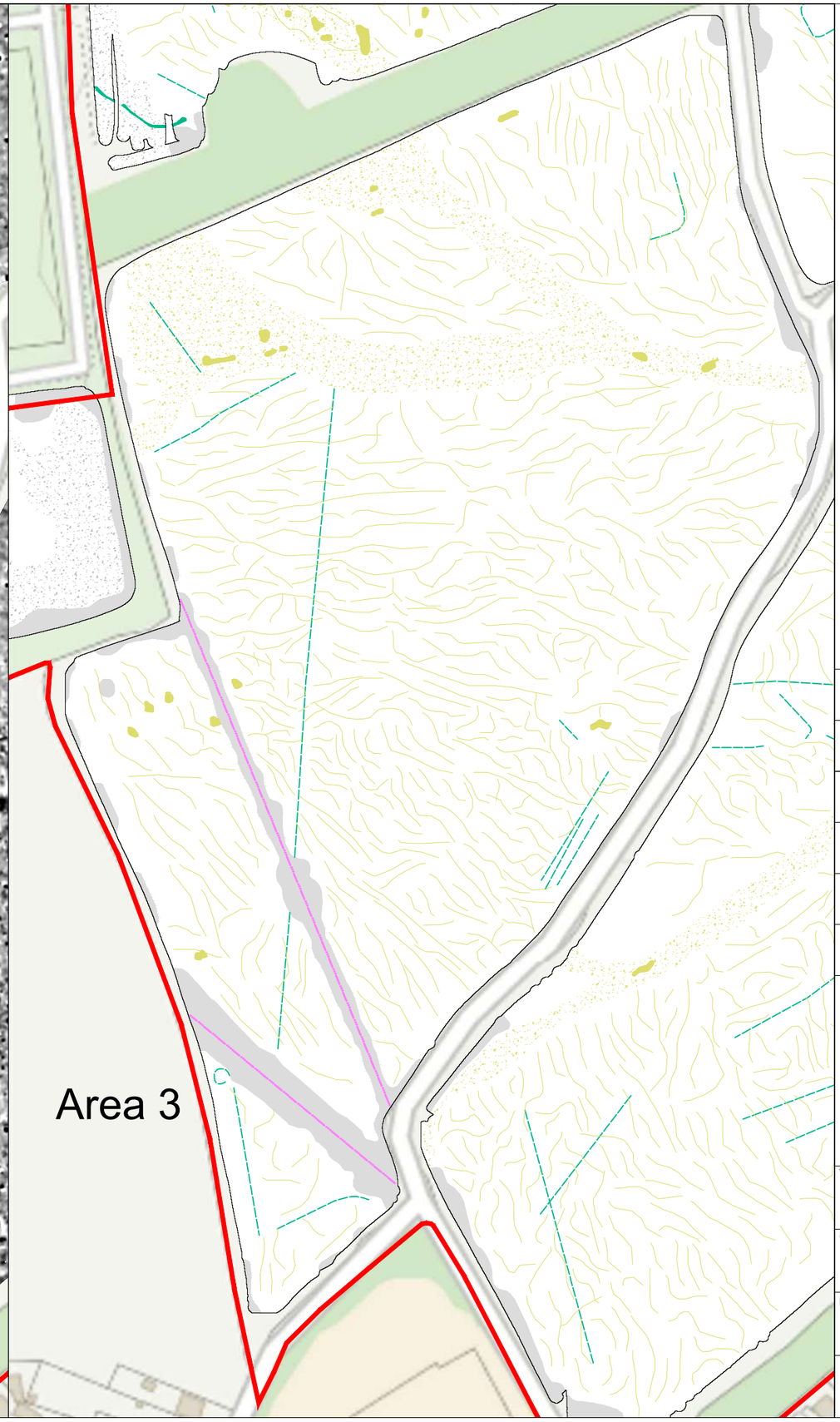

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	Service
	Ferrous

sumo GeoSurveys

Title: Magnetometer Survey - Greyscale Plot / Interpretation (Area 3)

Client: Orion Heritage Ltd

Project: 18646 - Woolam Park, North St Albans, Herts

Scale: 0 metres 125
1:2500 @ A3

Fig No: 12



N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plot (Area 4)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 75
1:1500 @ A3

Fig No:
13



N

+100nT

-100nT

sumo GeoSurveys

Title:
Magnetometer Survey - Colour Plot (Area 4)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 75
1:1500 @ A3

Fig No:
14



N

KEY

	Uncertain Origin (discrete anomaly / trend / increased response)
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation (Area 4)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 75
1:1500 @ A3

Fig No:
15



N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plot (Area 5)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 125
1:2500 @ A3

Fig No:
16



N

+100nT

-100nT

sumo GeoSurveys

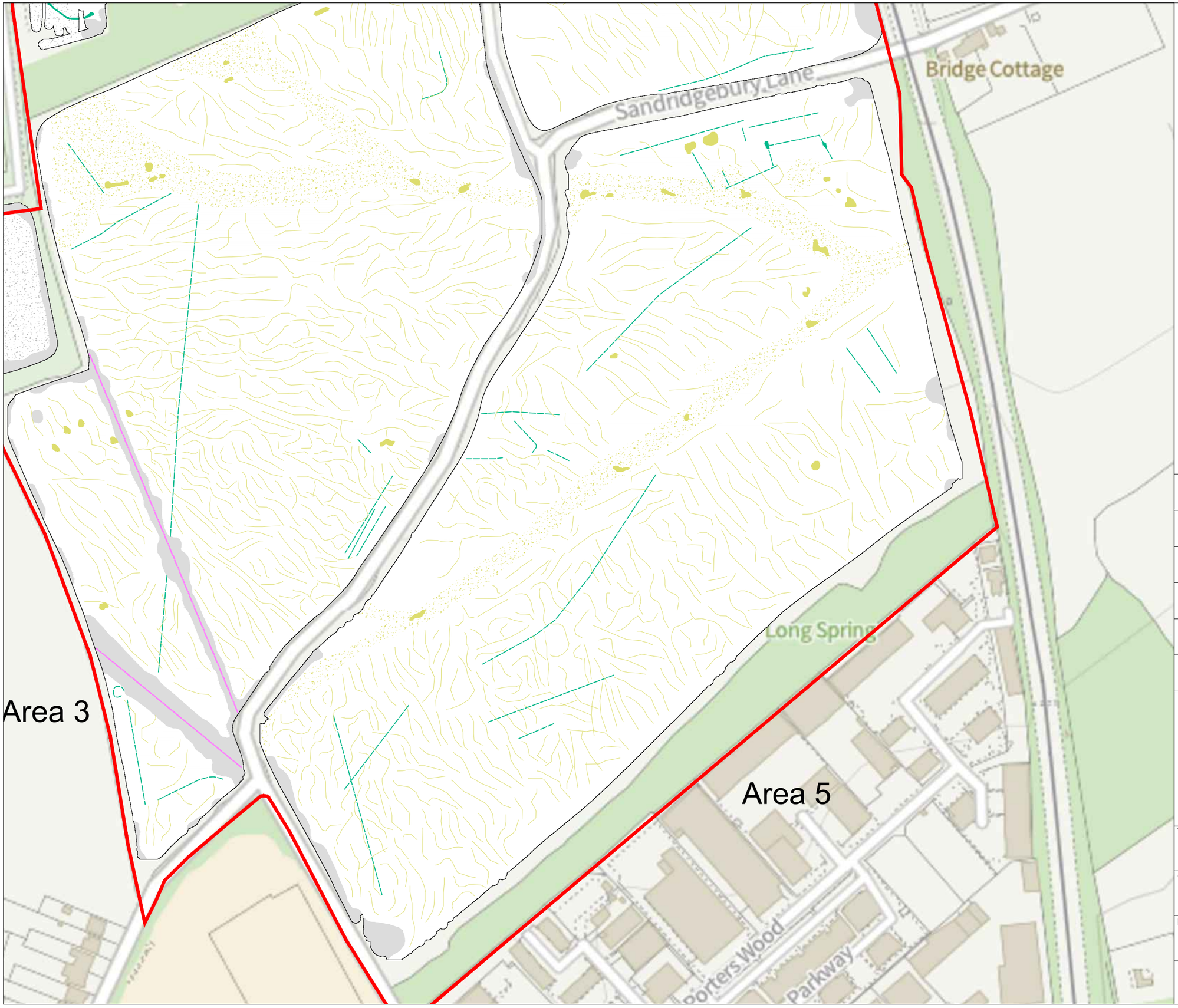
Title:
Magnetometer Survey - Colour Plot (Area 5)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 125
1:2500 @ A3

Fig No:
17



KEY

	Uncertain Origin (discrete anomaly / trend / increased response)
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

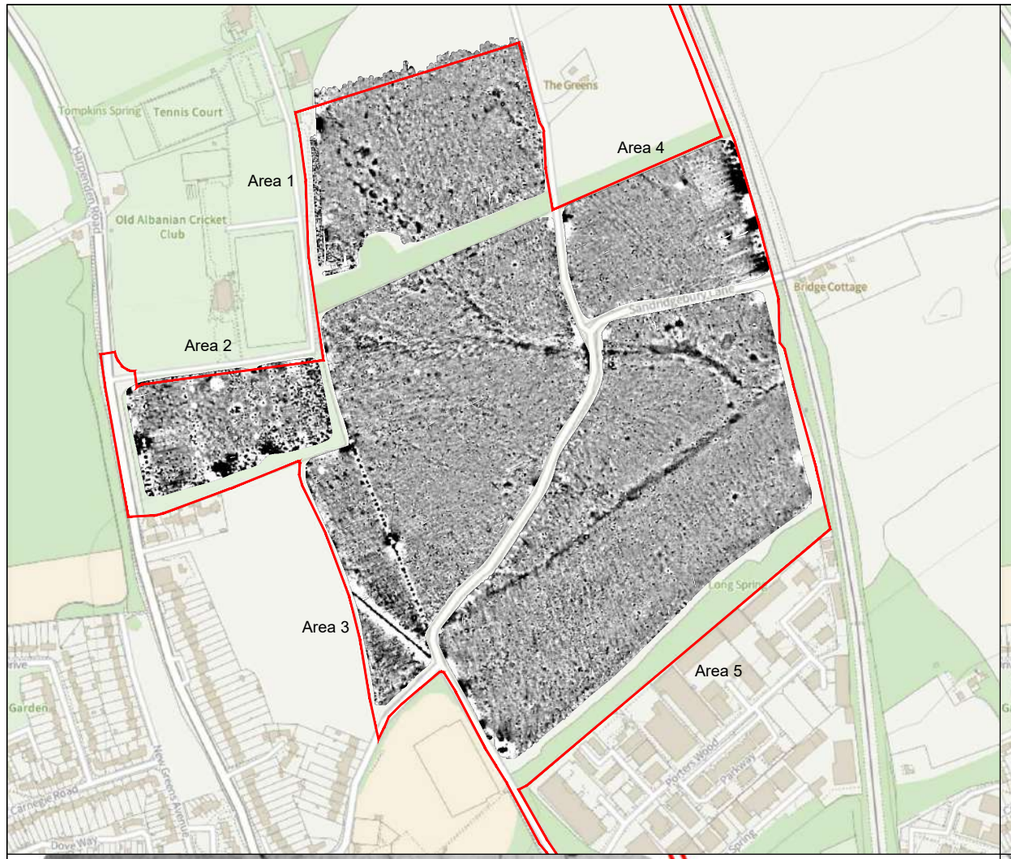
Title:
Magnetometer Survey - Interpretation (Area 5)

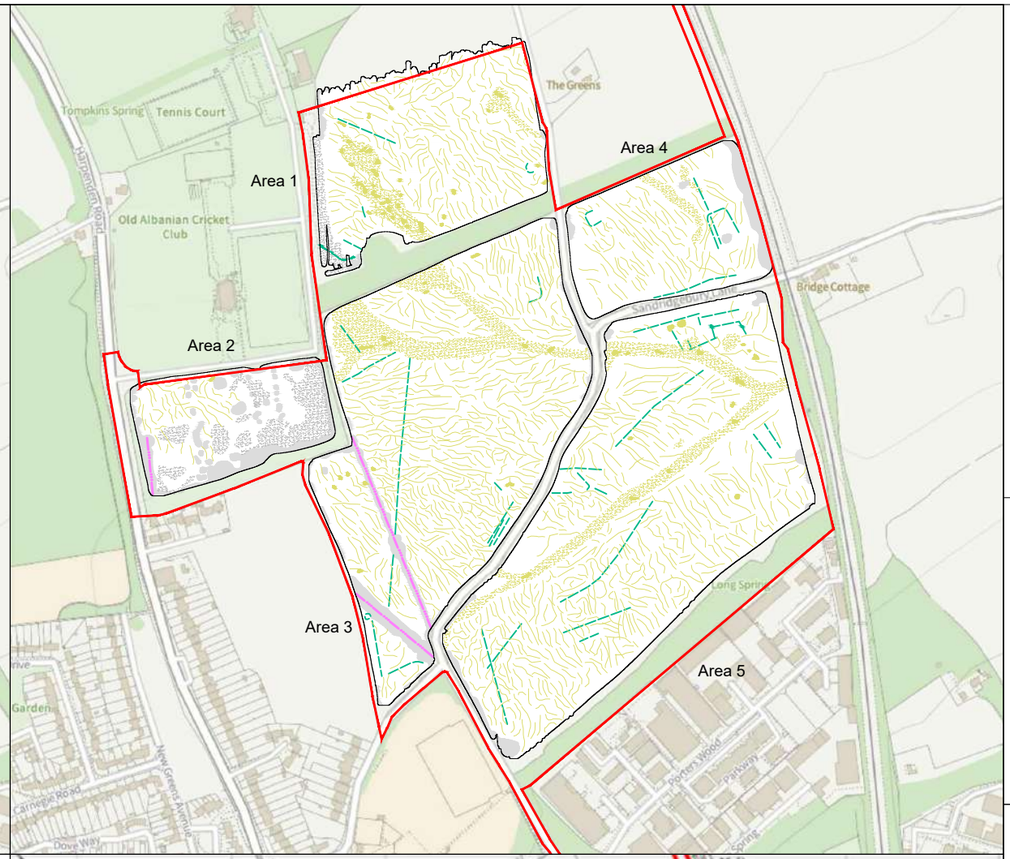
Client:
Orion Heritage Ltd

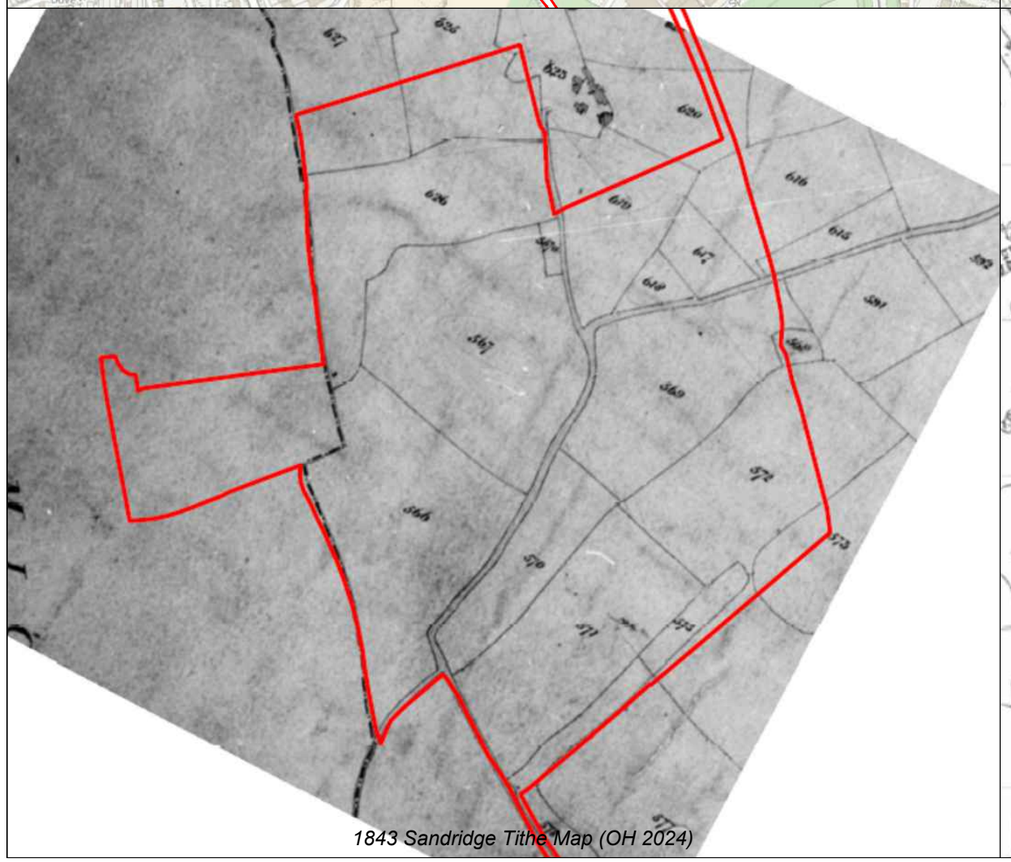
Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 125
1:2500 @ A3

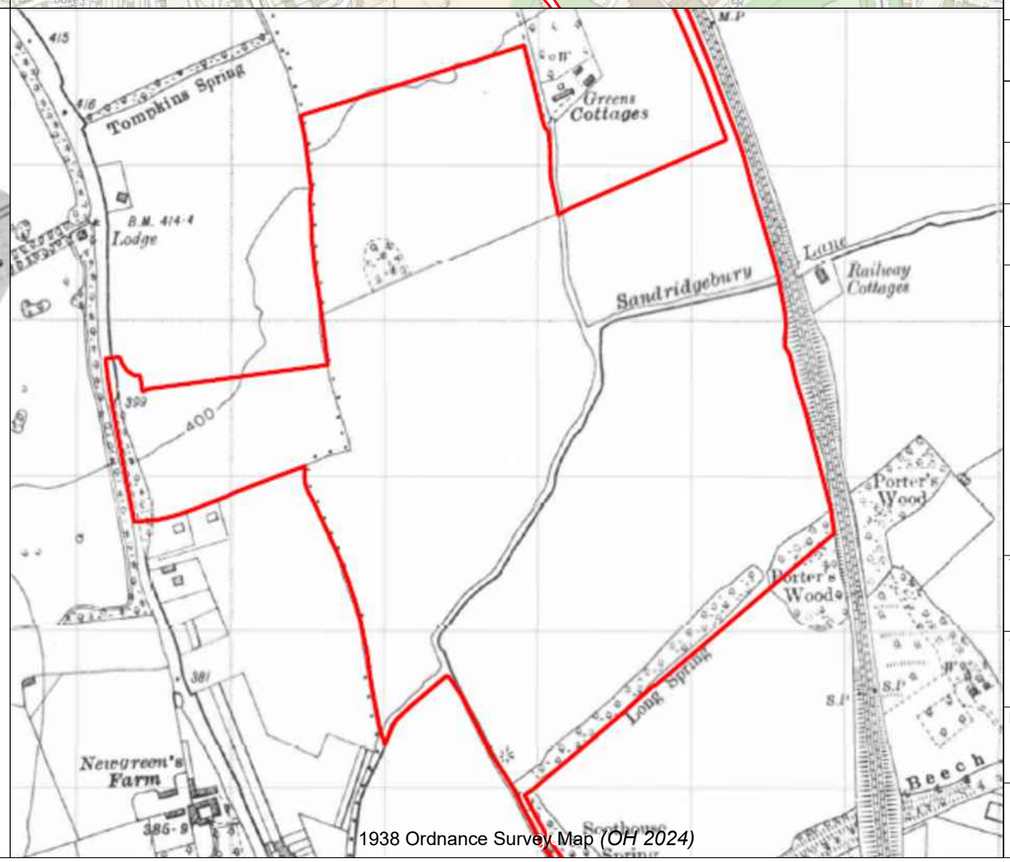
Fig No:
18







1843 Sandridge Tithe Map (OH 2024)



1938 Ordnance Survey Map *(OH 2024)*

N

+2nT

-1nT

KEY

	Uncertain Origin (discrete anomaly / trend / increased response)
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

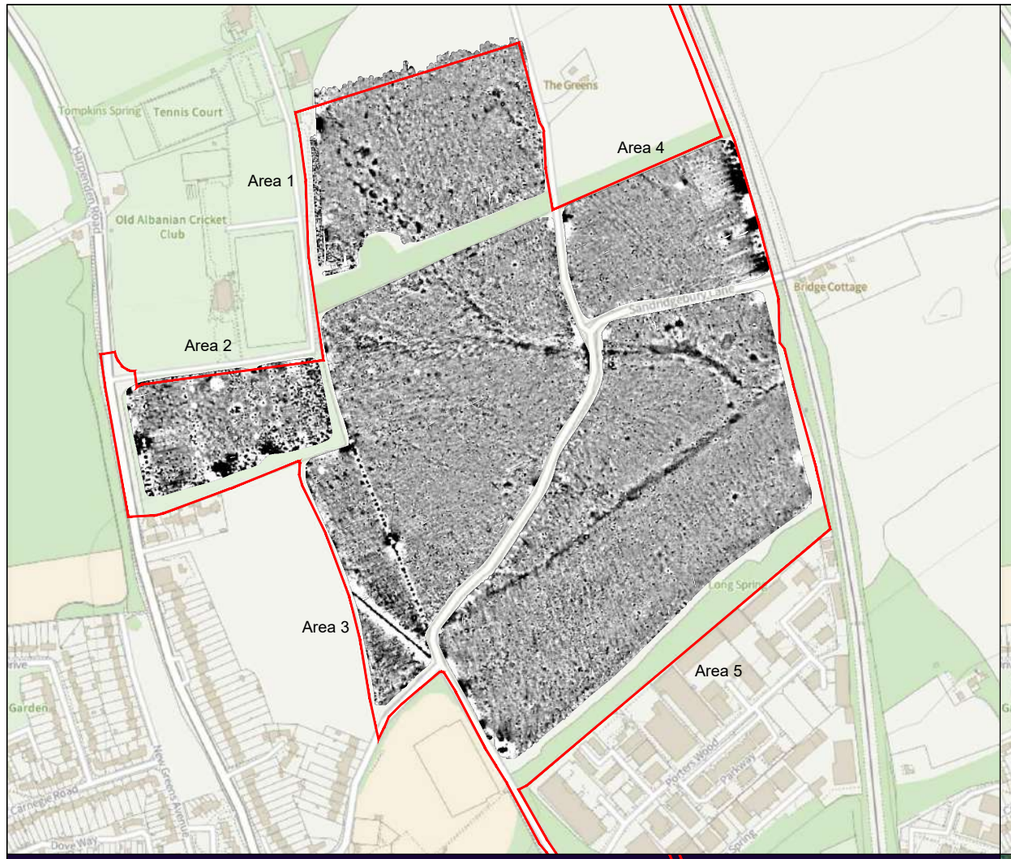
Title: Greyscale Plots / Interpretation / 1843 Sandridge Tithe Map (bottom left) / 1938 Ordnance Survey Map (bottom right)

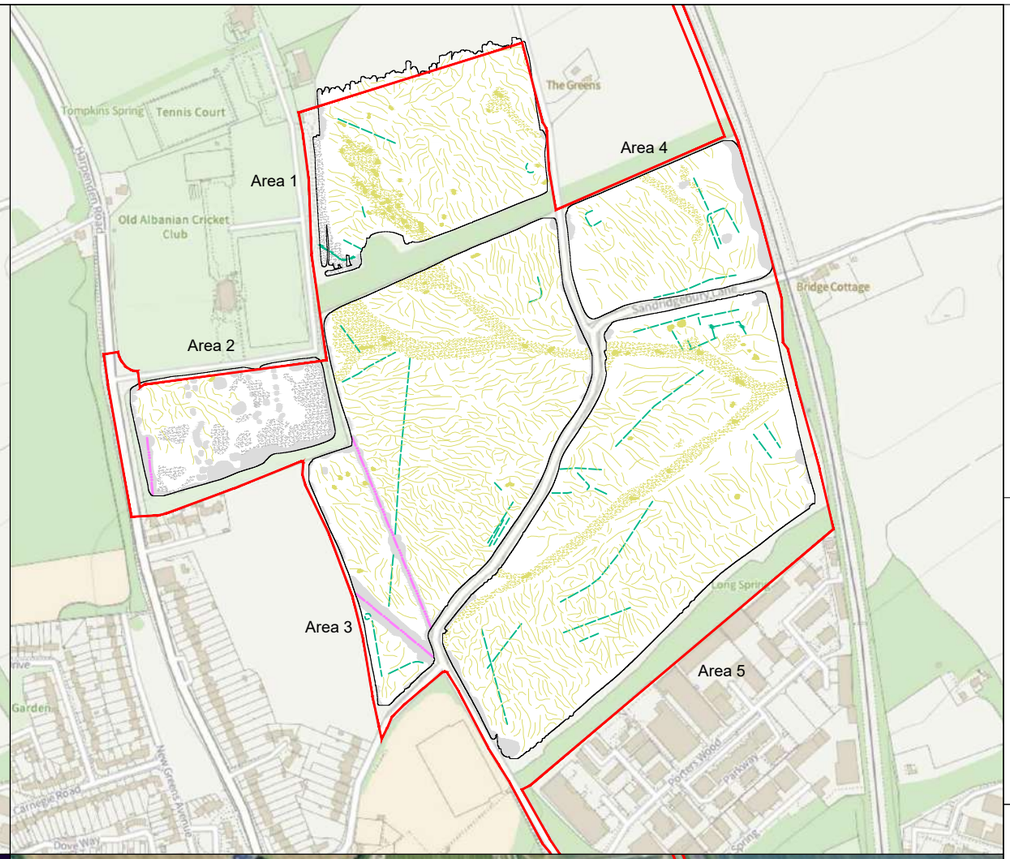
Client: Orion Heritage Ltd

Project: 18646 - Woolam Park, North St Albans, Herts

Scale: NOT TO SCALE

Fig No: 19









N

+2nT

-1nT

KEY

	Uncertain Origin (discrete anomaly / trend / increased response)
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title: Greyscale Plots / Interpretation / LiDAR Data Plot / 2020 Aerial Imagery

Client: Orion Heritage Ltd

Project: 18646 - Woolam Park, North St Albans, Herts

Scale: NOT TO SCALE

Fig No: 20



N

+10nT

-10nT

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plots

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 200
1:4000 @ A3

Fig No:
21



N

sumo GeoSurveys

Title:
XY Trace Plots (Area 1 clipped at +/-15nT)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 75
1:1500 @ A3

Fig No:
22

Area 2

N

sumo GeoSurveys

Title:
XY Trace Plots (Area 2 clipped at +/-15nT)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 75
1:1500 @ A3

Fig No:
23



N

sumo GeoSurveys

Title:
XY Trace Plots (Area 3 clipped at +/-15nT)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 125
1:2500 @ A3

Fig No:
24



N

sumo GeoSurveys

Title:
XY Trace Plots (Area 4 clipped at +/-15nT)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 75
1:1500 @ A3

Fig No:
25



N

sumo GeoSurveys

Title:
XY Trace Plots (Area 5 clipped at +/-15nT)

Client:
Orion Heritage Ltd

Project:
18646 - Woolam Park, North St Albans, Herts

Scale:
0 metres 125
1:2500 @ A3

Fig No:
26

Appendix A - Technical Information: Magnetometer Survey Method

Grid Positioning

For hand held gradiometers the location of the survey grids has been plotted together with the referencing information. Grids were set out using a Trimble R8 Real Time Kinematic (RTK) VRS Now GNSS GPS system.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. This results in an accuracy of around 0.01m.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	Bartington Grad 601-2	1.0m	0.25m
Magnetometer	Bartington Cart System	1.0m	0.125m

Instrumentation:

Bartington instruments operate in a gradiometer configuration which comprises fluxgate sensors mounted horizontally, set 1.0m apart. The fluxgate gradiometer suppresses any diurnal or regional effects. The instruments are carried, or cart mounted, with the bottom sensor approximately 0.1-0.3m from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is measured in nanoTesla (nT). The sensitivity of the instrument can be adjusted; for most archaeological surveys the most sensitive range (0.1nT) is used. Generally, features up to 1m deep may be detected by this method, though strongly magnetic objects may be visible at greater depths.

Bartington Grad 601-2

Hand-Held: Data will be collected using a Bartington Grad 601-2. The instrument consists of two paired sensors and readings are logged at 0.25m centres along traverses 1.0m apart across 30m grids. The collection of data at 0.25m centres provides an appropriate methodology balancing cost and time with resolution as per Historic England guidelines

Bartington Cart System

Data will be collected using a cart carrying four paired Bartington magnetic sensors. Each data point is geographically referenced using an on-board Trimble RTK survey grade GPS system. Readings will be taken at 0.125m centres along traverses 1.0m apart.

Data Processing

Zero Mean Traverse	This process sets the background mean of each traverse within each grid to zero. The operation removes striping effects and edge discontinuities over the whole of the data set.
Step Correction (De-stagger)	When gradiometer data are collected in 'zig-zag' fashion, stepping errors can sometimes arise. These occur because of a slight difference in the speed of walking on the forward and reverse traverses. The result is a staggered effect in the data, which is particularly noticeable on linear anomalies. This process corrects these errors.

Display

Greyscale/ Colourscale Plot	This format divides a given range of readings into a set number of classes. Each class is represented by a specific shade of grey, the intensity increasing with value. All values above the given range are allocated the same shade (maximum intensity); similarly, all values below the given range are represented by the minimum intensity shade. Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. The assigned range (plotting levels) can be adjusted to emphasise different anomalies in the data-set.

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Interpretation Categories

In certain circumstances (usually when there is corroborative evidence from desk-based or excavation data) very specific interpretations can be assigned to magnetic anomalies (for example, *Roman Road, Wall,* etc.) and where appropriate, such interpretations will be applied. The list below outlines the generic categories commonly used in the interpretation of the results.

Archaeology / Probable Archaeology	This term is used when the form, nature and pattern of the responses are clearly or very probably archaeological and /or if corroborative evidence is available. These anomalies, whilst considered anthropogenic, could be of any age.
Possible Archaeology	These anomalies exhibit either weak signal strength and / or poor definition, or form incomplete archaeological patterns, thereby reducing the level of confidence in the interpretation. Although the archaeological interpretation is favoured, they may be the result of variable soil depth, plough damage or even aliasing as a result of data collection orientation.
Industrial / Burnt-Fired	Strong magnetic anomalies that, due to their shape and form or the context in which they are found, suggest the presence of kilns, ovens, corn dryers, metal-working areas or hearths. It should be noted that in many instances modern ferrous material can produce similar magnetic anomalies.
Former Field Boundary (probable & possible)	Anomalies that correspond to former boundaries indicated on historic mapping, or which are clearly a continuation of existing land divisions. Possible denotes less confidence where the anomaly may not be shown on historic mapping but nevertheless the anomaly displays all the characteristics of a field boundary.
Ridge & Furrow	Parallel linear anomalies whose broad spacing suggests ridge and furrow cultivation. In some cases, the response may be the result of more recent agricultural activity.
Agriculture (ploughing)	Parallel linear anomalies or trends with a narrower spacing, sometimes aligned with existing boundaries, indicating more recent cultivation regimes.
Land Drain	Weakly magnetic linear anomalies, quite often appearing in series forming parallel and herringbone patterns. Smaller drains may lead and empty into larger diameter pipes, which in turn usually lead to local streams and ponds. These are indicative of clay fired land drains.
Natural	These responses form clear patterns in geographical zones where natural variations are known to produce significant magnetic distortions.
Magnetic Disturbance	Broad zones of strong dipolar anomalies, commonly found in places where modern ferrous or fired materials (e.g. brick rubble) are present.
Service	Magnetically strong anomalies, usually forming linear features are indicative of ferrous pipes/cables. Sometimes other materials (e.g. pvc) or the fill of the trench can cause weaker magnetic responses which can be identified from their uniform linearity.
Ferrous	This type of response is associated with ferrous material and may result from small items in the topsoil, larger buried objects such as pipes, or above ground features such as fence lines or pylons. Ferrous responses are usually regarded as modern. Individual burnt stones, fired bricks or igneous rocks can produce responses similar to ferrous material.
Uncertain Origin	Anomalies which stand out from the background magnetic variation, yet whose form and lack of patterning gives little clue as to their origin. Often the characteristics and distribution of the responses straddle the categories of *Possible Archaeology* / *Natural* or (in the case of linear responses) *Possible Archaeology* / *Agriculture*; occasionally they are simply of an unusual form.

Where appropriate some anomalies will be further classified according to their form (positive or negative) and relative strength and coherence (trend: weak and poorly defined).

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Appendix B - Technical Information: Magnetic Theory

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock. Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.1 nanoTeslas (nT) in an overall field strength of 48,000 (nT), can be accurately detected.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in *magnetic susceptibility* and permanently magnetised *thermoremanent* material.

Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremanence is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremanent archaeological features can include hearths and kilns; material such as brick and tile may be magnetised through the same process.

Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried feature. The difference between the two sensors will relate to the strength of a magnetic field created by this feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity and disturbance from modern services.

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OASIS Summary for sumogeop1-527956

OASIS ID (UID)	sumogeop1-527956
Project Name	Geophysical Survey, Magnetometry Survey at Woolam Park, North St Albans, Herts
Sitename	Woolam Park, North St Albans, Herts
Sitecode	18646
Project Identifier(s)	18646
Activity type	Geophysical Survey, Magnetometry Survey, MAGNETOMETRY SURVEY
Planning Id	
Reason For Investigation	Planning requirement
Organisation Responsible for work	SUMO Geophysics Ltd.
Project Dates	27-Aug-2024 - 30-Aug-2024
Location	Woolam Park, North St Albans, Herts NGR : TL 15363 09987 LL : 51.776673662009564, -0.329270883182541 12 Fig : 515363,209987
Administrative Areas	Country : England County/Local Authority : Hertfordshire Local Authority District : St Albans Parish : Sandridge Parish : St Michael Parish : St Albans, unparished area
Project Methodology	A temporary grid system was established over the site and marked out using canes. The location of the grid was set out using an RTK GPS system theoretically accurate to some 0.01m and referenced to OS co-ordinates. Data was collected using a cart carrying four paired Bartington magnetic sensors. Four sensors mounted 1m horizontally apart and very accurately aligned to nullify the effects of the earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background. Each data point is geographically referenced using an on-board Trimble RTK survey grade GPS system. Readings were taken at 0.125m centres along traverses 1.0m apart. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background.
Project Results	The magnetometer survey has not recorded any magnetic responses that could be interpreted as being of definite archaeological interest. Numerous trends and a discrete linear response have been detected in the survey which have been categorised as being of uncertain origin. While archaeological origins cannot be discounted, the anomalies have probably been caused by variations in the underlying geology and/or agricultural processes and possibly a former boundary. Discrete anomalies, sinuous trends and amorphous bands of increased response have been caused by underlying geological variations including palaeochannels. The routes of two service pipes have been marked in the west of Area 3. Ferrous responses and zones of magnetic disturbance in Area 2 are likely to be associated with sports pitches, goal post foundations, a cricket pitch and landscaping. Magnetic disturbance in the west of Area 1 has probably been caused by spreads of debris / made ground.

Keywords	Pipeline - 20TH CENTURY - FISH Thesaurus of Monument Types Cricket Pitch - 20TH CENTURY - FISH Thesaurus of Monument Types
Funder	Private or public corporation Orion Heritage Ltd
HER	Hertfordshire HER - unRev - STANDARD
Person Responsible for work	Thomas Cockcroft
HER Identifiers	
Archives	

Report generated on: 12 Sep 2024, 14:51

Appendix D – Data Management Plan & Archive Selection Strategy

Data Management Plan

Project ID / OASIS ID

SUMO-18646 / sumogeop1-527956

Project Name

Woolam Park, North St Albans, Herts

Project Description

Detailed magnetic survey over approx. 45.5ha

Client

Orion Heritage Ltd on behalf of

Project Manager

Thomas Cockcroft

Field Leader

Robert Ottolangui

Date DMP created

23.08.24

Date DMP last updated

12.09.2024

Version

2

Technique - data

Detailed magnetic survey.

Manual – cart - other

ATV/Cart mounted magnetometers

Documentation and metadata

All documentation and data produced are stored on SUMO servers in a specific job file.

Data storage, access and back-up

- SUMO Secure server during the project life set up in a RAID configuration (a RAID configuration incorporates a level of data redundancy meaning if a single hard drive in fails data can still be restored).

- Snap shots of the data will be made at several intervals during the day to allow data to be restored for up to 30 days if changed / deleted.
- Once the final report has been completed data will be moved onto NAS drive set up in a RAID configuration.
- All data is backed up to an off-site location (Cloud storage).

Archive Selection Strategy

Digital Data

Selection

It is proposed that only the final version of all born digital documents (reports, images and CAD files) will be selected for inclusion in the Preserved Archive. All raw and processed survey data will be included in the preserved archive. Below is what will constitute the selected archive:

- Raw data in XYZ format .csv and .png plus .pgw world file
- Processed data as .png plus .pgw world file
- Final survey report .pdf
- CAD and Vector graphics (interpretations) in .dwg format

De-selected digital data

The de-selected material will be retained on the SUMO Secure server and Cloud storage.

Documents

Not applicable – no archive

Materials

Not applicable – no archive



- Archaeological Geophysics
- Engineering Geophysics
- Measured Building Services
- Utility and Topographic Services
- Aerial Surveys
- Rail Surveys

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Company Registration No.4275993.
Registered Office Unit 8 Hayward Business Centre, New Lane, Havant, Hampshire, PO9 2NL

Appendix 10.1: Geo-environmental Phase 1 Desk Study

Appendix 10.2: Envirocheck Report

Brookbanks Consulting

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
345196291_1_1

Customer Reference:
PO01119

National Grid Reference:
515040, 209440

Slice:
A

Site Area (Ha):
51.71

Search Buffer (m):
1000

Site Details:

St Albans

Client Details:

Ms A Melia
Brookbanks Consulting
6150 Knights Court
Solihull Parkway
Birmingham
B37 7WY

Brookbanks Consulting

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	8
Hazardous Substances	-
Geological	10
Industrial Land Use	24
Sensitive Land Use	41
Data Currency	42
Data Suppliers	48
Useful Contacts	49

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes		n/a
Contaminated Land Register Entries and Notices					
Discharge Consents					
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 1		7		2
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 2		Yes		
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 2				(*3)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 3	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 6	3	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 6	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 6	Yes	n/a	n/a	n/a
Source Protection Zones	pg 6	1	1		1
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 7				1

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 8				2
Local Authority Landfill Coverage	pg 8	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites	pg 8		1		
Potentially Infilled Land (Non-Water)	pg 8				5
Potentially Infilled Land (Water)	pg 8				2
Registered Landfill Sites					
Registered Waste Transfer Sites	pg 9				3
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Brookbanks Consulting

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 10	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 10	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 13				11
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability	pg 15	Yes	n/a	n/a	n/a
Man-Made Mining Cavities	pg 15				23
Natural Cavities	pg 19		1		8
Non Coal Mining Areas of Great Britain	pg 20	Yes	Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 20	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 20	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 21	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 21		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 22	Yes	Yes	n/a	n/a
Radon Potential - Radon Affected Areas	pg 23	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 24		60	11	36
Fuel Station Entries	pg 33		1		1
Points of Interest - Commercial Services	pg 33		21	2	7
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 36		21	2	1
Points of Interest - Public Infrastructure	pg 38		4	1	9
Points of Interest - Recreational and Environmental	pg 39			4	3
Gas Pipelines					
Underground Electrical Cables					

Brookbanks Consulting

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 41	2			4
Areas of Adopted Green Belt	pg 41	1			
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 41	2			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11NE (W)	0	1	515000 209443
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A11NE (E)	0	1	515042 209443
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A15SE (N)	0	1	515042 210000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A15SE (N)	66	1	515000 210000
1	**Local Authority Pollution Prevention and Controls** Name: Gj Gaywood Limited Location: Unit B, Caxton Centre, Porters Wood, St Albans, Al3 6nw Authority: St Albans City & District Council, Environmental Health Department Permit Reference: 28/13 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG3/16 Mobile screening and crushing processes **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A12NE (E)	83	2	515685 209529
1	**Local Authority Pollution Prevention and Controls** Name: Gj Gaywood Limited Location: Unit B, Caxton Centre, Porters Wood, St Albans, Al3 6nw Authority: St Albans City & District Council, Environmental Health Department Permit Reference: 29/13 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG3/16 Mobile screening and crushing processes **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A12NE (E)	83	2	515685 209529
1	**Local Authority Pollution Prevention and Controls** Name: Kane Haulage Ltd Location: Construction House, Porters Wood, Valley Road Industrial Estate, St Albans, Al3 6nw Authority: St Albans City & District Council, Environmental Health Department Permit Reference: 21/05 Dated: 1st September 2005 Process Type: Local Authority Pollution Prevention and Control Description: PG3/16 Mobile screening and crushing processes **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A12NE (E)	93	2	515715 209540
1	**Local Authority Pollution Prevention and Controls** Name: Kane Haulage Ltd Location: Construction House, Porters Wood, Valley Road Industrial Estate, St Albans, Al3 6nw Authority: St Albans City & District Council, Environmental Health Department Permit Reference: 16/96 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG3/16 Mobile screening and crushing processes **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A12NE (E)	93	2	515715 209540
2	**Local Authority Pollution Prevention and Controls** Name: Star St Albans Location: 150 Harpenden Road, ST ALBANS, Hertfordshire, AL3 6BZ Authority: St Albans City & District Council, Environmental Health Department Permit Reference: VRP/15/2005 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A11NW (NW)	96	2	514927 209647
3	**Local Authority Pollution Prevention and Controls** Name: Fastlane Paint & Body Ltd Location: Soothouse Spring, St Albans, Al3 6pf Authority: St Albans City & District Council, Environmental Health Department Permit Reference: 17/96 Dated: 1st October 1996 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A12SW (E)	111	2	515534 209244

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Local Authority Pollution Prevention and Controls** Name: Harpenden Auto Services Location: 1 Sandridgebury Lane, Sandridge, ST ALBANS, Hertfordshire, AL3 6DD Authority: St Albans City & District Council, Environmental Health Department Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input **Status: Authorised** Positional Accuracy: Automatically positioned to the address	A11SE (SE)	145	2	515134 209339
5	**Local Authority Pollution Prevention and Controls** Name: Shell King William Location: 2 Beech Road, ST ALBANS, AL3 5AS Authority: St Albans City & District Council, Environmental Health Department Permit Reference: VRP01 Dated: 1st August 2005 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	538	2	515832 208932
5	**Local Authority Pollution Prevention and Controls** Name: Tcs Petrol Station Location: 2 Beech Road, ST ALBANS, Hertfordshire, AL3 5AS Authority: St Albans City & District Council, Environmental Health Department Permit Reference: Voc/06/98 Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	538	2	515832 208932
	Nearest Surface Water Feature	A11SE (SE)	150	-	515234 209262
	Water Abstractions Operator: Affinity Water Limited Licence Number: 28/39/28/0337 Permit Version: 102 Location: Stonecross Pumping Station Authority: Environment Agency, Thames Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 14th November 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A3SE (S)	1404	3	515200 207900
	Water Abstractions Operator: Veolia Water Central Limited Licence Number: 28/39/28/0337 Permit Version: 101 Location: Stonecross Pumping Station Authority: Environment Agency, Thames Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 20th July 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A3SE (S)	1404	3	515200 207900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Three Valleys Water Plc Licence Number: 28/39/28/0337 Permit Version: 100 Location: Stonecross Pumping Station Authority: Environment Agency, Thames Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 3410 Yearly Rate (m3): 1 Details: Annual Abstraction Total Aggregated To Another Licence For Quantity Purposes. Chalk (Undifferentiate Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 12th June 1967 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A3SE (S)	1404	3	515200 207900
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A15SE (N)	0	4	515134 209716
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A11NE (E)	0	4	515042 209443
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A15NE (N)	0	4	515178 210144

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A16NE (NE)	0	4	515700 210025
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A11NE (N)	0	4	515106 209629
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A11SE (SE)	0	4	515287 209320
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(NE)	0	4	515617 210371

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A15SE (N)	0	4	515259 210000
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: 300-550 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A11NE (NW)	0	4	515000 209509
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A15SE (N)	0	4	515000 209720
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A11NE (N)	0	4	515016 209514

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	A15SE (N)	0	4	515042 210000
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	A11NE (W)	0	4	515000 209443
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	A11NE (E)	0	4	515042 209443
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	A15SE (N)	0	4	515042 210000
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A15SE (N)	0	4	515042 210000
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A11NE (W)	0	4	515000 209443
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A11NE (E)	0	4	515042 209443
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A15NE (N)	0	4	515178 210144
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A11NE (E)	0	4	515042 209443
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A16NE (NE)	0	4	515700 210025
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A15SE (N)	0	4	515134 209716
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A11NE (NW)	0	4	515000 209509
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A11NE (N)	0	4	515016 209514
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A15SE (N)	0	4	515000 209720
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A15SE (N)	0	4	515042 210000
6	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A11NE (E)	0	3	515042 209443
7	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A11SE (S)	219	3	515003 209320

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	A7SE (S)	796	3	515065 208538
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 183.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	A10NW (W)	644	5	514263 209466

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**Licensed Waste Management Facilities (Locations)** Licence Number: 80205 Location: St Albans H W R C, Sandridge Road, St Albans, Hertfordshire, AL1 4AP Operator Name: Hertfordshire County Council Operator Location: Not Supplied Authority: Environment Agency - Thames Region, North East Area Site Category: Household Waste Amenity Sites **Licence Status: Transferred** Issued: 19th February 1977 Last Modified: 2nd September 2019 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SE (E)	533	3	515938 209121
11	**Licensed Waste Management Facilities (Locations)** Licence Number: 80269 Location: Sandridge Gate Business Centre, Ronsons Way, St Albans Road, Sandridge, Hertfordshire, AL4 9XR Operator Name: Veolia E S (U K) Limited Operator Location: Not Supplied Authority: Environment Agency - Thames Region, North East Area Site Category: Household, Commercial And Industrial Transfer Stations **Licence Status: Transferred** Issued: 1st August 1994 Last Modified: 5th February 2013 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12SE (E)	540	3	515981 209181
	Local Authority Landfill Coverage Name: Hertfordshire County Council - Has supplied landfill data		0	6	515042 209443
	Local Authority Landfill Coverage Name: St Albans District Council - Has supplied landfill data		0	2	515042 209443
12	**Local Authority Recorded Landfill Sites** Location: Porters Wood Reference: 320 Authority: Hertfordshire County Council, Spatial Planning and Economy Unit **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Located by supplier to within 10m Boundary Quality: Not Applicable	A12NE (E)	237	6	515808 209430
13	**Potentially Infilled Land (Non-Water)** Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1985	A7SE (S)	749	-	515228 208563
14	**Potentially Infilled Land (Non-Water)** Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1985	A8SW (S)	807	-	515442 208479
15	**Potentially Infilled Land (Non-Water)** Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1985	A7SE (S)	808	-	515218 208505
16	**Potentially Infilled Land (Non-Water)** Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1985	A7SE (S)	824	-	515160 208500
17	**Potentially Infilled Land (Non-Water)** Bearing Ref: SE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1985	A8SW (SE)	831	-	515622 208479
18	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1925	A7NW (S)	787	-	514819 208779

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1960	A14NW (NW)	918	-	513980 210230
20	**Registered Waste Transfer Sites** Licence Holder: Hertfordshire C.C. Waste Management Un. Licence Reference: 96/369 Site Location: St Albans H.W.S, Sandridge Road, St Albans, Hertfordshire, Al1 4ap Operator Location: County Hall, Pegs Lane, HERTFORD, Hertfordshire, SG13 8DN Authority: Environment Agency - Thames Region, North East Area Site Category: Civic Amenity Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Operational as far as is knownOperational Dated: 1st March 1996 Preceded By Licence: 13/S11 Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Civic Amenity Waste Max.Waste Permitted By Licence Prohibited Waste: Spec.Waste (Epa'90:S62/1996 Regs) Waste N.O.S.	A12SE (E)	525	3	515930 209120
20	**Registered Waste Transfer Sites** Licence Holder: Herts C.C. Licence Reference: 13/S11 Site Location: St Albans H.W.S, Sandridge Road, St Albans, Hertfordshire, Al1 4ap Operator Location: Goldings, North Road, HERTFORD, Hertfordshire, SG13 8DE Authority: Environment Agency - Thames Region, North East Area Site Category: Civic Amenity Max Input Rate: Undefined Waste Source Restrictions: No known restriction on source of waste Licence Status: Record supersededSuperseded Dated: 1st February 1977 Preceded By Licence: Not Given Superseded By Licence: 96/369 Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Civic Amenity/Refuse Amenity Waste	A12SE (E)	525	3	515930 209120
21	**Registered Waste Transfer Sites** Licence Holder: M.R.S. St Albans Ltd Licence Reference: 94/330 Site Location: Central Depot, St Albans Road, Sandridge, ST ALBANS, Hertfordshire, AL4 9XR Operator Location: As Site Address Authority: Environment Agency - Thames Region, North East Area Site Category: Transfer Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Operational as far as is knownOperational Dated: 1st August 1994 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Quality: Not Supplied Authorised Waste: Food Waste Herts Cat.A - Inert/Biol'Y Stable W. Herts Cat.B - Degradable(Slowly) Waste Mat'Ls Which Include Food/Veg.Matter Max.Waste Permitted By Licence Road Gulley Emptyings/Sweepings Prohibited Waste: Contaminated Rubble As In List 2,App 1 Contaminated Soil As In List 2,App.1 Pressurised Containers Spec.Waste (Epa'90:S62/1996 Regs) Waste N.O.S. Wastes With Ph < 6 Wastes With Ph > 8	A12SE (E)	537	3	516000 209200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: White Chalk Subgroup	A11NE (E)	0	1	515042 209443
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SE (SE)	0	1	515287 209320
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11NE (N)	0	1	515106 209629
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A15NE (N)	0	1	515178 210144
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A11NE (E)	0	1	515042 209443
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A16NE (NE)	0	1	515700 210025
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A15SE (N)	0	1	515134 209716

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A15SE (N)	0	1	515000 209720
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A11NE (N)	0	1	515016 209514
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11NE (N)	45	1	515000 209664
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A12SW (SE)	179	1	515412 209033
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A12NE (E)	192	1	516000 209673
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A16NE (NE)	277	1	516000 210156

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A8NW (SE)	286	1	515375 209000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A12NE (E)	287	1	516000 209443
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7NE (S)	330	1	515042 209000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SW (S)	386	1	514975 209153
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (S)	569	1	515202 208612
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A12SE (E)	612	1	516000 209059

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A10NW (W)	849	1	514079 209446
22	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Brick Field Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 169538 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Palaeogene Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7SE (S)	849	1	515147 208484
22	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Brick Field Shaft Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 220963 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: Seaford Chalk Formation Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A7SE (S)	862	1	515147 208470
23	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Brick Field Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 169539 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Palaeogene Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8SW (S)	857	1	515434 208429
24	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Brick Field Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 169552 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Palaeogene Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8SW (S)	897	1	515363 208391
25	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Brick Field Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 169537 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Palaeogene Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7SE (S)	918	1	515150 208410

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Brick Field Shaft Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 221011 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: Seaford Chalk Formation Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A7SE (S)	929	1	515111 208411
26	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Brick Field Shaft Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 221010 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: Seaford Chalk Formation Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A7SE (S)	918	1	515083 208434
27	**BGS Recorded Mineral Sites** Site Name: Sandridge Road Brick & Tile Works Location: St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 222653 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Kesgrave Catchment Subgroup Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A8SW (SE)	924	1	515605 208380
28	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Brick Field Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 227239 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Palaeogene Geology: Lambeth Group Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7SE (S)	940	1	515241 208364
29	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Brick Field Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 222652 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Kesgrave Catchment Subgroup Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A7SE (S)	957	1	515315 208335
30	**BGS Recorded Mineral Sites** Site Name: Bernard Heath Pit Location: Bernard'S Heath, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 222650 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Kesgrave Catchment Subgroup Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A7SE (S)	986	1	515085 208360

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Mining Instability Mining Evidence: Conclusive Rock Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A15SE (N)	0	-	515042 210000
	Man-Made Mining Cavities Easting: 515220 Northing: 208560 Distance: 754 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Clay Pit Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	754	7	515220 208560
	Man-Made Mining Cavities Easting: 515210 Northing: 208500 Distance: 815 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Clay Pit Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	815	7	515210 208500
	Man-Made Mining Cavities Easting: 515420 Northing: 208470 Distance: 816 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Clay Pit Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A8SW (S)	816	7	515420 208470
	Man-Made Mining Cavities Easting: 515150 Northing: 208500 Distance: 833 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Historical Brick Field-Potential Chalk Mining Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Glacial Gravel	A7SE (S)	833	7	515150 208500
	Man-Made Mining Cavities Easting: 514800 Northing: 208700 Distance: 856 Quadrant Reference: A7 Quadrant Reference: NW Bearing Ref: S Cavity Type: Old Brick Works, Possible Chalk Mining Commodity: Chalk Solid Geology Detail: Chalk Group Superficial Geology Detail: No Details	A7NW (S)	856	7	514800 208700

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Man-Made Mining Cavities Easting: 515150 Northing: 208470 Distance: 861 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Clay Pit Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	861	7	515150 208470
	Man-Made Mining Cavities Easting: 515150 Northing: 208470 Distance: 861 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Shaft Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	861	7	515150 208470
	Man-Made Mining Cavities Easting: 515450 Northing: 208420 Distance: 866 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Bell Pit Collapse Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A8SW (S)	866	7	515450 208420
	Man-Made Mining Cavities Easting: 515420 Northing: 208410 Distance: 876 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Clay Pit Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A8SW (S)	876	7	515420 208410
	Man-Made Mining Cavities Easting: 515350 Northing: 208410 Distance: 879 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Old Brick Works, Possible Chalk Mining Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A8SW (S)	879	7	515350 208410
	Man-Made Mining Cavities Easting: 515400 Northing: 208400 Distance: 886 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Historical Brick Field/Extensive Clay Pits-Potential Chalk Mining Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Glacial Gravel	A8SW (S)	886	7	515400 208400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Man-Made Mining Cavities Easting: 515150 Northing: 208440 Distance: 889 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Historical Brick Field-Potential Chalk Mining Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Glacial Gravel	A7SE (S)	889	7	515150 208440
	Man-Made Mining Cavities Easting: 515500 Northing: 208400 Distance: 889 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: SE Cavity Type: Brick And Tile Works- Potential Chalk Mining Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Glacial Gravel	A8SW (SE)	889	7	515500 208400
	Man-Made Mining Cavities Easting: 515100 Northing: 208450 Distance: 897 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Historical Brick Field-Potential Chalk Mining Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Glacial Gravel	A7SE (S)	897	7	515100 208450
	Man-Made Mining Cavities Easting: 515430 Northing: 208370 Distance: 916 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Lime Kiln Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A8SW (S)	916	7	515430 208370
	Man-Made Mining Cavities Easting: 515430 Northing: 208370 Distance: 916 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Brick Kiln Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A8SW (S)	916	7	515430 208370
	Man-Made Mining Cavities Easting: 515080 Northing: 208430 Distance: 923 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Shaft Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	923	7	515080 208430

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Man-Made Mining Cavities Easting: 515110 Northing: 208410 Distance: 931 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Shaft Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	931	7	515110 208410
	Man-Made Mining Cavities Easting: 515270 Northing: 208360 Distance: 939 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Clay Pit Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	939	7	515270 208360
	Man-Made Mining Cavities Easting: 515110 Northing: 208390 Distance: 950 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Brick Field Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	950	7	515110 208390
	Man-Made Mining Cavities Easting: 515110 Northing: 208370 Distance: 968 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Brick Kiln Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	968	7	515110 208370
	Man-Made Mining Cavities Easting: 515110 Northing: 208370 Distance: 968 Quadrant Reference: A7 Quadrant Reference: SE Bearing Ref: S Cavity Type: Lime Kiln Lime Kiln Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Kesgrave Catchment Subgroup - Sand & Gravel	A7SE (S)	968	7	515110 208370
	Man-Made Mining Cavities Easting: 515400 Northing: 208300 Distance: 986 Quadrant Reference: A4 Quadrant Reference: NW Bearing Ref: S Cavity Type: Historical Lime Kiln-Potential Chalk Mining Commodity: Chalk Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Glacial Gravel	A4NW (S)	986	7	515400 208300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Natural Cavities Easting: 515200 Northing: 209200 Distance: 236 Quadrant Reference: A11 Quadrant Reference: SE Bearing Ref: SE Cavity Type: Sinkhole x 5, Solution Pipe x 5 Solid Geology Detail: Chalk Group Superficial Geology Detail: Glacial Sand & Gravel	A11SE (SE)	236	7	515200 209200
	Natural Cavities Easting: 515950 Northing: 209100 Distance: 551 Quadrant Reference: A12 Quadrant Reference: SE Bearing Ref: E Cavity Type: Solution Pipe Solid Geology Detail: Chalk Group Superficial Geology Detail: Glacial Sand & Gravel	A12SE (E)	551	7	515950 209100
	Natural Cavities Easting: 515900 Northing: 208870 Distance: 630 Quadrant Reference: A8 Quadrant Reference: NE Bearing Ref: SE Cavity Type: Solution Pipe x 3 Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: Glacial Sand & Gravel	A8NE (SE)	630	7	515900 208870
	Natural Cavities Easting: 515450 Northing: 208440 Distance: 846 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Solution Widened Joint or Fissure x 1 Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: No Details	A8SW (S)	846	7	515450 208440
	Natural Cavities Easting: 515470 Northing: 208430 Distance: 857 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: SE Cavity Type: Solution Pipe Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: No Details	A8SW (SE)	857	7	515470 208430
	Natural Cavities Easting: 515450 Northing: 208420 Distance: 866 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Solution Pipe Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: No Details	A8SW (S)	866	7	515450 208420
	Natural Cavities Easting: 515440 Northing: 208420 Distance: 866 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Solution Widened Joint or Fissure x 1 Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: No Details	A8SW (S)	866	7	515440 208420

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Natural Cavities Easting: 515460 Northing: 208410 Distance: 877 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Solution Pipe Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: No Details	A8SW (S)	877	7	515460 208410
	Natural Cavities Easting: 515390 Northing: 208410 Distance: 877 Quadrant Reference: A8 Quadrant Reference: SW Bearing Ref: S Cavity Type: Solution Pipe Solid Geology Detail: Chalk Group, Lambeth Group Superficial Geology Detail: No Details	A8SW (S)	877	7	515390 208410
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A11NE (E)	0	1	515042 209443
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A11NE (W)	0	1	515000 209443
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515042 210000
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	66	1	515000 210000
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515042 210000
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NE (W)	0	1	515000 209443
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NE (E)	0	1	515042 209443
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	66	1	515000 210000
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (E)	0	1	515042 209443
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (W)	0	1	515000 209443
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515042 210000
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	66	1	515000 210000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515042 210000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A11NE (W)	0	1	515000 209443
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A11NE (E)	0	1	515042 209443

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515000 209720
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SE (SE)	0	1	515287 209320
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	515106 209629
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515259 210000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	45	1	515000 209664
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	66	1	515000 210000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A16SE (E)	86	1	515916 209691
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SW (NW)	126	1	514741 210000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SW (NW)	129	1	514666 209941
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SE (SE)	0	1	515287 209320
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	515106 209629
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515000 209720
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NE (E)	0	1	515042 209443
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515042 210000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NE (W)	0	1	515000 209443
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515259 210000
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	45	1	515000 209664
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	66	1	515000 210000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SW (SE)	109	1	515356 209079
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12SW (SE)	179	1	515412 209033
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515042 210000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (W)	0	1	515000 209443
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (E)	0	1	515042 209443
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	66	1	515000 210000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SW (SE)	109	1	515356 209079
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A12SW (SE)	179	1	515412 209033
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515042 210000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11NE (NW)	0	1	515000 209509
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515000 209720
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	515016 209514
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15NE (N)	0	1	515178 210144
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (E)	0	1	515042 209443
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515259 210000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	45	1	515000 209664
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	66	1	515000 210000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (W)	191	1	515000 209443
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A16NW (NE)	0	1	515575 210350
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515175 210000
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A11SE (SE)	0	1	515250 209325
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	515075 209600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515042 210000
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A11NE (W)	0	1	515000 209443
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515150 209725
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A11NE (E)	0	1	515042 209443
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A16NW (NE)	0	1	515575 210350
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515175 210000
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A11SE (SE)	0	1	515250 209325
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	515075 209600
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515042 210000
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A11NE (W)	0	1	515000 209443
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	1	515150 209725
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A11NE (E)	0	1	515042 209443

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
31	**Contemporary Trade Directory Entries** Name: Construction Plastics Location: Unit 5, The Caxton Centre, Porters Wood, St. Albans, Hertfordshire, AL3 6XT Classification: Builders' Merchants **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (E)	12	-	515626 209572
32	**Contemporary Trade Directory Entries** Name: W K D Distribution Ltd Location: Unit 3, The Caxton Centre, Porters Wood, St. Albans, AL3 6XT Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	13	-	515611 209559
32	**Contemporary Trade Directory Entries** Name: Kenburn Waste Management Ltd Location: Kenburn House, Porters Wood, St. Albans, AL3 6HX Classification: Waste Processing Machinery **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (E)	26	-	515589 209524
33	**Contemporary Trade Directory Entries** Name: Ogier Electronics Ltd Location: UNIT 12-13, SANDRIDGE PARK, PORTERS WOOD, ST. ALBANS, AL3 6PH Classification: Electronic Equipment - Manufacturers & Assemblers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (E)	16	-	515719 209644
33	**Contemporary Trade Directory Entries** Name: Exchange Communications (Uk) Ltd Location: Unit 8, Sandridge Park, Porters Wood, St. Albans, Hertfordshire, AL3 6PH Classification: Telecommunications Equipment & Systems **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (E)	17	-	515689 209617
34	**Contemporary Trade Directory Entries** Name: Fresh Time Location: Unit 2, St. Albans Enterprise Centre, Long Spring, Porters Wood, St. Albans, Hertfordshire, AL3 6EN Classification: Laundries & Launderettes **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	21	-	515463 209426
34	**Contemporary Trade Directory Entries** Name: Nagra Kudelski (Gb) Ltd Location: Unit 3U, St. Albans Enterprise Centre, Long Spring, Porters Wood, St. Albans, Hertfordshire, AL3 6EN Classification: Sound Equipment Systems Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	28	-	515467 209421
34	**Contemporary Trade Directory Entries** Name: Major Products Ltd Location: Unit 4, St. Albans Enterprise Centre, Long Spring, Porters Wood, St. Albans, Hertfordshire, AL3 6EN Classification: Electronic Engineers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	33	-	515471 209417
34	**Contemporary Trade Directory Entries** Name: U F E Location: Unit 10 St Albans Enterprise Centre,Long Spring, St Albans, Hertfordshire, AL3 6EN Classification: Plastics - Machinery & Equipment Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (E)	37	-	515483 209422
34	**Contemporary Trade Directory Entries** Name: Victoria Fine Art Location: Long Spring, 3, Porters Wood, St. Albans, AL3 6NQ Classification: Picture & Picture Frame Renovating & Restoring **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	37	-	515483 209422
34	**Contemporary Trade Directory Entries** Name: Cool Comfort Ltd Location: St. Albans Enterprise Centre, Long Spring, Porters Wood, St. Albans, Hertfordshire, AL3 6EN Classification: Air Conditioning Equipment & Systems **Status: Inactive** Positional Accuracy: Automatically positioned in the proximity of the address	A12NW (E)	43	-	515486 209416

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	**Contemporary Trade Directory Entries** Name: Impress Location: Long Spring, 7, Porters Wood, St. Albans, Hertfordshire, AL3 6PE Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	64	-	515494 209395
34	**Contemporary Trade Directory Entries** Name: Icon Digital Print Location: Long Spring, 7, Porters Wood, St. Albans, Hertfordshire, AL3 6PE Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	64	-	515494 209395
34	**Contemporary Trade Directory Entries** Name: Ikon Digital Print Location: Long Spring, 7, Porters Wood, St. Albans, Hertfordshire, AL3 6PE Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	64	-	515494 209395
35	**Contemporary Trade Directory Entries** Name: Piper Toughened Glass Location: 5 SPRING VALLEY BUSINESS CENTRE, PORTERS WOOD, ST. ALBANS, AL3 6PD Classification: Glass Products - Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (E)	32	-	515430 209384
35	**Contemporary Trade Directory Entries** Name: Westhouse Transport Location: 5, Spring Valley Business Centre, Porters Wood, St. Albans, Hertfordshire, AL3 6PD Classification: Freight Forwarders **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	33	-	515426 209380
35	**Contemporary Trade Directory Entries** Name: Fleetwoodgoldcowyard Ambec Location: 5, Spring Valley Business Centre, Porters Wood, St. Albans, Hertfordshire, AL3 6PD Classification: Conveyors & Conveyor Belts **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12NW (E)	33	-	515426 209380
35	**Contemporary Trade Directory Entries** Name: West House Transport Ltd Location: 5, Spring Valley Business Centre, Porters Wood, St. Albans, Hertfordshire, AL3 6PD Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	33	-	515426 209380
36	**Contemporary Trade Directory Entries** Name: Zund Plotting Systems Location: unit 1,Spring Valley Business Centre, Porters Wood, St. Albans, Hertfordshire, AL3 6PD Classification: Cutting Tools & Machinery **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12SW (E)	51	-	515473 209328
36	**Contemporary Trade Directory Entries** Name: Zund Plotting Systems Ltd Location: 1, Spring Valley Business Centre, Porters Wood, St. Albans, Hertfordshire, AL3 6PD Classification: Cutting Tools & Machinery **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	51	-	515473 209328
36	**Contemporary Trade Directory Entries** Name: Multi Image Location: Unit 1a, Spring Valley Business Centre, Porters Wood, St Albans, AL3 6PD Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	57	-	515473 209338
37	**Contemporary Trade Directory Entries** Name: Alan Electrical Ltd Location: Unit 10, The Caxton Centre, Porters Wood, St. Albans, Hertfordshire, AL3 6XT Classification: Electrical Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (E)	64	-	515665 209537

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	**Contemporary Trade Directory Entries** Name: Manson Group Ltd Location: Reynolds House, Porters Wood, St. Albans, Hertfordshire, AL3 6PZ Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	76	-	515585 209455
39	**Contemporary Trade Directory Entries** Name: Kane Group Ltd Location: Construction House, Soothouse Spring, Porters Wood, St. Albans, Hertfordshire, AL3 6NW Classification: Sand, Gravel & Other Aggregates **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12NE (E)	94	-	515716 209539
39	**Contemporary Trade Directory Entries** Name: Kane Haulage Location: Construction House, Porters Wood, St. Albans, AL3 6NW Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (E)	95	-	515716 209539
40	**Contemporary Trade Directory Entries** Name: Texaco Location: 150, Harpenden Road, St. Albans, Hertfordshire, AL3 6BZ Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NW (NW)	96	-	514927 209647
40	**Contemporary Trade Directory Entries** Name: Texaco Location: 150, Harpenden Road, St. Albans, Hertfordshire, AL3 6BZ Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NW (NW)	96	-	514927 209647
40	**Contemporary Trade Directory Entries** Name: Texaco Location: 150, Harpenden Road, St. Albans, Hertfordshire, AL3 6BZ Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NW (NW)	96	-	514927 209647
41	**Contemporary Trade Directory Entries** Name: Kinder-Janes Engineers Ltd Location: Porters Wood, St. Albans, Hertfordshire, AL3 6HU Classification: Pumps - Sales, Servicing & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	99	-	515563 209408
42	**Contemporary Trade Directory Entries** Name: The I C C Co Location: Unit 3,Beech Ind Centre,Porters Wood, St. Albans, Hertfordshire, AL3 6PQ Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12SW (E)	105	-	515539 209294
42	**Contemporary Trade Directory Entries** Name: Global Repairs Location: Unit 2, Soothouse Spring, St. Albans, Hertfordshire, AL3 6PF Classification: Washing Machines - Servicing & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	117	-	515544 209253
42	**Contemporary Trade Directory Entries** Name: Fastlane Paint & Body Location: Unit 1, Soothouse Spring, St. Albans, AL3 6PF Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (SE)	118	-	515538 209238
42	**Contemporary Trade Directory Entries** Name: Global Repairs Location: Unit 2, Soothouse Spring, St. Albans, AL3 6PF Classification: Washing Machines - Servicing & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	124	-	515548 209245

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	**Contemporary Trade Directory Entries** Name: Eagle Car Sales Ltd Location: Valley Rd, St Albans, Hertfordshire, AL3 6LL Classification: Car Dealers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (SE)	138	-	515534 209198
43	**Contemporary Trade Directory Entries** Name: Lonsdale Window Fashions Ltd Location: 3, THE GRYPHON INDUSTRIAL PARK, PORTERS WOOD, ST ALBANS, AL3 6XZ Classification: Blinds, Awnings & Canopies **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (E)	140	-	515804 209553
43	**Contemporary Trade Directory Entries** Name: Chipsaway St Albans Location: Unit 4, The Gryphon Industrial Park, Porters Wood, St. Albans, AL3 6XZ Classification: Car Body Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (E)	146	-	515804 209545
43	**Contemporary Trade Directory Entries** Name: Cherwell Tobacco Location: Unit 4, The Gryphon Industrial Park, Porters Wood, St. Albans, Hertfordshire, AL3 6XZ Classification: Vending Machine Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12NE (E)	150	-	515809 209544
43	**Contemporary Trade Directory Entries** Name: St Albans Car Clinic Location: Unit 5-6, The Gryphon Industrial Park, Porters Wood, St. Albans, AL3 6XZ Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (E)	154	-	515805 209536
44	**Contemporary Trade Directory Entries** Name: Sealane Location: Star Cargo House, Parkway, Porters Wood, St Albans, AL3 6PA Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (E)	150	-	515621 209389
44	**Contemporary Trade Directory Entries** Name: J K Response Services Ltd Location: 6B, PARKWAY, PORTERS WOOD, ST. ALBANS, AL3 6PA Classification: Domestic Appliances - Servicing, Repairs & Parts **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (E)	150	-	515641 209405
44	**Contemporary Trade Directory Entries** Name: Star Cargo Plc Location: Star Cargo House, Parkway, Porters Wood, St. Albans, AL3 6PA Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (E)	150	-	515621 209389
44	**Contemporary Trade Directory Entries** Name: 001 Ltd Location: 4, Parkway, Porters Wood, St. Albans, Hertfordshire, AL3 6PA Classification: Energy Efficient Products and Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NW (E)	150	-	515636 209402
44	**Contemporary Trade Directory Entries** Name: Fastnet Forwarding Ltd Location: 1, Parkway, Porters Wood, St. Albans, Hertfordshire, AL3 6PA Classification: Freight Forwarders **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (E)	158	-	515623 209379
45	**Contemporary Trade Directory Entries** Name: Papier Mettler Location: 7, Parkway, Porters Wood, St. Albans, Hertfordshire, AL3 6PA Classification: Paper & Cardboard Products & Packaging - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (E)	151	-	515698 209451

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
45	**Contemporary Trade Directory Entries** Name: Voispeed Location: 6c, Parkway, Porters Wood, St. Albans, Hertfordshire, AL3 6PA Classification: Telecommunications Equipment & Systems **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12NE (E)	155	-	515678 209429
46	**Contemporary Trade Directory Entries** Name: St Albans Carpet Location: 8, Potters Field, St. Albans, Hertfordshire, AL3 6LJ Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (SE)	158	-	515503 209150
47	**Contemporary Trade Directory Entries** Name: Glotech Location: UNIT 2, STANTA BUSINESS CENTRE, 3, SOOTHOUSE SPRING, ST ALBANS, AL3 6PF Classification: Domestic Appliances - Servicing, Repairs & Parts **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SW (E)	176	-	515610 209295
47	**Contemporary Trade Directory Entries** Name: Patrol Jeanswear Ltd Location: Suite 13,Stanta Business Centre,3 Soothouse Spring, St. Albans, Hertfordshire, AL3 6PF Classification: Clothing & Fabrics - Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12SW (E)	176	-	515610 209294
47	**Contemporary Trade Directory Entries** Name: Digital Echo Ltd Location: UNIT 5, STANTA BUSINESS CENTRE, 3, SOOTHOUSE SPRING, ST. ALBANS, AL3 6PF Classification: Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	176	-	515610 209295
47	**Contemporary Trade Directory Entries** Name: Xentech Solutions Location: Unit 6, Stanta Business Centre, 3, Soothouse Spring, St. Albans, Hertfordshire, AL3 6PF Classification: Electronic Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SW (E)	177	-	515611 209295
47	**Contemporary Trade Directory Entries** Name: 360 Engineering Ltd Location: Soothouse Spring, St. Albans, Hertfordshire, AL3 6PF Classification: Air Conditioning & Refrigeration Contractors **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SW (E)	189	-	515622 209270
48	**Contemporary Trade Directory Entries** Name: Metalwood Fencing Ltd Location: Soothouse Spring, St. Albans, AL3 6PG Classification: Gate Manufacturers - Automated **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SW (E)	199	-	515632 209317
48	**Contemporary Trade Directory Entries** Name: Abbey Autos Ltd Location: Unit 30, Soothouse Spring, St. Albans, AL3 6PF Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (E)	212	-	515673 209352
48	**Contemporary Trade Directory Entries** Name: B C Ceramics Location: Unit 27, Soothouse Spring, St. Albans, Hertfordshire, AL3 6PF Classification: Ceramic Manufacturers, Supplies & Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (E)	213	-	515672 209350
48	**Contemporary Trade Directory Entries** Name: Bill Chippington Ltd Location: Soothouse Spring, St. Albans, Hertfordshire, AL3 6PF Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SW (E)	216	-	515650 209327

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
48	**Contemporary Trade Directory Entries** Name: V A T E C H T & D Ltd Location: Soothouse Spring, St Albans, Hertfordshire, AL3 6PF Classification: Electrical Engineers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SE (E)	236	-	515669 209312
49	**Contemporary Trade Directory Entries** Name: Goss Environmental Coatings Ltd Location: Unit 29, Soothouse Spring, St. Albans, AL3 6PF Classification: Coating Specialists **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (E)	213	-	515691 209366
50	**Contemporary Trade Directory Entries** Name: Jiffy Domestic Services Location: A, 32, Cavan Drive, St. Albans, Hertfordshire, AL3 6HR Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11NW (W)	244	-	514756 209531
51	**Contemporary Trade Directory Entries** Name: Buttles Location: Soothouse Spring, St. Albans, Hertfordshire, AL3 6NX Classification: Builders' Merchants **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (E)	246	-	515768 209386
51	**Contemporary Trade Directory Entries** Name: Buttle'S Location: Soothouse Spring, St. Albans, Hertfordshire, AL3 6NX Classification: Builders' Merchants **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NE (E)	246	-	515768 209386
52	**Contemporary Trade Directory Entries** Name: Chequers Recovery Location: 20, Blueberry Close, St. Albans, Hertfordshire, AL3 6NH Classification: Breakdown and Recovery **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (S)	273	-	515005 209278
53	**Contemporary Trade Directory Entries** Name: Mr Dealer Location: Valley Rd, St Albans, Hertfordshire, AL3 6LR Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A12SE (SE)	389	-	515738 209050
54	**Contemporary Trade Directory Entries** Name: D J Brown Location: 17, Canberra Close, St. Albans, Hertfordshire, AL3 6LW Classification: Boilers - Servicing, Replacements & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	404	-	515818 209167
55	**Contemporary Trade Directory Entries** Name: Alban Cleaning Services Ltd Location: Unit A6, 156, St. Albans Road, Sandridge, St. Albans, AL4 9LP Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (E)	409	-	515991 209359
56	**Contemporary Trade Directory Entries** Name: Carpet Cleaning Services Location: 68, Marshall Avenue, St. Albans, Hertfordshire, AL3 5HS Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NW (SE)	448	-	515456 208839
57	**Contemporary Trade Directory Entries** Name: Stock Distribution Solutions Location: 17, Partridge Road, St. Albans, Hertfordshire, AL3 6HH Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SW (SW)	452	-	514793 209274
58	**Contemporary Trade Directory Entries** Name: Greenhouse Warehouse Location: 154, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LP Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	457	-	515971 209280

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
59	**Contemporary Trade Directory Entries** Name: C N B Appliance Services Location: 38, High Oaks, St. Albans, Hertfordshire, AL3 6DN Classification: Domestic Appliances - Servicing, Repairs & Parts **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10NE (W)	459	-	514602 209377
60	**Contemporary Trade Directory Entries** Name: Timber Windows Of St Albans Location: 36, Beech Road, St. Albans, AL3 5AS Classification: Window Frames - Sales & Service **Status: Active** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	477	-	515760 208945
60	**Contemporary Trade Directory Entries** Name: St Albans Launderette Location: 34, Beech Road, St. Albans, Hertfordshire, AL3 5AS Classification: Laundries & Launderettes **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	482	-	515765 208943
61	**Contemporary Trade Directory Entries** Name: Discount Ironing Location: 45, Nicholas Close, St. Albans, Hertfordshire, AL3 6BU Classification: Ironing & Home Laundry Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SW (S)	492	-	514938 209051
62	**Contemporary Trade Directory Entries** Name: Commodore Carpet Cleaners Ltd Location: Unit 6, Metro Centre, Ronsons Way, Sandridge, ST. ALBANS, Hertfordshire, AL4 9QT Classification: Carpet & Fabric Proofing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	514	-	515912 209104
62	**Contemporary Trade Directory Entries** Name: C F Systems (Uk) Ltd Location: Unit 7, Metro Centre, Ronsons Way, Sandridge, St. Albans, Hertfordshire, AL4 9QT Classification: Photocopiers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	522	-	515919 209102
62	**Contemporary Trade Directory Entries** Name: Adler & Allan Location: 1a, Ronsons Way, Sandridge, St. Albans, AL4 9PZ Classification: Tank Cleaning & Repairing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (SE)	526	-	515903 209055
62	**Contemporary Trade Directory Entries** Name: The Ultimate Kit Co Ltd Location: Unit 8,Metro Centre,Ronsons Way, Sandridge, St. Albans, Hertfordshire, AL4 9QT Classification: Leisure & Sportswear Manufacturers & Wholesalers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12SE (E)	530	-	515927 209098
62	**Contemporary Trade Directory Entries** Name: Payper Box Ltd Location: Unit 8, Metro Centre, Ronsons Way, Sandridge, St. Albans, AL4 9QT Classification: Paper & Cardboard Products & Packaging - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	531	-	515928 209098
62	**Contemporary Trade Directory Entries** Name: Home Counties Cladding Location: Unit 5, Metro Centre, Ronsons Way, Sandridge, St. Albans, Hertfordshire, AL4 9QT Classification: Cladding Suppliers & Installers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (SE)	533	-	515910 209053
62	**Contemporary Trade Directory Entries** Name: Cricket Direct Location: Unit 4, Metro Centre, Ronsons Way, Sandridge, ST. ALBANS, Hertfordshire, AL4 9QT Classification: Sports Equipment Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (SE)	541	-	515919 209055

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
63	**Contemporary Trade Directory Entries** Name: Adler & Allan Ltd Location: 1a, Ronsons Way, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9PZ Classification: Tanks, Vats & Cisterns **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (SE)	526	-	515903 209055
63	**Contemporary Trade Directory Entries** Name: City Steel Location: UNIT 1,City House,Ronsons Way, St. Albans, Hertfordshire, AL4 9PX Classification: Sheet Metal Work **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A12SE (SE)	562	-	515927 209024
64	**Contemporary Trade Directory Entries** Name: Crop Location: Sandridge Gate Business Centre, Ronsons Way, St. Albans, Hertfordshire, AL4 9XR Classification: Recycling Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	528	-	515967 209185
64	**Contemporary Trade Directory Entries** Name: Impact Promotional Printers Location: Sandridge Gate Business Centre, Ronsons Way, St. Albans, Hertfordshire, AL4 9XR Classification: T-Shirts **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	528	-	515967 209185
64	**Contemporary Trade Directory Entries** Name: Chain & Pyle Location: 2-9, Sandridge Gate Business Centre, Ronsons Way, St. Albans, AL4 9XR Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	557	-	515993 209169
64	**Contemporary Trade Directory Entries** Name: Impressions The Printers Ltd Location: Unit A, Sandridge Gate Business Centre, Ronsons Way, Sandridge, AL4 9XR Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	557	-	515993 209169
65	**Contemporary Trade Directory Entries** Name: Shell Location: 2, Beech Road, St. Albans, Hertfordshire, AL3 5AS Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	538	-	515832 208932
65	**Contemporary Trade Directory Entries** Name: Total Location: 2 Beech Rd, St Albans, Hertfordshire, AL3 5AS Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	538	-	515832 208932
65	**Contemporary Trade Directory Entries** Name: Shell King William Service Station Location: 2 Beech Road,Marshalswick, St Albans, Hertfordshire, AL3 5AS Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	542	-	515831 208924
66	**Contemporary Trade Directory Entries** Name: Minerva Football Co Ltd Location: Unit 10, Metro Centre, Ronsons Way, Sandridge, St. Albans, Hertfordshire, AL4 9QT Classification: Sports Equipment Manufacturers & Distributors **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	547	-	515944 209093
66	**Contemporary Trade Directory Entries** Name: Arnold James Location: Unit 1, Metro Centre, Ronsons Way, Sandridge, St. Albans, Hertfordshire, AL4 9QT Classification: Mechanical Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (SE)	563	-	515945 209057

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
66	**Contemporary Trade Directory Entries** Name: Enviroscreen Systems Location: SWIFT HOUSE, 13, RONSONS WAY, SANDRIDGE, AL4 9QT Classification: Blinds, Awnings & Canopies **Status: Active** Positional Accuracy: Automatically positioned to the address	A12SE (E)	586	-	515978 209074
66	**Contemporary Trade Directory Entries** Name: Enviroscreen Systems Location: Unit 13, Metro Centre, Ronsons Way, Sandridge, St. Albans, AL4 9QT Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12SE (E)	586	-	515978 209074
67	**Contemporary Trade Directory Entries** Name: Iguzzini Illuminazione Uk Ltd Location: 124, Lancaster Road, St. Albans, Hertfordshire, AL1 4ES Classification: Lighting Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8NE (SE)	694	-	515830 208723
68	**Contemporary Trade Directory Entries** Name: Verminator Uk Location: 12, Therfield Road, ST. ALBANS, Hertfordshire, AL3 6BP Classification: Pest & Vermin Control **Status: Active** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	699	-	514703 208977
69	**Contemporary Trade Directory Entries** Name: Rotary Mower Servicing & Blade Sharpening Location: 27, Seymour Road, St. Albans, Hertfordshire, AL3 5HN Classification: Lawnmowers & Garden Machinery - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (S)	731	-	515394 208556
70	**Contemporary Trade Directory Entries** Name: Autocraft Services Location: Heathlands Drive, St. Albans, Hertfordshire, AL3 5AY Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (S)	753	-	515214 208563
70	**Contemporary Trade Directory Entries** Name: Autocraft Services Location: Heathlands Drive, St. Albans, Hertfordshire, AL3 5AY Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (S)	753	-	515214 208563
71	**Contemporary Trade Directory Entries** Name: Express Ironing Location: 36, Batchwood Drive, St. Albans, Hertfordshire, AL3 5SB Classification: Ironing & Home Laundry Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (S)	769	-	514790 208817
72	**Contemporary Trade Directory Entries** Name: St Albans Screen Printers Location: 58, Green Lane, St. Albans, Hertfordshire, AL3 6EY Classification: Screen Process Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SE (SW)	781	-	514512 209053
73	**Contemporary Trade Directory Entries** Name: W A Brisco Printers Location: 218, Sandridge Road, St. Albans, Hertfordshire, AL1 4AL Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SE (SE)	793	-	515688 208539
74	**Contemporary Trade Directory Entries** Name: Thompson Cleaning Services Location: 8, Lawrance Road, ST. ALBANS, Hertfordshire, AL3 6EA Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A10SW (SW)	867	-	514280 209117
75	**Contemporary Trade Directory Entries** Name: J T Contract Services Location: St Albans, Hertfordshire, Al3 6hd Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A6NE (SW)	906	-	514423 208959

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
75	**Contemporary Trade Directory Entries** Name: Four Seasons Location: 32, Green Lane, ST. ALBANS, Hertfordshire, AL3 6EZ Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6NE (SW)	922	-	514437 208932
75	**Contemporary Trade Directory Entries** Name: Four Seasons Cleaning Location: 32, Green Lane, St. Albans, Hertfordshire, AL3 6EZ Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A6NE (SW)	922	-	514437 208932
76	**Contemporary Trade Directory Entries** Name: Allbuild Construction & Maintenance Ltd Location: 10, Archers Fields, Sandridge Road, St. Albans, Hertfordshire, AL1 4EL Classification: Damp & Dry Rot Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (SE)	936	-	515651 208378
77	**Contemporary Trade Directory Entries** Name: Westfield Engineers Ltd Location: 156a, Sandridge Road, St. Albans, Hertfordshire, AL1 4AP Classification: Plastics - Machinery & Equipment Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (SE)	952	-	515534 208341
77	**Contemporary Trade Directory Entries** Name: Mobile Car Clinic Ltd Location: 156, Sandridge Road, St. Albans, Hertfordshire, AL1 4AW Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A8SW (SE)	952	-	515534 208341
78	**Contemporary Trade Directory Entries** Name: M S Autos Location: 156, Sandridge Road, St. Albans, Hertfordshire, AL1 4AP Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A4NW (SE)	989	-	515597 208313
79	**Fuel Station Entries** Name: St Albans Service Station Location: 150, Harpenden Road , , St Albans, Hertfordshire, AL3 6BZ Brand: TEXACO Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A11NW (NW)	96	-	514927 209647
80	**Fuel Station Entries** Name: Mfg King William Location: 2, Beech Road Valley Road, Marshalswick , St Albans, Hertfordshire, AL3 5AS Brand: Shell Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A8NE (SE)	538	-	515832 208932
81	**Points of Interest - Commercial Services** Name: Autoglass Location: Unit 3/4 The Caxton Centre, Porters Wood, St. Albans, AL3 6XT Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (E)	13	8	515611 209559
81	**Points of Interest - Commercial Services** Name: Autoglass Location: Unit 3 The Caxton Centre, Porters Wood, St. Albans, AL3 6XT Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (E)	13	8	515611 209559
81	**Points of Interest - Commercial Services** Name: W K D Distribution Location: 3 The Caxton Centre, Porters Wood, St. Albans, AL3 6XT Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12NW (E)	13	8	515611 209559

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
81	**Points of Interest - Commercial Services** Name: Connaught Location: Unit 11 The Caxton Centre Porters Wood, St Albans, Hertfordshire, AL3 6XT Category: Contract Services Class Code: Pest and Vermin Control Positional Accuracy: Positioned to address or location	A12NE (E)	63	8	515674 209545
82	**Points of Interest - Commercial Services** Name: Car Cool Services Location: Unit 1 St. Albans Enterprise Centre, Long Spring, Porters Wood, St. Albans, AL3 6EN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NW (E)	15	8	515459 209431
82	**Points of Interest - Commercial Services** Name: Westhouse Transport Location: Spring Valley Business Centre, Porters Wood, St. Albans, AL3 6PD Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12NW (E)	44	8	515448 209356
83	**Points of Interest - Commercial Services** Name: St Albans Service Station Location: 150 Harpenden Road, St. Albans, AL3 6BZ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A11NW (NW)	74	8	514945 209672
83	**Points of Interest - Commercial Services** Name: Car Wash Location: 150 Harpenden Road, St. Albans, AL3 6BZ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A11NW (NW)	96	8	514927 209647
84	**Points of Interest - Commercial Services** Name: Kane Haulage Ltd Location: Construction House, Porters Wood, St. Albans, AL3 6NW Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12NE (E)	94	8	515716 209539
84	**Points of Interest - Commercial Services** Name: G J Gaywood Location: Construction House 12, Porters Wood, St. Albans, AL3 6NW Category: Recycling Services Class Code: Recycling, Reclamation and Disposal Positional Accuracy: Positioned to address or location	A12NE (E)	95	8	515716 209539
85	**Points of Interest - Commercial Services** Name: Fast Lane Paint & Body Ltd Location: Soothouse, Soothouse Spring, St. Albans, AL3 6PF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12SW (E)	121	8	515544 209242
86	**Points of Interest - Commercial Services** Name: Harpenden Auto Services Location: 1 Sandridgebury Lane, Sandridge, St. Albans, AL3 6RA Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A11SE (SE)	145	8	515134 209339
87	**Points of Interest - Commercial Services** Name: Chipsaway Location: 4 The Gryphon Industrial Park, Porters Wood, St. Albans, AL3 6XZ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NE (E)	146	8	515804 209545
87	**Points of Interest - Commercial Services** Name: St Albans Car Clinic Location: Units 5 and 6 The Gryphon Industrial Park, Porters Wood, St. Albans, AL3 6XZ Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NE (E)	154	8	515805 209536

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
88	**Points of Interest - Commercial Services** Name: Star Cargo Plc Location: Star Cargo House 1 Parkway, Porters Wood, St. Albans, AL3 6PA Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12NW (E)	150	8	515621 209389
88	**Points of Interest - Commercial Services** Name: Sealane Location: Star Cargo House 1 Parkway, Porters Wood, St. Albans, AL3 6PA Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12NW (E)	150	8	515621 209389
88	**Points of Interest - Commercial Services** Name: Fastnet Forwarding Ltd Location: Star Cargo House 1 Parkway, Porters Wood, St. Albans, AL3 6PA Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12NW (E)	150	8	515621 209389
88	**Points of Interest - Commercial Services** Name: Sealane Freight Ltd Location: 1 Parkway, Porters Wood, St. Albans, AL3 6PA Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12NW (E)	158	8	515622 209379
88	**Points of Interest - Commercial Services** Name: Abbey Autos Ltd Location: Unit 30, Soothouse Spring, St. Albans, AL3 6PF Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A12NE (E)	212	8	515673 209352
88	**Points of Interest - Commercial Services** Name: Bill Chippington Ltd Location: Soothouse Spring, St. Albans, AL3 6PF Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12SW (E)	216	8	515650 209327
88	**Points of Interest - Commercial Services** Name: Bill Chippington Haulage Ltd Location: Unit 31, Soothouse Spring, St. Albans, AL3 6PF Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12SW (E)	216	8	515650 209327
89	**Points of Interest - Commercial Services** Name: Stock Distribution Solutions Location: 17 Partridge Road, St. Albans, AL3 6HH Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A11SW (SW)	452	8	514792 209274
90	**Points of Interest - Commercial Services** Name: Greenhouse Warehouse Location: 154 St. Albans Road, Sandridge, St. Albans, AL4 9LP Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A12SE (E)	457	8	515971 209280
91	**Points of Interest - Commercial Services** Name: King William Service Station Location: 2 Beech Road, St. Albans, AL3 5AS Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A8NE (SE)	538	8	515832 208932
91	**Points of Interest - Commercial Services** Name: Car Wash Location: 2 Beech Road, St. Albans, AL3 5AS Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A8NE (SE)	538	8	515832 208932
91	**Points of Interest - Commercial Services** Name: Shell Car Wash Location: 2 Beech Road, St. Albans, AL3 5AS Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A8NE (SE)	539	8	515834 208932

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
92	**Points of Interest - Commercial Services** Name: Spanners Mobile Mechanics Ltd Location: 10 Nicholas Close, St. Albans, AL3 6BU Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A7NW (SW)	596	8	514839 208994
93	**Points of Interest - Commercial Services** Name: Verminator UK Location: 12 Therfield Road, St. Albans, AL3 6BP Category: Contract Services Class Code: Pest and Vermin Control Positional Accuracy: Positioned to address or location	A7NW (SW)	699	8	514703 208977
94	**Points of Interest - Commercial Services** Name: Blue Diamond Location: 67 Woollam Crescent, St. Albans, AL3 6EH Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A10SE (W)	753	8	514315 209245
94	**Points of Interest - Commercial Services** Name: Blue Diamond Car Valeting Location: 67 Woollam Crescent, St. Albans, AL3 6EH Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A10SE (W)	753	8	514315 209245
95	**Points of Interest - Manufacturing and Production** Name: Oak Court Business Centre Location: AL3 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A12NE (E)	15	8	515748 209669
96	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NW (E)	30	8	515589 209518
97	**Points of Interest - Manufacturing and Production** Name: St Albans Enterprise Centre Location: AL3 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A12NW (E)	35	8	515481 209423
97	**Points of Interest - Manufacturing and Production** Name: Spring Valley Enterprise Centre Location: AL3 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A12NW (E)	62	8	515478 209385
98	**Points of Interest - Manufacturing and Production** Name: Lyntel International Ltd Location: Unit 11 The Caxton Centre, Porters Wood, St. Albans, AL3 6XT Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A12NE (E)	64	8	515674 209545
98	**Points of Interest - Manufacturing and Production** Name: Ionic Stone Location: Unit 9, Porters Wood, St. Albans, AL3 6PQ Category: Extractive Industries Class Code: Stone Quarrying and Preparation Positional Accuracy: Positioned to address or location	A12NW (E)	80	8	515624 209482
98	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NW (E)	85	8	515624 209476
98	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NE (E)	151	8	515734 209481

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
99	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NW (E)	71	8	515543 209427
99	**Points of Interest - Manufacturing and Production** Name: Factory Location: AL3 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A12NW (E)	100	8	515561 209404
99	**Points of Interest - Manufacturing and Production** Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NW (E)	101	8	515563 209405
99	**Points of Interest - Manufacturing and Production** Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12SW (E)	109	8	515543 209292
99	**Points of Interest - Manufacturing and Production** Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NW (E)	153	8	515594 209363
99	**Points of Interest - Manufacturing and Production** Name: Business Centre Location: AL3 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A12SW (E)	182	8	515616 209288
99	**Points of Interest - Manufacturing and Production** Name: Works Location: AL3 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12SW (E)	198	8	515630 209321
99	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NE (E)	212	8	515673 209352
100	**Points of Interest - Manufacturing and Production** Name: Beech Industrial Centre Location: AL3 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A12SW (E)	107	8	515541 209291
100	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12SW (E)	123	8	515545 209240
101	**Points of Interest - Manufacturing and Production** Name: Works Location: AL3 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NE (E)	152	8	515736 209481
102	**Points of Interest - Manufacturing and Production** Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NE (E)	211	8	515709 209382

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
102	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NE (E)	213	8	515691 209365
103	**Points of Interest - Manufacturing and Production** Name: Works Location: AL4 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A12NE (E)	415	8	515985 209346
104	**Points of Interest - Manufacturing and Production** Name: Tank Location: AL3 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A14SE (W)	441	8	514445 209679
105	**Points of Interest - Manufacturing and Production** Name: Sandridge Gate Business Centre Location: AL4 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A12SE (E)	523	8	515965 209189
106	**Points of Interest - Public Infrastructure** Name: Texaco Location: 150 Harpenden Road, St. Albans, AL3 6BZ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11NW (NW)	96	8	514927 209647
106	**Points of Interest - Public Infrastructure** Name: Texaco Location: 150 Harpenden Road, St. Albans, AL3 6BZ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11NW (NW)	96	8	514927 209647
106	**Points of Interest - Public Infrastructure** Name: St Albans Sstn Location: 150 Harpenden Road, St. Albans, AL3 6BZ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11NW (NW)	96	8	514927 209647
106	**Points of Interest - Public Infrastructure** Name: St Albans Service Station Location: 150 Harpenden Road, St. Albans, AL3 6BZ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A11NW (NW)	96	8	514927 209647
107	**Points of Interest - Public Infrastructure** Name: Sewage Pumping Station Location: AL3 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A7NE (S)	390	8	515239 208943
108	**Points of Interest - Public Infrastructure** Name: Refuse Tip (Public) Location: AL4 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A12SE (E)	530	8	515935 209119
109	**Points of Interest - Public Infrastructure** Name: Total UK Ltd Location: 2 Beech Road, St. Albans, AL3 5AS Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NE (SE)	537	8	515833 208933
109	**Points of Interest - Public Infrastructure** Name: Total UK Ltd Location: 2 Beech Road, St. Albans, AL3 5AS Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NE (SE)	538	8	515832 208932

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
109	**Points of Interest - Public Infrastructure** Name: Shell Location: 2 Beech Road, St. Albans, AL3 5AS Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NE (SE)	538	8	515832 208932
109	**Points of Interest - Public Infrastructure** Name: Tcs Marshalswick Location: 2 Beech Road, Marshalswick, St Albans, Hertfordshire, AL3 5AR Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NE (SE)	538	8	515832 208932
109	**Points of Interest - Public Infrastructure** Name: King William Service Station Location: 2 Beech Road, St. Albans, AL3 5AS Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NE (SE)	538	8	515832 208932
109	**Points of Interest - Public Infrastructure** Name: Shell King William Service Station Location: 2 Beech Road, Marshalswick, St. Albans, AL3 5AS Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8NE (SE)	542	8	515831 208924
110	**Points of Interest - Public Infrastructure** Name: White's Coaches Location: 51 Sandridge Road, St. Albans, AL1 4AG Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to address or location	A8SW (S)	923	8	515467 208364
110	**Points of Interest - Public Infrastructure** Name: White's Coaches Location: 51 Sandridge Road, St. Albans, AL1 4AG Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to address or location	A8SW (S)	923	8	515467 208364
111	**Points of Interest - Recreational and Environmental** Name: Playground Location: Harpenden Road, AL3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A11SE (S)	285	8	515032 209237
111	**Points of Interest - Recreational and Environmental** Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A11SE (S)	288	8	515031 209235
112	**Points of Interest - Recreational and Environmental** Name: Playground Location: Arundel Grove, AL3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A11NW (W)	334	8	514672 209481
112	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A11NW (W)	335	8	514672 209479
113	**Points of Interest - Recreational and Environmental** Name: Toulmin Drive Play Area Location: AL3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A6NW (SW)	967	8	514294 208973
114	**Points of Interest - Recreational and Environmental** Name: Playground Location: Sandridge Road, AL3 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A4NW (S)	972	8	515402 208314

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
114	**Points of Interest - Recreational and Environmental** Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A4NW (S)	973	8	515401 208313

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
115	**Ancient Woodland** Name: Not Supplied Reference: 1414168 Area(m²): 4526.89 Type: Ancient and Semi-Natural Woodland	A12NW (E)	0	9	515380 209380
116	**Ancient Woodland** Name: Not Supplied Reference: 1414177 Area(m²): 16139 Type: Ancient and Semi-Natural Woodland	A12NW (E)	0	9	515369 209401
117	**Ancient Woodland** Name: Green Wood Reference: 1115911 Area(m²): 34429.62 Type: Ancient and Semi-Natural Woodland	A14NE (NW)	512	9	514347 210077
118	**Ancient Woodland** Name: Langley Wood Reference: 1115924 Area(m²): 45151.69 Type: Ancient and Semi-Natural Woodland	(NE)	646	9	516232 210746
119	**Ancient Woodland** Name: Green Wood Reference: 1115911 Area(m²): 69009.37 Type: Plantation on Ancient Woodland	A14NW (NW)	730	9	514241 210347
120	**Ancient Woodland** Name: Batch Wood Reference: 1115886 Area(m²): 129218.31 Type: Ancient and Semi-Natural Woodland	A10NW (W)	755	9	514224 209371
121	**Areas of Adopted Green Belt** Authority: St Albans City & District Council Plan Name: St Albans District Local Plan Review **Status: Adopted** Plan Date: 30th November 1994	A11NE (N)	0	10	515053 209471
122	**Nitrate Vulnerable Zones** Name: Hatfield Description: Groundwater Source: Environment Agency, Head Office	A16NW (NE)	0	4	515435 210138
123	**Nitrate Vulnerable Zones** Name: Colne And Guc (From Confluence With Chess To Ash) Nvz Description: Surface Water Source: Environment Agency, Head Office	A11NE (E)	0	4	515042 209443

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	November 2023	Annually
St Albans City & District Council - Environmental Health Department	October 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Thames Region	January 2024	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Thames Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Thames Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - South East Region - North East Thames Area	October 2023	Quarterly
Environment Agency - Thames Region	October 2023	Quarterly
Local Authority Integrated Pollution Prevention And Control		
St Albans City & District Council - Environmental Health Department	May 2014	Variable
Local Authority Pollution Prevention and Controls		
St Albans City & District Council - Environmental Health Department	May 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
St Albans City & District Council - Environmental Health Department	May 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	March 2024	
Pollution Incidents to Controlled Waters		
Environment Agency - Thames Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Thames Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Thames Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Thames Region	June 2016	As notified
Environment Agency - Head Office	May 2023	Quarterly
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - South East Region - North East Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - North East Area	January 2024	Quarterly
Water Abstractions		
Environment Agency - Thames Region	April 2024	Quarterly
Water Industry Act Referrals		
Environment Agency - Thames Region	October 2017	
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified
Groundwater Vulnerability - Soluble Rock Risk		
Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations		
Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations		
Environment Agency - Head Office	January 2018	As notified

Agency & Hydrological	Version	Update Cycle
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	January 2024	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines Ordnance Survey	April 2024	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	July 2023	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Thames Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South East Region - North East Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - North East Area	January 2024	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South East Region - North East Thames Area	January 2023	Quarterly
Environment Agency - Thames Region - North East Area	January 2023	Quarterly
Local Authority Landfill Coverage		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2003	Not Applicable
St Albans City & District Council - Environmental Health Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Hertfordshire County Council - Spatial Planning and Economy Unit	October 2018	
St Albans City & District Council - Environmental Health Department	October 2018	
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	
Registered Landfill Sites		
Environment Agency - Thames Region - North East Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Thames Region - North East Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Thames Region - North East Area	June 2015	
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2024	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2016	Variable
St Albans City & District Council	February 2016	Variable
Planning Hazardous Substance Consents		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2016	Variable
St Albans City & District Council	February 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	January 2024	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	October 2023	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2023	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2024	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	March 2024	Quarterly
Points of Interest - Education and Health PointX	March 2024	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2024	Quarterly
Points of Interest - Public Infrastructure PointX	March 2024	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2024	Quarterly
Underground Electrical Cables National Grid	January 2024	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	April 2024	Bi-Annually
Areas of Adopted Green Belt St Albans City & District Council	February 2024	Quarterly
Areas of Unadopted Green Belt St Albans City & District Council	February 2024	Quarterly
Areas of Outstanding Natural Beauty Natural England	November 2023	Bi-Annually
Environmentally Sensitive Areas Natural England	August 2023	
Forest Parks Forestry Commission	May 2023	Not Applicable
Local Nature Reserves Natural England	February 2024	Bi-Annually
Marine Nature Reserves Natural England	February 2024	Bi-Annually
National Nature Reserves Natural England	February 2024	Bi-Annually
National Parks Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Environment Agency - Head Office	April 2016 April 2024	Bi-Annually
Ramsar Sites Natural England	February 2024	Bi-Annually
Sites of Special Scientific Interest Natural England	April 2024	Bi-Annually
Special Areas of Conservation Natural England	April 2024	Bi-Annually
Special Protection Areas Natural England	April 2024	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**St Albans City & District Council - Environmental Health Department** Civic Centre, St Peters Street, St Albans, Hertfordshire, AL1 3JE	Telephone: 01727 866100 Fax: 01727 845658 Website: www.stalbans.gov.uk
3	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
4	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
5	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	**Hertfordshire County Council - Spatial Planning and Economy Unit** County Hall, Hertford, Hertfordshire, SG13 8DN	Telephone: 01992 556266 Fax: 01992 556015 Email: spatialplanning@hertfordshire.gov.uk Website: www.hertsdirect.org
7	**Stantec UK Ltd** Caversham Bridge House, Waterman Place, Reading, RG1 8DN	Telephone: 0118 950 0761 Email: pba.reading@stantec.com Website: www.stantec.com
8	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
9	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
10	**St Albans City & District Council** Civic Centre, St Peters Street, St Albans, Hertfordshire, AL1 3JE	Telephone: 01727 866100 Fax: 01727 845658 Website: www.stalbans.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
345196291_1_1

Customer Reference:
PO01119

National Grid Reference:
516350, 209600

Slice:
B

Site Area (Ha):
51.71

Search Buffer (m):
1000

Site Details:

St Albans

Client Details:

Ms A Melia
Brookbanks Consulting
6150 Knights Court
Solihull Parkway
Birmingham
B37 7WY

Brookbanks Consulting

Contents

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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes			n/a
Contaminated Land Register Entries and Notices					
Discharge Consents					
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 1				Yes
Pollution Incidents to Controlled Waters	pg 1				1
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 1				(*1)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 1	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 3	2	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 3	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 4	Yes	n/a	n/a	n/a
Source Protection Zones	pg 4	1	1		1
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 4				1

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 5	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 5				1
Potentially Infilled Land (Water)					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 6	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 6	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability	pg 7	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 7	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 8	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 8	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 8	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 8		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 9	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 9	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 10			19	14
Fuel Station Entries					
Points of Interest - Commercial Services	pg 12			9	5
Points of Interest - Education and Health	pg 14				1
Points of Interest - Manufacturing and Production	pg 14			3	1
Points of Interest - Public Infrastructure	pg 14				4
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Gas Pipelines					
Underground Electrical Cables					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 16	2			1
Areas of Adopted Green Belt	pg 16	1			
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 16	2			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	B9NE (NW)	0	1	516347 209597
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	B13SE (N)	0	1	516347 210000
	Nearest Surface Water Feature	B9NE (E)	867	-	516664 209612
1	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: Spalding District Authority: Environment Agency, Anglian Region Pollutant: Unknown Note: Dyke Incident Date: 1st June 1992 Incident Reference: 1330 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	B13NE (N)	889	2	516600 210300
	Water Abstractions Operator: W Chapman & Son Licence Number: 28/39/28/0416 Permit Version: 100 Location: Borehole At The Orchard, Woodcock Hill, Sandridge Authority: Environment Agency, Thames Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 5 Yearly Rate (m3): 545 Details: The Orchard, Woodcock Hill, Sandridge Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 15th July 1975 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	B15NW (NE)	1755	2	517500 210300
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(W)	0	3	515487 209795
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(W)	0	3	516000 209673

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(NW)	0	3	515349 210171
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(NW)	0	3	516000 210156
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(NW)	0	3	516000 209949
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(W)	0	3	516000 209597

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(NW)	0	3	515637 210368
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(NW)	0	3	516000 210000
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(W)	0	3	515329 209957
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(NW)	0	3	515700 210025
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	(W)	0	3	516000 209597
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	(NW)	0	3	516000 210000
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	B13SE (N)	0	3	516347 210000
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	B9NE (NW)	0	3	516347 209597

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(NW)	0	3	515349 210171
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	B13SW (NW)	0	3	516232 209771
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	B13NW (NW)	0	3	516104 210163
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(W)	0	3	515487 209795
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(W)	0	3	515329 209957
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	B13NW (N)	0	3	516152 210204
2	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	B9NE (NW)	0	2	516347 209597
3	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	(SW)	219	2	515585 208787
4	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	(SW)	796	2	515446 208406
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
5	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Thames Primacy: 1	B9NE (E)	867	4	516664 209612

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Hertfordshire County Council - Has supplied landfill data		0	5	516347 209597
	Local Authority Landfill Coverage Name: St Albans District Council - Has supplied landfill data		0	6	516347 209597
6	**Potentially Infilled Land (Non-Water)** Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1985	B9SW (S)	647	-	516208 209235

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: White Chalk Subgroup	B9NE (NW)	0	1	516347 209597
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	B13SW (NW)	0	1	516299 209681
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	B13SW (NW)	0	1	516110 210000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	(W)	0	1	516000 209534
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	B13SE (NE)	0	1	516527 210000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	B9NE (NW)	179	1	516347 209597
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	B13SW (NW)	192	1	516232 209771

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	B13NW (NW)	277	1	516104 210163
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	B9NW (NW)	287	1	516334 209617
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	B5NW (S)	569	1	516048 208752
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	B9NE (SE)	612	1	516485 209432
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	B14SW (NE)	906	1	516687 210000
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Mining Instability Mining Evidence: Conclusive Rock Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	B13SE (N)	0	-	516347 210000
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	B9NE (NW)	0	1	516347 209597

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	B13SE (N)	0	1	516347 210000
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B13SE (N)	0	1	516347 210000
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9NE (NW)	0	1	516347 209597
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9NE (NW)	0	1	516347 209597
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13SE (N)	0	1	516347 210000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	1	516104 210163
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516232 209771
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9NE (NW)	0	1	516347 209597
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516110 210000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B13SE (NE)	0	1	516527 210000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	86	1	516204 209790
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516299 209681
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516110 210000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516232 209771
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	1	516104 210163
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13SE (NE)	0	1	516527 210000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9NW (NW)	109	1	516334 209617
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9NE (NW)	179	1	516347 209597
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13SE (N)	0	1	516347 210000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516299 209681
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9NW (NW)	109	1	516334 209617

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9NE (NW)	179	1	516347 209597
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	B13NW (N)	0	1	516152 210204
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9NE (NW)	0	1	516347 209597
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13SE (N)	0	1	516347 210000
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	B13SW (N)	0	1	516200 210000
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	B9NE (NW)	0	1	516347 209597
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516150 209975
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	1	516100 210175
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516250 209800
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	B13SW (N)	0	1	516200 210000
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	B9NE (NW)	0	1	516347 209597
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516150 209975
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	1	516100 210175
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	B13SW (NW)	0	1	516250 209800

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7	**Contemporary Trade Directory Entries** Name: The Footstool Company Location: Unit A3, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LP Classification: Homefurnishings - Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	423	-	516019 209364
7	**Contemporary Trade Directory Entries** Name: Cube Company Location: Unit A/1, 156, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LP Classification: Homefurnishings - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	423	-	516019 209364
7	**Contemporary Trade Directory Entries** Name: I M A Cooling Ltd Location: Unit A/4, 156, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LP Classification: Air Conditioning & Refrigeration Contractors **Status: Active** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	423	-	516019 209364
7	**Contemporary Trade Directory Entries** Name: Key Photo Ltd Location: 156 St. Albans Rd, Sandridge, St Albans, Hertfordshire, AL4 9LP Classification: Photographic Equipment & Supplies - Wholesale **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	B9NW (SW)	423	-	516018 209363
7	**Contemporary Trade Directory Entries** Name: St. Albans Motor Services Location: Unit A5, Allbright House, 156, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LP Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	B9NW (SW)	423	-	516019 209364
8	**Contemporary Trade Directory Entries** Name: Autolink Location: Sandridge Garage, 138, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	437	-	516153 209480
8	**Contemporary Trade Directory Entries** Name: Sandridge Garage Location: 138, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	437	-	516153 209480
8	**Contemporary Trade Directory Entries** Name: Walker & Deekes Location: Sandridge Garage, 138, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Mot Testing Centres **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	B9NW (SW)	437	-	516153 209480
8	**Contemporary Trade Directory Entries** Name: Ellis Coachworks Location: 138, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	B9NW (SW)	437	-	516153 209480
8	**Contemporary Trade Directory Entries** Name: G T Autos Location: Sandridge Garage, 138, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	B9NW (SW)	437	-	516153 209480
8	**Contemporary Trade Directory Entries** Name: Walker & Deekes Location: Sandridge Garage, 138, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Mot Testing Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	437	-	516153 209480

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Contemporary Trade Directory Entries** Name: Teadon Services Location: 136, St. Albans Road, Sandridge, St. Albans, AL4 9LL Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	454	-	516181 209489
8	**Contemporary Trade Directory Entries** Name: R & C Motor Repairs Location: 134, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	455	-	516187 209496
8	**Contemporary Trade Directory Entries** Name: C & C Autos Ltd Location: 134, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	455	-	516187 209496
8	**Contemporary Trade Directory Entries** Name: Sovereign Bus & Coach Co Location: New Central Depot,St Albans Rd, Sandridge, St Albans, Hertfordshire, AL4 9XR Classification: Bus & Coach Operators & Stations **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	B9NW (SW)	479	-	516187 209455
8	**Contemporary Trade Directory Entries** Name: Ds Coachworks Location: 138 St. Albans Rd, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	B9NW (SW)	479	-	516192 209462
9	**Contemporary Trade Directory Entries** Name: Smarty'S Autos Location: 120, St. Albans Road, Sandridge, St. Albans, AL4 9LL Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	B9NW (W)	445	-	516207 209552
9	**Contemporary Trade Directory Entries** Name: Spotless Location: Flat 2, 120, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NW (SW)	468	-	516229 209545
9	**Contemporary Trade Directory Entries** Name: Premier Motor Care Location: 120-125 St. Albans Rd, Sandridge, St. Albans, Hertfordshire, AL4 9LL Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	B9NW (SW)	488	-	516247 209534
10	**Contemporary Trade Directory Entries** Name: Custom Wear Location: Unit 5 Sandridge Gate Business Centre,Ronsons Way, St Albans, Hertfordshire, AL4 9XR Classification: T-Shirts **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9SW (SW)	550	-	516004 209187
10	**Contemporary Trade Directory Entries** Name: Amey Location: Unit 2-3, Sandridge Gate Business Centre, Ronsons Way, St. Albans, Hertfordshire, AL4 9XR Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9SW (SW)	571	-	516021 209173
10	**Contemporary Trade Directory Entries** Name: Enterprise Location: Sandridge Gate Business Centre, Ronsons Way, St. Albans, Hertfordshire, AL4 9XR Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9SW (SW)	571	-	516021 209173

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Contemporary Trade Directory Entries** Name: Phoenix Car Restoration Location: 42, Taylor Close, St. Albans, AL4 9YB Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	B9NW (S)	567	-	516325 209515
12	**Contemporary Trade Directory Entries** Name: Pest Pleece Location: 107, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LH Classification: Pest & Vermin Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NE (E)	572	-	516361 209598
12	**Contemporary Trade Directory Entries** Name: Shadow Location: 105, St. Albans Road, Sandridge, St. Albans, Hertfordshire, AL4 9LH Classification: Disability Equipment - Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NE (E)	586	-	516376 209604
13	**Contemporary Trade Directory Entries** Name: Plus Size Ski Location: 22, Deans Gardens, St. Albans, Hertfordshire, AL4 9LS Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9SW (SW)	581	-	516170 209291
14	**Contemporary Trade Directory Entries** Name: Skycraft Roofing Ltd Location: 3, THE BERRIES, ST ALBANS, AL4 9NL Classification: Cladding Suppliers & Installers **Status: Active** Positional Accuracy: Automatically positioned to the address	B9NW (S)	590	-	516303 209427
15	**Contemporary Trade Directory Entries** Name: 1st Asure Location: 31, Boling Brook, St. Albans, Hertfordshire, AL4 9NP Classification: Carpet, Curtain & Upholstery Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NW (S)	637	-	516316 209363
16	**Contemporary Trade Directory Entries** Name: Eric Ewen Ltd Location: 63, Chalkdell Fields, St. Albans, AL4 9LT Classification: Road Haulage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	B9SW (SW)	677	-	516080 209084
17	**Contemporary Trade Directory Entries** Name: Redesignsport Ltd Location: 31, Wheat Close, Sandridge, St. Albans, AL4 9NN Classification: Car Body Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9NE (SE)	696	-	516455 209491
18	**Contemporary Trade Directory Entries** Name: O C D Cleaning Services Location: 14, Boling Brook, St. Albans, Hertfordshire, AL4 9NP Classification: Cleaning Services - Domestic **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9SW (S)	699	-	516323 209276
19	**Contemporary Trade Directory Entries** Name: J A B Technical Services Ltd Location: 15, Field Close, Sandridge, St. Albans, Hertfordshire, AL4 9NW Classification: Office Equipment Servicing & Maintenance **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9SE (SE)	777	-	516466 209335
20	**Contemporary Trade Directory Entries** Name: Cobwebs Cleaning Ltd Location: 39, St. Albans Road, Sandridge, ST. ALBANS, Hertfordshire, AL4 9LE Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B13SE (NE)	833	-	516628 209902
21	**Points of Interest - Commercial Services** Name: G T Autos Location: Sandridge Garage 138, St. Albans Road, Sandridge, St. Albans, AL4 9LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (SW)	437	7	516153 209480

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	**Points of Interest - Commercial Services** Name: Walker & Deekes Location: Sandridge Garage 138, St. Albans Road, Sandridge, St. Albans, AL4 9LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (SW)	437	7	516153 209480
21	**Points of Interest - Commercial Services** Name: G T Autos Location: 138 St. Albans Road, Sandridge, St. Albans, AL4 9LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (SW)	437	7	516153 209480
21	**Points of Interest - Commercial Services** Name: D S Coachworks Location: Sandridge Garage 138, St. Albans Road, Sandridge, St. Albans, AL4 9LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (SW)	437	7	516153 209480
21	**Points of Interest - Commercial Services** Name: Read Motorcycles Location: Sandridge Garage 138, St. Albans Road, Sandridge, St. Albans, AL4 9LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (SW)	437	7	516153 209480
21	**Points of Interest - Commercial Services** Name: Smarty's Autos Location: 120 St. Albans Road, Sandridge, St. Albans, AL4 9LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (W)	444	7	516207 209552
21	**Points of Interest - Commercial Services** Name: Teadon Services Location: 136 St. Albans Road, Sandridge, St. Albans, AL4 9LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (SW)	453	7	516180 209489
21	**Points of Interest - Commercial Services** Name: Teadon Services Location: 136 St. Albans Road, Sandridge, St. Albans, AL4 9LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (SW)	454	7	516181 209489
21	**Points of Interest - Commercial Services** Name: Smarty's Autos Location: 120 St Albans Road, Sandridge, AL4 9LL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (SW)	474	7	516236 209544
22	**Points of Interest - Commercial Services** Name: Phoenix Car Restoration Location: 42 Taylor Close, St. Albans, AL4 9YB Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (S)	567	7	516325 209515
22	**Points of Interest - Commercial Services** Name: Phoenix Car Restoration Location: 42 Taylor Close, St. Albans, AL4 9YB Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NW (S)	567	7	516325 209515
23	**Points of Interest - Commercial Services** Name: Pest Pleece Location: 107 St. Albans Road, Sandridge, St. Albans, AL4 9LH Category: Contract Services Class Code: Pest and Vermin Control Positional Accuracy: Positioned to address or location	B9NE (E)	572	7	516360 209598
24	**Points of Interest - Commercial Services** Name: Eric Ewen Ltd Location: 63 Chalkdell Fields, St. Albans, AL4 9LT Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	B9SW (SW)	677	7	516080 209084

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**Points of Interest - Commercial Services** Name: Redesignsport Ltd Location: 31 Wheat Close, Sandridge, St. Albans, AL4 9NN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	B9NE (SE)	696	7	516455 209491
26	**Points of Interest - Education and Health** Name: Integrated Community Team Location: Sandridge Gate Business Centre, Ronsons Way, Sandridge, AL4 9XR Category: Health Practitioners and Establishments Class Code: Accident & Emergency Department Positional Accuracy: Positioned to address or location	B9SW (SW)	579	7	516030 209171
27	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	B9NW (SW)	442	7	516020 209340
27	**Points of Interest - Manufacturing and Production** Name: Works Location: AL4 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	B9SW (SW)	483	7	516009 209277
27	**Points of Interest - Manufacturing and Production** Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	B9SW (SW)	486	7	516014 209278
28	**Points of Interest - Manufacturing and Production** Name: Tank Location: AL4 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	B9NE (SE)	869	7	516600 209390
29	**Points of Interest - Public Infrastructure** Name: Enterprise Location: Sandridge Gate Business Centre, Ronsons Way, St. Albans, AL4 9XR Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	B9SW (SW)	571	7	516021 209173
29	**Points of Interest - Public Infrastructure** Name: Amey Location: Unit 2-3 Sandridge Gate Business Centre, Ronsons Way, St. Albans, AL4 9XR Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	B9SW (SW)	571	7	516020 209172
29	**Points of Interest - Public Infrastructure** Name: Enterprise Location: Sandridge Gate Business Centre, Ronsons Way, St. Albans, AL4 9XR Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	B9SW (SW)	571	7	516021 209173
29	**Points of Interest - Public Infrastructure** Name: Amey Location: Sandridge Gate Business Centre, Ronsons Way, St. Albans, AL4 9XR Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	B9SW (SW)	571	7	516021 209173
30	**Points of Interest - Recreational and Environmental** Name: Playground Location: Sandringham Crescent, AL4 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	B9NE (SE)	707	7	516479 209524
31	**Points of Interest - Recreational and Environmental** Name: Play Area Location: AL4 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	B9SE (S)	788	7	516434 209270

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
32	**Points of Interest - Recreational and Environmental** Name: Play Area Location: AL4 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	B9SE (S)	890	7	516386 209069

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
33	**Ancient Woodland** Name: Not Supplied Reference: 1414168 Area(m²): 4526.89 Type: Ancient and Semi-Natural Woodland	(W)	0	8	515492 209301
34	**Ancient Woodland** Name: Not Supplied Reference: 1414177 Area(m²): 16139 Type: Ancient and Semi-Natural Woodland	(W)	0	8	515790 209713
35	**Ancient Woodland** Name: Langley Wood Reference: 1115924 Area(m²): 45151.69 Type: Ancient and Semi-Natural Woodland	(N)	646	8	516251 210736
36	**Areas of Adopted Green Belt** Authority: St Albans City & District Council Plan Name: St Albans District Local Plan Review **Status: Adopted** Plan Date: 30th November 1994	B9NE (NE)	0	9	516365 209615
37	**Nitrate Vulnerable Zones** Name: Hatfield Description: Groundwater Source: Environment Agency, Head Office	B13SE (N)	0	3	516451 209898
38	**Nitrate Vulnerable Zones** Name: Colne And Guc (From Confluence With Chess To Ash) Nvz Description: Surface Water Source: Environment Agency, Head Office	B9NE (NW)	0	3	516347 209597

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	November 2023	Annually
St Albans City & District Council - Environmental Health Department	October 2017	Annual Rolling Update
Welwyn Hatfield District Council - Environmental Health Department	October 2017	Annual Rolling Update
Hertsmere Borough Council - Environmental Health Department	September 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Thames Region	January 2024	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Thames Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Thames Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - South East Region - North East Thames Area	October 2023	Quarterly
Environment Agency - Thames Region	October 2023	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Welwyn Hatfield District Council - Environmental Health Department	February 2024	Variable
Hertsmere Borough Council - Environmental Health Department	January 2015	Variable
St Albans City & District Council - Environmental Health Department	May 2014	Variable
Local Authority Pollution Prevention and Controls		
Welwyn Hatfield District Council - Environmental Health Department	February 2024	Annual Rolling Update
Hertsmere Borough Council - Environmental Health Department	January 2015	Annual Rolling Update
St Albans City & District Council - Environmental Health Department	May 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Welwyn Hatfield District Council - Environmental Health Department	February 2024	Variable
Hertsmere Borough Council - Environmental Health Department	January 2015	Variable
St Albans City & District Council - Environmental Health Department	May 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	March 2024	
Pollution Incidents to Controlled Waters		
Environment Agency - Anglian Region	September 1999	
Environment Agency - Thames Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Thames Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Thames Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Thames Region	June 2016	As notified
Environment Agency - Head Office	May 2023	Quarterly
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - South East Region - North East Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - North East Area	January 2024	Quarterly
Water Abstractions		
Environment Agency - Thames Region	April 2024	Quarterly
Water Industry Act Referrals		
Environment Agency - Thames Region	October 2017	

Data Currency

Agency & Hydrological	Version	Update Cycle
Groundwater Vulnerability Map Environment Agency - Head Office	June 2018	As notified
Groundwater Vulnerability - Soluble Rock Risk Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	January 2024	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines Ordnance Survey	April 2024	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	July 2023	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Thames Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South East Region - North East Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - North East Area	January 2024	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South East Region - North East Thames Area	January 2023	Quarterly
Environment Agency - Thames Region - North East Area	January 2023	Quarterly
Local Authority Landfill Coverage		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2003	Not Applicable
Hertsmere Borough Council - Environmental Health Department	February 2003	Not Applicable
St Albans City & District Council - Environmental Health Department	February 2003	Not Applicable
Welwyn Hatfield District Council - Environmental Health Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Hertfordshire County Council - Spatial Planning and Economy Unit	October 2018	
Hertsmere Borough Council - Environmental Health Department	October 2018	
St Albans City & District Council - Environmental Health Department	October 2018	
Welwyn Hatfield District Council - Environmental Health Department	October 2018	
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	
Registered Landfill Sites		
Environment Agency - Thames Region - North East Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Thames Region - North East Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Thames Region - North East Area	June 2015	
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2024	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Hertsmere Borough Council - Planning Department	August 2023	Variable
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2016	Variable
St Albans City & District Council	February 2016	Variable
Welwyn Hatfield District Council	June 2023	Variable
Planning Hazardous Substance Consents		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2016	Variable
Hertsmere Borough Council - Planning Department	February 2016	Variable
St Albans City & District Council	February 2016	Variable
Welwyn Hatfield District Council	February 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	January 2024	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	October 2023	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2023	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2024	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	March 2024	Quarterly
Points of Interest - Education and Health PointX	March 2024	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2024	Quarterly
Points of Interest - Public Infrastructure PointX	March 2024	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2024	Quarterly
Underground Electrical Cables National Grid	January 2024	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	April 2024	Bi-Annually
Areas of Adopted Green Belt		
Hertsmere Borough Council - Planning Department	February 2024	Quarterly
St Albans City & District Council	February 2024	Quarterly
Welwyn Hatfield District Council	February 2024	Quarterly
Areas of Unadopted Green Belt		
Hertsmere Borough Council - Planning Department	February 2024	Quarterly
St Albans City & District Council	February 2024	Quarterly
Welwyn Hatfield District Council	February 2024	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	November 2023	Bi-Annually
Environmentally Sensitive Areas		
Natural England	August 2023	
Forest Parks		
Forestry Commission	May 2023	Not Applicable
Local Nature Reserves		
Natural England	February 2024	Bi-Annually
Marine Nature Reserves		
Natural England	February 2024	Bi-Annually
National Nature Reserves		
Natural England	February 2024	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	April 2024	Bi-Annually
Ramsar Sites		
Natural England	February 2024	Bi-Annually
Sites of Special Scientific Interest		
Natural England	April 2024	Bi-Annually
Special Areas of Conservation		
Natural England	April 2024	Bi-Annually
Special Protection Areas		
Natural England	April 2024	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**Hertfordshire County Council - Spatial Planning and Economy Unit** County Hall, Hertford, Hertfordshire, SG13 8DN	Telephone: 01992 556266 Fax: 01992 556015 Email: spatialplanning@hertfordshire.gov.uk Website: www.hertsdirect.org
6	**St Albans City & District Council - Environmental Health Department** Civic Centre, St Peters Street, St Albans, Hertfordshire, AL1 3JE	Telephone: 01727 866100 Fax: 01727 845658 Website: www.stalbans.gov.uk
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	**St Albans City & District Council** Civic Centre, St Peters Street, St Albans, Hertfordshire, AL1 3JE	Telephone: 01727 866100 Fax: 01727 845658 Website: www.stalbans.gov.uk
10	**Welwyn Hatfield District Council** Council Offices, Campus East, Welwyn Garden City, Hertfordshire, AL8 6AE	Telephone: 01707 357000 Fax: 01707 375490 Website: www.welhat.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

Brookbanks Consulting

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
345196291_1_1

Customer Reference:
PO01119

National Grid Reference:
515190, 210950

Slice:
C

Site Area (Ha):
51.71

Search Buffer (m):
1000

Site Details:

St Albans

Client Details:

Ms A Melia
Brookbanks Consulting
6150 Knights Court
Solihull Parkway
Birmingham
B37 7WY

Brookbanks Consulting

Contents

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Industrial Land Use	-
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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

Brookbanks Consulting

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes		n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1				1
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 1		Yes		
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 1		1		(*1)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 2	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 4	3	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 4	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 5	Yes	n/a	n/a	n/a
Source Protection Zones	pg 5	1	1		
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 6	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 7	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 7	Yes		Yes	Yes
BGS Recorded Mineral Sites	pg 8		1		2
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability	pg 9	Yes	n/a	n/a	n/a
Man-Made Mining Cavities	pg 9		1		
Natural Cavities	pg 9	1			
Non Coal Mining Areas of Great Britain	pg 9	Yes	Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 9	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 9	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 9	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards				n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 10	Yes	Yes	n/a	n/a
Radon Potential - Radon Affected Areas	pg 10	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries					
Fuel Station Entries					
Points of Interest - Commercial Services					
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production					
Points of Interest - Public Infrastructure					
Points of Interest - Recreational and Environmental					
Gas Pipelines					
Underground Electrical Cables					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 11	1			4
Areas of Adopted Green Belt	pg 11	1			
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 11	2			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(S)	0	1	515000 210000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(S)	0	1	515190 210000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	C3NE (SE)	0	1	515190 210951
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	C3NE (W)	66	1	515000 210951
1	**Discharge Consents** Operator: Mr. N. Reid Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: Childwick Lodge, Harpenden Road, St Albans, Hertfordshire Authority: Environment Agency, Thames Region Catchment Area: Not Given Reference: CNTW.0007 Permit Version: 1 Effective Date: 2nd October 1989 Issued Date: 2nd October 1989 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Upper Chalk **Status: Transferred from Water Act 1989** Positional Accuracy: Located by supplier to within 100m	C2NE (W)	829	2	514410 210700
	Nearest Surface Water Feature	C3NE (S)	190	-	515231 210796
2	**Water Abstractions** Operator: Cheapside (1991) Ltd Licence Number: 28/39/28/0189 Permit Version: 100 Location: Well At Cheapside Farm, St. Albans Authority: Environment Agency, Thames Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 9 Yearly Rate (m3): 3368 Details: Cheapside Farm, St. Albans Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 22nd October 1991 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	C3NE (S)	236	2	515200 210700
	Water Abstractions Operator: Lord Chancellors Department Licence Number: 28/39/28/0442c Permit Version: 1 Location: Borehole At Ayres End House, Ayres End Authority: Environment Agency, Thames Region Abstraction: Crown and Government: Drinking, Cooking, Sanitary, Washing, (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Ayres End House, Ayres End Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 2nd October 1973 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C12NW (N)	1458	2	515500 212200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	515329 209957
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(SE)	0	3	515817 209856
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	515253 210243
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(SE)	0	3	515770 210282

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	515259 210000
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(SE)	0	3	515875 209654
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	C3NE (SE)	0	3	515190 210951
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	515169 210105

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: 300-550 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	515000 210000
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	515190 210000
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	515000 209664
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	C3NE (W)	0	3	515169 210951
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	(S)	0	3	515000 210000
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	(S)	0	3	515190 210000
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	C3NE (SE)	0	3	515190 210951
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	C3NE (SE)	0	3	515190 210951

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	(S)	0	3	515000 210000
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	(S)	0	3	515190 210000
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(S)	0	3	515253 210243
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(SE)	0	3	515817 209856
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(SE)	0	3	515770 210282
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(S)	0	3	515329 209957
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(S)	0	3	515000 210000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(S)	0	3	515000 209664
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(S)	0	3	515190 210000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	C3NE (W)	0	3	515169 210951
3	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	C3NE (SE)	0	2	515190 210951
4	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	(SW)	219	2	514548 209589
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
	OS Water Network Lines None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Hertfordshire County Council - Has supplied landfill data		0	4	515190 210951
	Local Authority Landfill Coverage Name: St Albans District Council - Has supplied landfill data		0	5	515190 210951

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: White Chalk Subgroup	C3NE (SE)	0	1	515190 210951
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	(S)	0	1	515000 210000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	(SE)	0	1	515770 210282
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	C3NE (W)	0	1	515169 210951
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	C3NE (SE)	0	1	515190 210951
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	C4SE (SE)	277	1	516000 210408
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	C4NE (E)	307	1	515830 210717

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	C3NW (W)	504	1	514956 210968
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	C8NE (NE)	856	1	516000 211676
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	C2NE (W)	987	1	514459 211000
5	**BGS Recorded Mineral Sites** Site Name: Cheapside Farm Chalkwell Location: St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 220964 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	C3NE (SE)	209	1	515244 210823
6	**BGS Recorded Mineral Sites** Site Name: Pismire Wood Chalk Pit Location: Sandridge, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 256375 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	C7NE (N)	705	1	515326 211432
7	**BGS Recorded Mineral Sites** Site Name: Well Wood Chalk Pit Location: Sandridge, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 256376 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	C8NE (NE)	892	1	515774 211581
	BGS Measured Urban Soil Chemistry No data available				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Mining Instability Mining Evidence: Conclusive Rock Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	C3NE (SE)	0	-	515190 210951
	Man-Made Mining Cavities Easting: 515300 Northing: 210700 Distance: 137 Quadrant Reference: C3 Quadrant Reference: NE Bearing Ref: SE Cavity Type: Multiple Chalkwells Commodity: Chalk Solid Geology Detail: Chalk Group Superficial Geology Detail: Clay-with-Flints	C3NE (SE)	137	6	515300 210700
	Natural Cavities Easting: 515261 Northing: 210986 Distance: 0 Quadrant Reference: C3 Quadrant Reference: NE Bearing Ref: NE Cavity Type: Solution Pipe x 6 Solid Geology Detail: Chalk Group Superficial Geology Detail: Clay with flints	C3NE (NE)	0	6	515261 210986
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	1	515190 210951
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	66	1	515000 210951
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	1	515190 210951
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	66	1	515000 210951
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	1	515190 210951
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	66	1	515000 210951
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	0	1	515169 210951
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	1	515190 210951
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	66	1	515000 210951
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	0	1	515169 210951
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	1	515190 210951
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	66	1	515000 210951

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	1	515190 210951
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	66	1	515000 210951
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	0	1	515169 210951
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	1	515190 210951
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	66	1	515000 210951
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	1	515190 210951
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	C4NE (E)	0	1	515800 210750
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	0	1	515150 210951
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	1	515190 210951
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	C4NE (E)	0	1	515800 210750
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	C3NE (W)	0	1	515150 210951

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Ancient Woodland** Name: Not Supplied Reference: 1414177 Area(m²): 16139 Type: Ancient and Semi-Natural Woodland	(SE)	0	8	515784 209754
9	**Ancient Woodland** Name: Green Wood Reference: 1115911 Area(m²): 34429.62 Type: Ancient and Semi-Natural Woodland	(SW)	512	8	514401 210187
10	**Ancient Woodland** Name: Pudlers/Well Woods Reference: 1115921 Area(m²): 62360.59 Type: Ancient and Semi-Natural Woodland	C8SE (NE)	634	8	515702 211333
11	**Ancient Woodland** Name: Langley Wood Reference: 1115924 Area(m²): 45151.69 Type: Ancient and Semi-Natural Woodland	(E)	646	8	516046 211035
12	**Ancient Woodland** Name: Green Wood Reference: 1115911 Area(m²): 69009.37 Type: Plantation on Ancient Woodland	C2SE (SW)	730	8	514358 210528
13	**Areas of Adopted Green Belt** Authority: St Albans City & District Council Plan Name: St Albans District Local Plan Review **Status: Adopted** Plan Date: 30th November 1994	C3NE (SE)	0	9	515190 210951
14	**Nitrate Vulnerable Zones** Name: Hatfield Description: Groundwater Source: Environment Agency, Head Office	C3NE (SE)	0	3	515190 210951
15	**Nitrate Vulnerable Zones** Name: Colne And Guc (From Confluence With Chess To Ash) Nvz Description: Surface Water Source: Environment Agency, Head Office	C3NE (SE)	0	3	515190 210951

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	November 2023	Annually
St Albans City & District Council - Environmental Health Department	October 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Thames Region	January 2024	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Thames Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Thames Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - South East Region - North East Thames Area	October 2023	Quarterly
Environment Agency - Thames Region	October 2023	Quarterly
Local Authority Integrated Pollution Prevention And Control		
St Albans City & District Council - Environmental Health Department	May 2014	Variable
Local Authority Pollution Prevention and Controls		
St Albans City & District Council - Environmental Health Department	May 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
St Albans City & District Council - Environmental Health Department	May 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	March 2024	
Pollution Incidents to Controlled Waters		
Environment Agency - Thames Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Thames Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Thames Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Thames Region	June 2016	As notified
Environment Agency - Head Office	May 2023	Quarterly
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - South East Region - North East Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - North East Area	January 2024	Quarterly
Water Abstractions		
Environment Agency - Thames Region	April 2024	Quarterly
Water Industry Act Referrals		
Environment Agency - Thames Region	October 2017	
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified
Groundwater Vulnerability - Soluble Rock Risk		
Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations		
Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations		
Environment Agency - Head Office	January 2018	As notified

Data Currency

Agency & Hydrological	Version	Update Cycle
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	January 2024	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines Ordnance Survey	April 2024	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	July 2023	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Thames Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South East Region - North East Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - North East Area	January 2024	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South East Region - North East Thames Area	January 2023	Quarterly
Environment Agency - Thames Region - North East Area	January 2023	Quarterly
Local Authority Landfill Coverage		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2003	Not Applicable
St Albans City & District Council - Environmental Health Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Hertfordshire County Council - Spatial Planning and Economy Unit	October 2018	
St Albans City & District Council - Environmental Health Department	October 2018	
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	
Registered Landfill Sites		
Environment Agency - Thames Region - North East Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Thames Region - North East Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Thames Region - North East Area	June 2015	
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2024	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2016	Variable
St Albans City & District Council	February 2016	Variable
Planning Hazardous Substance Consents		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2016	Variable
St Albans City & District Council	February 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	January 2024	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	October 2023	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2023	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2024	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	March 2024	Quarterly
Points of Interest - Education and Health PointX	March 2024	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2024	Quarterly
Points of Interest - Public Infrastructure PointX	March 2024	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2024	Quarterly
Underground Electrical Cables National Grid	January 2024	Bi-Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	April 2024	Bi-Annually
Areas of Adopted Green Belt St Albans City & District Council	February 2024	Quarterly
Areas of Unadopted Green Belt St Albans City & District Council	February 2024	Quarterly
Areas of Outstanding Natural Beauty Natural England	November 2023	Bi-Annually
Environmentally Sensitive Areas Natural England	August 2023	
Forest Parks Forestry Commission	May 2023	Not Applicable
Local Nature Reserves Natural England	February 2024	Bi-Annually
Marine Nature Reserves Natural England	February 2024	Bi-Annually
National Nature Reserves Natural England	February 2024	Bi-Annually
National Parks Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Environment Agency - Head Office	April 2016 April 2024	Bi-Annually
Ramsar Sites Natural England	February 2024	Bi-Annually
Sites of Special Scientific Interest Natural England	April 2024	Bi-Annually
Special Areas of Conservation Natural England	April 2024	Bi-Annually
Special Protection Areas Natural England	April 2024	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Hertfordshire County Council - Spatial Planning and Economy Unit** County Hall, Hertford, Hertfordshire, SG13 8DN	Telephone: 01992 556266 Fax: 01992 556015 Email: spatialplanning@hertfordshire.gov.uk Website: www.hertsdirect.org
5	**St Albans City & District Council - Environmental Health Department** Civic Centre, St Peters Street, St Albans, Hertfordshire, AL1 3JE	Telephone: 01727 866100 Fax: 01727 845658 Website: www.stalbans.gov.uk
6	**Stantec UK Ltd** Caversham Bridge House, Waterman Place, Reading, RG1 8DN	Telephone: 0118 950 0761 Email: pba.reading@stantec.com Website: www.stantec.com
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	**St Albans City & District Council** Civic Centre, St Peters Street, St Albans, Hertfordshire, AL1 3JE	Telephone: 01727 866100 Fax: 01727 845658 Website: www.stalbans.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
345196291_1_1

Customer Reference:
PO01119

National Grid Reference:
516260, 210820

Slice:
D

Site Area (Ha):
51.71

Search Buffer (m):
1000

Site Details:
St Albans

Client Details:
Ms A Melia
Brookbanks Consulting
6150 Knights Court
Solihull Parkway
Birmingham
B37 7WY

Brookbanks Consulting

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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes			n/a
Contaminated Land Register Entries and Notices					
Discharge Consents					
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature					
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 1				(*2)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 1	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 3	2	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 3	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 4	Yes	n/a	n/a	n/a
Source Protection Zones	pg 4	1			
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 5	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)	pg 5				1
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 6	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 6	Yes		Yes	Yes
BGS Recorded Mineral Sites	pg 6				1
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability	pg 6	Yes	n/a	n/a	n/a
Man-Made Mining Cavities	pg 7				1
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 7	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 7	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 7	Yes		n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 7	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards				n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 7	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 7	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries					
Fuel Station Entries					
Points of Interest - Commercial Services					
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production					
Points of Interest - Public Infrastructure					
Points of Interest - Recreational and Environmental					
Gas Pipelines					
Underground Electrical Cables					

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 8	1			2
Areas of Adopted Green Belt	pg 8	1			
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
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Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 8	2			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	(S)	0	1	516259 210000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	D1NW (E)	0	1	516259 210824
	Nearest Surface Water Feature None				
	Water Abstractions Operator: The Salvation Army Trustee Co Licence Number: 28/39/28/0327 Permit Version: Not Supplied Location: Hill End Farm, SANDRIDGE Authority: Environment Agency, Thames Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 8 Yearly Rate (m3): Not Supplied Details: Chalk (Undifferentiated). Status: Revoked; Lapsed Or Cancelled Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	D10SW (NE)	1699	2	516800 211800
	Water Abstractions Operator: W J Dickinson & Sons Licence Number: 28/39/28/0233 Permit Version: 100 Location: Well With Borehole 'Point B' At Westend Farm Authority: Environment Agency, Thames Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Cross And West End Farms, Harpenden Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 12th December 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	D13SW (N)	1903	2	516200 212500
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(SW)	0	3	515465 209891
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	516000 209949

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(SW)	0	3	515350 210222
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(SW)	0	3	516000 210408
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	516000 210000
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	516000 209673

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(SW)	0	3	515595 210535
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(S)	0	3	516000 210156
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(SW)	0	3	515329 209957
	Groundwater Vulnerability Map Combined Classification: Principle Bedrock Aquifer - Medium Vulnerability Combined Vulnerability: Medium Combined Aquifer: Productive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: Low	(SW)	0	3	516000 210699
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	(S)	0	3	516000 210000
	Groundwater Vulnerability - Soluble Rock Risk Classification: Very Significant Risk - Moderate Possibility	(W)	0	3	516000 210824
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	D1NW (E)	0	3	516259 210824
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	(S)	0	3	516259 210000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(SW)	0	3	515350 210222
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(S)	0	3	516259 210000
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	D1SW (S)	0	3	516129 210450
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	(SW)	0	3	515465 209891
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(SW)	0	3	515329 209957
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	D1NW (NW)	0	3	516250 210833
1	**Source Protection Zones** Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	D1NW (E)	0	2	516259 210824
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
	OS Water Network Lines None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Hertfordshire County Council - Has supplied landfill data		0	4	516259 210824
	Local Authority Landfill Coverage Name: St Albans District Council - Has supplied landfill data		0	5	516259 210824
2	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1960	D1SE (S)	726	-	516365 210507

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: White Chalk Subgroup	D1NW (E)	0	1	516259 210824
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	D1NW (E)	0	1	516259 210824
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	D1SW (S)	277	1	516129 210450
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	D1SE (SE)	287	1	516655 210489
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	D1NW (N)	856	1	516294 211000
3	**BGS Recorded Mineral Sites** Site Name: Langley Wood Chalk Pit Location: Sandridge, St Albans, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 168835 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	D1NW (W)	588	1	516071 210846
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Mining Instability Mining Evidence: Conclusive Rock Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	D1NW (E)	0	-	516259 210824

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Man-Made Mining Cavities Easting: 516200 Northing: 210500 Distance: 567 Quadrant Reference: D1 Quadrant Reference: SW Bearing Ref: S Cavity Type: Multiple Chalkwells Commodity: Chalk Solid Geology Detail: Chalk Group Superficial Geology Detail: Clay-with-Flints	D1SW (S)	567	6	516200 210500
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	D1NW (E)	0	1	516259 210824
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	D1NW (E)	0	1	516259 210824
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	D1NW (E)	0	1	516259 210824
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	D1NW (NW)	0	1	516250 210833
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	D1NW (E)	0	1	516259 210824
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	D1NW (NW)	0	1	516250 210833
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	D1NW (E)	0	1	516259 210824
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	D1NW (E)	0	1	516259 210824
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	D1NW (NW)	0	1	516250 210833
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	D1NW (E)	0	1	516259 210824
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	D1NW (E)	0	1	516259 210824
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	D1NW (N)	0	1	516250 210850
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	D1NW (E)	0	1	516259 210824
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	D1NW (N)	0	1	516250 210850

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Ancient Woodland** Name: Not Supplied Reference: 1414177 Area(m²): 16139 Type: Ancient and Semi-Natural Woodland	(SW)	0	8	515784 209754
5	**Ancient Woodland** Name: Pudlers/Well Woods Reference: 1115921 Area(m²): 62360.59 Type: Ancient and Semi-Natural Woodland	(NW)	634	8	515798 211372
6	**Ancient Woodland** Name: Langley Wood Reference: 1115924 Area(m²): 45151.69 Type: Ancient and Semi-Natural Woodland	D1NW (E)	646	8	516259 210824
7	**Areas of Adopted Green Belt** Authority: St Albans City & District Council Plan Name: St Albans District Local Plan Review **Status: Adopted** Plan Date: 30th November 1994	D1NW (E)	0	9	516259 210824
8	**Nitrate Vulnerable Zones** Name: Hatfield Description: Groundwater Source: Environment Agency, Head Office	D1NW (E)	0	3	516259 210824
9	**Nitrate Vulnerable Zones** Name: Colne And Guc (From Confluence With Chess To Ash) Nvz Description: Surface Water Source: Environment Agency, Head Office	D1NW (E)	0	3	516259 210824

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	November 2023	Annually
St Albans City & District Council - Environmental Health Department	October 2017	Annual Rolling Update
Welwyn Hatfield District Council - Environmental Health Department	October 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Thames Region	January 2024	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Thames Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Thames Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - South East Region - North East Thames Area	October 2023	Quarterly
Environment Agency - Thames Region	October 2023	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Welwyn Hatfield District Council - Environmental Health Department	February 2024	Variable
St Albans City & District Council - Environmental Health Department	May 2014	Variable
Local Authority Pollution Prevention and Controls		
Welwyn Hatfield District Council - Environmental Health Department	February 2024	Annual Rolling Update
St Albans City & District Council - Environmental Health Department	May 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Welwyn Hatfield District Council - Environmental Health Department	February 2024	Variable
St Albans City & District Council - Environmental Health Department	May 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	March 2024	
Pollution Incidents to Controlled Waters		
Environment Agency - Thames Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Thames Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Thames Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Thames Region	June 2016	As notified
Environment Agency - Head Office	May 2023	Quarterly
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - South East Region - North East Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - North East Area	January 2024	Quarterly
Water Abstractions		
Environment Agency - Thames Region	April 2024	Quarterly
Water Industry Act Referrals		
Environment Agency - Thames Region	October 2017	
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified
Groundwater Vulnerability - Soluble Rock Risk		
Environment Agency - Head Office	June 2018	As notified

Agency & Hydrological	Version	Update Cycle
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	January 2024	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines Ordnance Survey	April 2024	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	July 2023	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Thames Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - South East Region - North East Thames Area	January 2024	Quarterly
Environment Agency - Thames Region - North East Area	January 2024	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - South East Region - North East Thames Area	January 2023	Quarterly
Environment Agency - Thames Region - North East Area	January 2023	Quarterly
Local Authority Landfill Coverage		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2003	Not Applicable
St Albans City & District Council - Environmental Health Department	February 2003	Not Applicable
Welwyn Hatfield District Council - Environmental Health Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Hertfordshire County Council - Spatial Planning and Economy Unit	October 2018	
St Albans City & District Council - Environmental Health Department	October 2018	
Welwyn Hatfield District Council - Environmental Health Department	October 2018	
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	
Registered Landfill Sites		
Environment Agency - Thames Region - North East Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Thames Region - North East Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Thames Region - North East Area	June 2015	
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2024	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2016	Variable
St Albans City & District Council	February 2016	Variable
Welwyn Hatfield District Council	June 2023	Variable
Planning Hazardous Substance Consents		
Hertfordshire County Council - Spatial Planning and Economy Unit	February 2016	Variable
St Albans City & District Council	February 2016	Variable
Welwyn Hatfield District Council	February 2016	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	January 2024	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	October 2023	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2023	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2024	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	March 2024	Quarterly
Points of Interest - Education and Health PointX	March 2024	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2024	Quarterly
Points of Interest - Public Infrastructure PointX	March 2024	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2024	Quarterly
Underground Electrical Cables National Grid	January 2024	Bi-Annually

Data Currency

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	April 2024	Bi-Annually
Areas of Adopted Green Belt		
St Albans City & District Council	February 2024	Quarterly
Welwyn Hatfield District Council	February 2024	Quarterly
Areas of Unadopted Green Belt		
St Albans City & District Council	February 2024	Quarterly
Welwyn Hatfield District Council	February 2024	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	November 2023	Bi-Annually
Environmentally Sensitive Areas		
Natural England	August 2023	
Forest Parks		
Forestry Commission	May 2023	Not Applicable
Local Nature Reserves		
Natural England	February 2024	Bi-Annually
Marine Nature Reserves		
Natural England	February 2024	Bi-Annually
National Nature Reserves		
Natural England	February 2024	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	April 2024	Bi-Annually
Ramsar Sites		
Natural England	February 2024	Bi-Annually
Sites of Special Scientific Interest		
Natural England	April 2024	Bi-Annually
Special Areas of Conservation		
Natural England	April 2024	Bi-Annually
Special Protection Areas		
Natural England	April 2024	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	Map data
Environment Agency	Environment Agency
Scottish Environment Protection Agency	SEPA Scottish Environment Protection Agency
The Coal Authority	The Coal Authority
British Geological Survey	British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	Cyfoeth Naturiol Cymru Natural Resources Wales
Scottish Natural Heritage	SCOTTISH NATURAL HERITAGE
Natural England	NATURAL ENGLAND
Public Health England	Public Health England
Ove Arup	ARUP
Stantec UK Ltd	Stantec

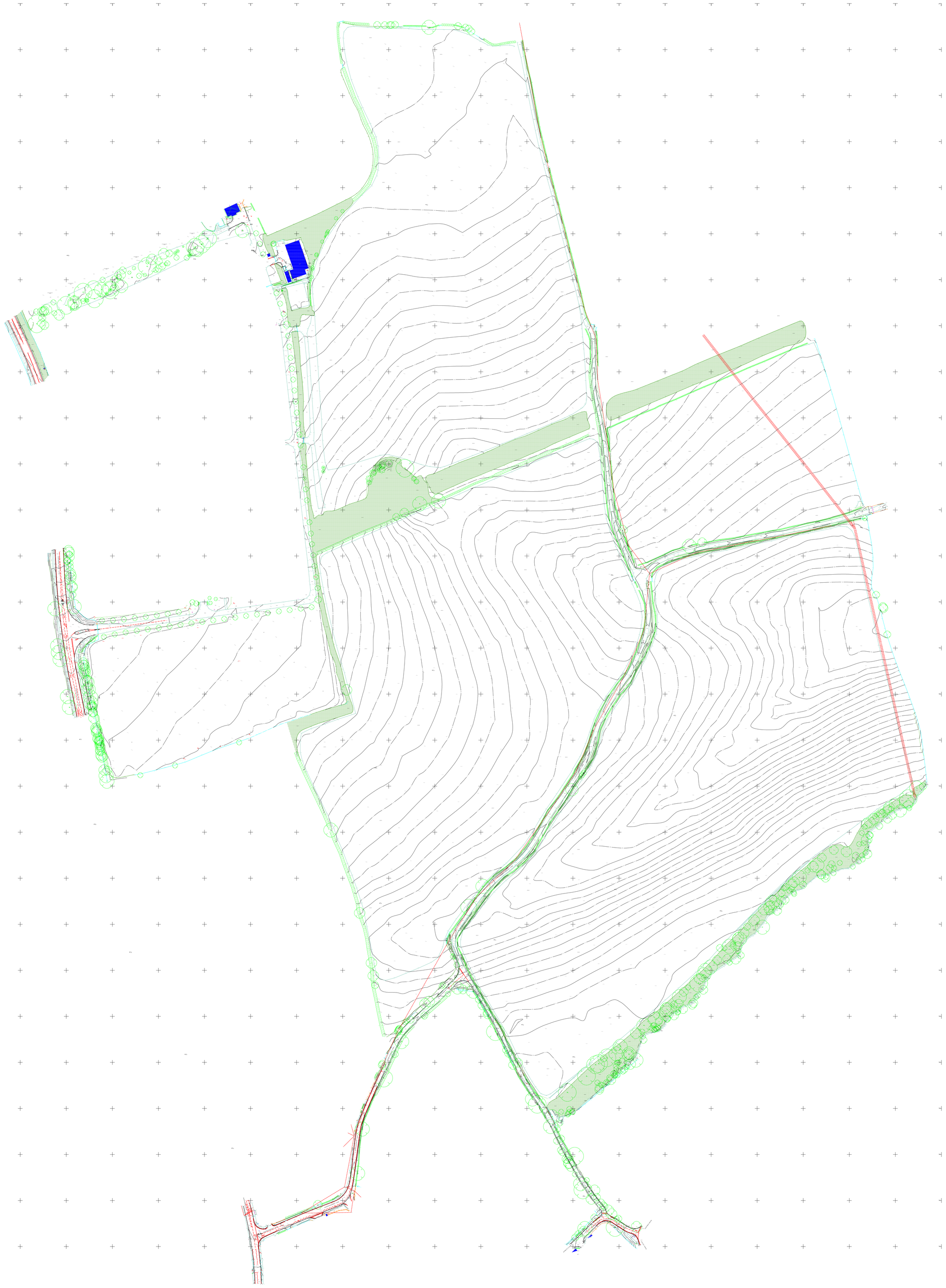
Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Hertfordshire County Council - Spatial Planning and Economy Unit** County Hall, Hertford, Hertfordshire, SG13 8DN	Telephone: 01992 556266 Fax: 01992 556015 Email: spatialplanning@hertfordshire.gov.uk Website: www.hertsdirect.org
5	**St Albans City & District Council - Environmental Health Department** Civic Centre, St Peters Street, St Albans, Hertfordshire, AL1 3JE	Telephone: 01727 866100 Fax: 01727 845658 Website: www.stalbans.gov.uk
6	**Stantec UK Ltd** Caversham Bridge House, Waterman Place, Reading, RG1 8DN	Telephone: 0118 950 0761 Email: pba.reading@stantec.com Website: www.stantec.com
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	**St Albans City & District Council** Civic Centre, St Peters Street, St Albans, Hertfordshire, AL1 3JE	Telephone: 01727 866100 Fax: 01727 845658 Website: www.stalbans.gov.uk
10	**Welwyn Hatfield District Council** Council Offices, Campus East, Welwyn Garden City, Hertfordshire, AL8 6AE	Telephone: 01707 357000 Fax: 01707 375490 Website: www.welhat.gov.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.

Appendix 11.1: Flood Risk Assessment

Appendix 11.2: Topographical survey



Symbol & Abbreviation Key.

- BARBED WIRE FENCE
- POST & RAIL FENCE
- CLOSE BOARD FENCE
- RAILINGS
- CHAIN LINK FENCE
- OTHER FENCE
- KERB
- DROPPED KERB
- GULLY CHANNEL
- TOP / BOTTOM OF BANK
- FOLIAGE
- DITCH
- VERGE
- OVERHEAD CABLES
- GATE
- HEDGE
- TREE - BROAD LEAVED
- TREE - CONIFEROUS
- BUSH
- BUILDING
- BOREHOLE
- SURVEY STATION
- ORDNANCE SURVEY BENCH MARK

A/C	AIR CONDITIONING UNIT	KO	KERB OFFLET
AV	AIR VALVE	LC	LIGHTING COLUMN
BOL	BOLLARD	LP	LAMP POST
BH	BOREHOLE	NP	NAME PLATE
BL	BED LEVEL	NB	NOTICE BOARD
BM	BENCH MARK	PR	PIPE RISER
BT	BRITISH TELECOM	RP	RODDING POINT
CTV	CABLE TV	RS	ROAD SIGN
CL	COVER LEVEL	SP	SIGN POST
CR	CABLE RISER	SV	STOP VALVE
DP	DOWN PIPE	TL	TRAFFIC LIGHT
ER	EARTH ROD	TP	TELEGRAPH POLE
EP	ELECTRICITY POLE	TOF	TOP OF FENCE
EM	ELECTRICITY MARKER	TOH	TOP OF HEDGE
FB	FUSE BOX	TOR	TOP OF RAILINGS
FH	FIRE HYDRANT	TOS	SERVICE LEVEL
FP	FENCE POST	TOW	TOP OF WALL
FL	FLOOR LEVEL	UTL	UNABLE TO LIFT
GV	GAS VALVE	VM	VALVE MARKER
GM	GAS MARKER	VP	VENT PIPE
GU	GULLY	WL	WATER LEVEL
HM	HYDRANT MARKER	WM	WATER MARKER
IL	INVERT LEVEL	WO	WASH OUT

General.

This survey has been prepared with a scaling accuracy for a plot at a scale of 1:200.

All tree heights and spreads are approximate. We have tried to identify tree types, however if tree species are critical specialist advice should be gained.

Drainage pipe sizes have been measured from the surface. Chamber access has not been gained for safety reasons, therefore sizes should be regarded as approximate.

Some detail may have been omitted due to parked vehicles.

Notes.

Coordinates related to OS National Grid from ST10 by GPS.
Levels related to GPS. Scale factor: 0.99976403

INDICATIVE ONLY

Rev	Details of Revision	Drawn	Date
B	Road detail added.	AA	01/08/19
A	Additional area around school/field added.	AS	31/07/19

Surveyed	Drawn	Date	Checked	Date	Approved	Date
GD	AS	24/07/19	APK	24/07/19	APK	24/07/19

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BIRMINGHAM, B1 1RT

Title.

TOPOGRAPHICAL SURVEY

ST ALBANS
HERTFORDSHIRE
AL3 6JE

Dwg No. **190296** Sheet **1 of 1**

Scale NTS A0 Sheet Rev. B

Appendix 12.1: Health Impact Assessment

HALLAM LAND MANAGEMENT LIMITED
ST ALBANS SCHOOL
ST ALBANS WOOLLAM TRUST

Woollam Park

Health Impact Assessment (HIA)

December 2024

LRM PLANNING LIMITED

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3 Proposed development 5

4 Health Impact Assessments 6

5 Planning policy context 9

6 Local health profile 13

7 Rapid Health Impact Assessment 16

TABLES AND FIGURES

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Table 1: 2019 Health profuile for st albans 13

DOCUMENT CONTROL

Project:	North St Albans	Job Number:	18.260
Client:	Hallam Land Management Limited	Date:	Add date.
Author Initial:	AM	Reviewer Initial:	
Issue:	Draft	Status:	
File Origin:	C:\Users\AliceMorgan\LRM Planning Limited\LRM Projects - 2018\18.260 St Albans\9 Applications\HIA 2024		

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1 Introduction

1.1 This Health Impact Assessment ("HIA") has been prepared on behalf of Hallam Land Management, in support of an outline planning application that is to be submitted for up to 1000 new dwellings (C3), of which 40% shall be affordable housing and 3% self and custom build, and shall include four adult disability service units, and up to 80 apartments for age restricted specialist accommodation for the elderly, and 80 bed care home (C2), a two-form entry primary school, a neighbourhood centre, health and community facilities, green infrastructure, open space, and associated works, on land to the north of St Albans.

1.2 This HIA demonstrates the approach undertaken to ensure that the proposed development will deliver a scheme which promotes healthy and active lifestyles by encouraging the general well-being of existing and future residents alike.

1.3 Before undertaking the assessment itself, Sections 2 and 3 of this HIA set out a summary of the site and the proposed development to contextualise the scheme and how it relates to its immediate and wider environs. Section 4 introduces the topic of HIAs to justify the decision to utilise a rapid HIA, and to inform the structure of the assessment itself. Section 5 sets out the policy context at both a local and national level, and Section 6 provides a summary of the local health profile for St Albans.

1.4 The assessment itself is provided at Section 7. This sets out the assessment criteria for each topic, its relevance to the scheme, and a response, before determining whether this may have any potential health impact, concluding the HIA.

2 The site

2.1 The site measures approximately 50.17ha. It is located immediately north of the urban area of St Albans and is therefore bound by residential and agricultural land uses. More specifically, the site presents the following boundaries:

- To the **south** the site is bounded by playing fields of St Albans Girls' School and a linear tree group designated as ancient woodland, beyond which lies the Porters Wood Industrial Park, one of the city's main employment areas. This area is typified by pre-fabricated, light industrial units, warehouses and purpose-built office spaces. Beyond these land uses, lies the main urban area of St Albans.

- To the **west**, the site is bounded by existing dwellings of Harpenden Road (A1081), one of the main routes connecting St Albans with Harpenden to the north, and future housing of Sewell Park;

- To the **north**, and **northwest** of the site, lie Woollam playing fields which accommodate a club house, sports pitches, and floodlights. Beyond this, the landscape gives way to open, arable fields.

- To the **east**, the site is bounded by the elevated Midland Railway Line, which forms a physical and visual boundary separating the site from the open, semi-rural landscape which forms the setting to Sandridge, further to the east. The eastern landscape also includes the Heartwood Forest, an area managed by the Woodland Trust for tree planting and public amenity.

2.2 The site comprises four gently rolling arable fields which are defined by mature hedgerow and vegetation, as well as three playing pitches measuring circa 3 hectares that form part of the existing Woollam Playing Fields and are leased to the Old Albanian Sport Association (OASA). In places, hedgerow also provides a buffer between the site and the aforementioned land uses, which lie beyond the site.

2.3 Sandridgebury Lane bisects the site in a south west to north east direction, following the northern boundary of the site's southernmost land parcel. Sandridgebury Lane sits within a shallow valley that travels beneath the Midland Rail line via an underbridge.

2.4 In terms of wider context, the site is located approximately 2km north of St Albans city centre. Sandridge lies 1.5km to the east of the site, Harpenden lies 2.5km to the north, and Hemel Hampstead lies 5km to the west.

3 Proposed development

3.1 The proposed development for which outline planning permission is sought is framed by the development concept in the 2024 St Albans City and District Draft Local Plan. This reflects the fact that there remains an unmet need for additional housing land in the District. A Framework plan has been prepared by Hallam Land Management, which draws upon masterplanning work conducted with the LPA in 2019, 2020 and 2024.

RESIDENTIAL DEVELOPMENT

3.2 The principal component of the proposed development will be new housing, including approximately 1,000 new dwellings which comprise market housing, affordable housing and specialist accommodation for elderly persons. An element of dwellings will be in the form of build to rent and self and custom build housing.

LOCAL CENTRE, PRIMARY SCHOOL AND COMMUNITY FACILITIES

3.3 Community facilities will be provided in the form of a new two-form entry primary school, and a new local centre which will provide commercial development opportunities, including retail, healthcare, and community provision.

GREEN INFRASTRUCTURE

3.4 Substantial areas of green infrastructure are to be provided throughout the scheme, which will include a combination of multi-functional amenity space, play space, habitat creation, retained hedgerows and trees, and growing spaces. Replacement playing fields are also to provided on land to the east of Woollam Playing Fields, to compensate for the loss of such land within the site.

ACCESS

3.5 The principal means of access into the development will be from the A1081, via the creation of a new junction to the south of the existing Woollam Playing Fields' access. This junction has been discussed and agreed with Hertfordshire County Council's Strategic Transport Infrastructure Board.

3.6 A number of pedestrian and cycle access points will be provided to ensure the development is accessible to both existing and future residents. It also seeks to ensure that the development is connected to the existing urban area with associated improvements to the existing cycling and walking networks. There is existing access into the site through Sandridgebury Lane, and options for how this route will integrate into the site are to be explored and determined through the masterplanning process; the access arrangements will depend on the outcome of technical evaluation and consultation which are still being considered as the proposal evolves.

3.7 Public transport service improvements are to be made to enhance connectivity between the site and key destinations in the locality.

3.8 A separate scoping exercise is being undertaken with Hertfordshire County Council to determine the potential effect of the proposed development on the local highway network.

4 Health Impact Assessments

WHAT IS A HEALTH IMPACT ASSESSMENT?

4.1 The World Health Organisation ("WHO") describes a HIA as a practical approach used to predict and assess the effects of various proposed policies, programmes and projects on a population's health, with the intention of supporting policy-makers to improve the decision-making process. More specifically, the WHO set out that HIAs have two purposes:

- To predict the likely health effects of a proposal on a specific population group or groups; and
- To inform policy-makers to improve evidence-based recommendations in the decision making process.

4.2 A paper published by the WHO in 1999[1], defines a HIA as "*a combination of procedures, methods, and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population and the distribution of those effects within the population*". It is an objective assessment tool used to address the barriers and enablers for creating healthy places, and therefore when used in the planning process, it allows developers to put people at the heart of the development process.

4.3 As set out in the WHO HIA Toolkit for Cities[1], HIAs *"can facilitate the development of integrated planning approaches by bringing together sectors to help identify potential health effects and to identify interventions which may eliminate or minimise negative effects and maximise positive effects.*" In short, the use of HIAs seeks to support healthier decision making by identifying potential health effects on various population groups and recommending changes that can reduce inequality in health.

4.4 Elaborating on this in a local context, Hertfordshire County Council note that a HIA will identify the potential positive and negative health impacts of developments via a staged process[2]. The staged process enables a methodology to be produced, which will provide a clear brief from earliest stage of the HIA process. Similarly, it allows health impacts to be assessed at different stages of the proposed development and considers possible impacts which may arise during construction, operation, occupation and decommissioning. As discussed by Buroni, a HIA is "*therefore a process that investigates the potential health effects of a proposal, and the likely resultant health outcomes upon populations and their environment*"[3].

4.5 Figure 1 illustrates the breadth of factors that influence health and well-being, which relate to topics including, but not limited to, the built environment, community, and lifestyle. The process of developing urban spaces, and more specifically, those processes involved in the design and planning of settlements, relate to one sphere, the built environment[4]. Accordingly, it is understood that planners have an opportunity to directly affect the quality of an environment, and are therefore influential in the delivery of healthy places.

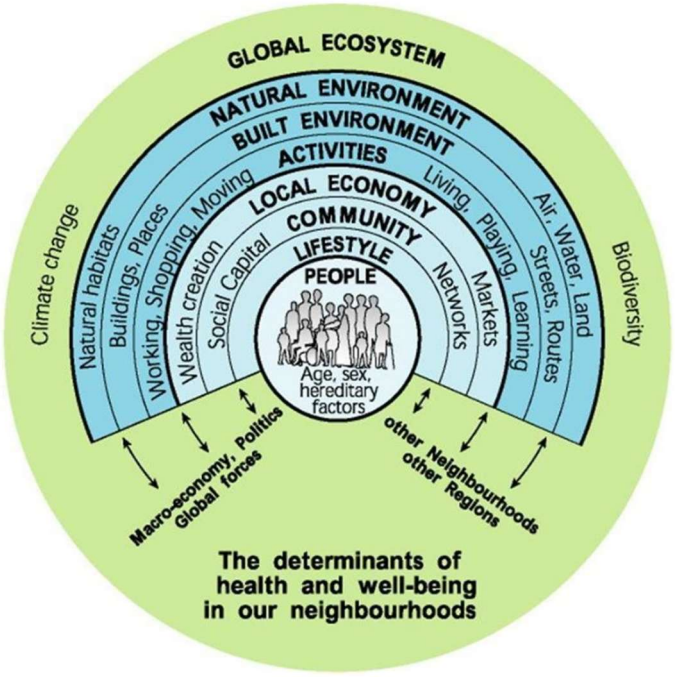
1 *Health Impact Assessment Toolkit for Cities. Document 1. WHO Europe. 2005.*

2 *Position Statement: Health Impact Assessments. Hertfordshire County Council. 2019.*

3 *Spatial Susceptibility: A Scoping and Screening Tool for Health Impact Assessment. Buroni, Andrew R. 2010.*

4 A health map for the local human habitat: The Journal of the Royal Society for the Promotion of Health. Barton and Grant. 2006.

FIGURE 1: THE HEALTH MAP[5]



THE HEALTH IMPACT ASSESSMENT PROCESS

4.6 There are five stages to preparing a HIA, as set out below :

1. **Screening** involves determining whether a HIA is needed and justified subject to anticipation of health impacts on population groups.

2. **Scoping** requires identifying the potential health impacts and target populations groups to assess.

3. **Assessing** the significance of health impacts, qualify and quantify potential costs and benefits, how health varies in different circumstances, across different populations and any alternatives.

4. **Reporting** requires engaging all relevant stakeholders and recommending preventative and mitigation actions to deliver the greatest possible health gain.

5. **Monitoring and evaluating** includes identifying indicators and mechanisms, and sets out processes and resources for the local authority and/or with the planning applicant to undertake and act on results of regular monitoring.

TYPES OF HEALTH IMPACT ASSESSMENT

4.7 There are three types of HIA, as set out below[6]:

5 A health map for the local human habitat: The Journal of the Royal Society for the Promotion of Health. Barton and Grant. 2006.

6 Health Impact Assessment in spatial planning. A guide for local authority public health and planning teams. Public Health England. 2020.

- A **desktop** HIA involves engaging a small number of participants using existing knowledge and evidence to undertake the assessment of health impacts.

- A **rapid** HIA includes a brief assessment of health impacts, including a literature review of quantitative and qualitative evidence, and the gathering of knowledge and further evidence from local stakeholders. Rapid HIAs usually involve the establishment of a small steering group and carrying out a stakeholder workshop.

- A **comprehensive** HIA involves a more in-depth approach, requiring extensive literature searches and data collection, and stakeholder and public engagement. This type of HIA is most suited to more complex proposals.

THIS HEALTH IMPACT ASSESSMENT

4.8 It is of the view of both the applicant, and St Albans City and District Council, that the proposed development exceeds the thresholds set out in Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017, whereby any application for certain forms of development is required to be accompanied by an Environmental Statement ("ES"). Accordingly, no formal Screening Opinion was sought from the Local Authority on this matter.

4.9 A Scoping Opinion was submitted to St Albans City and District Council under the provisions of these Regulations in May 2019. A formal response was by provided by the Authority in June 2019, in which, the requirements of the ES were identified. Whilst indeed the need for a HIA was included within the list of requirements to be included within the ES, the form in which the HIA is to be prepared was not clarified. Given the passage of time, the Applicants resubmitted a Scoping Opinion and Scoping Report in 2024 which re-established the topics to be "scoped in" to the ES.

4.10 This HIA therefore involves a desk-based assessment, which is to be used to inform the socio-economic chapter of the ES. As such, this HIA has not involved any direct consultation with stakeholders or the community, as this is not expected of a HIA of this nature.

5 Planning policy context

5.1 This section of the HIA sets out relevant and pertinent planning policy considerations driving the promotion of health and well-being within development proposals. It considers the policy context at both a national and local level, demonstrating the emphasis on the need to maximise opportunities for healthy lifestyles and community well-being within the planning framework.

NATIONAL PLANNING POLICY CONTEXT

National Planning Policy Framework

5.2 The latest version of the National Planning Policy Framework ("NPPF") was published in December 2023. It is a material consideration in planning decisions and sets out the Government's planning policies for England and how they should be applied to achieve sustainable development.

5.3 The NPPF defines the purpose of the planning system as being to contribute to the achievement of sustainable development (paragraph 7). More specifically, it identifies three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways, to achieve sustainable development (paragraph 8). These objectives are set out below:

- An **economic** objective: to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.

- A **social** objective: to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being

- An **environmental** objective: to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy

5.4 The social objective emphasises the need to support strong, vibrant and healthy communities, but it is worth noting that whilst this may seem the most pertinent objective to a population's health and well-being, the objectives are intrinsically interlinked, and therefore development proposals need to respond to each objective in order to demonstrate sustainability.

5.5 Section 8 of the NPPF provides specific guidance on ways in which development can promote healthy and safe communities, within which, paragraphs 96 and 97 emphasise the role of the Local Planning Authority in achieving healthy, safe and inclusive space via both the development plan and decision making. This advice is set out below:

- Para 96. Planning policies and decisions should aim to achieve healthy, inclusive and safe places which:

  a) promote social interaction, including opportunities for meetings between people who might not otherwise come into contact with each other – for example through mixed-use developments, strong neighbourhood centres, street layouts that allow for easy pedestrian and cycle connections within and between neighbourhoods, and active street frontages;

b) are safe and accessible, so that crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion – for example through the use of beautiful, well-designed, clear and legible pedestrian and cycle routes, and high quality public space, which encourage the active and continual use of public areas; and

c) enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling.

- Para 97. To provide the social, recreational and cultural facilities and services the community needs, planning policies and decisions should:

a) plan positively for the provision and use of shared spaces, community facilities (such as local shops, meeting places, sports venues, open space, cultural buildings, public houses and places of worship) and other local services to enhance the sustainability of communities and residential environments;

b) take into account and support the delivery of local strategies to improve health, social and cultural well-being for all sections of the community;

c) guard against the unnecessary loss of valued facilities and services, particularly where this would reduce the community's ability to meet its day-to-day needs;

d) ensure that established shops, facilities and services are able to develop and modernise, and are retained for the benefit of the community; and

e) ensure an integrated approach to considering the location of housing, economic uses and community facilities and services.

5.6. It is later noted that planning policies should promote the effective use of land to meet the need for homes and other uses, whilst safeguarding and improving the environment and ensuring safe and healthy living conditions (paragraph 123). To elaborate, policies and decisions should support development that makes efficient use of land whilst taking into account, *inter alia,* the importance of securing well-designed, attractive and healthy places (paragraph 128, criterion e). Similarly, developments should create safe, inclusive and accessible places that promote health and well-being, with a high standard of amenity for existing and future users (paragraph 135, criterion f).

5.7. References to health and well-being are interwoven throughout the NPPF, and it should be noted that the extracts above merely contextualise the role of these considerations in the Framework. The relationship between health and planning is evident throughout the NPPF, particularly in relation to topics of open space and recreation, sustainable transport, the natural environment, and green infrastructure.

Planning practice guidance

5.8. National planning practice guidance ("NPPG") responds to the NPPF, providing further context and detail on matters discussed within the Framework. It is intended that these two documents should be read alongside each other.

5.9. Although the NPPG was initially prepared in support of the March 2012 version of the NPPF, it has been updated to align with the aspirations of the latest versions of the NPPF. Most recently, the PPG was updated in February 2024.

5.10. NPPG defines a healthy place as "one which supports and promotes healthy behaviours and environments and a reduction in health inequalities for people of all ages. It will provide the community with opportunities to improve their physical and mental health, and support

community engagement and well-being"[7]. Further, it notes that healthy places are inclusive and promote social interaction.

5.11. The role of planning in promoting health and well-being is identified in NPPG, which emphasises the importance of promoting healthy and inclusive communities and the role planning can play in achieving this. It sets out that planning and health need to be considered in combination in two ways: firstly, in terms of creating environments that support and encourage healthy lifestyles, and secondly, in terms of identifying and securing the facilities needed for primary, secondary, and tertiary care, and the wider health and care system[8].

Proposed amendments to the NPPF

5.12. In July 2024, the Government issued a Written Ministerial Statement concerning *inter alia* proposed revisions to the NPPF.

5.13. The proposed amendments to the NPPF have been subject to public consultation, which commenced on 30th July 2024 and concluded 24th September 2024. As part of its 2024 statement on budget, the Government confirmed that it plans to respond to the consultation before the end of the year to confirm pro-growth reforms to the planning system.

LOCAL PLANNING POLICY CONTEXT

City and District of St Albans District Local Plan Review 1994 (Adopted November 1994) (Saved and Deleted Policies Version July 2020)

5.14. The principal Development Plan document for St Albans comprises the Local Plan, which was adopted in 1994. The Local Plan formally expired in September 2007, however a Direction was made saving specific policies of the Plan, and accordingly, these remain operational until they are replaced by a new Local Plan. The Saved and Deleted Policies Version (July 2020) of the Local Plan therefore continues to be used for the determination of planning applications.

5.15. Paragraph 8.5 states that the District Council will seek to promote a high standard of design and layout for new residential development. Accordingly, Policies 4 (New Housing Development in Towns) and 5 (New Housing Developments in Specified Settlements) which relate to housing, state that the design and layout of proposals will be assessed against Policy 70 of the Local Plan. Policy 70 (Design and Layout of New Housing) provides 12 objectives which new residential development should have regard for. Namely, these are: design and layout; dwelling mix; roads and footpaths; parking and garages; landscape; privacy between dwellings; privacy between dwellings and rear boundaries; orientation; amenity space around dwellings; defensible space; open space; and materials. More generally, Policy 69 (General Design and Layout) requires all development to be of a high standard of design, which takes into account context, materials, and other policies.

Sandridge Neighbourhood Plan

5.16. The Sandridge Neighbourhood Plan was made at Full Council on 14th July 2021, following a "Yes" referendum on 6th May 2021. The Sandridge Neighbourhood Plan ("NP") therefore forms part of the Development Plan.

5.17. Paragraph 1.3 identifies two purposes of the NP as set out below:

- To set out a positive vision of the future needs of the Parish in terms of its housing development, highways and transport, commerce, employment and health, well-being and environment; and

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7 National planning practice guidance. Para 003 Ref ID 53-003-20191101. Revised 01/11/2019.

8 National Planning Practice Guidance. Para 001 Ref ID 53-001-20190722. 2019. Revised 22/07/2019.

- To create a framework for delivering a sustainable future for the benefit of all who live, work in, or visit the neighbourhood.

5.18. The emphasis on health and well-being is evident through the structure of the NP, which is divided into four sections. Of pertinence, the fourth section relates to Sustainable Environment, Health and Well-being, and seeks to "*create an inclusive environment which supports a clear focus on the health and well-being of every citizen … to encourage residents to develop and implement local solutions to local issues [therefore] creating an outstanding place to live*".

St Albans City and District Health Well-being Strategy 2018 – 2021

5.19. The overall vision of the Well-being Strategy for St Albans is for a healthy city and district where everyone lives a fulfilling and healthy life. It states that the aim of public health is to improve people's health and well-being, and encourage them to adopt a healthy lifestyle through non-clinical initiatives, thereby reducing health inequalities.

5.20. The Strategy sets out that health is all-encompassing, and district councils should work together with key stakeholders and partners to maintain and improve public health in their localities. It is noted that councils perform and provide a number of key public health functions, most notably in terms of housing, leisure, green spaces, and environmental health[9].

5.21. This Strategy also provides a local health profile for the district of St Albans, the findings of which are set out in Section 6 of this Assessment.

Hertfordshire Health and Wellbeing Strategy 2022 - 2026

5.22. The Wellbeing Strategy for Hertfordshire sets high level priorities, and identifies a set of measurable outcomes which will be used as a basis to shape commissioning across health and care system, and to develop detailed action plans to improve the health and well-being of people who live and work in Hertfordshire. The Strategy is divided into six sections. Namely, these are: every child has the best start in life; good nutrition, healthy weight and physical activity; good emotional and mental wellbeing throughout life; reduction in smoking and substance misuse; a healthy standard of living for all; and a healthy standard living for all.

5.23. The Strategy notes prevention as a key principle in delivering their vision and ambitions. Local areas and communities have a critically important role to play in reducing health inequalities and addressing the wider determinants of health through prevention.

St Albans City and District Health and Wellbeing Strategy 2018 - 2021

5.24. This Document highlights the progress made in supporting a healthy District and highlights plans to drive further improvements. It focuses on three goals, namely: prevention, improving mental health and wellbeing and improving physical health and wellbeing. The Document builds upon the Hertfordshire Health and Wellbeing Strategy, to provide local projects that have had a positive impact on the health and wellbeing of residents of St Albans City & District.

9 *The District Council Contribution to Public Health. Kings Fund. 2015.*

6 Local health profile

6.1. Public Health England ("PHE") publish health profiles which provide an overview of health for each local authority in England. They draw upon existing data and pull this information together into one document to provide detail on a range of indicators for local populations, highlighting issues that can affect health in each locality.

6.2. These profiles are intended to promote conversations around health, health services, and health inequalities, with the intention to help local governments make plans to improve the health of their local population and reduce disparities in health.

6.3. The health profile for St Albans was published in 2019. Since then, there have been a number of updates, these have been reviewed and summarised for the purpose of this Assessment in the table below.

TABLE 1: HEALTH PROFILE FOR ST ALBANS

INDICATOR	PERIOD	ST ALBANS	REGION	ENGLAND
Life expectancy (Male, 1 year range)	2022	81.9	80.1	79.3
Life expectancy (Female, 1 year range)	2022	85.3	83.8	83.2
Under 75 mortality rate from all causes	2022	232.1	311.1	342.3
Percentage of physically active adults	2022/23	77.9	67.7	67.1
Percentage of adults classified as overweight or obese	2022/23	56.7	64.8	64
Teenage conception rate	2019	8.57	16.0	17.8
Infant mortality rate	2020 - 22	1.1	3.4	3.9
Estimated diabetes diagnosis rate	2018	64.7	76.7	78.0
Estimated dementia diagnosis rate	2024	57.4	63	64.8
Deprivation score	2019	8.3	17.4	21.7
Prevalence of smoking in adults	2022	*Value cannot be calculated as number of cases is too small*	23.9	22.5
Percentage of children in low income families	2022/23	6.7	13.8	19.8
Average Attainment 8 score	2022/23	58.1	46.4	46.2
Percentage of people in employment	2022/23	87.1	78	75.7

Homelessness	2022/23	5.2	10.9	12.4

6.4. The following summaries are all taken from the St Albans Local Authority Health Profile 2019.

Health inequalities summary

6.5. PHE found that life expectancy is 4.5 years lower for men and 6.5 years lower for women in the most deprived areas of St Albans than in the least deprived areas.

Child health summary

6.6. Data from PHE identified that in Year 6, 11.1% (205) of children are classified as obese, better than the average for England. The rate for alcohol-specific hospital admissions among those under 18 is 18, better than the average for England. This represents 7 admissions per year. Levels of teenage pregnancy, GCSE attainment (average attainment 8 score), breastfeeding and smoking in pregnancy are better than the England average.

Adult health summary

6.7. The rate for alcohol-related harm hospital admissions is 626 according to PHE. This represents 851 admissions per year. The rate for self-harm hospital admissions is 128, better than the average for England. This represents 180 admissions per year. Estimated levels of excess weight in adults (aged 18+) and physically active adults (aged 19+) are better than the England average. The rates of new sexually transmitted infections and new cases of tuberculosis are better than the England average. The rates of statutory homelessness, violent crime (hospital admissions for violence), under 75 mortality rate from cardiovascular diseases and under 75 mortality rate from cancer are better than the England average.

6.8. The St Albans Health and Well-being Strategy notes that while the percentage of adults classified as overweight or obese has reduced from 49.8% (2016/17) to 48.9% (2017/18), the number remains high. Relatedly, diagnoses for diabetes are worse than the national average. The data also indicates that the diagnosis rate for dementia is worse than the national average.

Healthcare

6.9. St Albans, as one of the principal towns of St Albans District, provides a range of healthcare services. The NHS website identifies nine general practice surgeries within St Albans town itself, albeit other surgeries are available in adjoining settlements of Sandridge and London Colney. In closest proximity to the site, NHS GP 'The Lodge Health Partnership' is located on Normandy Road, approximately 2.3km southwest of the site. The practice delivers General Medical Services (GMS) to a patient population of about 20,120 according to the Care Quality Commission, and an inspection in 2023[10] assessed the practice as being 'good' in four out of five assessment areas, which related to effectiveness, care, level of responsiveness, and organization. The surgery 'requires improvement' in safety.

6.10. Similarly, the NHS website identifies 13 dental practices in St Albans, and again, other surgeries are available in settlements such as Sandridge and London Colney. NHS dental practices 'The Maltings', located at Maltings Shopping Centre, and '21 Dental', located at Russel Avenue, are both located 2.4km south of the site. The Care Quality Commission found that The Maltings, and 21 Dental, also passed the five assessment areas and therefore did not require any further actions, in 2019[11] and 2023[12] respectively.

10 *Lodge Surgery Quality Report. Care Quality Commission. 2023.*

11 *Smilerlight Limited The Maltings Dental Practice Inspection Report. Care Quality Commission. 2019.*

12 *The Dental Practice – St Albans. Care Quality Commission.2023.*

Education

6.11. There are 32 primary schools within three miles of St Albans, the closest of which, Margeret Wix Primary School, is just 1,450m west of the site. Ofsted inspected the school in 2019, and assessed it as being 'good'[13]. At the time of inspection, 182 pupils were listed on the school roll. Inspections are carried out every 4 years, so the next inspection is due soon.

6.12. Excluding independent and special schools, there are eight secondary schools identified within three miles of St Albans. In closest proximity, St Albans Girls' School is located just southwest of the site, land of which adjoins the site's southern boundary. An Ofsted inspection in 2013 assessed the school as being 'outstanding', which at the time, had a school roll count of 1137 pupils[14]. Townsend Church of England School is situated approximately 850m west of the site. An inspection was carried out in 2024, which assessed the school as being 'good'[15] at this time, 780 pupils were listed on the school roll.

Facilities

6.13. St Albans, the principal town of St Albans District, presents a retail and commercial landscape. The Central Shopping Core commences, at its northernmost point, at the junction of Hatfield Road, Catherine Street and St Peter's Street, approximately 2km south of the site. This is accessible on foot in just 35 minutes via the A1081, the full extent of which provides a pedestrian footpath.

Community facilities, recreation and public open space

6.14. Woollam Playing Fields are located immediately northwest of the site, providing access to a club house and flood lit sports pitches within less than 10m. New Greens Hall is also located approximately 750m, or just a nine minute walk, west of the site. This operates as a multi-purpose venue, providing a sports bar and a community hall function, which can be used by local groups to hire.

Transport

6.15. Multiple bus stops are located along the A1081, the nearest of which is located approximately 110m west of the site at the petrol filling station. There are a total of four bus stops along the A1081 and are serviced by routes 321/721 between Luton and Watford/Rickmansworth and the 653 between St Albans and Welwyn Garden City and Hatfield. The 721 service augments the 321 service to raise the frequency of services along this route to 4 per hour and was recently introduced using Bus Service Improvement Plan funding.

6.16. There are two train stations located in St Albans, St Albans City and St Albans Abbey, which are approximately 3km and 3.3km south of the site respectively. St Albans City station is located on the Midland Main Line, which operates between London St Pancras and Sheffield, and also provides direct services to Gatwick Airport, Luton Airport, and Brighton. St Albans Abbey station lies at the terminus of the Abbey Line, which commences at Watford.

13 *Inspection of a good school: Margaret Wix Primary School. Ofsted. 2019.*

14 *St Albans Girls' School. Ofsted. 2013.*

15 *Inspection of a good school: Townsend Church of England School. Ofsted. 2024.*

7 Rapid Health Impact Assessment

7.1 This section of the HIA presents the assessment itself, considering all matters which affect and influence health and well-being, relating to the topics of the built environment. The completed assessment utilising the Hertfordshire template is included in the appendices.

7.2 In conclusion, the proposed development is not considered to result in any negative health impacts. Although the proposed development is of a substantial scale, there is no significant change to baseline conditions in terms of pollutants, including noise, air quality and water quality or any detriments to human health.

7.3 In fact, the proposed development includes the following key components that are beneficial in promoting healthier communities:

- New homes including affordable housing, age restricted specialist accommodation for the elderly and adult disability service units;
- An 80 bed care home;
- A local centre and a two-form entry primary school;
- Green infrastructure including the relocation and replacement of existing playing fields;
- Attractive and safe pedestrian and cycle routes; and
- Improved connectivity across the St Albans, connecting homes with community and recreational facilities and encouraging active travel.

7.4 The proposed development is therefore considered to be sustainable development that promotes a healthy community in accordance with planning policy and guidance.

HIA Assessment Matrix to be used when preparing HIA report

HIA Assessment Matrix for developers

Date Completed:	13-12-2024
Contact details:	alicemorgan@lrmplanning.com
Time of the strategic document:	December 2024
Description of the strategic document:	Health Impact Assessment (HIA)

Section 1: Socio-Economic make-up of area

Please provide a brief description of the socio-economic context for the local area/site. This should include the population make-up, any areas of socio-economic deprivation and the health and wellbeing issues of the local population and perspective users of development sites.

Theme	Description
Population make-up	
Health & wellbeing issues	
Economic status	
Summary of status:	See Section 6 of HIA

Section 2: Consultation evidence

Please briefly describe the stakeholder engagement process.

Description

Section 3: Planning checklist

- ✓ **Themes:** This matrix is based on an indicative checklist of topics relevant to health in planning, however it is advised that they should be revised to ensure that they reflect local circumstances and local policies.
- ✓ **Description:** Briefly describe how the proposals of the strategic document affect the health and wellbeing of existing and future local residents/ users of the site/local area.
- ✓ **Impact:** Identify if this impact is positive or negative. This should be scored X to 3 which constitutes:

  X – no impact, 1 – high impact, 2 – medium impact, 3 – low impact.
- ✓ **Recommendation:** based on the impact assessment.

Summary:

Health determinants	Description of Impact	Impact assessment				Recommendation
		Positive	Negative	Neutral	Unknown	
Construction	If the application is successful a construction phase will take place			2		A Construction Environmental Management Plan will be required as a planning condition. This will include measures to protect amenity of residents and other sensitive receptors during this phase.
Housing	1000 new homes to be provided including affordable housing, age restricted specialist accommodation for the elderly and adult disability service units	1				A range of housing opportunity meeting identified needs.

Active Travel and Connectivity	Attractive and safe pedestrian and cycle routes and improved connectivity across the St Albans, connecting homes with community and recreational facilities and encouraging active travel	1				Active travel has been promoted as means of travel consistent with LTP4. This enables active lifestyles.
Access to Public Service	A local centre and a two-form entry primary school	1				Local community facilities will conveniently located to future residents and accessible by walking and cycling.
Open, green spaces, sport and leisure facilities	Green infrastructure including the relocation and replacement of existing playing fields;	1				Extensive means of natural and semi-natural green space is provided that allow for recreation. Existing playing fields will be relocated.
Healthy food		2				Opportunities for local food production are included within the scheme
Environmental hazards (Air Quality, Noise Contaminated Land & Waste, Flooding)			X			No contamination, no noise / air pollution effects, flood risk are not limited
Community Safety		2				
Employment and Economy	Care home and school will provide employment. New homes will improve the housing shortage currently faced in St Albans	2				

Equality and social cohesion	Affordable housing and a local centre to be provided	2				
Climate change		3				Sustainability strategy includes objectives to minimise greenhouse gas emissions and adapt to climate change

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RTPI
Chartered Town Planner

Appendix 12.2: EFM Education Review

Suite 2, Unit 10, Bradburys Court,
Lyon Road, Harrow, HA1 2BY
FROM BEN HUNTER

Telephone: 020 8125 4081

Schoolplaceplan@efm-ltd.co.uk

Direct Line: 07497 338456
ben@efm-ltd.co.uk

Jack Martin-King
Hallam Land Management
BY EMAIL ONLY

5th July 2024

Dear Jack,

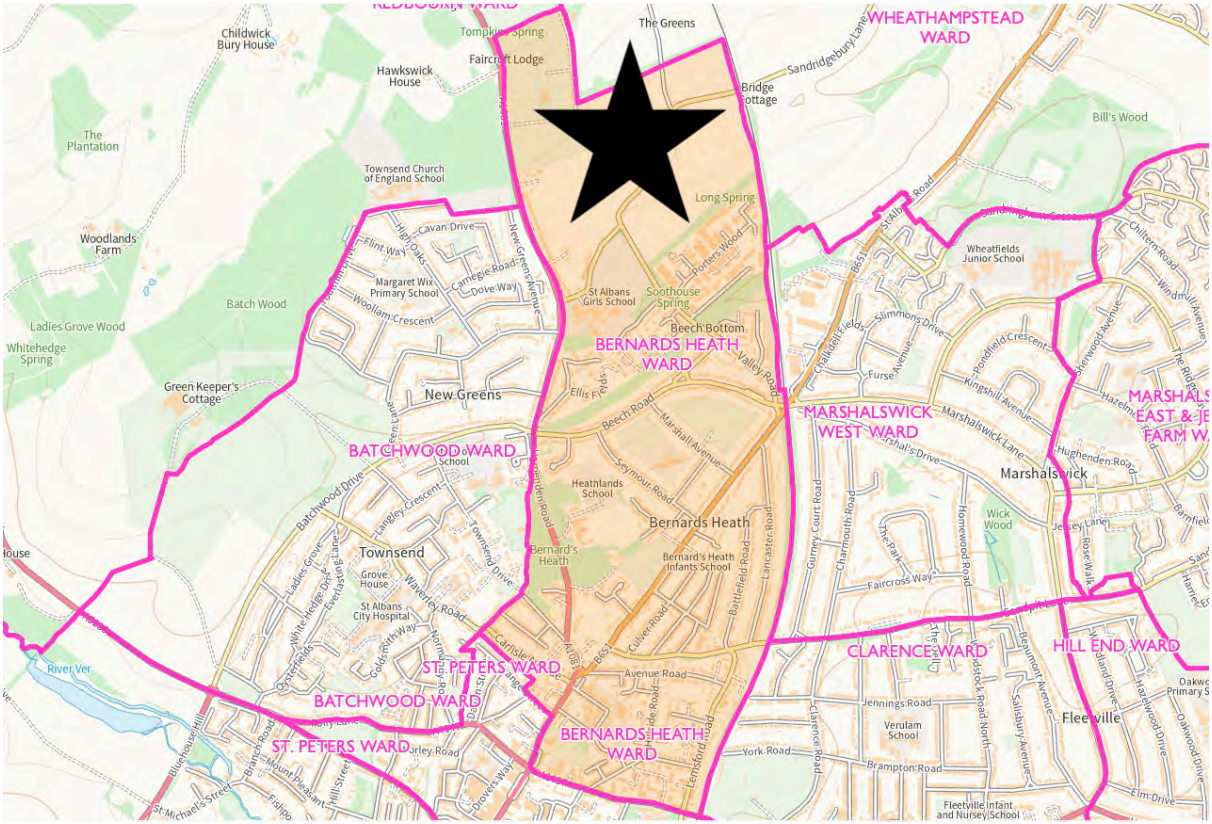
REF: EFM EDUCATION REVIEW – LAND AT WOOLLAM PARK, ST ALBANS, HERTFORDSHIRE

The purpose of this Report is to evaluate the Education landscape in the vicinity of a development of circa 900 dwellings (plus an 80-bed care home, and 80 retirement living/extra care units) at the development discussed above and shown below in Map 1.



Map 1: Approximate Development Outline

This development is located within the St Albans City and District Council ("SAC&DC") Planning Area. Hertfordshire County Council ("HCC") is the Education Authority. The development is located predominantly within the Barnards Heath Ward ("the Ward"), as shown in the Map below:



Map 2: Ward Boundaries and the development's location within the Ward

SAC&DC does not operate a Community Infrastructure Levy ("CIL") meaning that if any development mitigation is required, it will be secured via Section 106 agreement.

For a planning obligation to be acceptable, it must be necessary. In respect of an education planning obligation, to be necessary, there must be an insufficient number of places to accommodate the forecast number of children seeking a school place compared to the number of children expected to come forward on the proposed development. Thus, the obligation must be linked to a change (upwards) in the official number of school places.

This document will undertake the following tasks: firstly, it will look at the child yield multipliers utilised by HCC in order to ensure that they are appropriate for the area; second, it will look at the planning obligation cost multipliers to ensure they are in line with the national

averages and Department for Education's ("DfE") Guidance, Securing Education Planning Obligations (August 2023) which is endorsed by MHCLG PPG Paragraphs: 007 Ref ID: 23b-007-20190315 and 008 Ref ID: 23b-008-20190315; finally, it will look at the Education landscape, in order to establish whether new infrastructure and/or financial planning obligations are appropriate and required under the CIL Regulations, specifically the tests of CIL Regulation 122 (2). This note looks specifically at Primary and Secondary School provision, and SEN provision, as HCC is likely to request funding towards all of these Educational elements.

Generating Primary and Secondary School aged children requires the addition of the equivalent new Primary/Secondary School places, and the implications for that could be infrastructure that has a cost associated with it. The necessity requirement dictates that there must be the equivalent increase of the Capacity and Admission Number of a school that would serve the development. The Capacity of a school is published differently depending upon its type. The Admission Number is the number of places for each age group. For a maintained school (maintained by the local education and children's services authority) it is the Net Capacity and for an Academy/Free School it is set out in the Funding Agreement with the Education Secretary of State. This obligation on the Council should be stipulated in the Section 106. "Improving" educational facilities is not appropriate use of planning obligations. Pre-existing deficits, upgrades and maintenance issues are funded from different sources.

To first review the child yield multipliers utilised by HCC:

Child Yield

HCC adopted their "Guide to Developer Infrastructure Contributions" in 2021[1]. This discusses their demographic model for child yields, which is a methodology that HCC do not share in the public domain. What we do know is that HCC operate a Tier system for Primary School child yields:

- Tier 1 = 400 dwellings per 1FE (0.525 per dwelling)
- Tier 2 = 500 dwellings per 1FE (0.42 per dwelling)
- Tier 3 = 1,000 dwellings per 1FE (0.21 per dwelling)

[1] https://www.hertfordshire.gov.uk/about-the-council/freedom-of-information-and-council-data/open-data-statistics-about-hertfordshire/who-we-are-and-what-we-do/property/planning-obligations-guidance.aspx#developercontributions

HCC will take an indicative housing mix and apply it to their demographic model in order to ascertain what they think will be the pupil yield. From a Primary School perspective, EFM has seen this come out at around 0.43 pupils per dwelling, which would mean that a 900 dwelling development would generate around 387 Primary School aged pupils, or 1.8FE. On that basis (without taking in to account capacity in the wider area) a 2FE school on site is justifiable, as this allows all of the pupils to be accommodated locally, while also building in a small amount of capacity for the wider area. This is discussed further below.

The Department for Education ("DfE") has produced Planning Policy Guidance for education entitled "Securing developer contributions for education" (August 2023). A key point in the Guidance is that pupil yield factors should be based on up-to-date evidence from recent local housing developments. Paragraphs 17 and 18 state:

Pupil yield factors should be based on up-to-date evidence from previous local housing developments, so you can predict the education needs for each phase and type of education provision arising from new development. To understand how pupil yield builds up in developments over time, you can consider pupil yield from developments completed 10 or more years ago as well as those built more recently. You are under no obligation to review pupil yields continually, but we recommend refreshing your data approximately every five years.

Pupil yield factors allow you to estimate the number of early years, school and post-16 places required as a direct result of development, underpinning local plan policies and the contributions agreed in planning obligations. We have published separate research data and guidance on estimating pupil yield, to assist local authorities producing and using pupil yield evidence.

What is interesting is that the DfE's child yields are significantly lower than those utilised by HCC in their demographic model. For St Albans, the DfE is reporting the following:

Year	LocalAuthority	EducationPhase	EducationType	TenureType	Housing…	Numb…	Num…	Numb…	PupilYield
2021/22	St Albans	Early Years	Mainstream	All	All	All	133	2688	0.049479167
2021/22	St Albans	Post-16	Mainstream	All	All	All	39	2688	0.014508929
2021/22	St Albans	Primary	Mainstream	All	All	All	568	2688	0.211309524
2021/22	St Albans	Secondary	Mainstream	All	All	All	257	2688	0.095610119

Table 1: DfE's Child Yield Study – St Albans

When applying these figure to a development of 900 dwellings, you get the following:

- 900 x 0.211309524 = 190 Primary School aged pupils (0.9FE)
- 900 x 0.095610119 = 86 Secondary School aged pupils (0.6FE)
- 900 x 0.014508929 = 13 Sixth Form pupils

This is essentially half of what HCC usually suggests new developments will generate. The figures in Table 1, however, will include a large number of one and two bedroom flats/apartments, which tend to accommodate significantly fewer children of school age than family housing.

For completion, the figures the DfE reports for Hertfordshire can be seen below. These figures are not as low as St Albans figures, but are comparable:

Year	LocalAuthority	EducationPhase	EducationType	TenureType	Housing...	Numb...	Num...	Numb...	PupilYield
2021/22	Hertfordshire	Early Years	Mainstream	All	All	All	1830	27821	0.06577765
2021/22	Hertfordshire	Post-16	Mainstream	All	All	All	422	27821	0.015168398
2021/22	Hertfordshire	Primary	Mainstream	All	All	All	6380	27821	0.229323173
2021/22	Hertfordshire	Secondary	Mainstream	All	All	All	2833	27821	0.101829553

Table 2: DfE Child Yield Multipliers

For the purposes of this review, this Report will work on the basis of the site generating 1.8FE's worth of Primary School aged pupils, to consider the worst-case scenario.

A recommendation of the Report is to provide HCC with an indicative housing mix so that they can run the demographic assessment, so that you are aware of what the impact on the Education landscape is expected to be. I have contacts at HCC and would be happy to ask them to do this.

Turning now to costs:

Planning Obligation Multipliers

At its paragraph 32, the Guidance recommends costs to be based on the published 'scorecards'. It states:

We advise that you base the assumed cost of mainstream school places on the relevant average regional costs published in the DfE school places scorecard. This allows you to differentiate between the average per pupil costs of a new school, permanent expansion or temporary expansion, ensuring developer contributions are fairly and reasonably related in scale and kind to the development. You should adjust the regional average to account for inflation since the latest scorecard base date.

The latest Scorecard costs (which were updated at the end of June) can be seen in the Table below. These costs (index linked from 2023, which is circa 3%) should be adjusted for Regional Weighting (which in Hertfordshire is 1), and a 10% uplift for the move to zero carbon.

This is the latest data

Cost per additional school place for 'Costs of Additional School Places' for New schools, Permanent expansions, Primary, Secondary and Temporary expansions in England for 2023

Move and reorder table headers

	Primary	Secondary
New schools	£23,865	£28,912
Permanent expansions	£19,989	£27,492
Temporary expansions	£9,450	£10,609

Table 3: DfE Average Scorecard Costs (2023)

On that basis, HCC should be asking for funding not exceeding £27k per pupil place for new Primary School infrastructure, and £31k per pupil place for new expanded Secondary School infrastructure, should it be required.

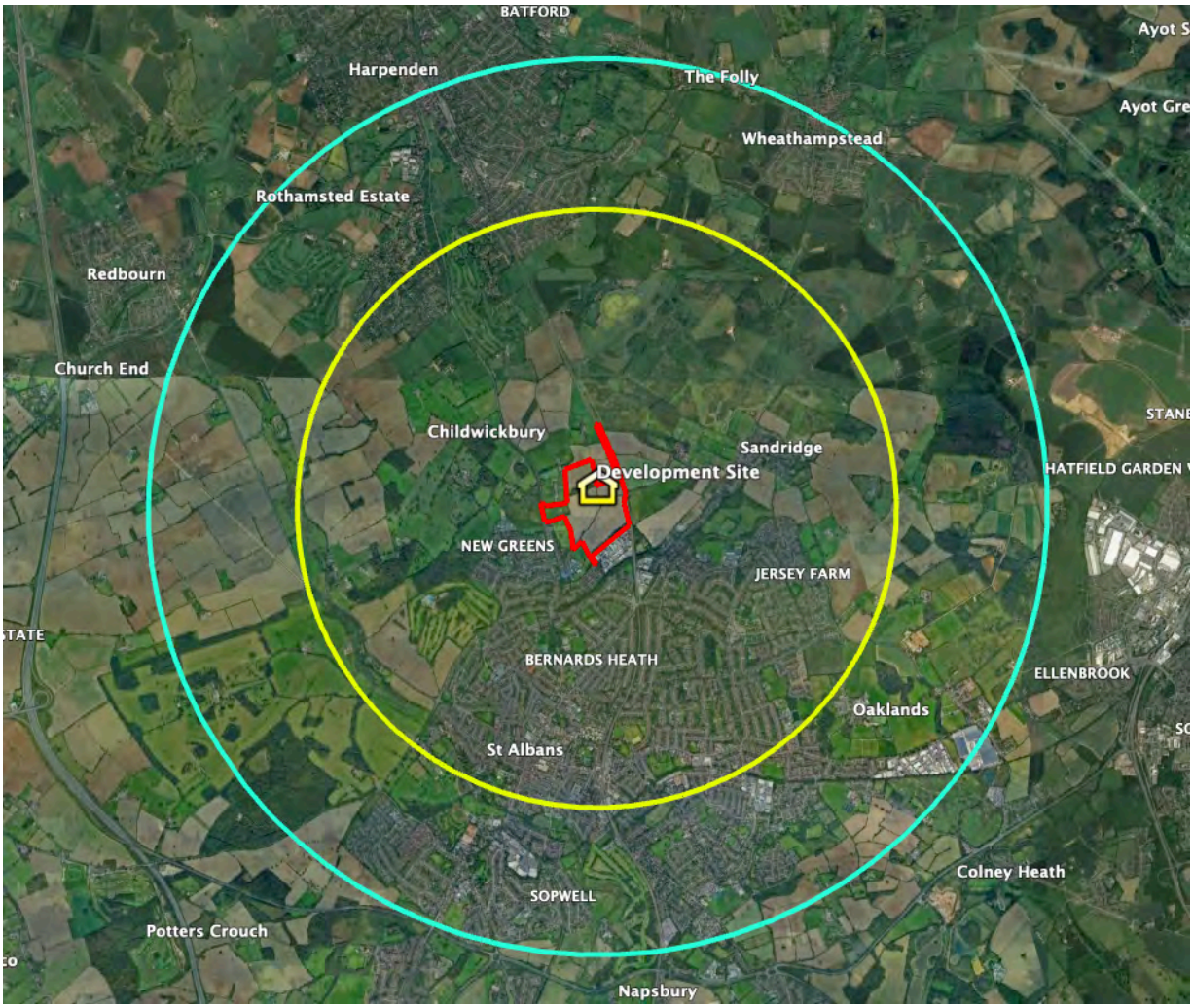
To now look at the Education landscape to establish if new infrastructure is necessary to make the development acceptable in planning terms:

Education

In our assessment, we consider all Primary Schools that lie within a two-mile walking distance, and all Secondary Schools that lie within a three-mile walking distance of the development[2]. The two- and three-mile criteria is the distance prescribed in the Education Act beyond which

[2] Distances have been calculated based upon coordinates near to the development (51°46'32.3"N 0°19'48.7"W). Once the development is built, some parts of the site may be further/closer than shown.

local authorities are required to provide/fund transport where the nearest available school is further away.



Map 3: Two- and Three-Mile Boundary around the Development Site

The EA is required to make pupil forecasts to the Department for Education on a year of age basis by 'school planning area' and identify each school in the cluster and its capacity. The forecasts cover the period for which birth data is available. Forecasts covered by Section 106 agreements are submitted separately to avoid double funding. For Primary School age pupils, the current published data runs to 2027/28 and for Secondary School aged pupils 2029/30. These are known as the School Capacity ("SCAP") returns. This is how Government allocates its funding for additional school places that are its responsibility to provide.

Schools should be operationally full to meet the financial audit requirement for best value from public assets. This is demonstrative of a properly functioning school system. School funding is predicated on the number of pupils that are on a school's roll, so it is in the best interest of schools to maximise intake within their capacity. Accordingly, many schools take from a wide catchment area and some enrol over capacity.

The statutory rules on enrolment are that whilst schools may have a catchment area and ordered criteria for admissions, the rules only apply if the school is oversubscribed. Otherwise, whoever applies is admitted irrespective of where they live. This is known as 'More Open Enrolment'. It fosters parental choice of school.

The overarching duty to provide sufficient schools and school places rests with central Government. (Education Act 1996 Section 11) The duty excludes those otherwise provided for (private education, home schooling, those in new housing with a Section 106/CIL in place (my emphasis).

The EA's duty in such matters is to secure sufficient schools and school places for their area (Education Act 1996 Section 14). 'For their area':

The duties of a [local] education authority do not require the authority to secure the provision of schools for pupils from outside the area of the authority, even though it may be convenient for a pupil to attend a school in an area other than that in which he lives.

Within the State-funded school sector there are Community Schools funded by the local authority, and there are other providers than the local authority; these are Academies, Free Schools, the Voluntary Sector (e.g. Church Schools) and Foundation Schools. Academies and Free Schools are funded directly by Central Government: Church Schools and Foundation Schools are maintained by the local authority.

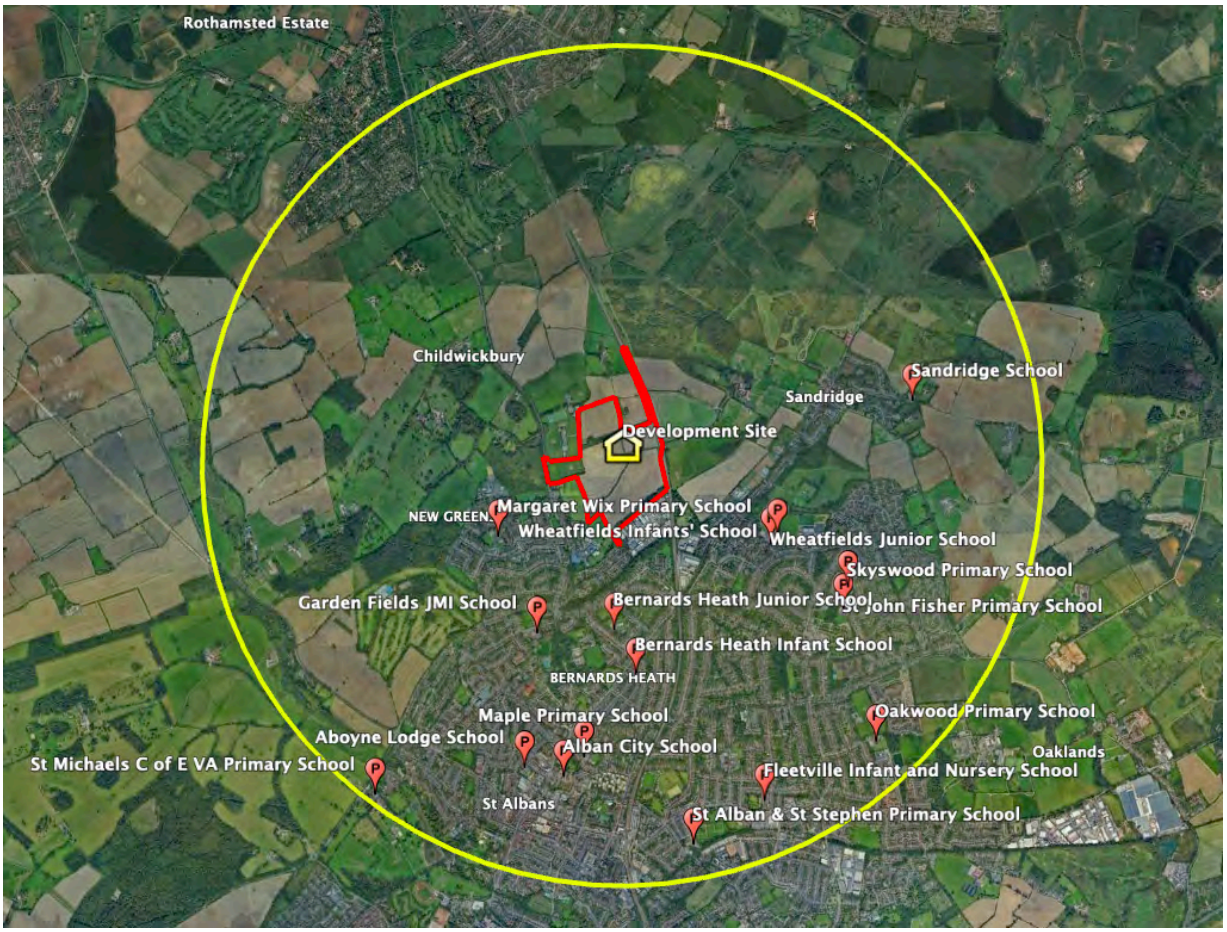
The provision of school places, where there is a shortfall, is made via a funding stream from the Department for Education ("DfE") is known as Basic Need. Basic Need funding is allocated as 'a number of pupil places times a unit cost', differentiated by school phase and local building costs. Allocations are made on the basis of projected shortfalls in local School Planning Areas against current pupil numbers and the actual numbers of school places in that Planning Area. Each planning area is treated as a discrete area and shortfalls met through the allocation of resources. A surplus in one school planning area is not offset against another with a shortfall. In this case, providing housing in the St Albans Central Primary Planning Area

(for whatever planning reason) will be reflected in the forecasts for the St Albans Central Primary Planning Area, and nowhere else.

Primary Education

There are sixteen state funded schools within non-selective admissions accommodating Primary School aged children within a two-mile radius of the development site. Of these schools, ten are within a two-mile walking distance, and therefore only these schools will be considered to be approporiate capacity for this development. All of the schools are within the HCC administrative area, and are organised across three Planning Areas.

The schools in relation to the development site can be seen in the Map below:



Map 4: Schools within a two-mile radius of the development site

The latest school roll data in the public domain (the current academic year) can be seen in the Table below:

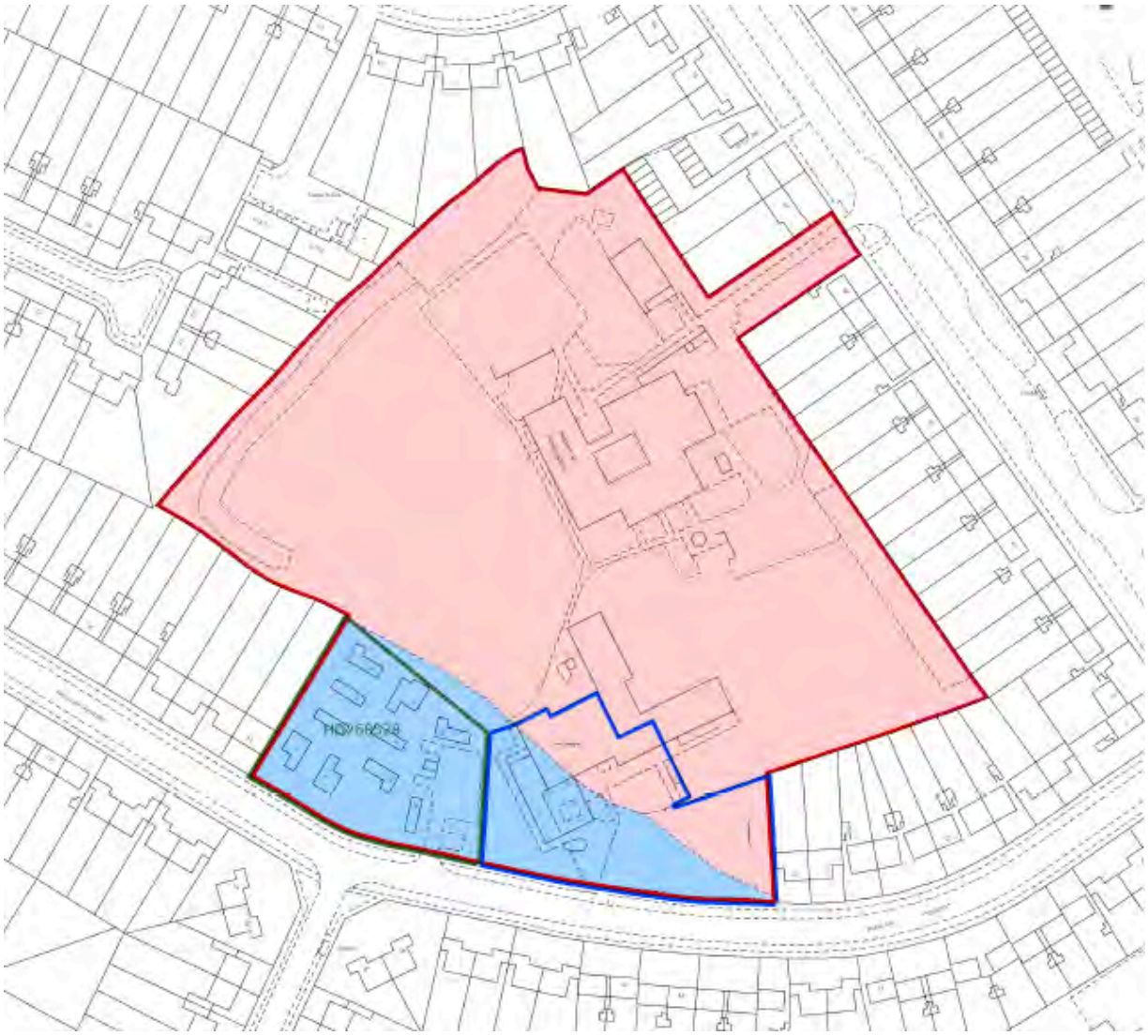
Primary School Name	Postcode	LA Name	Distance (miles)	Capacity	PAN	NoR	Yr R	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
Margaret Wix Primary School	AL3 6EL	Hertfordshire	0.9	210	30	136	16	17	9	18	27	19	30
Bernards Heath Inf/Jnr School	AL3 5HP	Hertfordshire	1.1	630	90	610	83	90	85	85	87	91	89
Garden Fields JMI School	AL3 5RL	Hertfordshire	1.2	630	60	523	49	59	74	79	85	85	92
Wheatfields Inf/Jnr School	AL4 9NT	Hertfordshire	1.5	630	90	623	90	80	95	87	89	92	90
Maple Primary School	AL1 3SW	Hertfordshire	1.5	240	30	217	30	30	31	34	27	31	34
Alban City School	AL1 3RR	Hertfordshire	1.6	420	60	383	49	48	49	57	62	58	60
Aboyne Lodge School	AL3 5NL	Hertfordshire	1.7	210	30	183	20	29	22	29	26	31	26
Skyswood Primary School	AL4 9RS	Hertfordshire	2	210	30	212	30	29	29	32	30	29	33
TOTAL				3,180	420	2,887	367	382	394	421	433	436	454
Surplus							53	38	56	29	17	14	-4
Available Surplus %							13%	9%	13%	7%	4%	3%	-1%

Table 4: School Roll Data (January 2024)

PAN = Planned Admission Number; NoR = Number on Roll

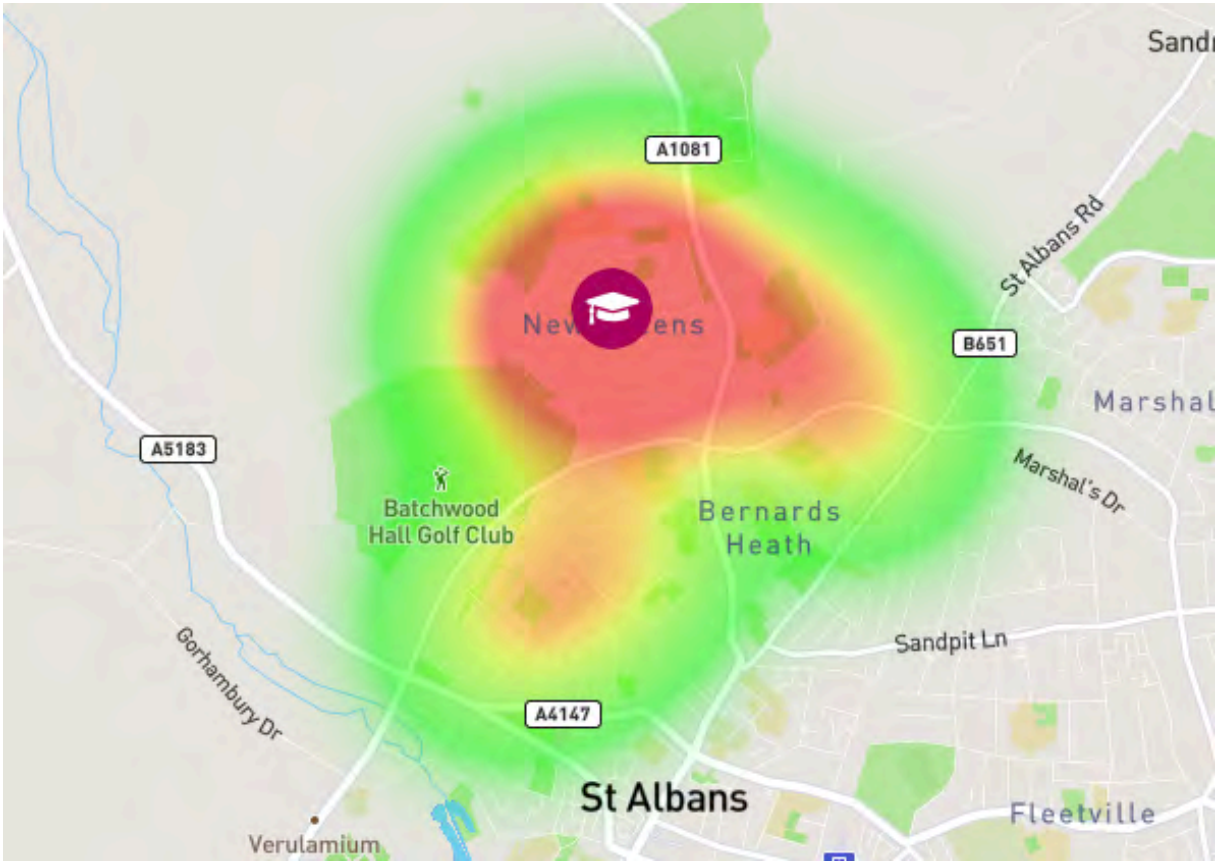
The closest school to the development site, at circa 0.9 miles from a mid-point of the proposed new houses, is Margaret Wix Primary School. This is a 1FE Primary School that currently is operating at 65% of its available capacity with 74 spare places. The school only accepted 9 pupils in to Year 2, and had the highest number of spare places in the entry Year Groups, suggesting falling rolls.

The school is located on a large site for a school of its size. The site boundary puts the school on an area of circa 1.9ha, which is sufficient to accommodate 2FE's worth of Primary School aged pupils at the top end of Building Bulletin 103 (the minimum site size for a 2FE under BB103 is 1.6ha). This means that the school should be able to double in size without the need for land acquisition. This may be considered a better option for HCC than adding in new provision to the area, which would likely be considered to be detrimental to the closest school with falling roll numbers. The school is currently Ofsted "Good":



Map 5: Margaret Wix Primary School Site Boundary (via the Land Registry)

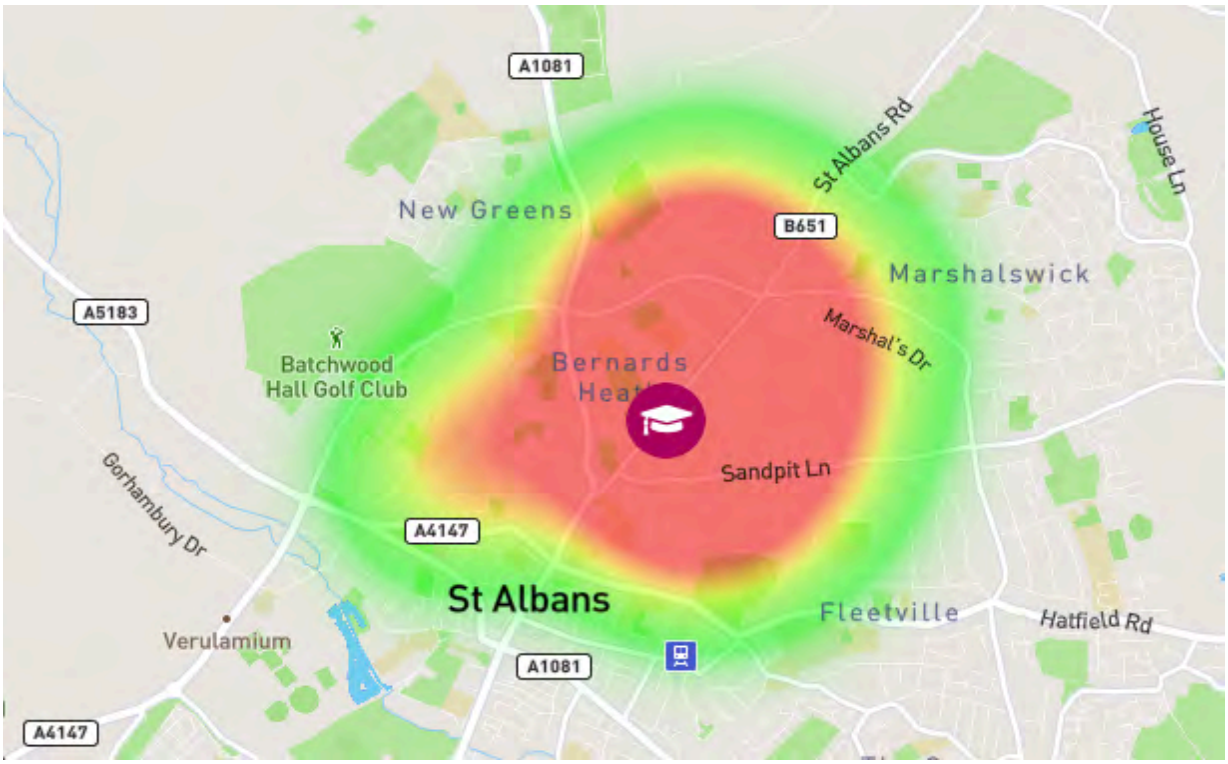
The area that the school draws pupils from, which is from within the immediate vicinity of the school itself (in North St Albans), can be seen in the Map below:



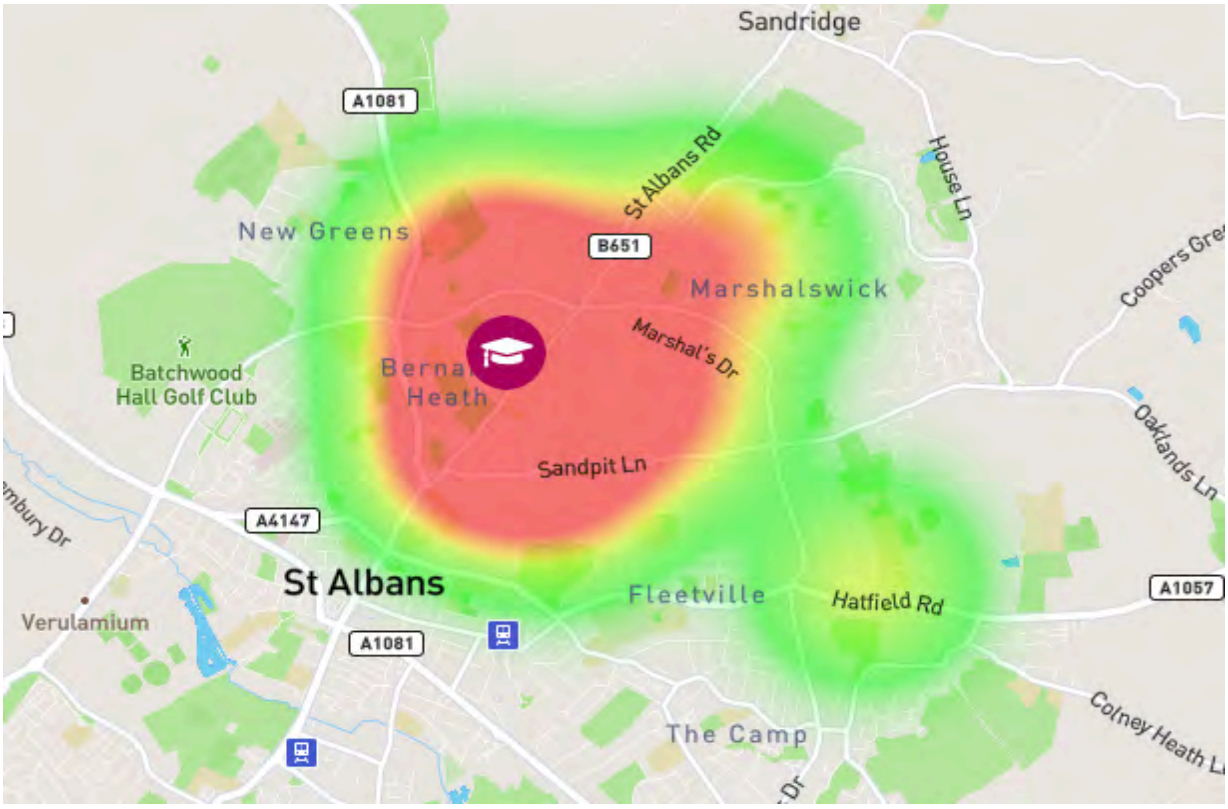
Map 6: Margaret Wix Primary School Catchment Area Heat Map

The second and third closest schools to the proposed new houses are Bernards Heath Infant and Junior Schools. These are 3FE facilities (the largest that HCC is prepared to go in terms of operation) approximately 1.1 miles walking distance from a central point of the proposed new houses. The schools are currently operating close to their capacities with 20 spare places.

The area that these schools draw pupils from can be seen in the Maps below:



Map 7: Bernards Heath Infant School Catchment Area Heat Map



Map 8: Bernards Heath Junior School Catchment Area Heat Map

The fourth closest school to the development site is Garden Fields JMI School. This is a school with a capacity for 630 pupil places (90 per Year Group) that is currently operating with an admission number of 60 pupils in Years Reception and One. This reduction in admission number is likely because of a lack of demand for places. The school only accepted 49 pupils in to Reception, which is only 54% of the total capacity of the school for that Year Group.

When looking at the current admission number of school across the Year Groups, the school has 570 available places, and has filled 523 of them, meaning the school is operating at 92% of its operating capacity with 47 spare places. However, if you look at the actual published capacity of the school, it has the ability to accommodate 630 pupils, and therefore is operating at 83% of its capacity with 107 spare places.

To summarise the above: there are currently 263 spare places in the schools that directly serve this development. This is 1.3FE, or the majority of the total child yield of this site.

When looking forward, there are eight schools in the North St Albans Planning Area (including the closest six schools to the development) that have a combined capacity of 2,520 pupil places. HCC is forecasting that rolls at the schools will fall in the coming years, so that by the 2027/28 academic year, the schools will have a combined roll of 1,910 pupil places, which is 610 spare places, or almost 3FE:

LA name	Year	Planning Area Code	Planning Area Name	Planning Area Phase	nc Year Group	Pupil Forecast ...
Hertfordshire	202223	9191310	North St Albans	Primary	Primary total	2317
Hertfordshire	202324	9191310	North St Albans	Primary	Primary total	2272
Hertfordshire	202425	9191310	North St Albans	Primary	Primary total	2177
Hertfordshire	202526	9191310	North St Albans	Primary	Primary total	2112
Hertfordshire	202627	9191310	North St Albans	Primary	Primary total	1992
Hertfordshire	202728	9191310	North St Albans	Primary	Primary total	1910

Table 5: HCC SCAP Forecasts

HCC's latest school place plan spreadsheet shows that spare capacity in Reception Year is expected to increase from 15.2% in the current academic year, to 30.6% in the 2027/28 academic year. This also works off the basis that Garden Fields JMI has 60 pupil places available in Reception, when it actually has the space for 90, so the number of actual spare places is higher than demonstrated in the Table below:

RAG Reports - Hertfordshire County Council

12.1	North St Albans									
School Code	School Name	Places Available 2023-24	Actuals 2020-21	Actuals 2021-22	Actuals 2022-23	Forecast 2023-24	Forecast 2024-25	Forecast 2025-26	Forecast 2026-27	Forecast 2027-28
2090	Bernards Heath Infants' School	90	90	87	90					
2095	Garden Fields JMI School	60	76	68	60					
2168	Margaret Wix Primary School	30	17	10	14					
2258	Skyswood Primary and Nursery School	30	30	29	30					
2311	Wheatfields Infants' and Nursery School	90	90	89	90					
3403	St John Fisher Roman Catholic Primary School	30	9	12	12					
	Total Year R Pupil Demand		**312**	**295**	**296**	**280**	**234**	**251**	**208**	**229**
	Total Year R Places Available	**330**				**330**	**330**	**330**	**330**	**330**
	Surplus or Shortage of Year R Places (No.)					**50**	**96**	**79**	**122**	**101**
	Surplus or Shortage of Year R Places (%)					**15.2%**	**29.1%**	**23.9%**	**37.0%**	**30.6%**
	Surplus or Shortage of Year R Places (FE)					**1.7**	**3.2**	**2.6**	**4.1**	**3.4**

Table 6: HCC School Place Plan Projections – North St Albans

For completion, there are six schools in the St Albans City Council Planning Area, including at least three within a two-mile safe walking distance of this development. The schools have a capacity of 1,680 pupil places. By 2027/28, HCC forecasts that these schools will have a combined roll of 1,344 (which also shows falling rolls) which will equate to 336 spare places, or 1.6FE:

LA name	Year	Planning Area Code	Planning Area Name	Planning Area Phase	nc Year Group	Pupil Forecast ...
Hertfordshire	202223	9191322	St Albans City Centre	Primary	Primary total	1479
Hertfordshire	202324	9191322	St Albans City Centre	Primary	Primary total	1457
Hertfordshire	202425	9191322	St Albans City Centre	Primary	Primary total	1439
Hertfordshire	202526	9191322	St Albans City Centre	Primary	Primary total	1425
Hertfordshire	202627	9191322	St Albans City Centre	Primary	Primary total	1391
Hertfordshire	202728	9191322	St Albans City Centre	Primary	Primary total	1344

Table 7: HCC SCAP Forecasts

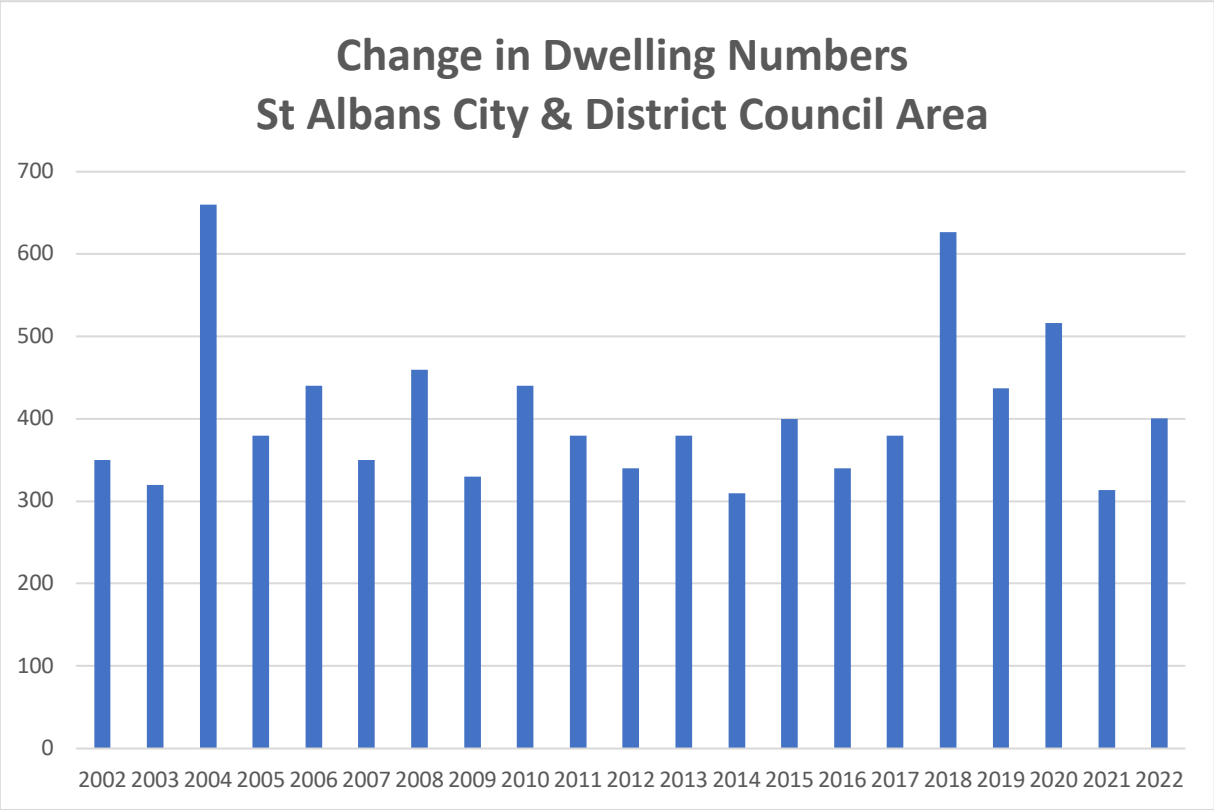
HCC is reporting that the number of spare places in Reception Year will increase in this Planning Area from 18% in the current academic year to 24% in the 2027/28 academic year, showing that rolls are forecast to fall considerably:

RAG Reports - Hertfordshire County Council

12.2	St Albans City Centre									
School Code	School Name	Places Available 2023-24	Actuals			Forecast				
			2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
2028	Alban City School	60	52	42	48					
2096	St Peter's School	60	55	57	59					
2098	Aboyne Lodge Junior Mixed and infant School	30	27	23	28					
2364	Maple Primary School	30	30	32	32					
3361	The Abbey Church of England Voluntary Aided Primary School, St Albans	30	29	26	14					
3363	St Michael's Church of England Voluntary Aided Primary School, St Albans	30	30	28	24					
	Total Year R Pupil Demand		**223**	**208**	**205**	**197**	**188**	**185**	**172**	**183**
	Total Year R Places Available	**240**				**240**	**240**	**240**	**240**	**240**
	Surplus or Shortage of Year R Places (No.)					**43**	**52**	**55**	**68**	**57**
	Surplus or Shortage of Year R Places (%)					**17.9%**	**21.7%**	**22.9%**	**28.3%**	**23.8%**
	Surplus or Shortage of Year R Places (FE)					**1.4**	**1.7**	**1.8**	**2.3**	**1.9**

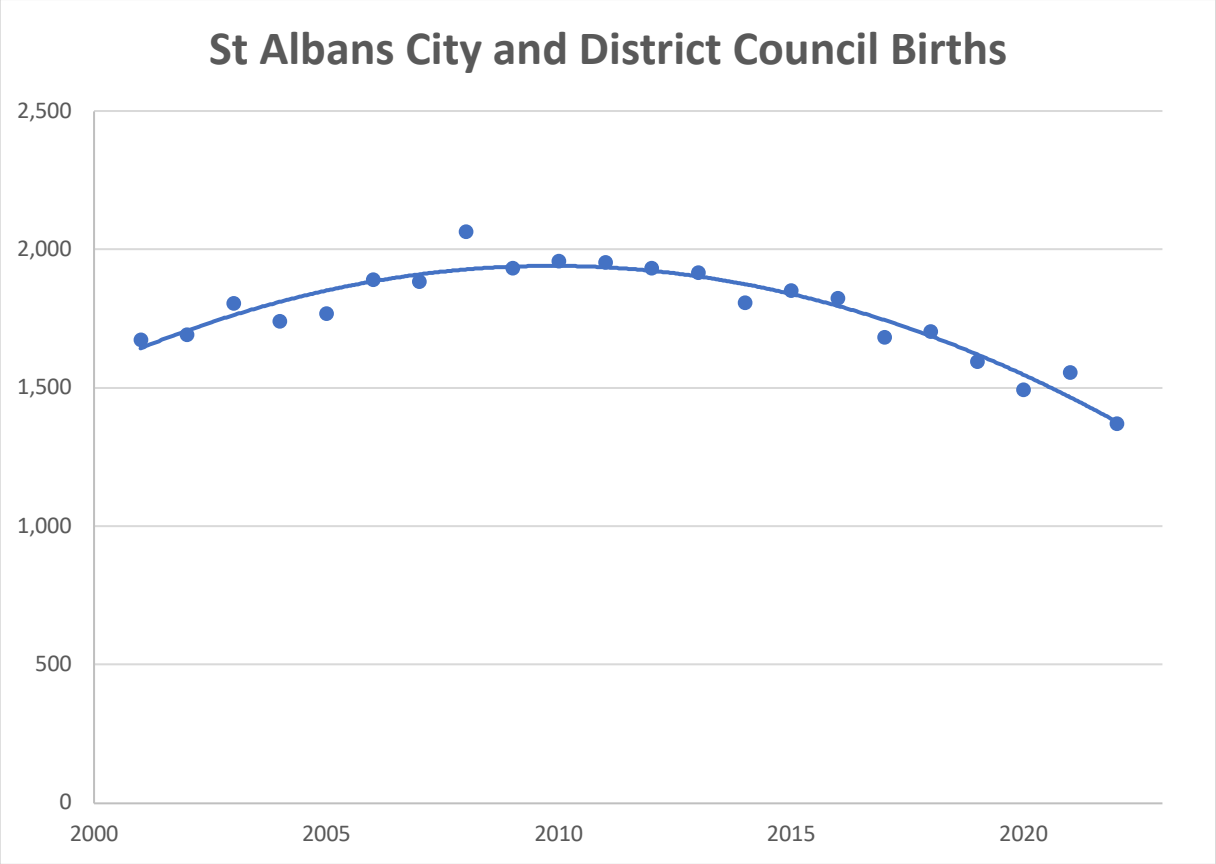
Table 8: HCC School Place Plan Projections – St Albans City Centre

This forecast fall in pupil numbers is not surprising when looking at the demographics of the area. While new dwelling has been consistent across St Albans, many of these dwellings have been one and two bedroom dwellings:



Graph 1: New Dwelling Delivery Per Annum – St Albans

In spite of this consistent build programme, birth numbers have been falling sharply. 2022 saw the lowest birth numbers in well over two decades, with numbers down 34% in 2022 from the peak in 2008:



Graph 2: St Albans Birth Numbers

What the above demonstrates is the number of children falling, and by 2027/28 (at which point this development is likely to be building out and accommodating children on site) the two Planning Areas closest to the development site are expected to have 946 spare places, which is 4.5FE. This is more than double the expected child yield of this site.

The draft allocation includes school land on site, and the current draft site plan includes a site for a 2FE school central within the boundary (in the "heart" of the development). It is not unreasonable to reserve this site in case the current trends change, demand for new places increases, and the site requires new provision in the future. However, currently, the evidence demonstrates that this site is not required. This is because the spare capacity in local schools is expected to far exceed the child yield of the site. Furthermore, if new provision is necessary, expanding Margaret Wix Primary School may be considered a better option, as the

site is large enough to accommodate growth, and it would support the sustainability of the school (it would also be a cheaper option than building a new school).

Ultimately, however, new development in this area is expected to help sustain schools with falling rolls, and it would be considered a benefit to the existing landscape, whereas new school provision is likely to be considered a detriment to the existing landscape.

If any new provision is needed, it would be at the very back-end of the build programme, and certainly not in the early phases.

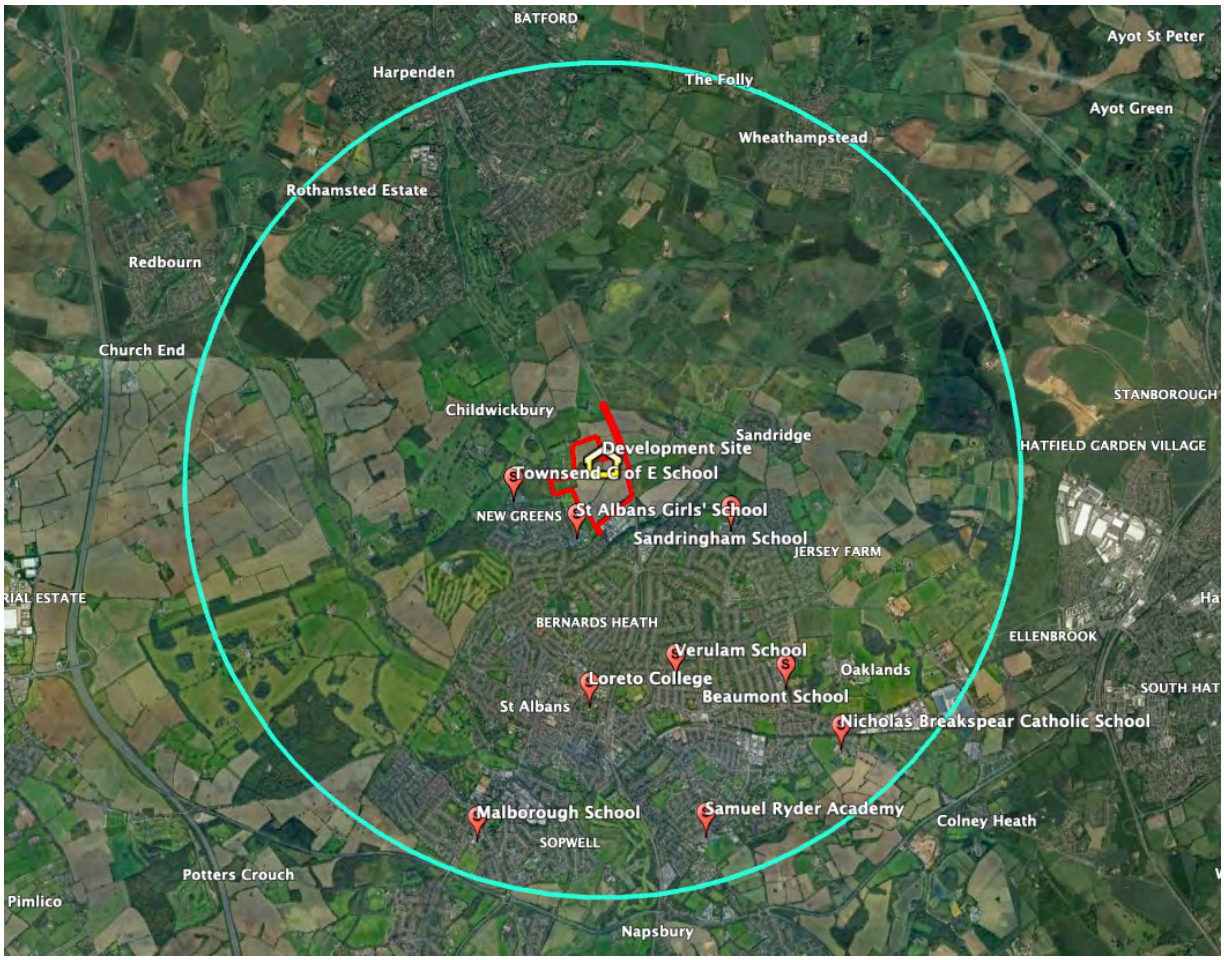
A final point, currently, while school land can be reserved, I would question the legitimacy of financial planning obligations, as they cannot be said to be necessary to make the development acceptable in planning terms, and thus this fails the tests of CIL.

Turning now to Secondary Education:

Secondary Education

There are at least nine state funded schools accommodating Secondary School aged children within a three-mile radius of the development site. Of these schools, seven are within a three-mile statutory walking distance. The schools are all within the HCC administrative area, and are organised in the same Secondary Planning Area.

The location of the schools in relation to the development site can be seen below in Map 9:



Map 9: Schools within a three-mile radius of the development site

The latest school roll data in the public domain can be seen in the Table below:

Secondary School Name	Postcode	LA Name	Distance (miles)	Capacity	PAN	NoR 7-11	Yr 7	Yr 8	Yr 9	Yr 10	Yr 11	Post 16
St Albans Girls School	AL3 6DB	Hertfordshire	0.2	1,450	240	1,187	237	240	240	238	232	249
Townsend C of E School	AL3 6DR	Hertfordshire	1	958	150	700	137	145	136	141	141	76
Sandringham School	AL4 9NX	Hertfordshire	1.6	1,700	240	1,206	238	245	243	233	247	554
Loreto College	AL1 3RQ	Hertfordshire	1.9	970	150	781	147	157	162	155	160	161
Verulam School	AL1 4PR	Hertfordshire	2	1,200	150	804	133	163	174	157	177	214
Beaumont School	AL4 0XB	Hertfordshire	2.5	1,580	240	1,116	242	239	211	214	210	478
Marlborough School	AL1 2QA	Hertfordshire	2.9	1,308	212	1,097	238	227	203	224	205	209
TOTAL				9,166	1,382	6,891	1,372	1,416	1,369	1,362	1,372	1,941
Surplus							10	-34	-17	-10	-20	
Available Surplus %							1%	-2%	-1%	-1%	-1%	

Table 9: School Roll Data (January 2024)

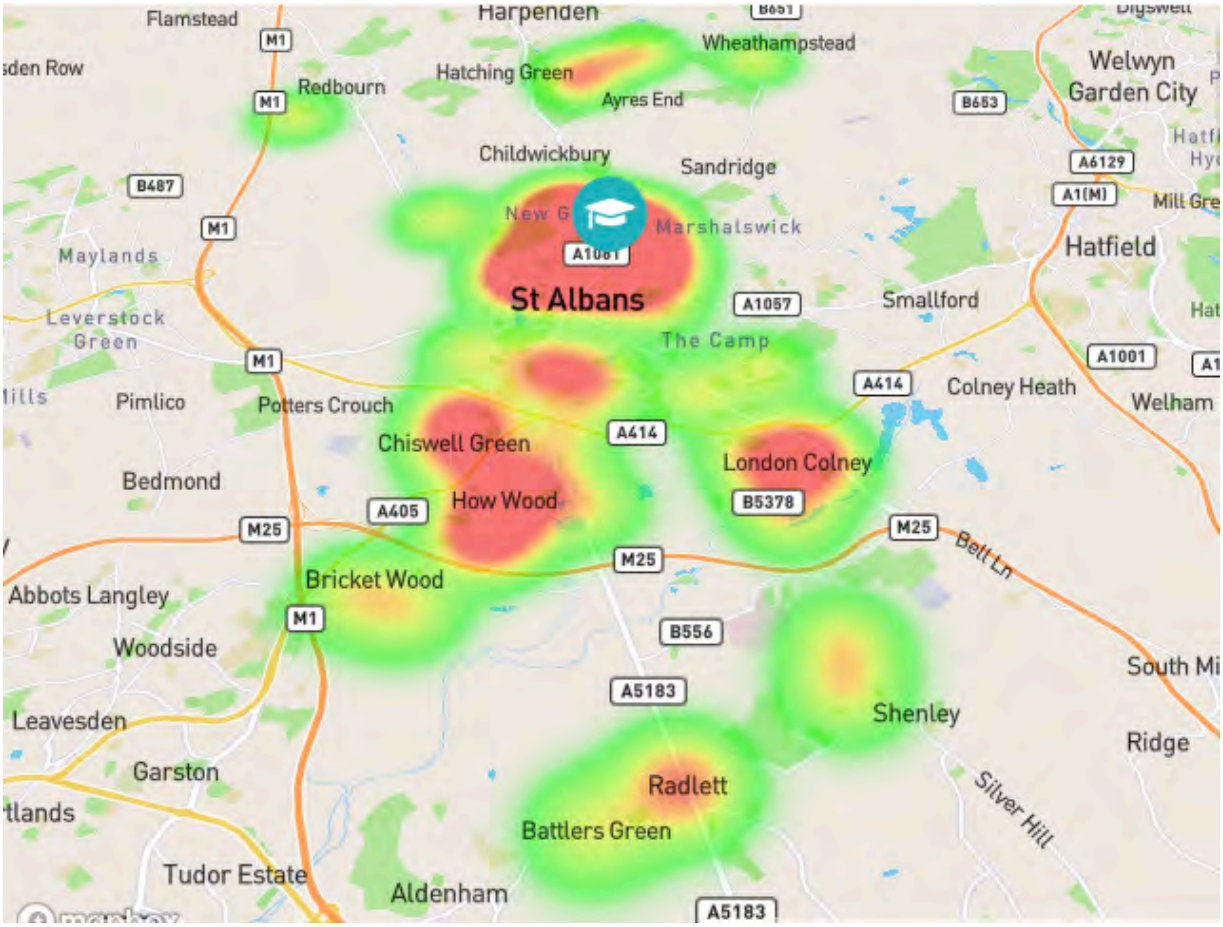
PAN = Planned Admission Number; NoR = Number on Roll

The closest school to the proposed new houses is St Albans Girls School. This is an 8FE Secondary School (for Girls) adjacent to the southwest corner of the development boundary. The school is currently operating close to capacity with 13 spare places.

When looking at the admissions criteria, the priority area of the school is as follows:

Parishes/unparished areas or towns in the school's priority area are: St Albans, Sandridge, Aldenham, Colney Heath, Harpenden, Kimpton, London Colney, Redbourn, Shenley, St Michael, St Stephen and Wheathampstead.

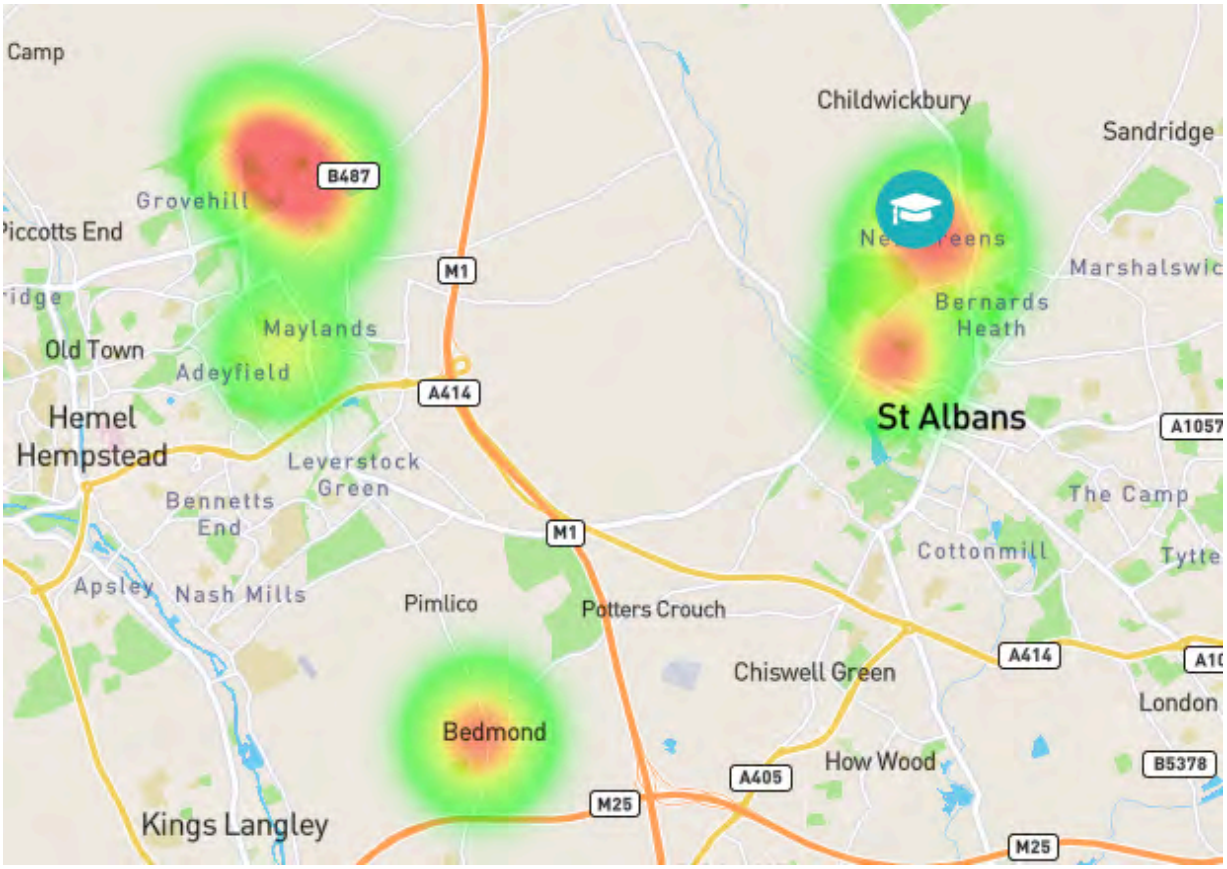
When comparing this to the area that the school currently draws pupils from, female pupils living on this site will have priority in the admissions criteria over those applying from Chiswell Green, How Wood, Bricket Wood, and Radlett. On that basis, there is potentially more future capacity for females on this development than is immediately obvious:



Map 10: St Albans Girls School Catchment Area Heat Map

The second closest school to the proposed new houses is Townsend Church of England School. This is a 5FE Secondary School approximately one mile from the proposed new houses, that is currently operating with 50 spare places.

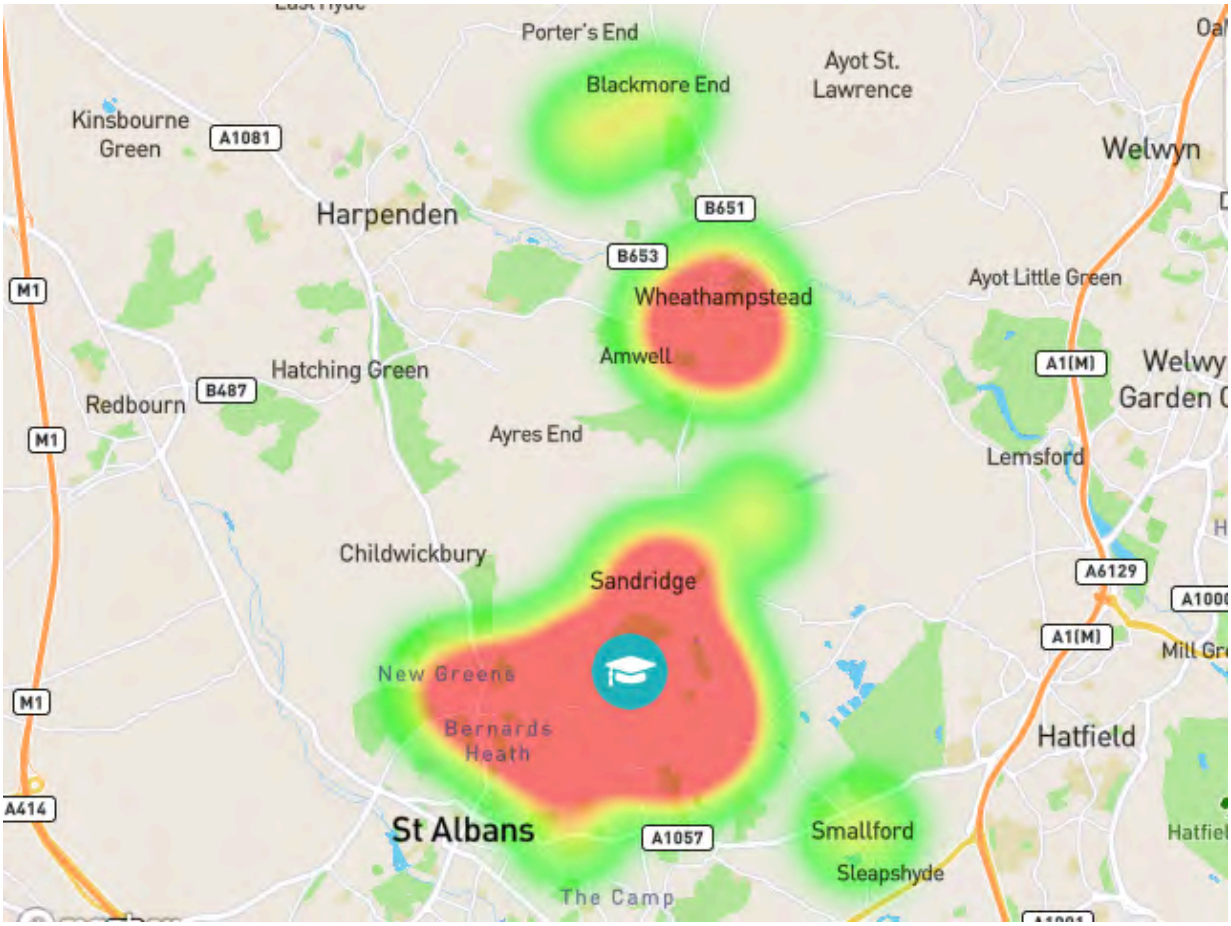
While this is a school based in St Albans, it draws pupils from both Hemel Hempstead and Kings Langley areas. On that basis, there is potentially more future capacity for St Albans pupils than is immediately obvious. Development in St Albans could help to make this school more sustainable, and more focused on St Albans students:



Map 11: Townsend C of E School Catchment Area Heat Map

The third closest school to the development is Sandringham School. This is an 8FE Secondary School approximately 1.6 miles walking distance from the proposed new houses that is currently full.

However, as with Townsend School, this is a St Albans School that accommodates a large number of pupils from outside of the town like Wheatampstead. The admissions criteria is based on distance, meaning that pupils from St Albans will be favoured over those from outside of the town.



Map 12: Sandringham School Catchment Area Heat Map

What is evident from the above is that St Albans Schools have inflated rolls based on large numbers of pupils attending the schools from outside of town. On that basis, growth in St Albans Secondary school aged children will increase the sustainability of these school.

Turning now to the projections: There are nine schools in the St Albans Secondary Planning Area, with a combined capacity of 11,342 pupil places. The rolls at these schools are expected to increase until 2027/28, at which point they are forecast to fall, so that by the end of the decade the roll is expected to be 11,175, which will be 167 spare places:

LA name	Year	Planning Area Code	Planning Area Name	Planning Area Phase	nc Year Group	Pupil Forecast ...
Hertfordshire	202223	9190013	St Albans Secondary	Secondary	Secondary total	10901
Hertfordshire	202324	9190013	St Albans Secondary	Secondary	Secondary total	11128
Hertfordshire	202425	9190013	St Albans Secondary	Secondary	Secondary total	11200
Hertfordshire	202526	9190013	St Albans Secondary	Secondary	Secondary total	11233
Hertfordshire	202627	9190013	St Albans Secondary	Secondary	Secondary total	11268
Hertfordshire	202728	9190013	St Albans Secondary	Secondary	Secondary total	11299
Hertfordshire	202829	9190013	St Albans Secondary	Secondary	Secondary total	11282
Hertfordshire	202930	9190013	St Albans Secondary	Secondary	Secondary total	11175

Table 10: HCC SCAP Forecast

HCC is forecasting that the schools will be 5.4% over capacity in Year 7 in 2027/28, before roll numbers start to fall in line with falling birth numbers:

RAG Reports - Hertfordshire County Council

12 St Albans

School Code	School Name	Places Available 2023-24	Actuals 2020-21	Actuals 2021-22	Actuals 2022-23	Forecast 2023-24	Forecast 2024-25	Forecast 2025-26	Forecast 2026-27	Forecast 2027-28	Forecast 2028-29	Forecast 2029-30
4003	Samuel Ryder Academy	230	184	208	204							
4011	Verulam School	210	153	155	159							
4043	Beaumont School	240	210	211	240							
4083	St Albans Girls' School	241	238	240	240							
4197	Sandringham School	240	240	243	242							
4606	Townsend CofE School	180	138	116	149							
4620	Loreto College	150	160	160	160							
5412	Nicholas Breakspear Catholic School	180	186	186	186							
5414	Marlborough School	240	240	212	236							
	Total Year 7 Pupil Demand		**1,749**	**1,731**	**1,816**	**1,816**	**1,797**	**1,784**	**1,797**	**1,804**	**1,759**	**1,684**
	Total Year 7 Places Available	**1,911**				**1,911**	**1,712**	**1,712**	**1,712**	**1,712**	**1,712**	**1,712**
	Surplus or Shortage of Year 7 Places (No.)					**95**	**-85**	**-72**	**-85**	**-92**	**-47**	**28**
	Surplus or Shortage of Year 7 Places (%)					**5.0%**	**-5.0%**	**-4.2%**	**-5.0%**	**-5.4%**	**-2.7%**	**1.6%**
	Surplus or Shortage of Year 7 Places (FE)					**3.2**	**-2.8**	**-2.4**	**-2.8**	**-3.1**	**-1.6**	**0.9**

Table 11: HCC School Projections – St Albans Secondary Planning Area

Pupil numbers are expected to fall considerably, as there are significantly fewer Primary School pupils working through the system in to Secondary, so HCC will be very reluctant to add in any new provision as it will be a short-term solution that will not be required long term. St Albans Schools would benefit from being more focused on St Albans pupils, making expansions very unlikely to be required.

EFM has submitted FOI requests to HCC previously to ascertain how many pupils are attending Secondary Schools from outside of their Priority Areas. It may be prudent, as this development progresses through the planning stages, to get this information which could be useful in future negotiations. This can be undertaken upon request.

Turning now to SEND provision:

SEN

The DfE states in their latest PPG on securing education planning obligations (August 2023):

We advise you to seek developer contributions for expansions required to sixth form and special educational needs and disabilities (SEN) provision, commensurate with the need arising from the development.

This demonstrates that the best practice guidance supports the requesting of SEN contributions if they are needed.

Government statistics suggest that in 2023 4.3% of children in the UK have an EHC plan/Statement of SEN (up from 4% in 2022)[3]. 13% of the UK's school age child population has some form of SEN but no EHC plan. Nationally, there is not sufficient SEN provision to accommodate the demand, which is growing.

HCC has stated previously in relation to other developments the following:

To meet the rising demand for special school provision and to ensure that there is sufficient capacity for children with special educational needs and disabilities, in high quality local provision that meets their needs the county council have developed a strategy, the SEND Special School Place Planning Strategy 2020-2023.

The Strategy identifies a significant shortfall in places in the Severe Learning Difficulty (SLD) school and Profound Neurological Impairment (PNI) sectors with the forecast showing a rise by 364 places between January 2020 and January 2025. It is a priority of the Strategy to mitigate this increase by creating up to 300 new SLD places to meet demand now and into the future. The forecast shows that 75% of the overall increase in demand across the life of the forecast is for SLD and PNI places.

On the basis of the above, SEN contributions are likely to be justifiable. However, HCC need to confirm what the child yield is, and the cost per pupil place. Average school place costs are £95k[4] per pupil place, according to national benchmarking.

[3] https://explore-education-statistics.service.gov.uk/find-statistics/special-educational-needs-in-england

[4] https://documents.hants.gov.uk/property-services/NationalSchoolDeliveryBenchmarkingreport.pdf

Recommendations

On the basis of the above, the recommendations of this Report are as follows:

i. Provide HCC with an indicative housing mix to input in to their demographic model to ascertain what they expect the child yield of the site to be;

ii. Explore the mitigation options with HCC, including utilising existing capacity, potentially expanding Margaret Wix Primary School, and whether the school site is likely to be required based on best evidence;

iii. Review any consultation response from HCC and potentially challenge any request for Education planning obligations on the basis of the evidence outlined above.

Please let me know if you need anything further or wish to discuss.

Kind regards,



Ben Hunter
Associate Director – Education and Social Infrastructure
EFM

Appendix 12.3: External Lighting Report

SVM
A Brookbanks Company

Woollham Park, North St Albans

External Lighting Report

26 November 2024

Report Reference: 3289 Woollam Playing Fields External Lighting Report

Revision	Date	Scope of Revision	Prepared by	Issued by	Approved by	Issued On
R0	20/05/2024	Pre-Planning External Lighting Report	DM	DM	MDH	20/05/2024
R1	11/11/2024	For Planning incorporating Planning application at St Albans School for Girls External Floodlighting 5/20/2217	DM	DM	PRR	13/11/2024
R2	26/11/2024	For Planning	DM	DM	MDH	26/11/2024

If the document is marked "draft" it is deemed to be uncontrolled and is issued for comment and further development only.

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1 Introduction

This report has been produced by Danny Mills of SVM Brookbanks for Hallam Land Management Limited (Hallam), and St Albans School and St Albans School Woollam Trust (the applicants) to provide details of a light spill analysis and associated calculations of existing floodlighting of rugby pitches on adjacent land to Old Albanians Rugby Club and proposed artificial pitch for St Albans School for Girls south Woollam Park, north of St Albans (the site). The calculation and report is to understand the effect of the existing floodlighting on the proposed new development. Additionally analysing recent granted planning application reference 5/20/1096 to discharge condition 9 in planning application reference 5/20/2217 for the 'Construction of artificial grass pitch with fencing and floodlighting, associated landscaping works' south of the proposed development for a new proposed sports pitch for St Albans School for Girls (STAG's).

To understand the potential dynamics of light spill, a site survey was conducted at Old Albanians Rugby Club on May 2, 2024, by Danny Mills, alongside a desktop analysis of the approved STAG's planning application. The survey at Old Albanians focused on identifying critical parameters such as the direction, mounting height, and distance of the existing and proposed floodlighting relative to the proposed development boundary. These factors are essential for accurately assessing the influence of the existing floodlighting on the new development area.

The purpose of this report is to provide Hallam Land with precise and actionable insights regarding how adjacent light spill from the existing floodlights could have adverse effects on the proposed residential plots and be identified and mitigated effectively. By understanding these light spill effects, we aim to support the planning and design process of the new development, ensuring that it meets all relevant standards and provides a comfortable living for future residents.

2 External Lighting

2.0 Old Albans Rugby Club

The existing floodlighting at Old Albanians Rugby Club consists of two rugby pitches adjacent to the perimeter of Hallam's proposed new development. These floodlights are mounted on 16m columns, with 3 heads on the 'match pitch' right of the club house and 2 heads on the 'training pitch' left of the club house.

The floodlight used in the design is as follows; Philips OptiVision MVP507 1xMHN-LA2000W with a 5◦ as per planning documentation and visual identification from site survey 02/05/2024.

As per the planning documentation there are restrictions on flood lighting as follows;

Only 3 evenings per week from October to March

Not on after 9pm

Only 1 pitch floodlit at any one time.

The ILP guidance gives notice on obtrusive lighting '***ILP Guidance Note 01/21 'The reduction of obtrusive light'*** the below is a definition and meaning of obtrusive lighting within the document.

'Obtrusive light, *whether it keeps you awake through a bedroom window, impedes your view of the night sky or adversely affects the performance of an adjacent lighting installation, is a form of pollution. It may also be a nuisance in law and can be substantially mitigated without detriment to the requirements of the task.'*

In order to calculate and demonstrate an acceptable level of obtrusive light from the floodlighting installation on the rugby fields, an 'environmental zone' has to be selected to give appropriate illumination requirements.

'E3 – Suburban – Medium district brightness – Well inhabited rural and urban settlements, small town centres of suburban locations.' Is suitable for the rugby club and proposed development north of St Albans town.

The below snippet taken from Guidance Note 01/21 Table 3, E3 pre curfew (before 9pm – as per planning conditions of the floodlighting at Old Albanians) give a recommended luminance of 10-lux pre curfew and 2lux post curfew, light spill diagrams shown in appendix 1.

Recommended Maximum Values of Light Parameters for the Control of Obtrusive Light

Limitation of illumination on surrounding premises

Light intrusion / nuisance

Table 3 (CIE 150 table 2): Maximum values of vertical illuminance on premises

Light technical parameter	Application conditions	Environmental zone				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

Snippet taken from ***ILP Guidance Note 01/21 'The reduction of obtrusive light'***

The vertical illuminance (CG1 measuring plane shown in appendix 1) has been measured at 10 meters from the southern boundary adjacent to the training pitch. This has an average of 4.88 lux and a maximum of 9.13 lux, both fall below the recommended 10 lux pre-curfew limit. These values represent likely light levels at neighbouring windows and help assess compliance with obtrusive lighting guidance note 01/21.

SVM Brookbanks conducted a scenario analysis incorporating a proposed 3-metre hedgerow between the Old Albanians rugby pitches and the nearby development to further mitigate nuisance illumination and glare. As outlined in Appendix 2, the hedgerow will help to further reduce glare from the adjacent training pitch and lower vertical illuminance to 3.31lux at the neighbouring proposed properties

2.1 St Albans School for Girls (STAG's)

The approved planning application (reference 5/2021/1096) aims to discharge Condition 9 from the initial planning application (reference 5/2020/2217) for the construction of an artificial grass pitch with fencing, floodlighting, and associated landscaping. The pitch is proposed to be located adjacent to the southern boundary of the intended development. The floodlights are mounted on 15M columns, with two luminaires on each of the four main columns and one luminaire on each corner column.

The specified floodlight for this design is the Siteco A3mx, 2000lm, HITDE, mounted at a 90° angle, providing zero upward light, as indicated in the planning documentation.

Condition 9 for the proposed artificial pitch requires the submission of external lighting isoline contour and light spill information, as shown in Appendix 2.3. The planning documentation provided to discharge Condition 9 includes:

- Siteco lighting technical specifications, received on 13/04/2021.
- Proposed floodlighting plan (drawing no. HLS1475), dated 10/08/2020 and received on 13/04/2021, prepared by Halliday Lighting.
- Untitled floodlight plan, received and dated 19/05/2021, prepared by Halliday Lighting.

Additionally, planning application (reference 5/2022/1710) addresses Condition 6 from planning application (reference 5/2020/2217), which requires a Community Use Agreement, prepared in consultation with Sport England and approved by the Local Planning Authority. The “Community Use Agreement in relation to use of the Artificial Grass Pitch at St Albans Girls School,” prepared for ATLAS Multi Academy Trust, St Albans District Council, and the Hertfordshire Football Association, is available in Appendix 4 (see Schedule 3 for hours of access).

The isoline and light spill information provided in planning permission (reference 5/2021/1096 (Appendix 3)) shows a 5 lux contour line on and extending beyond the boundary of the proposed development. This is expected to be further reduced by the shrubbery provided at boundary.

When reviewing the isoline and contour drawings with ILP Guidance Note 01/21 to assess and demonstrate acceptable levels of obtrusive light from the artificial pitch's floodlighting, an appropriate “environmental zone” must be selected. Zone “E3 – Suburban” (Medium district brightness, well-inhabited rural and urban settlements) is suitable for St Albans Girls’ School and the proposed development north of St Albans town.

As per Guidance Note 01/21 Table 3, the recommended luminance levels for E3 zones are 10 lux pre-curfew (before 9 pm, as per planning conditions) and 2 lux post-curfew.

The hours of access, as specified in Appendix 4 of the Community Use Agreement, restrict community use of the artificial pitch to no later than 9 pm during term time and school holidays, meeting post-curfew requirements. The 5 lux contour line along the boundary falls within the ILP's pre-curfew maximum guideline of 10 lux for environmental zone E3. Consequently, the approved lighting design for the artificial sports pitch is expected to have no adverse impact on the proposed development.

3 Recommendations

We note 3 recommendations as below to be considered.

1- A **suggested 3m hedgerow and/or a 3m fence** would aid the glare from the adjacent ‘training pitch. This would reduce vertical and horizontal illuminance between 3.31lux and 2.91lux. This improvement would enhance the comfort for the prospective residents during the times of the floodlights being on. This can be secured as part of the detailed landscaping scheme for a reserved matters planning application.

2- SVM Brookbanks would also recommend that the **orientation of the homes on the proposed A1 block** of the development are positioned to avoid placing houses, ensuring kitchen/bedroom windows in direct sightlines to the floodlights. This detail can be secured as part of the reserved matters planning application for this phase of development.

3- Should the above mitigation not be provided as part of any future detailed planning application, the **replacement of floodlight heads from MHN-LA/FC metal halide to LED should be considered**, this will improve the directional throw of the light and cut off from the fixture and give an improved efficiency.

4- The approved planning permission for an artificial sports pitch at St Albans School for girls is expected to have no adverse impact on the proposed development.

4 Appendices

4.0 Appendix 1

Perimeter light spill on A1 residential package without proposed hedgerow

Old Albanians Rugby Club

DIALux

Site 1 (Light scene 1)

Calculation objects



Old Albanians Rugby Club

Site 1 (Light scene 1)

Calculation objects

Working planes

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Working plane (Rugby Pitch 1) Perpendicular illuminance Height: 0.750 m, Wall zone: 0.000 m	261 lx	4.71 lx	487 lx	0.018	0.010	WP1
Working plane (Rugby Pitch 2) Perpendicular illuminance Height: 0.750 m, Wall zone: 0.000 m	155 lx	7.51 lx	320 lx	0.048	0.023	WP2
Working plane (Perimeter) Perpendicular illuminance Height: 0.000 m, Wall zone: 0.000 m	1.44 lx	0.14 lx	7.41 lx	0.097	0.019	WP3
Working plane (Perimeter 2) Perpendicular illuminance Height: 0.750 m, Wall zone: 0.000 m	1.68 lx	0.065 lx	4.36 lx	0.039	0.015	WP4

Calculation surfaces

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Calculation surface 1 Perpendicular illuminance Height: 1.500 m	4.62 lx	2.63 lx	8.20 lx	0.57	0.32	CG1
Calculation surface 1 Vertical illuminance Rotation: 90.0°, Height: 3.000 m	4.88 lx	2.58 lx	9.13 lx	0.53	0.28	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Old Albanians Rugby Club

DIALux

Perimeter (Light scene 1)

Calculation objects



Old Albanians Rugby Club

DIALux

Perimeter (Light scene 1)

Working plane (Perimeter)





Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Working plane (Perimeter) Perpendicular illuminance Height: 0.000 m, Wall zone: 0.000 m	1.44 lx	0.14 lx	7.41 lx	0.097	0.019	WP3

Utilisation profile: General circulation areas at outdoor workplaces (5.1.1 Walkways exclusively for pedestrians)

17

Old Albanians Rugby Club

DIALux

Perimeter (Light scene 1)

Calculation objects

Working planes

Properties	Ē	E_{min}	E_{max}	U_0 (g_1)	g_2	Index
Working plane (Perimeter) Perpendicular illuminance Height: 0.000 m, Wall zone: 0.000 m	1.44 lx	0.14 lx	7.41 lx	0.097	0.019	WP3

Calculation surfaces

Properties	Ē	E_{min}	E_{max}	U_0 (g_1)	g_2	Index
Calculation surface 1 Perpendicular illuminance Height: 1.500 m	4.62 lx	2.63 lx	8.20 lx	0.57	0.32	CG1
Calculation surface 1 Vertical illuminance Rotation: 90.0°, Height: 3.000 m	4.88 lx	2.58 lx	9.13 lx	0.53	0.28	CG1

Utilisation profile: General circulation areas at outdoor workplaces (5.1.1 Walkways exclusively for pedestrians)

16

4.1 Appendix 2

Perimeter light spill on A1 residential package with proposed hedgerow

Old Albanians Rugby Club

DIALux

Site 1 (Light scene 1)

Calculation objects



Old Albanians Rugby Club

DIALux

Site 1 (Light scene 1)

Calculation objects

Working planes

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Working plane (Rugby Pitch 1) Perpendicular illuminance Height: 0.750 m, Wall zone: 0.000 m	261 lx	4.71 lx	487 lx	0.018	0.010	WP1
Working plane (Rugby Pitch 2) Perpendicular illuminance Height: 0.750 m, Wall zone: 0.000 m	155 lx	7.52 lx	320 lx	0.049	0.024	WP2
Working plane (Perimeter) Perpendicular illuminance Height: 0.000 m, Wall zone: 0.000 m	0.68 lx	0.002 lx	3.18 lx	0.003	0.001	WP3
Working plane (Perimeter 2) Perpendicular illuminance Height: 0.750 m, Wall zone: 0.000 m	1.68 lx	0.065 lx	4.36 lx	0.039	0.015	WP4

Calculation surfaces

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Calculation surface 1 Perpendicular illuminance Height: 1.500 m	2.91 lx	0.99 lx	6.10 lx	0.34	0.16	CG1
Calculation surface 1 Vertical illuminance Rotation: 90.0°, Height: 3.000 m	3.31 lx	0.96 lx	7.42 lx	0.29	0.13	CG1

Utilisation profile: DIALux presetting (5.1.4 Standard (outdoor transportation area))

Old Albanians Rugby Club

DIALux

Perimeter (Light scene 1)

Calculation objects



Old Albanians Rugby Club

DIALux

Perimeter (Light scene 1)

Working plane (Perimeter)





Properties	Ē	E_{min}	E_{max}	U_0 (g_1)	g_2	Index
Working plane (Perimeter) Perpendicular illuminance Height: 0.000 m, Wall zone: 0.000 m	0.68 lx	0.002 lx	3.18 lx	0.003	0.001	WP3

Utilisation profile: General circulation areas at outdoor workplaces (5.1.1 Walkways exclusively for pedestrians)

17

Old Albanians Rugby Club

DIALux

Perimeter (Light scene 1)

Calculation objects

Working planes

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Working plane (Perimeter) Perpendicular illuminance Height: 0.000 m, Wall zone: 0.000 m	0.68 lx	0.002 lx	3.18 lx	0.003	0.001	WP3

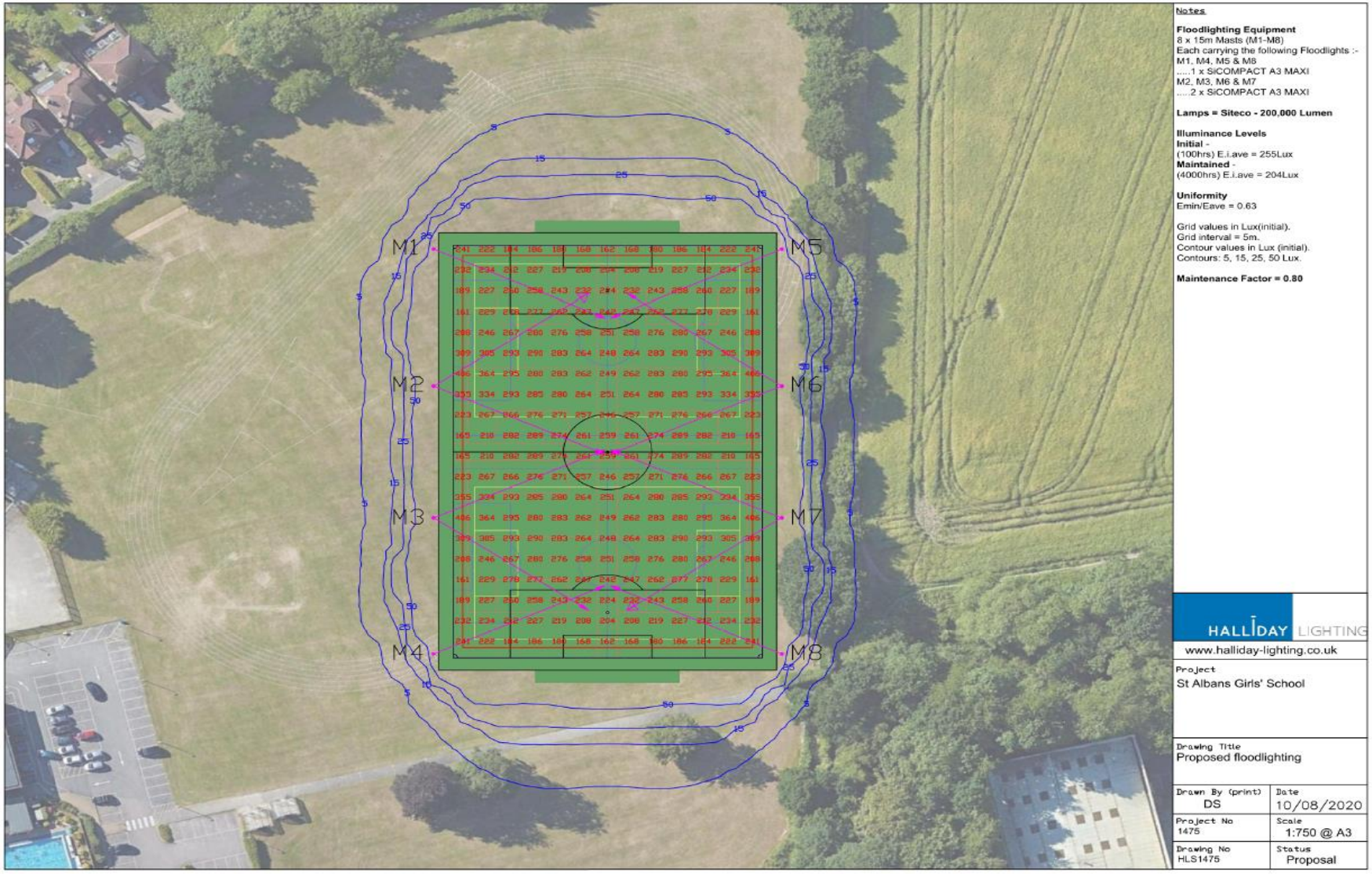
Calculation surfaces

Properties	Ē	E_{min}	E_{max}	U_o (g_1)	g_2	Index
Calculation surface 1 Perpendicular illuminance Height: 1.500 m	2.91 lx	0.99 lx	6.10 lx	0.34	0.16	CG1
Calculation surface 1 Vertical illuminance Rotation: 90.0°, Height: 3.000 m	3.31 lx	0.96 lx	7.42 lx	0.29	0.13	CG1

Utilisation profile: General circulation areas at outdoor workplaces (5.1.1 Walkways exclusively for pedestrians)

16

4.2 Appendix 3



4.3 Appendix 4

Schedule 3

Arrangements for Community Use

1. Users

1.1 The Sports Facilities shall be made available for Community Use.

2. **Hours of Access**

No use on bank holidays

Term Time

Community Use	Mon-Fri:	17:00-21:00
	Sat:	09:30-18:00
	Sun:	10:00-16:00

School Holidays

Community Use	Mon-Fri:	08:30-18:00
	Sat:	09:30-18:00
	Sun:	10:00-16:00

5 Photos



Twin Head floodlights on 16m column on training pitch



Three head floodlights on 16m column on match pitch

Appendix 12.4: Economics Benefit Statement

ST ALBANS SCHOOL

Hallam Land

PART OF HENRY BOOT

WOOLLAM PARK

North St Albans

ECONOMIC BENEFITS STATEMENT

DECEMBER 2024

HARDISTY JONES ASSOCIATES

LAND OFF HARPENDEN ROAD, ST ALBANS

Economic Benefits Statement

December 2024

hardistyjones.com

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Document control

JOB NUMBER	VERSION NUMBER	APPROVED BY	DATE
24 07 07	4.0	SNH	05/12/2024

1 Introduction

1.1 Hardisty Jones Associates (HJA) is a specialist economic development consultancy that works with both private and public sector clients to design, deliver and demonstrate economic growth and development.

1.2 HJA has been instructed by Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust to prepare an economic benefits statement in respect of a residential led mixed use development (hereafter referred to as 'the proposed development') on Land off Harpenden Road, North St Albans.

Development proposal

1.3 The Site is allocated in the St Albans Regulation 19 Draft Local Plan[1]. The development proposal meets the key development objectives relevant to socio-economics and comprises:

- Up to 1,000 new homes (use class C3) of which 40% shall be affordable housing and 3% self and custom build[2] and shall include 4 adult disability service units, and up to 80 apartments for age restricted specialist accommodation for the elderly
- 80-bed care home (use class C2)
- Up to 2,230 sq m local centre uses (mix of use classes E and F) – indicative mix of uses as follows:
    - Community use
    - Flexible commercial/retail
    - Children's nursery
    - Medical
    - Mobility/community hub
- 2FE (form entry) primary school
- Relocation and replacement of existing playing fields and creation of a new pavilion annex.

Statement structure

1.4 This statement sets out an assessment of the potential economic and employment impacts, and wider economic issues associated with the proposed development.

- Chapter 2 sets out an assessment of construction phase impacts.
- Chapter 3 sets out an assessment of operational phase impacts.
- Chapter 4 sets out summary conclusions.

[1] St Albans City & District Council, 2024. Draft Local Plan 2041, Regulation 19.
[2] Based on the dwelling mix provided by Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust the proposed development comprises of 916 new affordable and market residential homes.

2 Construction Phase

2.1 The construction cost is provisionally estimated at around £250 million[3] for the proposed development[4]. The construction phase is assumed to be 10 years. On this basis, construction costs are estimated at 25 million per annum, assuming an even distribution of activity. Employment during this phase is quantified in terms of person-years given that construction employment can be temporary or intermittent in nature, with a range of trades and activities on site at any given time.

2.2 An investment of this scale is estimated to directly support 3,200 person-years[5] of employment within the construction sector over the entire construction phase, which equates to 320 person-years per annum. Directly supported construction sector employment is estimated to generate wages of £110 million[6] over the entire construction phase, which equates to £11 million per annum.

2.3 The gross direct impacts only tell part of the story. There will be wider (multiplier) impacts through the supply chain and as incomes earned are spent in the locality. There may also be some offsetting effects if other economic activities are displaced, and it is unlikely all the created jobs will go to local residents.

2.4 To convert gross direct impacts to net local impacts[7] requires adjustments for leakage[8], deadweight[9], displacement[10] and multipliers[11]. These additionality adjustment factors are based primarily on 'ready reckoners' provided in the Additionality Guide (2014)[12]. The adjustment factors used within the assessment are set out in Appendix 1.

2.5 Applying additionality assumptions, the net additional local effects (City and District of St Albans) over the entire construction phase are assessed as 1,600 person-years (160 person-years per annum) of employment supporting wages to local residents of £57 million over the entire construction phase (£5.7 million per annum).

2.6 This is a significant positive economic benefit to the St Albans area.

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[3] This construction cost figure includes Section 106 and Community Infrastructure Levy contributions as these would fund the construction of the 2FE primary school and other construction employment in the St Albans area.
[4] Based on development cost figures provided by Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust and HJA estimates of the construction of the new homes (including age restricted specialist accommodation for the elderly, and adult disability service units) and 80-bed care home.
[5] Derived using Homes & Communities Agency (HCA) labour coefficient for new housing construction activity, Calculating Cost Per Job: Best Practice Note, 3rd edition (2015).
[6] Derived using Office for National Statistics (ONS) Annual Survey of Hours and Earnings (ASHE) estimates of median full-time earnings in the construction sector in England for 2023 (latest available).
[7] With the local area identified as the City and District of St Albans.
[8] The amount of benefit that 'leaks' outside of the City and District of St Albans, i.e., jobs taken by workers that are not St Albans residents.
[9] What would happen on the Site without the proposed development.
[10] An allowance for reduced impacts elsewhere in the City and District of St Albans as a result of internal movements within the local area.
[11] Further economic impacts in the City and District of St Albans as a result of supply chain spending and additional local spending by employees
[12] Homes & Communities Agency, 2014. Additionality Guide, 4th Edition.

3 Operational Phase

3.1 This section considers the gross direct employment effects arising during the operational phase of the proposed development based on the mix of uses within the scheme. This provides a total estimate of on-site employment and the wage impacts associated with these jobs.

3.2 This section also considers the net additional local effects, by taking account of leakage, deadweight, displacement and multiplier effects. These additionality adjustment factors are based on 'ready reckoners' provided in the Additionality Guide (2014)[13] and Green Book (2022)[14]. The adjustment factors used within the assessment are set out in Appendix 1.

Age restricted specialist accommodation for the elderly plus adult disability service units

3.3 At full occupancy the 80-bed age restricted specialist apartments for the elderly, plus the 4 adult disability service units, have the capacity to support around 31 full-time equivalent (FTE) jobs, inclusive of administrative and facilities staff such as management, catering, cleaning, maintenance, and other associated roles.

3.4 Total wages[15] are assessed as £0.7 million per annum. Following adjustment for part-time working the assessed total level of on-site employment associated with the residential care components is 37 total jobs.

3.5 Applying additionality assumptions estimates net additional local employment of 15 FTE jobs and 18 total jobs as a result of the age restricted specialist accommodation for the elderly and adult disability service units. This level of employment would support wages of £0.3 million per annum to local residents.

80-bed care home

3.6 At full occupancy the 80-bed care home has the capacity to reasonably support 72 FTE jobs inclusive of any management, catering, cleaning, maintenance, and other associated roles.

3.7 Total wages associated with this employment[16] are assessed as £1.5 million per annum. Following adjustment for part-time working the assessed total level of on-site employment associated with the residential care components is 84 total jobs.

3.8 Applying additionality assumptions generates net additional local employment of 34 FTE jobs and 40 total jobs as a result of the 80-bed care home element of the proposed development. This level of employment would support wages of £0.7 million per annum to local residents.

[13] Homes & Communities Agency, 2014. Additionality Guide, 4th Edition.
[14] HM Treasury, 2022. The Green Book: Central Government Guidance on Appraisal and Evaluation.
[15] Based on ASHE 2023 median full-time wages for SIC 871 – applied to FTE employment estimates.
[16] Based on ASHE 2023 median full-time wages for SIC 871 – applied to FTE employment estimates.

Local centre

3.9 In assessing the impact of the local centre floorspace[17], the constituent parts of the centre have been considered individually. Assumptions to calculate estimates of employment are set out in Appendix 2.

Community centre

3.10 At full occupancy the community centre component of the proposed development has the capacity to reasonably accommodate 3 FTE jobs. Following adjustment for part-time working the assessed total level of on-site employment associated with the community centre component is 4 total jobs. These jobs are expected to be for administrative uses and the management of the unit(s). Total wages associated with this employment[18] are assessed at £94,900 per annum.

3.11 Applying additionality assumptions suggests net additional local employment of 2 FTE jobs as a result of the community centre element of the proposed development. This level of employment would support wages of £45,500 per annum to local residents.

Flexible commercial/retail Use

3.12 Employment has been estimated according to an upper and lower estimate to account for the varying assumptions underpinning the assessment (see Appendix 2). At full occupancy the commercial units have the capacity to accommodate between 35-58 FTE jobs. On the basis of the HJA assessment, gross direct wages associated with the commercial/retail premises employment[19] are assessed between £1.0-£1.7 million per annum. Following adjustment for part-time working the assessed total level of on-site employment associated with the commercial/retail component is between 39-66 total jobs.

3.13 Applying additionality assumptions suggests net additional local employment of 17-28 FTE jobs and 19-31 total jobs as a result of the flexible commercial/retail element of the proposed development. This level of employment would support wages of £0.5-£0.8 million per annum to local residents.

Children's nursery

3.14 The children's nursery has the capacity to support around 16 FTE jobs, which would generate £0.5 million in wages per annum[20]. Following adjustment for part-time working the assessed total level of on-site employment associated with the children's nursery is 19 total jobs.

3.15 Applying additionality assumptions suggests net additional local employment of 8 FTE jobs and 9 total jobs as a result of the children's nursery element of the proposed development. This level of employment would support wages of £0.2 million per annum to local residents.

[17] The assessment of impacts for the local centre uses are based on indicative floorspace figures of each use provided by Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust.
[18] Based on ASHE 2023 median full-time wages for 'All Industries and Services– applied to FTE employment estimates.
[19] Based on ASHE 2023 median full-time wages for 'All Industries and Services– applied to FTE employment estimates.
[20] Based on ASHE 2023 median full-time wages for SIC 852, applied to FTE employment estimates.

Medical

3.16 The medical unit is estimated to support 11 FTE jobs. Total wages associated with this employment[21] are assessed at £0.3 million per annum. Following adjustment for part-time working the assessed total level of on-site employment associated with the medical unit is 14 jobs.

3.17 Applying additionality assumptions suggests net additional local employment of 5 FTE jobs and 6 total jobs as a result of the medical element of the proposed development. This level of employment would support wages of £0.1 million per annum for local residents.

Mobility/Community hub

3.18 The mobility/community hub component of the proposed development has the capacity to accommodate 2 FTE jobs, which is equivalent to 3 total jobs when adjusting for part-time working. This would support £59,300 in wages per annum[22].

3.19 Applying additionality assumptions suggests net additional local employment of 1 FTE job. This level of employment would support wages of £28,400 million per annum for local residents.

Overall

3.20 Overall employment from the local centre is estimated to be between 67-90 FTE jobs and 78-105 total jobs. This would support wages of between £2.0-£2.6 million per annum.

3.21 Applying additionality assumptions suggests net additional local employment of between 32-43 FTE jobs and 38-50 total jobs as a result of the local centre. This level of employment would support wages of between £0.9-£1.3 million per annum for local residents.

3.22 Table 3.1 presents a summary of impacts associated with the local centre uses.

[21] Based on ASHE 2023 median full-time wages for SIC 86 – applied to FTE employment estimates.
[22] Based on ASHE 2023 median full-time wages for 'All Industries and Services– applied to FTE employment estimates.

Table 3.1 Local centre impacts – summary table (total, per annum)

	Gross direct impacts	Net additional local impact
Community use		
FTE jobs	3	2
Total jobs	4	2
Wages (per annum)	£94,900	£45,500
Flexible commercial/retail use		
FTE jobs	35-58	17-28
Total jobs	39-66	19-31
Wages (per annum)	£1.0-£1.7 million	£0.5-£0.8 million
Children's nursery		
FTE jobs	16	8
Total jobs	19	9
Wages (per annum)	£0.5 million	£0.2 million
Medical		
FTE jobs	11	5
Total jobs	14	6
Wages (per annum)	£0.3 million	£0.1 million
Mobility/community hub		
FTE jobs	2	1
Total jobs	3	1
Wages (per annum)	£59,300	£28,400
TOTAL		
FTE jobs	67-90	32-43
Total jobs	78-105	38-50
Wages (per annum)	£2.0-£2.6 million	£0.9-£1.3 million

Figures may not sum due to rounding

Primary School

3.23 The 2 FE primary school has the capacity to support around 39 FTE jobs. Wages associated with this employment[23] are assessed at £1.1 million per annum. Following adjustment for part-time working the assessed total level of on-site employment associated with the education provision components is 46 total jobs.

3.24 Applying additionality assumptions suggests net additional local employment of 19 FTE jobs and 22 total jobs as a result of the education provision component of the proposed development. This level of employment would support wages of £0.5 million per annum for local residents.

Residential units

Home-based businesses

3.25 There is likely to be an element of home-based business employment within the new homes. At full occupancy the residential element of the proposed development has the capacity to accommodate up to 110 FTE jobs through home-based business activity[24]. Total wages associated with home-based business activity[25] are assessed as £3.3 million per annum. Following adjustment for part-time[26] working the assessed total level of on-site jobs associated with home-based business activity is 114 total jobs (at full occupancy).

3.26 Net additionality effects for home-based businesses adopt slightly differing assumptions and are set out in Appendix 1 (Paragraph A1.11). Applying additionality assumptions suggests net additional local employment of 80 FTE jobs and 83 total jobs as a result of the proposed development. This level of employment would support wages of £2.4 million per annum for local residents.

Domestic local spend

3.27 There is likely to be an element of domestic local spend that results from residents occupying the new housing delivered as part of the proposed development. These residents are likely to spend money locally on items such as: maintenance; groceries; health; household appliances and equipment; transport; recreation and culture; and other miscellaneous goods and services.

3.28 The future resident population occupying the new housing is estimated to create around £7.5 million in domestic local expenditure per annum[27]. This figure takes into account retention of convenience goods[28] and comparison goods[29] spending within St Albans.

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[23] Based on ASHE 2023 median full-time wages for SIC 852, applied to FTE employment estimates.
[24] Assessed using a combination of Census 2011, ONS Population Estimates (2023), ONS Annual Population Survey (2023), ONS ASHE (2023), and Live Work Briefing figures (all latest available).
[25] Based on ASHE 2023 median full-time wages for Service Industries, applied to FTE employment estimates.
[26] An uplift is applied based on analysis of data from the ONS ASHE for 2019 (latest available).
[27] Based on ONS (2024) detailed household expenditure by region and Nexus Planning (2018) South West Hertfordshire Retail and Leisure Study.
[28] Convenience goods are typically expected to be found close to home (they often require less choosing between venues).
[29] Comparison goods are found further afield (often places where a range of shops, services, and brands are available). Consumers are likely to travel further from their home for comparison.

3.29 This expenditure would result in further demand for local employment in these local retail and service activities. To avoid double counting with retail employment already considered within this analysis (i.e., the flexible commercial/retail use aspect of the local centre) the employment effects of this expenditure have not been quantified.

Other services

3.30 There is likely to be additional demand for services as a result of new residents occupying housing units. Population growth would create a need to increase the capacity of local services, resulting in further demand for employment in activities such as waste management, transport, teaching and health. There is also likely to be additional demand for commercial services such as estate agency, legal services, and property maintenance and repair as a result of providing new housing. However, to avoid double counting with employment impacts already considered within this analysis, the employment effects of these activities have not been quantified.

Summary

3.31 Once operational the proposed development is estimated to support 320 - 340 FTE direct jobs. Once allowance is made for part-time working this increases to an estimated 360 - 390 total jobs. This level of FTE employment would support wages of £8.4 - £9.1 million per annum in the local economy.

3.32 Taking account of additionality factors indicates a net additional local impact of 180 - 190 FTE jobs equivalent to 200 - 210 total jobs for residents of the City and District of St Albans, generating wages of £4.9 - £5.2 million per annum.

3.33 This will provide a substantial additional boost to the local economy in terms of both job and income creation.

Table 3.2 Operational phase impacts – summary table (total, per annum)

	Gross direct impact	Net additional impact
Age restricted specialist accommodation for the elderly plus adult disability service units		
FTE jobs	31	15
Total jobs	37	18
Wages	£0.7 million	£0.3 million
80-bed care home		
FTE jobs	72	34
Total jobs	84	40
Wages	£1.5 million	£0.7 million
Local centre		
FTE jobs	67 – 90	32 – 43
Total jobs	78 - 105	48 – 50
Wages	£2.0 - £2.6 million	£0.9 - £1.3 million
Primary school		
FTE jobs	39	19
Total jobs	46	22
Wages	£1.1 million	£0.5 million
Home-based businesses		
FTE jobs	110	80
Total jobs	114	83
Wages	£3.5 million	£2.4 million
Total		
FTE jobs	320 - 340	180 - 190
Total jobs	360 - 390	200 - 210
Wages	£8.4 - £9.1 million	£4.9 - £5.2 million

Figures may not sum due to rounding.

4 Conclusions

4.1 The total construction cost is provisionally estimated at around £250 million for the proposed development, which equates to an estimated £25 million per annum over the 10-year construction period. Over the entire construction phase, delivery of the proposed development is estimated to support gross direct employment in the construction sector equivalent to 3,200 person-years of employment (320 person-years per annum), and wages of £110 million (£11 million per annum). Taking account of additionality factors indicates a net additional local impact of 1,600 person years of employment to residents of the City and District of St Albans (160 person-years per annum), supporting wages of £57 million (£5.7 million per annum).

Table 4.1 Construction phase impacts – summary table (total, per annum)

	Gross direct impacts	Net additional local impact
Construction Phase		
Person Years of Employment	3,200	1,600
Wages	£110 million	£57 million
Per Annum		
Person Years of Employment	320	160
Wages	£11 million	£5.7 million

4.2 Once operational the proposed development is estimated to accommodate 320 - 340 FTE jobs. After allowance is made for part-time working, this increases to an estimated 360 - 390 total jobs. This level of FTE employment would support wages of £8.4 - £9.1 million per annum in the local economy. The residents occupying new housing would also provide domestic local spending to St Albans which would result in further demand for local employment in primarily retail focused activities.

4.3 Taking account of additionality factors indicates a net additional local impact of 180 - 190 FTE jobs equivalent to 200 - 210 total jobs for residents of the City and District of St Albans, supporting wages of £4.9 - £5.2 million per annum.

Table 4.2 Operation phase impacts – summary table (total, per annum)

	Gross direct impacts	Net additional local impact
FTE jobs	320 - 340	180 - 190
Total jobs	360 - 390	200 - 210
Wages	£8.4 - £9.1 million	£4.9 - £5.2 million

4.4 Through both the construction and operational phases the proposed development will deliver a substantial positive economic impact on the St Albans economy.

Appendix 1. Additionality adjustment factors

A1.1 To convert the gross direct effects to net additional local effects the following factors are taken into account:

- Leakage – the benefits that leak outside the City and District of St Albans;
- Displacement – the amount of activity that is offset by reductions elsewhere within the City and District of St Albans;
- Multiplier – the indirect and induced impacts of the proposed development within the City and District of St Albans; and
- Deadweight – the impacts expected to have occurred in the absence of the proposed development.

A1.2 These additionality adjustment factors are based on 'ready reckoners' provided in the Additionality Guide (2014)[30] and Green Book (2022)[31].

Construction phase

A1.3 Leakage - on the basis of Census 2011[32] commuting behaviour, 51% of jobs within the City and District of St Albans are taken up by people residing outside the district boundary. This has been adopted as the leakage figure. It is in line with established best practice guidance, set out within Additionality Guide: 4th Edition, 2014, HCA. The guidance recommends that a 50% discount on impact levels constitutes a high adjustment.

A1.4 Deadweight - this is assessed as zero, with no other construction scheme likely to come forward on the site at the current time.

A1.5 Displacement - assuming a 10-year construction phase, the assessed level of person-year employment represents approximately 6% of employment in the City and District of St Albans' construction sector on an annual basis[33]. This is assessed low, and in line with HCA guidance a 25% reduction is therefore applied.

A1.6 Multiplier - The HM Treasury Green Book provides place-based employment multipliers. However, the construction sector is recognised to have dynamics which differentiate it from other non-tradeable sectors, therefore a customised approach to employment multipliers is required. The construction sector is recognised to have particularly high multiplier impacts locally given the nature of supply chains. HCA guidance provides multiplier ready reckoners for the neighbourhood (1.15, high) and regional levels (1.7, high). The study area under consideration here falls between these two spatial scales. Therefore, taking the mid-point between the neighbourhood and regional ready reckoners suggests a multiplier of approximately 40% on impact levels constitutes a high adjustment at the district level. Therefore, this has been adopted as the multiplier effects figure.

[30] Homes & Communities Agency, 2014. Additionality Guide, 4th Edition.
[31] HM Treasury, 2022. The Green Book: Central Government Guidance on Appraisal and Evaluation.
[32] 2011 Census data was used due to the covid pandemic affecting data within the 2021 Census. Source: Office for National Statistics, 2011. Census.
[33] Based on Business Register and Employment Survey, ONS (2024)

Operational phase

A1.7 Leakage - on the basis of Census 2011 commuting behaviour, 51% of jobs within the City and District of St Albans are taken up by people residing outside the district boundary. This has been adopted as the leakage figure.

A1.8 Deadweight - effects are assessed as zero. There is a very small element of agricultural activity that could take place on site in the absence of the proposed development. However, the value and magnitude of this activity is assessed to be negligible, and therefore reasonably considered as zero.

A1.9 Displacement - the creation of new employment and economic activity in the City and District of St Albans area will displace some existing local economic activity. As such, there are expected to be some displacement effects, although only to a limited extent. Therefore, adopting a low estimate from the HCA best practice guidance, a figure of 25% has been applied for displacement effects.

A1.10 Multiplier effects - new economic activity in the area will also support wider economic impacts through indirect and induced multiplier impacts. These will be created through the additional trade generated in supply chains and through the local spending of wages earned by new employees. Adopting a medium estimate of multiplier effects from the Green Book would suggest a 40% uplift to stated net additional benefits at the district level.

A1.11 Net additionality effects for home-based businesses adopt slightly differing assumptions:

- Leakage effects are not applied to the assessed level of home-based business employment as these jobs will be filled by residents of the City and District of St Albans.
- Deadweight, displacement, and multiplier effects are still applicable. Deadweight should be considered in the case of home-based businesses that already exist and relocate to the proposed developed by virtue of new housing allowing new households to form. Therefore, a figure of 25% has been adopted as the deadweight figure for home-based businesses.

Appendix 2. Operational phase employment generation assumptions

80-bed care home

A2.1 The employment associated with the 80-bed care home has been estimated on the basis of typical care home working practices, in which it is assumed that the care home will require 24-hour care services.

Local centre

A2.2 For the community uses (including the mobility/community hub) [34], and flexible commercial or retail space[35] employment has been assessed by applying employment densities to the proposed use on the basis of the Employment Density Guide (2015)[36].

A2.3 For the medical use, employment has been based on the average number of FTEs in GP Practices within the local Primary Care Networks within the St Albans City and District Area[37].

A2.4 For the children's nursery, based on 3 age-based 'year' groups and assuming an average group size of 30 pupils, an indicative total number of children can be established. The Department for Education (DfE) provides pupil to adult ratios (PAR)[38] for local authority-maintained nurseries for the period 2023/24. This has been applied to the indicative total number of children.

Primary school

A2.5 The establishment of a 2 FE primary school and separate children's nursery would support employment opportunities. Based on seven-year groups (including reception) and assuming an average class size of 30 pupils, an indicative total number of pupils can be established. The DfE provides statistics on PAR. The PAR for local authority maintained primary schools for the period 2023/24. This has been applied to the indicative total number of pupils.

[34] Assumed a mixed-use venue, whereby an employment density of 125 sq m per FTE has been applied.
[35] Assumed A1/A3/B1 use
[36] Homes & Communities Agency, 2015. Employment Density Guide, 3rd Edition.
[37] Data sourced from National Healthcare Service, 2024. General Practice Workforce.
[38] This represents a combination of FTE qualified and unqualified teachers, as well as classroom assistants. Data sourced from DfE School Workforce in England (2024).

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Appendix 15.1: Transport Assessment

Appendix 16.1: Noise and Vibration Glossary

Appendix 16.1:
Acoustics Glossary

December 2024








Experts in noise and vibration assessment and management

Document Control

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1 Glossary

A-weighting	Frequency weighting applied to measured sound in order to account for the relative loudness perceived by the human ear.
Ambient Sound Level, $L_a = L_{Aeq,T}$	The A-weighted equivalent continuous sound level of the totally encompassing sound for a given situation and time interval, T.
Basic Noise Level, BNL	The basic noise level (BNL) is a measure of source noise. For road traffic noise, this is calculated using the traffic flow volume, speed and heavy goods vehicle (HGV) percentage to determine a reference noise emission at a distance of 10 metres from the kerb for an individual road link.
Decibel, dB	The logarithmically scaled measurement unit of sound which is used to describe the magnitude of sound.
Façade Sound Level	Sound level that is determined 1 metre in front of a window or door in a façade, including reflections from the facade.
Free-field Sound Level	A sound level which is measured or calculated in the open without any reflections from nearby surfaces except the ground. Measurements are typically carried out at 1.2 m to 1.5 m above ground level and at least 3.5 m from other reflective surfaces such as buildings which is in accordance with British Standard 7445-2: 1991 *Description and measurement of environmental noise - Part 2: Guide to the acquisition of data pertinent to land use*.
$L_{Aeq,T}$	A-weighted equivalent continuous sound level over a given time period. It is the sound level of a steady sound that has the same energy as a fluctuating sound over the same time period.
$L_{A10,T}$	The A-weighted sound level exceeded for 10% of the measurement period. In the UK, it is widely used as a descriptor of road traffic noise, often over an 18-hour period between 0600 hrs and 0000 hrs ($L_{A10,18hr}$).
$L_{A90,T}$	The A-weighted sound level exceeded for 90% of the measurement period. Often referred to as the background sound level.
L_{Amax}	The A-weighted maximum recorded noise level during a measurement period. It is normally associated with a time weighting: F (fast) or S (slow).
L_{night}	A façade noise index which can be derived from the $L_{A10,18hr}$. L_{night} is defined in the Environmental Noise Directive (END) and is an annual average L_{Aeq} over the period 2300 hrs to 0700 hrs.
$L_{night,outside}$	For the purpose of night-time noise assessment, the $L_{night,outside}$ is the equivalent continuous sound level $L_{Aeq,8hr}$ for the period between 2300 hrs and 0700 hrs. It is assessed outside of a dwelling and is free-field.
Lowest Observed Adverse Effect Level, LOAEL	The level above which adverse effects on health and quality of life can be detected, as defined in Noise Policy Statement for England (NPSE) and Planning Practice Guidance Noise (PPG-N).
Noise	In basic terms, unwanted sound.
Noise Mapping	Computer generated maps showing the variation of predicted noise levels across an area.

Noise Modelling	The use of computer software to predict noise levels.
Noise Monitoring	The measurement of sound levels at a specific location.
Noise Sensitive Receptor, NSR	Receptors which are particularly sensitive to noise. Examples include residential dwellings, hospitals, healthcare facilities, education facilities, community facilities, quiet areas designated under the European Noise Directive (END), international and national or statutorily designated sites, public rights of way and cultural heritage assets.
Peak Particle Velocity, PPV	Peak Particle Velocity (PPV) is the instantaneous maximum velocity reached by a vibrating element as it oscillates about its resting position. PPV is the simplest indicator of both perceptibility and the risk of damage to structures. It is commonly used to assess and monitor construction vibration and is measured in mm/s.
Rating Level, $L_{Ar,Tr}$	The specific sound level plus any adjustment for the characteristic features of the sound.
Residual Sound Level	The A-weighted equivalent continuous sound pressure level produced in the absence of the specific sound source at the reference location over a reference time interval, T.
R_W	The weighted Sound Reduction Index (SRI) which characterises the airborne sound insulation of a building element over a range of frequencies with a single number quantity.
$R_W + C$ **$R_W + C_{tr}$**	The weighted Sound Reduction Index plus a spectrum adaption term that uses a standard reference curve to determine the weighted value of airborne sound insulation. C and C_{tr} take into account different source spectra: C considers the A-weighted pink noise spectrum and C_{tr} considers the A-weighted urban traffic noise spectrum.
Significant Observed Adverse Effect Level, SOAEL	The level above which significant adverse effects on health and quality of life occur, as defined in Noise Policy Statement for England (NPSE) and Planning Practice Guidance Noise (PPG-N).
Sound	The physical vibration in the air, propagating away from a source, whether heard or not.
Sound Power Level	The sound power level (L_W) of a source is a measurement of the total acoustic power that it radiates. The sound power level is an intrinsic characteristic of a source (analogous to its volume or mass), which is not affected by the environment within which the source is located.
Sound Pressure Level	The parameter by which sound levels are measured in air. It is measured in decibels. The threshold of hearing has been set at 0 dB, while the threshold of pain is approximately 120 dB. Normal speech is approximately 60 dB at a distance of 1 metre and a change of 3 dB in a time varying sound signal is commonly regarded as being just detectable. A change of 10 dB is subjectively twice, or half, as loud.
Specific Sound Level $L_s = L_{Aeq,Tr}$	The A-weighted equivalent continuous sound pressure level produced by the specific sound source at the reference location over a reference time interval, T.

Unacceptable Adverse Effect Level, UAEL	An effect level higher than the significant adverse effect level (SOAEL) above which unacceptable adverse effects on health and quality of life occur, as defined in Planning Practice Guidance Noise (PPG-N).
Vibration	Vibration may be expressed in terms of displacement, velocity and acceleration. Velocity and acceleration are most commonly used when assessing the risk of building damage, human comfort or structure borne noise issues.
Vibration Dose Value, VDV	Vibration Dose Value (VDV) is a parameter which combines the magnitude of vibration and the time for which it occurs. It provides a cumulative measurement of the vibration level received at a receptor over a specific time period. Typically used to describe human response to vibration in buildings from intermittent/transient vibration. The VDV is the fourth root of the time integral of the fourth power of the weighted acceleration. VDV are measured in units of $m/s^{1.75}$. The frequency weightings are defined in BS 6472-1: 2008.

Appendix 16.2: Legislation policy and guidance

Appendix 16.2:
Legislation, Policy and Guidance

December 2024








Experts in noise and vibration assessment and management

Document Control

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1 Legislation

Control of Pollution Act 1974

1.1 The Control of Pollution Act (CoPA) provides Local Authorities with the power to control noise from construction sites and provides the definition of Best Practicable Means (BPM) to minimise noise (including vibration) from them.

1.2 Section 60 of the Act describes the circumstances under which a local authority may serve a notice on a construction site, requiring it to carry out the works in accordance with particular conditions.

1.3 Section 61 of the Act allows construction sites to seek prior consent for the works, by providing details of the works to be undertaken and the measures proposed to minimise noise resulting from the works.

1.4 In any proceedings for an offence under Section 60, constructions sites can use the defence that the works were conducted in accordance with a consent given under Section 61.

1.5 The Act also provides the basis for defining codes of practice for minimising noise, in particular BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites: Part 1 - Noise and Part 2 - Vibration.

Environmental Protection Act 1990

1.6 The Environmental Protection (EPA) defines statutory nuisance due to noise and sets out the duty on local authorities to investigate and, where identified, take abatement action.

1.7 The Act provides the definition of Best Practicable Means (BPM) to minimise noise (including vibration) as the basis for defence against noise abatement action taken by a local authority (section 80). The Act also provides for individuals to seek for abatement action to be taken by a magistrate's court against noise nuisance (section 82).

The Building Regulations 2010

1.8 The current Building Regulations (2010) are made under the Building Act 1984 and apply to new and refurbished buildings in England and Wales. The guidance which informs compliance with the Building Regulations are the Approved Documents. The Building Regulations Approved Documents which are relevant to acoustics at this stage of the project are summarised in **Section 4**.

2 National Policy

Noise Policy Statement for England (NPSE, 2010)

2.1 The Noise Policy Statement for England (NPSE, 2010) sets out the Government's Noise Policy Vision to:

"Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development".

2.2 The aims of the policy are "*Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:*

- *Avoid significant adverse impacts on health and quality of life*
- *Mitigate and minimise adverse impacts on health and quality of life*
- *Where possible, contribute to the improvement of health and quality of life."*

2.3 With respect to "significant adverse" and "adverse" impacts in line with the three aims of NPSE, the policy statement notes that "*there are two established concepts from toxicology that are currently being applied to noise impacts, for example, by the World Health Organization. They are:*

- *NOEL – No Observed Effect Level: This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise*
- *LOAEL – Lowest Observed Adverse Effect Level: This is the level above which adverse effects on health and quality of life can be detected.*
- *Extending these concepts for the purpose of this NPSE leads to the concept of a significant observed negative effect level.*
- *SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur."*

2.4 In respect of observed effect levels, the policy recognises that "*It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that further research is required to increase our understanding of what may constitute a significant adverse impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available*".

2.5 The document advises that "*the first aim of the NPSE states that significant adverse effects on health and quality of life should be avoided while also taking into account the guiding principles of sustainable development*". Whilst not explicitly stated in NPSE this is taken to align with noise exposure above SOAEL.

2.6 The policy also states "*The second aim of the NPSE refers to the situation where the impact lies somewhere between LOAEL and SOAEL. It requires that all reasonable steps should be taken to mitigate and minimise negative effects on health and quality of life while also taking into account the guiding principles of sustainable development (paragraph 1.8). This does not mean that such negative effects cannot occur.*"

2.7 And finally, the third aim "*seeks, where possible, to positively improve health and quality of life through the pro-active management of noise while also taking into account the guiding principles of sustainable development, recognising that there will be opportunities for such measures to be taken and that they will deliver potential benefits to society. The protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim*".

National Planning Policy Framework (NPPF, 2023)

2.8 The National Planning Policy Framework (NPPF), originally introduced in 2012, sets out the Government's planning policies for England and how these should be applied. The NPPF was most recently updated in December 2023. 'Planning Practice Guidance (PPG) provides further context to the NPPF and it is intended that the two documents should be read in conjunction. Planning Practice Guidance – Noise (2014) is discussed in detail in Section 5.

2.9 NPPF provides policies to promote sustainable development and sets out that the purpose of the planning system is to contribute to the achievement of sustainable development. Sustainable development includes three dimensions: economic, social, and environmental, and thus, when planning decisions are made to increase capacity, the process requires weighing the relative balance of these three factors.

2.10 The NPPF provides a framework within which locally prepared plans for housing and other development can be produced. Planning law requires that applications for planning permission must be determined in accordance with the development plan, unless material considerations indicate otherwise. Planning policies and decisions must reflect and where appropriate promote relevant obligations and statutory requirements.

2.11 In relation to noise, it states:

"180. Planning policies and decisions should contribute to and enhance the natural local environment by: …

- *preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and…"*

2.12 The NPPF includes policy which makes reference to 'significant adverse impacts on health and quality of life', as per the NPSE. NPPF policy states:

"191. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

- *mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
- *identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and…"*

2.13 NPPF has also recently introduced the agent of change principle as follows:

"193. Planning policies and decisions should ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."

3 Local Planning Policy and Guidance

The District Local Plan Review 1994 – Saved and Deleted Policies Version (2020)

3.1 The key noise-related policies (82 and 83) are marked as 'deleted' in the Saved and Deleted Policies document. However, the following policies and guidance remain.

- Policy 9 *Non-residential uses within residential areas* which considers noise impacts as part of 'not normally disturbing existing non-residential uses', introducing new or redeveloping non-residential development in residential areas, and non-residential uses in green belt settlements. Acceptable uses may include: public open spaces, local shops and services, schools, community facilities (libraries, doctors surgeries, places of worship), and residential care facilities.
- Policy 65 *Education Facilities* which considers new schools, extensions to schools and change of use to schools. Where schools are proposed within existing settlements, noise impact should be considered, including the setting down and picking up of pupils by car or public transport. Policy 65A is a similar policy for day nurseries and creches.

3.2 A section of retained text on noise identifies that the "*Council will advise on noise levels in accordance with British Standard 4142*" where new noise-sensitive development is likely to be "*subject to excessive noise annoyance from industrial premises or other fixed installations*". The following paragraph identifies noise from roads, railways, aircraft and some industrial and commercial premises as having "*detrimental effect on the quality of the environment, particularly in housing and other noise sensitive areas*".

Draft Local Plan 2041 – Regulation 19 Public Consultation (2024)

3.3 The draft Local Plan 2041 includes the following policies which reference noise impacts:

- COM1 – Education: identifying that effects on the amenity of the surrounding area in terms of noise must be acceptable;
- HW1 – Air and Noise Pollution: requiring noise assessment for noise sensitive development or noise generating development.
- Policy HW6 – New development and existing uses (agent of change principle): requiring new development to effectively integrate with existing uses.

3.4 Noise is one of the three main types of pollution which is recognised by the Council. Policy HW1 specifically considers noise and air pollution.

"Development proposals, including those for new residential dwellings, schools, nurseries and care homes and other uses which are noise and pollution sensitive, or in areas which may exceed national legislative air quality pollution limits, must carry out suitable assessments for noise / air pollution.

Proposals which are found to be affected by noise or air pollution must demonstrate suitable mitigation, including:

a) Maintaining distances between road and other sources of noise and air pollution (including odour pollution) and people;

b) Using green infrastructure, in particular trees, where this can create a barrier or maintain separation between sources of pollution and receptors;

c) Appropriate means of filtration, ventilation and soundproofing on affected properties;

d) Controlling dust and emissions from construction, operation and demolition;

e) Use optimal layout and orientation to promote avoidance of elevated pollution without mitigation which will reduce the level of mitigation where necessary;

f) Air quality and/or noise assessments at the earliest stage of development.

Development proposals that would generate new noise and air pollution in proximity to residential and other noise-sensitive uses must demonstrate and put in place measures to avoid or mitigate any such impacts."

3.5 Policy HW6 – New development and existing uses (agent of change principle) sets out the Council's policy on agent of change:

"New development must effectively integrate with existing uses, and existing businesses and community facilities must not have unreasonable restrictions placed on them as a result of it. Where ethe operation of an existing business of facility could have a significant adverse effect on a proposed new development in its vicinity, the applicant shall submit appropriate information to demonstrate that such impacts will not arise or can be prevented through suitable mitigation measures. Where such impacts will arise and cannot be avoided through mitigation, planning permission will be refused."

St Albans City & District Council Environmental Services

3.6 The Environmental Services webpage[1] sets out the adopted construction working hours within which noisy construction and demolition activities are permitted:

[1] Available at: https://www.stalbans.gov.uk/environmental-services

- Monday to Friday: 07:30 to 18:00
- Saturday: 08:00 to 13:00
- Sunday and Public Holidays: No noisy activities.

4 Noise and Vibration Guidance

Planning Practice Guidance – Noise (PPG-Noise, 2019)

4.1 The National Planning Practice Guidance (PPG), which supplements the National Planning Policy Framework (NPPF), incorporates Planning Practice Guidance – Noise (PPG-N). PPG-N, most recently updated in 2019, advises how the planning system can manage potential noise impacts in new development and draws upon the principles advocated in Noise Policy Statement for England (NPSE).

4.2 The document advises how the effects of noise can be described in terms of perception and outcomes aligned to increasing effect levels. In addition, the PPG(N) introduces a fourth unacceptable adverse effect levels (UAEL), which is described as a level at which "*noise exposure would cause extensive and sustained adverse changes in behaviour and / or health without an ability to mitigate the effect of the noise. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this situation should be avoided.*"

4.3 **Table 1** presents the noise exposure hierarchy described in PPG-Noise.

Table 1: Planning Practice Guidance – Noise Exposure Hierarchy

Perception	Examples of Outcomes	Increasing Effect Level	Action
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

4.4 The Guidance advises that due to the subjective nature of noise, "*that there is not a simple relationship between noise levels and the impact on those affected. This will depend on how various factors combine in any situation*". PPG-N also provides guidance in terms of how adverse effects of noise can be mitigated.

4.5 PPG-N also provides guidance in terms of what factors may influence whether noise could become a concern, and how adverse effects of noise can be mitigated. Examples of mitigation provided include:

- *"engineering: reducing the noise generated at source and/or containing the noise generated;*
- *layout: where possible, optimising the distance between the source and noise-sensitive receptors and/or incorporating good design to minimise noise transmission through the use of screening by natural or purpose built barriers, or other buildings;*
- *using planning conditions/obligations to restrict activities allowed on the site at certain times and/or specifying permissible noise levels differentiating as appropriate between different times of day, such as evenings and late at night, and;*
- *mitigating the impact on areas likely to be affected by noise including through noise insulation when the impact is on a building".*

4.6 In the case of residential development, PPG-N also states that the impact of noise can be "*partially off-set*" if occupants have access to:

- *"a relatively quiet façade (containing windows to habitable rooms) as part of their dwelling, and/or;*
- *a relatively quiet external amenity space for their sole use, (e.g. a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced with increasing noise exposure and could be such that significant adverse effects occur, and/or;*
- *a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings, and/or;*
- *a relatively quiet, protected, external publicly accessible amenity space (e.g. a public park or a local green space designated because of its tranquility) that is nearby (e.g. within 5 minutes walking distance)".*

Institute of Environmental Management and Assessment (IEMA) Guidelines for Environmental Noise Impact Assessment 2014

4.7 The IEMA Guidelines provide key principles and methodological guidance on environmental noise impact assessment and how to effectively integrate noise impacts into the consenting process of all types and scale of development.

4.8 The IEMA Guidelines provide a table for the generic relationship between noise impact (magnitude) and the sensitivity of a receptor including the evaluation of significance. **Table 2** provides a reproduction of the IEMA Guidelines table.

Table 2: IEMA Guidelines Generic Relationship between Magnitude, Sensitivity and Significance

Magnitude (nature of impact)	Description of effect (on a specific sensitive receptor)	Significance
Negligible	**No discernible effect on receptor**	**Not Significant**
Slight	**Receptor perception = non-intrusive** Noise impact can be heard, but does not cause any change in behaviour or attitude, for example turning up the volume of the television, speaking more loudly, closing windows. Can slightly affect the character of the area but not such that there is a perceived change in the quality of life.	**Less likely to be significant** (greater justification needed based on impact magnitude and receptor sensitivity – to justify a significant effect)  (greater justification needed – based on impact magnitude and receptor sensitivity = to justify a non-significant effect) **More likely to be significant**
Moderate	**Receptor perception = intrusive** Noise impact can be heard and causes small changes in behaviour and/or attitude, for example turning up the volume of television, speaking more loudly, closing windows. Potential for non-awakening sleep disturbance. Affects the character of the area such that there is a perceived change in the quality of life.	
Substantial	**Receptor perception = disruptive** Causes a material change in behaviour and/or attitude for example avoiding certain activities during periods of intrusion. Potential for sleep disturbance resulting in difficulty getting sleep, premature awakening and difficulty getting back to sleep. Quality of life diminished due to change in character of the area.	

BS 7445-1: 2003 Description and measurement of environmental noise. Guide to quantities and procedures

4.9 BS 7445-1 defines the basic quantities to be used for the description of noise in community environments and describes basic procedures for the determination of these quantities.

4.10 The baseline noise measurement surveys were carried out in general accordance with the procedures set out in this British Standard.

ISO 9613-2:1996 Acoustics – Attenuation of Sound During Propagation Outdoors: Part 2 – General Method of Calculation

4.11 ISO 9613 defines a method for predicting the propagation of noise outdoors. It accounts for distance attenuation, air absorption, topography, ground cover and screening and reflections caused by buildings and other features.

4.12 ISO 9613 has been used to model road traffic, railway, commercial and industrial sources of noise, where applicable.

BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites: Part 1 – Noise

4.13 Part one of BS 5228 relates to the potential effects of existing noise sensitive human receptors as a result of noise arising from construction activities. This includes construction vehicles travelling on haulage routes to and from the construction site.

4.14 BS 5228-1 sets out methodologies for predicting noise levels from construction and related activities. Data on sound levels is provided within the standard for a wide variety of site activities and mobile equipment used on construction and open sites.

4.15 It also sets out methodologies for determining the potential effects on existing noise sensitive human receptors as a result of noise arising from construction activities, in Annex E.

4.16 All construction noise modelling has been carried out using the calculation methodology set out in BS 5228-1.

Advisory Leaflet 72

4.17 Section E.2 describes the adoption of simplistic fixed noise limits, which were originally promoted in the UK by the Wilson Committee in their 1963 report on noise . These noise limits were then included in Advisory Leaflet 72 (AL72) , which was last amended in 1976.

4.18 In respect of the daytime period AL72 suggests that noise levels "*outside the nearest window of the occupied room closest to the site boundary should not exceed:*

- *70 decibels (dBA) in rural, suburban and urban areas away from main road traffic and industrial noise;*
- *75 decibels (dBA) in urban areas near main roads in heavy industrial areas"*

The ABC Method and +5dB(A) Change Method

4.19 Section E.3 describes the adoption of noise limits based on the change in the ambient noise as a result of construction noise. This approach necessitates that ambient sound levels in the absence of construction noise are measured at noise sensitive receptors or otherwise predicted or estimated.

4.20 Section 3.2 and 3.3 describes Example method 1 – the ABC method and Example method 2 - 5 dB(A) change, respectively. In both cases it is suggested that the determination of a significant effect needs to consider other project-specific factors, such as the number of receptors affected and the duration of the impact.

Example Method 1 – The ABC Method

4.21 The ABC method promotes differing criteria for different time periods as follows:

- Daytime (0700−1900hrs) and Saturdays (0700−1300hrs)
- Evenings and weekends (1900-2300hrs weekdays, 1300 – 2300hrs Saturdays and 0700–2300hrs Sundays
- Night-time (23.00−07.00)

4.22 On a like for like basis, the evenings and weekend criteria are 10 decibels more onerous than the daytime criteria, and the night-time criteria a further 10 decibels more onerous. The lowest potential significance thresholds in relation to site noise are presented below:

- Daytime and Saturdays – 65 dB $L_{Aeq,T}$
- Evenings and weekends – 55 dB $L_{Aeq,T}$
- Night-time – 45 dB $L_{Aeq,T}$

4.23 These threshold values are commonly assumed to represent the lowest observed adverse effect level (LOAEL).

4.24 Likewise, the highest potential significance thresholds in relation to site noise are presented below:

- Daytime and Saturdays - 75 dB $L_{Aeq,T}$
- Evenings and weekends - 65 dB $L_{Aeq,T}$
- Night-time - 55 dB $L_{Aeq,T}$

4.25 These threshold values are often considered to represent the significant observed adverse effect level (SOAEL). Additionally, if the ambient sound level is higher than the above values, then a potential significant effect is indicated if the total $L_{Aeq,T}$ noise level for the period increases by more than 3 dB due to site noise, i.e. the site noise level is equal to or in excess of the ambient sound level.

Example Method 2 - The 5dB(A) Change Method

4.26 The 5 dB(A) change method also promotes differing criteria for daytime, evening and night-time periods. Identical to the ABC method, the evening criteria are 10 decibels more onerous than the daytime criteria, and the night-time criteria a further 10 decibels.

4.27 The method advises that noise levels are considered to be potentially significant if the total noise exceeds the pre-construction ambient sound by 5 dB or more, subject to lower cut-off values of 65 dB, 55 dB and 45 dB $L_{Aeq,T}$ from site noise alone, for the daytime, evening and night-time periods, respectively. Consequently, the lowest potential significance thresholds in relation to site noise are identical to the ABC method.

4.28 The highest potential significance thresholds in relation to site noise differ between the two methods, with the +5dB method generally more onerous at lower levels of ambient sound, and the ABC more onerous where ambient noise is approaching and exceeding the highest potential significance thresholds.

Example Eligibility for Noise Insulation and Temporary Rehousing

4.29 Section E.4 sets out example of thresholds used to determine the eligibility for noise insulation and temporary rehousing, an introduce a precedent of duration related eligibility

4.30 Fixed threshold values for site noise, that would trigger the provision of noise insulation, are proposed which generally align with the highest potential significance thresholds (Category C) from the ABC method (**paragraph 4.24**). Additionally, a relaxation of 5dB above ambient is provided, where ambient sound levels are already elevated. These levels are often adopted as a SOAEL for construction noise.

4.31 Importantly, eligibility requires that the values are exceeded "*for a period of 10 or more days of working in any 15 consecutive days or for a total number of days exceeding 40 in any 6 consecutive months*".

4.32 In respect of temporary rehousing the fixed thresholds are 10 dB higher than those applicable to the provision of noise insulation. Additionally, a relaxation of 5dB above ambient is provided, where ambient sound levels are already elevated. These levels are often adopted as a UAEL for construction noise.

BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites: Part 2 – Vibration

4.33 Part two of BS 5228 relates to the potential effects of existing noise sensitive human receptors as a result of vibration arising from construction activities.

4.34 BS 5228-2 sets out both empirical prediction methodologies and historical measurement data for a range of construction activities which are likely to generate vibration at a level that would affect a vibration sensitive receptor. It should be noted that the propagation of construction vibration is heavily dependent on the ground conditions on and around the site.

4.35 Ultimately, BS 5228-2 sets out a best practicable means approach to construction vibration mitigation identifying measures that can readily employed on a construction site to minimise adverse vibration effects.

4.36 BS 5528-2 identifies that whilst the human response to vibration is usually based on the Vibration Dose Value (VDV), in accordance with BS 6472, it is considered more appropriate to provide guidance for construction vibration in terms of the Peak Particle Velocity (PPV). The PPV parameter is more likely to be measured during construction activities due to concerns over the potential for building damage.

4.37 With reference to Table B.1 from Annex B of BS 5228-2 which provides guidance on the effects of vibration levels, it is generally accepted that, for the majority of people, vibration levels in excess of between 0.14 and 0.3 mm/s PPV are just perceptible, depending on the receiving environment. Table B.1 is reproduced in **Table 3** below.

Table 3: Peak Particle Vibration Levels and Effect on Human Receptors

Vibration Level PPV mm/s	Effect
0.14	Vibration might be just perceptible in the most sensitive situation for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3	Vibration might be just perceptible in residential environments.
1.0	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
10	Vibration is likely to be intolerable for any more than a very brief exposure to this level in most building environments.

4.38 The above magnitudes of vibration apply to a measurement position that is representative of the point of entry into the recipient. Therefore, if only external measurements are available, a transfer function (which relates an external level to an internal level) needs to be applied.

BS 7385-2:1993 Evaluation and measurement for vibration in buildings: Part 2 – Guide to damage levels from ground-borne vibration

4.39 BS 7385-2 gives guidance on the assessment of the possibility of vibration-induced damage in buildings due to a variety of sources and identifies the factors which influence the vibration response of buildings.

4.40 **Table** sets out the transient vibration guide values for cosmetic damage in buildings.

Table 4: Transient Vibration Guide Values for Cosmetic Damage

Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
	4 Hz to 15 Hz	15 Hz and above
Reinforced or framed structures Industrial and heavy commercial buildings	50 mm/s	50 mm/s
Unreinforced or light framed structures Residential or light commercial buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

4.41 BS 5228-2 also explains that "*minor damage is possible at vibration magnitudes which are greater than twice those given in* [**Table**] *and major damage to a building structure can occur at values great than four times the tabulated values*".

Calculation of Road Traffic Noise (CRTN) 1988

4.42 The Calculation of Road Traffic Noise (CRTN, 1988) provides a methodology for the measurement and prediction of road traffic noise. CRTN was prepared to determine entitlement under the Noise Insulation Regulations 1975, but it is stated in the document that the guidance is equally appropriate to the calculation of traffic noise for land use planning purposes.

4.43 In the UK, road traffic noise is predicted using the Calculation Road Traffic Noise (CRTN). CRTN provides methodologies for the calculation of road noise emissions, based on traffic data, through the calculation of a Basic Noise Level (BNL). The BNL is calculated at a distance of 10m from the nearside kerb and takes into consideration two-way traffic flows, percentage of heavy goods vehicle (HGV) movements, and speed. A full CRTN calculation also accounts for road gradient, road surface, distance attenuation, ground conditions and screening. The use of BNL enables a direct comparison to be made of the change in noise level associated with particular sections of road and is used to provide an initial indication of the likely impact of such a change.

4.44 Operational road traffic noise assessment has been carried out based on a change in BNL for the relevant road links.

Design Manual for Roads and Bridges: Sustainability & Environmental Appraisal LA 111 Noise and Vibration (LA 111) 2020

4.45 LA111 'Noise and vibration' of the Design Manual for Roads and Bridges provides guidance on undertaking noise and vibration assessments on the impact of road projects. The methodologies have informed the assessment of operational road traffic noise effects for the Development.

4.46 The operational assessment generally considers the change in BNL with and without the Development in the short-term and long-term. The assessment of significance can be influenced by other relevant factors including a comparison of the absolute noise levels against LOAEL and SOAEL criteria, acoustic context, and perceptibility of change (for example if there is a change to the landscape).

4.47 Importantly the document suggests fixed LOAEL and SOAEL levels for operational noise. EIA significance criteria are then suggested which are generally informed by exceedances above LOAEL and SOAEL. The document does not define any 'unacceptable adverse effect levels' (UAELs).

BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound

4.48 BS 4142 is used to rate and assess sound of an industrial nature including but not limited to assessing sound from proposed, new, modified, or additional sources of industrial sound. It contains guidance on the monitoring and assessment of industrial and commercial sound sources (including fixed installations comprising mechanical and electrical plant and equipment) affecting sensitive receptors.

4.49 The methodology relies on comparing the operational rating level, $L_{Ar,Tr}$, with the background sound level, $L_{A90,T}$ (i.e. the level that would be present without the development) over a representative time period. BS 4142 provides guidance on the measurement of background sound, the determination of specific sound and calculation of the rating level.

4.50 Certain acoustic features can increase the significance of impact over that expected from a basic comparison between the specific sound level and the background sound level. A character correction should be added to the specific sound level to obtain the rating level, where such features are present at the assessment location. It states that the specific sound level should be corrected if a tone, impulse or other characteristic occurs, or is expected to be present for new sound sources.

Character Correction Considerations

Tonality

4.51 A tonal correction between 0 and +6 dB can be applied for sounds that range from not tonal to prominently tonal. Several methodologies are presented in BS 4142:2014 in order to determine the

appropriate correction to be applied. **Table 5** presents the subjective assessment method corrections for tonal sounds.

Table 5: Subjective Method – Rating Level Corrections for Tonal Sounds

Subjective Assessment of Sound at the Receptor	Correction
The tone is just perceptible at the receptor	+2 dB
The tone is clearly perceptible at the receptor	+4 dB
The tone is highly perceptible at the receptor	+6 dB

Impulsivity

4.52 An impulsivity correction of up to +9 dB can be applied for sound that is highly impulsive, considering both the rapidity of the change in sound level and the overall change in sound level. **Table 6** presents the subjective method corrections for impulsive sounds.

Table 6: Subjective Method – Rating Level Corrections for Impulsive Sounds

Subjective Assessment of Sound at the Receptor	Correction
Impulsivity is just perceptible at the receptor	+3 dB
Impulsivity is clearly perceptible at the receptor	+6 dB
Impulsivity is highly perceptible at the receptor	+9 dB

Intermittency

4.53 A 3 dB penalty can be applied where the specific sound has identifiable on/off conditions (intermittent operation) which are readily distinctive against the residual acoustic environment.

Other Sound Characteristics

4.54 Where the specific sound has characteristics that do not fall into the tonal, impulsive or intermittent categories but are otherwise readily distinguishable against the residual acoustic environment, a penalty of 3 dB can be applied.

Reference Time Periods

4.55 The appropriate reference time interval for assessing a sound source is dependent upon when it operates i.e. during the daytime or night-time. BS 4142 determines the reference time interval as 1 hour during the daytime (07:00-23:00) and 15 minutes at night (23:00-07:00).

Assessment Methodology

4.56 BS 4142 assessment methodology also states that:

- *"Typically, the higher the rating level is above the background sound level the greater the magnitude of impact;*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;*
- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and*
- *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."*

4.57 In order to determine the impact threshold levels for the assessment of operational industrial sound, the difference between the rating level and background sound level is considered, as advocated by the methodology within BS 4142.

BS 4142:1997 "Method for Rating industrial noise affecting mixed residential and industrial areas"

4.58 The first note in the scope of the previous version of BS 4142 (BS 4142:1997 "*Method for Rating industrial noise affecting mixed residential and industrial areas"*) stated that:

'*The method is not suitable for assessing the noise measured inside buildings or when the background and rating noise levels are both very low'* and *'for the purposes of this standard, background noise levels below about 30 dB and rating levels below about 35 dB are considered to be very low'*.

Sport England Design Guidance Note: Artificial Grass Pitch (AGP) Acoustics – Planning Implications, 2015

4.59 The Sport England AGP guidance note aims to:

- Increase awareness of good design in sports facilities
- Help key building professions, clients, user representatives and other stakeholders to follow best practice
- Encourage well designed sports facilities that meet the needs of sports and are a pleasure to use.

4.60 The guidance fundamentally provides guidance on new artificial grass pitches, however, it is a key source of information for modelling and assessing noise from similar sports facilities.

4.61 The guidance notes that "*the most significant noise source from typical AGP sports sessions is voice*" and from noise measurement data establishes a typical free-field noise level of 58 dB $L_{Aeq,1hr}$ at a distance of 10 m from the sideline halfway marking. This has been used as the basis of noise modelling of sports pitches and multi-use games areas (MUGA).

4.62 The guidance goes on to establish an upper noise limit, external to residential properties and within external living areas of 50 dB $L_{Aeq,1hr}$ during the activities on an AGP. This is derived from the World Health Organization Guidelines for Community Noise which is described below. In the context of the guidance, the limit reflects new AGPs, however, in the context of the agent of change, it is also considered appropriate where new noise-sensitive receptors will be introduced close to existing sports facilities.

4.63 The guidance note also includes guidance on ball impact sound mitigation and general noise mitigation.

World Health Organization Community Noise Guidelines, 1999

4.64 The WHO Guidelines for Community Noise (CNG) provides guidelines based on scientific knowledge about the health impacts of community noise. They are partially superseded by the WHO Environmental Noise Guidelines for the European Region, 2018. However, the guideline values for internal noise and maximum noise levels from regular noise events remain relevant.

4.65 The guidelines originally informed 'British Standard 8233:1999 Sound Insulation and Noise Reduction for Buildings - Code of practice' (BS 8233:1999) and continue to inform British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233:2014).

4.66 The CNG identifies an external, free-field noise level of 50 dB $L_{Aeq,16hr}$ as representing the onset of moderate community annoyance. It also identifies an external, free-field noise level of 55 dB $L_{Aeq,16hr}$ as representing the onset of serious community annoyance.

4.67 An external free-field noise level of 50 dB $L_{Aeq,16hr}$ is typically considered to represent a LOAEL for transportation noise.

World Health Organization Night Noise Guidelines for Europe, 2009

4.68 The WHO Night Noise Guidelines for Europe (NNG) provides guidance on the potential health effects arising from long-term night-time noise exposure and the effects this can have on sleep.

4.69 The guidelines identified a LOAEL for night-time noise of 40 dB $L_{night,outside}$ (free-field) and stated that "*40dB should be the target of the night noise guideline (NNG) to protect the public, including the most vulnerable groups such as children, the chronically ill and the elderly*".

4.70 The guidelines also advise that for levels above 55 dB $L_{night,outside}$ (free-field) that "*The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardiovascular disease increases.*" Consequently, the guidelines advise that an "*$L_{night,outside}$ value of 55 dB is recommended as an interim target for the countries where the NNG cannot be achieved in the short term for various reasons, and where policy-makers choose to adopt a stepwise approach*".

4.71 In the absence of other guidance, for transportation noise, the NNG LOAEL is typically considered to represent a LOAEL and the interim target a SOAEL.

Professional Practice Guidance (ProPG, 2017) on Planning & Noise – 'New Residential Development'

4.72 ProPG is a joint publication by the Chartered Institute of Environmental Health (CIEH), the Association of Noise Consultants (ANC) and the Institute of Acoustics (IoA).

4.73 The primary goal of ProPG is "*to assist the delivery of sustainable development by promoting good health and wellbeing through the effective management of noise*".

4.74 The guidance has been produced to assist practitioners in matters relating to noise and new residential development. It focuses on existing transportation noise sources and has been developed to consider the Government's overarching noise policy, planning policy and policy guidance. It has also been developed to take into account other authoritative sources of guidance such as British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (BS 8233:2014).

4.75 The guidance provides advice for Local Planning Authorities (LPAs) and developers, and practitioners. ProPG aims to:

- *Advocate the full consideration of the acoustic environment from the earliest possible stage of the development control process;*
- *Promote and encourage the process of good acoustic design in and around new residential developments;*
- *Set out the considerations which should be taken into account in deciding planning applications for new noise-sensitive developments;*
- *Promoting the use of appropriate noise exposure standards and policies in assessment; and*
- *Provide assistance in the delivery of sustainable development.*

4.76 ProPG advocates a two-stage assessment approach:

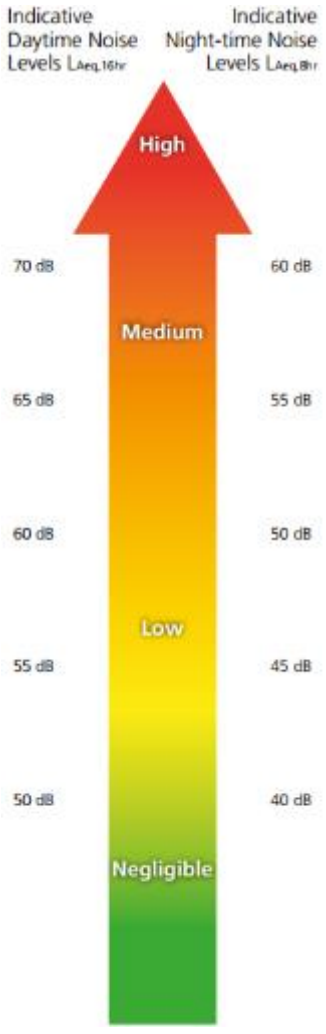
- **Stage 1** – an initial noise risk assessment of the proposed development site; and
- **Stage 2** – a systematic assessment considering four key elements.

4.77 ProPG is underpinned by the preparation and delivery of an Acoustic Design Statement (ADS).

Stage 1 – Initial Risk Assessment

4.78 Stage 1 of ProPG provides guidance to practitioners as to whether the site poses a risk in terms of noise for any future site occupants. To identify this, ProPG sets out a number of considerations for inclusion within an 'initial risk assessment'. **Table 7** reproduces Figure 1 from ProPG, which describes the initial site risk assessment.

Table 7: ProPG – Stage 1 Initial Site Risk Assessment

Noise Risk Assessment	Potential Effect Without Noise Mitigation	Pre-Planning Application Advice
	Increasing risk of adverse effect	High noise levels indicate that there is an increased risk that development may be refused on noise grounds. This risk may be reduced by following a good acoustic design process that is demonstrated in a detailed ADS. Applicants are strongly advised to seek expert advice. As noise levels increase, the site is likely to be less suitable from a noise perspective and any subsequent application may be refused unless a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised, and which clearly demonstrate that a significant adverse noise impact will be avoided in the finished development. At low noise levels, the site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and is demonstrated in an ADS which confirms how the adverse impacts of noise will be mitigated and minimised in the finished development.
	No adverse effect	These noise levels indicate that the development site is likely to be acceptable from a noise perspective, and the application need not normally be delayed on noise grounds.

Noise Risk Assessment	Potential Effect Without Noise Mitigation	Pre-Planning Application Advice
Figure 1 Notes: a. Indicative noise levels should be assessed without inclusion of the acoustic effect of any scheme specific noise mitigation measures. b. Indicative noise levels are the combined free-field noise level from all sources of transport noise and may also include industrial/commercial noise where this is present but is "not dominant". c. $L_{Aeq,16hr}$ is for daytime 07:00 – 23:00, $L_{Aeq,8hr}$ is for night-time 23:00 – 07:00. d. An indication that there may be more than 10 noise events at night (23:00 – 07:00) with $L_{Amax,F}$ > 60 dB means the site should not be regarded as negligible risk.		

4.79 ProPG is clear that an Acoustic Design Statement should be included as part of a planning application where the risk is anything above 'negligible'.

Stage 2 – Full Assessment

4.80 Stage 2 of ProPG describes four elements required for a full assessment. These are:

- **Element 1** – demonstrating a "Good Acoustic Design Process"
- **Element 2** – observing internal "Noise Level Guidelines"
- **Element 3** – undertaking an "External Amenity Area Noise Assessment"; and
- **Element 4** – the consideration of "Other Relevant Issues".

4.81 A summary of the considerations required in each of the four elements is provided in **Table 8**.

Table 8: ProPG Stage 2 – Summary of Four Key Elements

Element	Potential Effect Without Noise Mitigation
Element 1 Good Acoustic Design Process	Considerations include: • Good acoustic design is not just compliance with recommended internal and external noise exposure standards. Good acoustic design should provide an integrated solution whereby the optimum acoustic outcome is achieved, without design compromises that will adversely affect living conditions and the quality of life of the inhabitants or other sustainable design objectives and requirements. • Using fixed unopenable glazing for sound insulation purposes is generally unsatisfactory and should be avoided. Any reliance upon building envelope insulation with closed windows should be justified in supporting documents The Planning Application MUST: • Check the feasibility of relocating, or reducing noise levels from relevant sources. • Consider options for planning the site or building layout. • Consider the orientation of proposed building(s). • Select construction types and methods for meeting building performance requirements. • Examine the effects of noise control measures on ventilation, fire regulation, • health and safety, cost, CDM (construction, design and management) etc. • Assess the viability of alternative solutions. • Assess external amenity area noise.
Element 2 Internal Noise Level Guidelines	Considerations include: • Reference to BS 8233:2014 ‘Guidance on Sound Insulation and Noise Reduction for Buildings’ for internal noise level guidelines • Most residents value the ability to open windows at will, for a variety of reasons, and LPAs should therefore normally request that designers principally aim, through the use of good acoustic design, to achieve the internal noise level guidelines in noise-sensitive rooms with windows open. Where internal noise levels are assessed with windows closed the justification for this should be included in the ADS. In the case of sites exposed to industrial and/or commercial noise: • Where industrial and/or commercial noise is present on the site and is considered to be “dominant” (i.e. where the impact would be rated as adverse or greater (subject to context)) then this is outside the scope of this ProPG and regard should be had to the guidance in BS 4142:2014. • In the special case where industrial and/or commercial noise is present on the site but is “not dominant” (i.e. where the impact would be rated as lower than adverse (subject to context) if a BS 4142:2014 assessment was to be carried out), its contribution may be included in the noise level used to establish the degree of risk in Stage 1 and may also be included in the consideration of Stage 2 Element 2 Internal Noise Level Guidelines (and if included, this should be clearly stated).

Element	Potential Effect Without Noise Mitigation
Element 3 External Amenity Area Noise Assessment	The assessment must provide and demonstrate: • Full details of the external amenity area noise assessment should be included in an Acoustic Design Statement. • The term "assessment" is deliberately used because this element concerns more than just the level of noise outside. • ProPG external amenity area noise assessment reflects and extends the advice contained in BS 8233:2014 and the current Government guidance in PPG-Noise In the case of sites exposed to industrial and/or commercial noise: • Where external amenity areas are exposed to "dominant" industrial and/or commercial noise, the impact of the noise should be assessed in accordance with BS 4142:2014 over the time period that the amenity area is likely to be used. In the special case where industrial and/or commercial noise is present on the site but is "not dominant", its contribution may be included in the noise level used to establish the degree of risk in Stage 1 and may also be included in the consideration of Stage 2 Element 3 External Amenity Area Noise Assessment (and if included, this should be clearly stated).
Element 4 Assessment of Other Relevant Issues	Consideration should be given to: • Compliance with relevant national and local policy: ie, NPSE, PPG-Noise and The Environmental Noise Regulations. • Magnitude and extent of compliance with ProPG • Likely occupants of the development • Acoustic design vs unintended adverse consequences: Examples include sealed up balconies that result in a lack of connection with the external environment, roadside barriers that remove views or prevent crossing roads, sealed facades that affect personal control over the internal environment etc. Wherever possible, such unintended adverse consequences should be obviated by good acoustic design. • Acoustic design vs wider planning objectives

4.82 Additionally, ProPG states that "*once internal L_{Aeq} noise levels exceed the target levels by more than 10 dB, they are highly likely to be regarded as "unacceptable" by most people, particularly if such levels occur more than occasionally*". This principle has helped inform the derivation of UAEL values.

Acoustic Design Statement (ADS)

4.83 ProPG requires that the Acoustic Design Statement (ADS) provides sufficient evidence that the ProPG Stage 1 and Stage 2 Elements 1 – 4 have been followed. It also advises that the ADS should be proportionate to the scale of the development and the degree of noise risk at the proposed development site. In this context, ProPG states that the level of detail to be provided within the ADS should increase with the increasing level of risk.

Supporting Decision-Makers

4.84 ProPG also provides advice and support to decision-makers when taking into account noise and new residential development. These recommendations are aligned to the outcomes of Stage 1 and

Stage 2 of the assessment along with the considerations made within the Acoustic Design Statement. Section 3 of ProPG details the recommendations to decision-makers.

Sites Exposed to Industrial and/or Commercial Noise

4.85 In the case of sites exposed to industrial and/or commercial noise, ProPG states that if the industrial and/or commercial noise is present but not dominant, then its contribution may be included in the noise level used to establish the degree of risk.

4.86 If the industrial and/or commercial noise is considered to be dominant, then the risk assessment should not be applied to the industrial or commercial noise and instead the assessment should follow the methodology and guidance provided in BS 4142.

4.87 ProPG states that "*[t]he judgement on whether or not to undertake a BS 4142:2014 assessment to determine dominance should be proportionate to the level of risk. In low-risk cases a subjective judgement of dominance, based on audibility, would normally be sufficient.*"

British Standard 8233:2014 'Guidance on Sound Insulation and Noise Reduction for Buildings'

4.88 BS 8233:2014 provides guidance for the control of noise in and around buildings. It is applicable to the design of new buildings, or refurbished buildings undergoing a change of use.

4.89 BS 8233:2014 provides noise guidance for buildings of different uses, however in respect to dwellings and habitable residential spaces, Table 4 of BS 8233:2014 provides guideline values that it is desirable not to exceed during daytime and night-time periods. These guideline values are reproduced in Table 8.

Table 9: Indoor Ambient Noise Levels for Residential Dwellings

Activity	Location	Daytime Guideline (07:00-23:00hrs)	Night-time Guideline (23:00-07:00hrs)
Resting	Living Room	35 dB $L_{Aeq,16hr}$	-
Dining	Dining Room / Area	40 dB $L_{Aeq,16hr}$	-
Sleeping (Daytime Resting)	Bedroom	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,8hr}$

4.90 The internal noise requirements are not intended to be met with open windows, although BS 8223:2014 states that the internal noise levels should take account of the proposed ventilation strategy.

4.91 BS 8233:2014 also notes that: "*where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB*

and reasonable internal conditions still achieved". This sentence refers to the WHO '*Guidelines for Community Noise*' (WHO CNG, 1999). This statement is also reiterated in ProPG.

4.92 BS 8233:2014 does not provide specific guidance on noise levels for regular individual noise events, such as passing trains, which can cause sleep disturbance. Guidance on suitable noise levels for individual events is provided in ProPG, which states:

"In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45 dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as source, number, distribution, predictability and regularity of noise events."

4.93 On this basis, it is considered appropriate to adopt the 10th highest $L_{Amax,F}$ noise event occurring in the night time period for the purposes of the assessment.

4.94 With respect to external amenity spaces, BS 8233:2014 states that "*it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments.*"

4.95 BS 8233:2014 also states that it will not always be possible to achieve these guideline values for all circumstances where development may be desirable, and that development in higher noise areas, such as urban areas adjoining the strategic transport network or city centres, may warrant a compromise between elevated noise levels and other factors (for example the convenience of living in these locations). In these situations, BS 8233:2014 states that "*development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.*" This approach is also advocated in PPG-Noise.

Building Regulations Approved Document F – Ventilation

4.96 The Building Regulations Approved Document F – Ventilation (ADF) sets out requirements for adequate means of ventilation in buildings to maintain indoor air quality. Ventilation for dwellings (ADF Requirement F1: Means of Ventilation) can be separated into three categories:

- Extract Ventilation – the extraction of water vapour and indoor air pollutants from areas where they are produced in significant quantities (e.g. kitchens, utility rooms and bathrooms)
- Whole Dwelling Ventilation – the provision of a minimum level of outdoor air for occupants' health
- Purge Ventilation – for the rapid dilution of indoor air pollutants and dispersal of water vapour, when necessary, in habitable rooms (bedrooms and living rooms)

4.97 Internal noise limits are specified for mechanical ventilation noise based on the guidance in BS 8233. The noise limits for mechanical ventilators operating under normal conditions and not at boost rates should not exceed:

- 30 dB $L_{Aeq,T}$ for noise sensitive rooms (bedrooms and living rooms) when a continuous mechanical ventilation system is running on its minimum low rate; and
- 45 dB $L_{Aeq,T}$ in less noise-sensitive rooms (i.e. bedrooms and living rooms) when a continuous operation system is running at the minimum high rate or an intermittent operation system is running.

Building Regulations Approved Document O – Overheating

4.98 The Building Regulations Approved Document O – Overheating (ADO) came into force in June 2022 and sets out requirements for the control of overheating. ADO sets out two assessment methodologies: the simplified method and dynamic thermal modelling. The simplified method identifies minimum window opening requirements and maximum glazed area requirements based on floor area. Dynamic thermal modelling is required where there are constraints to the overheating mitigation strategy from, for example, noise, air quality, safety and security and enables a much more detailed approach to the assessment of overheating.

4.99 ADO requires that windows are assumed to be closed where the internal noise levels in bedrooms at night-time will exceed:

- 40 dB $L_{Aeq,8hr}$ (2300 hrs to 0700 hrs); and
- 55 dB L_{AFmax} more than 10 times a night (between 2300 hrs and 0700 hrs).

Procedure for the Assessment of Low Frequency Noise Complaints (NANR45), 2011

4.100 The procedure for the assessment of low frequency noise disturbance was prepared by the University of Salford under Defra contract NANR45. The procedure includes a one-third octave criterion curve against which low frequency noise measurements can be compared as part of the assessment of low frequency noise disturbance. The reference curve is summarised in **Table 10**.

Table 10: Low Frequency Reference Curve

Frequency (Hz)	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
dB L_{eq}	92	87	83	74	64	56	49	43	42	40	38	36	34

Institute of Acoustics Good Practice Guide on the Control of Noise from Pubs and Clubs, 2003

4.101 In 1996, the Institute of Acoustics (IoA) established a working group to produce guidance and criteria on the control of noise from pubs and clubs. The group was unable to produce a formal Code of Practice because industry representatives withdrew.

4.102 Whilst the initial drafts of the Good Practice Guide proposed objective assessment criteria within an Annex, they were not published within the final version of the Good Practice Guide (2003).

4.103 The final version of the Good Practice Guide (2003) suggests that music noise should be inaudible, whereby noise is considered to be inaudible when:

"it is at a sufficiently low level such that is not recognizable as emanating from the source in question and it does not alter the perception of the ambient noise environment that would prevail in the absence of the source in question".

Draft Assessment Criteria

4.104 From a practical perspective it is necessary to work to objective criteria, and criteria were proposed within the Draft Annex of the Good Practice Guide. These criteria are described below in **Table 11,** with EN representing 'with entertainment noise' and WEN representing 'without entertainment noise'.

Table 11: IoA Good Practice Guide for Pubs and Clubs – Draft Criteria

Venue	Suggested Regulation	Outcome if Criteria met
Entertainment < 30 times/year*	$L_{Aeq,15mins}$ (EN) should not exceed L_{A90} (WEN) by more than 5dB	EN will generally be audible but not overly obtrusive inside the noise sensitive property
Entertainment > 30 times/year*	L_{Aeq} (EN) should not exceed L_{A90} (WEN) by more than 5dB and the L_{10} (EN) should not exceed L_{90} (WEN) by more than 5dB in any 1/3 octave band between 40 and 160Hz.	EN will generally be audible but not overly obtrusive inside the noise sensitive property
Entertainment > once / week or continues beyond 2300hrs.	L_{Aeq} (EN) should not exceed L_{A90} (WEN) And L_{10} (EN) should not exceed L_{90} (WEN) in any 1/3 octave band between 40 and 160Hz.	EN will be virtually inaudible inside noise sensitive property

* Not more than once in a single week, and ending by 2300 hrs.

4.105 The proposed criteria described above relate to an assessment at 1 metre from the facade of noise sensitive premises and consequently relate to entertainment noise emissions to atmosphere. This

approach results in an assessment that is independent of the sound insulation afforded by the building envelope of the sensitive properties, which can vary greatly between properties.

4.106 As discussed above the criteria proposed in the draft were not endorsed by the IOA and were excluded from the final version of the document.

Noise Act Research

4.107 Another source of useful information is NANR 163 - Noise from Pubs and Clubs Phase II (2006) which was conducted by Capita Symonds and BRE on behalf of Defra to inform revisions to the Noise Act 1996.

4.108 The key findings were:

- The majority of the members of the public reported the ability to tolerate a modest degree of intrusive audible entertainment noise in their home late at night for a “one-off” occurrence (i.e. occurring at intervals of less than six months), and that the onset of audibility of the entertainment noise did not equate to a threshold of acceptability for intrusive entertainment noise;
- The majority of Environmental Health Practitioners (EHPs) also reported that a modest degree of intrusive entertainment noise from a “one-off” occurrence was acceptable, and that the onset of audibility of the entertainment noise did not equate to a threshold of acceptability for intrusive entertainment noise in such circumstances;
- EHPs also reported that a lesser degree of intrusive entertainment noise was acceptable for more regular occurrences (i.e. once a week), and that for either scenario the onset of audibility of the entertainment noise did not equate to a threshold for enforcement action for intrusive entertainment noise in such circumstances; and
- The noise metric that provided the best overall prediction of subjective ratings of all the entertainment noise types tested by ordinary members of the public was the Absolute L_{Aeq}.

4.109 **Table 12** presents an informative extract from the research in terms of the levels of entertainment noise which were considered acceptable or otherwise, based upon 30 subjects.

Table 12: Table 4 from DEFRA Report – Semantic Descriptor and Associated Value of Acceptability

Semantic Descriptor	Score	Absolute $L_{Aeq,5min}$
Clearly acceptable	1	17.0
	2	20.4
	3	23.8

Semantic Descriptor	Score	Absolute $L_{Aeq,5min}$
	4	27.2
Just acceptable	5	30.6
Just unacceptable	6	34.0
	7	37.4
	8	40.8
	9	44.2
Clearly unacceptable	10	47.5

BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings – Part 1 Vibration sources other than blasting

4.110 BS 6472-1 sets out methodologies for measuring and evaluating the human exposure to vibration. It introduces the Vibration Dose Value (VDV) which is a parameter combining the magnitude of vibration and the time for which it occurs. The standard also introduces frequency weighting curves, equations for calculating period VDVs and a scale representing the likely human response to VDV. **Table 13** summarises VDV against the probability of adverse comment from the human receptor.

Table 13: Vibration Dose Values and Probabilities of Adverse Comment within Residential Buildings

Time	Vibration Dose Value ($m/s^{1.75}$)		
	Low probability of adverse comment	Adverse comment possible	Adverse comment probable
Daytime (0700 hrs to 2300 hrs)	0.2 – 0.4	0.4 - 0.8	0.8 - 1.6
Night-time (2300 hrs to 0700 hrs)	0.1 – 0.2	0.2 – 0.4	0.4 - 0.8

4.111 VDV is typically used to describe human response to vibration in buildings from intermittent/transient vibration.

4.112 The values in **Table 13** are two and four times higher for offices and workshops, respectively and apply to the daytime only.

Acoustic Design of Schools: Performance Standards (Building Bulletin 93, 2015)

4.113 BB93 sets out the minimum performance standards for the acoustics of school buildings and describes the normal means of demonstrating compliance with the Building Regulations

Requirement E4. It should be read in conjunction with 'Acoustics of Schools: A Design Guide' (ASDG, 2015).

4.114 BB93 focuses on internal ambient noise levels (from intrustive external noise sources and building services/ventilation noise), room acoustics (reverberation time) and sound insulation between spaces.

4.115 BB93 covers all room uses including classrooms, open place teaching and breakout spaces, study rooms and libraries, drama studios, sports halls, design and technology spaces, science laboratories, dining rooms, circulation spaces not used for teaching and learning, as well as administration and ancillary spaces. Internal ambient noise levels generally range between 30 dB and 50 dB $L_{Aeq,30mins}$, depending on the room use. The ventilation condition has an impact on the target internal noise level, for example, higher noise limits are permissible with natural ventilation and during summertime ventilation conditions.

4.116 Target noise levels are also provided for regular discrete noise events such as aircraft or trains. In this respect, indoor ambient noise levels should not exceed 60 dB $L_{A1,30mins}$. BB93 states: "*this is achieved by default in spaces with IANLs up to 40 dB $L_{Aeq,30min}$, but requires assessment in spaces with higher IANL limits".*

Acoustics of Schools: A Design Guide (2015)

4.117 ASDG was published by the Institute of Acoustics (IoA) and Association of Noise Consultants (ANC) to accompany the 2015 publication of BB93. It provides supporting guidance and recommendations on the acoustic design of new and refurbished schools.

4.118 Building on BB93, the ASDG also includes some guidance on noise levels in external teaching spaces, as well as good acoustic design and technical guidance.

4.119 In respect of external noise levels, ASDG identifies that "*for new schools, 60 dB $L_{Aeq,30mins}$ should be regarded as an upper limit for external noise at the boundary of external areas used for formal and informal outdoor teaching and recreation*".

4.120 It also states that "*noise levels in unoccupied playgrounds, playing fields and other outdoor areas should not exceed 55 dB $L_{Aeq,30min}$ and there should be at least one area suitable for outdoor teaching activities where noise levels are below 50 dB $L_{Aeq,30min}$.*"

4.121 To achieve internal noise levels, ASDG notes that "*it may be possible to meet the specified indoor ambient noise levels on sites where external noise levels are as high as 70 dB $L_{Aeq,30min}$ but this will require considerable building envelope sound insulation, or screening*".

5 Interaction of Government Policy and EIA Regulations

5.1 The PPGN noise exposure hierarchy has been used to demonstrate the relationship between government noise policy observed effect, response and action, along with the EIA Regulations assessment considerations and effect. This is summarised in **Table 14**.

Table 14: Government Noise Policy and EIA Regulations LOAEL and SOAEL Effect Interaction

Observed Effect	Response	Action	Assessment Consideration(s)	Effect
No effect	Not Present	No specific measures	None	Adverse effect unlikely
No observed effect	Present and not intrusive	No specific measures		
Lowest Observed Adverse Effect Level (LOAEL)				
Observed adverse effect	Present / Intrusive	Mitigate and reduce to a minimum	Noise Exposure Noise Change Population Additional Considerations	Possible EIA Likely Significant Effect (adverse or beneficial)
Significant Observed Adverse Effect Level (SOAEL)				
Significant Adverse Effect	Present/ disruptive	Avoid	Noise Exposure Noise Change Additional Considerations	Significant adverse impact (health and quality of life) EIA likely significant effect (adverse or beneficial) where noise exposure currently exceeds SOAEL
Unacceptable Adverse Effect	Present/ very disruptive	Prevent		

Appendix 16.3: Baseline conditions

Appendix 16.3:
Baseline Conditions

December 2024








Experts in noise and vibration assessment and management

Document Control

Client	Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust	**Principal Contact**	Greg Dobbins (PJA)

Job Number	12954A-20

Report Prepared By:	Sam Norris (Consultant) & Becki Edwards (Principal Consultant)

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12954A-20-R03-04	5 December 2024	Final	Will Martin (Technical Director)

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1 Introduction

1.1 This appendix describes the baseline noise and vibration conditions on land at North St Albans (the 'Site'),

The Existing Site

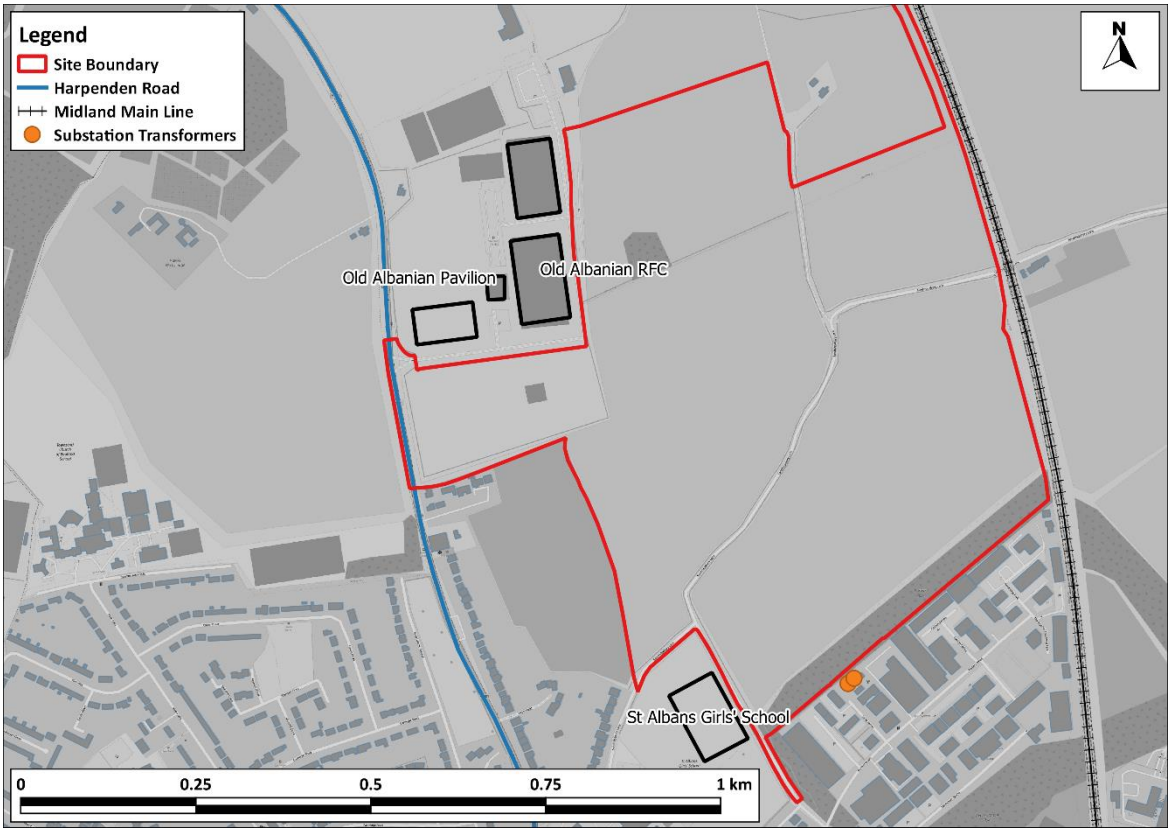
1.2 The majority of the Site, shown in **Figure 1.1**, is arable land in agricultural use. In the northwest of the Site are three playing fields associated with Woollam Playing Fields which will be relocated to the north of the Site as part of the Proposed Development. Sandridgebury Lane runs southwest to northeast through the site and is met by Valley Road which intercepts from the south. These roads will predominantly be closed to vehicle traffic as part of the Proposed Development.

1.3 The Site is contained by the A1081 (Harpenden Road) to the west, Sandridgebury Lane runs southwest to northeast through the Site, and the Midland Main Line (MML) railway to the east.

1.4 The Site is bounded to the south by the existing settlement of St Albans, St Albans Girls' School (SAGS) and the Valley Road Industrial Estate (also known as Porter's Wood). The southern boundary is formed by Long Spring Wood which is an ancient woodland and Local Wildlife Site.

1.5 To the north and east there is countryside; to the northwest are Woollam Playing Fields, Old Albanian Tennis Club and further Old Albanian Rugby Football Club facilities; and to the west are residential dwellings fronting Harpenden Road. A single residential dwelling, known as Cheapside Farm, is situated to the east of the northernmost field and can be accessed from a private road extending north from Sandridgebury Lane as well as from the north via Harpenden Road.

Figure 1.1: Site Location Plan



Noise and Vibration Sources

1.6 Transportation noise sources which predominantly affect the Site include road traffic noise from the A1081 Harpenden Road to the west and from Sandridgebury Lane and Valley Road which intersect the Site; as well as railway noise from the MML railway to the east of the Site.

1.7 Sports activity noise from the sports facilities to the northwest of the Site and SAGS multi-use games area (MUGA) to the south will occasionally affect localised parts of the Site.

1.8 Industrial noise from some of the units in the industrial estate to the south of the Site is audible at the Site and partly characterises the noise environment away from the dominant sources of transportation noise. Notable sources of noise include a substation managed by UKPN and plant at the Manson Group commercial printers.

1.9 The MML railway line is also a source of vibration which has the potential to affect residential development on the Site.

2 Assessment Approach

Baseline Noise and Vibration Survey

2.1 A baseline noise and vibration survey was undertaken between Wednesday 15th and Thursday 16th May 2024 to quantify current levels of ambient and background sound at the Site during the daytime (07:00 – 23:00) and night-time (23:00 – 07:00) periods.

2.2 A baseline vibration survey was simultaneously undertaken to quantify ambient levels of vibration in the eastern area of the Site adjacent to the MML.

Noise Survey

2.3 Unattended noise monitoring stations were deployed at five locations across the Site, to capture continuous sound measurements over a typical 24-hour period.

2.4 **Figure 2.1** presents the survey locations, which are described in **Table 2.1** below. The Site boundary is also presented. Photographs of the noise monitoring locations, taken whilst on site, can be found in **Figure 5.1** to **Figure 5.5** in **Section 5**.

2.5 The noise monitoring locations were selected to coincide with the principal sources of noise affecting the Site, namely:

- Monitoring Location 1 – chosen to capture road traffic noise levels from Harpenden Road;
- Monitoring Location 2 – chosen to capture road traffic noise levels from Harpenden Road and noise associated with Old Albanian RFC;
- Monitoring Location 3 – chosen to capture noise from industrial activities at Valley Road Industrial Estate;
- Monitoring Location 4 – chosen to capture a representative background during periods of low traffic on Sandridgebury Lane; and
- Monitoring Location 5 – chosen to capture railway noise and vibration levels from the Midland Main Line.

2.6 Monitoring was supplemented by observations of the noise climate at each monitoring location during the survey. The sound level meters (SLMs) were configured to capture continuous audio so that it could be reviewed, where necessary, to identify any noise events during unattended periods.

Figure 2.1: Monitoring Locations

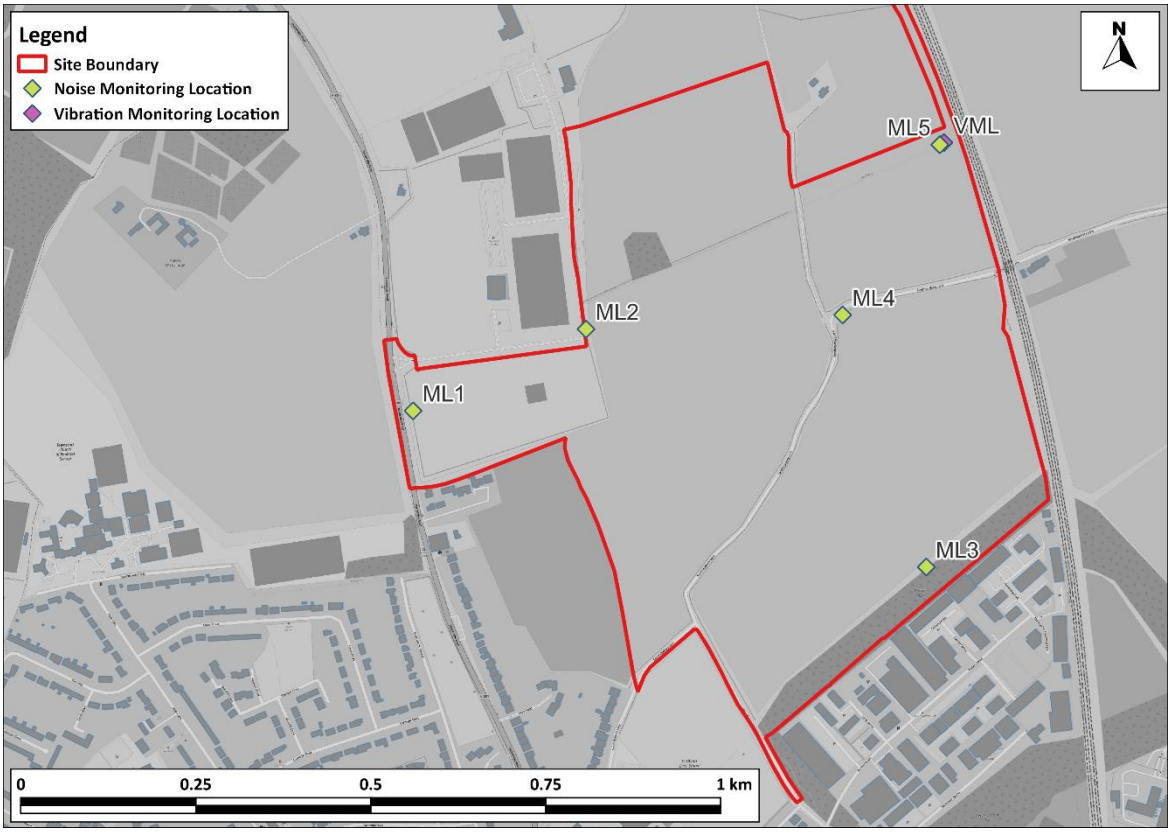


Table 2.1: Summary of Survey Locations

Location	Description	Measurement Details
ML1	Measurement location to quantify road traffic noise levels from Harpenden Road.	15/05/2024 14:30 hrs – 16/05/2024 14:30 hrs
ML2	Measurement location to quantify road traffic noise levels from Harpenden Road and noise associated with Old Albanian RFC.	
ML3	Measurement location to quantify industrial noise from Valley Road Industrial Estate.	15/05/2024 14:35 hrs – 16/05/2024 14:30 hrs
ML4	Measurement location to capture a representative background during periods of low traffic on Sandridgebury Lane.	15/05/2024 14:30 hrs – 16/05/2024 14:30 hrs
ML5	Measurement location to quantify levels of railway noise and vibration from the Midland Main Line.	

2.7 All measurements were undertaken with the microphone at a height of 1.5m above local ground level and were undertaken under acoustically free-field conditions. Monitoring was supplemented by detailed observations of the sound climate at each monitoring location during the survey.

Survey Observations

2.8 Observations of the noise climate at the survey locations are summarised in **Table 2.2**.

Table 2.2: Noise survey observations at each survey location

Location	Observations
ML1	Road traffic from Harpenden Road was observed to be the dominant contributor to the noise climate. Birdsong, railway and aircraft noise was also audible on occasion.
ML2	Distant road traffic from Harpenden Lane was observed to be the dominant contributor to the noise climate. To a lesser extent contributions from MML were audible. Birdsong and aircraft noise was also audible on occasion. Some shouting was barely audible between approximately 18:00 and 20:00 which is assumed to be related to the Old Albanian playing fields.
ML3	Rail passby on the Midland Main Line was observed to be the dominant contributor to the noise climate. This includes passenger and freight trains during the day and night-time. During the daytime industrial activity was faintly audible, emanating from the rear of Manson Group Limited (commercial printer). Birdsong was clearly audible during daylight hours and aircraft noise was audible on occasion.
ML4	Rail passby on the Midland Main Line was observed to be the dominant contributor to the noise climate in absence of occasional road traffic on Sandridgebury Lane. Birdsong and aircraft noise was audible on occasion.
ML5	Rail passby on the Midland Main Line was observed to be the dominant contributor to the noise climate. This includes passenger and freight trains during the day and night-time. Birdsong and aircraft noise was audible on occasion.

Porters Wood Industrial Estate

2.9 A series of attended measurements were undertaken to supplement the unattended measurement at ML3 along the southeastern boundary. It was noted that the transformers at the UKPN substation, some plant noise and idling engine noise at the Manson Group commercial printers, and HGV un/loading to the south of ML3 were audible to varying extents at the boundary of the Site.

2.10 Within the vicinity of the transformers, tonal content in the 100Hz one-third octave band was audible. Consequently, a further detailed noise measurement survey, described below, was carried out to quantify substation noise.

Local Conditions

2.11 A weather station was deployed near to LT4 to the centre of the Site at the boundary with Sandridgebury Lane. A time history graph of the recorded weather conditions is provided in **Figure 4.7**.

2.12 Weather conditions from the 15 – 16 May 2024 were mostly clear with some overcast periods and light rain between 12:15 and 13:15 on Thursday 16th. Wind speeds were less than 5ms^{-1} there were no periods of high winds during the survey. The average temperature was 17°C during the daytime period and 9°C during the night-time period. The prevailing wind direction was from the southeast.

2.13 Short periods of rain were observed towards the end of the noise measurement survey. Data affected by the rain has been excluded from the data analysis presented in this report.

Vibration Survey Methodology

2.14 Vibration measurements were obtained at ML5 over a period of 24 hours. Monitoring at this location was undertaken to quantify ambient levels of vibration in the eastern area of the Site adjacent to the Midland Main Line (MML).

2.15 Measurements were obtained using a Rion VM-56 Tri-axial Groundborne vibration meter. The instrument measured Vibration Dose Value (VDV) over a 5-minute averaging period. A mixture of passenger and freight rail passbys contributed to the ambient vibration levels during the daytime and night-time.

2.16 The Tri-axial accelerometer features three separate orthogonal axes which are described as follows:

- X orientated parallel to the rail line;
- Y orientated perpendicular to the rail line; and
- Z representing vertical vibration.

2.17 The accelerometer was rigidly mounted through the means of a screw to a metal mounting plate with aluminium ground spikes penetrating the ground and weighed down by a gravel bag. A photo of the vibration monitoring location near ML5 is shown in **Figure 5.5**.

Substation Noise Survey

2.18 An attended noise survey was undertaken during the evening and night-time on Tuesday 13th August 2024 to quantify the levels of substation noise impacting the southern portion of the Site.

2.19 Attended monitoring was undertaken at 66 locations across the worst-affected area which was informed by subjective observations. Measurements were made at heights of 1.5 m and 4 m above

local ground concurrently at each location. An example of the sound level meter equipment for the substation noise monitoring is shown in **Figure 5.6**.

2.20 The monitoring locations were selected to provide a regular grid of points adjacent to the substation, supplemented with a more targeted approach further into the Site. Observations of the noise climate were made at each monitoring location during the survey.

2.21 Noise from the substation was observed to be dominant at the majority of monitoring locations and was most prominent when on axis with the substation.

2.22 A weather station was deployed at the edge of the Site. Weather conditions were clear, and wind speeds were less than 5ms^{-1}. The average temperature was 20.5°C during the evening, and 17°C during the night-time. The prevailing wind direction was from the southwest.

Noise and Vibration Monitoring Equipment

2.23 Noise monitoring was undertaken using fully calibrated Class 1 sound level meters as defined in BS EN 61672-1:2013, calibrated to traceable standards within 2 years of the survey. Prior to and following noise measurements, acoustic field-calibration of the sound level meters and microphones used in the survey was performed using an acoustic calibrator that itself had been calibrated within the preceding 12 months. No significant drift (i.e., <0.1dB) in the field-calibrated noise level was observed.

2.24 All noise measurements were conducted in accordance with BS 7445-1:2003 '*Description and measurement of environmental noise. Gude to quantities and procedures*' (BS 7445, 2003). Measurement microphones were fitted with suitable windshields for the duration of the noise monitoring and were time synchronized.

2.25 All vibration measurements were conducted, where possible, in accordance with BS ISO 14837-1:2005 '*Mechanical vibration – Ground-borne noise and vibration arising from rail systems - Part 1: General guidance'* (BS ISO 14837-1, 2005).

2.26 Details of the monitoring instrumentation (model/serial numbers and dates of last calibration) are presented in **Table 2.3**. All instrumentation was configured to report the environmental parameters L_{Aeq}, L_{A01}, L_{A10}, L_{A90}, and L_{AFmax} in one-third octave bands.

Table 2.3: Monitoring Equipment Specifications

Type	Make	Model / Type	Serial	Date of Last Calibration
Sound Level Meter	Rion	NL-52	01176433	31/07/2023
			00687043	22/12/2023
			01176453	31/07/2023
			01009667	10/03/2023

Type	Make	Model / Type	Serial	Date of Last Calibration
			00909494	20/11/2023
Acoustic Calibrator		NC-75	34212937	21/12/2023
Vibration Level Meter		VM-56	34390092	19/03/2024
Weather Station	Davis	Vantage Vue	MT210407033	N/A

3 Baseline Conditions

Baseline Noise Measurement Results

3.1 A summary of the baseline noise measurement results is presented in **Table 3.1**.

3.2 The results of the daytime and night-time noise measurements are rounded to the nearest decibel. For L_{Aeq} noise levels, the values presented in the table are the logarithmic average of the measured data. For L_{A90}, analysis of the arithmetic mean and modal values has been undertaken to derive representative background sound levels, which are presented in the table. The L_{AFmax} values at night are the 10th highest measured, the range of 5-minute values are presented in brackets.

Table 3.1: Noise Measurement Results

Measurement Location	Period	$L_{Aeq,T}$ (dB)	$L_{AFmax,5min}$ (dB) (range 5-minute)	$L_{A90,T}$ (dB)
ML1	Daytime (07:00 – 23:00hrs)	63	–	49
	Night-time (23:00 – 07:00hrs)	56	75 (63 – 79)	33
ML2	Daytime (07:00 – 23:00hrs)	48	–	38
	Night-time (23:00 – 07:00hrs)	43	52 (31 – 56)	30
ML3	Daytime (07:00 – 23:00hrs)	50	–	37
	Night-time (23:00 – 07:00hrs)	38*	53 (38 – 61)	32
ML4	Daytime (07:00 – 23:00hrs)	52	–	34
	Night-time (23:00 – 07:00hrs)	45	60 (27 – 84)	30
ML5	Daytime (07:00 – 23:00hrs)	60	–	34
	Night-time (23:00 – 07:00hrs)	53	73 (32 – 79)	30
*Dawn chorus from 04:30 to 07:00 excluded				

3.3 Time-level history graphs are presented in **Section 4 Figure 4.1** to **Figure 4.5** for ML1 to ML5, respectively.

3.4 With respect to the additional attended noise measurements of activities at Porters Wood Industrial Estate, short-term measurements of 3-5 minutes in duration were made in the vicinity of the Manson Group premises. Absolute noise levels (including contribution from transportation noise and other source) ranged from 54 dB $L_{Aeq,T}$ at the Site boundary to 47 dB $L_{Aeq,T}$ to the north-west of the woodland (set back from the Site boundary at a distance equivalent to ML3). Activities at Manson Group were not noted to be tonal, impulsive or intermittent, however, were noted to vary in intensity over time and be prominent in the context of the residual noise climate. The sound was localised and reduced with distance from premises.

Vibration Measurement Results

3.5 The results of the vibration measurement survey have been used to derive the daytime and night-time Vibration Dose Values (VDV, $ms^{-1.75}$) representative of external conditions at the edge of the development area. The results are presented in **Table 3.2**. **Figure 4.6** shows the VDV time history as measured across the measurement period.

Table 3.2: Vibration Measurement Results

Measurement Location	Period	VDV ($ms^{-1.75}$)		
		X	Y	Z
ML5	Daytime (07:00 – 23:00hrs)	0.005	0.007	0.036
	Night-time (23:00 – 07:00hrs)	0.003	0.003	0.016

Substation Noise Survey Results

3.6 For all monitoring locations, the noise measurement results at 100Hz have been extracted along with the coordinates of each measurement position. Triangulated Irregular Network (TIN) interpolation of results was then carried out in a Geographic Information System (GIS) programme.

3.7 The ground floor level (1.5 m) and first floor level (4.0 m) results are shown in **Figure 3.1** and **Figure 3.2** respectively. Both figures identify an interference pattern with a strong central lobe and two smaller side lobes. This is thought to be a result of constructive and destructive interference associated with two transformers operating at the same frequency.

Figure 3.1: Ground Floor Level Substation Noise (100 Hz $L_{eq,T}$)

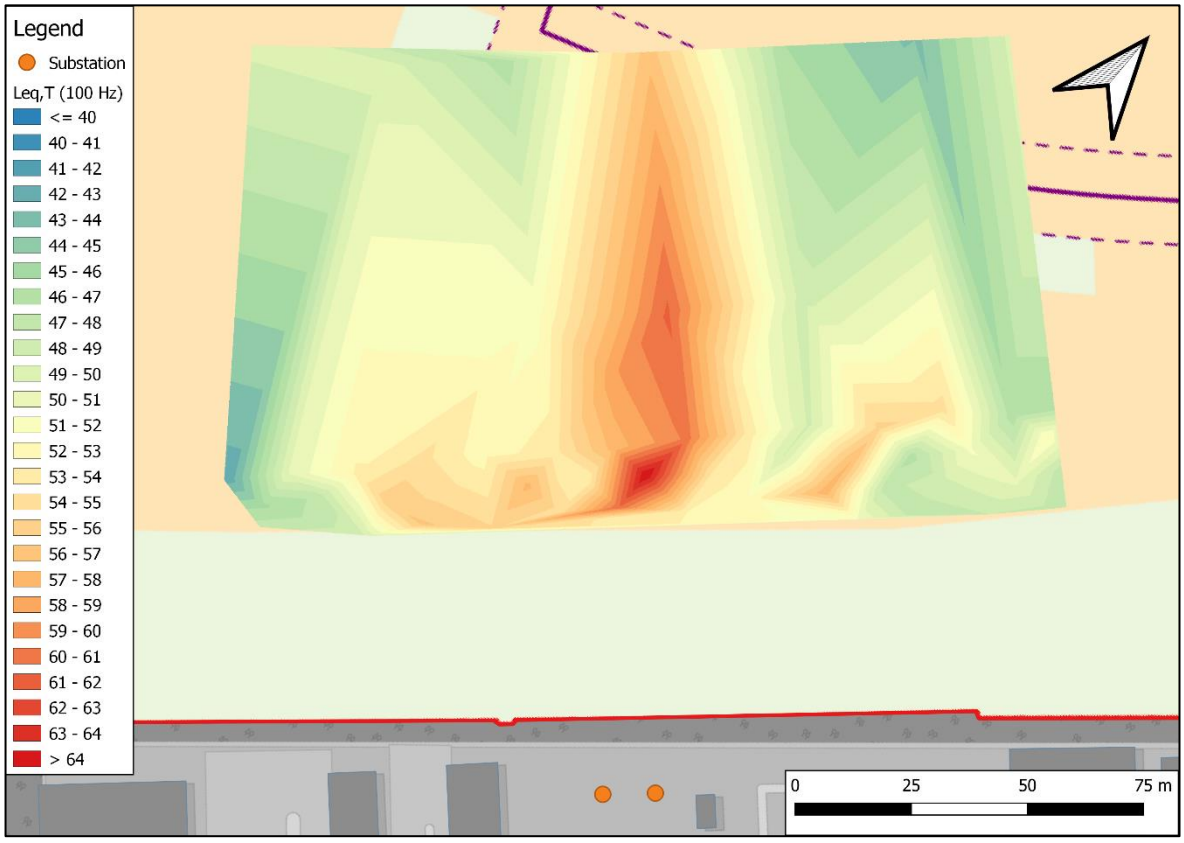
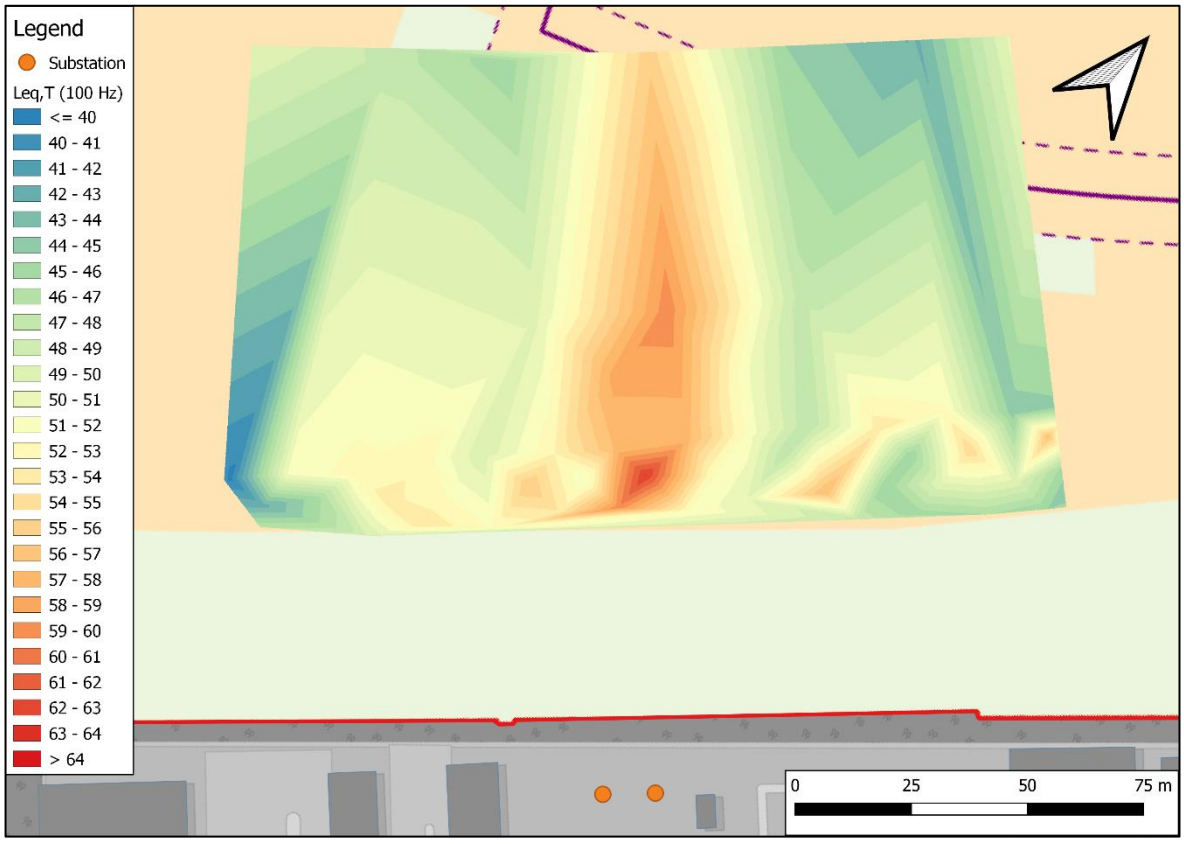


Figure 3.2: First Floor Level Substation Noise (100 Hz $L_{eq,T}$)



4 Time History Graphs

Figure 4.1: Summary of Measured Baseline Noise Levels ML1

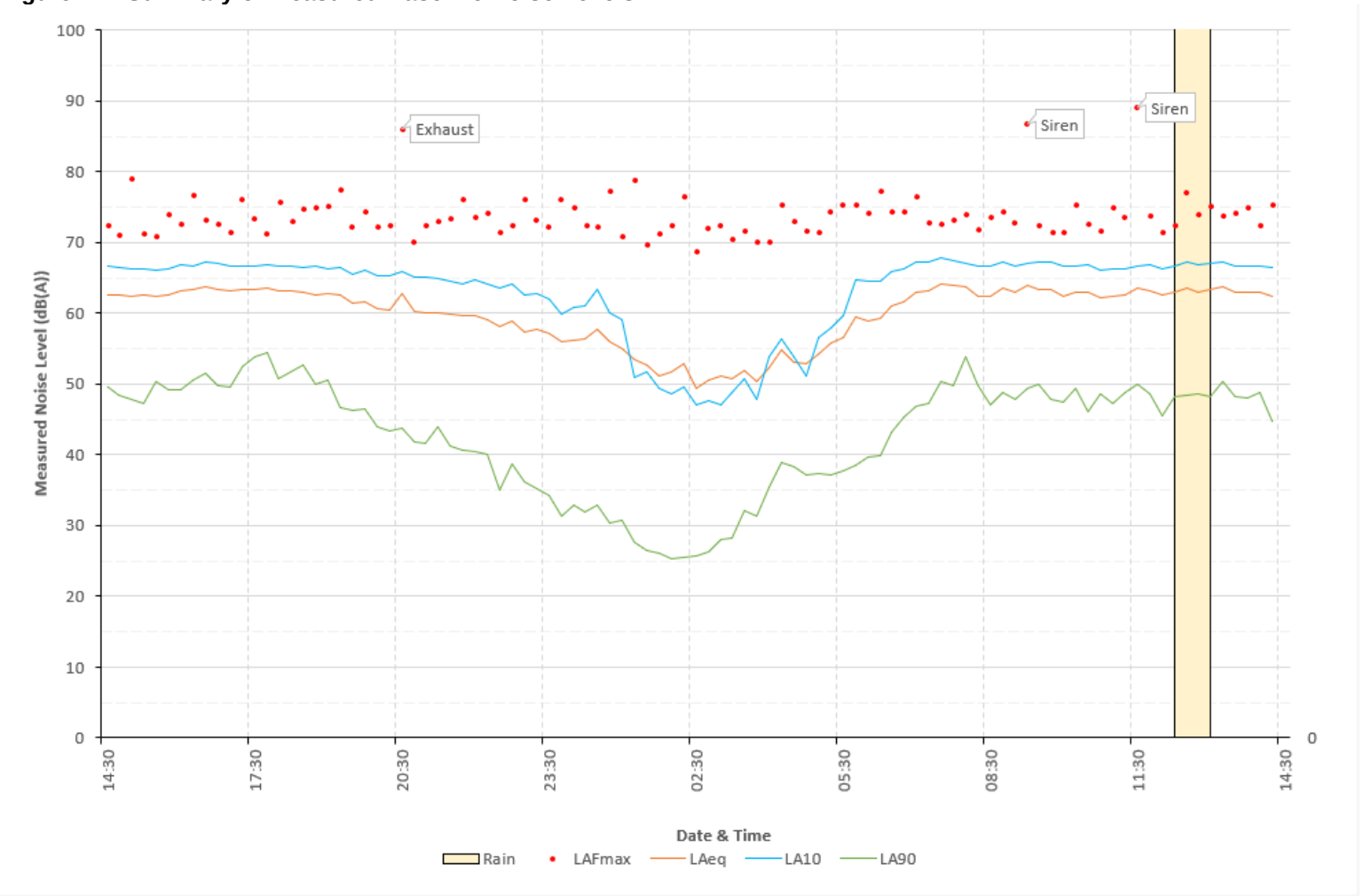


Figure 4.2: Summary of Measured Baseline Noise Levels ML2

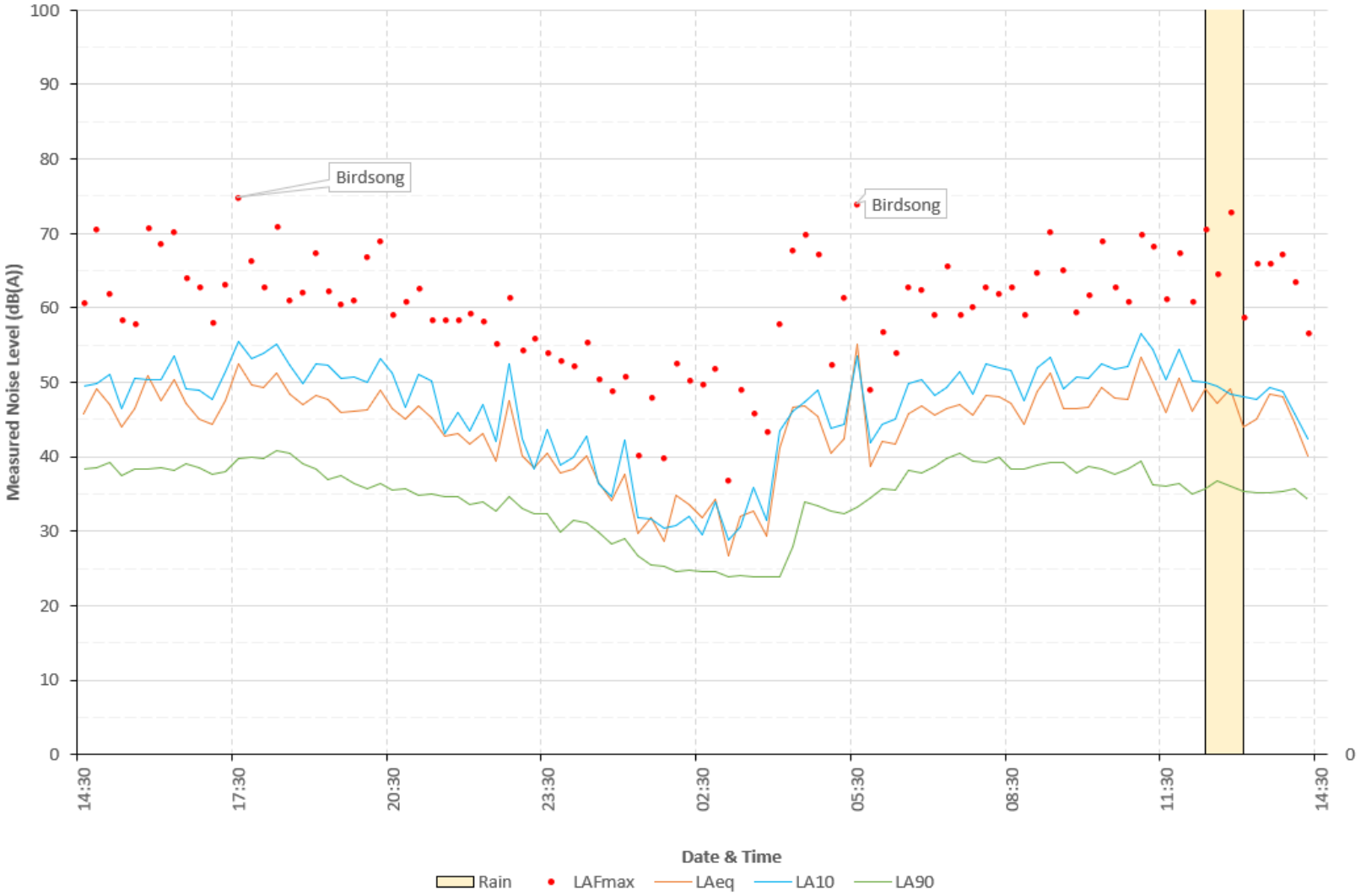


Figure 4.3: Summary of Measured Baseline Noise Levels ML3

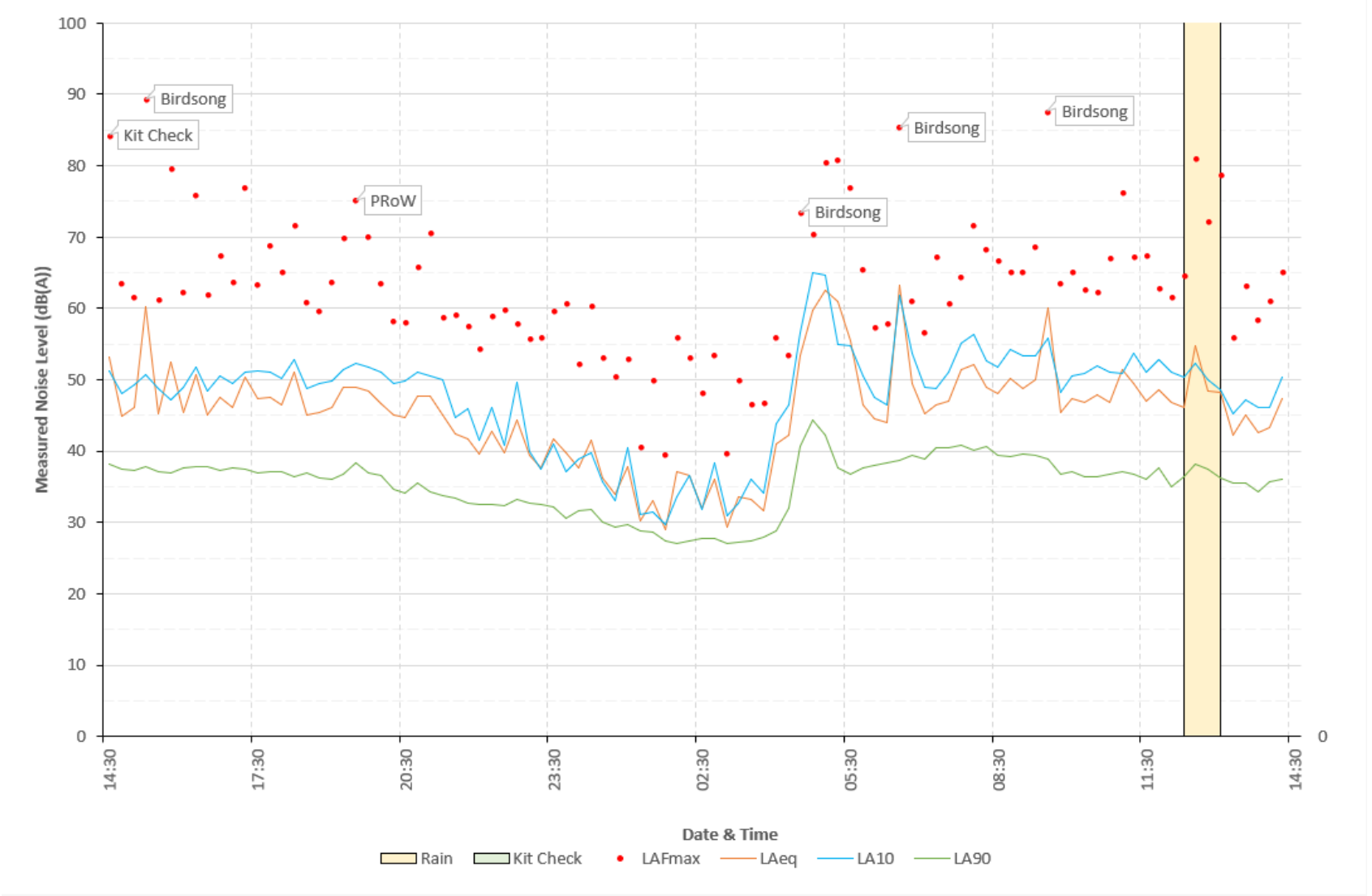


Figure 4.4: Summary of Measured Baseline Noise Levels ML4

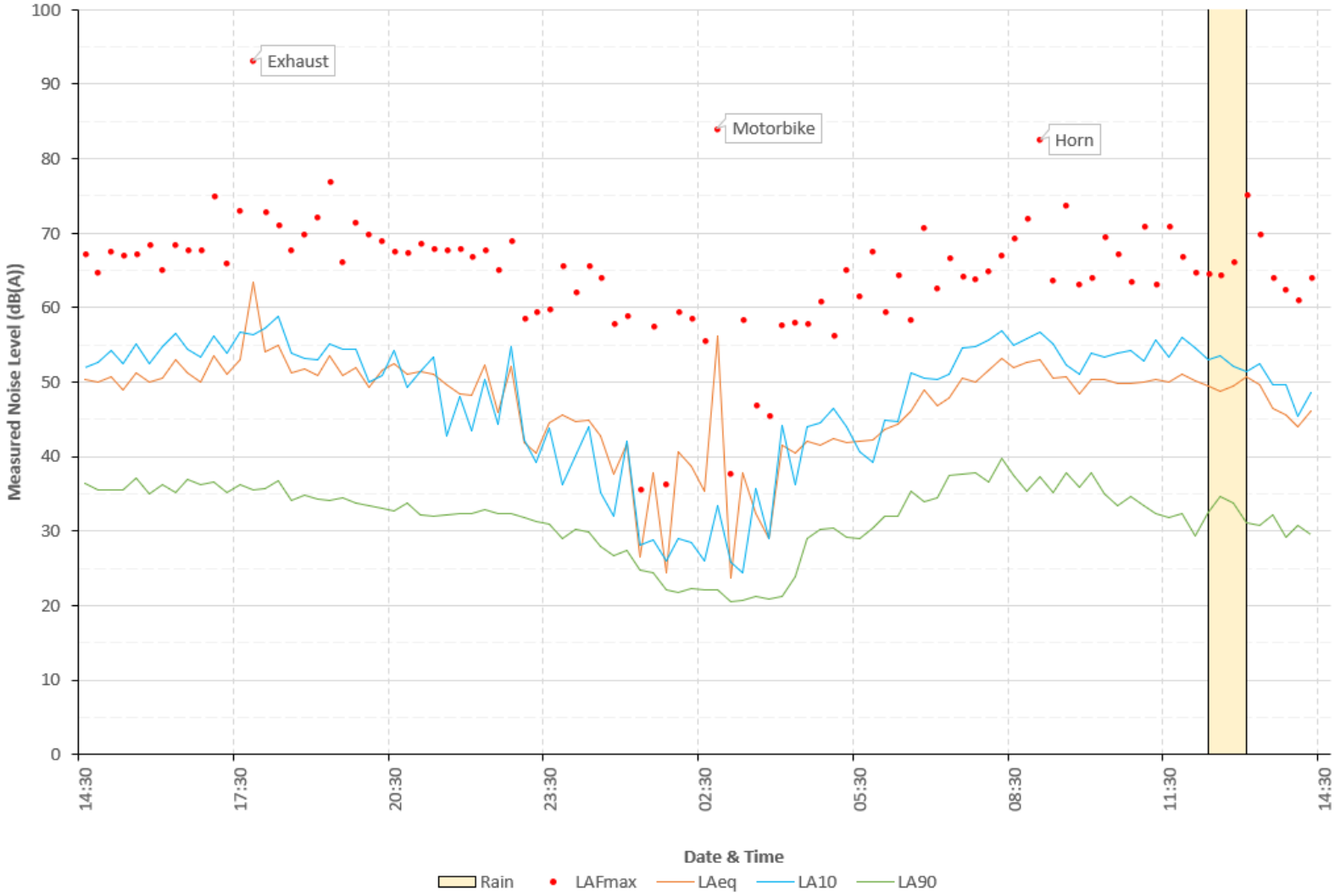


Figure 4.5: Summary of Measured Baseline Noise Levels ML5

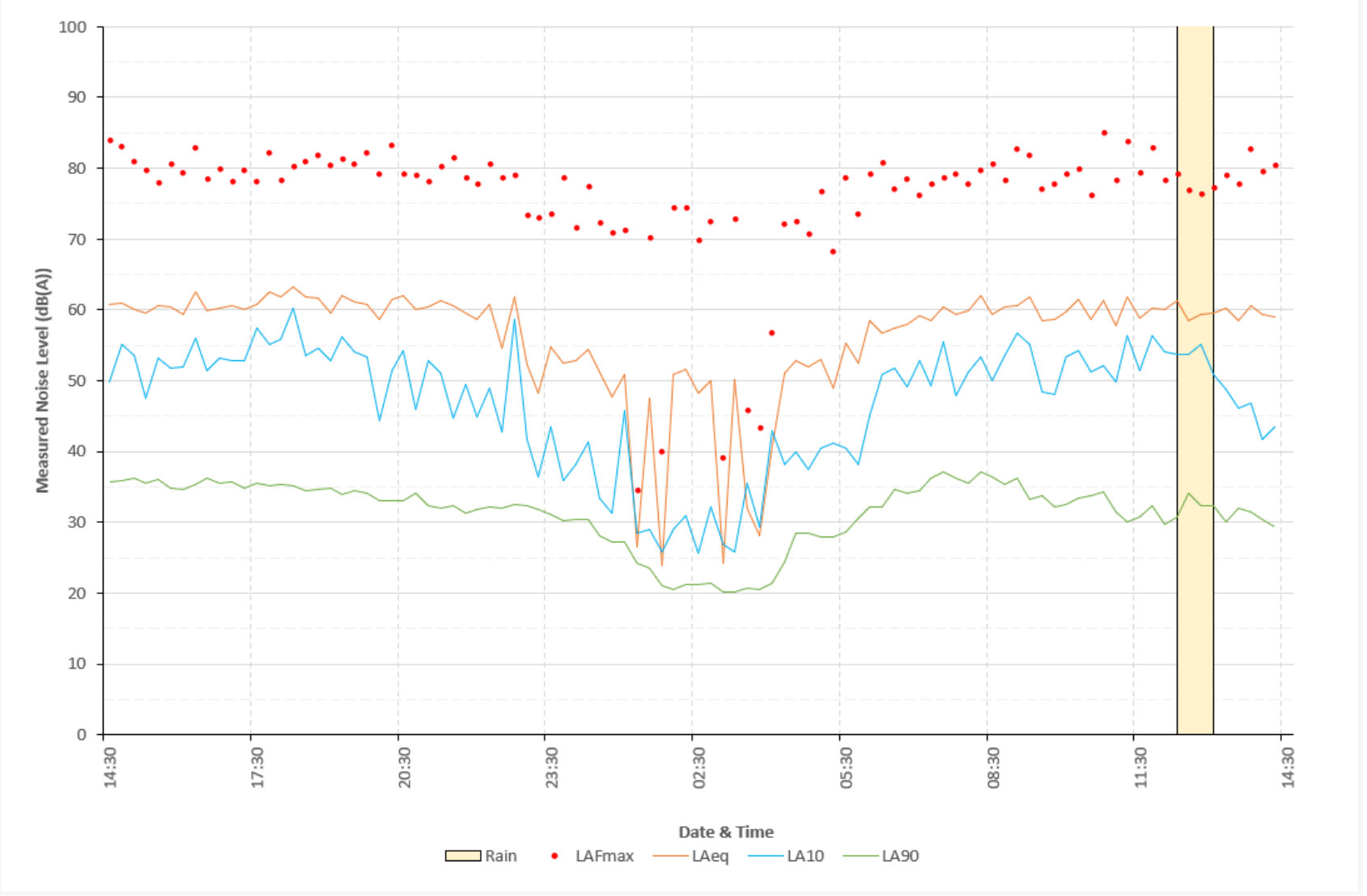


Figure 4.6: Summary of Measured Vibration Levels ML5

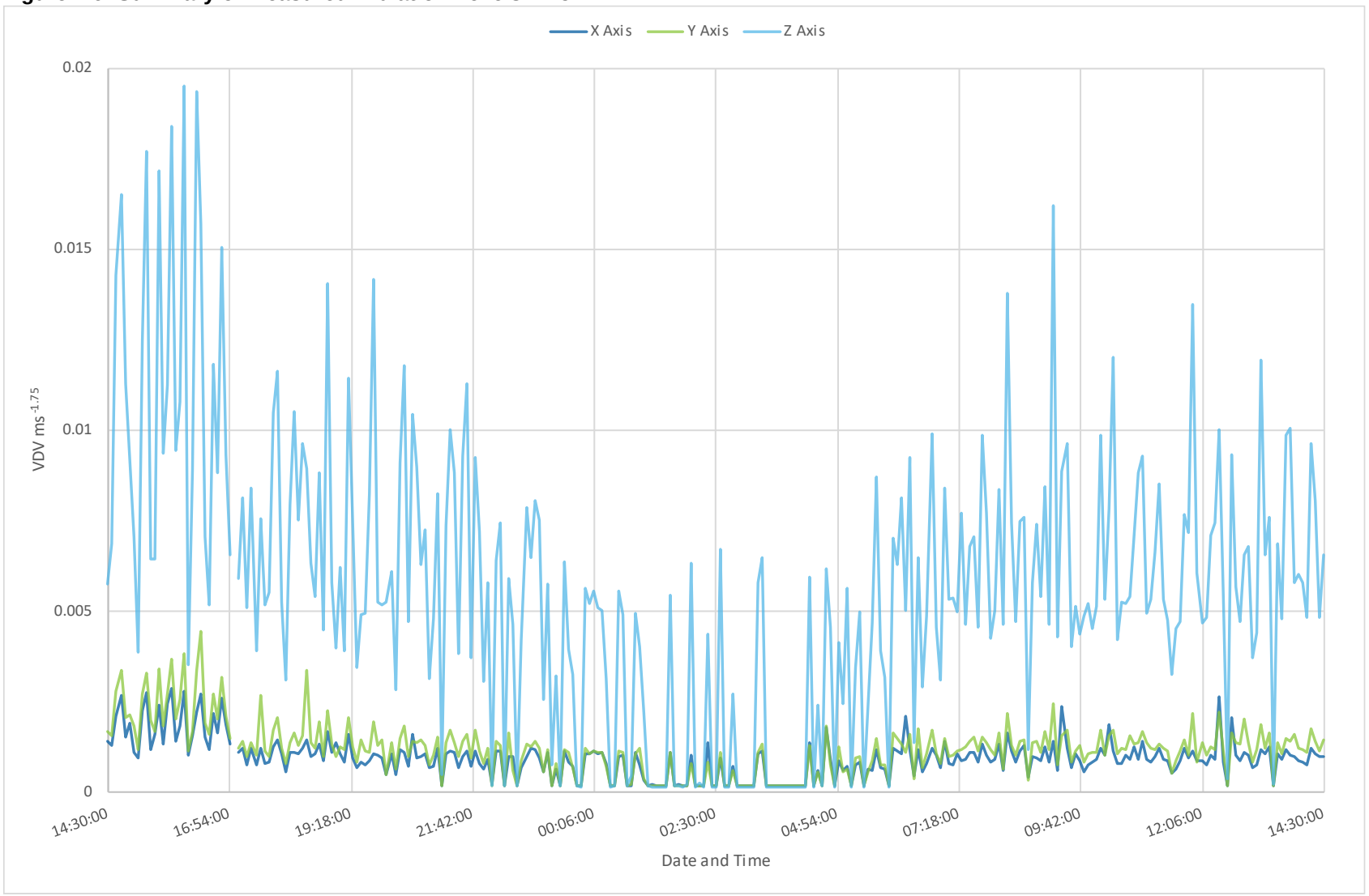
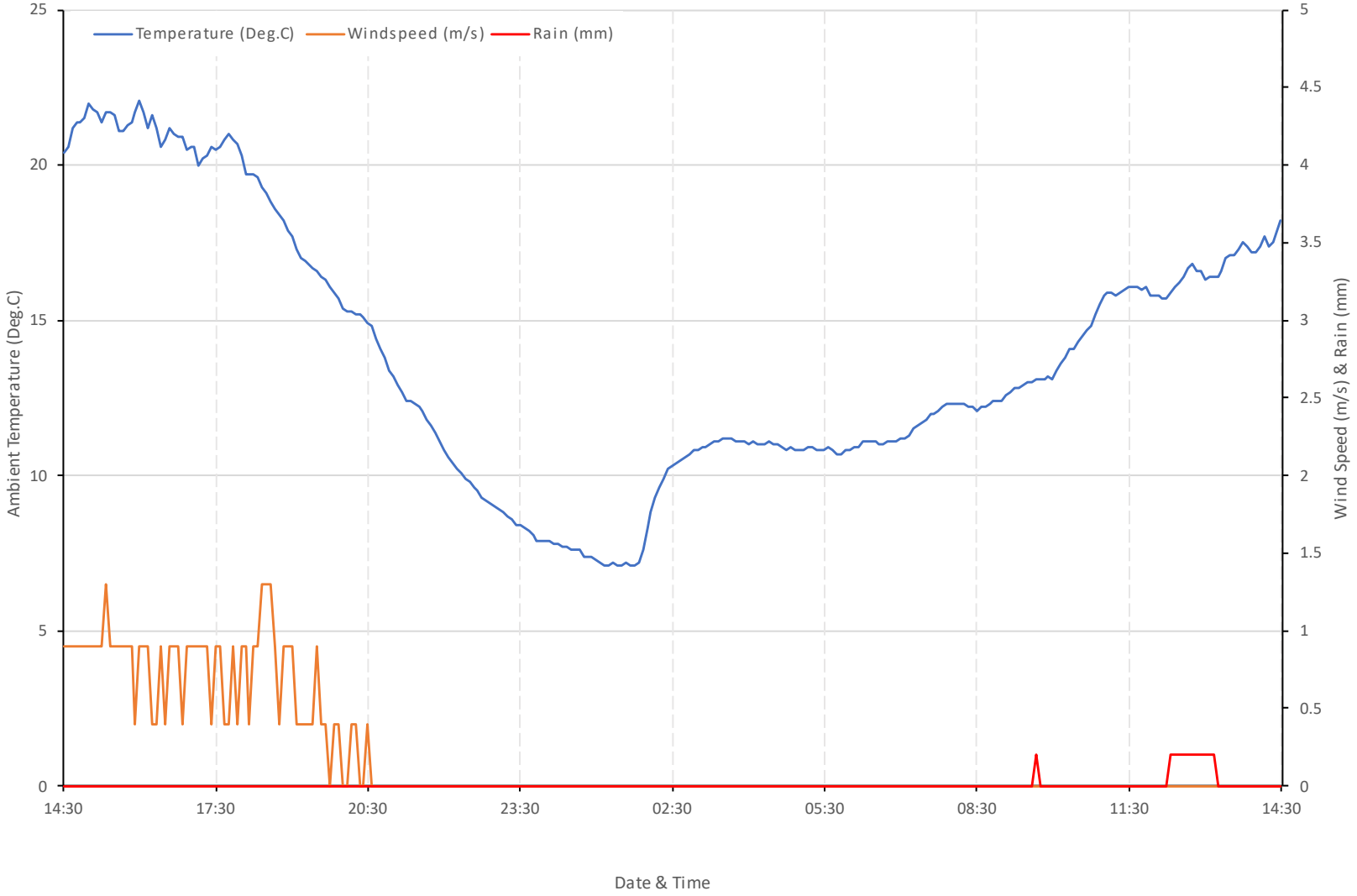


Figure 4.7: Summary of Measured Meteorological Conditions ML4 (WML)



5 Photographs

Figure 5.1: Monitoring Location ML1



Figure 5.2: Monitoring Location ML2



Figure 5.3: Monitoring Location ML3



Figure 5.4: Monitoring Location ML4 and WML



Figure 5.5: Monitoring Location ML5 and VML



Figure 5.6: Example Set Up for Substation Monitoring



Appendix 16.4: Construction assessment

Appendix 16.4:
Construction Noise and Vibration Assessment

December 2024



Experts in noise and vibration assessment and management

Document Controls

Client	Hallam Land Management Limited, St Albans School, and St Albans School Woollam Trust	**Principal Contact**	Greg Dobbins (PJA)

Job Number	12954A-20

Report Prepared By:	Sam Norris (Consultant) & Becki Edwards (Principal Consultant)

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1 Construction Noise and Vibration Assessment Overview

1.1 The following sources of noise and vibration generated by the construction of the Development have the potential to adversely affect existing noise sensitive receptors:

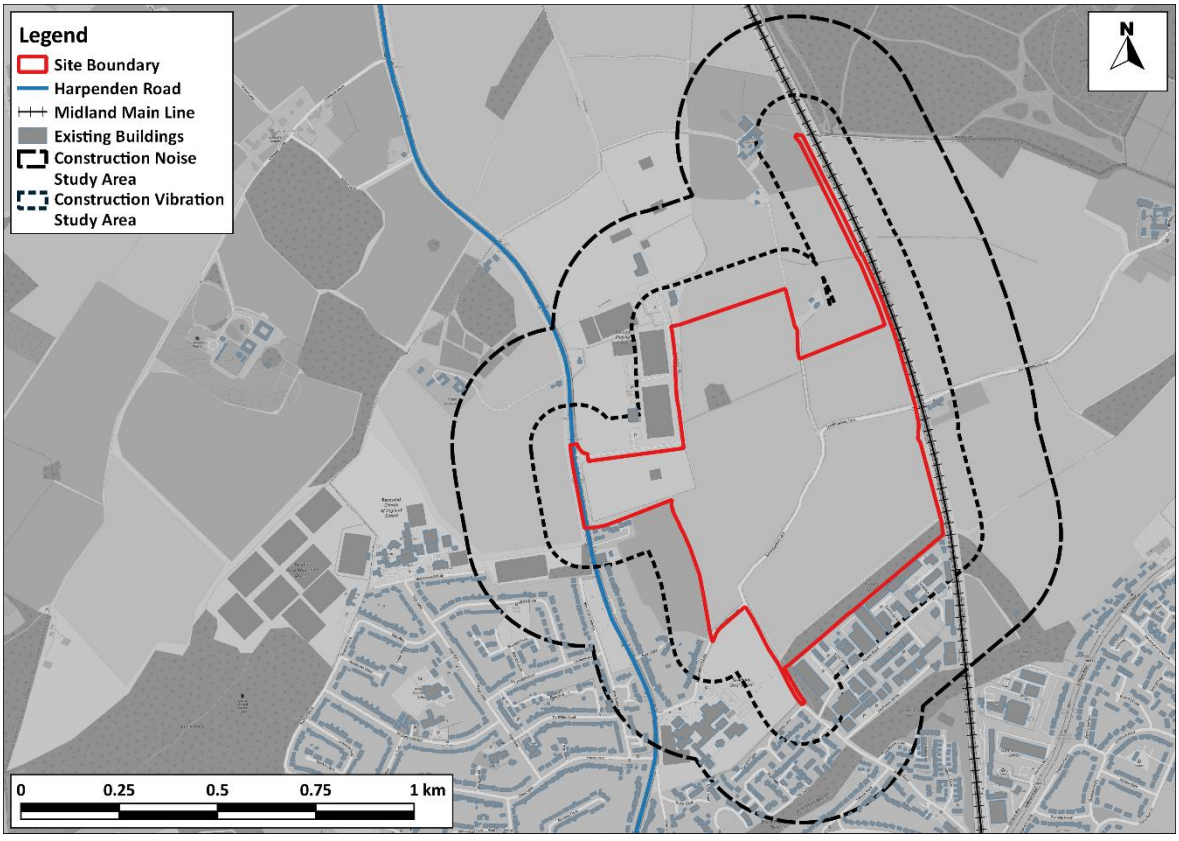
- Construction noise (**Section 2**)
- Construction vibration (**Section 3**)

Study Areas

Construction Noise and Vibration

1.2 The study area for construction noise is 300 m from the Site boundary, and the study area for construction vibration is 100 m from the Site boundary, as shown in **Figure 1.1**.

Figure 1.1: Study Areas for Construction Noise and Vibration



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Noise Sensitive Receptors

Construction Noise and Vibration

1.3 **Table 1.1** sets out the NSR groups within the relevant study areas and the assessments in which the groups are considered. The NSRs are presented graphically in **In addition** to the above, the proposed school is considered as NSR group O, in the event that this is built-out and operational before the site is fully operational. Introduced residential NSRs are broadly considered, in the absence of detailed phasing plans, as NSR group P.

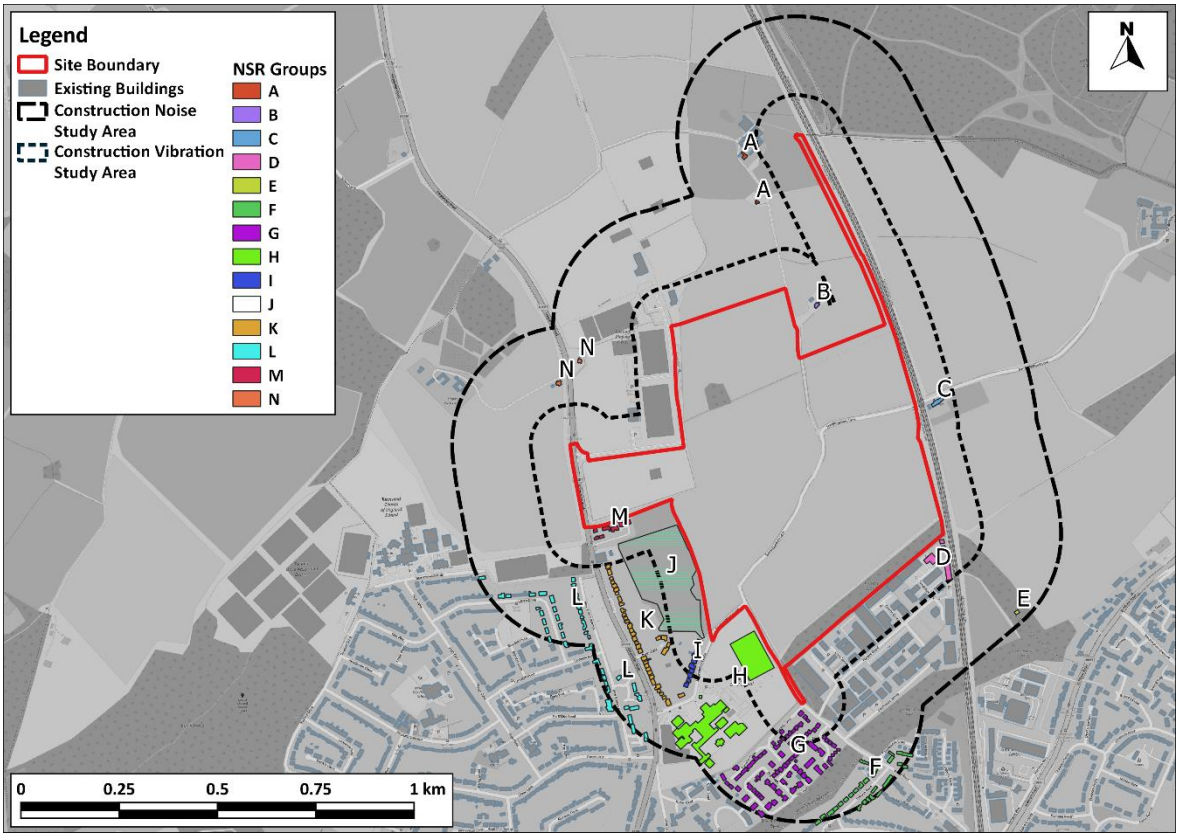
1.4 Figure 1.2.

Table 1.1: Noise Sensitive Receptor Groups for Construction Noise and Vibration

Receptor Ref	Receptor Group Name/Description	Use and Sensitivity	Construction Noise	Construction Vibration
A	Cheapside Farm	Residential / High	Yes	No
B	Cheapside Farm	Residential / High	Yes	Yes
C	Sandridgebury Lane	Residential / High	Yes	Yes
D	Oak Court, The Birches, Porters Wood House, Sandridge Park	Residential / High	Yes	Yes
E	Off St Albans Road	Residential / High	Yes	No
F	Firbank Road, Valley Road, Melbourne Road	Residential / High	Yes	No
G	Darwin Close, Farriday Close, Ellis Fields, Potters Field	Residential / High	Yes	Yes
H	St Albans Girls' School	Educational / High	Yes	Yes
I	Sandridgebury Lane	Residential / High	Yes	Yes
J	Sewell Trust Lane	Residential / High	Yes	Yes
K	Harpenden Road, Petersfield	Residential / High	Yes	No
L	New Greens Avenue and Cavan Drive	Residential / High	Yes	No
M	Harpenden Road	Residential / High	Yes	Yes
N	Harpenden Road	Residential / High	Yes	No

1.5 In addition to the above, the proposed school is considered as NSR group O, in the event that this is built-out and operational before the site is fully operational. Introduced residential NSRs are broadly considered, in the absence of detailed phasing plans, as NSR group P.

Figure 1.2: Noise Sensitive Receptor Groups for Construction Noise and Vibration Assessment



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2 Construction Noise Assessment

2.1 The construction noise impact assessment has been carried out with regard to the methodologies set out in BS 5228-1:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites: Part 1 – Noise* and Government noise policy described in **Appendix 14.2: Legislation, Policy and Guidance**.

Construction Noise Assessment Criteria

2.2 The LOAEL, SOAEL and UAEL for construction noise are summarised in **Table 2.1**.

Table 2.1: Construction Noise Adverse Effect Levels for all Receptors

Period	LOAEL	SOAEL	UAEL
Daytime (07:00 to 19:00)	65 dB $L_{Aeq,12\ hr}$	75 dB $L_{Aeq,12\ hr}$	85 dB $L_{Aeq,12\ hr}$
Evening (19:00 to 23:00)	55 dB $L_{Aeq,4hr}$	65 dB $L_{Aeq,4hr}$	75 dB $L_{Aeq,4hr}$
Night-time (23:00 to 07:00)	45 dB $L_{Aeq,8hr}$	55 dB $L_{Aeq,8hr}$	65 dB $L_{Aeq,8hr}$

2.3 A significant effect in EIA terms is indicated where the SOAEL is exceeded for one month or more. In Government policy terms, a result between LOAEL and SOAEL should be mitigated and minimised as far as practicable.

2.4 **Table 2.2** sets out the magnitude of impact scale used in the assessment.

Table 2.2: Construction Noise Magnitude of Impact Scale for all Receptors

Impact	Construction Noise
Negligible	Less than or equal to LOAEL
Low	Greater than LOAEL and less than or equal to SOAEL
Medium	Greater than SOAEL and less than or equal to UAEL
High	Greater than UAEL

Construction Noise Assumptions

2.5 Activity noise levels have been determined from the data tables set out in Annex C of BS 5228-1 and the predicted construction noise levels have been calculated using the calculation methodologies in Annex F of BS 5228-1.

2.6 An assessment has been carried out for on-site construction activities for the following scenarios:

- **Earthworks** – representing the top-soil strip and bulk material movements required to form the Development platforms for the replacement pitches and residential development.

- **Roadworks** – representing the groundbreaking and laying of aggregates and asphalt required to form the Site access via Harpenden Road and other internal site roads.
- **Building construction works** – representing the above-ground construction works for each building including associated service distribution works, on-site road works, etc.
- **Fitout and landscaping works**

2.7 The construction activity assumptions have been based on information provided in the Development Specification and Scheme Parameters document (April 2024).

2.8 The Development will be constructed over a 10-year period from 2026 until 2036. Prior to commencement of construction of the residential portion, the replacement playing fields will be delivered and occupied. Following the formation of the new playing fields, a new access road will be constructed off Harpenden Road to the west of the site. The housing would be constructed in phases, progressing northwest to southeast across the site.

2.9 First completion of the residential development is expected in 2028/29. As a result, some parts of the Development will become operational whilst other parts are still under construction. This has been taken into consideration in the assessment.

2.10 It has been assumed that all construction activities will occur within normal daytime working hours as set out on the St Albans City & District Council (SACDC) Environmental Services webpage[1]. Therefore, the assessment has only been carried out for the daytime.

2.11 Acoustic mitigation has not been included in the calculations of site noise levels, however localised screening to stationary noise sources or particularly noisy activities close to NSRs will be expected as part of best practicable means (BPM) noise control and management wherever feasible.

Plant List

2.12 **Table 2.3** presents the plant noise assumptions for the construction activities.

Table 2.3: Plant Noise Assumptions for Construction Activities

Plant item	BS 5228-1 Reference	No. of Plant on Site	Percentage On-time	Resultant Sound Power Level, L_{WA} (dB)
Earthworks				
Tracked excavator	C.4.17	1	80%	98
Crusher	C.1.14	1	20%	103
Backhoe mounted hydraulic breaker	C.5.1	1	10%	106

[1] Available at: https://www.stalbans.gov.uk/environmental-services (accessed 9th August 2024).

Plant item	BS 5228-1 Reference	No. of Plant on Site	Percentage On-time	Resultant Sound Power Level, L_{WA} (dB)
Generator	C.4.84	1	100%	102
TOTAL Activity Sound Power Level				**109**
Roadworks				
Backhoe mounted hydraulic breaker	C.5.1	1	10%	106
Tracked excavator	C.4.17	1	80%	98
Dumper (idling)	C.4.5	1	20%	84
Asphalt paver and tipper lorry	C.5.31	1	40%	101
Vibratory roller	C.5.20	1	20%	96
Generator	C.4.84	1	100%	102
TOTAL Activity Sound Power Level				**109**
Building Construction and Associated Works				
Mobile crane	C.4.43	1	25%	92
Cutters, drills, small tools	C.4.72	1	20%	100
Forklift truck	C.4.55	1	25%	92
Mobile access platform	C.4.59	1	25%	100
Concrete lorry	C.4.20	1	40%	104
Concrete pump and boom	C.3.25	1	40%	102
Mortar batching plant	D.6.11	1	60%	106*
Water pump	C.11.3	1	100%	97
Generator	C.4.84	1	100%	102*
TOTAL Activity Sound Power Level				**111**
* Can be located within the site away from receptors following BPM. As such combined emission of concrete lorry and pump will inform the worst-case assessment				
Fitout and Landscaping Works				
Cutters, drills, small tools	C.4.72	1	20%	100
Wheeled excavator	C.4.10	1	25%	88
Forklift truck	C.4.55	1	25%	92
Dumper	C.4.5	1	20%	84
Mobile access platform	C.4.59	1	25%	100

Plant item	BS 5228-1 Reference	No. of Plant on Site	Percentage On-time	Resultant Sound Power Level, L_{WA} (dB)
Generator	C.4.84	1	100%	102*
TOTAL Activity Sound Power Level				**105**
***** Can be located within the site away from receptors following BPM. As such emission of mobile access platform will inform the worst-case assessment.				

Calculation Assumptions

Worst-case Assessment

2.13 A worst-case assessment has been carried out based on the following assumptions:

- The item of plant with the highest sound power level (as identified in **Table 2.3**) is operating at the closes point of works to the receptor group. (in practice, this might only occur for a relatively short duration, if at all).
- Specific BPM mitigation such as corrections for screening or enclosing localised items of plant has not been applied so as to provide a simplified and worst-case calculation.
- Corrections for screening that might be provided by existing buildings, fencing or other structures have not been applied. It is assumed that the worst-affected receptor within most groups would not benefit from any significant screening by existing sources.
- A correction for construction site hoarding has not been applied as the efficacy of the site hoarding at mitigating noise will vary between different construction work areas and receptors.

Typical Assessment

2.14 A typical assessment has also been carried out as part of consideration of the significant of the effect, particularly where the worst-case assessment indicates a medium or high impact.

2.15 Using the total construction sound power levels set out in **Table 2.3**, a typical assessment has been carried out assuming that the construction activities are occurring in the centre of the nearest development parcel in relation to the noise sensitive receptor, up to a maximum distance of 300 m. This assessment provides a more representative overview of the spatially averaged noise levels at the receptors over the duration of the associated nearest development phase.

2.16 Noise generated by construction activities in other development parcels will generally be quieter as a result of increased distance from the NSR group, screening effects of intervening completed development parcels, or a combination of both.

Predicted Construction Noise Levels

Worst-Case Construction Noise Assessment

2.17 The worst-case construction noise assessment assumes that the item of plant which will generate the highest sound levels is operating at the closest point inside the site boundary to any receptor within the 300 m study area.

2.18 **Table 2.4** presents the construction phase noise levels (Earthworks, Roadworks, Construction, and Fitout) for the relevant existing receptor groups within 300 m of the site boundary.

Table 2.4: Predicted Construction Site Noise Levels $L_{Aeq,12hr}$ (dB) – Existing Receptors

Receptor Group	Predicted Construction Noise Level $L_{Aeq,T}$			
	Earthworks	Roadworks	General Construction	Fitout and Landscaping
A	50	43	50	44
B	60	48	59	54
C	65	53	65	59
D	61	55	61	55
E	44	43	44	38
F	47	43	47	41
G	74	44	74	68
H	66	52	65	60
I	71	70	71	65
J	79	57	79	73
K	54	54	54	48
L	46	49	46	40
M	74	63	73	68
N	51	43	50	45

2.19 **Table 2.5** presents the assessment of noise effects on the identified receptors based on the predicted construction noise levels in **Table 2.4**.

Table 2.5: Assessment of Worst-Case Construction Noise Levels – Existing Receptors

Receptor Group	Magnitude of Impact			
	Earthworks	Roadworks	General Construction	Fit Out and Landscaping
A	Negligible	Negligible	Negligible	Negligible

Receptor Group	Magnitude of Impact			
	Earthworks	Roadworks	General Construction	Fit Out and Landscaping
B	Negligible	Negligible	Negligible	Negligible
C	Low	Negligible	Low	Negligible
D	Negligible	Negligible	Negligible	Negligible
E	Negligible	Negligible	Negligible	Negligible
F	Negligible	Negligible	Negligible	Negligible
G	Low	Negligible	Low	Low
H	Low	Negligible	Low	Negligible
I	Low	Low	Low	Low
J	Medium	Negligible	Medium	Low
K	Negligible	Negligible	Negligible	Negligible
L	Negligible	Negligible	Negligible	Negligible
M	Low	Negligible	Low	Low
N	Negligible	Negligible	Negligible	Negligible

2.20 **Table 2.5** identifies some medium impacts at receptor group J. Generally, the medium impacts occur during the earthworks and construction phase, where the distances between the activity and receptor are shortest. It is noted that this receptor group is a committed development which may be built-out on a similar timeline to the adjacent development parcel.

2.21 In practice, the noisiest plant is only likely to operate at such close distances to the receptors for a relatively short duration of time (i.e. a few days). BPM mitigation that is likely to be applied include site hoardings and predicted noise levels therefore may be up to 5 dB quieter, which could further reduce if quieter plant is used than those considered in this assessment (i.e. an electric mobile access platform).

2.22 These assumptions are likely to reduce medium impacts below the SOAEL resulting in a low impact. In most cases, the plant may only need to move a relatively short distance away in order for the predicted noise levels to reduce below the SOAEL and become a low impact.

2.23 In respect of introduced receptors groups O and P, it is expected that roadworks will be completed well in advance of the occupation of dwellings such that noise from roadworks would not exceed LOAEL at any introduced receptors. Introduced receptors within approximately 40 m of earthworks

or general construction are likely be exposed to noise levels exceeding LOAEL. Introduced receptors within approximately 15 m of earthworks or general construction are likely to be exposed to noise levels exceeding SOAEL. Typical phasing patterns in housing developments are likely to avoid occupied dwellings being exposed to noise levels exceeding SOAEL. However, there may be very short-term periods where construction activities exceed LOAEL, subject to the plot-by-plot phasing.

Typical Activities

2.24 For all development phases, the noise-generating construction activities will vary in noise as they progress across the Site.

2.25 For each receptor group, an assessment using the total sound power level assuming the average distance between the construction activity in the nearest adjacent development parcel and the receptor group has been carried out.

2.26 **Table 2.6** presents the noise levels predicted for the typical assessment scenario for existing receptors.

Table 2.6: Predicted Construction Noise Levels Typical Scenario – Existing Receptors

Receptor Group	Predicted Construction Noise Level $L_{Aeq,T}$			
	Earthworks	Roadworks	General Construction	Fitout and Landscaping
A	46	46	48	42
B	53	52	55	48
C	55	55	57	51
D	57	56	59	52
E	46	46	48	42
F	46	46	48	42
G	49	48	51	44
H	59	59	61	55
I	51	50	52	46
J	64	63	66	59
K	50	50	52	45
L	48	47	50	43
M	64	63	66	59
N	48	48	50	44

2.27 **Table 2.7** presents the magnitude of impact on the identified existing receptors based on the predicted construction noise levels in **Table 2.6**.

Table 2.7: Assessment of Typical Construction Noise Levels – Existing Receptors

Receptor Group	LOAEL	SOAEL	Magnitude of Impact			
			Earthworks	Roadworks	General Construction	Fit Out and Landscaping
A	65	75	Negligible	Negligible	Negligible	Negligible
B	65	75	Negligible	Negligible	Negligible	Negligible
C	65	75	Negligible	Negligible	Negligible	Negligible
D	65	75	Negligible	Negligible	Negligible	Negligible
E	65	75	Negligible	Negligible	Negligible	Negligible
F	65	75	Negligible	Negligible	Negligible	Negligible
G	65	75	Negligible	Negligible	Negligible	Negligible
H	65	75	Negligible	Negligible	Negligible	Negligible
I	65	75	Negligible	Negligible	Negligible	Negligible
J	65	75	Negligible	Negligible	Low	Negligible
K	65	75	Negligible	Negligible	Negligible	Negligible
L	65	75	Negligible	Negligible	Negligible	Negligible
M	65	75	Negligible	Negligible	Low	Negligible
N	65	75	Negligible	Negligible	Negligible	Negligible

2.28 With reference to **Table 2.7**, during the daytime the medium adverse magnitude of impacts reduce to low or negligible considering a spatial average of the construction activities. At most receptors, the typical assessment results in a negligible impact.

Construction Noise Mitigation Measurements

2.29 Primary best practicable means (BPM) steps for the reduction of construction noise and vibration effects include:

- **Substitution** – where practicable, one or more of the proposed construction plant items are substituted for a quieter or lower vibration option.
- **Equipment siting** – when and where practicable, operational construction plant items will be located away from noise sensitive areas.

- **Screening** – site hoarding, site cabins and material stores will provide noise screening to low level sources of noise. Specific sources of noise will be enclosed or screened, where practicable, to further reduce noise. Inherent screening will also be achieved as buildings increase in height and the building envelope is completed.
- **Working methods** – where practicable, adjust working methods so that the number of concurrent noisy construction activities being undertaken is reduced. Completing activities close to the Site boundary quickly and efficiently. Shutting down noisy equipment when not in use. Starting up/shutting down vibratory compaction equipment away from vibration sensitive areas.
- **Hours of work** – working hours on Site will be agreed with SACDC, with the standard hours of work adhered to as far as practicable. Any work outside of the agreed hours will be subject to prior agreement of, and/or reasonable notice to the SACDC, as appropriate.
- **Risk assessments and method statements** – incorporating noise and vibration control into the method statements at an early stage to capture the provision of appropriate mitigation measures. Preparation of risk assessments to inform relevant structural surveys in relation to construction vibration, if applicable. Toolbox talks to ensure workers are fully briefed on any adjustments to working practices in the interests of noise and vibration.
- **Community liaison** – Proactive links between noise management activities and community relations activities to keep local residents informed of periods of likely intensive construction activities, including changes to hours of work. Appointment of a Site contact to whom complaints/queries about noise and vibration can be directed, investigated and acted upon.
- **Noise and vibration monitoring** – application of a noise and vibration monitoring protocol to ensure compliance with any acoustic commitments and consents and to enable action upon potential breaches quickly and efficiently.

2.30 The above measures will be included in an outline Construction Environmental Management Plan (CEMP) and developed as the construction methodology evolves.

3 Construction Vibration Assessment

3.1 The construction vibration impact assessment has been carried out with regard to the methodologies set out in BS 5228-2:2009+A1:2014 *Code of practice for noise and vibration control on construction and open sites: Part 2 – Vibration* and Government noise policy.

Construction Vibration Assessment Criteria

3.2 **Table 3.1** sets out the adverse effect levels for construction vibration based on the guidance in BS 5228-2.

Table 3.1: Construction Vibration Adverse Effect Levels for all Receptors

Time Period	LOAEL	SOAEL	UAEL
All time periods	0.3 mm/s PPV	1.0 mm/s PPV	10 mm/s PPV

3.3 The magnitude of impact scale is set out in **Table 3.2**.

Table 3.2: Construction Vibration Magnitude of Impact Scale for all Receptors

Magnitude of Impact	Construction Vibration Level
Negligible	Less than or equal to LOAEL
Low	Greater than LOAEL and less than or equal to SOAEL
Medium	Greater than SOAEL and less than or equal to UAEL
High	Greater than UAEL

3.4 A significant effect is determined where a high magnitude of impact will occur for any duration of time or a medium magnitude of impact will occur for either 10 or more days in any 15 consecutive days or nights, or a total number of days exceeding 40 in any 6 consecutive months. This approach takes into account the transient nature of the works.

Construction Vibration Assumptions

3.5 It is anticipated that the highest levels of construction vibration will be generated by the use of vibratory compaction during roadworks.

3.6 It is assumed that vibratory compaction will only occur during daytime construction hours (i.e. 0730 hrs to 1800 hrs) in accordance with the hours of work set out in SACDC Environmental Compliance Matters for Construction Site Noise.

3.7 For the purpose of this assessment, an 18 tonne Bomag BW 216 PD-5 single drum vibratory compactor has been considered to be representative of a standard plant used for these activities. The Bomag plant has two vibration settings, with the lower setting being assessed in this scenario.

3.8 The calculation of vibration has been carried out using the equations from BS 5228-2 Table E.1 for vibratory compaction in a steady state. The assessment includes scenarios where there is a 5% probability that predicted values could be exceeded. It is noted that higher levels of vibration can occur during the start-up and run down of the plant, however this is transient in duration and by way of mitigation can readily be conducted at distances further away from receptors.

Predicted Construction Vibration Levels

3.9 **Table 3.3** sets out the predicted distances within which construction vibration is likely to exceed the LOAEL (0.3 mm/s PPV), SOAEL (1 mm/s PPV) and UAEL (10 mm/s PPV) for steady state activities at low amplitude settings. The probability of these levels being exceeded is 5%.

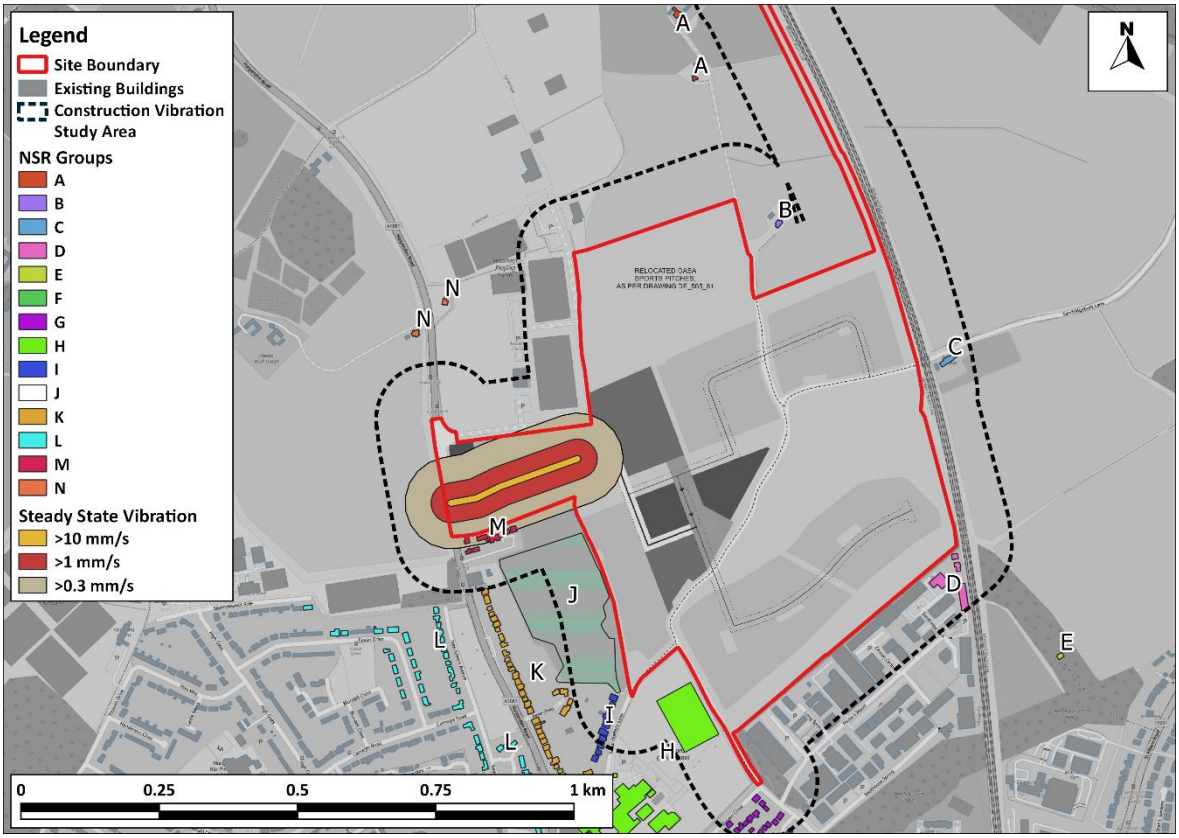
Table 3.3: Predicted Distances for Construction Vibration Levels

Type of Activity	Amplitude Setting	Distance from Activity	Comment
Steady State	Low (0.9 mm)	83 m	Distance at which vibration levels predicted to reduce below LOAEL (0.3 mm/s PPV)
		36 m	Distance at which vibration levels predicted to reduce below SOAEL (1.0 mm/s PPV)
		6.1 m	Distance at which vibration levels predicted to reduce below UAEL (10 mm/s PPV)
Start Up/Run Down[2]		117 m	Distance at which vibration levels predicted to reduce below LOAEL (0.3 mm/s PPV)
		46 m	Distance at which vibration levels predicted to reduce below SOAEL (1.0 mm/s PPV)
		6 m	Distance at which vibration levels predicted to reduce below UAEL (10 mm/s PPV)

3.10 **Figure 3.1** identifies the NSR groups which are located within 6 m, 36 m and 83 m of steady state vibratory compaction works which may occur at the proposed site access roadworks. This represents the worst-case vibration impacts anticipated for the Proposed Development.

[2] Start up and run down operations should not be carried out within 100 m of an NSR, whenever practicable.

Figure 3.1: Construction Vibration Impacts Roadworks



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Additional Mitigation

3.11 Vibration generated during the start-up/run down of the vibratory compactor is likely to be higher than during steady state activities. The start up and run down of vibratory compactors should therefore be undertaken at least 100 m from NSRs, where practicable, to avoid unnecessarily high levels of vibration.

3.12 Where NSRs are located within 100 m of the construction activities, the low amplitude vibration setting should be used where possible. Ideally, a non-vibratory solution should be utilised.

3.13 Where NSRs are located within approximately 6 m of the construction activities, a smaller, less intense item of vibratory compaction plant should be used. Ideally, a non-vibratory solution should be utilised.

3.14 Engaging with the local community, particularly anyone living or working within 36 m of the vibratory works, to inform them of when the vibratory works will take place and how long they are likely to last, as well as any measures being taken to minimise vibration.

Consideration of vibration monitoring at key receptors is recommended if the duration of works is likely to last for extended periods of time or in very close proximity to receptors.

Appendix 16.5: Operational sound assessment

Appendix 16.5:
Operational Noise Assessment

December 2024








Experts in noise and vibration assessment and management

Document Control

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Job Number	12954A-20

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1 Operational Sound Assessment Overview

1.1 The following sources of sound generated by the operational Development have the potential to adversely affect existing noise sensitive receptors:

- Building services noise (**Section 2**)
- Sports activity noise (**Section 3**)
- Off-site road traffic noise (**Section 4**)

1.2 The assessment of existing noise sources on the Proposed Development is provided in **Appendix 14.6: Site Suitability Assessment**.

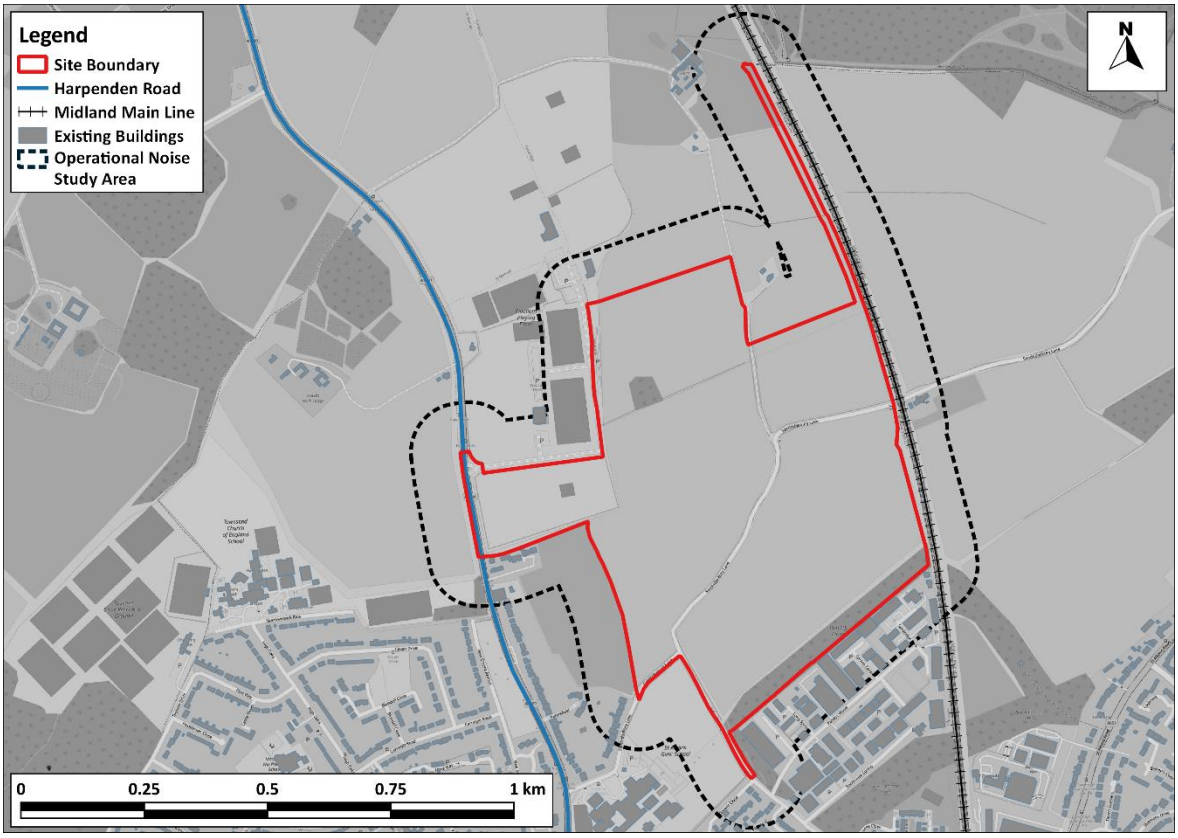
Study Area

On-Site Sources of Noise

1.3 A study area of 100 m from the Site boundary, shown in **Figure 1**, has been assumed for the assessment building services sound.

1.4 Provided that the target sound criteria are achieved at the closest receptors within the above study area, the criteria should inherently be achieved at any other receptors beyond the closest receptors. Outside of 100 m, it is highly unlikely that the on-site operational sound sources will adversely affect noise sensitive receptors. In any case, new residential receptors introduced as part of the Proposed Development will likely be located closest to any building services plant and equipment, therefore, effects at off-site receptors should inherently be negligible.

Figure 1.1: Study Area for On-Site Operational Noise



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Off-Site Road Traffic Noise

1.5 The study area for operational off-site road traffic noise is 50 m from the kerb of any road on which operational traffic will travel which has the potential to experience a short-term Basic Noise Level[1] (BNL) change of more than 1 dB(A) as a result of the Proposed Development.

1.6 The extent of the road traffic network considered by the Transport Consultant for the road traffic data used in the noise assessment is presented in **Figure 1.2** with the road links named in **Table 1.1**.

[1] A BNL is calculated using the methodology set out in the Calculation of Road Traffic Noise (CRTN) using traffic volume, traffic speed and percentage of HGVs. BNLs are calculated at 10 m from the edge of the nearest carriageway of the relevant road link.

Figure 1.2: Extent of Road Network for Operational Off-Site Road Traffic Noise Assessment

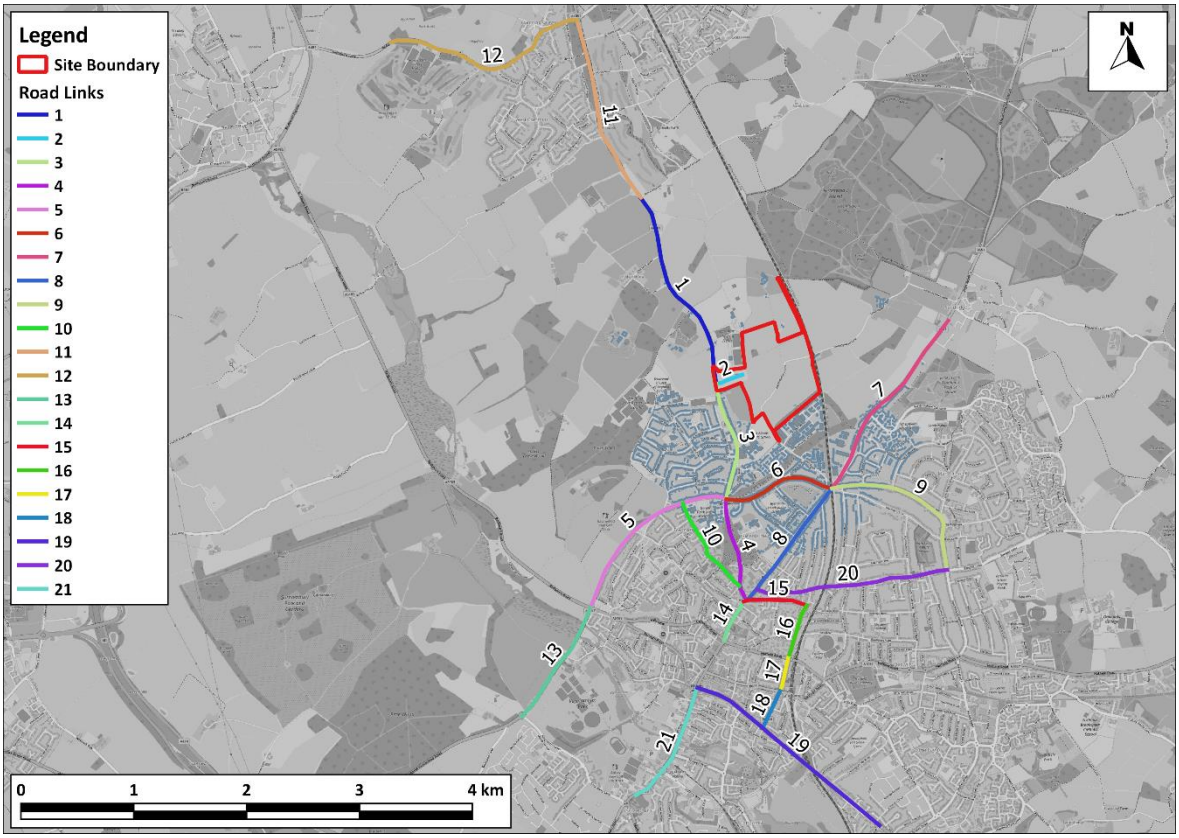

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Table 1.1: Road Links

Road Link Ref	Road Link Name
1	A1081 Harpenden Road (North of Site access)
2	Site Access
3	A1081 Harpenden Road (South of Site access)
4	A1081 Harpenden Road (South of Ancient Briton)
5	Batchwood Drive
6	Beech Road
7	B651 St Albans Road
8	B651 Sandridge Road
9	Marshalswick Lane
10	Townsend Drive
11	A1081 Harpenden Road (North of Ayres End Lane)
12	B487 Redbourn Lane
13	A4147 Bluehouse Hill
14	A1081 St Peters Street (South of Stonecross Junction)
15	Avenue Road
16	Lemsford Road
17	Beaconsfield Road
18	Alma Road

Road Link Ref	Road Link Name
19	London Road (West of Mile House Lane)
20	Sandpit Lane
21	A5183 Holywell Road

Noise Sensitive Receptors

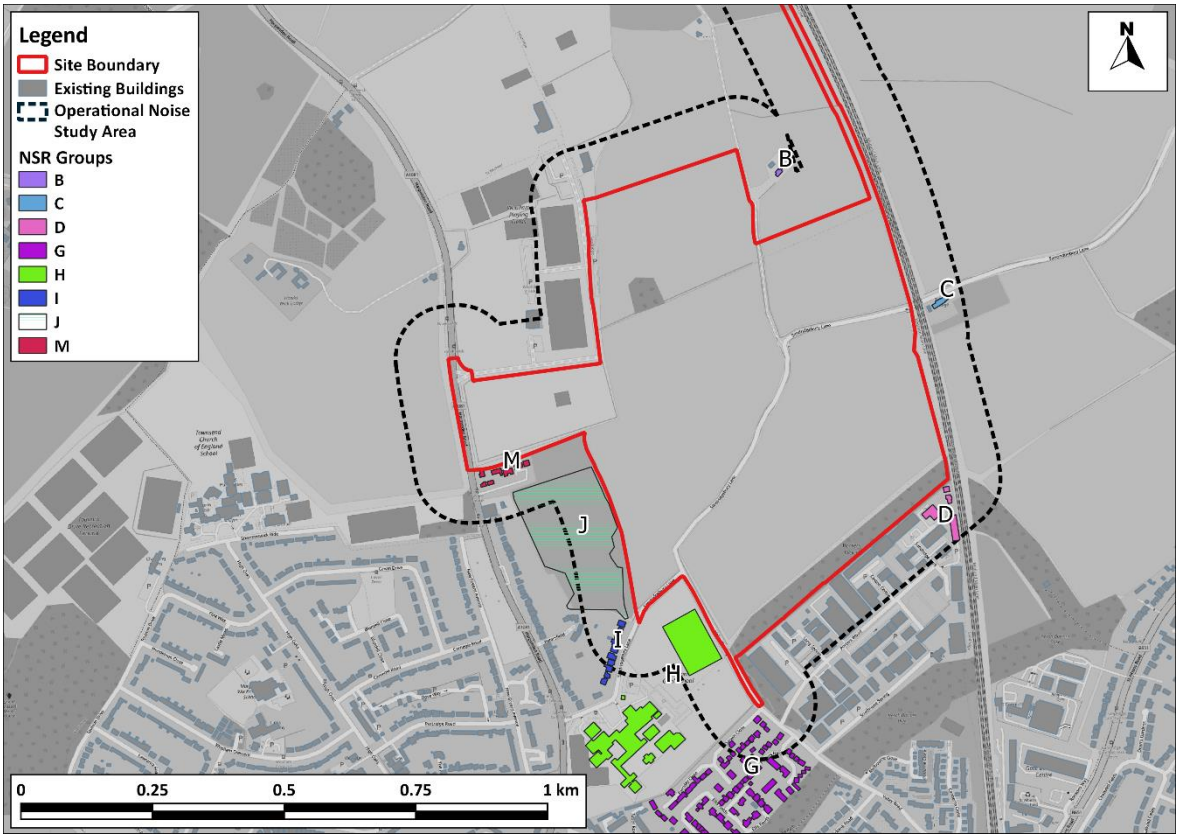
Operational Noise Assessment

1.7 **Table 1.2** sets out the NSR groups within the 100 m operational assessment study area. The NSR groups are shown in **Figure 1.3**.

Table 1.2: Noise Sensitive Receptor Groups within 100 m Study Area

Receptor Ref	Receptor Group Name/Description	Use and Sensitivity
B	Cheapside Farm	Residential / High
C	Sandridgebury Lane	Residential / High
D	Oak Court, The Birches, Porters Wood House, Sandridge Park	Residential / High
G	Darwin Close	Residential / High
H	St Albans Girls' School	Educational / Medium
I	Sandridgebury Lane	Residential / High
J	Sewell Trust Land	Residential / High
M	Harpenden Road	Residential / High

Figure 1.3: Noise Sensitive Receptor Groups for Operational Noise Assessment



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Operational Off-Site Road Traffic Assessment

1.8 If any roads are identified as having the potential to experience a short-term BNL change of more than 1 dB(A) as a result of the Development (at 10 m from the edge of the carriageway), NSRs are established within the 50 m study area. NSRs are established on the basis of:

- Having the potential to experience a short-term BNL change of more than 1 dB(A) as a result of the Development (at the receptor location up to 50 m from the road link); and
- Where the calculated BNL at the receptor is forecast to exceed the relevant Lowest Adverse Effect Level (LOAEL).

2 Building Services Sound

Residential Receptors

2.1 The assessment of the effects of operational building services sound is carried out with regards to the methodology in British Standard 4142:2014+A1:2019 *Methods for rating and assessing industrial and commercial sound*.

2.2 As the requirements for and specifications of building services plant will be unknown until the detail of the Development is progressed, Environmental Sound Criteria (ESC) have been identified using the baseline noise measurement results. ESC can be secured by way of a suitably worded planning condition.

Assessment Methodology

2.3 BS 4142 is the standard applicable to the assessment of sound of an industrial and commercial nature, such as that from the operation of building services associated with the Proposed Development.

2.4 BS 4142 is used to rate and assess sound of an industrial nature including but not limited to assessing sound from proposed new, modified, or additional sources of industrial sound. It contains guidance on the monitoring and assessment of industrial and commercial sound sources (including fixed installations comprising mechanical and electrical plant and equipment) affecting residential receptors.

2.5 The methodology relies on comparing the rating level, $L_{Ar,Tr}$, (i.e. the specific noise from the sound source plus any allowance for character correction) with the background sound level, $L_{A90,T}$ (i.e. the level that would be present without the Development) over a representative time period. BS 4142 provides guidance on the measurement of background sound, the determination of specific sound and calculation of the rating level.

2.6 In order to determine the impact threshold levels for the assessment of operational industrial sound, the difference between the rating level and background sound level is considered, as advocated by the methodology within BS 4142.

Assessment Criteria

2.7 The BS 4142 methodology assesses the likely effects of sound on people and premises used for residential purposes and provides an indication of the likely magnitude of impact. The BS 4142 magnitudes of impact, including where there is an indication of '*significant adverse impact*' have been aligned with the effect levels in NPSE, namely the SOAEL, which is the effect level above which significant adverse effects on health and quality of life occur.

2.8 For residential receptors during the daytime and night-time periods, the SOAEL threshold is set at 10 dB greater than the background sound level, when determined in accordance with the BS 4142

assessment procedure. When this threshold is exceeded, it indicates that a significant adverse effect in EIA terms is likely to occur, subject to factors relating to context.

2.9 The LOAEL threshold is set as equal to background sound level, when determined in accordance with the BS 4142 assessment procedure.

2.10 This is summarised in **Table 2.1** below.

Table 2.1: Building Services Rating Level Criteria

Period	LOAEL Rating Level $L_{Ar,Tr}$ (dB)	SOAEL Rating Level $L_{Ar,Tr}$ (dB)
Daytime (0700-2300hrs)	Equal to background sound level, $L_{A90,T}$ With consideration of context	Background sound level, $L_{A90,T}$ plus10 dB With consideration of context
Night-time (2300-0700hrs)		

2.11 The assessment of operational sound is the combined effect of all building services proposed within the Development.

2.12 ESC have been set based on achieving a combined rating level which is equal to background sound level aligning with the LOAEL.

Baseline Noise Levels

2.13 The baseline noise survey results have been used to inform the assessment of operational building services noise. **Table 2.2** sets out the lowest of the measured average (mean) or typical (mode) background sound levels and the relevant noise monitoring location for the receptor groups in the study area.

Table 2.2: Measured Background Sound Levels at Noise Sensitive Receptors

Receptor Group Reference	Representative Noise Monitoring Location	Daytime Background Modal Sound Level $L_{A90,T}$ (dB)	Night-time Background Modal Sound Level $L_{A90,T}$ (dB)
B	ML5	34	30
C	ML5	34	30
D	ML3	37	32
G	ML3	37	32
I	ML2	38	30
J	ML2	38	30
M	ML2	38	30

Environment Sound Criteria

2.14 **Table 2.3** summarises the proposed ESC as a rating level by reference to **paragraph 2.12**.

Table 2.3: Proposed Environmental Sound Criteria – Residential Receptors

Receptor Group Reference	Daytime Rating Level $L_{Ar,Tr}$ (dB)	Night-time Rating Level $L_{Ar,Tr}$ (dB)
B	34	30
C	34	30
D	37	32
G	37	32
I	38	30
J	38	30
M	38	30

Non-Residential Receptors

Adverse Effect Screening Criteria

2.15 For the purposes of this assessment, non-residential receptors are defined as those which are not used as a permanent residence, however they do have a use sensitive to noise and vibration.

2.16 **Table 2.4** summarises the screening criteria used to determine likely significant effects at the relevant non-residential receptors.

Table 2.4: Non-Residential Receptor External Noise Impact Screening Criteria

Non-Residential Receptor Type	Daytime 07:00 – 23:00 hrs Screening Criterion dB $L_{Aeq,16hr}$	Night-time 23:00 – 07:00 hrs Screening Criterion dB $L_{Aeq,8hr}$	Reference
Educational	50*	Not applicable	BB93, 2015

*and a change in noise level of more than 3 dB(A).

2.17 Where noise exposure is shown to meet the relevant screening criterion presented in **Table 2.4**, then no further assessment is required. Where the screening criterion is predicted to be exceeded, then consideration is given to additional criteria including the change in noise level and context.

2.18 The noise levels in **Table 2.4** represent LOAELs for non-residential receptors. A SOAEL is considered to be where the predicted noise level exceeds the LOAEL and increases the ambient noise level ($L_{Aeq,T}$) by more than 3 dB(A), subject to context.

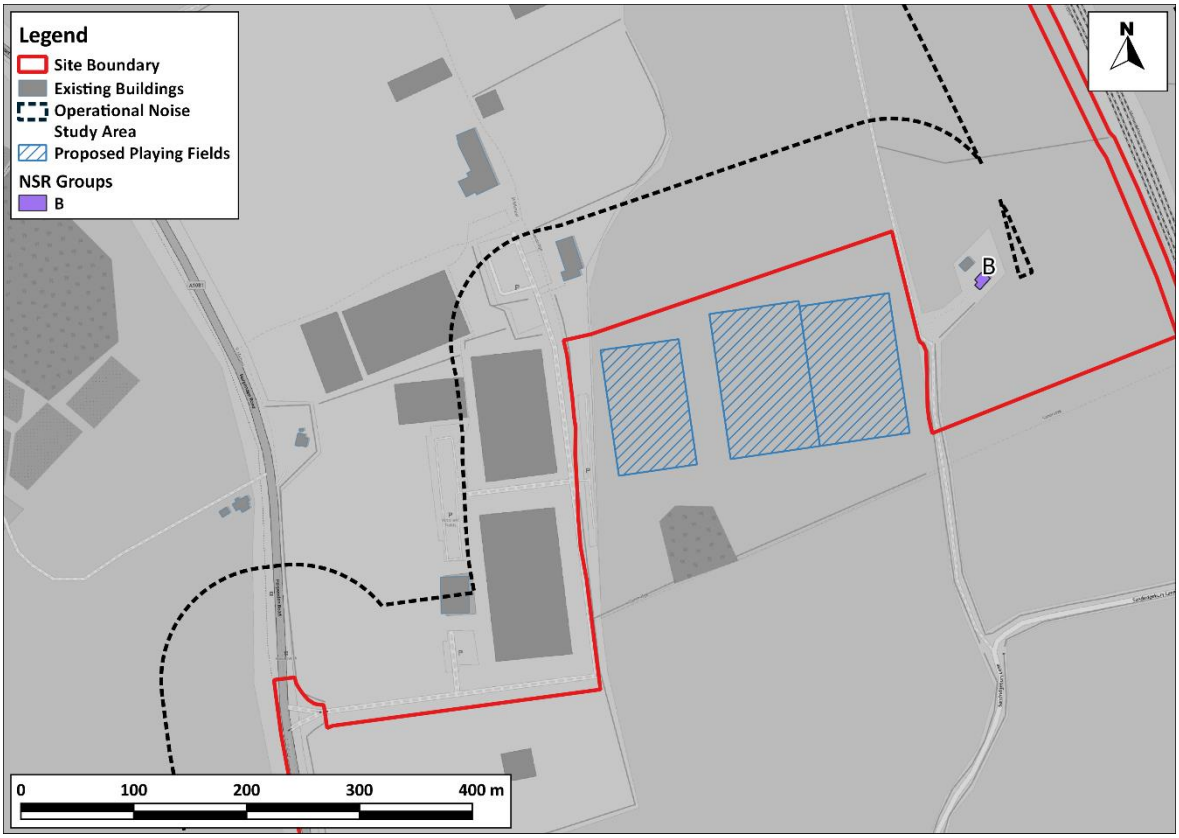
2.19 Context, where applicable, could include consideration of factors such as the character of the existing and introduced noise sources, or prediction of internal noise levels and comparison against relevant internal noise criteria.

2.20 The main school building is located outside of the operational noise study area, therefore this assessment considers the effects on external areas assuming that they are used as outdoor teaching space.

3 Sports Activity Noise

3.1 The assessment of sports activity noise relates to the proposed playing fields in the north of the Site and the effect of operational noise on off-site receptors. **Figure 3.1** identifies the layout of the proposed sports pitches which have been modelled as part of this assessment.

Figure 3.1: Proposed Playing Fields Layout



3.2 It is assumed that all other existing sources of sports activity noise associated with Woollam Playing Fields, including the cricket greens, tennis facilities and unaltered rugby pitches, will not be altered by the Proposed Development and have therefore been excluded from the assessment.

3.3 The impacts of the relocated sports pitches on the introduced NSRs are assessed in **Appendix 14.6: Site Suitability Assessment**.

Assessment Criteria

3.4 Guidance on assessing noise from sports activities is limited. Guidance is provided by Sport England on planning implications associated with the introduction of artificial grass pitches (the AGP guidance) in respect of activity noise averaged over a one-hour period ($L_{Aeq,T}$) with reference to WHO guidelines. The guidance documents are summarised in **Appendix 14.2: Legislation, Policy and Guidance**.

3.5 On the basis of the above guidance, **Table 3.1** sets out a magnitude of impact scale for average sports activity noise levels from the proposed playing fields.

Table 3.1: Magnitude of Impact Scale for Sports Activity Noise

Magnitude of Impact	Average Activity Noise Level $L_{Aeq,1hr}$ (dB)
Negligible	<=50
Low	>50 to <=55
Medium	>55 to <=60
High	>60

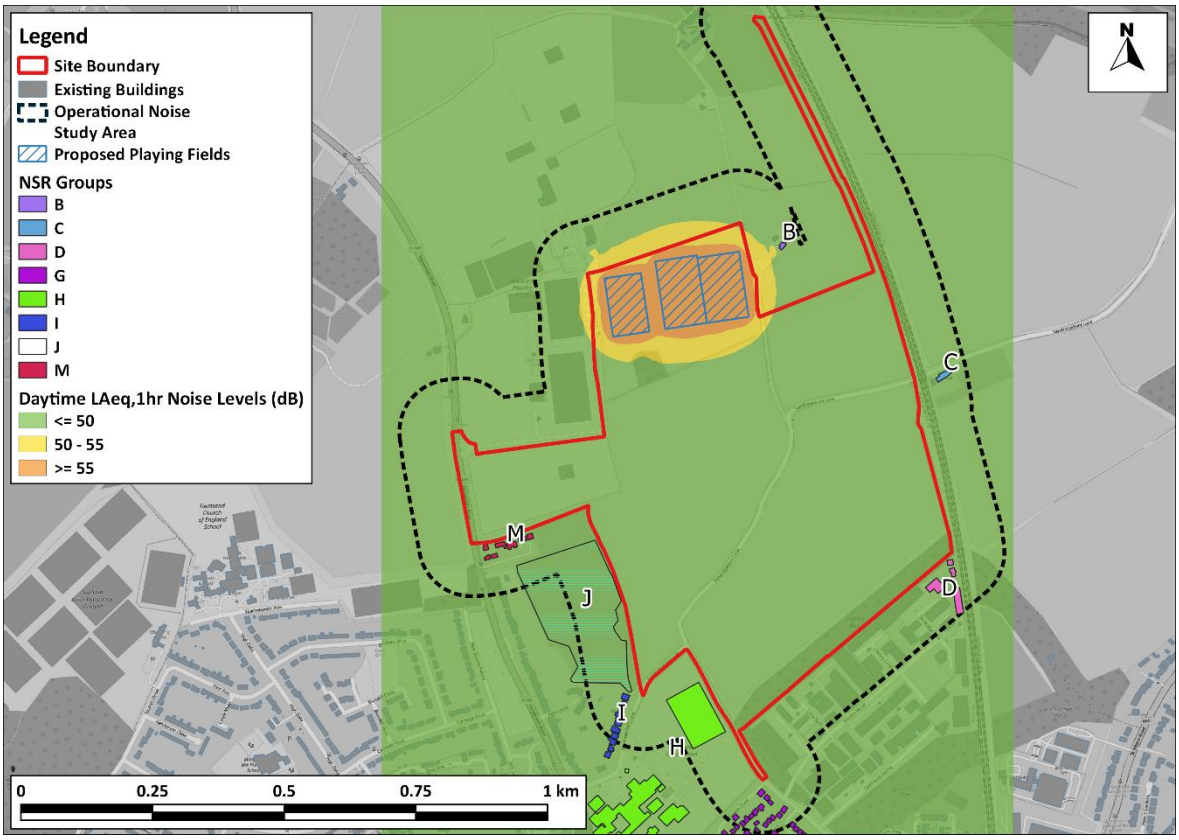
Noise Modelling Assumptions

3.6 The proposed playing fields have been modelled as area sources and the emissions from each pitch have been calibrated to achieve a noise level of 58 dB $L_{Aeq,1hr}$ at 10 m from the sideline halfway marking.

Predicted Noise Levels

3.7 **Figure 3.2** presents the $L_{Aeq,1hr}$ noise contours from the new sports pitches.

Figure 3.2: Noise Modelling Results for Proposed Playing Fields $L_{Aeq,1hr}$ (dB)



3.8 It can be seen in **Figure 3.2** that all NSR groups are predicted to experience a negligible impact from the proposed playing fields.

4 Off-Site Road Traffic Noise

4.1 The Proposed Development will introduce additional road traffic movements onto the local road network.

4.2 Traffic data has been provided by the Transport Consultants as 18-hour Average Annual Weekday Traffic (AAWT between 06:00 hrs and 00:00 hrs) including percentage of HGVs and speeds for the roads shown in **Figure 1.2**.

Operational Road Traffic Assessment Scenarios

4.3 The following traffic scenarios have been used in the assessment of changes in road traffic noise:

- 2022 Baseline;
- 2028 Future baseline (without the Proposed Development); and
- 2028 Future baseline with Development traffic.

4.4 The road traffic data includes traffic flows associated with relevant committed development sites.

4.5 The assessment of road traffic noise has been conducted in terms of a comparison of BNL calculated in accordance with CRTN against the change in noise level scales set out in DMRB LA 111.

4.6 The assessment compares the following scenarios:

- Short-term Assessment: 2028 Future Baseline with Development and 2028 Future baseline without Development; and
- Long-term Assessment: 2028 Future baseline with Development and 2022 Baseline.

Operational Road Traffic Adverse Effect Levels

4.7 Adverse effect levels are identified in LA111 "*for all noise sensitive receptors in the study area*" and are defined based on the guidance in **Appendix 10.2**. **Table 4.1** presents the operational road traffic adverse effect levels for all receptors.

Table 4.1: Operational Road Traffic Noise Adverse Effect Levels for All Receptors

Time Period	LOAEL	SOAEL	UAEL
Daytime (0600 hrs to 2400 hrs)	55 dB $L_{A10,18hr}$ (façade)	68 dB $L_{A10,18hr}$ (façade)	76 dB $L_{A10,18hr}$ (façade)
Night-time (2300 hrs to 0700 hrs)	40 dB $L_{night,outside}$ (free-field)	55 dB $L_{night,outside}$ (free-field)	66 dB $L_{Aeq,8hr}$ (free-field)

Operational Road Traffic Noise Level Change

4.8 **Table 4.2** presents the magnitude of impact scales used for the short-term and long-term assessments.

Table 4.2: Operational Road Traffic Change in Noise Level

Magnitude of Impact	Short-term Noise Change $L_{A10,18hr}$ or L_{night} (dB)	Long-term Noise Change $L_{A10,18hr}$ or L_{night} (dB)
High	Greater than or equal to 5.0	Greater than or equal to 10.0
Medium	3.0 to 4.9	5.0 to 9.9
Low	1.0 to 2.9	3.0 to 4.9
Negligible	Less than 1.0	Less than 3.0

Determination of Significant Effects

Initial Assessment of Operational Noise Significance

4.9 The initial assessment of likely significant effects on noise sensitive buildings will be conducted by refence to **Table 4.3**.

Table 4.3: Initial Determination of Operational Road Traffic Noise Significance

Short Term Magnitude of Change	Significance
High	Significant
Medium	Significant
Low	Potentially significant
Negligible	Not significant

4.10 Where a short-term change in noise level is negligible, it is concluded that the noise change will not cause changes to behaviour or response to noise and therefore will not give rise to a likely significant effect.

4.11 A medium or high magnitude of impact in the short-term indicates that significant effects are likely.

Final Assessment of Operational Noise Significance

4.12 Where the magnitude of impact in the short-term is low, medium or high at a NSR, the additional points set out in **Table 4.4** are considered.

Table 4.4: Final Determination of Operational Noise Significance

Circumstance	Influence of Significance
Noise level change	If the noise level change is within 1 dB of the top of the low range, it can indicate that it is more appropriate to determine a likely significant effect.
	If the noise level change is within 1 dB of the bottom of a medium range, it can indicate that it is more appropriate to consider that the change is not a likely significant effect.
Different magnitude of impact in the long-term to the short-term	Where the long-term impact is predicted to be greater than the short-term impact, it can be appropriate to conclude that a minor change in the short-term is a significant effect.
	Where the long-term impact is predicted to be less than the short-term impact, it can be appropriate to conclude that a moderate or major change in the short-term is not significant.

Circumstance	Influence of Significance
Absolute noise level with reference to LOAEL and SOAEL	A noise change where all Do-Something absolute noise levels are below the SOAEL requires no modification of the initial assessment.
	Where any Do-Something absolute noise levels are above the SOAEL, a noise change in the short-term of +1.0 dB or more results in a likely significant effect.
Acoustic context	If the project changes the acoustic character of an area, it can be appropriate to conclude a minor magnitude of change in the short-term and/or long-term is a likely significant effect.
Likely perception of change by residents	If the project results in obvious changes to the landscape or setting of a receptor, it is likely that noise level changes will be more acutely perceived by the NSRs. In these cases, it can be more appropriate to conclude that a minor change in the short-term and/or long-term is a likely significant effect.
	If the project results in no obvious changes for the landscape, particularly if the road is not visible from the NSR, it can be more appropriate to conclude that a moderate change in the short-term and/or long-term is not a likely significant effect.

4.13 Importantly, DMRB LA111 advises that "*the number of properties affected should not be used to justify change between the initial operational significance and the final operational significance*".

Operational Road Traffic Data

4.14 **Table 4.5** sets out the traffic data for the assessment scenarios.

Table 4.5: Operational Road Traffic Data

Road Link	Traffic Speed (km/h)	2022 Baseline (A)		2028 Future Baseline (B)		2028 Future Baseline with Development (C)	
		Total Vehicles	% HGVs	Total Vehicles	% HGVs	Total Vehicles	% HGVs
1	37[2]	14,554	2.0	17,542	1.8	18,384	1.7
2	20[3]	0	0.0	0	0.0	6,150	0.0
3	37[2]	16,426	2.4	21,804	1.9	27,112	1.5
4	20[3]	11,462	2.4	13,603	2.2	16,080	1.9
5	30[3]	15,320	0.8	16,312	0.8	17,596	0.7
6	30[3]	11,812	1.2	14,265	1.1	15,686	1.0
7	40[3]	9,701	0.8	11,243	0.7	12,056	0.7
8	30[3]	7,691	0.8	8,292	0.8	8,512	0.7
9	30[3]	13,109	1.2	13,958	1.2	14,347	1.2
10	24[2]	1,836	2.5	1,955	2.5	2,179	2.3
11	60[3]	14,731	1.9	15,685	1.9	16,526	1.8
12	30[3]	18,006	*0.8*[4]	19,172	*0.8*[4]	19,844	*0.7*[4]

[2] Speed from automatic traffic count (ATC).

[3] Posted speed limit.

[4] HGV data not available for link. Estimated HGV percentage from other B-roads (links 7 and 8).

Road Link	Traffic Speed (km/h)	2022 Baseline (A)		2028 Future Baseline (B)		2028 Future Baseline with Development (C)	
		Total Vehicles	% HGVs	Total Vehicles	% HGVs	Total Vehicles	% HGVs
13	40[3]	23,447	*2.2*[5]	24,965	*1.9*[5]	26,073	*1.7*[5]
14	23[2]	13,877	*2.2*[5]	14,776	*1.9*[5]	15,987	*1.7*[5]
15	21[2]	2,580	2.0	2,747	2.0	3,371	1.6
16	23[2]	5,007	1.5	5,331	1.5	5,955	1.4
17	23[2]	5,651	2.2	6,017	2.2	6,641	2.0
18	20[3]	10,481	2.6	11,160	2.6	11,784	2.5
19	40[3]	14,994	*2.2*[5]	15,965	*1.9*[5]	16,589	*1.7*[5]
20	30[3]	12,835	*1.2*[6]	13,666	*1.2*[6]	14,544	*1.2*[6]
21	20[3]	7,916	*2.2*[5]	8,428	*1.9*[5]	8,690	*1.7*[5]

Change in Road Traffic Noise Level

Short-Term Change

4.15 The short-term change in noise level is presented in **Table 4.6**. The short-term change is the 2028 Future Baseline with Proposed Development (BNL-C) minus the 2028 Future Baseline (BNL-B).

Table 4.6: Short-term Change in Noise Level

Road Link	BNL-B $L_{A10,18hr}$ (dB)	BNL-C $L_{A10,18hr}$ (dB)	Change in Noise Level (dB)	Indication of Impact
1	68.3	68.4	+0.1	Negligible
2		61.9	N/A	N/A
3	69.2	70.0	+0.8	Negligible
4	67.2	67.7	+0.5	Negligible
5	66.9	67.2	+0.3	Negligible
6	66.5	66.9	+0.4	Negligible
7	66.1	66.4	+0.3	Negligible
8	64.0	64.1	+0.1	Negligible
9	66.5	66.6	+0.1	Negligible
10	58.7	59.0	+0.3	Negligible
11	70.0	70.2	+0.2	Negligible
12	67.6	67.7	+0.1	Negligible
13	70.1	70.2	+0.1	Negligible
14	67.1	67.3	+0.2	Negligible
15	60.0	60.6	+0.6	Negligible
16	62.4	62.8	+0.4	Negligible

[5] HGV data not available for this link. Estimated HGV percentage from average of other A-roads (links 1, 3, 4 and 11).

[6] HGV data not available for this link. HGV percentage taken from similar road link 9 (Marshalswick Lane).

17	63.4	63.7	+0.3	Negligible
18	66.6	66.7	+0.1	Negligible
19	68.1	68.2	+0.1	Negligible
20	66.4	66.7	+0.3	Negligible
21	64.9	64.9	0.0	Negligible

4.16 With reference to **Table 4.2** short-term change in noise level scale, the short-term change in noise level results in a negligible impact on all road links. It is therefore concluded that the road traffic generated by the Proposed Development will not be significant. However, for completeness, the long-term change in noise level assessment is also presented.

Long-Term Change

4.17 The long-term change in noise level is presented in **Table 4.7**. The long-term change is the 2028 Future Baseline with Proposed Development (BNL-C) minus the 2022 Baseline traffic data (BNL-A).

Table 4.7: Long-term Change in Noise Level

Road Link	BNL-A $L_{A10,18hr}$ (dB)	BNL-C $L_{A10,18hr}$ (dB)	Change in Noise Level (dB)	Indication of Impact
1	67.6	68.4	+0.8	Negligible
2		61.9	N/A	N/A
3	68.2	70.0	+1.8	Negligible
4	66.6	67.7	+1.1	Negligible
5	66.6	67.2	+0.6	Negligible
6	65.8	66.9	+1.1	Negligible
7	65.5	66.4	+0.9	Negligible
8	63.6	64.1	+0.5	Negligible
9	66.2	66.6	+0.4	Negligible
10	58.4	59.0	+0.6	Negligible
11	69.8	70.2	+0.4	Negligible
12	67.3	67.7	+0.4	Negligible
13	69.9	70.2	+0.3	Negligible
14	67.0	67.3	+0.3	Negligible
15	59.7	60.6	+0.9	Negligible
16	62.2	62.8	+0.6	Negligible
17	63.2	63.7	+0.5	Negligible
18	66.3	66.7	+0.4	Negligible
19	68.0	68.2	+0.2	Negligible
20	66.1	66.7	+0.6	Negligible
21	64.9	64.9	0.0	Negligible

4.18 With reference to **Table 4.2** long-term change in noise level scale, the long-term change in noise level also results in a negligible impact on all road links.

Appendix 16.6: Site Suitability Assessment

Appendix 16.6:
Woollam Park – Site Suitability Assessment

December 2024



Experts in noise and vibration assessment and management

Document Control

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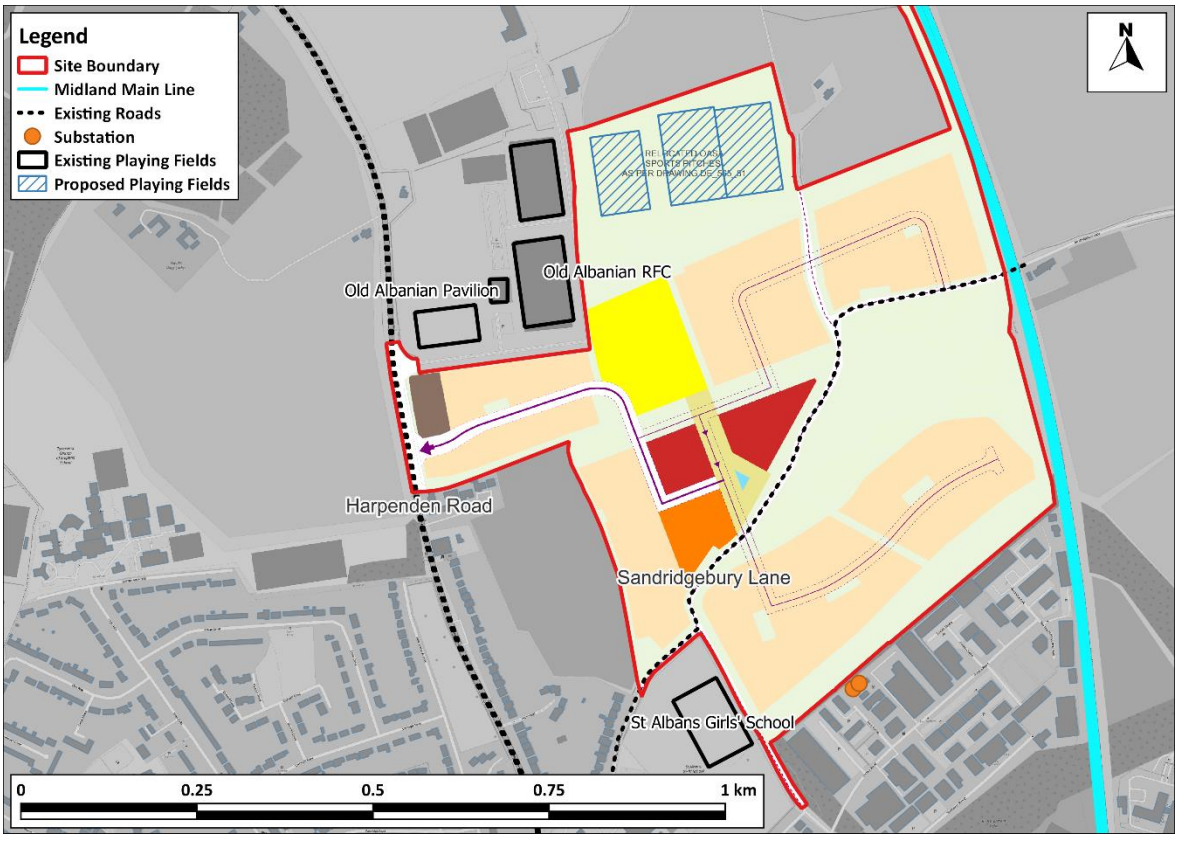
1 Introduction

1.1 This report describes the potential impact of noise and vibration upon the proposed noise sensitive development (the 'Proposed Development') on land at North St Albans (the 'Site').

1.2 The report presents noise model outputs based on the existing ambient noise climate at the Site, as described in **Appendix 14.3**, and considers the impacts that noise has upon the proposed sensitive uses within the Site. Monitoring locations chosen for the baseline survey were selected to represent the edge of the development parameters (ML1 and ML5) based on *Parameter Plan - Land Use* Ref. DE-565_72 with respect to road traffic and railway noise impacts on the Site. Locations ML2, ML3 and ML4 were selected to provide an understanding of noise levels from within the Site. Additional short-term noise measurements were also captured of industrial sound sources within the Ports Wood Industrial Estate. The short-term measurements along with the results of a further substation survey have been used to inform the noise mitigation strategy in the south of the Site.

1.3 **Figure 1.1** presents an indicative land use plan overlaid on aerial imagery to show the surrounding area.

Figure 1.1: Proposed Development



(Contains data from © OpenStreetMap contributors)

1.4 The Development is anticipated to comprise up to 1,000 residential units, 1No. primary school (yellow area), 1No. care home (in brown to the west of the Site), a local centre (commercial with residential above, in red), relocated and replacement of existing Old Albanian RFC playing fields (to the north), green infrastructure, sustainable urban drainage, and access road. The sections of Sandridgebury Lane and Valley Road which pass through the site will be closed to motorised vehicles, creating active travel routes.

1.5 This noise and vibration assessment considers the suitability of the Site for noise-sensitive development (residential and educational) through the consideration of local noise and vibration sources. In respect of noise, the sources are primarily road traffic noise from Harpenden Lane to the west of the Site and railway noise from the Midland Main Line (MML) to the east of the Site. The railway line is in cutting at the south of the Site, on an embankment through the centre of the Site passing over a bridge at Sandridgebury Lane, and at grade with the Site at the northern Site boundary.

1.6 The Porters Wood Industrial Estate is located to the south-east of the Site. An existing woodland (shown in green in **Figure 1.1**) provides a separation between the industrial estate and development areas. This separation will be further increased with an additional buffer zone between the woodland and the development areas. Industrial and commercial noise was not noted to significantly contribute to the noise environment at the Site, except for a small area close to the south of the Site where noise from the UKPN substation was audible.

1.7 The retained and proposed Old Albanian RFC playing fields, in addition to the multi-use games area at St Albans School have been included in the assessment of external noise levels in combination with the transportation noise sources. The Old Albanian pavilion includes two bars with large balconies overlooking the pitches to the east and west of the pavilion. These bars are also used to host club events, parties and weddings. It is understood that the bars can be open until 2300 hrs Sunday to Thursday and midnight on Fridays and Saturday[1]. A high-level assessment of the likely impact of event noise on the Proposed Development has been carried out.

1.8 Railway activity on the MML along the east boundary is the main source groundborne vibration which has the potential to be perceptible at proposed sensitive receptors.

1.9 This report has been prepared taking into account all relevant local and national policy, guidance and regulations provided in **Appendix 14.2**. The following sections present the assessment criteria adopted within the site suitability assessment which has been designed to follow the approaches advocated in *Professional Practice Guidance on Planning and Noise: New Residential Development* (ProPG, noise assessment for residential development), Acoustics of School: a design guide (AoS,

[1] Available at: https://www.oasport.com/faqs (Accessed 20 September 2024).

2015) and BS 6472-1:2008 *'Guide to evaluation of human exposure to vibration in buildings'* (vibration assessment for residential development).

1.10 To assist with the understanding of this report, a glossary of acoustic terms is provided in **Appendix 14.1**.

2 Site Suitability Assessment Guidance and Criteria

2.1 In accordance with the policies, standards and guidance outlined in **Appendix 14.2**, assessment criteria have been selected. The following sections present the assessment criteria adopted within the site suitability assessment which has been designed to follow the approach advocated in ProPG.

Residential Noise Site Suitability Assessment Methodology

Site Risk Classification

2.2 The ProPG site risk classification presented in **Appendix 14.2** is a sliding scale that does not define precise noise exposure limits to site risk classification. For the purposes of this report, the noise thresholds that have been adopted in order to classify site risk are defined in **Table 2.1** and are set for the daytime and night-time periods.

Table 2.1: Site Risk Noise Exposure Thresholds

ProPG Site Risk Category	Noise Exposure Threshold dB $L_{Aeq,16\text{-hour}}$	Noise Exposure Threshold dB $L_{Aeq,8\text{-hour}}$	ProPG Based Pre-Planning Application Advice
Negligible (below LOAEL)	<50	<40	Indicates development site is likely to be acceptable from a noise perspective
Low (LOAEL – SOAEL)	50 – 63	40 – 53	Indicates development site is likely to be acceptable from a noise perspective provided that a good acoustic design process is followed and demonstrated
Medium (SOAEL - UAEL)	63 – 70	53 – 66	Indicates the development site is less suitable from a noise perspective. A subsequent application may be refused unless a good acoustic design process is followed and demonstrated
High (above UAEL)	>70	>66	Indicates an increased risk that the development would be refused on noise grounds. However, this risk may be reduced following a good acoustic design process.

2.3 With respect to the $L_{Amax\ (night)}$, ProPG states that *"the initial site noise risk assessment should include the consideration of the individual noise events when the external $L_{Amax,F}$ exceeds 60 dB. A site should not be regarded as negligible risk if the $L_{Amax,F}$ exceeds, or is likely to exceed 60 dB more than 10 times a night. A site should be regarded as high risk if the $L_{Amax,F}$ exceeds, or is likely to exceed 80 dB more than 20 times a night."*

2.4 Therefore, taking this into account the LOAEL and UAEL thresholds for the L_{AFmax} for the purposes of this assessment:

- A 'negligible' risk is deemed to occur where the 10th highest measured $L_{AFmax,5min\ (night)}$ is less than 60 dB;
- A 'low' risk is deemed to occur where the 10th highest measured $L_{AFmax,5min\ (night)}$ is between 60 – 80 dB; and
- a 'high' risk is deemed to occur where the 20th highest measured $L_{AFmax,5min\ (night)}$ is greater than 80 dB.

Internal Noise Guidelines

2.5 For internal noise levels, the assessment references the internal noise guidelines set out in BS 8233:2014, as advocated by ProPG (**Table 2.2**). Adherence to these guidelines is considered in the design of the building envelope.

2.6 The assessment also considers maximum noise levels (L_{AFmax}) within bedrooms. The design of the building envelope considers the number of 45 dB L_{Amax} exceedances during the night-time.

Table 2.2: Target Internal Noise Levels

Location	Activity	Daytime Noise Level (0700-2300hrs)	Night-time Noise Level (2300-0700hrs)
Living Room	Resting	35 dB $L_{Aeq,16hr}$	-
Dining Room	Dining	40 dB $L_{Aeq,16hr}$	-
Bedroom	Sleeping (daytime resting)	35 dB $L_{Aeq,16hr}$	30 dB $L_{Aeq,16hr}$ 45 dB L_{AFmax} (normally less than 10 times a night)

2.7 The noise insulation performance of a closed window relates to the building's façade construction and the associated elements of a room (including the sound insulation performance of glazing and ventilation components) and their respective areas. At this stage detailed design information of the proposed dwellings is not available. For the purposes of this assessment, the following conservative assumptions have therefore been adopted for the 'closed window' scenario:

- Internal spaces have the following dimensions:
  - Living rooms – 4.0 m x 3.0 m;
  - Bedrooms – 3.0 m x 3.0 m;
  - Ceiling Heights – 2.4 m (all rooms).
- The wall and room constructions of the dwellings are of a standard nature, i.e. brick and block wall construction as per the standard assumptions made within BS 8233:2014 with a sound reduction index (SRI) summarised in **Table 2.3**.

- The glazed areas of bedrooms and living rooms is equal to 40% of the area of the largest façade.
- Standard thermal double glazing and non-acoustic trickle ventilation (not exceeding 8000mm^2 per room) will be incorporated into the dwellings.

Table 2.3: Building Envelope Sound Insulation Performance

Element	Sound Reduction Index (SRI) at Octave Centre Band Frequency (Hz)								R_w (C; C_{tr})
	63	125	250	500	1K	2K	4K	8K	
Double Glazing (4:12:4)	18	24	20	25	35	38	35	38	31 (-1; -4)
Brick and Block External Wall	34	40	44	45	51	56	56	59	51 (-1; -4)
Element	**63**	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**	**$D_{ne,w}$ (C; Ctr)**
Standard In/over-frame Trickle Vent	20	23	26	29	30	33	33	35	31 (0; -2)

2.8 Guidance on the likely reduction in façade insulation due to an open window is provided in ProPG (2017). It states that an open window typically reduces the insulation "*to no more than 10 to 15 dB(A)*". For the purposes of this assessment, it is therefore considered reasonable to assume a reduction of 13 dB(A) for an "open window" scenario.

External Amenity Noise

2.9 With respect to external amenity spaces, BS 8233:2014 states that *"it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments"* and, therefore, these values have been adopted as the lower and upper guideline values.

Sports Activity Noise

2.10 The existing and proposed playing fields at Old Albanian RFC and St Albans School have been modelled based on guidance set out in the Sport England Artificial Grass Pitch (AGP) guidance. In summary, this assumes a noise level of 58 dB $L_{Aeq,1hr}$ at 10 m from the sideline at the centre of a sports pitch. Sports activity noise has been included in the assessment of external amenity noise.

Noise from Industrial and Commercial Sources

2.11 The baseline noise survey identified three particular sources of industrial noise:

- HGV loading/unloading activity noise from businesses such as Kane Group (plant hire) and Construction Plastics Ltd to the south of ML3;

- Plant noise from Manson Group commercial printers; and
- Transformer noise at the UKPN substation.

2.12 Loading and unloading activity noise from businesses such as Kane Group and Construction Plastics was just audible at ML3 (the sources in the service yards are screened from the Site by the associated industrial units), however, it was not prominent enough to facilitate a direct assessment of this specific sound source. The assessment in **Section 4** for noise levels measured at ML3, including the building envelope break-in calculation results presented in **Table 4.2**, inherently include this activity noise.

2.13 Audible noise from the Manson Group commercial printers has been assessed with reference to the procedures outlined in BS 4142:2014+A1:2019 '*Methods for Rating and Assessing Industrial and Commercial Sound*' (BS 4142, 2019).

2.14 Operational noise from the existing UKPN substation to the south of the Site was perceptible at the southern boundary of the Site. Ordinarily, where noise of an industrial nature is deemed dominant, an assessment of potential impacts would be undertaken with reference to procedures outlined in BS 4142, 2019. However, due to the tonal nature of the sound source, an alternative approach was adopted. An assessment has therefore been conducted based on absolute levels of noise with reference to the low frequency noise curve established by the University of Salford through DEFRA contract NANR45[2] for assessing low frequency noise complaint. The low frequency noise curve represents internal noise exposure. For the 100 Hz one-third octave band, the criterion is 38 dB $L_{eq,T}$.

Old Albanian Pavilion

2.15 A high-level assessment of amplified music event noise (i.e. mobile discos at weddings and parties) from the Old Albanian pavilion has been carried out assuming events could occur at least once a week and finish at midnight. With reference to the Noise Act Research presented in Appendix 14.2, the potential impact of noise from amplified music noise events at the pavilion will be assessed against the semantic scale which describes the likely acceptability of entertainment noise.

2.16 In lieu of baseline noise measurements during a wedding or party event, the assessment assumes a mobile disco creating an internal noise level of approximately 90 dB(A), that events run until midnight, there is negligible building envelope breakout from the north and south façades or roof of the building, the balcony doors on the east/west façade are fully open, and background noise levels measured at ML2 are representative of the nearest proposed residential dwellings.

[2] Procedure for the Assessment of Low Frequency Noise Complaints, (2011), University of Salford.

Residential Vibration Site Suitability Assessment Methodology

2.17 Groundborne vibration from rail movements on the Midland Main Line have the potential to be perceptible within the Site. The assessment references the vibration dose value (VDV) criteria for building vibration with respect to human response set out in Table 1 of BS 6472-1:2008 *'Guide to evaluation of human exposure to vibration in buildings'* (BS 6472-1,2008).

2.18 The vibration criteria adopted for the assessment is summarised in **Table 2.4**.

Table 2.4: Adopted Vibration Dose Value (VDV) Ranges

Period	VDV ($m/s^{1.75}$)			
	Negligible probability of adverse comment	**Low probability of adverse comment**	**Adverse comment possible**	**Adverse comment probable**
	Below LOAEL	**LOAEL – SOAEL**	**SOAEL – UAEL**	**Above UAEL**
Day (07:00-23:00)	< 0.2	0.2 – 0.4	0.4 – 0.8	> 0.8
Night (23:00-07:00)	< 0.1	0.1 – 0.2	0.2 – 0.4	> 0.4

3 Sound Propagation Model

Baseline Noise Modelling

3.1 A modelling exercise has been undertaken to replicate the existing levels of transportation noise impacting the Site. The model was developed using Predictor-LimA computational sound modelling software (v2022) and has been configured to calculate sound levels in accordance with ISO 9613-2:1996 '*Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation*'.

3.2 Baseline noise sources are primarily road traffic noise within the local road network and railway noise from the Midland Main Line.

Model Calibration

3.3 A model calibration exercise was first carried out which involved digitising receptor points which were representative of noise monitoring locations ML1, ML4 and ML5 nearest to the existing sources of transportation noise. The emission levels of Harpenden Road and Midland Main Line were adjusted through an iterative process until the modelled octave-band noise levels equalled the adopted day and night-time transportation noise exposure levels at ML1 (63 dB $L_{Aeq,16h}$ and 56 dB $L_{Aeq,8h}$ respectively) and ML5 respectively (60 dB $L_{Aeq,16h}$ and 53 dB $L_{Aeq,8h}$ respectively). The same process was then undertaken for ML4 to determine the road traffic emission level for Sandridgebury Lane.

Future Year with Development Sound Levels

3.4 As shown in **Appendix 14.5**, for all roads links in the study area, the long-term change in noise level (2028 With Development minus 2022 Baseline) is determined to have a negligible impact (<3 dB increase) on all road links including Harpenden Road.

3.5 It is anticipated that rail movements will not change significantly from those measured during the baseline conditions survey. A 25% increase in railway movements would equate to approximately 1 dB(A) increase in noise level. Notably, a 1 dB(A) increase in noise level is generally imperceptible to most people.

3.6 Therefore, the baseline noise model is considered to be representative of the opening year of the Proposed Development (2028) for the purposes of this Site Suitability Assessment.

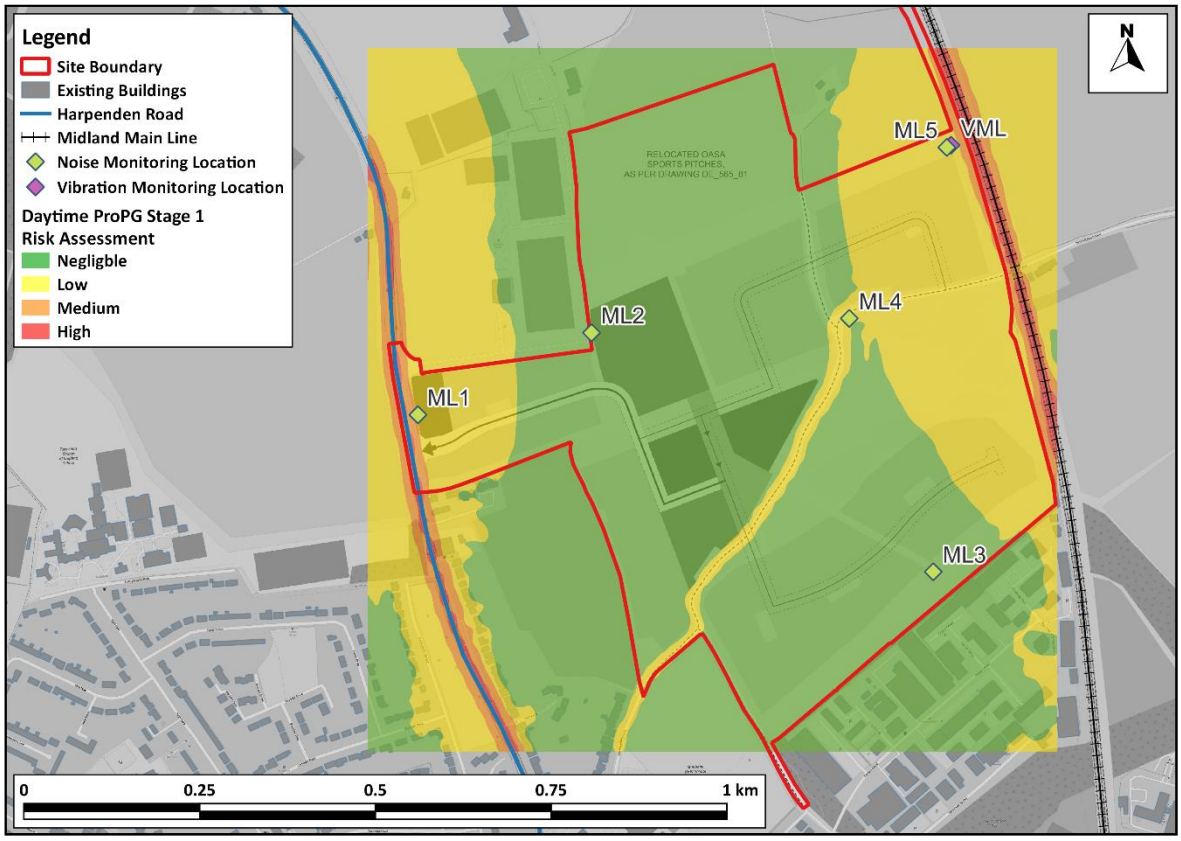
4 Site Suitability Assessment for Residential Development (Noise)

Stage 1 Initial Site Noise Risk Assessment (Transportation Noise)

4.1 With reference to the assessment criteria and the advice provided in ProPG Stage 1, the results of the sound modelling exercise are provided as noise maps in **Figure 4.1** and **Figure 4.2** at 1.5 m above local ground level for the daytime and 4 m above local ground level for the night-time respectively. The road traffic and railway noise modelling results are based on the baseline noise levels and represent an open site which does not account for the influence that the massing of the Development would have on the propagation of sound across the site.

4.2 The colour scale presented in the figures reflects the adopted risk assessment criteria set out in **Table 2.1.**

Figure 4.1: Daytime ($L_{Aeq,16hr}$) ProPG Stage 1 Risk Assessment - Open Site



4.3 The green areas in **Figure 4.1** represent regions of 'Negligible' risk, whereby development is likely to be acceptable, achieving internal amenity levels that typically meet BS 8233:2014 guidelines with open windows.

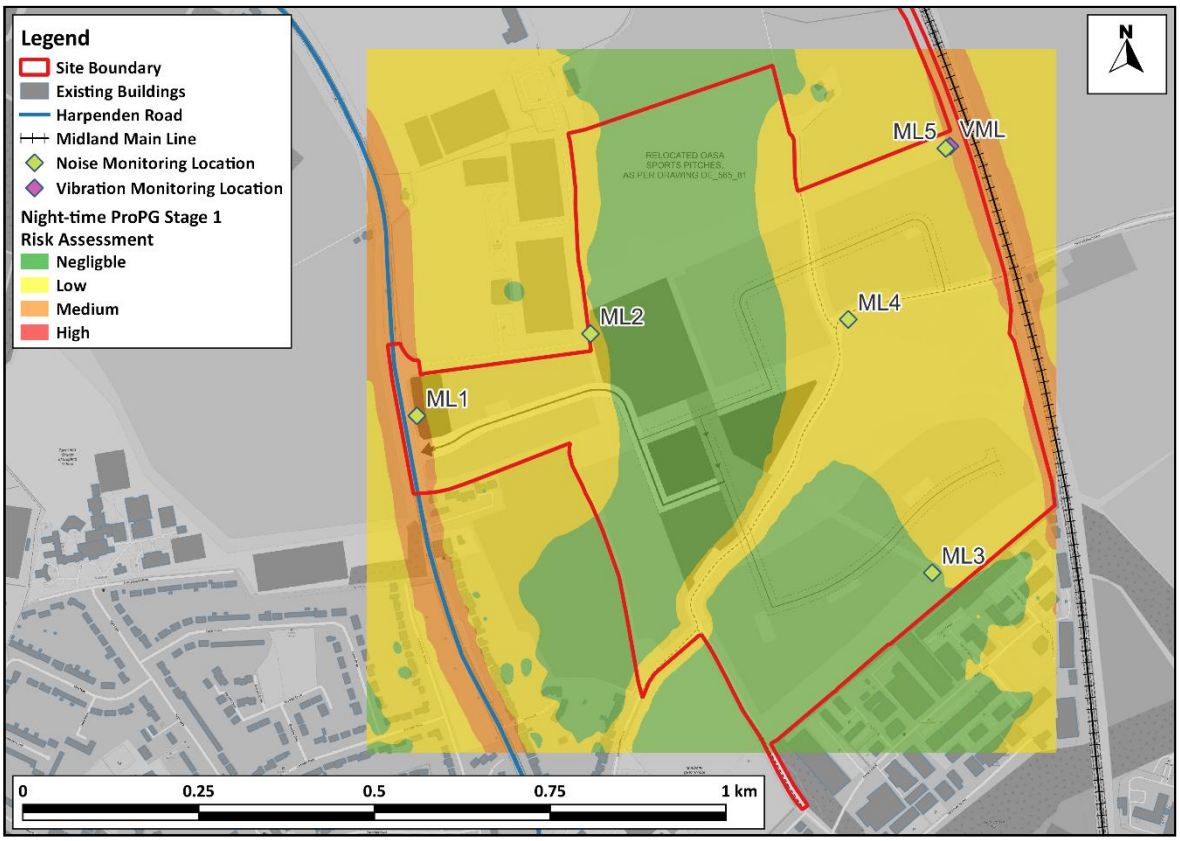
4.4 The yellow areas in **Figure 4.1** represent regions of 'Low' risk, whereby development is likely to be acceptable provided that a good acoustic design process is followed and demonstrated.

Sandridgebury Lane results in noise levels which are, at most, 'low risk' which ought to be representative of any future on-site road links which are similarly trafficked.

4.5 The orange areas indicate regions of 'Medium' risk where the Site is less suitable for development. In these areas, it is advised that a good acoustic design process is followed for dwellings fronting Harpenden Road, and the Midland Main Line.

4.6 Importantly, the noise maps represent an open site and do not account for the influence that the massing of the Proposed Development would have the propagation of sound across the Site.

Figure 4.2: Night-time ($L_{Aeq,8hr}$) ProPG Stage 1 Risk Assessment - Open Site



4.7 The green areas in **Figure 4.2** represent regions of 'Negligible' risk, whereby development is likely to be acceptable, achieving internal amenity levels that typically meet BS 8233:2014 guidelines with open windows.

4.8 The yellow areas in **Figure 4.2** represent regions of 'Low' risk, whereby development is likely to be acceptable provided that a good acoustic design process is followed and demonstrated.

4.9 The orange areas indicate regions of 'Medium' risk where the Site is less suitable for development. In these areas, it is advised that a good acoustic design process is followed for dwellings fronting Harpenden Road, and the Midland Main Line.

4.10 Importantly, the noise maps represent an open site and do not account for the influence that the massing of the Proposed Development would have the propagation of sound across the Site.

Night-Time Maximum Sound Events

4.11 With regards to night-time events, maximum (L_{AFmax}) sound levels have not been modelled. Instead, an analysis has been conducted of the measured sound survey data (presented in **Appendix 14.3**) to estimate the 10th highest maximum sound levels ($L_{AFmax,5min}$) that might be expected during the night-time.

4.12 **Table 4.1** summarises the measured baseline L_{AFmax} noise levels with reference to the criteria set out in **paragraph 2.3** and **2.4**.

Table 4.1: Summary of Measured Baseline L_{AFmax} Noise Levels

Location	dB 10th Highest $L_{Amax\ (night)}$*	ProPG Stage 1 Outcome
ML1**	73	Likely Medium risk
ML2	52	Likely Low risk
ML3	53	Likely Low risk
ML4	60****	Likely Low risk
ML5***	73	Likely Medium risk

* Where L_{Amax} is driven by birdsong, the period has been excluded.
** Representative of nearest developable area to the western boundary off Harpenden Road.
*** Representative of the nearest developable area to the eastern boundary to the MML.
**** L_{Amax} levels typically a result of distant railway movements.

Industrial Noise

4.13 Industrial noise has not been included in the above risk assessment on the basis that most sources were not clearly audible at ML3 and the sources have not been included in the noise modelling. At ML3, some distant HGV un/loading activities were just audible, particularly during lulls in transportation noise. Noise from plant at the Manson Group commercial printers will be localised to the area immediately to the north of this premises and is considered in **Section 5**.

4.14 The UKPN substation has also been considered separately (refer to **Section 5**) to transportation and sports activity noise, however, for the purposes of the site noise risk assessment, it is considered that the unmitigated substation results in a medium to high risk of adverse noise effects over 100 m into the site with a width of up to 50 m during the daytime and night-time periods.

Old Albanian Pavilion Event Noise

4.15 Amplified music event noise has not been included in the above risk assessment as the events will be occasional and short-term in duration. However, it is assumed that events such as parties and weddings will run until midnight.

4.16 Based on the assumptions set out in **paragraphs 2.15** and **2.16**, and considering a plane source propagation (distance) correction from the pavilion balconies to the nearest residential receptors, predicted amplified music noise levels range from approximately 34 to 37 dB $L_{Aeq,T}$ externally.

4.17 Assuming a 13 dB level difference for an open window, the equivalent internal noise levels would range from 21 to 24 dB which lie between '*clearly acceptable*' and '*just acceptable*' on the Noise Act Research semantic scale in Appendix 14.2. Additionally, these noise levels are 6 to 9 dB below the target night-time internal noise level of 30 dB $L_{Aeq,8hr}$.

4.18 For context, the average measured ambient sound level between 2300 and 0000hrs at ML2 (located at the Site boundary) 40 dB $L_{Aeq,1hr}$. Therefore, amplified music event noise is predicted to be at least 3 dB lower than the prevailing noise conditions in the absence of an event.

4.19 It is concluded that amplified music event noise at the Old Albanian Pavilion is unlikely to result in an adverse impact on the Proposed Development.

Summary

4.20 For the existing baseline scenario, the outcome of the ProPG Stage 1 Initial Risk Assessment is that there is generally a 'low - medium' risk of adverse effects from noise without the implementation of mitigation measures for the entirety of the Site.

4.21 Therefore, the Stage 2 assessment, and the Acoustic Design Statement (ADS), will consider all parts of the site where a potential non-negligible noise risk has been identified. The level of detail presented within the ADS will be proportionate with the level of risk.

Stage 2 – Full Assessment

Internal Noise Levels

4.22 For the partially open window scenario, a reduction in noise ingress of 13 dB has been assumed, as advocated in ProPG. For the closed window scenario, internal noise levels have been calculated using the rigorous calculation methodology outlined in BS 8233:2014 based on the assumptions detailed in **Table 2.3**, **paragraph 2.7** and **paragraph 2.8**.**Table 4.2** presents the calculated internal noise levels for the baseline measurement results obtained at the noise monitoring locations (whereby ML1 and ML5 represent the edges of closest residential parcels to the primary sources of transportation noise).

Table 4.2: Calculated Internal Noise Levels

Location	Window Condition	Living Areas	Bedrooms		Comment
		$L_{Aeq,16hr}$	$L_{Aeq,8hr}$	$L_{Amax\ (night)}$	
ML1	Partially Open	50	43	60	Exceeds BS 8233:2014 guidelines with partially open windows for living areas and bedrooms. And does not achieve L_{Amax} criteria for bedrooms with closed windows.
	Closed	38	32	51	
ML2	Partially Open	35	30	39	Achieves BS 8233:2014 guidelines with partially open windows for living areas and bedrooms.
	Closed	25	20	31	
ML3	Partially Open	37	25	40	Achieves BS 8233:2014 guidelines with partially open windows for bedrooms and with closed windows for living areas.
	Closed	24	16	28	
ML4	Partially Open	39	32	47	Achieves BS 8233:2014 guideline with closed windows for living areas and bedrooms.
	Closed	29	25	36	
ML5	Partially Open	47	40	60	Exceeds BS 8233:2014 guidelines with partially open windows for living areas and bedrooms. And does not achieve L_{Amax} criteria for bedrooms with closed windows.
	Closed	36	29	47	

Key	
BS 8233:2014 Internal Noise Levels	**Action**
Achieve BS 8233:2014 Guidelines or < 45 dB L_{Amax} in bedrooms ('Desirable' standard)	No Action
Within +5 dB of BS 8233:2014 Guidelines ('Reasonable' standard)	Mitigate and reduce if sustainable
Exceeds BS 8233:2014 Guidelines and/or > 45 dB L_{Amax} in bedrooms	Avoid – sound attenuated measures required

4.23 **Table 4.2** shows that based on the assumptions in **Section 2**, internal noise levels:

- With windows open:
    - Meet the 'desirable' BS 8233:2014 criteria in all habitable rooms, at all times in the northwest area of the Site (**ML2**). Also, during the night-time in bedrooms in southern areas of the site (**ML3**).
    - Meet the 'reasonable' BS 8233:2014 criteria during the daytime in southern and central areas of the Site (**ML3** and **ML4**) and during the night-time in central areas of the Site (**ML4**). In central areas of the Site the 45 dB L_{AFmax} criteria is exceeded (**ML4**) as result of distant railway movements.

- Exceed the 'desirable' or 'reasonable' BS 8233:2014 criteria and 45 dB L_{AFmax} criteria at western and eastern areas of the Site (**ML1** and **ML5**) which are closest to the existing road traffic and railway noise sources.

- With windows closed:
  - Meet the 'desirable' BS 8233:2014 criteria in all habitable rooms, at all times in the northwest, south and central areas of the Site (**ML2**, **ML3** and **ML4**).
  - Meet the 'reasonable' BS 8233:2014 criteria in living rooms, and achieve the 'desirable' $L_{Aeq,T}$ criteria but exceed the 45 dB L_{AFmax} criteria in bedrooms at night, at the western and eastern Site boundary (**ML1** and **ML5**).

4.24 The calculations assume standard thermal double glazing and non-acoustic trickle ventilation (not exceeding 8000mm^2 per room). Therefore, depending on the final layout, acoustic glazing/ventilation measures may be necessary for dwellings closest to and most exposed to the existing sources of transportation noise.

Control of Overheating (The Building Regulations Approved Document O)

4.25 The Building Regulations Approved Document O (ADO) requires that windows are assumed to be closed where the internal noise levels will exceed:

- 40 dB $L_{Aeq,8hr}$ (23:00 to 07:00); and
- 55 dB L_{AFmax} more than 10 times a night (between 23:00 and 07:00).

4.26 In order to determine criteria for external noise levels the thresholds are based on ventilation openings providing a 13 dB(A) reduction in noise ingress (equivalent to an open window with an acoustic open area of approximately 2% of the floor area). This results in equivalent external noise levels of 53 dB $L_{Aeq,8hr}$ and 68 dB L_{AFmax} as a guide as to whether windows are likely to be closed at night. However, should windows need to be open wider to achieve the overheating criteria, the sound reduction from outside to inside will be reduced and therefore the noise criteria may be exceeded, and further assessment required.

4.27 **Figure 4.3** presents the night-time $L_{Aeq,8hr}$ noise contours to provide context in respect of the overheating assessment for transportation noise only. The figure has been colour coded by reference to the 53 dB $L_{Aeq,8hr}$ noise contour. **Figure 4.3** shows that large swathes of the site will achieve external noise levels consistent with achieving ADO internal $L_{Aeq,8hr}$ criterion with open windows. With reference to the baseline noise levels (**Appendix 14.3**), L_{AFmax} noise levels will also exceed the ADO internal criterion close to Harpenden Road and the Midland Main Line railway.

4.28 On the basis of transportation noise, the ADO criteria are likely to be exceeded in at least the first line of dwellings which overlook Harpenden Road and the Midland Main Line railway.

Figure 4.3: Night-time External Noise Levels for Overheating – Existing Baseline



External Amenity Assessment

4.29 **Figure 4.4** (below) shows the daytime transportation noise levels combined with the predicted noise levels associated with the closest existing and relocated playing fields (importantly, activities on the playing fields will not occur for the full 16-hour assessment period). The colour coding represents the target and upper guideline external amenity noise levels set out in **paragraph 2.9**.

Figure 4.4: External Amenity Noise Map ($L_{Aeq,16h}$)



4.30 The green and yellow areas in **Figure 4.4** represent regions where the design target (50 dB $L_{Aeq,16hr}$) and upper guideline noise level (55 dB $L_{Aeq,16hr}$) are achieved without the need for noise mitigation. It should be noted that **Figure 4.4** includes Sandridgebury Lane as a vehicle road link.

4.31 The orange areas indicate regions where the upper guideline noise level is exceeded. Importantly, the noise maps represent an open site and do not account for the influence that the massing of the Proposed Development would have the propagation of sound across the Site. The Site layout should be developed such that buildings provide screening of road, railway or sports activity noise to rear gardens where practicable. Additionally, localised acoustic boundary treatment (garden walls or fences) would provide further protection from noise.

4.32 Noise levels in the public open space are generally within the desirable and acceptable levels with only a limited area close to the railway line exceeding 55 dB $L_{Aeq,16hr}$. For the context of the Site, this is not considered to be unreasonable and specific mitigation measures have not been recommended in respect of the public open space.

5 Noise from Porters Wood Industrial Estate

General Observations

5.1 Operational sound from the Porters Wood industrial estate was not observed to be clearly audible during the daytime or audible at all during the night-time period at ML3. At ML3, during periods of subdued transportation noise, birdsong dominated the noise climate with HGV loading and unloading activities distantly audible. Therefore, an assessment of general industrial noise impacts on the Proposed Development has not been carried out. The indicative building envelope break-in calculations set out in **Section 4** have inherently included any captured industrial noise and demonstrate that desirable conditions can be achieved in the vicinity of ML3.

5.2 Short-term measurements of daytime activities were made adjacent to the Manson Group commercial printers' premises which are assessed below.

5.3 Importantly, noise from the UKPN substation, which is located 185 m to the south of ML3, was audible in relatively close proximity to the southern boundary of the Site. Due to the tonal nature of this noise source, a detailed noise measurement survey and assessment has been conducted as described below to inform the noise mitigation strategy.

Manson Group Premises Noise

5.4 The measurements conducted of activities occurring at Manson Group at the time of the baseline noise measurement survey when compared against the typical baseline noise levels measured at ML3 would indicate a significant adverse impact in respect of the BS 4142 assessment methodology[3].

5.5 When the noise levels measured adjacent to the Manson Group premises are distance corrected (the identified sources of noise such as individual vehicles and plant items can be represented by point sources) absolute noise levels from this industrial noise alone range between 42 and 48 dB $L_{Aeq,T}$ at the edge of the development area. The average ambient daytime noise level measured at ML3 was 50 dB $L_{Aeq,16hr}$.

5.6 Utilising the assumption that an open window provides a 13 dB level difference from outside to inside, the absolute internal noise levels from industrial noise alone would be no greater than the daytime

[3] The specific sound level established from a short-term attended measurement to the north-west of the woodland is 44 dB $L_{Aeq,T}$. An acoustic feature correction of +3 dB for 'other sound characteristics' (as the source was not noted to be tonal, intermittent or impulsive, but was otherwise readily distinguishable against the residual acoustic environment) has been added to the specific sound level to obtain a rating level of 47 dB $L_{Ar,Tr}$. The typical measured daytime background sound level at ML3 was 37 dB $L_{A90,5mins}$. Hence the excess of the rating level over the background sound level is +10 dB which is an indication of a significant adverse impact.

target criterion of 35 dB $L_{Aeq,T}$. Night-time activities were not observed during the baseline noise survey and the typical opening hours of the premises are reported as 0900 to 1730 hrs.

5.7 Good acoustic design including site layout, building orientation and internal building layout should be optimised in the vicinity of the Manson Group premises to minimise impacts on the future residents and provide a safeguard that the new development is integrated effectively with the existing industrial uses. Industrial noise may still be audible in localised external amenity areas under certain conditions; however, reasonable internal noise conditions should be achievable without acoustic glazing and ventilation.

UKPN Substation Noise

5.8 This assessment has been conducted based on the absolute levels of noise in the 100 Hz one-third octave band noise levels and targets an internal noise level which is less than 38 dB $L_{eq,T}$ at 100 Hz.

5.9 With reference to **Appendix 14.3**, substation noise levels were measured at 66 locations within the development area in the vicinity of the substation. The results of an interpolation exercise are presented in the same appendix.

5.10 As the target criterion is an internal noise level, a high-level building envelope break in calculation has been carried out utilising the same room and building envelope assumptions as set out in **paragraph 2.7** and **Table 2.3** with the exception of the glazing specification and ventilation. The glazing specification is based on the Pilkington Insulight 6/12/6 product which is reported to have a sound reduction index of 17 dB in the 100Hz one-third octave band. The ventilation is assumed to be mechanical ventilation with heat recovery (MVHR). Based on the above assumptions, a level difference from outside to inside of 20 dB at 100Hz has been calculated.

5.11 Applying this level difference to the measured 100 Hz substation noise levels yields an indication of where the target internal criterion will be achievable with closed windows and an appropriate means of ventilation to avoid the use of open windows. These results are presented in **Figure 5.1** and **Figure 5.2**.

5.12 With windows open, assuming 13 dB level difference from outside to inside, much larger areas of the development would exceed the target internal criterion without the use of noise mitigation such as barrier blocks to provide sufficient screening of low frequency noise, designing dwellings which avoid habitable rooms orientated towards the substation or adopting a closed window approach in the vicinity of the substation.

Figure 5.1: Ground Floor Level Internal Noise Levels Below 38 dB $L_{eq,T}$ at 100Hz (Windows Closed)

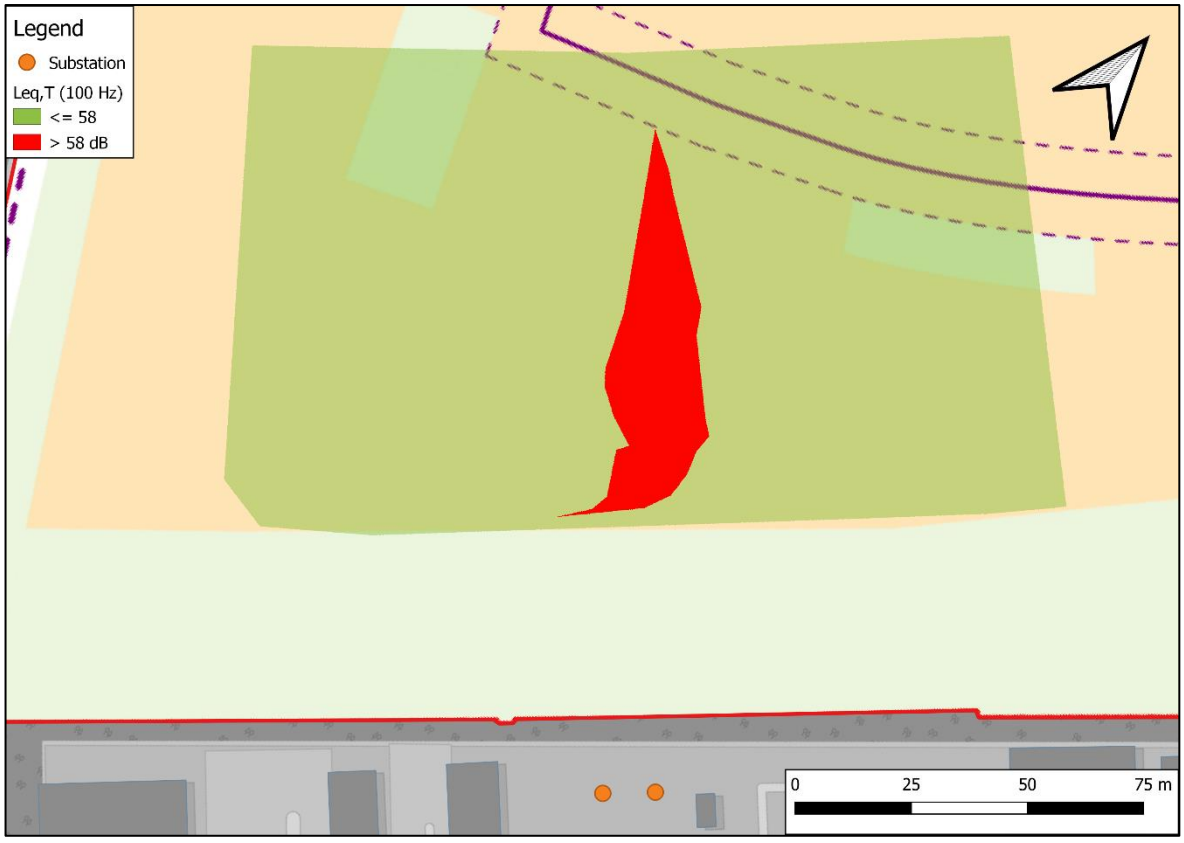
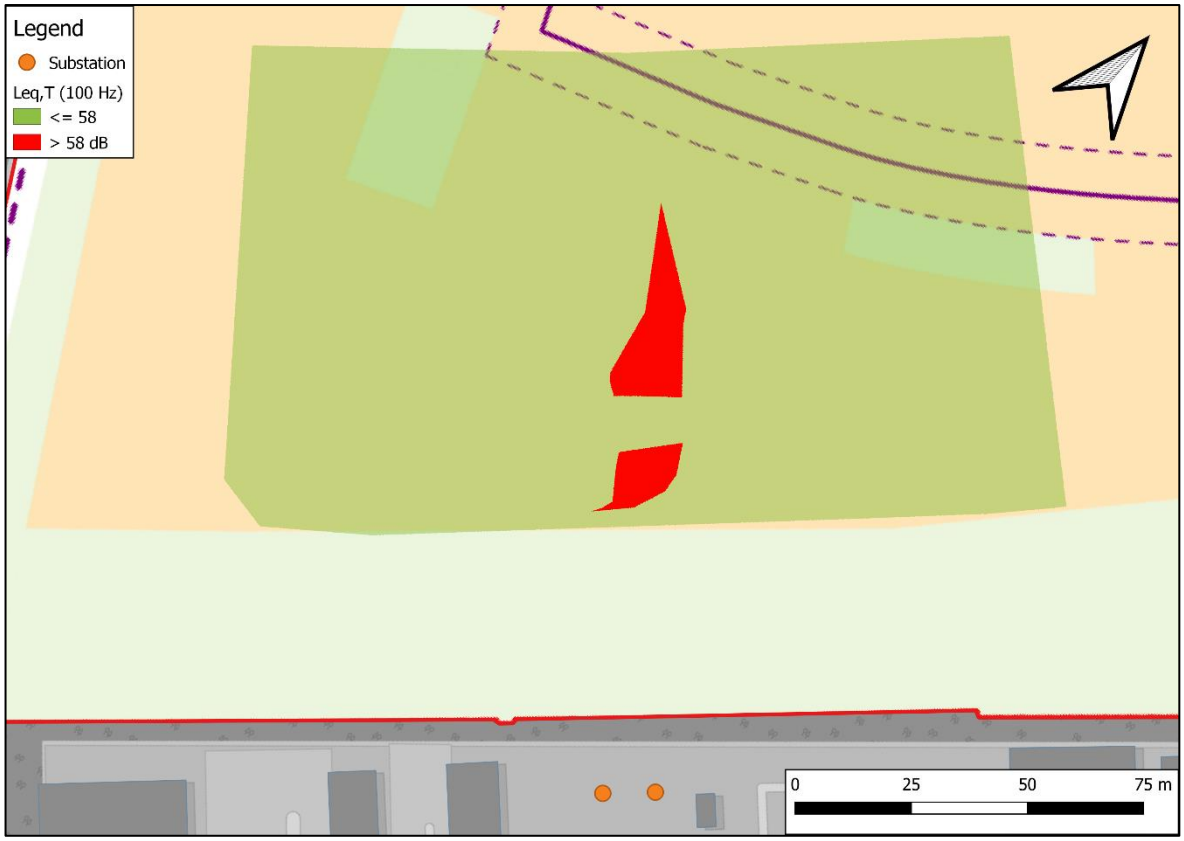


Figure 5.2: First Floor Level Internal Noise Levels Below 38 dB $L_{eq,T}$ at 100Hz (Windows Closed)



5.13 As the noise constraints from the substation are considered to represent a significant risk for the Proposed Development, the proposed mitigation solution is to enclose the transformers. Based on modelling and calculations it has been determined that to achieve the NAN45 low frequency noise criterion inside the nearest proposed properties based on windows open, the noise emissions from the substation would need to be reduced by at least 15 dB in the 100Hz one-third octave band. The Utilities Consultant has liaised with UKPN on the feasibility of this approach. UKPN have confirmed that the required level of mitigation is achievable and that they are amenable to such an approach. UKPN have confirmed that at similar substations their enclosures have reduced noise levels at 100 Hz by 20 to 25 dB.

5.14 On this basis, with reference to the measured substation noise levels, a reduction of at least 20 dB would sufficiently reduce the tonal substation noise to a level such that there would be no constraints on the site layout in respect of this noise source. At most, substation noise may be just audible in the closest gardens, however, there would be no restriction on the site layout or ventilation strategy of the new houses.

6 Site Suitability Assessment for Residential Development (Groundborne Vibration) (Residential)

6.1 A vibration assessment of train movements on the Midland Main Line has been conducted based upon the measured vibration levels presented in **Appendix 14.3**. As the baseline vibration measurements were made on open ground, the measured daytime and night-time Vibration Dose Values (VDV, $ms^{-1.75}$) have been increased by a magnitude of four to represent the transmission of vibration through the building foundations and structure and to account for floor resonances. The resultant VDVs are presented in **Table 6.1**.

Table 6.1: Daytime and Night-time VDV levels

Time Period	X axis VDV $m/s^{1.75}$	Y axis VDV $m/s^{1.75}$	Z axis VDV $m/s^{1.75}$
Daytime (07:00-23:00)	0.02	0.03	0.14
Night-time (23:00-07:00)	0.01	0.01	0.06

6.2 Vibration levels are lower than the adopted LOAELs of 0.2 $m/s^{1.75}$ and 0.1 $m/s^{1.75}$ for the daytime and night-time period respectively. Therefore, levels of vibration from the Midland Main Line are not significant in terms of the suitability of the site for development.

7 Site Suitability Assessment for Educational Receptors (Noise)

7.1 At the current stage of the project the final layout and design of the proposed primary school is not known. Therefore, a noise assessment has been conducted based on achieving desirable external noise levels having regards to external teaching areas in addition to potential constraints upon indoor spaces.

External Noise Levels

7.2 Noise criteria have been selected based on Acoustics of Schools: a design guide (AoS, 2015), which was published by the Institute of Acoustic (IoA) and Association of Noise Consultants (ANC) in 2015. The majority of the content was contained within the previous version of Building Bulletin 93: Acoustic design of schools (BB93, 2003).

7.3 Regarding external noise levels, AoS states the following:

"For new schools, 60 dB $L_{Aeq,30min}$ should be regarded as an upper limit for external noise at the boundary of external areas used for formal and informal outdoor teaching and recreation."

7.4 AoS also states the following:

"Noise levels in unoccupied playgrounds, playing fields and other outdoor areas should not exceed 55 dB $L_{Aeq,30min}$ and there should be at least one area suitable for outdoor teaching activities where noise levels are below 50 dB $L_{Aeq,30min}$."

Indoor Ambient Noise Levels

7.5 Additionally, Building Bulletin 93: Acoustic design of schools (BB93, 2015) sets out design criteria for internal spaces within schools. The document does not advise suitable external noise levels.

7.6 In respect of the types of rooms that may be expected within the proposed school, BB93 suggests internal noise limits, for the most sensitive uses, of:

- 35 dB $L_{Aeq,30m}$
- 60 dB $L_{A1,30m}$

7.7 Notably BB93 allows a 5 dB relaxation for naturally ventilated spaces under normal ventilation conditions.

Site Suitability Assessment

7.8 With reference to the noise contour map in **Figure 4.4**, when the adjacent playing fields are operational, noise levels may exceed 50 dB $L_{Aeq,T}$ in the north-western corner of the area. However,

noise levels for the allocated school area are generally suitable for outdoor teaching areas with options for spaces where noise levels are below 50 dB $L_{Aeq,T}$.

7.9 In respect of internal teaching spaces, consideration has been given to potential noise constraints upon a natural ventilation strategy for the school, based on an assumed sound reduction of 17dB(A).

7.10 Based on the noise contour map shown in **Figure 4.4**, external free-field noise levels generally represent a level below which a natural ventilation strategy would be acceptable, with the exception of the north-east corner when the playing fields are in operation.

8 Acoustic Design Statement (ADS)

8.1 The ProPG assessment in **Section 4** demonstrates that good acoustic design of the proposed development is required, specifically for any noise sensitive development on land close to Harpenden Road and the Midland Main Line. Industrial noise from Manson Group should also be considered in the good acoustic design process. The following sections provide acoustic design information that should be considered during the detailed design of the development, prior to any reserved matters application.

Application of the ADS

8.2 This ADS is based upon proposed dwellings being located within the developable areas shown in the parameter plan reproduced as part of **Figure 1.1**.

8.3 Should any layout be brought forward for the Development with dwellings and locations closer to the road, railway or industrial estate, new advice may be required.

Good Acoustic Design

8.4 As the design progresses, the following opportunities for good acoustic design could be explored:

- *Maximising distance between dwellings and sources of road traffic, rail and industrial noise;*
- *Orienting non-habitable rooms towards sources of road traffic, rail and industrial noise and, inversely, orienting habitable rooms away from sources of road traffic, rail and industrial noise;*
- *Using the building layout to shield external amenity spaces from road traffic, rail and industrial noise; and*
- *The use of noise barriers to shield dwellings and amenity spaces from road traffic, rail and industrial noise.*

Location of Dwellings

8.5 The separation distance between the proposed dwelling and sources of transportation noise should be maximised as far as reasonably practicable to minimise the sound insulation requirements for glazing and ventilation. This is reflected in the parameter plans (*Parameter Plan - Land Use* Ref. DE-565_020) which has established setback distances around the perimeter of the site with consideration of the road, rail and industrial noise sources.

8.6 As shown in **Table 4.2**, internal noise levels from road traffic and railway noise sources do not exceed ‘reasonable’ BS 8233:2014 guideline levels with windows closed in dwellings within the proposed developable area considered in this assessment. However, due to L_{AFmax} noise levels

acoustic glazing and ventilation may be required if habitable rooms overlook Harpenden Road or the railway line.

8.7 Internal noise levels in the vicinity of the industrial noise sources (excluding the substation) observed on Site are not expected to exceed the target internal noise levels with open windows. Substation noise, once mitigated by way of an enclosure, is not expected to constrain residential development.

Dwelling Orientation, Massing, and Acoustic Screening

8.8 As shown in **Section 4** daytime and night-time noise levels are the highest for the western and eastern areas of the Site.

8.9 Noise reductions could be achieved in these areas by considering the orientation of the dwellings and buildings closest to Harpenden Road and the Midland Main Line railway so that rear gardens are located to the rear of the dwellings with respect to the roads. This will enable the dwellings to self-screen garden areas.

8.10 If locating the garden areas on the side of the dwellings away from the road and/or the railway line is not possible, then suitable noise reductions may be achieved by moving the development further back from the noise sources (i.e. by using private roads to increase the setback from the noise source) and/or with the erection of acoustic fencing or brick screening walls around the boundary of the gardens. The specification of the barrier would need to be of a suitable extent and height and shall be determined once the final layout of the proposed development is available.

8.11 Similar approaches can be applied to residential development in the south of the Site where industrial noise may be audible, albeit at absolute levels below the target external noise levels, in external amenity areas in the absence of mitigation.

Internal Building Layout

8.12 Consideration should be given to the internal building layout to minimise the number of habitable rooms (bedrooms and living rooms) overlooking the key noise sources, as far as practicable. This will minimise the number of façades where acoustic glazing and/or ventilation will be required to achieve the required internal noise conditions in habitable rooms and increase the likelihood that windows can be open in respect of overheating mitigation.

Glazing and Ventilation

8.13 The assessment of internal noise levels in **Section 4** considered noise levels measured at the closest edge of the developable area as set out in the parameter plans.

8.14 **Table 4.2** indicated that acceptable internal noise levels can be achieved with standard thermal double glazing and ventilation for the majority of proposed dwellings. However, in the event that the above good acoustic design measures cannot be implemented for non-acoustic reasons, dwellings

with habitable rooms immediately overlooking Harpenden Road or the Midland Main Line may require uprated (acoustic) glazing and ventilation to achieve internal noise levels in compliance with BS 8233:2014. Example glazing and ventilators which provide the noise reduction performance required at the edge of the developable areas are summarised in **Table 8.1**. It should be noted that there are likely to be various different combinations of glazing and ventilator that would achieve the internal noise criteria. The broadband sound reductions in **Table 8.1** are therefore indicative and are provided for guidance only.

Table 8.1: Recommended Minimum SRI for Glazing for Rooms and Locations Identified for Acoustic Mitigation

Element	Sound Reduction Index (SRI) at Octave Centre Band Frequency (Hz)								R_w (C; C_{tr})
	63	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**	
Thermal Double-Glazed Windows[1]	18	24	25	31	42	44	49	52	36 (-1; -4)
Element	**63**	**125**	**250**	**500**	**1K**	**2K**	**4K**	**8K**	**$D_{ne,w}$ (C; Ctr)**
Acoustic Trickle Vent[2]	35	41	42	38	45	47	42	48	44 (0; -2)

[1] Example specification: 8 mm glass: 8-12 mm cavity: 8.8 mm Stadip Silence double-glazed units.
[2] Example specification: Aereco EHA2 with acoustic canopy and sleeve.

8.15 The adopted noise criteria will likely be achieved with windows open in rooms on the shielded side of dwellings closest to sources of transportation noise, as well as for dwellings further back from these noise sources that would benefit from acoustic screening provided by intervening dwellings and/or garages, subject to the contribution of Site-generated road traffic and building services noise.

8.16 Consideration of other mitigation options such as internal building layout, as outlined below, will increase the likelihood that internal noise criteria can be achieved with open windows. This can be determined once details of the proposed development's final layout are available at the reserved matters stage.

Purge Ventilation

8.17 With regards to openable windows, it should be noted that Building Regulations Approved Document F – Ventilation (ADF) advises that "*purge ventilation*" is required "*for rapidly diluting indoor air pollutants and extracting water vapour where necessary*". Therefore "*purge ventilation*" is intermittent, i.e. required only when such occasional activities occur, and open windows are suitable for this purpose.

9 Summary

Residential Site Suitability

9.1 The site suitability assessment identifies the Site is generally within a 'low-medium' risk of adverse noise effects from road traffic and railway noise. L_{AFmax} noise levels agree with the conclusions set out above.

9.2 Industrial noise is considered to be low risk due to low absolute noise levels, however, as transportation noise levels in the vicinity of the industrial estate are also low in absolute terms, industrial noise may still be audible in some external areas albeit at a level below the target criteria. This is not a significant constraint to the proposed Development.

9.3 In the absence of mitigation, the UKPN substation presents a significant constraint upon the proposed development however, the transformers will be enclosed with noise levels at 100 Hz reduced by approximately 20-25 dB $L_{eq,T}$. With this mitigation in place, the substation will present a negligible to low risk of adverse noise effect on Development. Tonal noise may still be faintly audible externally in close proximity to the substation but reasonable internal conditions will be readily achieved with windows open by reference to the University of Salford procedure for assessing low frequency noise complaint.

9.4 Noise from amplified music noise events at the Old Albanian Pavilion are considered to be low risk of adverse noise effect on the Proposed Development.

9.5 The levels of groundborne vibration generated by train movements on the MML are below the criteria which indicate a low probability of adverse comment. Therefore, groundborne vibration is not a factor when considering the suitability of the site for residential development.

Internal Noise Levels

9.6 The target internal noise levels should be readily achievable across large areas of the site with standard double glazing and a non-acoustic ventilation which complies with the requirements of the Building Regulations Approved Document F (ADF). In many cases, reasonable internal conditions should be achievable with partially open windows.

9.7 Dwellings closest and most exposed to road traffic noise from Harpenden Road and the MML railway will likely require acoustic glazing and ventilation subject to the implementation of good acoustic design measures such as dwelling location, orientation and internal layout.

Overheating

9.8 It has been demonstrated that a relatively small proportion of the site would likely exceed the internal noise criteria set out in ADO. Further assessment is likely to be required for dwellings which, subject

to good acoustic design, are expected to remain above the ADO noise criteria with appropriate acoustic and/or overheating mitigation applied, if required.

External Noise Levels

9.9 External noise levels in private amenity spaces should achieve the target noise level in large parts of the site. However, close to Harpenden Road and the MML, good acoustic design should be incorporated to minimise the number of areas which are exposed to high levels of road traffic and rail noise. This is likely to include dwelling location and orientation with consideration of self-screening garden areas and localised acoustic boundary treatment around any remaining gardens exposed to the relevant noise sources.

9.10 Industrial noise and substation noise may be just audible in external amenity areas closest to the relevant sources, therefore, the above approach to good acoustic design should also be implemented along the southern boundary of the Site.

Educational Development

9.11 External noise levels are generally sufficiently low that constraints to the development of a school in the area identified in the Parameter Plans should not be impeded as a result of acoustic consideration. However, consideration to internal layout of buildings should be given if the school buildings are to be located close to the adjacent playing fields.

Conclusion

9.12 This report demonstrates that good acoustic design is capable of overcoming any acoustic challenges of the Site and the Proposed Development is not considered likely to give rise to a significant adverse impact on health and quality of life in relation to noise in accordance with paragraphs 180 and 191 of the NPPF, nor be in conflict with paragraph 193 (agent of change) of the NPPF.

Appendix 17.1: Professional experience

Appendix 17.1 Professional Experience

Penny Wilson, BSc (Hons) CSci MIEnvSc MIAQM

Ms Wilson is a Technical Director with AQC, with more than 20 years' relevant experience in the field of air quality. She has been responsible for numerous assessments for a range of infrastructure developments including power stations, road schemes, ports, airports and residential/commercial developments. The assessments have covered operational and construction impacts, including dust and odour nuisance. She also provides services to local authorities in support of their LAQM duties, including the preparation of Review and Assessment and Action Plan reports, as well as audits of Air Quality Assessments submitted with planning and DCO applications. She has provided expert evidence to a number of Public Inquiries and civil court, and is a Member of the Institute of Air Quality Management and a Chartered Scientist.

Lucy Hodgins, BSc (Hons) CSci MIEnvSc MIAQM

Lucy is a Principal Consultant with AQC with fourteen years' experience in the field of air quality. She has extensive experience in the assessment of air quality impacts for a range of industrial, commercial and residential projects, using qualitative and quantitative methods to assess road traffic and point source emissions utilising a variety of models, including ADMS-Roads, Breeze Roads, ADMS-5 and Breeze Aermod. She has prepared assessments for energy from waste, anaerobic digestion and waste biomass facilities for a range of air pollutants, along with nuisance dust and odour assessments. Lucy has also been involved in air quality management and assessment work for local authorities, including air quality modelling for Clean Air Zones as well as microsimulation modelling for junction improvement schemes. She has also undertaken numerous operational dust assessments for mineral and waste facilities, as well as assessments of construction dust emissions. She is a Chartered Scientist and a Member of the Institute of Air Quality Management and the Institution of Environmental Sciences.

Will Wrench, BSc (Hons) AMIEnvSc

Will is an Assistant Consultant with AQC. Since joining the company in February 2022, he has undertaken numerous air quality assessments, both qualitatively and quantitatively using atmospheric dispersion modelling, to accompany planning applications. He has been involved in monitoring and assessment work across a range of projects, including residential, aviation, and Environmental Impact Assessments (EIAs). The assessments have considered the effects on both human health and ecological habitats, and involved Air Quality Neutral and Positive statements. During 2023, Will was involved in emissions support work for the Sustainable Development Team at the Rail Safety and Standards Board (RSSB). Prior to joining AQC, he completed a BSc degree with Honours in Ecological and Environmental Sciences at the University of Edinburgh, where he undertook air quality modelling projects, screening assessments and gained extensive experience of data processing and report writing. He is an Associate Member of the Institution of Environmental Sciences and Affiliate Member of the Institute of Air Quality Management.

Appendix 17.2: Policy context

Appendix 17.2 Policy Context

A.17.2.1 All European legislation referred to in this report is written into UK law and remains in place.

Air Quality Strategy 2007

A.17.2.2 The Air Quality Strategy[46] published by the Department for Environment, Food, and Rural Affairs (Defra) and Devolved Administrations, provides the policy framework for air quality management and assessment in the UK. It provides air quality standards and objectives for key air pollutants, which are designed to protect human health and the environment. It also sets out how the different sectors: industry, transport and local government, can contribute to achieving the air quality objectives. Local authorities are seen to play a particularly important role. The strategy describes the Local Air Quality Management (LAQM) regime that has been established, whereby every authority has to carry out regular reviews and assessments of air quality in its area to identify whether the objectives have been, or will be, achieved at relevant locations, by the applicable date. If this is not the case, the authority must declare an AQMA, and prepare an action plan which identifies appropriate measures that will be introduced in pursuit of the objectives.

Air Quality Strategy 2023

A.17.2.3 The Air Quality Strategy: Framework for Local Authority Delivery 2023[47] sets out the strategic air quality framework for local authorities and other Air Quality Partners in England. It sets out their powers and responsibilities, and actions the Government expects them to take. It does not replace other air quality guidance documents relevant to local authorities.

Clean Air Strategy 2019

A.17.2.4 The Clean Air Strategy[48] sets out a wide range of actions by which the UK Government will seek to reduce pollutant emissions and improve air quality. Actions are targeted at four main sources of emissions: Transport, Domestic, Farming and Industry. At this stage, there is no straightforward way to take account of the expected future benefits to air quality within this assessment.

Reducing Emissions from Road Transport: Road to Zero Strategy

A.17.2.5 The Office for Low Emission Vehicles (OLEV) and Department for Transport (DfT) published a Policy Paper[49] in July 2018 outlining how the Government will support the transition to zero tailpipe emission road transport and reduce tailpipe emissions from conventional vehicles during the transition. This paper affirms the Government's pledge to end the sale of new conventional petrol and diesel cars and vans by 2040, and states that the Government expects the majority of new cars and vans sold to be 100% zero tailpipe emission and all new cars and vans to have significant zero tailpipe emission capability by this year, and that by 2050 almost every car and van should have zero tailpipe emissions. It states that the Government wants to see at least 50%, and as many as 70%, of new car sales, and up to 40% of new van sales, being ultra-low emission by 2030.

A.17.2.6 The paper sets out a number of measures by which Government will support this transition but is clear that Government expects this transition to be industry and consumer led. The Government has recently announced that 80% of new cars and 70% of new vans sold in Great Britain must be zero emission by 2030, increasing to 100% by 2035. If these ambitions are realised then road traffic-related NOx emissions can be expected to reduce significantly over the coming decades, likely

46 Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland

47 Defra (2023) Air Quality Strategy: Framework for Local Authority Deliver. Available: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england/air-quality-strategy-framework-for-local-authority-delivery

48 Defra (2019) Clean Air Strategy 2019

49 DfT (2018) The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy

beyond the scale of reductions forecast in the tools utilised in carrying out this air quality assessment.

Environment Act 2021

A.17.2.7 The UK's new legal framework for protection of the natural environment, the Environment Act[50] passed into UK law in November 2021. The Act gives the Government the power to set long-term, legally binding environmental targets. It also establishes an Office for Environmental Protection (OEP), responsible for holding the Government to account and ensuring compliance with these targets.

A.17.2.8 The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (SI 2023 No. 96) sets two new targets for future concentrations of $PM_{2.5}$. These targets are described in Paragraph 17.24 in ES Chapter 15.

Environmental Improvement Plan 2023

A.17.2.9 Defra published its 25 Year Environment Plan in 2018[51]. The Environment Act[50] requires Defra to review this Plan at least every five years. The Environmental Improvement Plan 2023[52] is the first revision. This outlines the progress made since 2018 and adds detail to the goals defined in the 2018 Plan, including that of achieving clean air.

A.17.2.10 The Environmental Improvement Plan 2023 sets out the new air quality targets which have been set for concentrations of $PM_{2.5}$. These targets, which are described in more detail in Paragraph 17.24, include the long-term targets in the Statutory Instrument described in Paragraph A.17.2.8, and interim targets to be achieved by 2028.

A.17.2.11 The 2023 Plan outlines the role of local authorities in helping it meet both its targets and existing commitments. It also outlines the respective roles of industry, agricultural sectors, and the Department for Transport in providing the coordinated action required to meet both its new, and pre-existing targets and commitments.

Planning Policy

National Policies

A.17.2.12 The National Planning Policy Framework (NPPF)[53] sets out planning policy for England. It states that the purpose of the planning system is to contribute to the achievement of sustainable development, and that the planning system has three overarching objectives, one of which (Paragraph 8c) is an environmental objective:

"to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy".

A.17.2.13 To prevent unacceptable risks from air pollution, Paragraph 180 of the NPPF states that:

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50 Environment Act 2021 (2021)

51 Defra (2018) A Green Future: Our 25 Year Plan to Improve the Environment. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

52 Defra (2023) Environmental Improvement Plan 2023. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133967/environmental-improvement-plan-2023.pdf

53 Department for Levelling Up, Housing and Communities (DLUHC) (2023) National Planning Policy Framework. Available: https://assets.publishing.service.gov.uk/media/65829e99fc07f3000d8d4529/NPPF_December_2023.pdf.

"Planning policies and decisions should contribute to and enhance the natural and local environment by…preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air quality".

A.17.2.14 Paragraph 191 states:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development".

A.17.2.15 More specifically on air quality, Paragraph 192 makes clear that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan".

A.17.2.16 The NPPF is supported by Planning Practice Guidance (PPG)[54], which includes guiding principles on how planning can take account of the impacts of new development on air quality. The PPG states that:

"Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with Limit Values. It is important that the potential impact of new development on air quality is taken into account where the national assessment indicates that relevant limits have been exceeded or are near the limit, or where the need for emissions reductions has been identified".

A.17.2.17 Regarding plan-making, the PPG states:

"It is important to take into account air quality management areas, Clean Air Zones and other areas including sensitive habitats or designated sites of importance for biodiversity where there could be specific requirements or limitations on new development because of air quality".

A.17.2.18 The role of the local authorities through the LAQM regime is covered, with the PPG stating that a local authority Air Quality Action Plan "*identifies measures that will be introduced in pursuit of the objectives and can have implications for planning*". In addition, the PPG makes clear that *"Odour and dust can also be a planning concern, for example, because of the effect on local amenity".*

A.17.2.19 Regarding the need for an air quality assessment, the PPG states that:

"*Whether air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to have an adverse effect on air quality in areas where it is already known to be poor, particularly if it could affect the implementation of air quality strategies and action plans and/or breach legal obligations (including those relating to the conservation of habitats and species). Air quality may also be a*

54 Ministry of Housing, Communities & Local Government (2019) Planning Practice Guidance

material consideration if the proposed development would be particularly sensitive to poor air quality in its vicinity".

A.17.2.20 The PPG sets out the information that may be required in an air quality assessment, making clear that:

"Assessments need to be proportionate to the nature and scale of development proposed and the potential impacts (taking into account existing air quality conditions), and because of this are likely to be locationally specific".

A.17.2.21 The PPG also provides guidance on options for mitigating air quality impacts, as well as examples of the types of measures to be considered. It makes clear that:

"Mitigation options will need to be locationally specific, will depend on the proposed development and need to be proportionate to the likely impact. It is important that local planning authorities work with applicants to consider appropriate mitigation so as to ensure new development is appropriate for its location and unacceptable risks are prevented".

Local Transport Plan

A.17.2.22 Hertfordshire's Local Transport Plan 2018[55] , which covers St Albans, sets out the Hertfordshire County Council's objectives, policies and key schemes to promote a switch from private cars to more sustainable modes of transport.

A.17.2.23 Of relevance to air quality, *Policy 19: Emissions reduction* states:

"The county council will reduce levels of harmful emissions by:

a) Promoting a change in people's travel behaviour to encourage a modal shift in journeys from cars to walking, cycling and passenger transport.

b) Addressing any barriers to and supporting the uptake of ULEVs in the county, particularly where this can positively affect areas with identified poor air quality.

c) Reducing emissions from its operations."

A.17.2.24 *Policy 20: Air Quality*:

"The county council will seek to reduce the impact of poor Air Quality on human health, by:

a) Investigating the use of Clean Air Zones.

b) Working with district/borough councils to monitor and assess air pollution levels, and working in partnership with them to deliver any declared AQMA joint action plans.

c) Implementing, monitoring and reviewing the county council's Air Quality Strategic Plan".

Local Policies

A.17.2.25 The SADC Local Plan was adopted in 1994. Policies within the Local Plan expired in September 2007, unless saved. SADC has published a list of saved policies beyond September 2007[56], and these

55 Hertfordshire County Council (2018) Hertfordshire's Local Transport Plan 2018

56 St Albans City and District Council (2020) City and District of St Albans District Local Plan Review 1994 - Saved and deleted Policies Version (July 2020)

represent current planning policy. There are no saved policies within the Local Plan which specifically relate to air quality.

A.17.2.26 SADC submitted a new Local Plan to the Secretary of State for examination in March 2019, but this was subsequently withdrawn at the examination stage in 2020. The new Plan did contain the following policy (*Policy L18*) relating to air quality, although it now carries no weight in planning decisions:

"*Planning for major development must include an assessment of air quality impacts from traffic (both from the development and on occupants of the development). Development design and the transport measures associated with the development must include proposals to limit and mitigate impacts. This is particularly the case if there is an effect on a designated Air Quality Management Area.*"

A.17.2.27 SADC are currently drafting a new Local Plan 2041[57] which has undergone Regulation 18 consultation and will go through pre-submission publication this year ahead of submission by 2025. The draft Local Plan identifies the majority of the Site as a Broad Location for future development.

A.17.2.28 Of relevance to air quality, *Policy HW1 – Noise and Air Pollution* states:

"..Proposals which are found to be affected by noise or air pollution must demonstrate suitable mitigation, including:

a) Maintaining distances between road and other sources of noise and air pollution (including odour pollution) and people;

b) Using green infrastructure, in particular trees, where this can create a barrier or maintain separation between sources of pollution and receptors;

c) Appropriate means of filtration, ventilation and soundproofing on affected properties;

d) Controlling dust and emissions from construction, operation and demolition;

e) Use optimal layout and orientation to promote avoidance of elevated pollution without mitigation which will reduce the level of mitigation where necessary;

f) Air quality and/or noise assessments at the earliest stage of development.

Development proposals that would generate new noise and air pollution in proximity to residential and other noise-sensitive uses must demonstrate and put in place measures to avoid or mitigate any such impacts".

A.17.2.29 *Policy HW4 - New development and existing uses (agent of change principle):*

"New development must effectively integrate with existing uses, and existing businesses and community facilities must not have unreasonable restrictions placed on them as a result of it. Where the operation of an existing business or facility could have a significant adverse effect on a proposed new development in its vicinity, the applicant shall submit appropriate information to demonstrate that such impacts will not arise or can be prevented through suitable mitigation measures. Where such impacts will arise and cannot be avoided through mitigation, planning permission will be refused".

57 St Albans City and District Council (2024) New Local Plan. Available: https://www.stalbans.gov.uk/new-local-plan

A.17.2.30 *Strategic Policy SP8 - Transport Strategy:*

"...The Council will prioritise the use of active and sustainable transport modes and deliver accessibility improvements to the transport and highways network by:

a) Taking account of Hertfordshire County Council Local Transport Plan (LTP and other evidence and supporting documents, as relevant;

b) Supporting development in locations which enable active and/or sustainable transport journeys; where this is not possible ensuring that sustainable and active transport infrastructure is delivered at the earliest reasonable opportunity;

c) Supporting reductions in car journeys for existing and new settlements; including in relation to education sites and school journey planning initiatives;

d) Requiring all high trip generating uses to prepare, submit and implement Travel Plans to embed sustainable and active travel at an early stage;...

... f) Requiring new development to assess future air quality impacts from transport, where necessary, including funding contributions to wider schemes that will mitigate the impact of the scheme being proposed where appropriate;...

...i.) Seeking Masterplans at Broad Locations and the earliest reasonable 75 opportunity to implement sustainable travel infrastructure on Broad Locations in order that sustainable travel patterns become embedded at an early stage...."

A.17.2.31 *Strategic Policy SP13: - Health and Wellbeing:*

"...These priorities will be sought through relevant policies throughout this Plan, with particular relevance to pursuing the following:

a) Improved walking and cycle infrastructure to allow people to move around more easily using active modes of travel, so reducing air pollution and increasing levels of everyday exercise;..

...i) Encourage designs that reduce community severance and improve opportunities for social interaction, including reducing the dominance of the car..."

A.17.2.32 The Health and Wellbeing Planning Guidance Doucment[1] outlines what a healthy development should comprise in which air quality is a core theme. The guidance states "*a healthly development should:*

- *Implement measures to improve air quality*
- *Facilitate sustainable modes of transport, use of low emission vehicles e.g. electric vehicles and enable active travel*
- *Locate key facilities, services and vulnerable communities away from the traffic hotspots*
- *Address mitigation from the outset, setting out a clear approach to exposure and introducing receptors (residents) to an area of poor air quality, with a focus on design-led solutions.*"

Building Standards

A.17.2.33 Part F(1) of Schedule 1 of the Building Regulations 2010 as amended June 2022[58] places a duty on building owners, or those responsible for relevant building work[59], to ensure adequate ventilation is provided to building occupants.

A.17.2.34 Approved Document F[60], which accompanies the Building Regulations, explains that care should be taken to minimise entry of external air pollutants. Specific steps should be taken to manage ventilation intakes where the building is near to a significant source of emissions, or if local ambient concentrations exceed values set in the Air Quality Standards Regulations 2010 (see Paragraph 17.29 in ES Chapter 15). These steps include maximising the distance between emission source and air intake, considering likely dispersion patterns, and considering the timing of pollution releases when designing the ventilation system.

A.17.2.35 Building Bulletin 101[61] states that *"achieving good indoor air quality in schools depends on minimising the impact of indoor sources of pollutants, as well as reducing outdoor pollutant ingress by effective design of the building and operation of the ventilation systems"*. It advises that performance levels in line with the 2010 World Health Organisation indoor air quality guidelines[62] should be achieved.

A.17.2.36 Part S(1) of Schedule 1, and Regulation 44D, of the Building Regulations 2010[63] define a requirement for the provision of infrastructure for charging electric vehicles. Precise requirements are explained further within Approved Document S[64] and depend on the overall number of parking spaces provided and the average financial cost of installation.

A.17.2.37 Compliance with the Building Regulations is not required for planning approval, but it is assumed that the Regulations will be complied with in the completed development.

Air Quality Actions Plans

National Air Quality Plan

A.17.2.38 Defra has produced an Air Quality Plan to tackle roadside NO_2 concentrations in the UK[65]; a supplement to the 2017 Plan[66] was published in October 2018 and sets out the steps Government is taking in relation to a further 33 local authorities where shorter-term exceedances of the limit value were identified. Alongside a package of national measures, the 2017 Plan and the 2018 Supplement require those identified English Local Authorities to produce local action plans and/or feasibility studies. These plans and feasibility studies must have regard to measures to achieve the statutory limit values within the shortest possible time, which may include the implementation of a Clean Air Zone (CAZ). There is currently no straightforward way to take account of the effects of the 2017 Plan or 2018 Supplement in the modelling undertaken for this assessment; however, consideration has been given to whether there is currently, or is likely to be in the future, a limit value exceedance in the vicinity of the proposed development. This assessment has principally been carried out in relation to the air quality objectives, rather than the limit values that are the focus of the Air Quality Plan.

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58 Ministry of Housing, Communities & Local Government (2022) The Building Regulations 2010 Schedule 1

59 Building work is a legal term for work covered by the Building Regulations. With limited exemptions, the Regulations apply to all significant building work, including erecting or extending a building.

60 HM Government (2021) Ventilation - Approved Document F. Available: https://www.gov.uk/government/publications/ventilation-approved-document-f

61 Education and Skills Funding Agency (2018) BB 101: Guidelines on ventilation, thermal comfort, and indoor air quality in schools

62 WHO (2010) WHO guidelines for indoor air quality: selected pollutants

63 Ministry of Housing, Communities & Local Government (2022) The Building Regulations 2010 Schedule 1

64 HM Government (2021) Infrastructure for the charging of electric vehicles - Approved Document S. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1057375/AD_S.pdf

65 Defra (2017) Air quality plan for nitrogen dioxide (NO2) in the UK

66 Defra (2018) Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations

Local Air Quality Action Plan

A.17.2.39 SADC developed an Air Quality Action Plan (AQAP) in 2003[67] whose primary objective was to achieve the National Air Quality Strategy air quality objective for NO_2 by 31st December 2005, and declared three AQMAs (two for NO_2 and PM_{10}, and one for NO_2) in 2004. One AQMA (St Albans AQMA No.1) was then amended in 2009. The Air Quality Action Plan sets out the measures to improve air quality within the AQMAs, include promoting low emission transport and travel alternatives.

A.17.2.40 SADC have since produced a draft AQAP[68] which is to undergo public consultation in summer and autumn of 2024. It contains proposals to reduce pollution by promoting low-emission transport and active travel such as cycling and walking.

Sustainability and Climate Crisis Strategy

A.17.2.41 SADC's Sustainability and Climate Strategy 2024-2027[69] sets out the measures SADC aim to take minimise the District's greenhouse gas emissions and environmental impacts, tackle the climate crisis, improve the environmental sustainability of SADC's operations and services, and act as a strong community leader to support and enable action across all parts of our community.

A.17.2.42 Of relevance to air quality, the *Transport & Air Quality* theme includes the following actions which SADC will focus on in partnership with Hertfordshire County Council:

> *"1) Promote active and sustainable travel and reduce the need for people to travel.*
> *We will support the uptake of cycling and walking across the District, helping to improve the infrastructure and delivering the improvements set out in the Local Cycling and Walking Infrastructure Plan…*
>
> *…4) Reduce transport emissions and support the transition to low-carbon vehicles.*
> *We will support the uptake of cycling and walking across the District, helping to improve the infrastructure and delivering the improvements set out in the Local Cycling and Walking Infrastructure Plan*
>
> *5) Work with partners and the local community to improve air quality across the District.*
> *We will work to improve poor air quality in the District through tackling transport emissions".*

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67 St Albans City and District Council (2003) Air Quality Review and Assessment – Action Plan for St Albans City and District Council. Available: https://www.stalbans.gov.uk/sites/default/files/Environmental%20Services/Archive/St%20Albans%20City%20and%20District%20Council%20Air%20Quality%20Action%20Plan%202003.pdf

68 St Albans City and District Council (2024) St Albans City and District Council Air Quality Action Plan (February 2024). Available: https://www.stalbans.gov.uk/sites/default/files/Air%20Quality%20Action%20Plan.pdf

69 St Albans City and District Council (2024) Sustainability & Climate Crisis Strategy 2024-2027. Available: https://stalbans.gov.uk/sustainability-and-climate-crisis-strategy

Appendix 17.3: Construction dust assessment procedure

Appendix 17.3 Construction Dust Assessment Procedure

A.17.3.1 The criteria developed by IAQM[70] divide the activities on construction sites into four types to reflect their different potential impacts. These are:

- demolition;
- earthworks;
- construction; and
- trackout.

A.17.3.2 The assessment procedure includes the four steps summarised below:

STEP 1: Screen the Need for a Detailed Assessment

A.17.3.3 An assessment is required where there is a human receptor within 250 m of the boundary of the site and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s), or where there is an ecological receptor within 50 m of the boundary of the site and/or within 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance(s).

A.17.3.4 Where the need for a more detailed assessment is screened out, it can be concluded that the level of risk is negligible and that any effects will be 'not significant'. No mitigation measures beyond those required by legislation will be required.

STEP 2: Assess the Risk of Dust Impacts

A.17.3.5 A site is allocated to a risk category based on two factors:

- the scale and nature of the works, which determines the potential dust emission magnitude (Step 2A); and
- the sensitivity of the area to dust effects (Step 2B).

A.17.3.6 These two factors are combined in Step 2C, which is to determine the risk of dust impacts with no mitigation applied. The risk categories assigned to the site may be different for each of the four potential sources of dust (demolition, earthworks, construction and trackout).

Step 2A - Define the Potential Dust Emission Magnitude

A.17.3.7 Dust emission magnitude is defined as either 'Small', 'Medium', or 'Large'. The IAQM guidance explains that this classification should be based on professional judgement, but provides the examples in Table A.17.1.

CLASS	EXAMPLES
Demolition	

70 *IAQM (2024) Guidance on the Assessment of Dust from Demolition and Construction v2.2*

CLASS	EXAMPLES
Large	Total building volume >75,000 m^3, potentially dusty construction material (e.g. concrete), on site crushing and screening, demolition activities >12 m above ground level
Medium	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material, demolition activities 6-12 m above ground level
Small	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <6 m above ground, demolition during wetter months
Earthworks	
Large	Total site area >110,000 m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry to due small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds >6 m in height.
Medium	Total site area 18,000 m^2 – 110,000 m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 3 m – 6 m in height.
Small	Total site area <18,000 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <3 m in height.
Construction	
Large	Total building volume >75,000 m^3, on site concrete batching; sandblasting
Medium	Total building volume 12,000 m^3 – 75,000 m^3, potentially dusty construction material (e.g. concrete), on site concrete batching
Small	Total building volume <12,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber)
Trackout [a]	
Large	>50 HDV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100 m
Medium	20-50 HDV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 m – 100 m
Small	<20 HDV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50 m

[a] These numbers are for vehicles that leave the site after moving over unpaved ground.

Table A.17.1 Defining the Risk of Dust Impacts

Step 2B – Define the Sensitivity of the Area

A.17.3.8 The sensitivity of the area is defined taking account of a number of factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of PM_{10}, the local background concentration; and

- site-specific factors, such as whether there are natural shelters to reduce the risk of wind-blown dust.

A.17.3.9 The first requirement is to determine the specific sensitivities of local receptors. The IAQM guidance recommends that this should be based on professional judgment, taking account of the principles in Table A.17.2. These receptor sensitivities are then used in the matrices set out Table A.17.3, Table A.17.4 and Table A.17.5 to determine the sensitivity of the area. Finally, the sensitivity of the area is considered in relation to any other site-specific factors, such as the presence of natural shelters etc., and any required adjustments to the defined sensitivities are made.

Step 2C – Define the Risk of Impacts

A.17.3.10 The dust emission magnitude determined at Step 2A is combined with the sensitivity of the area determined at Step 2B to determine the risk of impacts with no mitigation applied. The IAQM guidance provides the matrix in Table A.17.6 as a method of assigning the level of risk for each activity.

STEP 3: Determine Site-specific Mitigation Requirements

A.17.3.11 The IAQM guidance provides a suite of recommended and desirable mitigation measures which are organised according to whether the outcome of Step 2 indicates a low, medium, or high risk. The list provided in the IAQM guidance has been used as the basis for the requirements set out in Appendix 17.6.

STEP 4: Determine Significant Effects

A.17.3.12 The IAQM guidance does not provide a method for assessing the significance of effects before mitigation, and advises that pre-mitigation significance should not be determined. With appropriate mitigation in place, the IAQM guidance is clear that the residual effect will normally be 'not significant'.

A.17.3.13 The IAQM guidance recognises that, even with a rigorous dust management plan in place, it is not possible to guarantee that the dust mitigation measures will be effective all of the time, for instance under adverse weather conditions. The local community may therefore experience occasional, short-term dust annoyance. The scale of this would not normally be considered sufficient to change the conclusion that the effects will be 'not significant'.

CLASS	PRINCIPLES	EXAMPLES
Sensitivities of People to Dust Soiling Effects		
High	users can reasonably expect enjoyment of a high level of amenity; or the appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land	dwellings, museum and other culturally important collections, medium and long term car parks and car showrooms
Medium	users would expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or the appearance, aesthetics or value of their property could be diminished by soiling; or	parks and places of work

CLASS	PRINCIPLES	EXAMPLES
	the people or property 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	
Low	the enjoyment of amenity would not reasonably be expected; or there is property that would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling; or there is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land	playing fields, farmland (unless commercially-sensitive horticulture), footpaths, short term car parks and roads
Sensitivities of People to the Health Effects of PM_{10}		
High	locations where members of the public may be exposed for eight hours or more in a day	residential properties, hospitals, schools and residential care homes
Medium	locations where the people exposed are workers, and where individuals may be exposed for eight hours or more in a day.	may include office and shop workers, but will generally not include workers occupationally exposed to PM_{10}
Low	locations where human exposure is transient	public footpaths, playing fields, parks and shopping streets
Sensitivities of Receptors to Ecological Effects		
High	locations with an international or national designation and the designated features may be affected by dust soiling; or locations where there is a community of a particularly dust sensitive species	Special Areas of Conservation with dust sensitive features
Medium	locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown; or locations with a national designation where the features may be affected by dust deposition	Sites of Special Scientific Interest with dust sensitive features
Low	locations with a local designation where the features may be affected by dust deposition	Local Nature Reserves with dust sensitive features

Table A.17.2 Principles to be Used When Defining Receptor Sensitivities

SENSITIVITY	NUMBER OF RECEPTORS	DISTANCE FROM THE SOURCE			
		<20	<50	<100	<250
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Table A.17.3 Sensitivity of the Area to Dust Soiling Effects on People and Property [71]

Receptor SENSITIVITY	ANNUAL MEAN PM_{10}	NUMBER OF RECEPTORS	DISTANCE FROM THE SOURCE (M)			
			<20	<50	<100	<250
High	>32 µg/m^3	>100	High	High	High	Medium
		10-100	High	High	Medium	Low
		1-10	High	Medium	Low	Low
	28-32 µg/m^3	>100	High	High	Medium	Low
		10-100	High	Medium	Low	Low
		1-10	High	Medium	Low	Low
	24-28 µg/m^3	>100	High	Medium	Low	Low
		10-100	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	<24 µg/m^3	>100	Medium	Low	Low	Low
		10-100	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Medium	>32 µg/m^3	>10	High	Medium	Low	Low
		1-10	Medium	Low	Low	Low
	28-32 µg/m^3	>10	Medium	Low	Low	Low
		1-10	Low	Low	Low	Low
	24-28 µg/m^3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
	<24 µg/m^3	>10	Low	Low	Low	Low
		1-10	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low

Table A.17.4 Sensitivity of the Area to Human Health Effects

RECEPTOR SENSITIVITY	DISTANCE FROM THE SOURCE (M)	
	<20	<50
High	High	Medium
Medium	Medium	Low

[71] *For demolition, earthworks and construction, distances are taken either from the dust source or from the boundary of the site. For trackout, distances are measured from the sides of roads used by construction traffic. Without mitigation, trackout may occur from roads up to 250 m, as measured from the site exit. The impact declines with distance from the site, and it is only necessary to consider trackout impacts up to 50 m from the edge of the road.*

RECEPTOR SENSITIVITY	DISTANCE FROM THE SOURCE (M)	
	<20	<50
Low	Low	Low

Table A.17.5 Sensitivity of the Area to Ecological Effects

SENSITIVITY OF THE AREA	DUST EMISSION MAGNITUDE		
	LARGE	MEDIUM	SMALL
Demolition			
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible
Earthworks			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Construction			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible
Trackout			
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Table A.17.6 Defining the Risk of Dust Impacts

Appendix 17.4: EPUK and IAQM Planning for Air Quality Guidance

Appendix 17.4 EPUK & IAQM Planning for Air Quality Guidance

A.17.4.1 The guidance issued by EPUK and IAQM[72] is comprehensive in its explanation of the place of air quality in the planning regime. Key sections of the guidance not already mentioned above are set out below.

Air Quality as a Material Consideration

"Any air quality issue that relates to land use and its development is capable of being a material planning consideration. The weight, however, given to air quality in making a planning application decision, in addition to the policies in the local plan, will depend on such factors as:

- *the severity of the impacts on air quality;*
- *the air quality in the area surrounding the proposed development;*
- *the likely use of the development, i.e. the length of time people are likely to be exposed at that location; and*
- *the positive benefits provided through other material considerations".*

Recommended Best Practice

A.17.4.2 The guidance goes into detail on how all development proposals can and should adopt good design principles that reduce emissions and contribute to better air quality management. It states:

"The basic concept is that good practice to reduce emissions and exposure is incorporated into all developments at the outset, at a scale commensurate with the emissions".

A.17.4.3 The guidance sets out a number of good practice principles that should be applied to all developments that:

- include 10 or more dwellings;
- where the number of dwellings is not known, residential development is carried out on a site of more than 0.5 ha;
- provide more than 1,000 m^2 of commercial floorspace;
- are carried out on land of 1 ha or more.

A.17.4.4 The good practice principles are that:

- New developments should not contravene the Council's Air Quality Action Plan, or render any of the measures unworkable;
- Wherever possible, new developments should not create a new "street canyon", as this inhibits pollution dispersion;
- Delivering sustainable development should be the key theme of any application;

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72 Moorcroft and Barrowcliffe et al (2017) Land-Use Planning & Development Control: Planning For Air Quality v1.2. IAQM, London

- New development should be designed to minimise public exposure to pollution sources, e.g. by locating habitable rooms away from busy roads;

- The provision of at least 1 Electric Vehicle (EV) "rapid charge" point per 10 residential dwellings and/or 1000 m^2 of commercial floorspace. Where on-site parking is provided for residential dwellings, EV charging points for each parking space should be made available;

- Where development generates significant additional traffic, provision of a detailed travel plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking) via subsidised or free-ticketing, improved links to bus stops, improved infrastructure and layouts to improve accessibility and safety;

- All gas-fired boilers to meet a minimum standard of <40 mgNOx/kWh;

- Where emissions are likely to impact on an AQMA, all gas-fired CHP plant to meet a minimum emissions standard of:

    - Spark ignition engine: 250 mgNOx/Nm^3;

    - Compression ignition engine: 400 mgNOx/Nm^3;

    - Gas turbine: 50 mgNOx/Nm^3.

- A presumption should be to use natural gas-fired installations. Where biomass is proposed within an urban area it is to meet minimum emissions standards of 275 mgNOx/Nm^3 and 25 mgPM/Nm^3.

A.17.4.5 The guidance also outlines that offsetting emissions might be used as a mitigation measure for a proposed development. However, it states that:

"It is important that obligations to include offsetting are proportional to the nature and scale of development proposed and the level of concern about air quality; such offsetting can be based on a quantification of the emissions associated with the development. These emissions can be assigned a value, based on the "damage cost approach" used by Defra, and then applied as an indicator of the level of offsetting required, or as a financial obligation on the developer. Unless some form of benchmarking is applied, it is impractical to include building emissions in this approach, but if the boiler and CHP emissions are consistent with the standards as described above then this is not essential".

A.17.4.6 The guidance offers a widely used approach for quantifying costs associated with pollutant emissions from transport. It also outlines the following typical measures that may be considered to offset emissions, stating that measures to offset emissions may also be applied as post assessment mitigation:

- Support and promotion of car clubs;

- Contributions to low emission vehicle refuelling infrastructure;

- Provision of incentives for the uptake of low emission vehicles;

- Financial support to low emission public transport options; and

- Improvements to cycling and walking infrastructures.

Screening

Impacts of the Local Area on the Development

"There may be a requirement to carry out an air quality assessment for the impacts of the local area's emissions on the proposed development itself, to assess the exposure that residents or users might experience. This will need to be a matter of judgement and should take into account:

- *the background and future baseline air quality and whether this will be likely to approach or exceed the values set by air quality objectives;*
- *the presence and location of Air Quality Management Areas as an indicator of local hotspots where the air quality objectives may be exceeded;*
- *the presence of a heavily trafficked road, with emissions that could give rise to sufficiently high concentrations of pollutants (in particular NO_2), that would cause unacceptably high exposure for users of the new development; and*
- *the presence of a source of odour and/or dust that may affect amenity for future occupants of the development".*

Impacts of the Local Area on the Development

A.17.4.7 The guidance sets out two stages of screening criteria that can be used to identify whether a detailed air quality assessment is required, in terms of the impact of the development on the local area. The first stage is that you should proceed to the second stage if any of the following apply:

- 10 or more residential units or a site area of more than 0.5 ha residential use; and/or
- more than 1,000 m^2 of floor space for all other uses or a site area greater than 1 ha.

A.17.4.8 Coupled with any of the following:

- the development has more than 10 parking spaces; and/or
- the development will have a centralised energy facility or other centralised combustion process.

A.17.4.9 If the above do not apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area. If they do apply then you proceed to stage 2, which sets out indicative criteria for requiring an air quality assessment. The stage 2 criteria relating to vehicle emissions are set out below:

- the development will lead to a change in LDV flows of more than 100 AADT within or adjacent to an AQMA or more than 500 AADT elsewhere;
- the development will lead to a change in HDV flows of more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere;
- the development will lead to a realigning of roads (i.e. changing the proximity of receptors to traffic lanes) where the change is 5m or more and the road is within an AQMA;
- the development will introduce a new junction or remove an existing junction near to relevant receptors, and the junction will cause traffic to significantly change vehicle acceleration/deceleration, e.g. traffic lights or roundabouts;
- the development will introduce or change a bus station where bus flows will change by more than 25 AADT within or adjacent to an AQMA or more than 100 AADT elsewhere; and
- the development will have an underground car park with more than 100 movements per day (total in and out) with an extraction system that exhausts within 20 m of a relevant receptor.

A.17.4.10 The criteria are more stringent where the traffic impacts may arise on roads where concentrations are close to the objective. The presence of an AQMA is taken to indicate the possibility of being close to the objective, but where whole authority AQMAs are present and it is known that the

affected roads have concentrations below 90% of the objective, the less stringent criteria are likely to be more appropriate.

A.17.4.11 On combustion processes (including standby emergency generators and shipping) where there is a risk of impacts at relevant receptors, the guidance states that:

"Typically, any combustion plant where the single or combined NOx emission rate is less than 5 mg/sec is unlikely to give rise to impacts, provided that the emissions are released from a vent or stack in a location and at a height that provides adequate dispersion. As a guide, the 5 mg/s criterion equates to a 450 kW ultra-low NOx gas boiler or a 30kW CHP unit operating at <95mg/Nm^3.

In situations where the emissions are released close to buildings with relevant receptors, or where the dispersion of the plume may be adversely affected by the size and/or height of adjacent buildings (including situations where the stack height is lower than the receptor) then consideration will need to be given to potential impacts at much lower emission rates.

Conversely, where existing nitrogen dioxide concentrations are low, and where the dispersion conditions are favourable, a much higher emission rate may be acceptable".

A.17.4.12 Should none of the above apply then the development can be screened out as not requiring a detailed air quality assessment of the impact of the development on the local area, provided that professional judgement is applied; the guidance importantly states the following:

"The criteria provided are precautionary and should be treated as indicative. They are intended to function as a sensitive 'trigger' for initiating an assessment in cases where there is a possibility of significant effects arising on local air quality. This possibility will, self-evidently, not be realised in many cases. The criteria should not be applied rigidly; in some instances, it may be appropriate to amend them on the basis of professional judgement, bearing in mind that the objective is to identify situations where there is a possibility of a significant effect on local air quality".

A.17.4.13 Even if a development cannot be screened out, the guidance is clear that a detailed assessment is not necessarily required:

"The use of a Simple Assessment may be appropriate, where it will clearly suffice for the purposes of reaching a conclusion on the significance of effects on local air quality. The principle underlying this guidance is that any assessment should provide enough evidence that will lead to a sound conclusion on the presence, or otherwise, of a significant effect on local air quality. A Simple Assessment will be appropriate, if it can provide this evidence. Similarly, it may be possible to conduct a quantitative assessment that does not require the use of a dispersion model run on a computer".

A.17.4.14 The guidance also outlines what the content of the air quality assessment should include, and this has been adhered to in the production of this chapter.

Assessment of Significance

A.17.4.15 There is no official guidance in the UK in relation to development control on how to describe the nature of air quality impacts, nor how to assess their significance. The approach within the EPUK/IAQM guidance has, therefore, been used in this assessment. This approach involves a two stage process:

- a qualitative or quantitative description of the impacts on local air quality arising from the development; and
- a judgement on the overall significance of the effects of any impacts.

A.17.4.16 The guidance recommends that the assessment of significance should be based on professional judgement, with the overall air quality impact of the development described as either 'significant' or 'not significant'. In drawing this conclusion, the following factors should be taken into account:

- the existing and future air quality in the absence of the development;
- the extent of current and future population exposure to the impacts;
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts;
- the potential for cumulative impacts and, in such circumstances, several impacts that are described as 'slight' individually could, taken together, be regarded as having a significant effect for the purposes of air quality management in an area, especially where it is proving difficult to reduce concentrations of a pollutant. Conversely, a 'moderate' or 'substantial' impact may not have a significant effect if it is confined to a very small area and where it is not obviously the cause of harm to human health; and
- the judgement on significance relates to the consequences of the impacts; will they have an effect on human health that could be considered as significant? In the majority of cases, the impacts from an individual development will be insufficiently large to result in measurable changes in health outcomes that could be regarded as significant by health care professionals.

A.17.4.17 The guidance is clear that other factors may be relevant in individual cases. It also states that the effect on the residents of any new development where the air quality is such that an air quality objective is not met will be judged as significant. For people working at new developments in this situation, the same will not be true as occupational exposure standards are different, although any assessment may wish to draw attention to the undesirability of the exposure.

A.17.4.18 A judgement of the significance should be made by a competent professional who is suitably qualified. A summary of the professional experience of the staff contributing to this assessment is provided in Appendix 17.1.

Appendix 17.5: Modelling methodology

Appendix 17.5 Modelling Methodology

Model Inputs

A.17.5.1 Predictions have been carried out using the ADMS-Roads dispersion model (v5). The model requires the user to provide various input data, including emissions from each section of road and the road characteristics (including road width, street canyon width, street canyon height and porosity, where applicable). Vehicle emissions have been calculated based on vehicle flow, composition and speed data using the EFT (Version 12.0) published by Defra[73]. Model input parameters are summarised in Table A.17.7 and, where considered necessary, discussed further below.

MODEL PARAMETER	VALUE USED
Terrain Effects Modelled?	No
Variable Surface Roughness File Used?	No
Urban Canopy Flow Used?	No
Advanced Street Canyons Modelled?	Yes
Noise Barriers Modelled?	No
Meteorological Monitoring Site	Luton
Meteorological Data Year	2022
Dispersion Site Surface Roughness Length (m)	0.5
Dispersion Site Minimum MO Length (m)	30
Met Site Surface Roughness Length (m)	0.5
Met Site Minimum MO Length (m)	30
Gradients?	Yes

Table A.17.7 Summary of Model Inputs

A.17.5.2 AADT flows, the proportions of HDVs and vehicle speed data have been provided by PJA, who have undertaken the transport assessment work for the proposed development. Traffic speeds along links within 50 m of junctions have been adjusted to 20 kph based on professional judgement and technical guidance published by Defra[74].

A.17.5.3 The traffic data used in this assessment are summarised in Table A.17.8. Diurnal and monthly flow profiles for the traffic have been derived from the national profiles published by DfT[75].

73 Defra (2024) Local Air Quality Management (LAQM) Support Website. Available: http://laqm.defra.gov.uk/

74 Defra (2022) Review & Assessment: Technical Guidance LAQM.TG22 August 2022 Version. Available: https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf

75 DfT (2023) DfT Road traffic statistics (TRA03)

ROAD LINK	2022		2028 (WITHOUT SCHEME)		2028 (WITH SCHEME)	
	AADT	%HDV	AADT	%HDV	AADT	%HDV
A1081 Harpenden Road (North of Site Access)	14,371	2.0	17,321	1.8	18,061	1.7
Site Access (Main Street)	0	0.0	0	0.0	5,410	0.0
A1081 Harpenden Road (South of Site Access)	16,655	2.4	22,107	1.9	26,777	1.6
A1081 Harpenden Road (South of Ancient Briton)	11,621	2.4	13,793	2.2	15,971	1.9
Batchwood Drive	15,000	0.8	15,961	0.8	17,090	0.7
Beech Road	10,394	1.2	12,553	1.1	13,803	1.0
B651 St Albans Road	9,701	0.7	11,243	0.7	11,958	0.6
B651 Sandridge Road	7,691	0.7	8,292	0.7	8,485	0.7
Marshalswick Lane	12,835	1.1	13,657	1.1	13,999	1.1
Townsend Drive N	1,675	1.9	1,782	1.9	1,979	1.7
A1081 Harpdenden Road (North of Ayres End Lane)	14,731	2.4	15,675	2.4	16,414	2.3
B487 Redbourn Lane	17,630	0.0 [a]	18,759	0.0 [a]	19,350	0.0 [a]
A4147 Bluehouse Hill	22,956	0.0 [a]	24,427	0.0 [a]	25,401	0.0 [a]
A1081 St Peters Street (South of Stonecross Junction)	12,704	2.8	13,518	2.8	14,584	2.6
Avenue Road	2,347	1.5	2,497	1.5	3,046	1.2
Lemsford Road	4,998	1.1	5,318	1.1	5,867	1.0
Beaconsfield Road	5,576	2.0	5,933	2.0	6,482	1.8
Alma Road	10,503	1.9	11,175	1.9	11,724	1.8
London Road (West of Mile House Lane)	13,666	1.3	14,541	1.3	15,090	1.2
Sandpit Lane	12,567	0.0 [a]	13,372	0.0 [a]	14,144	0.0 [a]
A5183 Holywell Road	7,750	1.6	8,246	1.6	8,477	1.6
A1081 N of B487	16,871	1.0	17,952	1.0	18,066	1.0
Lemsford Road N of Avenue Road	4,998	1.1	5,318	1.1	5,318	1.1
A1081 N of A5183	7,750	1.6	8,246	1.6	8,477	1.6

ROAD LINK	2022		2028 (WITHOUT SCHEME)		2028 (WITH SCHEME)	
	AADT	%HDV	AADT	%HDV	AADT	%HDV
A5183 W of A1081	6,142	1.0	6,535	1.0	6,535	1.0
A1081 E of A5183	8,115	1.6	8,635	1.6	8,635	1.6
A4147 Catherine Street	9,808	1.4	10,436	1.4	10,436	1.4
A1057 Hatfield Road	10,175	4.0	10,826	4.0	10,826	4.0

[a] Data not available

Table A.17.8 Summary of Model Inputs

A.17.5.4 Figure A.17.1 shows the road network included within the model, along with the speed at which each link was modelled.

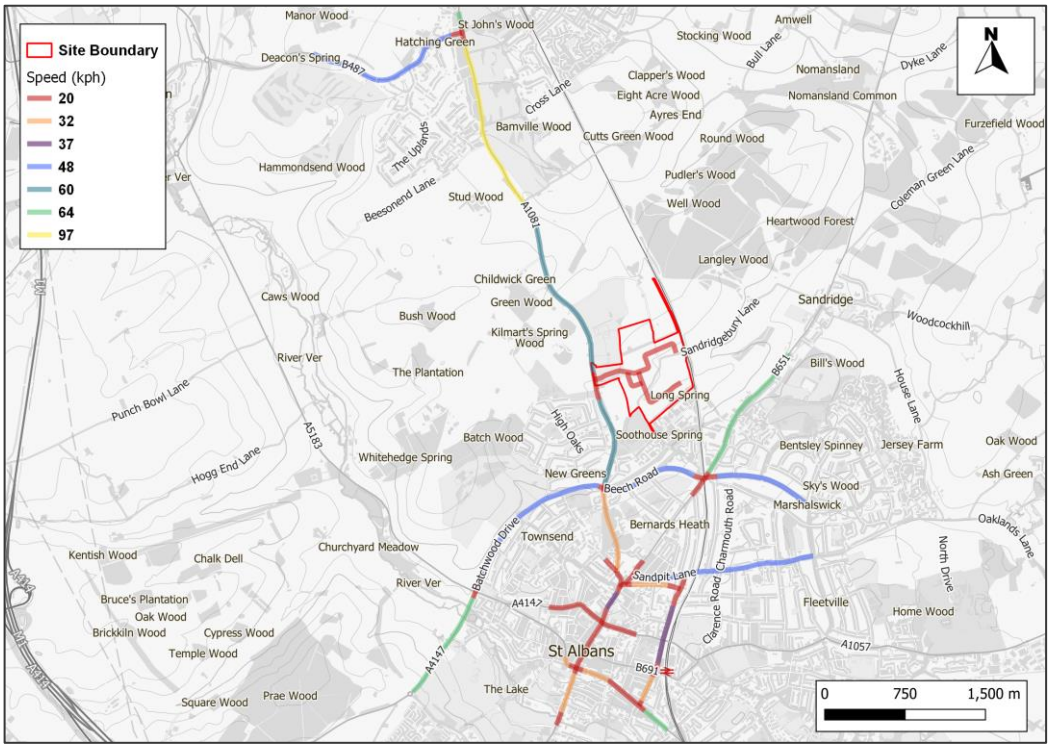

Figure A.17.1 Modelled Road Network & Speeds

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A.17.5.5 For the purposes of modelling, it has been assumed that several roads across the modelled network have a number of canyon-like features, which reduce dispersion of traffic emissions, and can lead to concentrations of pollutants being higher here than they would be in areas with greater dispersion. These roads have therefore been modelled as street canyons using ADMS-Roads' advanced canyon module, with appropriate input parameters determined from local mapping and photographs. The modelled canyons are shown in Figure A.17.2

A.17.5.6 In addition, a number of links along Chequer Street and Holywell Hill are on a gradient, which have also been specified in the models. These are shown in Figure A.17.3.

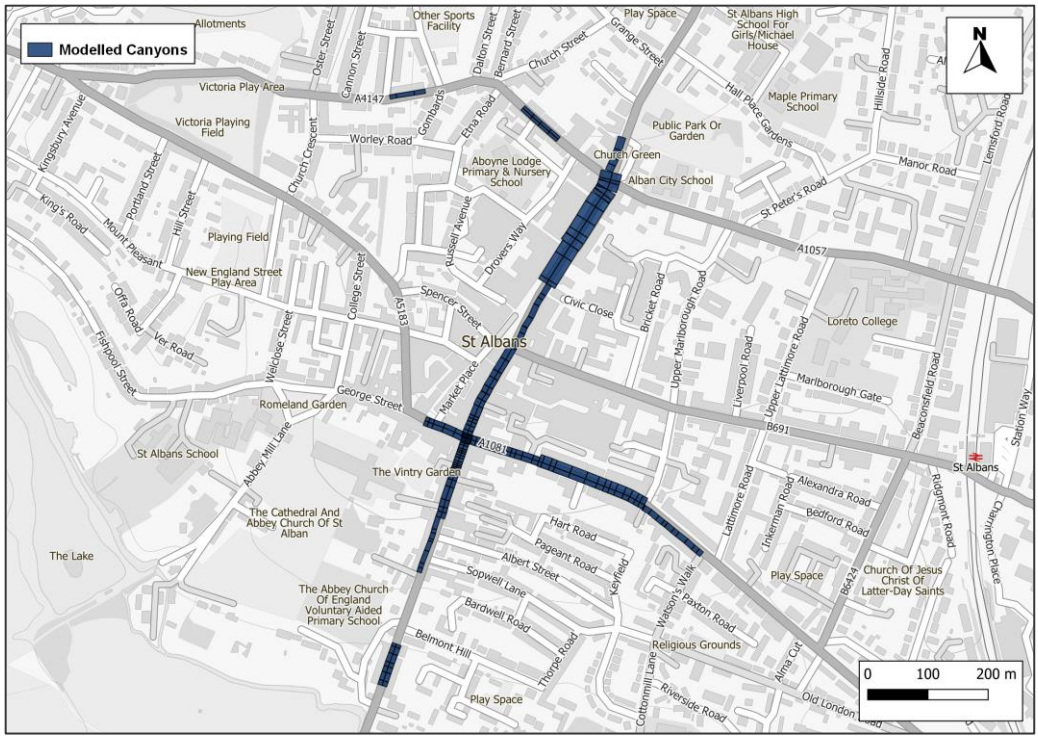

Figure A.17.2 Modelled Canyons

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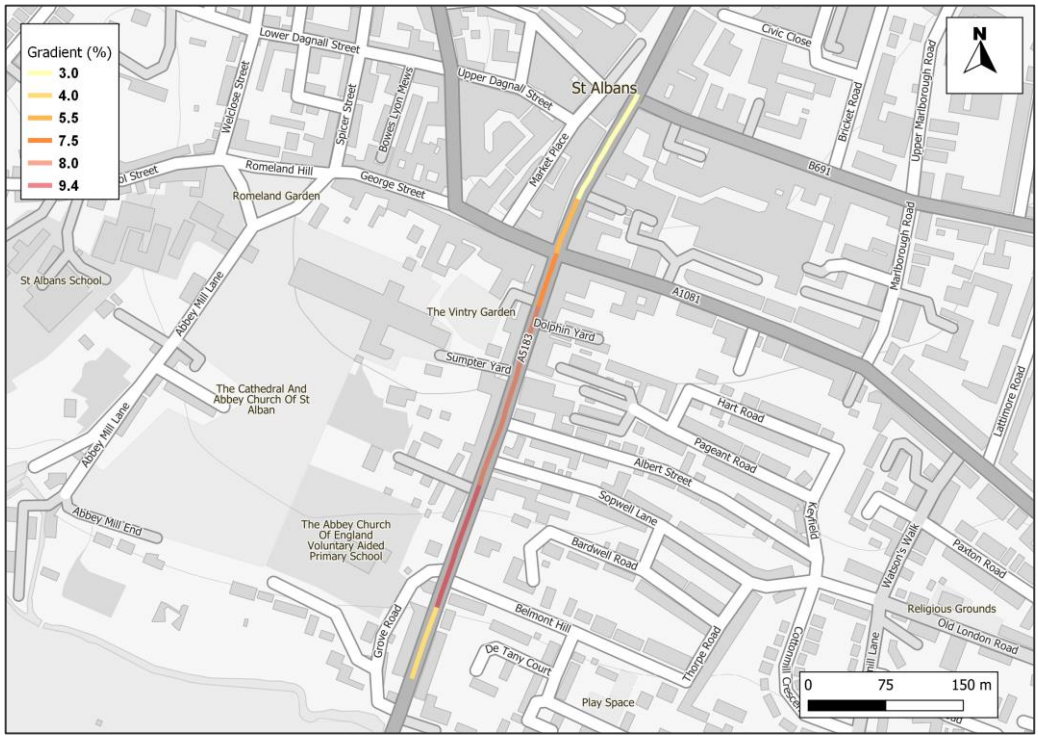

Figure A.17.3 Modelled Gradients

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A.17.5.7 Hourly sequential meteorological data in sectors of 10 degrees from Luton for 2022 have been used in the model. The Luton meteorological monitoring station is located at Luton Airport, approximately 12 km to the north of the proposed development. Both the application site and Luton Airport are located centrally south in England where they will be influenced by the effects of inland meteorology over relatively flat-flying topography. The topography of the model domain is similar to that around the meteorological monitoring station and measurements from this site are considered to provide the most robust basis to predict meteorology within the model domain. A wind rose for the site for the year 2022 is provided in Figure A.17.4.

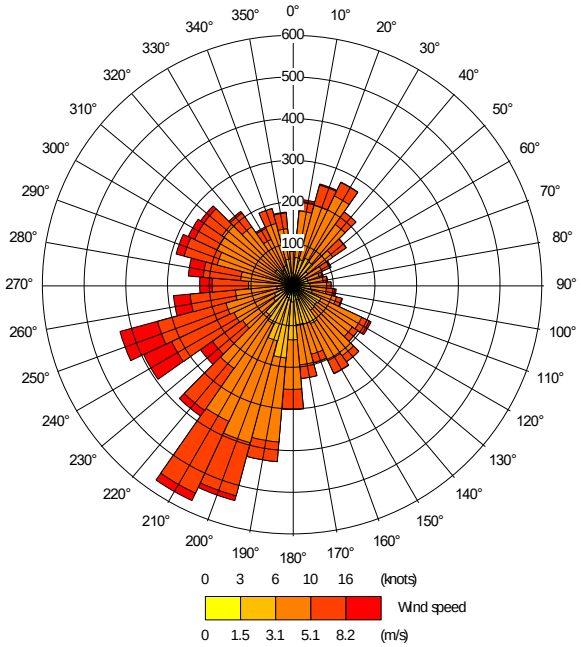

Figure A.17.4 2022 Wind Rose for Luton

Model Verification

A.17.5.8 Evidence collected over many years has shown that, in most urban areas, dispersion modelling relying upon Defra's EFT has tended to systematically under-predict roadside NO_2 concentrations. To account for this, it is necessary to adjust the model against local measurements. The model has been run to predict annual mean NO_2 concentrations during 2022 at the diffusion tube monitoring sites SA101, SA133, SA134, SA137, SA138, SA143, SA144, SA148, SA149, SA160 and SA161. These sites have been selected because they are situated adjacent to roads representative of those within the study area and have a high data capture. Despite also being located within the study area, sites SA136, SA146, SA156, SA157 and SA163 have been excluded from the model verification due to either poor data capture, being set back from the road, or located near features which are unrepresentative of the study environment (e.g. near bus stops where vehicles idle).

Nitrogen Dioxide

A.17.5.9 Most nitrogen dioxide (NO_2) is produced in the atmosphere by reaction of nitric oxide (NO) with ozone. It is therefore most appropriate to verify the model in terms of primary pollutant emissions of nitrogen oxides (NOx = NO + NO_2).

A.17.5.10 The model output of road-NOx (i.e. the component of total NOx coming from road traffic) has been compared with the 'measured' road-NOx. Measured road-NOx has been calculated from the

measured NO_2 concentrations and the predicted background NO_2 concentration using the NOx from NO_2 calculator (Version 8.1) available on the Defra LAQM Support website[73].

A.17.5.11 The unadjusted model has under predicted the road-NOx contribution; this is a common experience with this and most other road traffic emissions dispersion models. An adjustment factor has been determined as the slope of the best-fit line between the 'measured' road contribution and the model derived road contribution, forced through zero (Figure A.17.5). The calculated adjustment factor of 4.204 has been applied to the modelled road-NOx concentration for each receptor to provide adjusted modelled road-NOx concentrations.

A.17.5.12 The total NO_2 concentrations have then been determined by combining the adjusted modelled road-NOx concentrations with the predicted background NO_2 concentration within the NOx to NO_2 calculator. Figure A.17.6 compares final adjusted modelled total NO_2 at each of the monitoring sites to measured total NO_2, and shows a close agreement.

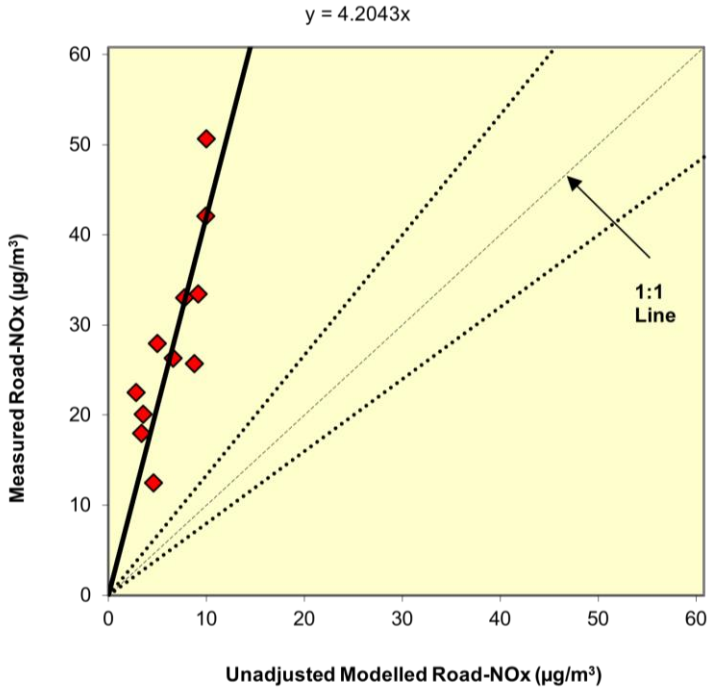

Figure A.17.5 Comparison of Measured Road NOx to Unadjusted Modelled Road NOx Concentrations. The dashed lines show ± 25%.

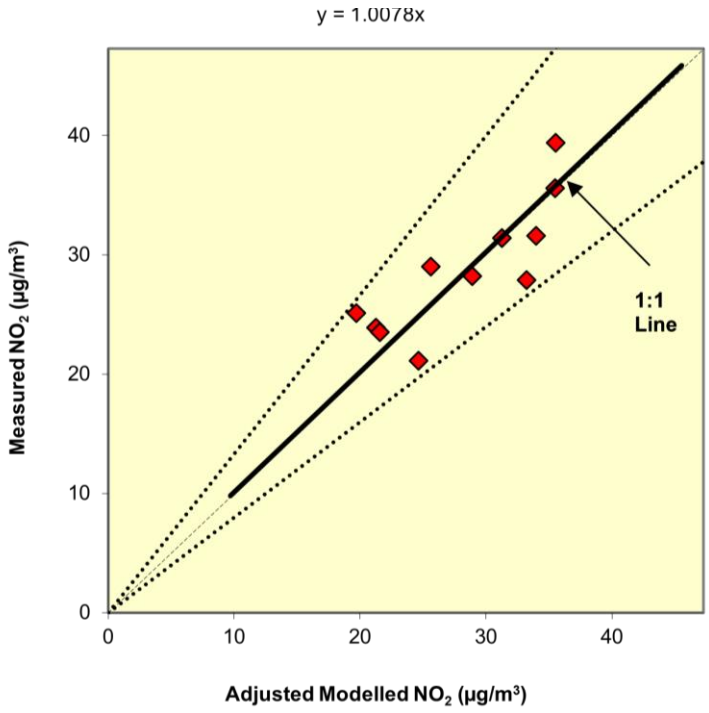

Figure A.17.6 Comparison of Measured Total NO_2 to Final Adjusted Modelled Total NO_2 Concentrations. The dashed lines show ± 25%.

A.17.5.13 Table A.17.9 shows the statistical parameters relating to the performance of the model, as well as the 'ideal' values[74]. The values calculated for the model demonstrate that it is performing well.

STATISTICAL PARAMETER	MODEL-SPECIFIC VALUE	'IDEAL' VALUE
Correlation Coefficient [a]	0.84	1
Root Mean Square Error (RMSE) [b]	3.21	0
Fractional Bias [c]	0.02	0

[a] Used to measure the linear relationship between predicted and observed data. A value of zero means no relationship and a value of 1 means absolute relationship.

[b] Used to define the average error or uncertainty of the model. The units of RMSE are the same as the quantities compared (i.e. µg/m³). TG22[74] outlines that, ideally, a RMSE value within 10% of the air quality objective (4 µg/m³) would be derived. If RMSE values are higher than 25% of the objective (10 µg/m³) it is recommended that the model is revisited.

[c] Used to identify if the model shows a systematic tendency to over or under predict. Negative values suggest a model over-prediction and positive values suggest a model under-prediction.

Table A.17.9 Statistical Model Performance

PM_{10} and $PM_{2.5}$

A.17.5.14 The approach described above for NOx and NO_2 determines the road increment of concentrations by subtracting the predicted local background from the roadside measurements. This works well for NOx because the differences between roadside and background concentrations typically represent a large proportion of the total measured value. The same is not true for PM_{10} and $PM_{2.5}$ concentrations, which are dominated by non-road emissions, even at the roadside. In practice, the influence of a local road on concentrations can often be smaller than the uncertainty in the mapped background concentration. As an example of this, 31% of all roadside and kerbside sites in London which measured $PM_{2.5}$ in 2019 with >75% data capture, recorded an annual mean concentration lower than the equivalent Defra mapped background value. Using measured background concentrations does not provide any significant benefit, owing largely to the spatial

resolution of available measurements, but also because of measurement uncertainty. For example, hourly-mean $PM_{2.5}$ concentrations measured at roadside sites are often lower than those measured at nearby urban background sites, while concentrations at urban background sites are often lower than those measured at rural sites.

A.17.5.15 For these reasons, it is not appropriate to calculate the annual mean road-increment to PM_{10} and $PM_{2.5}$ concentrations by subtracting either the mapped background or a local measured background concentration. This, in turn, means that the approach to model adjustment which is described for NOx and NO_2 is not appropriate for PM_{10} and $PM_{2.5}$. Historically, many studies have derived a model adjustment factor for NOx and applied this to PM_{10} and $PM_{2.5}$. This is also not appropriate, since there is no reason to expect the same bias in emissions of NOx, PM_{10} and $PM_{2.5}$.

A.17.5.16 While there is very strong evidence that EFT-based models have consistently under-predicted road-NOx concentrations in urban areas, there is no equivalent evidence for PM_{10} and $PM_{2.5}$. There is currently no strong basis for applying any adjustment to the model outputs. Predicted concentrations of PM_{10} and $PM_{2.5}$ have therefore not been adjusted.

Post-processing

A.17.5.17 The model predicts road-NOx concentrations at each receptor location. These concentrations have been adjusted using the adjustment factor set out above, which, along with the background NO_2, has been processed through the NOx to NO_2 calculator available on the Defra LAQM Support website[73]. The traffic mix within the calculator has been set to "All other urban UK traffic", which is considered suitable for the study area. The calculator predicts the component of NO_2 based on the adjusted road-NOx and the background NO_2.

Appendix 17.6: Construction mitigation

Appendix 17.6 Receptor Locations

RECEPTOR	OS COORDINATES (X)	OS COORDINATES (Y)	DESCRIPTION	MODELLED HEIGHT (M) [A]
Existing Receptors				
E1	514899.8	209731.1	Residential	1.5
E2	514899.8	209712.9	Residential	1.5
E3	514816.0	210108.4	Residential	1.5
E4	514861.5	210157.2	Residential	1.5
E5	514423.9	210688.0	Residential	1.5
E6	513816.8	212060.3	Residential	1.5
E7	513533.6	213014.4	Residential	1.5
E8	513514.1	213006.3	Residential	1.5
E9	513460.6	212984.8	Residential	1.5
E10	513287.1	212854.3	Residential	1.5
E11	514941.5	209609.4	Residential	1.5
E12	515021.6	209406.8	Residential	1.5
E13	515046.3	209347.9	Residential	1.5
E14	515035.8	209203.6	Residential	1.5
E15	515032.0	209122.6	Residential	1.5
E16	515013.4	209051.8	Residential	1.5
E17	515006.3	208910.1	Residential	1.5
E18	514939.5	208794.3	Residential	1.5
E19	515080.0	207971.4	Residential	1.5
E20	515078.3	208150.1	Residential	1.5
E21	515110.5	207915.1	Residential	1.5
E22	515105.8	207845.1	Residential	1.5
E23	514977.1	207654.3	Residential	1.5
E24	514953.3	207581.2	Residential	1.5
E25	514814.2	207305.3	Residential	4.5
E26	514743.6	207212.0	Residential	1.5
E27	514738.8	207174.0	Residential	4.5
E28	514727.8	207152.1	Residential	4.5
E29	514700.1	207120.5	Residential	4.5
E30	514705.4	207092.4	Residential	4.5
E31	514692.3	207095.9	Residential	4.5

RECEPTOR	OS COORDINATES (X)	OS COORDINATES (Y)	DESCRIPTION	MODELLED HEIGHT (M) [A]
E32	514750.5	207093.4	Residential	4.5
E33	514747.5	207079.6	Residential	4.5
E34	514857.2	207042.3	Residential	1.5
E35	514931.0	207033.7	Residential	1.5
E36	514976.3	206993.3	Residential	1.5
E37	515316.1	206745.3	Residential	1.5
E38	515315.1	206782.6	Residential	1.5
E39	515345.5	206911.1	School	1.5
E40	515396.5	207012.6	Residential	1.5
E41	515680.3	207825.7	Residential	1.5
E42	515182.9	207896.9	Residential	1.5
E43	515152.3	207892.2	Residential	4.5
E44	515238.2	207963.4	Residential	1.5
E45	515381.0	207943.3	Residential	1.5
E46	516760.8	208108.5	Residential	1.5
E47	514692.1	207054.9	Residential	4.5
E48	514679.1	207058.3	Residential	4.5
E49	514629.7	206907.0	Residential	1.5
E50	514568.7	206735.5	Residential	1.5
E51	514386.4	208657.1	Residential	1.5
E52	514158.1	208480.5	Residential	1.5
E53	515080.6	208782.1	Residential	1.5
E54	515574.7	208983.6	Residential	1.5
E55	515949.8	208909.3	Residential	1.5
E56	516249.3	209559.0	Residential	1.5
E57	514650.3	206971.8	Residential	1.5
E58	515579.3	207567.6	Residential	1.5
E59	515822.6	208863.2	Residential	1.5
E60	514935.0	207554.6	Residential	4.5
E61	514924.1	207536.3	Residential	4.5
Proposed Receptors				
P1	514889.9	209779.1	Residential	1.5
P2	514882.3	209814.6	Care Facility	1.5
P3	515190.1	209873.2	School	1.5
P4	515310.7	209848.4	Community Centre	1.5
P5	515309.5	209750.9	Residential	1.5

RECEPTOR	OS COORDINATES (X)	OS COORDINATES (Y)	DESCRIPTION	MODELLED HEIGHT (M) [A]
Cumulative/Sewell Trust Receptors				
C1	514961.4	209694.8	Residential	1.5
C2	515021.6	209556.3	Residential	1.5
C3	515090.6	209737.9	Residential	1.5

[a] A height of 1.5m is used to represent ground-floor level exposure. Additional heights of 4.5 m represent first-floor level exposure.

Table A.17.10 Description of Existing, Cumulative and Proposed Development Receptor Locations

Appendix 17.7: Receptor Locations

Appendix 17.7 Baseline Dispersion Model Results

RECEPTOR	2022	2028 WITHOUT SCHEME
Existing Receptors		
E1	22.0	15.9
E2	23.9	17.1
E3	15.0	11.3
E4	14.6	11.1
E5	14.5	11.0
E6	14.6	10.8
E7	25.0	16.6
E8	24.9	16.5
E9	24.0	15.9
E10	20.8	14.1
E11	16.7	12.7
E12	18.8	14.5
E13	19.4	14.9
E14	17.3	13.6
E15	18.6	14.4
E16	18.9	14.6
E17	21.8	16.4
E18	30.0	19.9
E19	23.6	17.2
E20	21.6	15.8
E21	26.2	18.6
E22	29.9	20.2
E23	28.7	19.4
E24	38.6	24.7
E25	22.2	16.0
E26	32.7	21.7
E27	31.0	20.8
E28	30.4	20.4
E29	31.0	20.8
E30	32.0	21.1
E31	34.6	22.7
E32	27.9	19.0
E33	32.2	21.3
E34	28.6	19.3

RECEPTOR	2022	2028 WITHOUT SCHEME
E35	23.4	16.6
E36	26.8	18.0
E37	23.8	16.7
E38	23.2	16.4
E39	20.7	15.1
E40	23.7	16.9
E41	19.0	14.4
E42	23.8	17.0
E43	22.1	16.1
E44	27.0	18.7
E45	27.4	19.0
E46	18.6	13.6
E47	32.2	21.4
E48	34.0	22.4
E49	25.4	17.3
E50	26.9	18.1
E51	21.0	14.7
E52	18.6	13.5
E53	19.3	14.6
E54	18.2	14.0
E55	21.6	15.6
E56	15.8	12.1
E57	22.8	15.9
E58	18.7	14.3
E59	17.5	13.5
E60	27.0	18.4
E61	25.4	17.6
Cumulative/ Sewell Receptors		
C1	- [a]	10.9
C2	- [a]	11.7
C3	- [a]	11.0
Objective	**40**	

[a] The development was not occupied in 2022.

Table A.17.11 Modelled Annual Mean Baseline Concentrations of NO_2 (µg/m^3) at Existing and Cumulative Receptors

RECEPTOR	PM_{10}		$PM_{2.5}$	
	2022	2028 WITHOUT SCHEME	2022	2028 WITHOUT SCHEME
Existing Receptors				
E1	14.7	14.3	9.7	9.3
E2	14.8	14.4	9.7	9.3
E3	14.8	14.3	9.4	9.0
E4	14.8	14.3	9.4	9.0
E5	14.8	14.3	9.4	9.0
E6	13.9	13.4	9.2	8.8
E7	14.7	14.2	9.6	9.2
E8	14.8	14.2	9.7	9.2
E9	14.7	14.2	9.6	9.2
E10	14.5	14.0	9.5	9.1
E11	14.5	14.0	9.5	9.1
E12	14.8	14.3	9.7	9.3
E13	14.8	14.3	9.7	9.4
E14	14.7	14.2	9.7	9.3
E15	14.7	14.3	9.7	9.3
E16	14.8	14.3	9.7	9.3
E17	14.8	14.4	10.1	9.7
E18	15.1	14.6	10.1	9.6
E19	15.1	14.6	10.2	9.8
E20	14.8	14.3	10.1	9.7
E21	15.2	14.7	10.3	9.9
E22	15.5	14.9	10.4	10.0
E23	15.8	15.2	10.6	10.1
E24	16.3	15.7	10.9	10.4
E25	15.4	14.8	10.4	9.9
E26	16.0	15.4	10.7	10.2
E27	15.9	15.3	10.6	10.2
E28	15.8	15.3	10.6	10.2
E29	15.9	15.3	10.6	10.2
E30	15.9	15.4	10.7	10.2
E31	16.1	15.5	10.7	10.3
E32	15.7	15.1	10.5	10.1
E33	16.0	15.4	10.7	10.2
E34	15.9	15.3	10.6	10.2

RECEPTOR	PM_{10}		$PM_{2.5}$	
	2022	2028 WITHOUT SCHEME	2022	2028 WITHOUT SCHEME
E35	15.5	15.0	10.4	10.0
E36	15.3	14.8	10.2	9.8
E37	15.3	14.7	10.3	9.8
E38	15.2	14.7	10.2	9.8
E39	15.1	14.6	10.2	9.8
E40	15.2	14.6	10.3	9.8
E41	14.9	14.3	10.1	9.7
E42	15.1	14.6	10.2	9.8
E43	15.0	14.5	10.2	9.8
E44	15.3	14.8	10.3	9.9
E45	15.5	14.9	10.4	10.0
E46	14.5	13.9	9.8	9.4
E47	15.9	15.4	10.7	10.2
E48	16.0	15.5	10.7	10.3
E49	15.2	14.7	10.2	9.7
E50	15.3	14.8	10.2	9.8
E51	14.6	14.1	9.8	9.4
E52	14.5	13.9	9.7	9.3
E53	14.7	14.2	10.0	9.6
E54	14.6	14.1	10.0	9.6
E55	14.8	14.2	10.1	9.6
E56	14.4	13.9	9.6	9.2
E57	15.1	14.5	10.1	9.7
E58	14.9	14.3	10.1	9.7
E59	14.5	14.0	9.9	9.5
E60	15.6	15.1	10.5	10.1
E61	15.6	15.0	10.5	10.0
Cumulative Receptors				
C1	- [a]	13.8	- [a]	9.0
C2	- [a]	14.0	- [a]	9.2
C3	- [a]	13.9	- [a]	9.1
Assessment Criterion	**32 [b]**		**20 [c]**	

[a] The development was not occupied in 2022.

[b] While the annual mean PM_{10} objective is 40 µg/m³, 32 µg/m³ is the annual mean concentration above which an exceedance of the 24-hour mean PM_{10} objective is possible, as outlined in LAQM.TG[29] A value of 32 µg/m³ is

therefore used as a proxy to determine the likelihood of exceedance of the 24-hour mean PM_{10} objective, as recommended in EPUK & IAQM guidance[25].

[c] There is no numerical $PM_{2.5}$ objective for local authorities (see paragraph 17.29). Convention is to assess against the limit value which is currently 20 µg/m³.

Table A.17.12 Modelled Annual Mean Baseline Concentrations of PM_{10} and $PM_{2.5}$ (µg/m³) at Existing Receptors [a]

Appendix 17.8: Impact Assessment Results

Appendix 17.8 Impact Assessment Results

A.17.6.1 The results of the dispersion modelling and predicted impacts at each receptors are set out in Table A.17.13 and Table A.17.14

RECEPTOR	WITHOUT SCHEME	WITH SCHEME	% CHANGE [A]	SENSITIVITY	IMPACT DESCRIPTOR
Existing Receptors					
E1	15.9	17.3	3	High	Negligible
E2	17.1	18.7	4	High	Negligible
E3	11.3	11.5	0	High	Negligible
E4	11.1	11.3	0	High	Negligible
E5	11.0	11.1	0	High	Negligible
E6	10.8	10.9	0	High	Negligible
E7	16.6	16.8	1	High	Negligible
E8	16.5	16.8	1	High	Negligible
E9	15.9	16.1	1	High	Negligible
E10	14.1	14.3	0	High	Negligible
E11	12.7	13.5	2	High	Negligible
E12	14.5	15.4	2	High	Negligible
E13	14.9	15.8	2	High	Negligible
E14	13.6	14.2	2	High	Negligible
E15	14.4	15.2	2	High	Negligible
E16	14.6	15.4	2	High	Negligible
E17	16.4	17.4	2	High	Negligible
E18	19.9	20.9	2	High	Negligible
E19	17.2	17.8	2	High	Negligible
E20	15.8	16.4	2	High	Negligible
E21	18.6	19.3	2	High	Negligible
E22	20.2	20.8	2	High	Negligible
E23	19.4	19.8	1	High	Negligible
E24	24.7	25.4	2	High	Negligible
E25	16.0	16.1	0	High	Negligible
E26	21.7	22.0	1	High	Negligible
E27	20.8	21.0	1	High	Negligible
E28	20.4	20.6	0	High	Negligible
E29	20.8	21.0	0	High	Negligible
E30	21.1	21.2	0	High	Negligible
E31	22.7	23.0	1	High	Negligible

RECEPTOR	WITHOUT SCHEME	WITH SCHEME	% CHANGE [A]	SENSITIVITY	IMPACT DESCRIPTOR
E32	19.0	19.0	0	High	Negligible
E33	21.3	21.3	0	High	Negligible
E34	19.3	19.3	0	High	Negligible
E35	16.6	16.6	0	High	Negligible
E36	18.0	18.0	0	High	Negligible
E37	16.7	16.9	0	High	Negligible
E38	16.4	16.6	0	High	Negligible
E39	15.1	15.3	0	High	Negligible
E40	16.9	17.1	1	High	Negligible
E41	14.4	14.6	0	High	Negligible
E42	17.0	17.4	1	High	Negligible
E43	16.1	16.4	1	High	Negligible
E44	18.7	19.0	1	High	Negligible
E45	19.0	19.4	1	High	Negligible
E46	13.6	13.8	0	High	Negligible
E47	21.4	21.7	1	High	Negligible
E48	22.4	22.6	1	High	Negligible
E49	17.3	17.4	0	High	Negligible
E50	18.1	18.3	0	High	Negligible
E51	14.7	15.1	1	High	Negligible
E52	13.5	13.7	1	High	Negligible
E53	14.6	15.0	1	High	Negligible
E54	14.0	14.3	1	High	Negligible
E55	15.6	15.8	1	High	Negligible
E56	12.1	12.3	0	High	Negligible
E57	15.9	16.0	0	High	Negligible
E58	14.3	14.5	1	High	Negligible
E59	13.5	13.7	0	High	Negligible
E60	18.4	18.7	1	High	Negligible
E61	17.6	17.8	0	High	Negligible
Cumulative 'Sewell' Receptors					
C1	10.9	11.4	1	High	Negligible
C2	11.7	12.1	1	High	Negligible
C3	11.0	11.4	1	High	Negligible
Objective	**40**		-	-	-

[a] % changes are relative to the objective and have been rounded to the nearest whole number.

Table A.17.13 Predicted Impacts on Annual Mean NO_2 Concentrations in 2028 at Existing and Cumulative Receptors (µg/m³)

RECEPTOR	PM_{10}					$PM_{2.5}$				
	WITHOUT SCHEME	WITH SCHEME	% CHANGE [A]	SENSITIVITY	IMPACT DESCRIPTOR	WITHOUT SCHEME	WITH SCHEME	% CHANGE [A]	SENSITIVITY	IMPACT DESCRIPTOR
Existing Receptors										
E1	14.3	14.4	0	High	Negligible	9.3	9.4	0	High	Negligible
E2	14.4	14.6	1	High	Negligible	9.3	9.4	0	High	Negligible
E3	14.3	14.3	0	High	Negligible	9.0	9.0	0	High	Negligible
E4	14.3	14.3	0	High	Negligible	9.0	9.0	0	High	Negligible
E5	14.3	14.3	0	High	Negligible	9.0	9.0	0	High	Negligible
E6	13.4	13.4	0	High	Negligible	8.8	8.8	0	High	Negligible
E7	14.2	14.2	0	High	Negligible	9.2	9.2	0	High	Negligible
E8	14.2	14.3	0	High	Negligible	9.2	9.2	0	High	Negligible
E9	14.2	14.2	0	High	Negligible	9.2	9.2	0	High	Negligible
E10	14.0	14.0	0	High	Negligible	9.1	9.1	0	High	Negligible
E11	14.0	14.1	0	High	Negligible	9.1	9.2	0	High	Negligible
E12	14.3	14.4	0	High	Negligible	9.3	9.4	0	High	Negligible
E13	14.3	14.4	0	High	Negligible	9.4	9.4	0	High	Negligible
E14	14.2	14.3	0	High	Negligible	9.3	9.3	0	High	Negligible
E15	14.3	14.4	0	High	Negligible	9.3	9.4	0	High	Negligible
E16	14.3	14.4	0	High	Negligible	9.3	9.4	0	High	Negligible
E17	14.4	14.5	0	High	Negligible	9.7	9.8	0	High	Negligible
E18	14.6	14.7	0	High	Negligible	9.6	9.7	0	High	Negligible
E19	14.6	14.7	0	High	Negligible	9.8	9.9	0	High	Negligible
E20	14.3	14.4	0	High	Negligible	9.7	9.7	0	High	Negligible
E21	14.7	14.8	0	High	Negligible	9.9	9.9	0	High	Negligible
E22	14.9	15.0	0	High	Negligible	10.0	10.0	0	High	Negligible
E23	15.2	15.2	0	High	Negligible	10.1	10.1	0	High	Negligible
E24	15.7	15.8	0	High	Negligible	10.4	10.4	0	High	Negligible
E25	14.8	14.8	0	High	Negligible	9.9	9.9	0	High	Negligible
E26	15.4	15.4	0	High	Negligible	10.2	10.2	0	High	Negligible

RECEPTOR	PM_{10}					$PM_{2.5}$				
	WITHOUT SCHEME	WITH SCHEME	% CHANGE [A]	SENSITIVITY	IMPACT DESCRIPTOR	WITHOUT SCHEME	WITH SCHEME	% CHANGE [A]	SENSITIVITY	IMPACT DESCRIPTOR
E27	15.3	15.3	0	High	Negligible	10.2	10.2	0	High	Negligible
E28	15.3	15.3	0	High	Negligible	10.2	10.2	0	High	Negligible
E29	15.3	15.3	0	High	Negligible	10.2	10.2	0	High	Negligible
E30	15.4	15.4	0	High	Negligible	10.2	10.2	0	High	Negligible
E31	15.5	15.5	0	High	Negligible	10.3	10.3	0	High	Negligible
E32	15.1	15.1	0	High	Negligible	10.1	10.1	0	High	Negligible
E33	15.4	15.4	0	High	Negligible	10.2	10.2	0	High	Negligible
E34	15.3	15.3	0	High	Negligible	10.2	10.2	0	High	Negligible
E35	15.0	15.0	0	High	Negligible	10.0	10.0	0	High	Negligible
E36	14.8	14.8	0	High	Negligible	9.8	9.8	0	High	Negligible
E37	14.7	14.7	0	High	Negligible	9.8	9.8	0	High	Negligible
E38	14.7	14.7	0	High	Negligible	9.8	9.8	0	High	Negligible
E39	14.6	14.6	0	High	Negligible	9.8	9.8	0	High	Negligible
E40	14.6	14.6	0	High	Negligible	9.8	9.8	0	High	Negligible
E41	14.3	14.3	0	High	Negligible	9.7	9.7	0	High	Negligible
E42	14.6	14.6	0	High	Negligible	9.8	9.8	0	High	Negligible
E43	14.5	14.5	0	High	Negligible	9.8	9.8	0	High	Negligible
E44	14.8	14.8	0	High	Negligible	9.9	9.9	0	High	Negligible
E45	14.9	15.0	0	High	Negligible	10.0	10.0	0	High	Negligible
E46	13.9	13.9	0	High	Negligible	9.4	9.4	0	High	Negligible
E47	15.4	15.4	0	High	Negligible	10.2	10.2	0	High	Negligible
E48	15.5	15.5	0	High	Negligible	10.3	10.3	0	High	Negligible
E49	14.7	14.7	0	High	Negligible	9.7	9.7	0	High	Negligible
E50	14.8	14.8	0	High	Negligible	9.8	9.8	0	High	Negligible
E51	14.1	14.1	0	High	Negligible	9.4	9.4	0	High	Negligible
E52	13.9	14.0	0	High	Negligible	9.3	9.3	0	High	Negligible
E53	14.2	14.2	0	High	Negligible	9.6	9.6	0	High	Negligible
E54	14.1	14.2	0	High	Negligible	9.6	9.6	0	High	Negligible
E55	14.2	14.3	0	High	Negligible	9.6	9.7	0	High	Negligible
E56	13.9	13.9	0	High	Negligible	9.2	9.2	0	High	Negligible
E57	14.5	14.5	0	High	Negligible	9.7	9.7	0	High	Negligible

RECEPTOR	PM_{10}					$PM_{2.5}$				
	WITHOUT SCHEME	WITH SCHEME	% CHANGE [A]	SENSITIVITY	IMPACT DESCRIPTOR	WITHOUT SCHEME	WITH SCHEME	% CHANGE [A]	SENSITIVITY	IMPACT DESCRIPTOR
E58	14.3	14.4	0	High	Negligible	9.7	9.7	0	High	Negligible
E59	14.0	14.0	0	High	Negligible	9.5	9.5	0	High	Negligible
E60	15.1	15.1	0	High	Negligible	10.1	10.1	0	High	Negligible
E61	15.0	15.0	0	High	Negligible	10.0	10.0	0	High	Negligible
Cumulative 'Sewell' Receptors										
C1	13.8	13.8	0	High	Negligible	9.0	9.0	0	High	Negligible
C2	14.0	14.0	0	High	Negligible	9.2	9.2	0	High	Negligible
C3	13.9	13.9	0	High	Negligible	9.1	9.1	0	High	Negligible
Criterion [b]	**32**		-	-	-	**20[c]**		-	-	-

[a] % changes are relative to the objective and have been rounded to the nearest whole number.

[b] While the annual mean PM_{10} objective is 40 µg/m³, 32 µg/m³ is the annual mean concentration above which an exceedance of the 24-hour mean PM_{10} objective is possible, as outlined in LAQM.TG22[29]. A value of 32 µg/m³ is thus used as a proxy to determine the likelihood of exceedance of the 24-hour mean PM_{10} objective, as recommended in EPUK & IAQM guidance[25].

[c] The $PM_{2.5}$ objective, which was to be met by 2020, is not in Regulations and there is no requirement for local authorities to meet it.

Table A.17.14 Predicted Impacts on Annual Mean PM_{10} and $PM_{2.5}$ Concentrations in 2028 at Existing and Cumulative Receptors (µg/m³)

Appendix 17.9: Construction Mitigation

Appendix 17.9 Construction Mitigation

A.17.6.2 Table A.17.15 sets out a list of best-practice measures from the IAQM guidance[70] that should be incorporated into the specification for the works. These measures should ideally be written into a Dust Management Plan. Some of the measures may only be necessary during specific phases of work, or during activities with a high potential to produce dust, and the list should be refined and expanded upon in liaison with the construction contractor when producing the Dust Management Plan.

MEASURE	DESIRABLE	HIGHLY RECOMMENDED
Communications		
Develop and implement a stakeholder communications plan that includes community engagement before and during work on site		✓
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environmental manager/engineer or the site manager		✓
Display the head or regional office contact information		✓
Dust Management Plan		
Develop and implement a Dust Management Plan (DMP) approved by the Local Authority which documents the mitigation measures to be applied, and the procedures for their implementation and management		✓
Site Management		
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken		✓
Make the complaints log available to the local authority when asked		✓
Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the log book		✓
Hold regular liaison meetings with other high risk construction sites within 250 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes		✓
Monitoring		
Undertake daily on-site and off-site inspections where receptors (including roads) are nearby, to monitor dust. Record inspection results, and make the log available to the Local Authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of the site boundary, with cleaning to be provided if necessary		✓
Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the Local Authority when asked		✓
Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions		✓
Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase		✓

MEASURE	DESIRABLE	HIGHLY RECOMMENDED
commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction[76]		
Preparing and Maintaining the Site		
Plan the site layout so that machinery and dust-causing activities are located away from receptors, as far as is possible		✓
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site		✓
Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period		✓
Avoid site runoff of water or mud		✓
Keep site fencing, barriers and scaffolding clean using wet methods		✓
Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below		✓
Cover, seed, or fence stockpiles to prevent wind whipping		✓
Operating Vehicle/Machinery and Sustainable Travel		
Ensure all vehicles switch off their engines when stationary – no idling vehicles		✓
Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery-powered equipment where practicable		✓
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the Local Authority, where appropriate)		✓
Produce a Construction Logistics Plan (CLP) to manage the sustainable delivery of goods and materials		✓
Implement a Travel Plan that supports and encourages sustainable staff travel (public transport, cycling, walking, and car-sharing)		✓
Operations		
Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems		✓
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate		✓
Use enclosed chutes, conveyors and covered skips		✓
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate		✓
Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods		✓

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MEASURE	DESIRABLE	HIGHLY RECOMMENDED
Waste Management		
Avoid bonfires and burning of waste materials		✓
Measures Specific to Earthworks		
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable		✓
Use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable		✓
Only remove the cover from small areas during work, not all at once		✓
Measures Specific to Construction		
Avoid scabbling (roughening of concrete surfaces), if possible		✓
Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place		✓
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery		✓
For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust	✓	
Measures Specific to Trackout		
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use		✓
Avoid dry sweeping of large areas		✓
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport		✓
Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;		✓
Record all inspections of haul routes and any subsequent action in a site log book;		✓
Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems or mobile water bowsers, and regularly cleaned;		✓
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable);		✓
Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and		✓
Access gates should be located at least 10 m from receptors, where possible		✓

Table A.17.15 Best-Practice Mitigation Measures Recommended for the Works

CARDIFF OFFICE
22 Cathedral Road, Cardiff, CF11 9LJ
02920 349737

EXETER OFFICE
Winslade Manor, Manor Drive, Clyst St Mary,
Exeter EX5 1FY, 01392 690060

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