

Symmetry Park, Oxford North

Environmental Impact Assessment Scoping Opinion Request

Symmetry Park, Oxford North

EIA Scoping Request



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1. Introduction

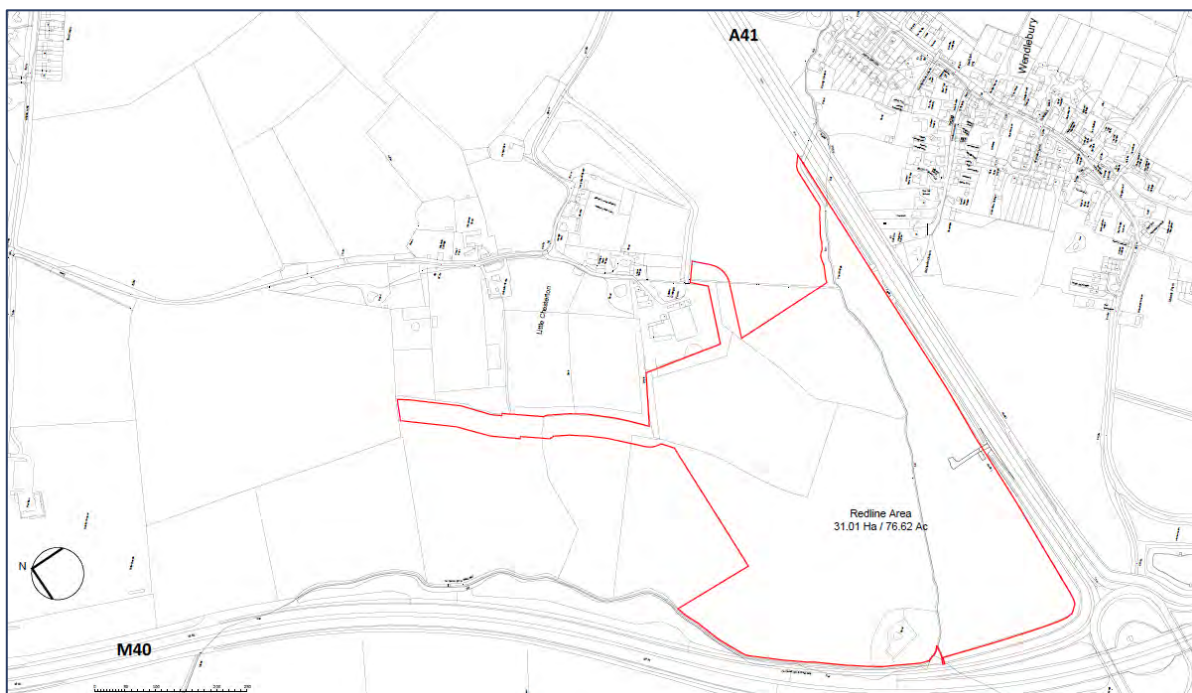
1.1. Tritax Symmetry Limited (TSL), a commercial property development company, is promoting occupier specific proposals for a new development on land to the north of the A41 and east of the M40 near Junction 9, in Cherwell District. The proposal is for a new high-quality research & development facility of Siemens Healthineers, including a facility to produce superconducting magnets for medical devices used in MRI systems. Its purpose is to accommodate the current and future requirements of Siemens Healthineers, an existing Oxfordshire-based business. TSL intends to submit a planning application to Cherwell District Council (the Council) seeking full planning consent for the development of employment floorspace at the Site identified by the Figure below (see Appendix 1 to view drawing 13-222-SGP-STE-00-DR-A-131001.rev.B).

1.2. Before submitting a planning application, TSL will undertake an Environmental Impact Assessment (EIA) for the Proposed Development. The EIA will be undertaken in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations').

1.3. Regulation 15 of the EIA Regulations enables a person to ask the relevant planning authority to confirm in writing their opinion as to the scope, and the level of detail, of the information that should be provided in the Environmental Statement (ES). This report accompanies a request for the Council to adopt an EIA scoping opinion under Regulation 15 of the EIA Regulations.

1.4. In order to determine the likely scope of the EIA, this report identifies:

- the key characteristics of the Site and the environmental baseline;
- further survey work that is proposed;
- the extent and scope of the proposed development;
- initial consideration of the potential sources and nature of environmental impacts; and
- the assessment methodologies proposed to be used in each study area.



Report structure

- 1.5. Regulation 15(2) of the EIA Regulations identifies that a request seeking a scoping opinion must include:
- (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;'*
- 1.6. This information is contained in this scoping report, which is structured into Sections as follows:
- Section 2 describes the Site, the surrounding context, and identifies receptors that could potentially be affected by the development proposed;
 - Section 3 provides a description of the development proposed;
 - Section 4 outlines the approach that will be undertaken in preparing the EIA;
 - Section 5 identifies the effects considered to be insignificant, proposed to be 'scoped out' of the EIA;
 - Section 6 indicates the other documentation that will be submitted as art of the planning application;
 - Sections 7 to 15 provide the scope of assessment for the topics proposed to be scoped into the EIA;
 - Section 16 presents the proposed structure of the Environmental Statement.
- 1.7. On receipt of this report, the Council should consult with statutory bodies (Regulation 2(1)) before adopting their formal EIA Scoping Opinion. The Scoping Opinion will confirm the key environmental considerations to be assessed.

2. The Site and surroundings

2.1. The boundary of the Site fronts the A41 road and extends across several open fields, covering an area of 31 hectares, as shown above and on drawing 13-222-SGP-STE-00-DR-A-131001 (Appendix 1). Currently, the land is in agricultural use. The eastern extent of the Site is defined by field boundaries, the Grange Farm Industrial Estate, and Lower Grange Farm. A small watercourse defines the western edge of the Site, flowing from north to south towards a pond and small area of woodland, where its course then changes to flow east across the Site, before passing under the A41. The wood comprises Ancient Woodland and Semi-Natural Woodland.

2.2. A public footpath crosses the Site, comprising sections 398/1/10 & 161/4/20 according to Oxfordshire County Council Countryside Access Mapping. The A41 has a bus stop alongside each carriageway.

2.3. Grange Farm Industrial Estate is adjacent to the site and nearby settlements are at Little Chesterton and to the south of the A41, Wendlebury. Made Ground is potentially located in the south where an area of hardstanding is present nearest the access gate to the A41, and where the existing outbuildings of Grange Farm are to the north of the centre of the Site. A Phase 1 Preliminary Risk Assessment has determined a Low (localised Moderate/Low) risk to human health and a Low risk to controlled waters with respect to potential contamination or hazardous ground gases.

Aspects to be considered in the scheme design and environmental assessment

- 2.4. Aspects of the Site and the surroundings to be considered in the design and assessment are identified as:
- Water course and drainage;
 - Ancient woodland, trees, hedgerows;
 - Soil resources;
 - A Public Right of Way on the Site and users of footpaths in the surroundings;

- Adjacent uses – commercial and residential;
- The A41 road and bus stop;
- M40 Junction 9;
- Landscape character;
- Air Quality Management Area (Bicester).

3. The Proposed Development

3.1. The key elements to be considered are:

- A site of some 31 hectares;
- Access from the A41 (eastbound carriage);
- The demolition of existing agricultural buildings within the red line boundary;
- The development of up to 55,500 m² of Use Class B2 floorspace (GIA);
- Ancillary space for workshops and offices, security gatehouse;
- A building for use as an energy centre (details of the energy generation reserved for future approval);
- Loading bays, service yard, waste management area;
- External plant;
- Parking for electric cars, accessible parking, bicycles, cars and motorcycles;
- Landscaping and outdoor space for staff recreation/games area;
- Re-alignment of an existing watercourse;
- Sustainable drainage.

3.2. Overall, the external footprint of the main built structure would be approximately 321 m x 95 m, with additional buildings/structures to accommodate plant etc. positioned adjacent to the north side of the main building. The height of the buildings would vary: up to a maximum overall height of 16.0 m.

3.3. The extent of the Site boundary shown by the red line incorporates areas for landscaping around Little Chesterton, the diversion of the watercourse, the temporary storage of soils, the management of surface water drainage, and construction working areas for the development as envisaged at this time. Ongoing technical assessment may reduce the area required for inclusion in the planning application.

3.4. When completed and in operation the proposal would have the capacity for a workforce of over 1,300.

Site topography / water course / drainage

3.5. Generally, the topography of the Site falls to the south and east. Existing ditches associated with field boundaries convey surface water off-site under the A41. It is proposed to convey surface water run-off via the modified route of the watercourse. There will be localised areas where material is to be removed / added to provide the development platform and raised bunds near the boundaries of the Site that will be planted as part of the landscape strategy. Material will be sourced on-site as part of the grading work.

Public Rights of Way

3.6. The footpath that crosses the Site will be accommodated within the site layout.

Phasing

3.7. It is anticipated that the Site preparation and infrastructure provision will commence in 2022, with development progressing through to 2023. This will be followed by second phase of construction to complete the total amount of production floor space for the facility, circa 2030 at the earliest.

Sustainability

3.8. The sustainability strategy for the Proposed Development aims to reduce energy demand, reduce carbon dioxide emissions, implement energy efficient systems, minimise water usage, and reduce waste. The strategy for the proposal will focus on the implementation of passive design and energy efficient measures such as photovoltaic cells and air source heat pumps to minimise carbon emission from the facility over the long term.

MITIGATION AND CONTROLS

Control of construction activities

3.9. The assessment of effects prior to the adoption of additional mitigation measures will assume that construction will proceed in accordance with industry standard best practice techniques and that all legislative requirements will be met. A Construction and Environment Management Plan (CEMP) will be appended as part of the ES and the details of mitigation provided within it will be referenced in the ES chapters (but not duplicated). The details of the CEMP will cover site waste management; environment management; construction management.

Procedure for dealing with contaminated material

3.10. Historically the Site has been used for agriculture, which has a low to medium risk associated with the potential for contamination. In the event that contaminated material is identified during site preparation, the contractor would follow standard procedures to:

- notify the Environmental Health department of the discovery.
- secure the area / take action to prevent the release of contamination.
- appoint a specialist to carry out the necessary analysis to identify the substance and appropriate containment/disposal options.
- dispose of the material in accordance with applicable legislation after obtaining the necessary consents and / or licenses.
- record waste transfer / disposal certificates.

4. Approach to assessment

THE PROPOSED EIA

4.1. EIA is a process through which the likely significant environmental effects of a development proposal can be identified and, where possible, adverse effects avoided or mitigated. This process is reported in an ES, which is submitted with a planning application.

4.2. This section sets out the scope of the proposed EIA and identifies the proposed structure for the chapters of the ES. The ES will consider various environmental parameters as required by Schedule 4 of the EIA Regulations.

4.3. Environmental Statements are required to identify those aspects of the environment likely to be 'significantly affected' both directly and indirectly by the development proposed. An ES should then describe the nature of those significant effects taking account of the magnitude of the impact and sensitivity of the receptor. These assessments will identify mitigation where appropriate and evaluate residual effects with this in place.

4.4. The environmental effects of the Proposed Development will be considered during both the construction and operational phases. The findings of the EIA will be presented in a main written statement, supported by figures and appendices. A non-technical summary of the ES will be provided as a separate document.

Study area and temporal scope

4.5. Each assessment topic will define its study area geographically and indicate the timescales over which the environmental effects will be considered. The temporal scope will consider the construction phase, and thereafter when the development is completed and occupied (often referred to as the 'operational' phase). For example, the assessment of landscape and visual assessment will consider residual effects at a future time when the landscaping within the scheme has had a period of 15 years to mature.

4.6. It is envisaged that construction will commence in 2023. The Proposed Development is designed as a permanent provision, i.e., decommissioning is not an aspect that will be considered in the EIA.

Technical scope

4.7. In order to determine the likely scope of the EIA, the process has identified:

- the key characteristics of the Site and the establishment of the environmental baseline through a series of desk and field studies;
- gaps in the baseline and the further survey work required to address this;
- initial consideration of the potential sources and nature of environmental impacts; and
- definition of the assessment methodologies to be used in each study area (where available).

4.8. A series of baseline studies are ongoing or are being undertaken and can be tailored to advice offered in response to this scoping request. The baseline and assessment work undertaken as part of preparing this Scoping Report is set out within the following Sections.

4.9. In Schedule 4, Paragraph 4 of the EIA Regulations require an ES to provide “*A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydro morphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.*”

4.10. As part of the EIA scoping process, issues within the topic areas above that are identified as unlikely to give rise to significant environmental effects can be omitted ('scoped out') from the EIA and, where justified, it is reasonable to propose a reduced scope of topic areas where initial assessment clearly indicates significant effects are unlikely.

Pre-application consultation

4.11. Further to this EIA scoping exercise, ongoing consultation with statutory consultees and the Council will continue as necessary to confirm the detailed methodology for specific assessments. Each topic-based EIA chapter will reference the supporting consultations that were undertaken with expert stakeholders on the methodology employed.

4.12. Alongside this, the Applicant will undertake effective pre-application consultation with the Council, consultees and other stakeholders, including the public. Details of this and its timing will be discussed with the Council to agree a suitable approach to consultation that accords with Government advice regarding covid-19 that is in effect at the relevant time.

ASSESSMENT METHODOLOGY

4.13. The ES will include the assessment methodology used for the specific assessment topic, using relevant guidance where this is in place, and wherever possible, predict environmental effects in a standard framework.

4.14. Each ES chapter will identify those receptors relevant to the topic and they will be assessed to determine their sensitivity to change as a result of the project from the known baseline. The receptors will be attributed a sensitivity level ranging from high to low as set out in the Table below.

Sensitivity of a generic environmental receptor to change

Sensitivity	Receptor type
High	Receptors of high importance with a high susceptibility to change and limited potential for substitution or replacement.
Medium	Receptors with some sensitivity to change and medium importance. Often have relevance at a regional scale with some opportunity for substitution or replacement.
Low	Receptors with low importance and sensitivity to change, often of relevance at a local scale.
Negligible	The receptor has very low importance / is not sensitive to change.

4.15. The magnitude of impact affecting each receptor will then be considered. This can be positive or negative as well as temporary or permanent. The nature of each will be analysed based on quantitative and qualitative techniques and a magnitude assigned ranging from no/negligible change to major change, as set out below.

Criteria for the magnitude of environmental impact

Magnitude	Description of criteria
Negligible	Very minor changes that are not noteworthy or material.
Minor	Some measurable changes that are noteworthy and material. Minor benefit or minor loss/detrimental change to the receptors characteristics, features or elements.
Moderate	Adverse loss of resource or damage to characteristics, features or elements but limited impact on integrity; or Benefit or addition to characteristics, features and elements that improve the receptor.
Major	Effects will be of a consistently high magnitude and frequency and cause severe damage to key characteristics, features and elements or even total loss; or Major improvement to characteristics, features and elements of receptor.

4.16. Having identified the sensitivity of the receptor and the magnitude of the impact, the standard matrix set out below will be used to indicate the predicted level of effect, ranging from neutral to substantial. For the purposes of the ES, unless specifically defined otherwise in an ES chapter, effects of moderate and higher are considered to be significant effects.

Framework for identifying environmental effects

Receptor sensitivity	Magnitude of impact			
	Negligible	Minor	Moderate	Major
Negligible	Neutral	Neutral	Minor/neutral	Minor
Low	Neutral	Minor	Moderate	Moderate/Major
Medium	Neutral	Moderate	Moderate/Major	Major
High	Neutral	Moderate/Major	Major	Substantial

4.17. Whilst the levels of effect will be defined within each chapter of the ES, the general definitions shown below can be used for topics where specific EIA guidance is not available.

Broad Definition of Effect

Effect	Definition
Substantial	A key factor in the decision-making process. Generally, but not exclusively associated with features of national importance which cannot be replaced or relocated.
Major	Likely to be important considerations at a regional or district scale but, if adverse, are potential concerns, depending upon the relative importance attached to the issue.
Moderate	Important at a local scale, but are not likely to be key decision making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource.
Minor	Effects concerning local issues that are of relevance at the detailed design stage.
Neutral	Effects which are not perceptible, or within normal bounds of variation or forecasting.

4.18. The likely effects of the Proposed Development will be described as:

- Adverse / beneficial;
- Direct / indirect;
- Temporary / permanent;
- Reversible / irreversible.

Baseline assessment

4.19. Each topic-based chapters of the ES will identify the current baseline scenario, and where relevant the future scenario, against which the environmental effects of the Proposed Development will be measured. The baseline assessment will involve describing the current state and circumstances of the identified receptors and changes that might be expected to occur as a result of the Proposed Development.

Assessment of environmental effects

4.20. Having identified receptors that are likely to be affected (taking into account inherent mitigation), the assessments will outline the potential impacts that could arise in the absence of any additional mitigation. Where adverse effects are identified, the ES will set out the mitigation measures considered necessary to minimise the potential effect. Residual effects will be evaluated and their significance will be reported based upon the magnitude of impact against the sensitivity of the receptor.

Assumptions and limitations

4.21. In the preparation of the ES, it is assumed that all legislative requirements will be met, and the Proposed Development will be constructed in accordance with industry standard techniques and best practice methods implemented on-site. It is therefore not necessary to re-consider this as mitigation that will be evaluated in the assessment of residual effects. Further details are set out in the following Sections.

Assessment of cumulative effects

4.22. The requirement for cumulative effects assessment is set out in Schedule 4 of the EIA Regulations. At Schedule 4(5), the EIA Regulations require 'A description of the likely significant effects of the development on the environment resulting from, *inter alia*: ...*(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;*

4.23. Cumulative impact comprises the combined effects of the Proposed Development with other existing and/or approved development. It is proposed that the EIA will consider other planning permissions that are not yet constructed or operational (PPG Reference ID 4-024-20170728), along with allocated schemes where there is a reasonable degree of certainty that they will proceed within 3 years (PPG Reference ID: 42-014-20140306).

4.24. The potential for cumulative effects will be considered for when the construction and operational phases could be concurrent, and where there are sensitive receptors common to each development. Development that will be considered for the potential of cumulative effects by each discipline are listed in the table below.

Development to be considered for potential cumulative effects

Development	Description
CDC Planning Ref 19/02550/F	Redevelopment to provide a new leisure resort incorporating a waterpark, a family entertainment centre, a hotel, conferencing facilities and restaurants with associated access, parking and landscaping.
Development of Local Plan Policy Allocations	Description
Policy Bicester 1: North West Bicester Eco-Town	Mixed use development including 6,000 homes.
Policy Bicester 2: Graven Hill	Mixed use development of 2,100 dwellings, employment land, facilities and other infrastructure including the potential for the incorporation of a rail freight interchange.
Policy Bicester 3: South West Bicester Phase 2	726 homes with associated services, facilities and other infrastructure.
Policy Bicester 4: Bicester Business Park	South west of Bicester, high quality B1 office scheme.
Policy Bicester 7: Meeting the Need for Open Space, Sport and Recreation	<ul style="list-style-type: none"> Protecting the existing network of green spaces and securing new open space and linear route provision linked with public footpaths/cycleways, to create a circular route with connections to the town centre and the countryside beyond. Seek to establish a community woodland between the South West Bicester link road and Chesterton.
Policy Bicester 10: Bicester Gateway	Knowledge economy employment development to the south of the existing retail area (Wyevale Garden Centre), adjacent to the A41.
Policy Bicester 11: Employment Land at North East Bicester	Employment development for approximately 1,000 jobs.
Policy Bicester 12: South East Bicester	A mixed use site for employment and residential development
Policy Bicester 13: Gavray Drive (re-adopted)	A housing site to the east of Bicester town centre for approximately 300 dwellings.

Greenhouse gas emissions and climate change

4.25. Climate change is identified as one of the defining environmental policy drivers, and the greenhouse gas emissions from all projects can contribute to climate change, or potentially deliver reductions. It is vital to ensure that all future development is resilient to the potential effects of climate change and that proposals do not exacerbate the effects of climate change affecting humans or natural systems.

4.26. The UK has legally binding GHG reduction targets which are set at a macro level, with Government having set ambitious targets to move to a low carbon economy through a range of mechanisms, including decarbonising energy generation, road transport, buildings and food production. IEMA has published an 'EIA Guide to Climate Change Resilience and Adaptation' (November 2015) which provides a framework for the effective consideration of climate change resilience and adaptation in the EIA process. Section 15 of this request sets out the proposed approach to assessment for the Proposed Development.

4.27. It is proposed that specific climate change considerations will also be covered to the extent it is relevant in each topic chapter of the ES. This will be a high-level review of how potential climate change may alter the effects predicted effects. It is not considered likely that completely new direct impacts will arise as a result of climate change, but the scale of potential impacts might change when considered against the future baseline conditions.

5. Effects considered not significant

5.1. As part of the EIA scoping process, issues that are identified as unlikely to give rise to significant environmental effects can be covered in a reduced scope of study, or scoped out of the assessment. This section of the report identifies the topic areas proposed to be scoped out from the EIA or explains for which aspects a reduced scope is considered appropriate.

Human health

5.2. The subject of human health is addressed in a number of the proposed topic areas. Protection of human health will be considered within the assessments of transport, air quality, and noise in relation to relevant published standards and thresholds. These assessments will be attentive to the determinants of health and consistency with planning policy. It is not proposed that the ES will contain a specific assessment chapter for human health: a Health Impact Assessment will be submitted as a discreet report as part of the planning submission (See Section 6 below).

Accidents and disasters

5.3. The potential for accidents or disasters resulting from the occupation and use of the Proposed Development is considered to be negligible. This judgement is based on the following information.

5.4. Potential emergency situations are considered by the Thames Valley Local Resilience Forum and published in their community risk register. The register focuses on nine categories of serious risk that are most likely and could result in an emergency. These are considered below in relation to the preparation of the EIA.

5.5. The Proposed Development is not considered specifically vulnerable to five of the identified risks: influenza disease, animal disease, loss of critical infrastructure, industrial accidents and fuel shortages. There are no expected significant effects in relation to these and they will not need to be considered in the EIA. The other four risks are considered in turn.

5.6. RIVER FLOODING – Whilst the Site is in an area that is at a low risk from flooding, a flood risk assessment is required for the proposal as it covers an area of more than 1 hectare. A drainage strategy will be prepared to demonstrate that the development will not result in flooding on the Site or elsewhere downstream. Reference to the flood risk information published by the Environment Agency shows that there is no potential for a reservoir breach to affect the application Site.

5.7. SEVERE WEATHER - Resilience of the proposals to future climate change in relation to the comfort of the workforce will be reported in the description of the proposal. Specific matters such as wind loading for the building designs will be dealt with under the building regulations and the detail will not be available at the planning submission stage.

5.8. ENVIRONMENTAL POLLUTION – The land has been used for agriculture, and the drainage of surface water from the Site has the potential to lead to pollution. This will be considered in the assessment in relation to the River Ray and any wildlife receptors identified as relevant.

5.9. TRANSPORT ACCIDENTS – The proposal will deliver a new junction on a section of the A41 Road. This will be designed to approved highway standards and subject to appropriate speed limits. There are no expected significant effects in relation to this. A transport assessment will accompany the planning application. The baseline transport information in the EIA will refer to the road traffic accident history reported in the TA.

5.10. It is not considered that major accidents or disaster during construction are likely but the aspects above will be kept under review. Upon completion the potential for accidents or disasters affecting the development and resulting in adverse effects on human health, cultural heritage or the environment is considered to be negligible. It is not proposed that the ES will contain a specific assessment of potential accidents and disasters but the aspects above will be considered for the development under ‘normal’ conditions.

5.11. Oxfordshire Emergency Planning Unit also considers specific sites in Oxfordshire in relation to the potential for radiation incidents at Culham or Harwell Science Centres to affect members of the public. There is very low likelihood (one in one billion years) of an off-site radiation emergency at Culham, and it is expected that decommissioning of the Harwell reactors will be complete by 2025.

5.12. It is not proposed that the ES will contain a specific assessment of potential accidents and disasters.

Waste

5.13. The development will not generate any unusual or complex waste requiring specialist control or management and will therefore be unlikely to result in significant adverse effects to the environment. The issue of waste disposal is not considered likely to result in significant effects and it is not proposed that the ES will contain a specific chapter for waste.

5.14. A Waste Strategy document will be submitted with the planning application (see Section 6 below). This will be used to include an estimate of quantities and types of waste produced during the construction and operation of the development in the ES as required by EIA Schedule 4, 1.(d). This estimate will be used to inform the consideration of construction vehicle movements and the related effects (air quality, noise, greenhouse gas emissions).

Agricultural land

5.15. The land identified for the Proposed Development is in agricultural use. The Agricultural Land Classification (ALC) system provides a method for classifying land according to its physical characteristics and limitations imposed by climate. The system classifies land into one of five Grades, with Grade 1 being the highest quality agricultural land and Grade 5 the lowest. Grade 3 is subdivided into subgrades 3a and 3b. Grades 1, 2 and 3a land are defined as “the best and most versatile” agricultural land (BMV) as identified in the NPPF (2019).

5.16. A detailed survey has been carried out to accurately determine the quality of the agricultural land resource (suitable to differentiate between subgrade 3a and subgrade 3b). The land is limited by significant wetness and workability limitations, which result in a classification of subgrade 3b agricultural quality (see Appendix 2).

5.17. Schedule 4 of the Town & Country Planning (Development Management Procedure) (England) Order 2015¹ requires Natural England to be consulted on proposed development that involves the loss of more than 20 ha of grades 1, 2 or 3a agricultural land. Consequently, the magnitude of losses smaller than this threshold are considered to have a small effect on the national stock of BMV land. As the land subject of this screening is not classified as

¹ The Order requires local planning authorities consult Natural England on proposals that are (1) not in accordance with a development plan, and (2) would result in the loss of 20ha or more of best and most versatile land currently used for agriculture

BMV, the consultation set out by the Order does not apply to this proposal. There are no specific policies relating to agricultural land or soils in the 'The Cherwell Local Plan 2011 – 2031'.

5.18. All natural soils are finite resources, but where sites are to be developed, their quality as a resource for reuse varies. The primary measures to mitigate the impacts on soil resources during the site preparation, earthworks and construction activities will be to store and re-use surplus soils in a sustainable manner (for an after-use appropriate to the soil's quality) in accordance with Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites. This approach will ensure that the quality of soils retained on-site and exported off-site (if required) is maintained by good soil handling and storage, particularly to avoid compaction and biodegradation of soils that are in storage.

5.19. It is not considered that there would be any significant effect on soils or agricultural land resources. It is not proposed that the ES will contain a detailed assessment of soil and agricultural land.

Lighting

5.20. Lighting at the proposal will be designed to limit light spill into the surroundings in accordance with Guidance Note 1 for the reduction of obtrusive light (Institution of Lighting Professionals, 2021). A light design report to be prepared by Dunwoody will include Lux plots and the consideration of construction site lighting.

5.21. It is not considered that lighting of the development would adversely affect users of the M40, the A41, or residential properties at Little Chesterton or Wendlebury. The closest residential receptors are to the north of the Grange Farm Industrial Estate buildings, and these are not considered likely to be significantly affected due to the intervening distance and the screening effect of other buildings.

6. Other information provided as part of the planning submission

6.1. A Planning Statement will accompany the application to explain how the proposals respond to policies in the development plan and the National Planning Policy Framework. Alongside this, a Design and Access Statement will describe how a suitable response to the site and its setting, and a Statement of Community Engagement will document the consultation undertaken prior to submission.

6.2. Other standalone submission reports/plans will be provided: including an Arboriculture Survey; a Lighting Plan, a Sustainability Statement; a Waste Management Strategy, a Health Impact Assessment, and a Socio-Economic Benefits Report. These will not form part of the Environmental Statement.

THE FOLLOWING SECTIONS OUTLINE THE PROPOSED SCOPE OF THE EIA UNDER EACH TOPIC HEADING.

7. Transport

INTRODUCTION

7.1. This section, prepared by Vectos, describes the baseline conditions at the Application Site and surroundings, provides an outline of the potential impacts of the Proposed Development, and describes the intended assessment methodology to evaluate these.

7.2. Traffic and transport are typically key considerations in the delivery of any development. In this regard, the National Planning Policy Framework is predicated on the basis that any new proposals should not result in a severe residual impact upon the road network and/or result in an unacceptable on highway safety.

BASELINE

7.3. The application Site is bound by the M40 to the west and A41 to the south and is located adjacent to Junction 9 of the M40. The Site is located approximately 4 kilometres to the south west of Bicester and 19 kilometres to the north east of Oxford.

7.4. At present the Site is undeveloped and is located adjacent to Grange Farm Industrial Estate, which is accessed via Green Lane to the north and the A41 to the south.

7.5. It is acknowledged that links to sustainable transport networks are currently centred around Bus Routes NS5 Gold and S5 Gold. Notwithstanding this, it is considered that the scale of the Proposed Development is such that there is the potential to increase the overall sustainability of the Site so that future employees are able to make a choice about how they travel to work.

7.6. With regard to cycling, National Cycle Network (NCN) Route 51 is located on the east side of the A41. This NCN Route provides a lightly trafficked road link to Bicester, along with a connection to the wider NCN.

7.7. The Applicant recognises there may be a need to enhance the current infrastructure so that future employees are encouraged to make greater use of non-car modes. The details of these are the subject of on-going pre-application discussions with Oxfordshire County Council (OCC) in its capacity as the Local Highway Authority and Highways England (HE) given the proximity of the Site to the Strategic Road Network (i.e. Junction 9 of the M40 Motorway).

POTENTIAL EFFECTS

7.8. Typically, the impacts of a Proposed Development are assessed when the percentage increase in traffic on the adjacent highway network exceeds defined criteria. In this respect, reference will be made to:

- ID42 of the Planning Practice Guidance (PPG), which is entitled 'Travel Plans, Transport Assessments and Statements'; and,
- DfT Circular 02/2013 (The Strategic Road Network and the Delivery of Sustainable Development), which provides the framework against which the impacts of the Proposed Development will be assessed.

7.9. However, it is important to note that there is no nationally recognised standard for defining traffic effect. In this regard, the guidance documents outlined above do not set specific criteria that define potentially significant traffic effects and therefore, each site should be assessed on its own merits. For the purposes of the proposed environmental impact assessment, it is considered appropriate to have regard to guidance prepared by the Institute of Environmental Assessment (IEA) entitled 'Guidelines for the Environmental Assessment of Road Traffic', which provides a useful screening process when considering the potential environmental effects of traffic:

- "Rule 1 - include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)."
- Rule 2 - include any other specifically sensitive areas where traffic flows have increased by 10% or more." (IEA, paragraph 3.15).

7.10. With reference to this, roads that are anticipated to experience increases in traffic of more than 10% will be subject to assessment on the following aspects identified by the IEA:

- Severance;
- Driver delay;
- Pedestrian delay;
- Pedestrian amenity;
- Fear and intimidation;
- Accidents and safety; and
- Hazardous loads.

7.11. The following receptors are considered with respect to potential effects of transport:

- People at home;
- People in work places;
- Vulnerable road users;
- Sensitive locations, including hospitals, retirement homes, schools, churches etc.;
- Pedestrians;
- Cyclists;
- Open spaces, recreation sites, shopping areas;
- Areas of the local highway network that are subject to abnormally high accident rates; and,
- Nature conservation areas, listed buildings, tourist attractions.

PROPOSED METHODOLOGY

7.12. A comprehensive Transport Assessment (TA) will be prepared for the Proposed Development. This will follow the recommendations outlined in current best practice guidance documents. The scope of the TA will be discussed and agreed with the local highway authority, and representatives of HE. This will include, but not limited to:

- Trip rates.
- Traffic distribution.
- Baseline traffic flows.
- Assessment years.
- Vehicular access strategy.
- Sustainable access strategy.

7.13. The conclusions of the TA will form the basis of the ES Transport Chapter, which will be prepared in accordance with the IEA's 'Guidelines for the Environmental Assessment of Road Traffic (Guidance Note No. 1)'.

7.14. The impact assessment for potentially significant effects will be undertaken through a combination of, but not limited to, the following:

- desk studies.
- site visits (subject to the COVID-19 travel restrictions).
- traffic surveys.
- data extracted from the OCC Strategic Traffic Model.

7.15. The assessment will report on the accessibility of the Site and the change in vehicular flows on the local roads as a result of the Proposed Development, during both the construction and operational phases. The aim of this assessment will be to demonstrate conformity with the three central transport pillars of the NPPF, as outlined at paragraph 110, which is replicated below:

“In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- b) safe and suitable access to the site can be achieved for all users; and*
- c) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.”*

7.16. The assessment will give due consideration to committed developments to ensure that the relevant cumulative effects of the Proposed Development are taken into account in the assessment of effects relating to transport. It is proposed that these will be consistent with the definition set out in ID:42-014 of the PPG, which considers committed development to represent those sites where there is a reasonable degree of certainty around delivery within the next three years.

7.17. The outcome of the assessment will inform the analyses undertaken by SLR with respect to effects upon Air Quality and Noise (including the cumulative effects). Details of the scope and methodology of these assessments are provided in the following sections of this Scoping Report.

7.18. Whilst TSL has traffic data on a wider area, at this stage, it is considered that the scope of the assessment will not extend beyond the area highlighted on the map shown below. This was agreed with OCC and representatives of HE as part of initial transport and highways scoping undertaken with respect to development of this Site.

7.19. TSL is aware of the EIA scoping opinion adopted by CDC for the proposed development of land to the north of M40 J10 (CDC ref. 21/02235/SCOP), however this does not attribute any planning status in terms of a committed scheme. Furthermore, it is considered that the operation of J10 and J9 are independent and there is not the potential for vehicle flows associated with the proposed B8 development at J10 to affect TSL’s assessment of J9. Currently, there is nothing to suggest that the study area shown would need to be extended for the purposes of the EIA.

Symmetry Park, Oxford North

EIA Scoping Request



STUDY AREA



7.20. The assessment of likely significant effects resulting from the Proposed Development will attribute a level to each effect assessed, based on the magnitude of change due to the Proposed Development, and the sensitivity of the affected receptor/receiving environment to the change outlined. These are set out in the tables below.

Describing the effect of changes in traffic flow

Changes in Traffic Flows	Magnitude
Change in total traffic or HGV flows over 90%	Major
Change in total traffic or HGV flows of 60 – 90%	Moderate
Change in total traffic or HGV flows of 30 – 60%	Minor
Change in total traffic or HGV flows of less than 30%	Negligible

Identifying Receptor Sensitivity

Receptor Sensitivity	Receptors
High	Receptors of greatest sensitivity to traffic flow: schools, colleges, playgrounds, accident black spots, retirement homes, urban/residential roads without footways that are used by pedestrians
Medium	Traffic flow sensitive receptors including: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycleways, community centres, parks, recreation facilities
Low	Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision.
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions

7.21. The matrix below shows how receptor sensitivity and magnitude of impact will be used to indicate the predicted level of effect in the assessment.

Matrix for Determining Effect

Sensitivity	Magnitude of change			
	Major	Moderate	Minor	Negligible
Very High	Substantial	Substantial	Moderate	Slight
High	Substantial	Moderate	Slight	Negligible
Medium	Moderate	Slight	Negligible	Negligible
Low	Slight	Negligible	Negligible	Negligible

7.22. Having regard to the above, the table below provides a summary of impacts to be considered as part of the assessment of transport and traffic issues, during both the construction and operational phases of the Proposed Development.

Potential Transport Impacts - Construction and Operation

Potential Impact	Scoped in ?	Reason
Severance	Yes	Increases in traffic during the construction and operational phases have the potential to impede access to key local facilities.
Driver delay	Yes	Increases in traffic have the potential to lead to an adverse effect upon the capacity of local junctions that may in turn result in a material increase in delays to journeys.
Pedestrian delay and amenity	Yes	Changes in traffic flows can affect the ability of people to cross roads and the relative pleasantness of a journey.
Fear and intimidation	Yes	The volume of traffic, and its Heavy Goods Vehicles (HGV) composition, can result in vulnerable road users perceiving a road to pose a hazard to safety during the construction phase of a Proposed Development.
Accidents and safety	Yes	Material increases in traffic flows have the potential to exacerbate an existing road safety problem during the construction and operational phases.
Hazardous loads	No	It is considered highly unlikely that the Proposed Development will generate any hazardous loads during the construction phase.

8. Air Quality

8.1. This chapter of the EIA scoping report, prepared by SLR Consulting, outlines the proposed approach for assessing potential air quality impacts, which is scoped into the proposed EIA.

8.2. The air quality assessment will include consideration of the likely air quality impacts associated with both the construction and operational phases of the scheme. Specifically, the air quality assessment will consider the following:

- Dust and fine particulate matter emissions during the construction phase of the Proposed Development;
- Road traffic emissions associated with the operation of the Proposed Development.

BASELINE CONDITIONS

8.3. A review of baseline air quality conditions at the Site, and within the study area, will be undertaken with reference to:

- Consultation with the relevant Environmental Health Officer at Cherwell District Council (CDC);
- Local Air Quality Management (LAQM) Air Quality Annual Status Reports (ASR) for CDC and monitoring data in the public domain; and,
- Online air quality tools (e.g. Defra background pollution concentration mapping and the Air Pollution Information System).

8.4. The neighbouring area surrounding the Proposed Development site includes the market town of Bicester, the villages of Little Chesterton and Wendlebury and a number of designated habitat conservation sites. The closest conservation site to the Proposed Development site is a small parcel of ancient woodland which is set immediately adjacent to the development site boundary. It is noted that the town centre of Bicester contains an Air Quality Management Area, which is situated approximately 3.45 km from the Proposed Development site at the closest point.

8.5. It is not proposed to undertake air quality monitoring at the development site, or within the study area, to inform the air quality assessment, given the availability of LAQM monitoring data and Defra national mapping data.

PROPOSED STUDY AREA

8.6. The study area to be considered in the assessment of construction dust effects includes relevant receptors within 350 m of the development site boundary and receptors within 50 m of the route(s) used by construction vehicles on the public highway, up to 500 m from the Site entrance.

8.7. The study area for the assessment of operational phase road traffic emissions will be determined through the use of trip-generation traffic data for the Proposed Development. This traffic data will be compared against air quality assessment screening criteria, published by Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM)^{2,3}, to determine which road links will need to be included within the road traffic emissions assessment. Where road links are screened in, relevant receptors in proximity to these links will be included within the assessment. Receptor selection will focus on properties and locations for which long-term annual mean objectives apply, as outlined within Defra LAQM.TG(16), unless there is sufficient indication that short-term objectives are in exceedance across the study area.

² Guidance on land-use planning and development control: Planning for air quality (v1.2), EPUK and IAQM. 2017.

³ A guide to the assessment of air quality impacts on designated nature conservation sites (v1.1), IAQM. 2020.

POLICY AND GUIDANCE

8.8. The following legislation and policy documents are relevant to the air quality assessment and will be considered within the assessment:

- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007), Defra;
- National Planning Policy Framework (2019), Ministry of Housing, Communities and Local Government;
- The Cherwell Local Plan: 2011 – 2031 (2015), Cherwell District Council.
- Air Quality Standards Regulations (2010), UK Government; and,
- The Environmental Protection Act (1990), UK Government;

8.9. The following guidance documents are relevant to the air quality assessment and will be considered within the assessment:

- Guidance on the assessment of dust from demolition and construction (2016), IAQM;
- Guidance on land-use planning and development control: Planning for air quality (2017), EPUK and IAQM;
- A guide to the assessment of air quality impacts on designated nature conservation sites (2020), IAQM;
- Local Air Quality Management Technical Guidance: LAQM.TG(16) (2016), Defra;
- Planning Practice Guidance (2021), Ministry of Housing, Communities and Local Government; and,
- Cherwell District Council LAQM documents (i.e. 2017 Air Quality Action Plan and Air Quality Annual Status Reports).

APPROACH TO ASSESSMENT

8.10. The scope of works and assessment methodology has been discussed and agreed with the Environmental Health Department of CDC. The following will be undertaken for the air quality assessment of the Proposed Development:

Construction Phase

8.11. The assessment of potential dust and fine particulate matter impacts, and determination of significance of effect, will be assessed qualitatively using the approach defined in Guidance on the Assessment of Dust from Demolition and Construction published by the IAQM. The assessment will also take into consideration all relevant offsite committed demolition and construction activities, based upon the spatial extent defined within IAQM Guidance on the Assessment of Dust from Demolition and Construction, which may potentially operate concurrently with the construction of the proposed scheme.

8.12. Construction phase trip generation (principally identified as Heavy-Duty Vehicles) will be screened in accordance with the 'indicative criterion for assessment' presented within EPUK and IAQM guidance 'Land-Use Planning and Development Control: Planning for Air Quality'. Given the scale of the development it is likely the need for detailed assessment will be screened out; however where necessary detailed assessment would be undertaken using the same approach as detailed for the operational phase.

Operational Phase: Road Traffic Emissions

8.13. A dispersion modelling assessment using ADMS-Roads will assess the potential impact on air quality arising from development trips associated with the operational phase of the scheme. Dispersion modelling will determine annual mean NO₂, PM₁₀ and PM_{2.5} concentrations. Where necessary, compliance with the 1-hour mean NO₂ and 24-hour mean PM₁₀ Air Quality Objectives (AQOs) will be assessed following LAQM.TG(16).

8.14. Road traffic emissions of oxides of nitrogen (NO_x) and fine particulate matter (PM₁₀ and PM_{2.5}) will be calculated from the most recent version of the Emission Factor Toolkit published by the Defra. Modelling will be undertaken with appropriate future year 'do minimum' and 'do something' scenarios with the potential impact and

significance of effect determined in accordance with EPUK and IAQM guidance 'Land-use planning and development control: planning for air quality'. The road traffic emissions modelling will take into consideration meteorological data from a representative meteorological station, detailed road traffic data for the study area and baseline air quality. Where possible, the traffic data will take into consideration committed developments within the surrounding area in order to assess cumulative impacts.

8.15. Modelled concentrations will be verified using existing roadside air quality monitoring data held by CDC, in line with the methodology outlined within LAQM.TG(16). Separate verification factors will be calculated and applied where appropriate. Predicted air quality impacts during the operational phase assessment will be assessed against the relevant Air Quality Objectives.

Assessments to be Scoped Out

8.16. Construction Phase Road Traffic Emissions: As noted above (8.12), at this stage it is considered likely that road traffic emissions associated with construction phase vehicles (principally identified as Heavy-Duty Vehicles) can be screened out in accordance with the 'indicative criterion for assessment' presented within EPUK and IAQM guidance 'Land-Use Planning and Development Control: Planning for Air Quality'⁴.

8.17. Emissions in the Operation Phase: The Siemens facility would not involve significant emissions to air.

MITIGATION AND RESIDUAL EFFECTS

8.18. The nature and significance of potential air quality impacts that may arise will be identified and, where required, mitigation measures for any adverse impacts will be identified in line with best practice and highlighted in the Air Quality Chapter of the ES. If necessary, measures will be proposed in accordance with the EPUK and IAQM guidance document 'Land-use planning and development control: planning for air quality' and the IAQM guidance document 'Guidance on the Assessment of Dust from Demolition and Construction' to mitigate any adverse effects.

8.19. At this stage, it is considered that, with an appropriate dust management plan in place, the residual effects of the Proposed Development on air quality are likely to be not significant during the construction phase. A discussion on the potential for residual effects during the operational phase will be included within the Air Quality Chapter, informed by the road traffic emissions modelling assessment.

9. Noise and vibration

9.1. This section of the EIA scoping report has been prepared by SLR Consulting and outlines the proposed approach agreed with CDC for assessing potential noise impacts, and associated significance of effects, as a result of the Proposed Development, which is scoped into the proposed EIA.

9.2. The noise assessment will include consideration of the likely noise impacts associated with both the construction and operational phases of the scheme. Specifically, the noise assessment will consider the following:

- The noise impact of construction.
- The noise impact of on-site traffic movements and fixed plant.
- The noise impact of increased traffic movements.

⁴ The indicative criterion is >100 Heavy Duty Vehicles (>3.5t) as a daily average (across a year).

BASELINE CONDITIONS

9.3. A review of baseline noise conditions at the nearest Noise Sensitive Receptor's (NSRs) will be undertaken with reference to:

- Consultation with the relevant Environmental Health Officer at Cherwell District Council (CDC)
- Baseline noise survey data
- Online noise tools (e.g. Extrium).

9.4. The baseline survey agreed with CDC has been undertaken over a suitable duration at locations representative of the following NSRs:

- Park Farm
- Church Lane
- Grange Farm House
- Grange Farm Cottages
- Half Mile House
- Cricket Pavilion (short-term daytime only)

PROPOSED STUDY AREA

9.5. The site is bordered:

- To the north by Grange Farm.
- To the north-east by open agricultural fields, with a road access to the farm beyond.
- To the south-east by the A41.
- To the south-west by open agricultural fields with the M40 beyond.

9.6. The study area encompasses the Site itself and extends to include the following sensitive receptor locations:

- Grange Farmhouse and Half Mile House (Little Chesterton).
- Vespasian Way (Chesterton).
- Park Farm and Church Lane (south of A41).

POLICY AND GUIDANCE

9.7. The following legislation, policy, and guidance documents are relevant to the noise assessment and will be considered within the assessment:

- National Planning Policy Framework (2019), Ministry of Housing, Communities and Local Government.
- The Cherwell Local Plan: 2011 – 2031 (2015), Cherwell District Council.
- British Standard 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.
- British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound.
- Design Manual for Roads and Bridges Volume (DMRB) LA 111 Noise and Vibration.

APPROACH TO ASSESSMENT

9.8. The scope of works and assessment methodology has been discussed and confirmed with the Environmental Health Department of CDC. However, for the purpose of this EIA scoping, it is considered that the following works will be required for the noise assessment of the Proposed Development.

Construction Phase: Noise Emissions

9.9. An assessment of construction noise would be undertaken at the nearest noise-sensitive receptors to the Site. The levels would be predicted using the guidance contained in British Standard 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.

9.10. Utilising the measured baseline ambient sound levels, construction noise limits would be specified at each of the nearest noise-sensitive receptors.

9.11. The predicted noise levels would then be assessed against these limits and mitigation measures would be recommended where required.

9.12. An assessment of the potential noise impacts of construction related traffic movements would also be included within the assessment.

Operational Phase: Site Noise Emissions

9.13. SLR would predict sound levels generated by the proposals using the proprietary software-based noise model, CadnaA®, which implements the full range of UK calculation methods.

9.14. The predicted sound levels would be assessed against the measured background sound levels and site setting/context in accordance with the guidance contained in British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound.

Operational Phase: Off Site Traffic Noise Emissions

9.15. The proposals are likely to alter noise levels near the affected network. In accordance with the Design Manual for Roads and Bridges Volume (DMRB) LA 111 Noise and Vibration, SLR would undertake an assessment to include all roads where it is anticipated that noise from traffic (measured as a LA10, 18-Hour dB noise level) will change by 1dB(A) in the short-term, and/or 3dB(A) in the long-term.

9.16. For each link the Basic Noise Level (BNL) will be established for the “With Scheme” and “Without Scheme” Scenarios for the opening year (short-term) and 15th year after the scheme is completed (long-term). The BNL is the LA10, 18-Hour dB noise level at 10m from the kerb of the road assessed.

9.17. The BNL results for each link will be tabulated and the impact and significance would be determined.

Assessments to be Scoped Out

9.18. Construction Phase Road Traffic Emissions: At this stage it is considered likely that road traffic noise emissions associated with construction phase vehicles (principally identified as Heavy-Duty Vehicles) can be screened out from detailed assessment.

9.19. Vibration: At this stage vibration from any plant at the Site is not expected to be of a magnitude that would require assessment.

MITIGATION AND RESIDUAL EFFECTS

9.20. The nature and significance of potential noise impacts that may arise will be identified and, where required, mitigation measures for any adverse impacts will be identified in line with best practice and highlighted in the Noise Chapter of the ES.

9.21. At this stage, it is considered that with an appropriate Construction Environmental Management Plan (CEMP) in place, the residual effect of noise on the Proposed Development is likely to not be significant during the construction phase. A discussion on the potential for residual effects during the operational phase will be included within the Noise Chapter and will be informed by the assessments completed.

10. Landscape and visual effects

INTRODUCTION

10.1. Landscape and visual effects are independent but related issues. Landscape effects relate to changes to the landscape fabric and the features contained within the landscape character; visual effects relate to the appearance of such changes within views and the resulting effect on visual amenity.

10.2. The landscape and visual assessment by The Environmental Dimension Partnership Ltd (EDP) will examine the current landscape and visual baseline conditions within the Site and evaluate the Site in its broader context with reference to sensitive visual receptors and landscape designations. The assessment process will involve an ongoing analysis of the likely landscape and visual effects of the development proposals and, where 'significant' impacts cannot be avoided through design, will recommend additional mitigation measures.

BASELINE CONDITIONS / EXISTING KNOWLEDGE

10.3. Following EDP's appraisal of wider landscape character surrounding Junction 9, the key characteristics of relevance to land to the north of the Junction falling within the Wooded Estatelands Landscape Type include "Large blocks of ancient woodland and mixed plantations of variable sizes", "regularly-shaped field pattern dominated by arable fields" and "Small villages with strong vernacular character". Views within the Landscape Type (LT) are often curtailed by a combination of local topography and woodland cover. Landform surrounding the Junction is largely flat, not representing the "Rolling topography" defined by the LT.

10.4. However, in closer proximity to the Junction, with land falling within the Clay Vale LT, landform is low lying and generally perceived as being flat. Although woodland cover serves to limit views across the LT, existing built form and major highways infrastructure are identifiable elements of local landscape character.

10.5. The landscape surrounding Junction 9 covers a number of published landscape character areas and, overall is not considered particularly representative of one or another character area. Land is generally low-lying agricultural land, dissected by major vehicular corridors, each being lined with native mature tree and hedgerow cover. To the north-west of the Junction, RAF Weston-on-the-Green is markedly different in character to that of the local context. Given its use, the airfield does allow some views across the wider landscape.

10.6. The village of Little Chesterton is located within 2km of the Junction. However, owing to a combination of mature tree cover and the orientation of built form within and around the village, it largely turns its back on the Junction being relatively well-contained.

10.7. There are relatively few PRoW surrounding Junction 9, with those present largely being to the south-west of the junction. The construction of the M40 has had a notable influence on the PRoW network, with routes being diverted to align with key bridge crossings over the motorway. Similarly, the A41 dual carriageway influences routes within the local context, including the Oxfordshire Way.

10.8. To the immediate south-east of the Junction, a solar farm can be seen in local views, although mature tree cover aligning the M40 and A41 serve to limit its presence within the landscape. Similarly, the presence of mature tree cover within this largely flat landscape also serves to restrict views from a number of heritage designations located within 3 km of the Junction, namely the Alchester Roman Site Scheduled Monument, the Kidlington Park Registered Park and Garden and the Middleton Park Registered Park and Garden.

PROPOSED STUDY AREA / IDENTIFIED RECEPTORS

10.9. Following extensive project experience within the local context, EDP has an excellent knowledge of the local character and visual amenity considerations. To establish the baseline and potential limit of material effects, EDP adopts a broad study, enabling the geographical scope of the assessment to be defined and to provide the wider geographical context of the study. The search is focussed on the local planning policy context, on identifying national and local landscape and other associated designations (e.g. AONB, historic parks and gardens), and providing a general geographical understanding of the Site and its broader context (for example, in relation to landform, transport routes and the distribution and nature of settlement).

10.10. Following initial analysis and subsequent field work, and having an appreciation of the development proposed, a refinement of the study area has been undertaken, which focuses on those areas and features that are likely to be affected by the proposals. The extent of this detailed study area is 3 km from the Site boundary, although occasional reference may be made to features beyond this area where appropriate.

POLICY AND GUIDANCE

10.11. The Local Plan Proposals Map shows no specific landscape policies applying to the Site.

10.12. The following saved policies to be retained under the 2011–2031 Local Plan are considered relevant in the context of this assessment:

- Saved Policy C5 Protection of ecological value and rural character of specified features of value in the district, which relates to the protection of rural character through the control of development, including within 'Otmoor and the flood plain of the River Ray'; and,
- Saved Policy C28 Layout, design and external appearance of new development, which relates to the design of development (including siting, layout, size, scale, architectural style, building materials, means of enclosure and landscaping), and which should be sympathetic to the character of its landscape context.

Cherwell Local Plan 2011–2031: Adopted July 2015

10.13. The following over-arching policies are considered relevant in the context of this assessment:

- Policy ESD 10: Protection and Enhancement of Biodiversity and the Natural Environment;
- Policy ESD 13: Local Landscape Protection and Enhancement; and
- Policy ESD 17: Green Infrastructure.

10.14. Policy ESD 10 Protection and Enhancement of Biodiversity and the Natural Environment relates to the retention, enhancement and extension of existing features of nature conservation, and creation of new ecological resources, where possible to bring a net gain in biodiversity. The protection of existing trees and new tree planting is encouraged to increase the number of trees in the district.

10.15. Policy ESD 13 Local Landscape Protection and Enhancement states:

“Opportunities will be sought to secure the enhancement of the character and appearance of the landscape, particularly in urban fringe locations, through the restoration, management or enhancement of existing landscapes, features or habitats and where appropriate the creation of new ones, including the planting of woodlands, trees and hedgerows.

Development will be expected to respect and enhance local landscape character, securing appropriate mitigation where damage to local landscape character cannot be avoided. Proposals will not be permitted if they would:

- *Cause undue visual intrusion into the open countryside;*
- *Cause undue harm to important natural landscape features and topography;*

- *Be inconsistent with local character;*
- *Impact on areas judged to have a high level of tranquillity;*
- *Harm the setting of settlements, buildings, structures or other landmark features; or,*
- *Harm the historic value of the landscape.*

Development proposals should have regard to the information and advice contained in the Council's Countryside Design Summary Supplementary Planning Guidance, and the Oxfordshire Wildlife and Landscape Study and be accompanied by a landscape assessment where appropriate."

10.16. Policy ESD 17 Green Infrastructure relates to pursuing opportunities to improve the green infrastructure network. It states that:

"the district's green infrastructure network will be maintained and enhanced through the following measures:

Ensuring that green infrastructure network considerations are integral to the planning of new development. Proposals should maximise the opportunity to maintain and extend green infrastructure links to form a multi-functional network of open space, providing opportunities for walking and cycling, and connecting the towns to the urban fringe and the wider countryside beyond."

Evidence Base Documents

10.17. The following evidence base documents have been considered as part of this appraisal:

- ENV06 Bicester Environmental Baseline Report (September 2013); and,
- ENV07 Bicester 'Green Buffers' Report (September 2013).

APPROACH TO ASSESSMENT - CONSTRUCTION PERIOD / OPERATIONAL DEVELOPMENT ASSESSMENT

10.18. EDP's methodology for undertaking the LVA (included at Appendix 3) follows the guidelines set out in the third edition of Guidelines for Landscape and Visual Impact Assessment (GLVIA) (Landscape Institute and Institute of Environmental Management and Assessment, 2013). This will be used as a basic approach and amended as necessary to cover specific site issues.

10.19. The first stage of the assessment is to establish the baseline conditions of the Site and surrounding area, which has included identifying the landscape character and key features of the landscape and whether any landscape designations affect the Site. Sources examined for the desktop study have included:

- Local Planning Policy;
- Landscape and Heritage Designations;
- Natural England's National Character Areas;
- District and local level Character Areas;
- Natural England's Natural Area Profile;
- Public Rights of Way;
- Local OS Maps; and,
- Aerial Photographs.

10.20. Site appraisals have already been undertaken, the purpose of which was to:

- Confirm the extent of study areas for the landscape and visual assessments respectively;
- Confirm status of baseline conditions identified by the desktop;
- Confirm the landscape character areas within the study area and compare these to the actual baseline condition. This will also include consideration of the findings of the Archaeology and Heritage, Ecology and Arboricultural assessments which present findings on features within the study area; and,

- Identify the Primary Visual Envelope of the Site and record key viewpoints from within this (refer to Appendix 3 for locations), which will be used to inform the landscape and visual assessment of the Proposed Development.

10.21. The second stage of the landscape and visual assessment would seek to describe and make a judgement on:

- Effects on the Landscape Character: The effects which may arise as a result of the Proposed Development on discrete character areas and/or character types comprising features that may possess a particular quality or merit. In this case, the effects on the historic landscape will be considered and cross referenced with the Archaeology and Heritage ES Chapter; and,
- Visual Effects: Effects that may arise as a result of the Proposed Development on views from visual receptors, such as users of local rights of way, and upon the amenity value of the views from surrounding uses.

10.22. As part of the development proposals, measures to mitigate any visual impacts and enhance the landscape value and visual quality of the area are integral to architectural and landscape design work and particularly pertinent to the Proposed Development. The approach of the developer is to produce a scheme of a high landscape quality and design, taking full account of the setting of the Site. If any adverse visual impacts are identified through the assessment, mitigation measures will be considered such as through choice of scale, massing, materials and finishes; landscape strategy; and screening during construction.

10.23. Finally, an assessment of any residual effects which may arise following the incorporation of mitigation measures will be undertaken and the significance of these effects stated. The evaluation of residual effects will be considered for Day 1 and Year 15. This allows for the consideration of the screening effects of screen planting that will be incorporated as mitigation for the development.

10.24. The final output of the exercise will be to provide text and illustrative material which:

- establishes the baseline conditions at a point at which the Site will become available for development;
- assesses the landscapes sensitivity to change of nature and extent of the Proposed Development;
- assesses the landscape and visual impact of the development (including lighting) on the Site and relevant surrounding area;
- identifies areas of landscape and visual concern and/or benefit in relation to the development and during its construction;
- advises on any proposals to mitigate significant negative effects; and,
- identifies the residual impacts of the development.

ASSESSMENT THRESHOLDS / MAGNITUDE OF EFFECTS / SIGNIFICANCE OF RESIDUAL EFFECTS

10.25. The detailed methodology for the assessment of effects will be agreed with the LPA's landscape representative (refer to Appendix 3), including the number and location of viewpoints to form the basis of the assessment.

11. Biodiversity

INTRODUCTION

11.1. The biodiversity section of the ES will present an assessment of the potential effects of the proposals on ecological receptors, which will be identified through desk-based study, ongoing site surveys and consultation with key stakeholders. The approach proposed in this Scoping Report has been informed by studying aerial imagery and photographs of the Site, by consulting freely available data online, by published best practice guidance, and the results of the habitat and faunal surveys that have been carried out to date. Cumulative effects, arising from the effect of the Proposed Development in conjunction with other developments, will also be considered. This chapter of the ES will be prepared by EDP.

BASELINE CONDITIONS / EXISTING KNOWLEDGE

11.2. An ecological desk study of the Site was originally undertaken in 2014, which has been updated in 2018 and 2021. The purpose of the desk study was to identify any potentially significant ecological constraints to the promoted development that were readily identifiable. Such constraints may determine the quantum or layout of the Proposed Development. The desk study utilised the freely available web-based sources as follows:

- www.magic.gov.uk (the intergovernmental partnership environmental data website), for statutory designated sites information; and,
- www.promap.co.uk (Promap) for Ordnance Survey mapping and aerial photography.

Site Context

11.3. There are no statutory designated sites of European/international importance (Ramsar, Special Area of Conservation (SAC) or Special Protection Area (SPA)) within 10km of the Site boundary, nor does it lie within one of the 12 Nature Improvement Areas (NIAs).

11.4. There are two statutory designated sites of national/local importance within approximately 2 km of the Site boundary, summarised in the table below.

Site Designations

Site Name	Designation and Importance	Distance from EIA Study Area	Reasons for Designation
Weston Fen	SSSI - national importance; statutory	2.4 km	Species-rich, calcareous fen bordering a fast-flowing stream; The Site is of particular interest for the flowering plant communities associated with the wetland habitats, and for its invertebrate fauna, which includes several rare beetles
Wendlebury Meads and Mansmoor Closes	SSSI - national importance; statutory	1.4 km	A series of traditionally-managed unimproved neutral meadows supporting a complex variety of plant communities; The flora is exceptionally diverse with more than 160 plant species present

11.5. While no adverse effects on these two statutory designations is anticipated (due to reasons of distance and lack of obvious hydrological connectivity), it is acknowledged that further consultation may be required with Natural England and CDC to confirm that no effect is predicted. This is because the Site lies within or close to the 'Impact Risk Zones' (IRZs) surrounding these SSSIs. Water supply is identified as a potential matter in connection with a SSSI risk zone for warehousing/industry development of 1,000m² floorspace or more (MAGiC Map – Wendlebury Meads and Mansmoor Closes SSSI).

11.6. In terms of non-statutory designations there are three areas of ancient woodland, which are also designated as Local Wildlife Sites (LWS), within a 1 km radius of the Site, as detailed in the table below. Owing to the nature of these designations and the Proposed Development, it is not considered that the proposals will result in significant adverse impacts to the nature conservation interest of these sites.

Non-Statutory Designations within the Site's Potential Zone of Influence

Site Name	Designation and Importance	Distance from Site	Reasons for Designation
Stoke Bushes	LWS – national importance; non-statutory	0.3 km east	Lowland mixed deciduous woodland.
Stoke Wood	LWS – national importance; non-statutory	0.8 km south	Lowland mixed deciduous woodland. Butterflies – Silver washed fritillaries, white admiral.
Stoke Little Wood	LWS – national importance; non-statutory	1.4 km south-east	Lowland mixed deciduous woodland. Birds – Marsh tit, yellowhammer, green woodpecker. Greater butterfly orchid.

11.7. A suitably experienced ecologist undertook an Extended Phase 1 Habitat survey of the Site in 2018, which has been updated in 2021. This not only involved identifying any pertinent ecological constraints to development, but also the identification of opportunities for biodiversity enhancement in line with national planning policy.

11.8. The Site comprises large, intensive arable fields sown with commercial cereal crops, and as such is of negligible inherent ecological value, offering minimal opportunities for protected species except for a small number of farmland birds and brown hare. Arable fields within the Site are enclosed by a native hedgerow network with few associated mature trees. A detailed assessment of all hedgerows within the Site against the Wildlife Criteria of the Hedgerow Regulations 1997 found eight hedgerows that qualify as 'Important' on the basis of their species diversity and associated features. The hedgerows are considered to be of local value. The hedgerows are also capable of supporting protected species including nesting birds and foraging bats. There is a linear broadleaved woodland strip and associated ditch along the western boundary, and a wet ditch running through the south of the Site, with one pond present in the southwest of the Site.

11.9. Detailed (Phase 2) surveys of protected species were carried out in 2018 and updated in 2021 (final reptile and bat surveys to be carried out). An overview of the ecological interest within the Site is provided below.

11.10. Based on the findings of the Extended Phase 1 Habitat survey and desk study, and through consultation with Cherwell District Council's Ecologist, a number of 'Phase 2' surveys have been undertaken by EDP. The findings of the 2018 surveys and 2021 surveys to date are summarised below:

- Habitats are mostly improved grassland and species poor hedges, although there are some patches of higher quality grassland, some sections of species rich hedgerow, a stream and an on-site pond;
- Extended Phase 1 Habitat survey found no notable habitats other than hedgerows, mature trees and species-poor semi-improved grassland;

- Hedgerow assessment noted that the hedgerow along the northern boundary would be classified as 'important' under the Hedgerow Regulations 1997;
- Breeding Bird surveys found the EIA Study Area to support low numbers of Red and Amber List species, although species recorded were typical of a farmland assemblage in Oxfordshire;
- Bat activity surveys have been undertaken, which identified the presence of common and soprano pipistrelles, but also a number of barbastelle calls along the western boundary of the Site;
- Bat tree roost assessments identified ten trees considered to have potential to support roosting bats, three of which have moderate potential and the remainder have low potential;
- Badger walkover surveys have confirmed that there is a main badger sett, along with an annex sett and an outlier sett;
- No evidence of water voles or otter have been found;
- eDNA testing confirmed that Great Crested Newts are not present in all ponds surveyed;
- A small population of grass snake has been found along the M40 corridor; and,
- Brown hairstreak survey found a small number of eggs along the northern and western boundary hedgerows.

11.11. Baseline data will be collected in accordance with standard best practice methodologies published by the Chartered Institute of Ecology and Environmental Management (CIEEM), Natural England and other recognised bodies, as appropriate.

11.12. The Ecological Impact Assessment (EIA) of the proposals upon identified ecological receptors will be undertaken with reference to:

- CIEEM; Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine (September 2018 (version 1.1 – updated September 2019)).
- CIEEM; Guidelines for Ecological Report Writing Second Edition (December 2017);
- CIEEM; Guidelines for Preliminary Ecological Appraisal Second Edition (2017); and,
- British Standard 42020:2013 Biodiversity – code of practice for planning and development (2013).

POLICY AND GUIDANCE

11.13. A review of relevant legislation and key national and local planning policies will be undertaken and will form part of the ecological impact assessment. This will include the legislation listed below, the NPPF and policies relating to nature conservation within local planning policy:

- The Conservation of Habitats and Species Regulations 2017 (as amended) (The Habitat Regulations);
- Wildlife and Countryside Act 1981 (as amended) (WCA);
- The Countryside and Rights of Way Act 2000;
- Natural Environment and Rural Communities Act 2006 (NERC);
- Hedgerows Regulations 1997;
- The Protection of Badgers Act 1992;
- Section 15 of the NPPF. Conserving and enhancing the natural environment; and,
- Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts on the Planning System.

Local Planning Policy

11.14. The relevant ecological policies will be considered within the Ecology Chapter of the ES.

APPROACH TO ASSESSMENT

11.15. The evaluation of habitats and species is defined in accordance with published guidance (CIEEM 2018). The level of importance of specific ecological features is assigned using a geographic frame of reference, with international being most important, then national, regional, county, local and lastly, within the Site boundary only.

11.16. Evaluation is based on various characteristics that can be used to identify ecological features likely to be important in terms of biodiversity. These include site designations (such as SSSIs), or for undesignated features, the size, conservation status (locally, nationally or internationally), and the quality of the ecological feature. In terms of the latter, quality can refer to habitats (for instance if they are particularly diverse, or a good example of a specific habitat type), other features (such as wildlife corridors or mosaics of habitats) or species populations or assemblages.

ASSESSMENT THRESHOLDS / MAGNITUDE OF EFFECTS / SIGNIFICANCE OF RESIDUAL EFFECTS

11.17. The Extended Phase 1 survey and subsequent Phase 2 surveys will be used to identify the ecological receptors (Important Ecological Features – IEFs) present within the Zone of Influence (Zol). The potential impacts will be determined through understanding how each feature responds to the various impacts associated with the Proposed Development. The significance of the potential effects on each feature will be determined by considering the value of each nature conservation interest and the degree to which it may be affected (the ‘effect magnitude’).

11.18. In accordance with the CIEEM published guidance and terminology (CIEEM 2018), a significant effect, in ecological terms, is defined as an effect that either supports or undermines biodiversity conservation objectives for ‘important ecological features’ or for biodiversity in general. Conservation objectives may be specific, broad, or more wide-ranging, and can be considered at a range of geographical scales, including cumulative effects. Insignificant effects are those that would not result in such changes.

11.19. A preliminary review of likely effects has been undertaken based on the information available. This is summarised in the table below.

Preliminary Assessment of Effects

IEF	Potential Impacts	Potential Mitigation	Residual Effect
SACs/SPAs	None anticipated due to distance of geographical separation	N/A	None
SSSIs	None anticipated due to distance of geographical separation	N/A	None
Stoke Bushes, Stoke Wood, and Stoke Little Wood LWSs	None anticipated due to distance of geographical separation	N/A	None
Habitats	Loss/damage of ecologically important habitats	Ecological Construction Method Statement to be produced to include measures to be implemented on site during construction to prevent harm to existing habitats which are being retained Enhancement of existing habitats and creation of new habitats to be detailed within the soft landscape scheme	None (or potential beneficial effect)



IEF	Potential Impacts	Potential Mitigation	Residual Effect
Species	Harm/disturbance of protected species and loss of habitat	<p>Ecological Construction Method Statement to be produced to include measures to be implemented on site during construction to prevent harm to protected species.</p> <p>Retained/newly created habitats included within the soft landscaping scheme to be managed in a way so as to benefit wildlife.</p>	None (or potential beneficial effect)

11.20. As noted in the table above, it is considered likely that all potential impacts could be avoided or mitigated for, and that as a result, no significant adverse residual effects would occur.

11.21. Once any impacts have been assessed and defined using the geographical frame of reference advocated by CIEEM, using professional judgement each impact will be transposed into the standard terminology used throughout the ES.

MITIGATION AND RESIDUAL EFFECTS

11.22. Mitigation will be devised to avoid any significant impacts associated with the construction and operation of the Proposed Development on ecological features. Any other mitigation or enhancement considered appropriate would also be set out. Once the appropriate mitigation measures have been proposed, the impacts remaining once they are taken into account will be identified (the 'residual impact').

12. Heritage

INTRODUCTION

12.1. This chapter of the ES will be produced by EDP. It will identify and describe the nature and significance of the effects likely to arise in relation to Cultural Heritage receptors within a defined study area, including direct and indirect effects. Cumulative effects, arising from the effect of the Proposed Development in conjunction with other developments, will also be considered.

12.2. The scope of the assessment will include the following:

- The potential direct impacts of the Proposed Development on previously recorded heritage assets located within the Site;
- The potential direct impacts of the Proposed Development on hitherto unknown or unrecorded heritage assets located within the Site; and,
- The potential indirect impacts of the Proposed Development on heritage assets, outwith the Site, through change within their setting.

BASELINE CONDITIONS / EXISTING KNOWLEDGE

12.3. There are no designated heritage assets (as defined in Annex 2 of the National Planning Policy Framework (NPPF)) such as world heritage sites, scheduled monuments, listed buildings, registered parks and gardens or registered battlefields, within the Site.

12.4. In the wider area, the National Heritage List for England identifies one scheduled monument, two conservation areas, and two Grade II* and 18 Grade II listed buildings within approximately 2 km of the Site boundary.

12.5. The scheduled monument comprises:

- Alchester Roman site, 870 m to the east of the Site and A41.

12.6. The conservation areas are located at:

- Chesterton 900 m to the north-east; and,
- Weston-on-the-Green 2 km to the west.

12.7. The Grade II* listed buildings comprise:

- Church of St Mary (LB1300898)
- Manor Farm House (LB1369747)

12.8. The Grade II listed buildings comprise:

- Church of St Giles (LB1046559);
- Home Farmhouse (LB1193641);
- Wendlebury House (LB1369719);
- Elm Tree House (LB1286075);
- Red Lion Public House (LB1193655);
- Willow Cottage (LB1046519);
- Brookside Cottage (LB1046519);
- Park Farm Cottage Park Farmhouse (LB1046520);
- College Farmhouse and attached retaining walls and railings (LB1369720);
- The stable 30m southeast of College Farmhouse (LB1046518);
- Bridge 220m NE of Lodge Farmhouse (LB1200177);
- 6 Tubbs Lane (LB1046536);
- 4 Tubbs Lane (LB1200194);
- Thatchover (LB1046535);
- Ivy Cottage (LB1276742);
- Chesterton Lodge (LB1241627);
- Stables and Coach house NW of Chesterton lodge (LB1241628); and,
- Milestone 100m N of junction with North Lane

12.9. All of these assets will be considered within the remit of the Archaeology and Heritage Desk-Based Assessment that will inform the ES Chapter.

Non-designated Heritage Assets

12.10. The online version of the Oxfordshire HER was consulted regarding the location and extent of known, non-designated, heritage assets, both within and adjacent to the Site. There are no records within the area of the Site. However, aerial photographs on Google Maps show that the Site is extensively covered with the remains of ridge and furrow, a method of farming used during the medieval and post medieval periods. This is likely to have been associated with the medieval grange to Thame Abbey, which was located on the Site of Grange Farm (HER ref: 9402) to the immediate east of the Site.

12.11. Bordering the north of the Site is the line of Akeman Street (HER ref: 8921), a Roman road which ran from Cirencester to Alchester, located c.500 m to the east of the Site. There are no wider deposits known associated with the road in this location.

12.12. In the wider area surrounding the Site there is extensive settlement evidence dating to the prehistoric, Roman and medieval periods. The area surrounding the Site was intensively settled and farmed during these periods as evidenced by the scheduled Iron Age and Roman settlement at Alchester, and the Iron Age and medieval settlement at Wendlebury (HER refs: 16195/16216) to the east. Further to this an undated cropmark to the north of the Site (HER refs: 9191) is the postulated location of a possible building.

POLICY AND GUIDANCE

12.13. Both the proposed heritage baseline assessment and the ES chapter will, where relevant, be informed by the following legislation and national and local planning policy:

- Planning (Listed Buildings and Conservation Areas) Act 1990;
- Ancient Monuments and Archaeological Areas Act 1979;
- The National Planning Policy Framework (NPPF, 2019); and,
- The Cherwell District Local Plan (Adopted 2015).

12.14. The heritage baseline assessment and the ES chapter will follow, where relevant, the heritage-specific guidance documents listed below:

- The baseline review of archaeological and heritage issues will be completed with recourse to the Chartered Institute for Archaeologists' Standard and Guidance for Historic Environment Desk-based Assessment (ClfA 2020);
- The identification and assessment of potential 'setting' effects, on designated heritage receptors, will be undertaken with regard to Historic England's Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets (Second Edition) (HE 2017); and,
- The assessment of the significance of heritage assets will reference Historic England's Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision-Taking in the Historic Environment: (HE 2015).

APPROACH TO ASSESSMENT

Consultation

12.15. The following stakeholders will be consulted:

- Oxfordshire County Council Archaeologist – with regard to the scope of the desk-based assessment, geophysical survey and trial trenching
- Historic England – with regard to scope of setting assessment and comment on the potential effects on the setting of the scheduled monument and Grade II* listed buildings.
- CDC Conservation Officer – with regard to scope of setting assessment and comment on the potential effects on the setting of the two conservation areas and Grade II listed buildings.

12.16. The following studies will be prepared in order to inform the ES Chapter:

- Archaeology and Heritage Desk-Based Assessment (EDP) - This assessment will present a baseline of historic environment information for the Site and its environs (as required by NPPF), and in accordance with the Chartered Institute for Archaeologists' Standard and Guidance for Historic Environment Desk-based Assessment (ClfA 2020)). With recourse to desk-based sources of historic environment data (inclusive of

the Oxfordshire HER), and a site walkover, it will define the Site's potential to contain potentially significant archaeological remains utilising a 1 km radius study area. It will also identify any designated heritage assets within a 2 km study area, describe their setting and its contribution to their heritage value, and whether and to what degree the Site also contributes in order to inform the operational development assessment.

- Geophysical Survey – A magnetometer survey will be carried out in accordance with CIFA Standard and Guidance for archaeological geophysical survey (ClfA 2014). The survey methodology will be agreed in advance with the Oxfordshire County Council Archaeologist, within a Written Scheme of Investigation/Method Statement. The objective of the survey will be to Identify any magnetic anomalies that may be related to archaeological deposits, structures or artefacts, and within the limits of the technique and dataset, archaeologically characterise any such anomalies or patterns of anomalies. The survey report will accurately record the location of the identified anomalies and inform any subsequent development on the survey area about the location and possible archaeological character of the recorded anomalies.
- Trial Trench Evaluation - Following the results of the geophysical survey, and discussion of the results with the Oxfordshire County Council Archaeologist, any trial trench evaluation required will follow a methodology and scope set out and agreed through the submission of a Written Scheme of Investigation/Method Statement.

ASSESSMENT THRESHOLDS / MAGNITUDE OF EFFECTS / SIGNIFICANCE OF RESIDUAL EFFECTS

12.17. The evaluation of potential significant effects on a heritage asset will be based on a combination of the designation, the heritage significance or sensitivity of the asset in question, and the magnitude of change that is predicted to result from the development. The assessment of likely significant effects, as a result of the development will take into account both the construction phase and the occupation phase.

12.18. The assessment set out in the ES Chapter will attribute 'sensitivity' to archaeological and cultural heritage assets, as shown in the table below.

Preliminary Assessment of Effects

Receptor	Sensitivity of Receptor
World Heritage Site	Very High
Scheduled Monument	High
Grade I or II* Listed Building	High
Grade I or II* Registered Park or Garden	High
Registered Battlefield	High/Medium
Other Nationally important Heritage Asset	High/Medium
Grade II Listed Building	High/Medium
Grade II Registered Park or Garden	High/Medium
Conservation Area	Medium/Low
Other asset of Regional or County Importance	Medium/Low
Locally important asset with cultural or educational value	Low/Very Low
Heritage site or feature with no significant heritage value or interest	Low/Very Low

12.19. The classification of the magnitude of change to heritage assets will be based on consistent criteria. It will take account of such factors as the physical scale and type of disturbance and whether features or evidence would be lost that are fundamental to their historic character, integrity and therefore significance. Both physical and nonphysical (e.g. visual) changes to heritage assets will be considered. The magnitude of impact is assessed using the criteria in the table below.



Magnitude of Impact

Magnitude	Description
Very High	Change to a heritage asset so that it is completely altered (positive or negative) or destroyed (negative).
High	Change to a heritage asset so that it is heavily modified (positive or negative).
Medium	Change to a heritage asset so that it is noticeably different (positive or negative).
Low	Change to a heritage asset so that it is slightly altered (positive or negative).
Very Low	Change to a heritage asset that hardly affects it (positive or negative).

12.20. Following the evaluation of the sensitivity of specific cultural heritage receptors, and the magnitude of the impact upon them, the significance of the effect will be assessed using a matrix approach in accordance with the overarching EIA methodology.

13. Hydrology, flood risk and drainage

INTRODUCTION

13.1. An assessment will be undertaken by Tier of the likely significant effects of the Proposed Development on the environment with respect to surface water, flood risk and drainage.

13.2. The construction and operation of the Proposed Development has the potential to result in effects on flood risk, drainage and hydrology. This section of the scoping report provides a preliminary characterisation of the surface water features at the Site and identifies the risk of the Site to flooding.

13.3. The ES chapter will address the following aspects:

- Flood risk;
- Surface water quality;
- Watercourses (rivers and canals);
- Reservoirs, lakes and ponds;
- Wetlands;
- Watercourse diversion;
- Flood risk management;
- Land drainage.

BASELINE CONDITIONS

Hydrology

13.4. Located within the vicinity of the Site is the Wendlebury Brook. The Wendlebury Brook outfalls into the Langford Brook downstream from the Site. There may also be drainage infrastructure associated with the M40 and A41 highways located within the vicinity of the Site.

Flood Risk

13.5. The Environment Agency Flood Zone mapping shows the majority of the Site is located within Flood Zone 1 and therefore, has a 'low probability' of fluvial/tidal flooding. A small proportion of the Site, adjacent to the Wendlebury Brook is located within Flood Zones 2, and 3 and therefore, has a 'medium to high probability' of fluvial/tidal flooding.

13.6. In the Planning Practice Guidance to the NPPF, appropriate uses have been identified for the Flood Zones. Applying the Flood Risk Vulnerability Classification in the Planning Practice Guidance to the NPPF, the Proposed Development is classified as 'less vulnerable'. 'Less vulnerable' uses are appropriate within Flood Zones 1, 2 and 3. The Environment Agency Flood Zones and acceptable development types are explained in the table below.

13.7. The Environment Agency Flood Risk for Surface Water mapping shows that the majority of the Site has a 'very low' risk of surface water flooding, however, a small proportion of the Site has a 'low to high' risk of surface water flooding. This is associated within the Wendlebury Brook and these areas of flood risk are located adjacent to the Wendlebury Brook.

Environment Agency Flood Zones and Appropriate Land Use

Flood Zone	Probability	Explanation	Appropriate Land Use
Zone 1	Low	Less than 1 in 1000 annual probability of river or sea flooding in any year (<0.1%)	All development types generally acceptable
Zone 2	Medium	Between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% - 0.1%) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% 0.1%) in any year	Most development type are generally acceptable
Zone 3a	High	A 1 in 100 or greater annual probability of river flooding (>1%) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year	Some development types not acceptable
Zone 3b	'Functional Floodplain'	Land where water has to be flow or be stored in times of flood. SFRA's should identify this zone (land which would flood with an annual probability of 1 in 20 (5%) or greater in any year or is designed to flood in an extreme (0.1% flood, or at another probability to be agreed between the LPA and the Environment Agency, including water conveyance routes)	Some development types not acceptable

Surface Water Drainage

13.8. Currently, the Site is unlikely to be served by a positive surface water drainage system, with rainfall currently understood to infiltrate into the ground where geological and hydrogeological conditions allow, and then runoff once the infiltration capacity of the ground has been exceeded.

Water Quality

13.9. The aim of the Water Framework Directive (WFD) is to ensure that all surface water and groundwater bodies are of good chemical and ecological status. No watercourses have been assessed within the Site.

13.10. The Site is located within the catchment of WFD designated surface waterbody GB106039030140, the Langford Brook (Bicester to Ray including Gagle Brook). The current ecological quality is designated as 'poor' and the chemical quality is designated as 'fail'. The overall water body classification was 'poor' in 2019.

Foul Water

13.11. The Site is located within Thames Water sewerage area.

Potential Effects

13.12. The Proposed Development has the potential to have a variety of impacts on surface water, drainage and flood risk receptors, as follows.

Construction Phase

13.13. Potential effects that may arise during the construction phase of the Proposed Development may include:

- Construction site runoff - suspended fine sediments;
- Construction site runoff - chemical spillages;
- Modifications/diversions to drainage channels and watercourses;
- Temporary increase in impermeable area;
- Impacts on groundwater recharge; and,
- Impacts on flood risk.

Construction site runoff – suspended fine sediments

13.14. The water environment and the flora and fauna that it supports may be adversely affected by excessive levels of fine sediment contained within surface water runoff originating from construction activities associated with the Proposed Development. Furthermore, the construction activities would involve the excavation and movement of materials at the Site and therefore increase the potential for leaching of pollutants into surface water receptors.

Construction site runoff – chemical spillages

13.15. A number of potentially polluting materials may be used during the construction phase. These include oils, diesels, fuels, hydraulic fluids, cement / concrete, heavy metals / metalloids, bentonite, solvent / paints and flocculants etc. The accidental spillage of these may result in the contamination of surface water or groundwater.

Watercourses / Water Bodies

13.16. The Wendlebury Brook is located within the Site, the construction phase has the potential to impact the hydrology by changing the local hydrology and runoff characteristics. It is also proposed that the Wendlebury Brook will be diverted, which will have an impact of the hydrology and flood risk of this watercourse.

Temporary Increase in Impermeable Area

13.17. During construction there may be a temporary increase in impermeable area due to the removal of surface vegetation, compaction of bare earth reducing infiltration rates, and the construction of new hard standing in advance of the operational phase drainage system being constructed and commissioned.

13.18. As the Proposed Development is being constructed, increasing the area of impermeable surface has the potential to increase surface water runoff rates and volumes. A temporary increase in impermeable area across the Site could result in increased rates and volume of runoff that would not otherwise occur.

Impact on Flood Risk

13.19. Parts of the Site have been identified as being at risk of flooding from fluvial and surface water. Any alteration of ground levels or obstructions placed within areas considered to be at risk of flooding from surface water during construction therefore has the potential to increase flood risk to the Site and elsewhere. Additionally, on and off-site flood risk may increase due to increased runoff due to soil compaction on-site. Any flooding effects resulting from temporary construction activities are likely to be very localised within the Site itself and so the increase in flood risk during construction is considered to have a low magnitude of effect.

13.20. It is also proposed that the Wendlebury Brook will be diverted, which will have an impact of the hydrology and flood risk of this watercourse.

Operational Phase

Water Quality

13.21. A number of potentially polluting materials may be used during the operation of the Proposed Development. These include oils and hydraulic fluids. The accidental spillage of these may result in the contamination of surface water and groundwater.

13.22. Other potential sources of pollution include oils and fuels from vehicles operating within the Site and also potential increases in suspended sediment loads from runoff from roads and hardstanding areas.

Increase in Impermeable Area

13.23. Increasing the area of impermeable surface has the potential to increase surface water runoff rates and volumes. An increase in impermeable area across the Site could result in increased rates and volume of runoff that would not otherwise occur.

Impact on Flood Risk

13.24. Parts of the Site associated with the watercourse have been identified as being at risk of flooding from fluvial and surface water. Any alteration of ground levels or obstructions placed within areas considered to be at risk of flooding from surface water during construction therefore has the potential to increase flood risk to the Site and elsewhere.

13.25. It is also proposed that the Wendlebury Brook will be diverted, which will have an impact of the hydrology and flood risk of this watercourse.

POLICY AND GUIDANCE

13.26. Due consideration will also be given to the legislation, regulations, policies and guidelines shown in the table below.

Relevant Policy and Guidance

Topic	Sources of Information
National Policy & Legislation	A Better Quality of Life – A Strategy for Sustainable Development for the United Kingdom Making Space for Water The Pitt Review Flood and Water Management Act 2010 Land Drainage Act and Water Resources Act 1991 The Flood and Water Management Act 2010 The Water Framework Directive
National Planning Policy	National Planning Policy Framework Planning Practice Guidance
Local Policy and Guidance	Cherwell District Council 2011-2031 (2015) Cherwell District Council Strategic Flood Risk Assessment (SFRA) Oxfordshire County Council Preliminary Flood Risk Assessment (PFRA)
Environment Agency Pollution Prevention Guidelines (now withdrawn, but still with useful points of reference)	PPG1 General guide to the prevention of water pollution. PPG2 Above ground oil storage tanks PPG3 Use and design of oil separators in surface water systems. PPG4 Treatment and disposal of sewage where no foul sewer is available. PPG5 Works or maintenance in or near water. PPG6 Working at construction and demolition sites. PPG8 Safe storage and disposal of used fuels. PPG13 Vehicle washing and cleaning.
Other Guidelines	CIRIA C502 Environmental Good Practice on Site CIRIA C532 Control of Water Pollution from Construction Sites CIRIA C753 The SuDS Manual Preparation of Environmental Statement for Projects that require Environmental Assessment. A Good Practice Guide. 1995



Topic	Sources of Information
	Thompson, A., Easton, P.H., Hine, P.D. and Huxley C.L. 1998. Symonds Travers Morgan and DETR Flood Risk to People Methodology (FD2321/TR1) Flood Risk Assessment Guidance for New Development (FD2320/TR2) Improving the Flood Performance of New Buildings; Flood Resilient Construction

APPROACH TO ASSESSMENT

Baseline Methodology

13.27. In order to fully assess the effect of the redevelopment on surface water, flood risk and drainage the following issues will be considered, both for the construction phase and operational phase of the Proposed Development:

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

13.28. A standalone Flood Risk Assessment (FRA) report will also be prepared, which will include a proposed Surface Water Drainage Strategy. This will form a Technical Appendix to the ES. The FRA will assess the potential risk of flooding to the Site from all sources, and the impact of the proposals on flood risk elsewhere taking into account climate change throughout the lifetime of the development.

13.29. The FRA will also assess the baseline flood risk posed to the Site from the Wendlebury Brook by developing a site specific hydraulic model, the hydraulic model will also be used to model the Proposed Development flood risk once the Proposed Development has been constructed and the impact of the proposed diversion of the watercourse of the Wendlebury Brook.

13.30. The study area used for this assessment includes both the Site and its nearby relevant hydrological features (extending at least to 2 km from the Site), including the catchments of local watercourses, surface water features and dependant habitats. It also includes hydrogeological features, such as underlying geology, aquifers and nearby groundwater dependant features (i.e. springs and wells).

Consultation

13.31. The assessment will be supported and informed through consultation with various stakeholders, including the Environment Agency, Oxfordshire County Council as the Lead Local Flood Authority (LLFA), Cherwell District Council, and Thames Water as required. Reference will also be made to relevant national and local surface water / flood risk planning and legislative policy.

ASSESSMENT THRESHOLDS / MAGNITUDE OF EFFECTS / SIGNIFICANCE OF RESIDUAL EFFECTS

13.32. The significance of any identified effect during both the construction phase and operational phase of the development will ultimately be determined with regard to the status, extent or spatial scale, duration, probability / likelihood and magnitude of the impact and the sensitivity of the receptor.



13.33. The level of the effect and whether those effects identified are considered to be significant will be established through the evaluation of the above elements as informed by the baseline conditions and will ultimately be determined through professional judgement.

13.34. There are a number of potential impacts that have to be considered that could have a direct or indirect effect on hydrology, flood risk, water quality and drainage. These impacts may be transitional, but also can be more permanent in nature. The primary concerns relate to potential impacts on controlled water receptors which are considered to be of high significance.

13.35. The purpose of the EIA is to identify the likely ‘significance’ of environmental effects (beneficial or adverse) arising from a development. In broad terms, environmental effects are described as:

- Adverse – detrimental or negative effects to an environmental resource or receptor;
- Beneficial – advantageous or positive effect to an environmental resource or receptor; or,
- Negligible – a neutral effect to an environmental resource or receptor.

13.36. Effects will be assessed in terms of:

- The magnitude of the impact –the degree of alteration (both positive and negative) from the baseline state; and,
- The sensitivity of the receptor(s) subjected to the impact – this may relate to the value of a resource and the reversibility of impacts.

13.37. Any effect of Moderate or Major significance is considered to represent a likely significant effect for the purposes of the EIA Regulations. Significance of effects would be considered before and after mitigation.

13.38. The criteria for determining magnitude of impact is set out below. The sensitivity of a receptor is based on the importance of the receptor using the criteria below in the Degree of Sensitivity table.

Magnitude of Effects and Criteria

Magnitude of Effect	Criteria
High	Total loss or major/substantial alteration to elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed.
Medium	Loss or alteration to one or more elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed.
Low	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but the underlying character/composition/attributes of the baseline condition will be similar to the pre-development.
Negligible	Very little change from baseline conditions. Change not material, barely distinguishable or indistinguishable, approximating to a ‘no change’ situation.

Degree of Sensitivity Criteria

Sensitivity	Criteria
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character or is of international or national importance.
Medium	The receptor/resource has moderate capacity to absorb change without significantly altering its present character or is of high and more than local (but not national or international) importance.
Low	The receptor/resource is tolerant of change without detrimental effect, is of low or local importance.
Negligible	The receptor/resource can accommodate change without material effect, is of limited importance.

13.39. Significance of effect is evaluated as a combination of the sensitivity of the receptor and the magnitude of change the development results in. Although the matrix in the table below is designed to demonstrate an objective rationale to reach a conclusion about the potential significance of impact a degree of professional judgement is a key element in the evaluation process.

13.40. The significance of the anticipated residual environmental effects, which are those that remain after all proposed mitigation measures are implemented will also be assessed.

Significance of Effect

		Sensitivity of Receptor			
		High	Medium	Low	Negligible
Magnitude of Effect	High	Major	Major	Moderate	Negligible
	Medium	Major	Moderate	Minor/ Moderate	Negligible
	Low	Moderate	Minor/ Moderate	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

14. Ground conditions

INTRODUCTION

14.1. Tier Environmental Ltd has prepared a Preliminary Risk Assessment Report (TE1585-TE-00-XX-RP-GE-001-V01) and will undertake the assessment.

14.2. A ground investigation will be undertaken to assess the ground conditions for geotechnical and geo-environmental parameters. If required, a Remediation Strategy will be produced based on the findings of the ground investigation, the risks to controlled waters and human health.

POLICY AND GUIDANCE

14.3. The following legislation forms the framework for undertaking the assessment:

- Construction (Design and Management) Regulations 2007;
- Town and Country Planning Act 1990;
- Environmental Protection Act 1990, Part 2A, Section 78;
- Environmental Protection Act 1995, Section 57; and,
- Contaminated Land (England) Regulations, 2006.

14.4. The National Planning Policy Framework and the following policies and guidance will be considered:

- Environmental Protection Act 1990, Part 2A Contaminated Land Statutory Guidance; 2012;

- Land Contamination: Risk Management, DEFRA, 2020; and,
- CIRIA C552 'Contaminated Land Risk Assessment – A guide to good practice 2001' National Planning Practice Guidance.

14.5. Relevant planning policies of CDC and OCC will be considered in addition to the above:

PROPOSED SCOPE AND METHODOLOGY

Approach to Assessment

14.6. The Preliminary Risk Assessment Report includes a Preliminary Conceptual Site Model and qualitative risk assessment to identify potential sources, pathways and receptors for any potential contaminants of concern. The approach adopted follows the Environment Agency's Model Procedures for the Management of Land Contamination and the subsequent Land Contamination: Risk Management (2020).

14.7. The sections below establish the preliminary assumed baseline conditions at the Site following a human health and controlled waters Preliminary Risk Assessment. For each of the potential contaminant linkages, an estimate has been made of the potential severity of the risk and the likelihood of the risk occurring.

14.8. The assessment of risks associated with each of the potential contaminant linkages identified is used as a basis for assessment of the significance of potential effects during both the construction phase and the operational phase of the Proposed Development.

14.9. The spatial scope for this assessment includes both on-site and off-site human health and controlled waters receptors. Where multiple receptors of varying sensitivity are present, such as with neighbouring residents, the most sensitive would be selected when determining the magnitude of the effect.

14.10. The following will be considered in the assessment:

- Geology and soils;
- Imported soils;
- Ground gas;
- Controlled waters; and,
- Ground stability.

14.11. The assessment will identify the mitigation measures proposed in the implementation of the development.

SITE HISTORY

14.12. The Site has been predominantly in agricultural use for over 120 years, associated with Grange Farm.

Unexploded Ordnance Risk

14.13. The area recorded one air raid between Chesterton and Weston-on-Green during August 1940. It is probable that the target was the airfield located 965 m to the north west of the Site. The UXO risk for this site is considered to be low.

ANTICIPATED GROUND CONDITIONS

14.14. The Site is anticipated to have two areas of superficial deposits as follows:

- River Terrace Deposits Sand and Gravel to the north of the main centre of the Site (Secondary A Aquifer)
- Alluvial Deposits Clay, Silt, Sand and Gravel along the unnamed brook with a wider spatial distribution to the eastern end of the Site (Secondary A Aquifer)

14.15. The bedrock deposits are as follows:

- Southern Part of Site – Peterborough Mudstone Member (Unproductive Aquifer) 23-26 m thick
- Centrally – Kellaway Sand Member (Siltstone) (Secondary A Aquifer) 2-5 m thick
- Centrally – Kellaway Clay Member (Mudstone) (Unproductive Aquifer) 1-4 m thick
- Extreme North and possibly beneath other strata – Cornbrash Formation (Limestone) (Secondary A Aquifer) 1-4 m thick.

14.16. Localised Made Ground deposits are potentially located in the south where an area of hardstanding is present from an access gate to the A41, and where the existing outbuildings of Grange Farm are to the north of the centre of the Site.

14.17. A ground investigation will confirm the geological sequence and the presence of any Made Ground in a targeted manner.

ANTICIPATED FOUNDATION SOLUTION

14.18. Based on the Preliminary Risk Assessment it is anticipated that a shallow foundation solution should be viable, but this is subject to any regrading works and the removal or treatment of any areas due to unsuitability, such as Made Ground and soft geology such as the Alluvial Deposits.

14.19. The foundation solution may also have to consider the watercourse and its diversion, in addition to any cut and fill exercise to enable drainage and other infrastructure.

POTENTIAL CONTAMINATION - SOILS

14.20. There are two localised areas identified with the potential to present contaminants of concern: the southern area access road, and the outbuildings of Grange Farm to the north. Additionally, there is the possibility of localised contamination from historical use of material to provide a suitable surface for farm equipment to traverse between fields during periods of wet weather. There are no other areas anticipated to be of concern.

POTENTIAL CONTAMINATION – CONTROLLED WATERS

14.21. Subject to the areas of Made Ground, there is a low risk to controlled waters from potential contaminants of concern. The ground investigation will determine whether groundwater testing is required for potential leachate and/or mobile contaminants affecting surface waters or groundwater.

POTENTIAL GROUND GAS RISKS

14.22. The Preliminary Risk Assessment has identified the risk as moderate to low. This is the lowest risk rating achievable under CIRIA 552, due to the inherent severe consequence of ground gases. However, based on the PRA, a very low generation potential for ground gas on this site has been determined. Ground gas monitoring will be undertaken during the ground investigation.

PRELIMINARY DRAINAGE ASSESSMENT

14.23. It is possible that soakaways are potentially viable in selected areas where the geology supports it, subject to the ground investigation and final design layout.

POTENTIAL IMPACTS DURING CONSTRUCTION AND OPERATION

14.24. The following sections identify the receptors that could potentially be significantly affected as a result of the Proposed Development and will thus be assessed within the EIA. Additional receptors may be included if identified by further technical study.

CONSTRUCTION PHASE

14.25. An assessment of potential construction effects on the following receptors will be undertaken within the EIA:

- Health & safety risks to site workers and current site users;
- Potential ground stability issues and differential settlements affecting the proposed structures and infrastructure;
- Release of contaminants and/or creation of new preferential pathways by which existing ground contamination may enter controlled waters;
- Potential contaminants of concern that may enter controlled waters;
- Potential changes to local groundwater regime;
- Risks to potential ecology constraints and Ancient Woodland; and,
- Risks to potential archaeological features.

OPERATIONAL PHASE

- 14.26. An assessment of potential operational effects on the following receptors will be undertaken within the EIA.
- Ground Stability;
 - Release of contaminants and/or creation of new preferential pathways by which existing ground contamination may enter controlled waters;
 - Changes to local groundwater regime;
 - Future users of the Site; and,
 - Potential ecology constraints and consideration to Ancient Woodland.

WASTE

14.27. It is not considered that the development would generate significant waste soils requiring offsite disposal. A Materials Management Plan (in accordance with CL:AIRE Code of Practice for the Definition of Waste) would control the re-use of any site won soil arisings or the excavation of materials.

15. Climate change

15.1. The Climate Change Act (2008) set up a framework for the UK to achieve its long-term goals of reducing greenhouse gases, and develop a climate change adaptation programme. The 2017 EIA Regulations require a description of 'the impact of the project on climate', and 'the vulnerability of the project to climate change' (Schedule 4, paragraph 5(f)). The climate change assessment is to be undertaken by Ridge.

- 15.2. In relation to the Proposed Development, the purpose of the climate change chapter is to consider both:
- Climate change mitigation (i.e. acknowledging that all greenhouse gas emissions (GHGs) play a part cumulatively in climate change, and identifying ways in which these can be reduced); and
 - Climate change resilience (i.e. the measures the Proposed Development will use to adapt to the manifestations of a changing climate).

SITE CONTEXT

15.3. The study area for the assessment of the impact on climate change is the boundary of the Proposed Development but also encompasses emissions arising outside of this boundary, including the embodied emissions associated with construction materials, and the emissions associated with the transportation of materials and workers to site and removal of waste from the site.

15.4. The study area for the climate change resilience assessment is the Proposed Development itself.

RELEVANT LEGISLATION & GUIDANCE

National Planning Policy Framework

15.5. Section 14 of the National Planning Policy Framework (NPPF) specifically addresses the challenge of climate change. The policies with most relevance to this assessment are detailed below:

Paragraph 152: “The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.”

Paragraph 153: “Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.”

Paragraph 154: “New development should be planned for in ways that: a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government’s policy for national technical standards.”

Paragraph 155: “To help increase the use and supply of renewable and low carbon energy and heat, plans should: a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts); b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.”

Paragraph 157: “In determining planning applications, local planning authorities should expect new development to: a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.”

Paragraph 161: “All plans should apply a sequential, risk-based approach to the location of development – taking into account the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by: a) applying the sequential test and then, if necessary, the exception test as set out below; b) safeguarding land from development that is required, or likely to be required, for current or future flood management; c) using opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques); and d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations”.

LOCAL PLANNING POLICY

The Cherwell Local Plan 2011-2031

15.6. With respect to sustainability and energy considerations, the following policies are relevant to Climate Change and the district's development.

15.7. Cherwell District Council's strategic objective for ensuring sustainable development is: (Objective SO II) To incorporate the principles of sustainable development in mitigating and adapting to climate change impacts including increasing local resource efficiency, minimising carbon emissions, promoting decentralised and renewable or low carbon energy and ensuring that the risk of flooding is not increased.

15.8. Policy PSD I: Presumption in favour of sustainable development - we will take a proactive approach to reflect the presumption in favour of sustainable development contained in the National Planning Policy Framework when considering development proposals.

15.9. Policy BSC 2: The Effective and Efficient Use of Land - Brownfield Land and Housing Density – Housing development will be expected to make effective and efficient use of land. We will encourage the re-use of previously developed land in sustainable locations- new housing should be provided on net developable areas at a density of at least 30 dwellings per hectare.

15.10. Policy ESD 1: Mitigating and Adapting to Climate Change – Measures will be taken to mitigate the impact of development within the District on Climate Change. At a strategic level this will include:

- Distributing growth to the most sustainable locations.
- Deliver development that seeks to reduce the need to travel and which encourages sustainable travel options including walking, cycling and public transport.
- Designing development to reduce carbon emissions and use resources more efficiently, including water.
- Promoting the use of decentralised and renewable or low carbon energy.

15.11. Suitable adaptation measures in new developments to ensure that development is more resilient to climate change impacts will include consideration of the following:

- Taking into account known physical and environmental constraints when identifying locations for development.
- Demonstration of design approaches that are resilient to climate change impacts including the use of passive solar design for heating and cooling.
- Minimising the risk of flooding and making use of sustainable drainage methods.
- Reducing the effects of development on the microclimate through the provision of green infrastructure such as including open space and water, plants and green roofs.

15.12. Policy ESD 2: Energy Hierarchy and Allowable Solutions – To achieve reductions in carbon emissions we will promote an 'energy hierarchy' as follows:

- Sustainable design and construction measures to reduce energy use.
- Supplying energy efficiently and giving priority to decentralised energy supply.
- Making use of renewable energy.
- Making use of allowable solutions.

15.13. Policy ESD 3: Sustainable Construction – All new Non-residential development will be expected to meet at least BREEAM 'Very Good' with immediate effect and demonstrate the achievement of this target within the Energy Statement.

15.14. Policy ESD 4: Decentralised Energy Systems - The use of decentralised energy systems, providing either heating (District Heating) or heating and power (Combined Heat and Power) will be encouraged in all new developments. A feasibility assessment for DH/CHP will be required for:

- All applications for non-domestic developments above 1,000m² floorspace.

15.15. Policy ESD 5: Renewable Energy - The potential local environmental, economic and community benefits of renewable energy schemes will be a material consideration in determining planning applications. Planning applications involving renewable energy development will be encouraged. Feasibility assessment of the potential for significant on-site renewable energy provision will be required for:

- All applications for non-domestic developments above 1,000m² floorspace

15.16. Policy ESD 6: Sustainable Flood Risk Management - We will manage and reduce flood risk using a sequential approach to development; locating vulnerable developments in areas at lower risk of flooding. Opportunities will be sought to restore natural river flows and floodplains and existing flood defences will be protected from damaging development.

15.17. Policy ESD 7: Sustainable Drainage Systems (SuDS) - All development will be required to use sustainable drainage systems for the management of surface water runoff. In considering SuDS solutions, the need to protect ground water quality must be taken into account. SuDS should seek to reduce flood risk, reduce pollution and provide landscape and wildlife benefits.

15.18. Policy ESD 17: Green Infrastructure - The District's green infrastructure network will be maintained and enhanced through the following measures:

- Pursuing opportunities to maintain and improve the green infrastructure network, whilst protecting sites of importance.
- Protecting and enhancing existing sites and features and improving connectivity between sites.
- Ensuring that green infrastructure network considerations are integral to the planning of new developments.
- All strategic development sites to incorporate green infrastructure provision and proposals should include details for future management and maintenance.

OTHER RELEVANT POLICY, STANDARDS AND GUIDANCE

EIA Directive 2011/92/EU amended by 2014/52/EU

15.19. All EIAs submitted under the EIA Regulations need to consider the impact of the project on climate change (i.e. the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change.

UK Net Zero Emissions by 2050

15.20. The Climate Change Act 2008 committed the UK to an 80% reduction in carbon emissions relative to the levels in 1990, to be achieved by 2050. In June 2019, secondary legislation was passed that extended that target to require that the UK reduce greenhouse gas emissions to net zero by 2050 relative to 1990 levels. And in April 2021 the Government confirmed its intention to ratify 'The Sixth Carbon Budget' which effectively requires a 78% reduction in UK territorial emissions between 1990 and 2035.

Oxfordshire Energy Strategy

15.21. The Oxfordshire Energy Strategy sets out an ambitious framework to enable the county to be at the forefront of energy innovation to foster clean growth, which Cherwell District Council is a signatory. 'It is underpinned by three guiding principles:

- To secure a smart, modern, clean energy infrastructure.

- To reduce countywide emissions by 50% by 2030 (compared with 2008 levels) and set a pathway to achieve zero carbon growth by 2050.
- To enhance energy networking and partnership working.'

Cherwell District Council, Climate Action Framework

15.22. CDC declared a Climate Emergency in July 2019, committing it to ensuring its own operations and activities are zero carbon by 2030. This declaration has also provided the goal of achieving net zero for the wider district by 2030 with the support of residents, businesses and other organisations. CDC's Climate Action Declaration set out a number of commitments covering its two connected roles:

- 'Ensure our own operations and activities are net zero by 2030.
- Do our part to achieve a net zero carbon district by 2030 and lead through example.'

15.23. The document sets out CDC's approach to tackling the Climate Emergency in its priority areas for action: 'our own estate, working with suppliers, ensuring our policies enable other to make low-carbon choices and working with partners and businesses'.

Low Carbon Environmental Strategy

15.24. This is a strategy of the Cherwell Local Strategic Partnership; its aim is for Cherwell to make the transition to a low carbon economy and is part of an overarching objective of the Council's economic development strategy.

The Key Actions are as follows:

- 'We will work with local partners to raise awareness and encourage take up of low carbon and renewable energy technologies and CO² saving actions by residents.
- We will actively encourage uptake of home energy efficiency measures and seek to provide additional support to those most in need.
- We will work with industry to embrace the opportunities of a low carbon economy by developing green knowledge and skills and supporting innovation in green technologies.
- We will encourage the take up of Green Travel Plans with businesses and organisations.
- We will work with the community in conjunction with the Oxfordshire Waste Partnership to further increase recycling and promote and facilitate waste minimisation and reuse.
- We will work with local partners to gain better understanding of what a changing climate means for the Cherwell community.'

Guidance Documents

15.25. The ES chapter will be informed by the following guidance documents:

- IEMA (2017). Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance; and
- IEMA (2020). Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation.

APPROACH

15.26. In accordance with the EIA regulations, the chapter will address:

- The impact of the project on climate change.
- The vulnerability of the project to climate change (climate change resilience).
- Impact of the project on climate change.

Scope of Assessment

15.27. The study area for the assessment of the impact on climate change will comprise the boundary of the Proposed Development but also encompasses emissions arising outside of this boundary, including the embodied emissions associated with construction materials, and the emissions associated with the transportation of materials and workers to site and removal of waste from the site.

Construction impacts

15.28. For the purposes of the ES, a qualitative assessment will be made to determine the impact of the Proposed Development's carbon emissions.

Operational impacts

15.29. Energy modelling will be undertaken to identify the CO² emissions associated with the development once operational.

15.30. According to the IEMA guidance (IEMA, 2017), the application of the standard EIA significance criteria is not considered to be appropriate for climate change assessments. To assess the significance of both construction and operational impacts, an alternative approach will therefore be taken as outlined below.

Sensitivity of Receptors

15.31. The receptor for assessment of the impact of the project on climate change is the global climate. For the purposes of this assessment, the UK carbon budget will be used as a proxy for the global climate. The receptor is considered to be of high sensitivity.

Magnitude:

15.32. The magnitude of the impact will be based on the UK carbon budget, as shown in the Table below. The UK carbon budgets are as follows (House of Commons Library, 2019):

- Budget 3 (2018-2022): 2,245MtCO₂e
- Budget 4 (2023-2027): 1,950MtCO₂e
- Budget 5 (2028-2032): 1,765MtCO₂e
- Budget 6* (2033-2037): 965MtCO₂e.

* based on sixth carbon budget due to be ratified by end June 2021.

Magnitude - Impact on Climate Change

	Description
Low magnitude	Emissions represent <0.001% of total emissions from the relevant 5 year UK carbon budget in which they arise
Medium magnitude	Emissions represent between 0.001% and 1% of total emissions from the relevant 5 year UK carbon budget in which they arise
High magnitude	Emissions represent >1% of total emissions from the relevant 5 year UK carbon budget in which they arise

Significance Criteria

15.33. Significance will be determined as shown in the Table below. For the purpose of this assessment, effects that are deemed to be significant are those described as minor, moderate or major in adverse scenarios, and in beneficial scenarios that exceed the local policy. This goes beyond the standard EIA practice and represents a strict and conservative approach, which aligns with the magnitude of climate change as an issue, and local policy targets to reduce carbon emissions beyond Building Regulations.



Significance- Impact on Climate Change

Magnitude	Significance
Low magnitude	Minor significance
Medium magnitude	Minor significance
High magnitude	Major significance

15.34. Mitigation measures which are already being incorporated within the development will be taken into account when determining the significance.

CLIMATE CHANGE RESILIENCE ASSESSMENT

15.35. To assess the vulnerability of the Proposed Development to climate change, a climate change adaptation strategy appraisal will be undertaken for structural and fabric resilience in line with the Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation (IEMA, 2020).

Scope of Assessment

15.36. The study area for the climate change resilience assessment is the Proposed Development itself. The approach that will be taken is outlined below.

Sensitivity of Receptors

15.37. Receptor groups will be identified and their sensitivity will be determined based on the susceptibility of the receptor (e.g. ability to be affected by a change – low, medium or high) and the vulnerability of the receptor (i.e. potential exposure to a change – low, medium or high).

- Low susceptibility: receptor has the ability to withstand/not be altered much by the projected changes to the existing/prevaling climatic factors (e.g. retain much of its original function and form);
- Medium susceptibility: receptor has some limited ability to withstand/not be altered by the projected changes to the existing/prevaling climatic conditions;
- High susceptibility: receptor has no ability to withstand/not be substantially altered by the projected changes to the existing/prevaling climatic factors;
- Low vulnerability: Climatic factors have little influence on the receptors;
- Medium vulnerability: receptor is dependent on some climatic factors but able to tolerate a range of conditions; and
- High vulnerability: receptor is directly dependent on existing/prevaling climatic factors and reliant on these specific existing climate conditions continuing in future or only able to tolerate a very limited variation in climate conditions.

Receptor sensitivity – Climate Change Resilience

	1 (Low vulnerability)	2 (Medium vulnerability)	3 (High vulnerability)
1 (Low susceptibility)	1 (Low sensitivity)	2 (Low sensitivity)	3 (Medium sensitivity)
2 (Medium susceptibility)	2 (Low sensitivity)	4 (Medium sensitivity)	6 (High sensitivity)
3 (High susceptibility)	3 (Medium sensitivity)	6 (High sensitivity)	9 (High sensitivity)

Magnitude

15.38. Magnitude will be based on a combination of likelihood (the chance of the effect occurring over the lifespan of the project if the risk is not mitigated) and consequence (which will reflect the geographical extent of the effect or the number of receptors affected, the complexity of the effect, degree of harm to those affected and the duration,

frequency and reversibility of effect).

- Low likelihood: The event may occur once or on limited occasions during the lifetime of the development;
- Medium likelihood: The event will may occur several times during the lifetime of the development;
- High likelihood: The event will occur on multiple occasions during the lifetime of the development;
- Low consequence: Minor disruption to business operations / no risk to building occupants / no damage to buildings / infrastructure;
- Medium consequence: Some disruption to building operations / slight risk to building occupants / slight damage to buildings / infrastructure; and
- High consequence: Major disruption to business operations / risk to building occupants / significant damage to buildings / infrastructure.

Magnitude – Climate Change Resilience

	1 (Low consequence)	2 (Medium consequence)	3 (High consequence)
1 (Low likelihood)	1 (Low magnitude)	2 (Low magnitude)	3 (Medium magnitude)
2 (Medium likelihood)	2 (Low magnitude)	4 (Medium magnitude)	6 (High magnitude)
3 (High likelihood)	3 (Medium magnitude)	6 (High magnitude)	9 (High magnitude)

Significance Criteria

15.39. The potential significance of each impact will be based on the magnitude of the impact and the sensitivity of the receptor. For the purpose of this assessment, effects that are deemed to be significant are those described as minor, moderate or major in adverse scenarios, and in beneficial scenarios that exceed the local policy. This goes beyond the standard EIA practice and represents a strict and conservative approach, which aligns with the magnitude of climate change as an issue.

Significance – Climate Change Resilience

	1 (Low magnitude)	2 (Medium magnitude)	3 (High magnitude)
1 (Low sensitivity)	1 (Minor significance)	2 (Minor significance)	3 (Minor significance)
2 (Medium sensitivity)	2 (Minor significance)	4 (Minor significance)	6 (Major significance)
3 (High sensitivity)	3 (Minor significance)	6 (Major significance)	9 (Major significance)

BASELINE CONDITIONS

15.40. In relation to the impact of the project on climate change, i.e., carbon emissions, the baseline is a scenario whereby the Proposed Development does not proceed.

Current climate

15.41. The existing baseline for the climate change resilience assessment is the current climate in the location of the Proposed Development. Historic climate data obtained from the Met Office website (accessed July 2021) recorded by the closest meteorological station to the Proposed Development (Oxford climate station) for the 30-year climate period of 1981-2010 is summarised in the Table below.

Historic climate data recorded by the closest meteorological station

Climatic factor	Month	Figure
Average annual maximum daily temperature (°C)	-	14.6°C
Warmest month on average (°C)	July	22.7°C

Climatic factor	Month	Figure
Coldest month on average (°C)	January	7.6°C
Mean annual rainfall levels (mm)	-	659.7mm
Wettest month on average (mm)	October	69.6mm
Driest month on average (mm)	February	42.5mm

15.42. The Met Office baseline climate averages for the South of England region (Met Office website, accessed July 2021) identify gradual warming between 1961 and 2010, as well as increased rainfall. Information on mean maximum annual temperatures (°C) and mean annual rainfall (mm) is summarised in the following Table.

Historic climate data

Climate period	Mean maximum annual temperature	Mean annual rainfall
1961-1990	14°C	793.9mm
1971-2000	13.6°C	781.7mm
1981-2010	13.3°C	767.7mm

15.43. The Met Office website (accessed July 2021) confirms that past severe weather events in the last 5 years have included severe flooding, severe winter weather with significant snowfalls, record breaking heatwaves and storm and high wind events.

Climate Change Projections

15.44. UK Climate Projections published in 2018 (UKCP18) have been developed by the UK Climate Impacts Programme (UKCIP) to provide projections for future climate scenarios and trends. The projected general trends of climate change in the 21st century shows a progressive increase in mean air temperatures during summer and winter, a reduction in the rate of precipitation during the summer months but an increase during the winter months, with a slight reduction in average wind speed in the summer and a small increase during the winter.

16. ES structure

16.1. The EIA will be compiled into an ES document which will be produced in accordance with the 2017 EIA Regulations, and will comprise three main components.

ENVIRONMENTAL STATEMENT – TEXT AND FIGURES FOR THE FOLLOWING CHAPTERS

- Introduction and site description
- The Proposed Development, reasonable alternatives
- Approach to assessment
- Planning policy
- Transport
- Air quality
- Noise
- Biodiversity
- Landscape and visual effects
- Heritage
- Hydrology, drainage and flood risk
- Ground conditions
- Climate change

Symmetry Park, Oxford North

EIA Scoping Request



- Cumulative effects
- Summary of mitigation, residual and interaction effects

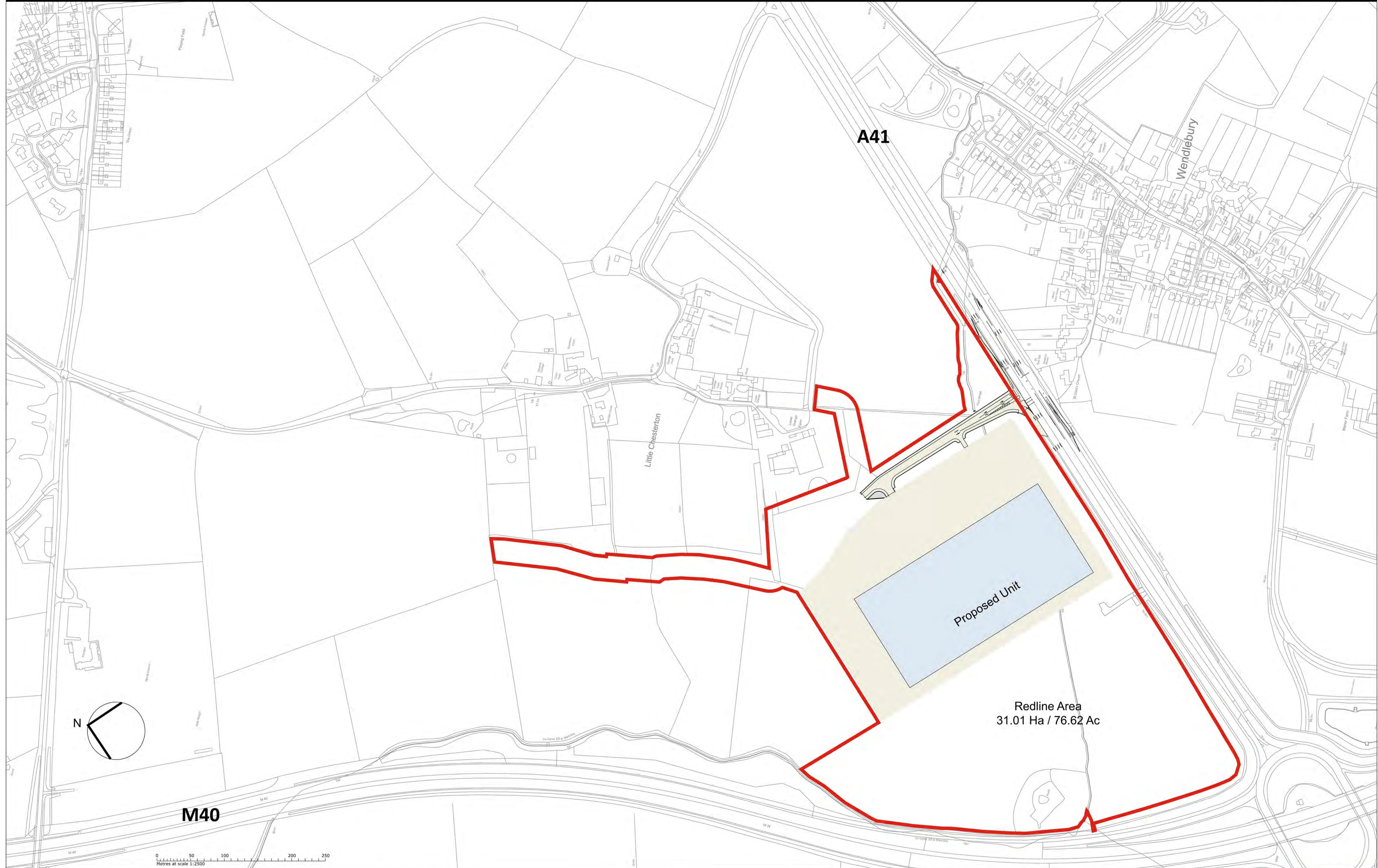
ENVIRONMENTAL STATEMENT TECHNICAL APPENDICES

- Supporting technical information for the assessment chapters.

NON-TECHNICAL SUMMARY



Appendix 1: Location Plan 13-222-SGP-00-DR-A-131001.revB



A41

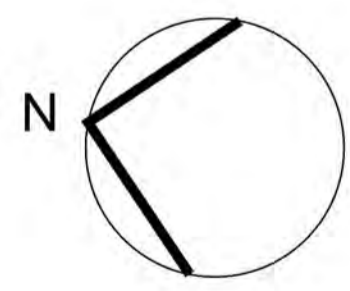
Wendlebury

Little Chesterton

Proposed Unit

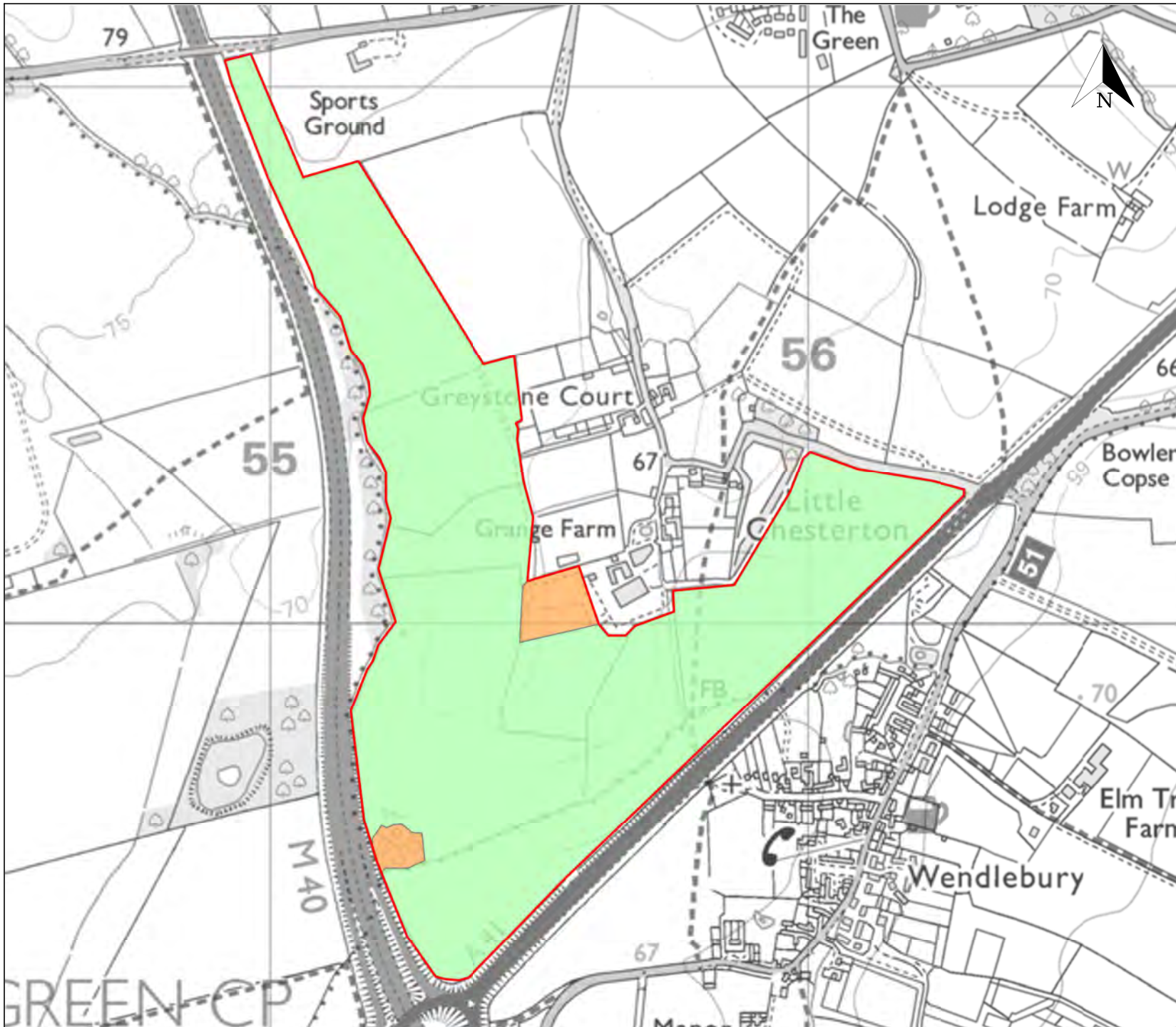
Redline Area
31.01 Ha / 76.62 Ac

M40








Appendix 2: Agricultural Land Classification Survey



KEY

-  Subgrade 3b
-  Non agricultural
-  Survey area

Client:



Site:

**Land at Junction 9, M40,
Bicester**

Map title:

**Map 2
Agricultural Land Classification**



Land Research Associates
Lockington Hall
Lockington
Derby DE74 2RH
01509 670570

Scale: 1:10,000

Date: 21/06/2021

Appendix 3: LVIA Assessment Methodology

INTRODUCTION

16.2. The development proposed falls within the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. This report therefore constitutes a full Landscape and Visual Impact Assessment (LVIA) of the Proposed Development of the site.

16.3. The assessment methodology for assessing landscape and visual effects prepared by EDP is based on the following best practice guidance:

- Guidelines for Landscape and Visual Impact Assessment (GLVIA) – Third Edition (LI/IEMA 2013);
- An Approach to Landscape Character Assessment (Natural England 2014);
- Landscape Character Assessment – Guidance for England and Scotland (Swanick & LUC 2002) produced on behalf of the Countryside Agency and Scottish Natural Heritage; and
- Landscape Institute Technical Guidance Note (TNG) 06/19 Visual Representation of Development Proposals (17 September 2019).

16.4. Landscape assessment is concerned with the changes in the physical landscape in terms of features/elements that may give rise to changes in the character of the landscape. Visual appraisal is concerned with the changes that arise in the composition of available views as a result of changes to the landscape, people's responses to the changes and to the overall effects on visual amenity. Changes may result in adverse (negative), beneficial (positive) or neutral effects.

16.5. The nature of landscape and visual assessment requires both objective analysis and subjective professional judgement. Accordingly, the following assessment is based on the best practice guidance listed above, information and data analysis techniques, uses subjective professional judgement and quantifiable factors wherever possible, and is based on clearly defined terms.

16.6. The characteristics of the development and the nature of landscape and visual effects arising will vary throughout the different phases of the lifecycle of the project. LVIA undertaken as part of an Environmental Impact Assessment (EIA) is required to include an assessment of effects at different stages of the life-cycle of the development, and commonly includes:

- Construction effects; and
- Operational Effects (often including Year 1 and Year 15 effects such that mitigation is considered).

16.7. Year 1 considers the effects of the development upon completion of the construction phase. The assessment of landscape and visual effects at Year 15 takes into account any proposed mitigation measures, including structural or developmental planting. The assessment undertaken at Year 15 assumes that such proposals have the opportunity to grow and become effective. For the purposes of most LVIAs Year 15 effects are also taken to be the 'residual effects' of the development. Residual effects are those which are likely to remain on completion of the development and are to be given the greatest weight in planning terms.

16.8. In some cases, the scope of the EIA also requires the assessment of effects during decommissioning and restoration; an assessment of these effects is included in the LVIA when requested or required.

16.9. The need for the consideration of cumulative effects is agreed as part of the EIA scoping process. Cumulative effects are considered in further detail below.

CURRENT GUIDANCE AND THE ASSESSMENT PROCESS

16.10. The GLVIA presents guidelines for undertaking the assessment process using a non-prescriptive methodology. As stated at paragraph 1.20 of the GLVIA:

16.11. “The guidance concentrates on principles while also seeking to steer specific approaches where there is a general consensus on methods and techniques. It is not intended to be prescriptive, in that it does not follow a detailed ‘recipe’ that can be followed in every situation. It is always the primary responsibility of any landscape professional carrying out an assessment to ensure that the approach and methodology adopted are appropriate to the particular circumstances.”

16.12. The summary following paragraph 3.45 of the GLVIA sets out the advice on good practice to be followed in undertaking the assessment and includes the following points:

- “Assessing the significance of landscape and visual effects is a matter of judgement. It is vital that the basis of such judgements is transparent and understandable, so that the underlying assumptions and reasoning can be examined by others;
- A step-by-step approach should be taken to make judgements of significance, combining judgements about the nature of the receptor, summarised as its sensitivity, and the nature of the effect, summarised as its magnitude;
- The contribution of judgements about the individual criteria contributing to the sensitivity and magnitude should be clear, and the approach to combining all the judgements to reach an overall judgement of significance should be transparent as possible;
- LVIAAs should always distinguish clearly between what are considered to be the significant and non-significant effects; and
- To ensure that the reasoning behind the judgements is clear there should be more emphasis on narrative text describing the landscape and visual effects and the judgements made about their significance, with tables and matrices used to support and summarise the descriptive text, not to replace it. The key issues must be made clear.”

16.13. This assessment is considered to comply with the general principles of good practice in the GLVIA 3rd edition as set out above.

16.14. The assessment involves information review, consultations, fieldwork observations and photography, computer-based data processing and analysis, and subjective professional judgement. It is an iterative process, and involves up to nine main stages, and is tailored in terms of its proportionality to the size and scale of the development proposed, and its location:

- Stage 1: Review the development proposals: to understand the nature of the development proposals in respect of potential landscape and visual effects to inform the extent of the study area and the baseline assessment;
- Stage 2: Landscape baseline assessment: an analysis of the characterisation and evaluation of the existing landscape baseline, in respect of its value. This analysis is aided where possible by available published landscape character assessment;
- Stage 3: Visual baseline assessment: establish the zone of visual influence of the proposals including, where appropriate, the use of computer-generated zones of theoretical visibility, based on topographical data only, and through fieldwork analysis. This establishes the locations where views of the development may be available. Fieldwork and data trawl information review to establish the types and locations of receptors within this theoretical zone;

- Stage 4: Viewpoint selection: selection of viewpoints to represent the various receptor types in the study area. Locations are agreed with the Local Planning Authority (where practical) and any other relevant statutory consultees, where possible;
- Stage 5: Mitigation: commentary on the input provided into the iterative design process, where appropriate, to avoid, reduce or compensate for potential effects on the landscape and visual receptors identified;
- Stage 6: Landscape assessment: an assessment to identify the potential residual effects on landscape fabric, the character of the landscape units and the special characteristics and purposes of any landscape designations;
- Stage 7: Visual assessment: an assessment of the potential residual effects upon visual amenity at the selected visual receptor locations identified within the study area;
- Stage 8: Judgement of landscape capacity: a discussion about the ability of the landscape to accommodate the changes proposed; and
- Stage 9: Cumulative effects assessment: the assessment of the development proposals in conjunction with other known proposals which have not been implemented but may have planning permission, are awaiting determination or other proposals identified as requiring inclusion in the cumulative effects assessment.

16.15. Each of these key stages is described in more detail below, with reference to the GLVIA 3rd Edition.

STAGE 1: REVIEW OF DEVELOPMENT PROPOSALS AND DEFINING THE STUDY AREA(S)

16.16. Study areas are defined in accordance with the EIA Regulations 2017, which require an assessment to be made which provides ‘a description of the aspects of the environment likely to be significantly affected by the development’⁵. Guidance contained within the GLVIA 3rd edition is also pertinent, with this document advising that the study area for landscape and visual assessment should cover the following:

Landscape (paragraph 5.2 of the GLVIA)

“Scoping should also identify the area of landscape that needs to be covered in assessing landscape effects. This should be agreed with the competent authority, but it should also be recognised that it may change as the work progresses, for example as a result of fieldwork, or changes to a proposal. The study area should include the site itself and the full extent of the wider landscape around it which the Proposed Development may influence in a significant manner.”

Visual (paragraph 6.2 of the GLVIA)

“Scoping should identify the area that needs to be covered in assessing visual effects, the range of people who may be affected by these effects and the related viewpoints in the study area that will need to be examined. The study area should be agreed with the competent authority at the outset and should consider the area from which the proposed development will potentially be visible. The emphasis must be on a reasonable approach which is proportional to the scale and nature of the proposed development. At the scoping stage the study area will only be defined in a preliminary way and is likely to be modified as more detailed analysis is carried out, in discussion with the competent authority.”

16.17. It is therefore imperative that an understanding of the development proposed, its scale, character and geographical extents is required to be able to define the study area.

⁵ Schedule 4, Part 1, clause 3, DETR 2011

STAGES 2 AND 3: ESTABLISHING THE LANDSCAPE AND VISUAL BASELINE

16.18. The purpose of baseline studies is to record and analyse the existing landscape features, characteristics, the way in which the landscape is experienced and the value or importance of the landscape and visual resource in the study area. The third edition of the GLVIA sets out guidance in relation the landscape baseline at paragraph 5.3:

“Baseline studies for assessing landscape effects require a mix of desk study and field work to identify and record the character of the landscape and the elements, features and aesthetic and perceptual factors which contribute to it. They should also deal with the value attached to the landscape (see paragraph 5.19). The methods used should be appropriate to the context into which the development proposal will be introduced and in line with current guidance and terminology.”

16.19. As set out above, it is also a requirement of the baseline stage to establish the value of the landscape receptors identified:

“As part of the baseline description the value of the potentially affected landscape should be established. This means the relative value that is attached to different landscapes by society, bearing in mind that a landscape may be valued by different stakeholders for a whole variety of reasons. Considering value at the baseline stage will inform later judgements about the significance of effects. Value can apply to areas of landscape as a whole, or to the individual elements, features and aesthetic or perceptual dimensions which contribute to the character of the landscape...”

STAGE 4: VIEWPOINT ANALYSIS

16.20. To aid the assessment of landscape and in particular visual, receptors, a number of representative viewpoints have been visited, photographed and assessed. These have been identified following analysis of the potential visual influence of the proposals, site survey and liaison with the local authority. The final selection of viewpoints have been selected taking account of the following:

- The accessibility to the public;
- The potential number and sensitivity of viewers who may be affected;
- The viewing direction and/or distance;
- The nature of the viewing experience;
- The type and extent of view; and
- The potential for cumulative views.

16.21. The viewpoints selected include a variety of public viewpoints (with public access), transport routes, areas of landscape designation and landscape character areas. In no instance (unless specifically stated) have private views been included.

16.22. The Landscape Institutes (LI) guidance note (TGN 06-19) recommends that practitioners should justify their approach and utilise a methodology appropriate to the project. A good understanding of the options and early engagement with regulatory authorities can ensure that visualisations are prepared to an appropriate standard. The use of full frame sensor Digital Single-Lens Reflex (SLR) cameras is recommended for all visualisation types. The use of fixed focal length lenses of 50mm, 35mm/28mm, is also required to meet the guidance. Full-Frame Sensor (FFS) 50mm lenses should be used wherever possible. A good quality tripod is also recommended, together with panoramic head and leveller if Type 4 verified panoramic visualisations are to be prepared.

16.23. The guidance defines the preparation of different types of technical visualisations in a table, which are prepared as part of different planning applications. The guidance defines four main types of visualisation, and although there can be some overlap, these are:

- Type 1: Annotated Viewpoint Photographs (LVAs and LVIAs etc.);
- Type 2: 3D Wireline / 3D Model (including Dynamic Visualisations; Augmented and Virtual Reality);
- Type 3: Photomontage / Photo-wire (not survey scale verifiable); and
- Type 4: Photomontage / Photo-wire (survey/scale verifiable).

16.24. Where Type 3 and Type 4 photomontages or 'verified' views are presented in the assessment, the methodology for their production is provided separately.

STAGE 5: MITIGATION

16.25. Mitigation measures seek to avoid, reduce or compensate for any adverse landscape or visual effects resulting from the development proposals. Mitigation measures are considered under two categories:

- Primary, or embedded, mitigation measures are those that are intrinsically part of the development proposals, such as the height, scale, massing, orientation and location of development, the nature of materials used or retention of existing 'inherent' landscape features; and
- Secondary, or reduction, mitigation measures are designed to address remaining adverse effects (both significant and non-significant effects), and include proposals such as areas of new planting to filter views towards the development or new hedgerows to compensate for those lost.

16.26. Recommendations for mitigation and enhancement measures are fed into the design process following the baseline studies and the identification of landscape and visual receptors. This early stage involvement of the landscape practitioner ensures that the proposals which come forward have taken account of the most important landscape and/or visual constraints within the wider landscape.

16.27. Enhancement is a separate issue to mitigation and involves the identification of measures which can positively contribute to the landscape or to visual amenity. For example, restoring or reconstructing local landscape character, improving the management of new and existing landscape fabric or the removal of landscape detractors.

STAGE 6: LANDSCAPE ASSESSMENT

16.28. The assessment of effects on landscape draws on the description of the development, the landscape context and the visibility and viewpoint analysis, and considers whether the Proposed Development is likely to have a significant beneficial or adverse effect on landscape fabric, the character of the landscape units and the special characteristics of any landscape designations in the study area such that their ability to fulfil their purposes is likely to be compromised.

Effects on Landscape Fabric

16.29. Landscape fabric is composed of the physical components of the landscape. Developments can bring about both direct and indirect effects on landscape fabric. Direct effects occur where changes to the fabric of the landscape arise as the result of physical disturbance; for example, the loss of landscape elements such as hedgerows, walls and trees. Indirect effects are consequential changes that are separated from the source of the change in a temporal or spatial manner; for example changes in vegetation downstream as the result of modifications to surface water patterns in a catchment area.

16.30. The assessment of effects on landscape fabric considers the existing landscape fabric of the site and the predicted losses and gains to landscape fabric as a result of the development, and makes a judgement as to whether there is likely to be a significant beneficial, adverse or neutral change to landscape fabric.

16.31. Significant beneficial effects on landscape fabric could occur where important/mature/diverse/distinctive components, which had previously been lost or degraded as the result of agricultural operations or other development, will be added, reinstated or improved. Significant adverse effects on landscape fabric could occur where important/mature/diverse/distinctive components will be permanently lost and the effect cannot be adequately mitigated.

Effects on Landscape Character

16.32. In order to reach an understanding of the effects of development on landscape character, it is necessary to consider the different aspects of the landscape, and how these interact to create landscape character. These aspects are as follows:

- Elements: The individual elements that make up the landscape, including prominent or eye-catching features such as hills, valleys, woods, trees and hedges, ponds, buildings and roads. They are generally quantifiable and can be easily described;
- Characteristics: Elements or combinations of elements that make up a particular contribution to the character of an area, including experiential characteristics such as tranquillity and wildness; and
- Character: The distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape and how this is perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement. It creates the particular sense of place of different areas of the landscape. Character is identified through the process of characterisation, which evaluates the landscape as a resource in its own right and identifies geographical areas of similar character.

Assessment of Landscape Effects

16.33. The assessment of effects includes a combination of objective and subjective judgements. The development proposals are assessed against the baseline information to enable an evaluation of the effects that would occur upon the existing landscape resource.

16.34. Typically, the landscape receptors identified in the assessment are likely to include:

- Site landscape fabric;
- The landscape character of the site and local context through an assessment of the effects of the proposals on the key characteristics of the landscape identified in the baseline assessment and site visit;
- The 'host' character of the landscape character area/unit in the published landscape character assessment;
- Non-'host' landscape character areas surrounding the host character area and may be affected by the proposals (where relevant); and
- The character of any local or national landscape designations (where relevant) through an assessment of the likely effects on the published key characteristics or special qualities.

16.35. The landscape effects are defined as the result of the interaction between the sensitivity of the landscape receptor and the magnitude of change predicted for that receptor.

Sensitivity of the Landscape Resource

16.36. A number of factors influence professional judgement when assessing the degree to which a particular landscape receptor can accommodate change arising from a particular development. Sensitivity is made up of judgements about the value attached to the receptor determined at baseline stage (paragraph 5.19 of the GLVIA) and the susceptibility of the receptor to the type of change arising from the development proposal.

16.37. A location may have different levels of sensitivity according to the types of receptors at that location and any one receptor type may be accorded different levels of sensitivity at different locations e.g. due to differences in value or susceptibility to change.

Susceptibility to Change for Landscape Receptors

16.38. The susceptibility of a landscape receptor relates to the ability of the receptor to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies as defined within the Local Development Plan or landscape character assessments.

16.39. It is important when considering susceptibility that heed is taken of the type of development proposed i.e. intrinsic or inherent sensitivity (such as is commonly indicated within published sensitivity in capacity assessments) cannot reliably inform the identification of susceptibility as they are carried out without any reference to the particular type of development proposed. Judgements about the susceptibility of landscape receptors within this assessment are provided on a verbal scale as indicated in the table below.

Susceptibility to Change Criteria for Landscape Receptors

Category	Landscape Receptor Criteria
Very High	Strong/distinctive landscape elements/aesthetic/perceptual aspects; absence of landscape detractors; landscape receptors in excellent condition. Landscapes with clear and widely recognised cultural value. Landscapes with a high level of tranquillity.
High	Many distinctive landscape elements/aesthetic/perceptual aspects; very few landscape detractors; landscape receptors in good condition. The landscape has a low capacity for change as a result of potential changes to defining character.
Medium	Some distinctive landscape elements/aesthetic/perceptual aspects; few landscape detractors; landscape receptors in fair condition. Landscape is able to accommodate some change as a result.
Low	Few distinctive landscape elements/aesthetic/perceptual aspects; presence of landscape detractors; landscape receptors in poor condition. Landscape is able to accommodate large amounts of change without changing these characteristics fundamentally.
Very Low	Absence of distinctive landscape elements/aesthetic/perceptual aspects; presence of many landscape detractors; landscape receptors in very poor condition. As such landscape is able to accommodate considerable change.

Value of Landscape Receptors

16.40. The value attached to the landscape receptors within the assessment will cover the following:

- The value of the landscape character types or areas that might be affected by the development, based upon review of any designations at both national and local levels, and, where there are no designations, judgements based on criteria that can be used to establish landscape value; and
- The value of individual contributors to landscape character, especially the key characteristics, which may include individual elements of the landscape, in particular landscape features, notable aesthetic, perceptual

or experiential qualities, and combinations of these contributors.

16.41. The potential information/designations that will contribute to understanding value is summarised below, with reference to paragraph 5.20 of the GLVIA:

- Statutory designations e.g. National Parks, National Scenic Areas, Areas of Outstanding Natural Beauty;
- Heritage Coasts;
- Conservation areas, listed buildings, Tree Preservation Orders, important hedgerows, scheduled monuments, historic gardens and battlefields;
- Local landscape designations in Development Plans;
- Local/community interests e.g. local green spaces, village greens and allotments; and
- Art and literature including e.g. tourism literature or specially promoted views.

16.42. In the absence of existing evidence to indicate value, it is advised that new survey and analysis may be needed to establish landscape value. The range of factors that can help in the identification of valued landscape are listed at paragraph 5.28 of the GLVIA and summarised below and defined in the glossary:

- Landscape condition/quality;
- Scenic quality;
- Rarity;
- Representativeness;
- Conservation Interests;
- Recreational value;
- Perceptual aspects e.g. wildness and/or tranquillity; and
- Associations.

16.43. The table below provides an indication of the criteria by which the value of a landscape receptor is judged within this assessment.

Landscape Value Criteria for Landscape Receptors

Category	Landscape Receptor Criteria
Very High	Nationally/Internationally designated/valued countryside and landscape features; strong/distinctive landscape characteristics; absence of landscape detractors.
High	Locally designated/valued countryside (e.g. Areas of High Landscape Value, Regional Scenic Areas) and landscape features; many distinctive landscape characteristics; very few landscape detractors.
Medium	Undesignated countryside and landscape features; some distinctive landscape characteristics; few landscape detractors.
Low	Undesignated countryside and landscape features; few distinctive landscape characteristics; presence of landscape detractors.
Very Low	Undesignated countryside and landscape features; absence of distinctive landscape characteristics; despoiled / degraded by the presence of many landscape detractors.

16.44. It is important to note that there can be complex relationships between landscape value and susceptibility to change, which are particularly important when considering development proposals near to designated landscapes. For example, an internationally, nationally or locally designated landscape does not automatically, or by definition, have high susceptibility to all types of change. Designated landscapes, by virtue of the characteristics of the landscape and/or the nature of the proposal, can have a low susceptibility to change.

Defining Overall Sensitivity

16.45. The overall sensitivity of any landscape receptor is determined by combining judgements of their susceptibility to the type of change or development proposed and the value attached to the landscape as set out at paragraph 5.39 of GLVIA 3rd Edition (2013). For example a high susceptibility to change and a low value may result in a medium overall sensitivity. A degree of professional judgement will always apply in arriving at the overall sensitivity for landscape receptors, and a five point word scale is used to define this – Very High, High, Medium, Low and Very Low – this reflecting the definition used for value and susceptibility individually.

Magnitude of Change

16.46. The magnitude of change is determined through a range of considerations particular to each effect receptor and effect. In line with the GLVIA, the three main attributes considered are:

- Scale of Change
- Geographical Extent; and
- Duration and Reversibility.

16.47. Scale of Change: The considerations set out at paragraph 5.49 of the GLVIA are summarised as follows:

- The extent of any existing landscape fabric elements lost including the proportion of the total extent that this represents and the contribution of that element to the character of the landscape;
- The degree to which aesthetic or perceptual aspects of the landscape are altered by removal of features e.g. hedgerows and/or the introduction of new features e.g. buildings; and
- Consideration of whether the effect changes the key characteristics of the landscape which are critical to its distinctive character.

16.48. The table below provides an indication of the criteria by which the size/scale of change at a landscape receptor is judged within this assessment.

Scale of Change Criteria for Landscape Receptors

Category	Landscape Receptor Criteria
Very High	Total loss of or major alteration to key elements/features/characteristics of the baseline condition. Addition of elements which strongly conflict with the key characteristics of the existing landscape.
High	Notable loss or alteration to one or more key elements/features/characteristics of the baseline condition. Addition of elements that are prominent and may conflict with the key characteristics of the existing landscape.
Medium	Partial loss or alteration to one or more key elements/features/characteristics of the baseline condition. Addition of elements that may be evident but do not necessarily conflict with the key characteristics of the existing landscape.
Low	Minor loss or alteration to one or more key elements/features/characteristics of the baseline landscape. Addition of elements that may not be uncharacteristic within the existing landscape.
Very Low	Barely discernible loss or alteration to key elements/features/characteristics of the baseline landscape. Addition of elements not uncharacteristic within the existing landscape.

16.49. Geographical Extent: This is distinct from the size or scale of effect and a range of scales that typically apply are listed below:

- Large scale effects influencing several landscape types or character areas;
- Effects at the scale of the landscape type or character areas within which the proposal lies;
- Effects within the immediate landscape setting of the site;
- Effects at the site level (within the development site itself); and

- Effects only experienced on parts of the site at a very localised level.

16.50. The table below provides an indication of the criteria by which the geographical extent of the area will be affected within this assessment for landscape receptors.

Geographical Extent Criteria for Landscape Receptors

Landscape Receptors
Large scale effects influencing several landscape types or character areas
Effects at the scale of the landscape type or character areas within which the proposal lies
Effects within the immediate landscape setting of the site
Effects at the site level (within the development site itself)
Effects only experienced on parts of the site at a very localised level

16.51. Duration and reversibility are separate but linked considerations. Duration is judged according to the defined terms set out in below. Reversibility is a judgement about the prospects and practicality of the particular effect being reversed in, for example, a generation. The categories used in this assessment are set out below.

Duration:

- Long term (20 years+);
- Medium to long term (10 to 20 years);
- Medium term (5 to 10 years);
- Short term (1 year to 5 years); and
- Temporary (less than 12 months).

Reversibility:

- Permanent with unlikely restoration to original state e.g. major road corridor, power station, urban extension etc.;
- Permanent with possible conversion to original state e.g. agricultural buildings, retail units;
- Partially reversible to a different state e.g. mineral workings;
- Reversible after decommissioning to a similar original state e.g. wind energy development; and
- Quickly reversible e.g. temporary structures.

Defining Overall Magnitude of Change

16.52. The overall magnitude of change experienced by landscape receptor is determined by combining judgements of their scale of change, the geographical extent of any change and the duration and/or reversibility of that change. For example a high scale of change experienced for a short period and over a small geographical extent may result in a medium overall magnitude of change. A degree of professional judgement will always apply in arriving at the overall magnitude of change for landscape receptors, and a five point word scale is used to define this – Very High, High, Medium, Low and Very Low – this reflecting the definition used for scale of change.

Defining Landscape Effects

16.53. To define the significance of an effect, the separate judgements about the sensitivity of the receptors and the magnitude of change at those receptors need to be combined to allow a final judgement to be made about whether each effect is significant in terms of the EIA Regulations, or not. This is undertaken within this assessment, in the first instance, using a matrix which combines the two facets to determine a level of effect. Further professional judgement is applied, relevant to the development and its location, to finalise the level of effects and thus its significance.

STAGE 7: ASSESSMENT OF VISUAL EFFECTS

16.54. The visual amenity assessment is often informed by the preparation of a Zone of Theoretical Visibility (ZTV) using a Geographical Information System (GIS). This typically uses only landform data (of various resolutions) to assess the theoretical visibility of the development proposals. In reality, vegetation and built form substantially reduce the locations from where the proposals are visible; however the ZTV is a useful starting point to inform the field assessment.

16.55. The field assessment identifies locations and routes from where the proposals can be seen, taking into account the effects of built form and vegetation to establish the primary zone of visibility. The assessment may consider 'average' conditions and 'worst-case' conditions, the latter being when leaf-cover is minimal. Where visual assessments cannot be undertaken in the winter months due to the project programme, the assessment will state any limitations this is considered to have on the certainty with which the assessment can be undertaken.

16.56. The assessment of effects is aided through consideration of a representative selection of viewpoints from where principal receptors may obtain clear views of the Proposed Development. The viewpoints selected typically represent specific locations from where the maximum visibility of the proposals is available in the local area. As a result of the selection of only viewpoints in which the Proposed Development will be visible and those where it is most conspicuous, there will be a tendency to overstate the true extent of visibility of the development and its effects on visual amenity.

Identifying Visual Receptors

16.57. The locations and types of visual receptors within the defined study areas are identified from Ordnance Survey maps and other published information (such as walking guides), from fieldwork observations and from information provided during the consultation process.

16.58. The selected viewpoints provided within the report will be agreed through consultation with the Local Planning Authority, where possible and practical. They will illustrate clear views of the development from locations within the study area which typically cover a range of:

- Designated landscapes (where present);
- Landscape character areas/ types;
- Distances and orientations from the proposals; and
- Receptor types.

16.59. A typical range of receptors and the locations and activities that they may be undertaking is provided in the table below. As shown, these are grouped into primarily two, but sometimes three, main receptor groups (zonal, linear route and marine-based receptors) whose location and activities influence the way that they experience the landscape and views.

Typical Visual Receptors

	Receptor type	Typical Locations	Activities
Zonal	Residents	Residential properties, farmsteads, settlements and towns	Enjoying views from within the curtilage of their properties, from windows, driveways and gardens
	Walkers, cyclists, horse riders	Open access areas	For exercise and to enjoy the landscape and views
	Motorists, walkers, cyclists and horse riders	Scenic vantage points	Stopping a journey to enjoy the view
	People at leisure (outdoors) e.g. golfers, fishermen, campers, bathers	Golf courses, fishing lakes, recreational grounds, picnic sites, camping and caravan sites, holiday villages	Playing golf, fishing or other outdoor sports, picnicking, camping and caravan holidays
	People at work (outdoors)	Farms, mineral extraction sites, waste disposal sites	Working but with views of surroundings
	People at leisure (indoors)	Indoor recreational centres, cinemas	Indoor sports and leisure activities with few views of surroundings
	People at work (indoors)	Offices, business parks, industrial estates	Working with few views of surroundings
	Ferry, rail and air travellers	At ferry terminals, railway stations and airports	Waiting to catch their chosen mode of transport
Linear	Walkers, cyclists and horse riders	On footpaths, cycle routes, bridleways and other public rights of way	Travelling at a steady pace with ample opportunity to enjoy the specific qualities of the landscape
	Motorcyclists, motorists and passengers	On motorways, A- B class roads, minor roads and tracks	Travelling at various speeds, depending on the class of road and driver, with views of surroundings
	Rail and air travellers	On trains and aeroplanes	Travelling at various speeds and with various views
Marine-based	Recreational water users, e.g. swimmers, surfers, sailors	Moving around the inshore waters	Swimming, surfing, skiing, sailing, fishing, with views
	Passengers, e.g. ferry & cruise ships	On ferry and shipping routes	Passage-making, with views
	Commercial shipping and fishing	On shipping routes	Passage-making, limited views

Visual Receptor Sensitivity

16.60. Factors which influence professional judgment when assessing the degree to which a particular view can accommodate change arising from a particular development, without detrimental effects would typically include judgements about the susceptibility of visual receptors to change and the value attached to views.

16.61. Judgements of susceptibility of visual receptors to change is 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 therefore be focussed on the views and the visual amenity they experience at particular locations.

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16.62. Judgements of value attached to views take into account recognition of the value attached to particular views e.g. heritage assets or through planning designations and indicators of the value attached to views by visitors e.g. guidebooks, tourists maps and interpretative material.

16.63. The table below provides an indication of the criteria by which both the susceptibility and value are combined to define the overall sensitivity of visual receptors:

Overall Sensitivity Criteria for Visual Receptors

Category	Visual Receptor Criteria
Very High	<p>Designed view (which may be to or from a recognised heritage asset or other important viewpoint), or where views of the surroundings are an important contributor to the experience. Key promoted viewpoint e.g. interpretative signs. References in literature and art and/or guidebooks tourist maps. Protected view recognised in planning policy designation.</p> <p>Examples may include views from residential properties, especially from rooms normally occupied in waking or daylight hours; national public rights of way e.g. National Trails and nationally designated countryside/landscape features with public access which people might visit purely to experience the view; and visitors to heritage assets of national importance.</p>
High	<p>View of clear value but may not be formally recognised e.g. framed view of high scenic value, or destination hill summits. It may also be inferred that the view is likely to have value e.g. to local residents.</p> <p>Examples may include views from recreational receptors where there is some appreciation of the landscape e.g. golf and fishing; local public rights of way, access land and National Trust land, also panoramic viewpoints marked on maps; road routes promoted in tourist guides for their scenic value.</p>
Medium	<p>View is not promoted or recorded in any published sources and may be typical of the views experienced from a given receptor.</p> <p>Examples may include people engaged in outdoor sport other than appreciation of the landscape e.g. football and rugby or road users on minor routes passing through rural or scenic areas.</p>
Low	<p>View of clearly lesser value than similar views experienced from nearby visual receptors that may be more accessible.</p> <p>Examples may include road users on main road routes (motorways/A roads) and users of rail routes or people at their place of work (where the place of work may be in a sensitive location). Also views from commercial buildings where views of the surrounding landscape may have some limited importance.</p>
Very Low	<p>View affected by many landscape detractors and unlikely to be valued.</p> <p>Examples may include people at their place of work, indoor recreational or leisure facilities or other locations where views of the wider landscape have little or no importance.</p>

Magnitude of Change

16.64. The magnitude of the change to a view is a judgement based on a series of parameters, listed below. A professional judgement of the magnitude of change is reached by fieldwork observation, which can be supported by cross sections and computer-generated visualisations and/or 3D models, where appropriate. Magnitude is determined by evaluating the following parameters:

- Size or scale, taking into account change with respect to loss or additions of features in the view and changes in its composition, including the proportion of the view occupied by the proposals. In addition the degree of contrast or integration with any new features or changes in the landscape in terms of form, scale and mass,

line, height, colour and texture are considered. Finally the nature of the view is considered e.g. full, partial or glimpsed;

- Geographical extent will vary with different viewpoints and is likely to reflect the angle of view in relation to the main activity of the receptor; the distance of the viewpoint from the Proposed Development and the extent of the area over which the changes would be visible; and
- Duration and reversibility of visual effects as set out for the landscape effects above.

16.65. For the visual receptors identified, the factors above are examined independently and the findings judged in accordance with the indicative categories below in the tables.

Scale of Change Criteria for Visual Receptors

Category	Visual Receptor Criteria
Very High	There would be a substantial change to the baseline, with the Proposed Development creating a new focus and having a defining influence on the view.
High	The Proposed Development will be clearly noticeable and the view would be fundamentally altered by its presence.
Medium	The Proposed Development will form a new and recognisable element within the view which is likely to be recognised by the receptor.
Low	The Proposed Development will form a minor constituent of the view being partially visible or at sufficient distance to be a small component.
Very Low	The Proposed Development will form a barely noticeable component of the view, and the view whilst slightly altered would be similar to the baseline situation.

16.66. The table below provides an indication of the criteria by which the geographical extent of the area will be affected within this assessment.

Geographical Extent Criteria for Visual Receptors

Visual Receptor Criteria
Direct views at close range with changes over a wide horizontal and vertical extent.
Direct or oblique views at close range with changes over a notable horizontal and/or vertical extent.
Direct or oblique views at medium range with a moderate horizontal and/or vertical extent of the view affected.
Oblique views at medium or long range with a small horizontal/vertical extent of the view affected.
Long range views with a negligible part of the view affected.

Defining Visual Effects

16.67. The assessment of effects on visual amenity draws on the predicted effects of the development, the landscape and visual context, and the visibility and viewpoint analyses, and considers the significance of the overall effects of the Proposed Development on the visual amenity of the main visual receptor types in the study area.

16.68. To define the significance of an effect, the separate judgements about the sensitivity of the receptors and the magnitude of change at those receptors need to be combined to allow a final judgement to be made about whether each effect is significant in terms of the EIA Regulations, or not. This is undertaken within this assessment, in the first instance, using a matrix which combines the two facets to determine a level of effect. Further professional judgement is applied, relevant to the development and its location, to finalise the level of effects and thus its significance.

STAGE 6, 7 AND 8: SIGNIFICANCE OF LANDSCAPE AND VISUAL EFFECTS

16.69. The purpose of the assessment process is to identify the significant environmental effects (both beneficial and adverse) of the development proposals. For proposals subject to a full EIA, Schedule 4 to the EIA Regulations specifies the information to be included in all environmental statements, which should include a description of:

"The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development."

16.70. In order to consider the likely significance of any effect, the sensitivity of each receptor is combined with the predicted magnitude of change to determine the significance of effect, with reference also made to the geographical extent, duration and reversibility of the effect within the assessment. Having taken such a wide range of factors into account when assessing sensitivity and magnitude at each receptor, the significance of effect can be derived by combining the sensitivity and magnitude in accordance with the matrix in the table below.

Significance Matrix for Landscape and Visual Effects

Overall Sensitivity	Overall Magnitude of Change				
	Very High	High	Medium	Low	Very Low
Very High	Substantial	Major	Major/ Moderate	Moderate	Moderate/ Minor
High	Major	Major/ Moderate	Moderate	Moderate/ Minor	Minor
Medium	Major/ Moderate	Moderate	Moderate/ Minor	Minor	Minor/ Negligible
Low	Moderate	Moderate/ Minor	Minor	Minor/ Negligible	Negligible
Very Low	Moderate/ Minor	Minor	Minor/ Negligible	Negligible	Negligible/ None

16.71. Each effect is described and evaluated individually through the integration of all of the relevant factors and assessed as either significant or not significant. For landscape and visual effects, those effects identified at a substantial, major, major/moderate or moderate level (shaded grey in the table above) are generally considered to be significant and those effects assessed at a moderate/minor, minor, minor/negligible or negligible level are considered to be not significant.

16.72. In certain cases, where additional factors may arise, a further degree of professional judgement may be applied when determining whether the overall change in the view will be significant or not and, where this occurs, this is explained in the assessment.

Definition of Effect

16.73. Taking into account the levels of effect described above, and with regard to effects being either adverse or beneficial, the following table represents a description of the range of effects likely at any one receptor.

Definition of Effect

Effect	Definition
Substantial	Effects which are in complete variance to the baseline landscape resource or visual amenity.
Major	Effects which result in noticeable and fundamental alterations to the landscape resource or visual amenity.

Effect	Definition
Moderate	Effects which result in noticeable but non-fundamental alterations to the baseline landscape resource or visual amenity.
Minor	Effects which result in slight alterations to the landscape resource or visual amenity.
Negligible	Effects which result in barely perceptible alterations to the landscape resource or visual amenity.
None	No detectable alterations to the landscape resource or visual amenity.

Nature of Effect

16.74. It is a requirement of the EIA Regulations to state whether effects are adverse, beneficial or neutral. The landscape effects will be considered against the landscape baseline, which includes published landscape strategies or policies if they exist.

16.75. Visual effects are more subjective as people's perception of development varies through the spectrum of negative, neutral and positive attitudes. In the assessment of visual effects the assessor will exercise objective professional judgement in assessing the significance of effects and will assume, unless otherwise stated, that all effects are adverse, thus representing the worst-case scenario.

STAGE 9: CUMULATIVE EFFECTS ASSESSMENT

16.76. Cumulative effects result from additional changes to the landscape or visual amenity caused by the Proposed Development in conjunction with other developments in the study area. The separate effects of the proposals may not be significant; however, together they may create a significant effect.

16.77. The schemes to be considered in the cumulative assessment can include the Proposed Development with other committed developments (i.e. operational, those that have already begun construction, those that have not been commenced but have a valid planning permission and those schemes which are in the planning process and details have been released by the planning authority).

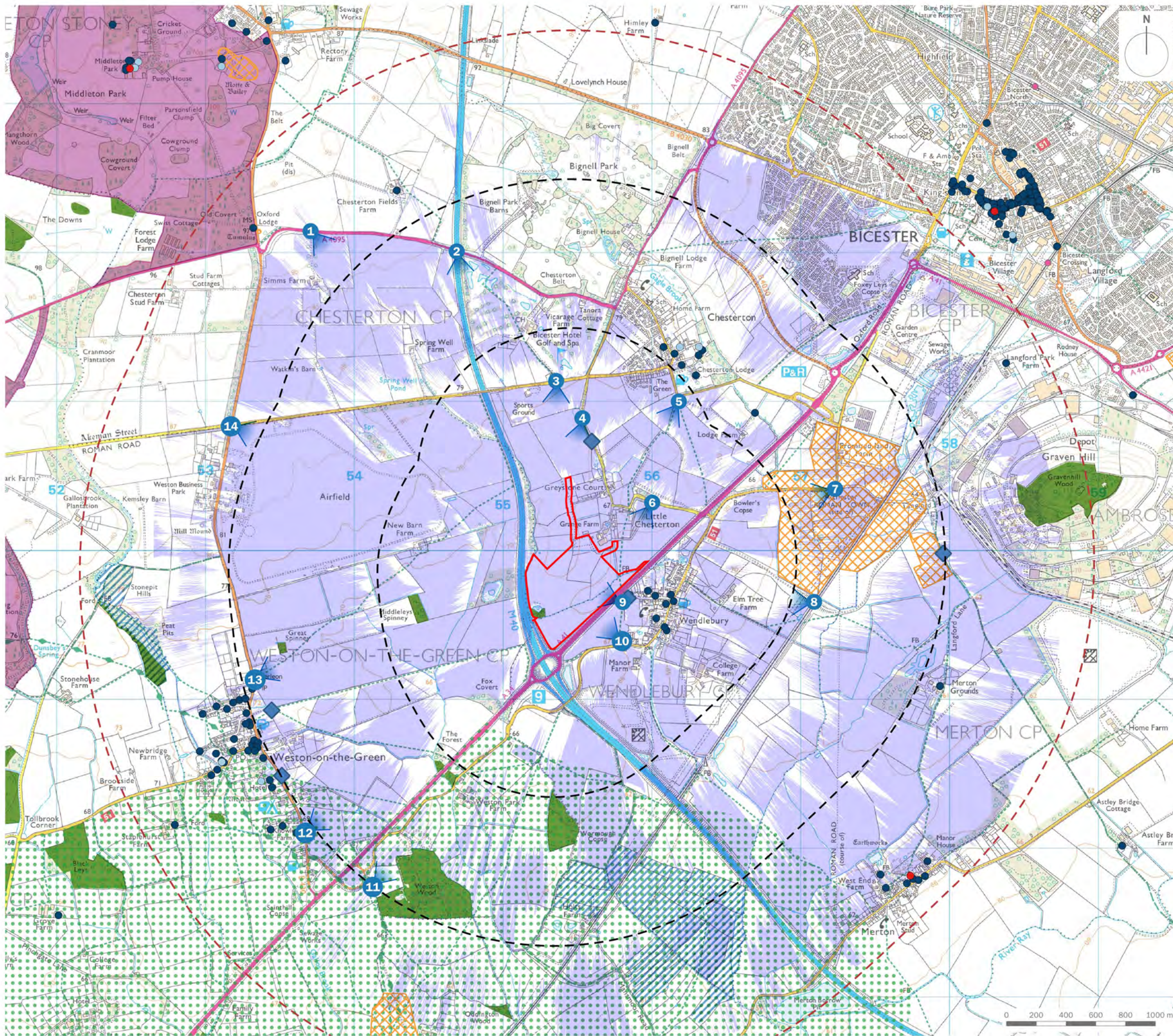
16.78. The potential assessment of cumulative effects repeats the assessment process set out above, but considers the potential change caused by all schemes identified for cumulative assessment.

16.79. Cumulative landscape character and visual effects would potentially occur when one or more development proposal in conjunction with the proposals are apparent in views from certain locations. Seen together (simultaneously) or one after the other on a linear route (sequentially) two or more development proposals may affect landscape character, valued landscapes, views and/or visual amenity.


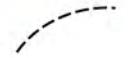








16.80. Other developments to be considered in the cumulative assessment are usually agreed in advance with the Local Planning Authority.






Appendix 4: Proposed LVIA viewpoint locations - edp2425_d002b



DRAFT

-  Site Boundary
-  Range Rings (at 1km intervals)
-  3km Detailed Study Area
-  Proposed Photoviewpoint Location
-  Recorded Views (Not included in scope)
-  Zone of Theoretical Visibility
-  Green Belt
-  Registered Parks and Gardens
-  Scheduled Monument
-  SSSI

Listed Buildings

-  I
-  II*
-  II

client
Tritax Symmetry

project title
Junction 9, M40, Bicester

drawing title
Proposed Viewpoint Locations for Consultation

date **24 JUNE 2021** drawn by **BC**
drawing number **edp2425_d002b** checked **BC**
scale **1:25,000 @ A3** QA



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