Appendix 3.2

EIA SCOPING REPORT

Quod

EIA Scoping Report

Land at Junction 10, M40

22 JUNE 2021

Q210325

Contents

1 Introduction

Purpose

1.1 The purpose of this report is to inform a request for an Environmental Impact Assessment (EIA) Scoping Opinion from Cherwell District Council ('CDC') in relation to Albion Land's (the 'Applicant') proposals for the redevelopment of land at Junction 10, M40, OX27 (the 'Site').

1.2 Outline permission, all matters reserved except access, is proposed to be sought for circa 280,000 square metres (sqm) Gross Internal Area (GIA) warehouse floorspace (B8 Use), along with vehicular access, circulation and open space (the 'Development'). Two outline planning applications will be submitted for the two parcels of land – eastern and western parcel.

1.3 This report sets out the findings of an EIA scoping study and accompanies a request for a Scoping Opinion submitted to the CDC in accordance with Regulation 15 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017[1] (as amended)[2,3] ('EIA Regulations'). In line with the EIA Regulations, this report identifies the Site location, provides a brief description of the nature and purpose of the Development and an explanation of the likely significant effects of the Development on the environment. The report also outlines the proposed content, approach, and scope of the Environmental Statement (ES) to be submitted with the outline planning application.

1.4 Figures 1.1 and 1.2 show the Site's location and the likely extent of the planning application. Brief descriptions of the Site and the Development are provided within Sections 2 and 3, respectively.

Figure 1.1: Site Location Plan

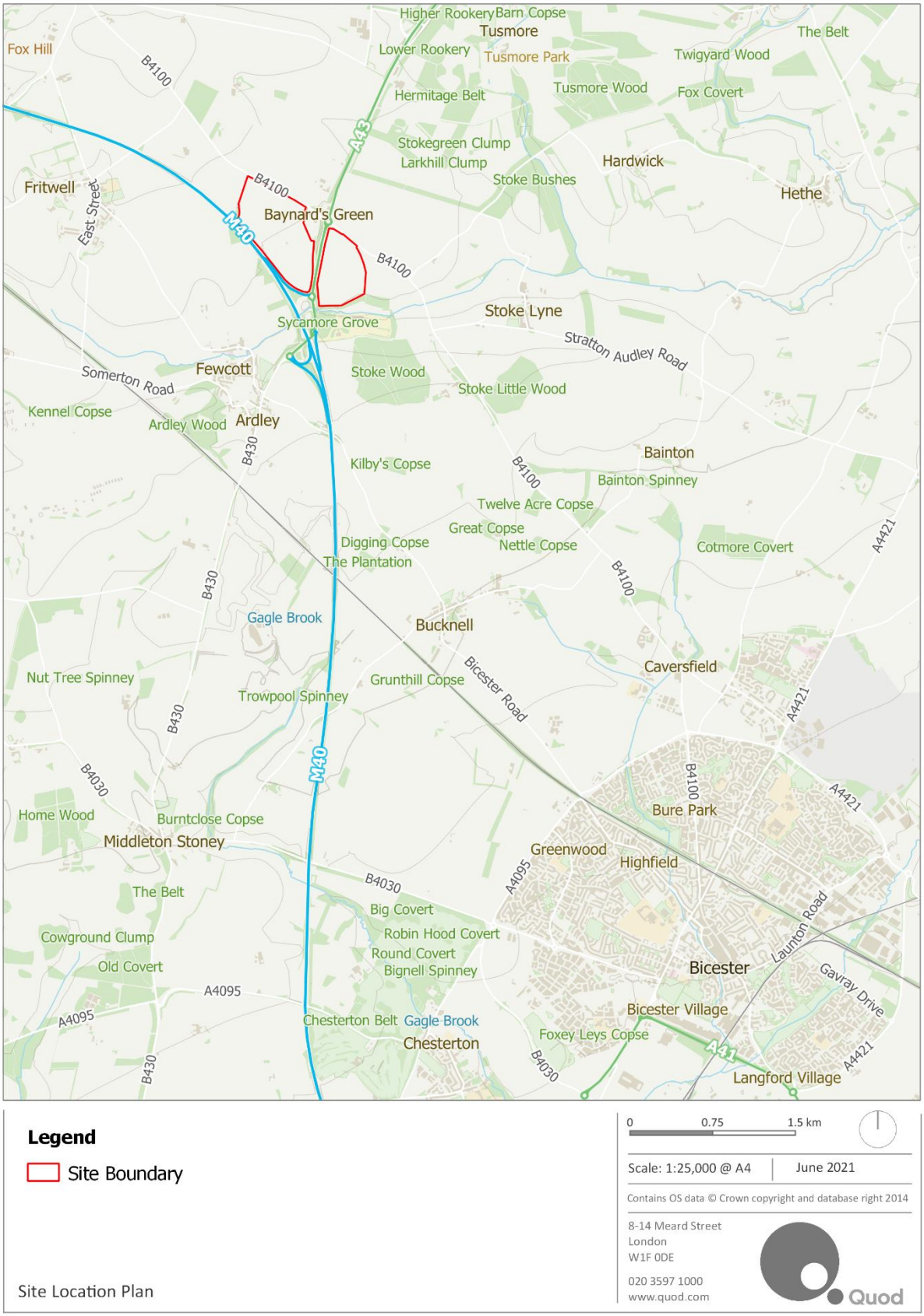


Figure 1.2: Indicative Planning Application Site Boundary

Planning and EIA Context

1.5 The Site comprises agricultural land and is unallocated in the Cherwell Local Plan 2016 - 2031[4] (the 'Local Plan'). The Site has therefore been considered to fall under 'Core Policy SLE1: Employment Development' of the Local Plan which relates to employment intended for B Class Uses (e.g. B1, B2 and B8). The Site is not subject to any extant or historic planning permissions.

1.6 The Development falls within Category 10(a) of Schedule 2 of the EIA Regulations, which is applicable to 'Industrial Estate Development Projects'. Due to the scale and nature of the Development, the Applicant has voluntarily commissioned an Environmental Impact Assessment (EIA) process. EIA is a systematic process that aims to prevent, reduce or offset the significant adverse environmental effects of development proposals and enhance beneficial effects. It ensures that planning decisions are made considering the likely significant environmental effects and with engagement from statutory bodies and other stakeholders including the public.

1.7 It should be noted that under the EIA Regulations, the ES will be required to be "based on" the Scoping Opinion provided by the CDC and will be prepared by competent experts (see below).

Project Team

1.8 In accordance with Regulation 18(5) of the EIA Regulations, it is confirmed that this Scoping Report has been prepared by competent experts from the organisations listed in Table 1.1. These specialists will also undertake the EIA and their relevant expertise and qualifications will be stated within the ES.

Table 1.1: EIA Project Team

Organisation	Role
Albion Land	Applicant
Cornish Architects	Architects
Tyler Grange	Landscape, Biodiversity, Arboriculture and Landscape and Visual Impact Assessment
Quod	Planning, EIA Coordinator and Socio-economics
RPS Group	Archaeology
David Tucker Associates	Transport and Access
Air Quality Consultants	Air Quality
Noise Consultants	Noise and Vibration
Light Planning and Design	Lighting
Troopers Hill	Verified Views
Askew Soils and Land	Agriculture, Land Use and Soils
Bailey Johnson Hayes	Water, Flood Risk and Drainage; Ground Conditions and Contamination

Organisation	Role
Engineering Consultancy Services	Energy and Sustainability
Ecolyse	Climate Change, Carbon and Greenhouse Gases

1.9 Quod will be the lead editor of the ES and author of non-technical chapters. Quod is a member of the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark Scheme, an accreditation scheme which sets high standards for EIA practice and demonstrates a commitment to excellence in EIA activities.

2 Site and Setting

Site Location, Extent and Description

2.1 Figures 1.1 and 1.2 show the Site's location and likely extent of the planning application. The Site is located approximately 6.5 km north west of Bicester and 1.2km north east of Ardley. The Site is comprised of two parcels of land, separated by the A43, that extend to approximately 66.63 hectares (ha) in total.

2.2 Both parcels of land predominantly comprise existing agricultural land, currently in use for arable farming. The fields have narrow tree belts around some of their perimeters. The Site also comprises bare ground, buildings, dry ditches, hedgerows (species-rich hedgerows, defunct species-poor hedgerows and hedgerows with trees), improved grassland, a waterbody (WB1), scattered trees, dense and scattered scrub, and tall ruderal vegetation.

2.3 The eastern parcel is the smaller of the two, extending to circa 23.18 ha. It is bound by the B4100, a single carriageway road which runs between Bicester and Banbury to the north; agricultural land to the east; a deciduous tree belt (designated as Priority Habitat) that acts as a buffer to Cherwell Valley service station complex (comprised of a services, Travelodge hotel and parking) to the south; and the A43, which runs between the M40 and the M1 at Northampton to the west.

2.4 The western parcel extends to circa 43.45 ha. It is bound by the B4100 to the north, the A43 to the east, the M40 to the south and agricultural land to the west; this neighbouring field includes an area of hardstanding adjacent to the south west corner of the Site. One farm building, used for storage, is located in the centre of this Site parcel. Three residential properties are located adjacent to but outwith the north east corner of the western Site parcel (including Baynard House), bound by the A43 and B4100 on other sides. Access to these properties is from the B4100.

2.5 Two Public Rights of Way (PRoWs) extend along the eastern and western boundaries of the western Site parcel (refs. 367/28/10 and 109/2/40). These are linked by a PRoW that extends south westerly across this Site parcel (ref. 105/5/10).

2.6 The area terrain falls some 15-17m north to south and circa 20m west to east, ranging between approximately 125m and 110m Above Ordnance Datum across the Site.

Surrounding Context

Land Uses

2.7 The Site is located in an area which is dominated by agricultural land, with sparsely located residential and commercial development. Baynard House, The Cottages and associated outbuildings, and Medkre are located outwith the north east corner of the western parcel.

2.8 The nearest settlement is Fewcott, approximately 750m south west of the Site boundary beyond the M40. The Moto Cherwell Valley motorway services and the Travelodge Bicester Cherwell Valley within the service station are located within 100m of the southern boundary of the eastern Site parcel, and an Esso service station (Baynards Green Service Station) is

located approx. 100m north of the Site boundary on the A43/B4100 roundabout junction. Baynards Green Farm, now converted to a commercial estate, is located immediately beyond the Esso service station; this contains a Grade II listed barn.

Transport and Access

2.9 Access to both the Site parcels is currently from the B4100 on the northern Site boundary. The B4100 connects to the A43 at a roundabout adjacent to the north of the Site boundary.

Environmental Sensitivities

2.10 Figure 2.1 identifies the key environmental sensitivities within and in close proximity to the Site.

2.11 The Site is not located within a 'sensitive area' (as defined in Part 1 of the EIA Regulations) (i.e. a Site of Special Scientific Interest (SSSI), National Park, Area of Outstanding Natural Beauty (AONB), World Heritage Site (WHS), Scheduled Monument or European Site[1]) and is not subject to any statutory or non-statutory designations for nature conservation or heritage. There are no WHS, Scheduled Monuments, Registered Parks and Gardens or Registered Battlefields within the Site or within 500m of the Site boundary.

2.12 There are no statutory or non-statutory ecological designations within 2km radius of the Site. The nearest designated site is Ardley Cutting and Quarry SSSI, located approximately 1.25km south of the Site boundary. A pocket of ancient woodland within Stoke Wood which also includes semi natural woodland is located 300m south of the eastern parcel. Tusmore Park, a historic parkland, is located 1km north east of the Site.

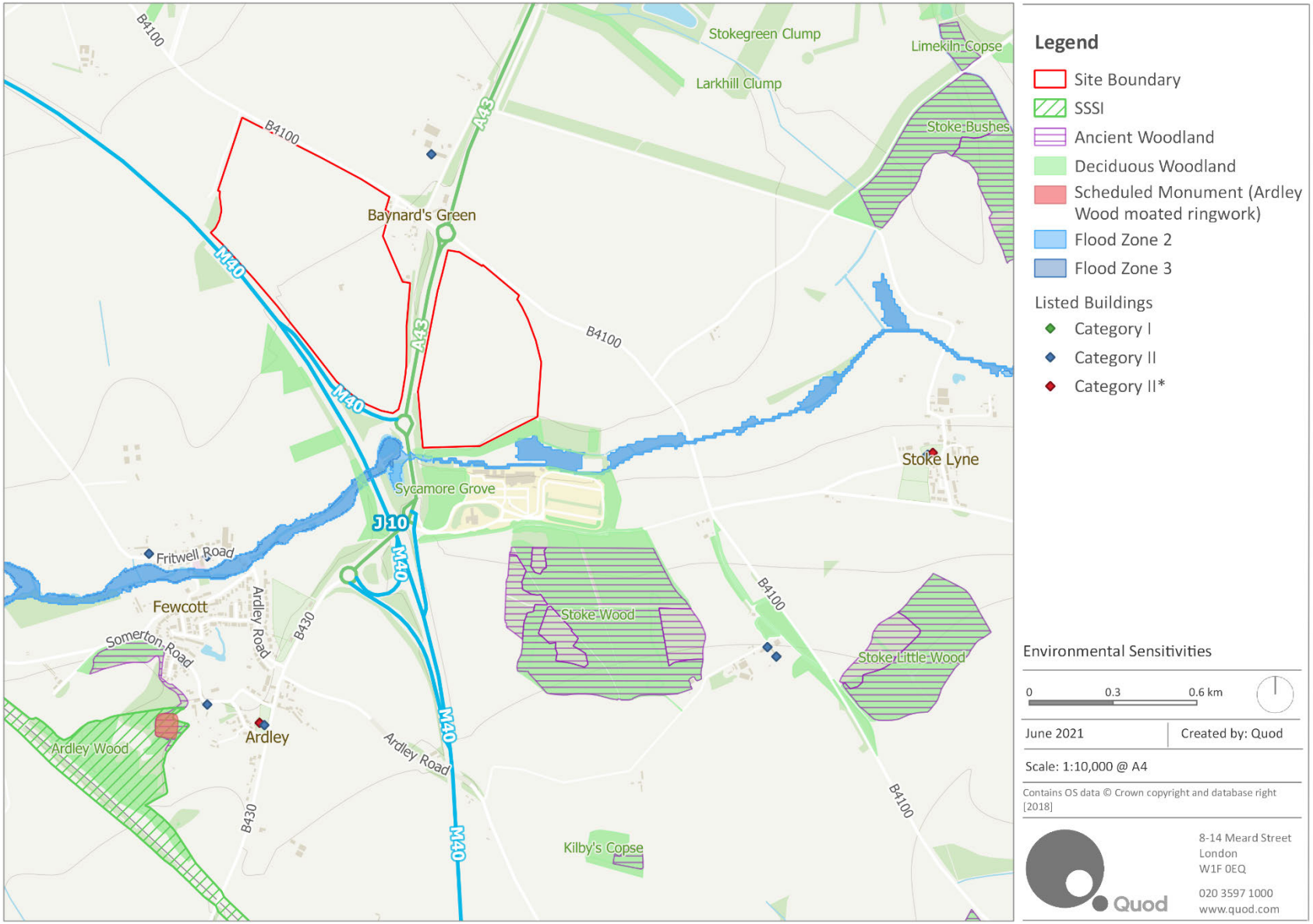
2.13 The western parcel boundary with the A43 is well-vegetated with an overgrown hedgerow boundary with some trees. Similarly, the north east boundary that is formed by the B4100, contains overgrown hedgerow with some trees. The western boundary comprises a native hedgerow. The east perimeter of the Site's eastern parcel comprises a native hedgerow field boundary with the southern boundary marked by a large tree belt, separating the Site from Cherwell Valley Services.

2.14 The Site is not located in an Area of Archaeological Potential and there are no statutory or non-statutory heritage designations on the Site, with the nearest built heritage asset being the Grade II listed barn at Baynards Green Farm located approximately 200m north of the Site. No other built heritage assets are located within 800m of the Site.

2.15 Based on the Environment Agency flood maps, the Site is shown to be located entirely within a Flood Zone 1. This means the Site is subject to a low risk of fluvial flooding (i.e. less than 1 in 1000-year annual probability). The majority of the Site is subject to a very low risk of flooding from surface water, although a localised area of land within the southern corner of the wester Site parcel is subject to a medium risk of flooding from surface water. The Site is not subject to a risk of flooding from reservoirs. The Site does not contain any surface waterbodies.

[1] As defined by the Conservation of Habitats and Species Regulations 2010.

Figure 2.1: Environmental Sensitivities



3 Description of the Development

Overview of the Application

3.1 The detailed Development proposals are still being finalised and will be developed following further technical analysis as part of the EIA process and in consultation with CDC, Oxfordshire County Council (OCC), Highways England and other stakeholders.

3.2 The planning application will comprise two outline applications (eastern and western parcel), with all matters reserved except for access. For the purposes of the EIA, the Development will be defined by a suite of Parameter Plans accompanied by the design principles set out in a Development Specification and Design Code.

3.3 The precise description of Development has not been finalised, however is likely to include construction of:

- Up to circa 280,000 sqm GIA warehouse floorspace (Use Class B8) across four units with a clear internal height of approximately 18m and a ridge height of approximately 22m (no basement proposed);
- Façade treatment likely to include a mix of flat panel composite and perforated aluminium cladding;
- Creation of vehicular and pedestrian Site accesses off the B4100;
- Internal roads, servicing, circulation and parking (approximately 1,400 car parking spaces);
- Hard and soft landscaping works; and
- Diversion of the existing public right of way.

3.4 Mitigation measures will be incorporated and designed into the Development to address the potential effects on the surrounding land uses. Technical design workshops are currently being undertaken as part of the EIA process to ensure that mitigation measures and enhancement opportunities are incorporated into the design parameters.

3.5 The Development will seek to retain habitats such as hedgerows where possible.

3.6 Scheme design will be influenced by market information from agents in due course. Subject to planning, an end-occupier has signed up to the Development.

Construction

3.7 At this stage, construction of the Development is expected to commence with enabling works in 2022, with construction expected to be complete in 2025. This represents a build out period of circa 3 years.

3.8 The Applicant has committed to undertaking construction works in line with a Construction Environmental Management Plan (CEMP) as a means of avoiding, reducing or mitigating potential adverse effects of construction on the environment and local community. The CEMP will be subject to approval by CDC and secured through an appropriate planning condition.

4 EIA Methodology

Introduction

4.1 The ES will be prepared in compliance with the EIA Regulations. Reference will also be made to current EIA good practice guidance. This section outlines the general approach to the EIA process.

Consultation and Scoping Opinion

4.2 A programme of consultation with key stakeholders will be undertaken with statutory and non-statutory consultees throughout the Development design and in the lead up to the planning application. Key stakeholders include CDC, OCC, Highways England, the Environment Agency (EA), Defra and Historic England.

4.3 In line with the EIA Regulations, the ES will be 'based on' the Scoping Opinion provided by CDC. Each ES topic chapter will set out key points made during scoping correspondence between the project team and stakeholders and will explain how these have been addressed by the EIA process.

Alternatives

4.4 In accordance with the EIA Regulations, the ES will provide *"a description of the reasonable alternatives…. relevant to the proposed project and its specific characteristics which have been considered by the Applicant and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*".

4.5 The ES will describe the reasonable alternatives to the Development which have been considered by the Applicant, including:

- The 'do-nothing' scenario - this will outline the consequences of no Development taking place and the Site remaining in its current form; and
- Alternative designs – for example, alternative building layouts, building heights and massing, together with the justification for the selection of the final design.

4.6 Alternative sites have not been considered by the Applicant and as such will not be considered in the ES.

EIA Methodology

Significant Effects and Scope of the EIA

4.7 As highlighted by the UK Government Online Planning Practice Guidance[5] (PPG), where considering the scope of EIAs, local planning authorities *"should limit the scope of the assessment to those aspects of the environment that are likely to be significantly affected"*.

4.8 With respect to identifying the likely significant environmental effects associated with the Development, consideration is given to potential effects associated with the construction phase and completed Development. These effects could be both beneficial and adverse and deemed to be 'significant' on the basis of:

- The value / importance of the resources and receptors that could be affected;
- The predicted magnitude of environmental change and / or impact experienced by these resources and receptors, accounting for their size, duration and spatial extent;
- The susceptibility or sensitivity of resources / receptors; and,
- Options for avoiding, reducing, offsetting or compensating for any potentially significant adverse effects and the likely effectiveness of such mitigation measures.

4.9 The proposed scope of the EIA has been defined through desktop study and surveys, a review of the emerging Development proposals and professional judgement from the consultant team.

4.10 Sections 5 to 12 set out those aspects of the environment that are likely to be significantly affected by the Development. Potential effects deemed to be non-significant within topics are also set out within these sections. Section 14 sets out those aspects of the environment that are unlikely to be significant and therefore will be scoped out of the ES.

Determining the Significance of Effects

4.11 Determining the significance of environmental effects is intended to inform decision making. The significance of effects will be determined by specialists with reference to subject-specific criteria or, if unavailable, generic assessment criteria for each environmental topic being considered. These criteria will apply a common terminology, classifying whether the effects are major, moderate or minor, as well as, adverse, negligible or beneficial, temporary or permanent, in line with standard practice.

Study Area

4.12 The study area for each topic will be based on the geographical scope of the potential for significant effects relevant to the topic or the information required to assess the likely effects, as well as topic-specific guidance and consultation with stakeholders. Further detail is provided in the technical sections (Sections 5-12).

Baseline and Future Baseline Conditions

4.13 Baseline environmental conditions need to be established to enable an accurate assessment of potential changes to such conditions that may occur and to assess the likely significant environmental effects of the Development. Understanding baseline conditions is also important for the identification of the most appropriate mitigation which could be employed to reduce any likely significant adverse effects.

4.14 Baseline conditions will be taken as the current conditions on the Site. Baseline information is already being gathered through desk-based research and Site surveys in 2021 to define and describe the existing environmental characteristics and receptors for each environmental topic that will be provided within the ES. Where environmental information and data is not available for 2021, it will be necessary to use data which pre-dates 2021. The ES will set out what year the baseline data is sourced from.

4.15 In addition to the current baseline conditions, the EIA Regulations require an outline of the likely evolution of the baseline condition without implementation of the Development, as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge (i.e. the 'future baseline'). The future baseline will also take into account other developments that will be built

out that may affect the Site. The future baseline conditions will be described in each chapter of the ES.

Construction Assessment

4.16 An indicative construction programme for the Development will be presented in the ES. This will include all aspects of the construction phase including site preparation, construction, fit-out and landscaping works.

4.17 The ES will outline the main activities associated with the construction works, together with the likely duration of each activity. Topics which have identified likely significant effects from construction activities are outlined in the following sections. The Applicant has committed to a CEMP, which will be subject to approval by CDC and secured through an appropriate planning condition. Mitigation measures for inclusion in the CEMP will be set out in the ES to avoid, reduce or mitigate potential adverse effects.

4.18 In line with Institute of Environmental Management and Assessment ('IEMA') best practice[6], the CEMP can be defined as 'tertiary' mitigation which is defined as that which *"will be required regardless of any EIA assessment, as it is imposed, for example, as a result of legislative requirements and/or standard sectoral practices. For example, considerate contractor practices that manage activities which have potential nuisance effects"*. As such, the CEMP is considered to be standard practice in the management of the construction works of the Development. The CEMP will be taken into account and form the basis of the assessment of likely significant effects. As such, any effects that might have arisen without this mitigation will not be identified as 'likely effects', as there should be no potential for them to arise. This should result in a simpler and more proportionate ES.

4.19 The assessment of construction effects will be based on an assumed 'peak year' of construction activity as a reasonable worst case, when volumes of construction vehicles and on-site activities are likely to be at their highest. At this stage, this assumed to be 2023 although this may be subject to change.

Completed Development Assessment

4.20 The likely significant effects of the completed Development will be assessed for the anticipated year of completion. Based on commencement of enabling works in 2022 and a delivery programme of approximately 3 years, the year of completion for the Development is assumed to be 2025. The assessment will assume that the Development is fully completed and occupied. Even though full occupation may not occur until later, this is unlikely to affect the likely significance of effects.

4.21 The completed Development assessment will be based on the Parameter Plans, Development Specification and Design Code submitted for approval with the planning application. The following assessment scenarios will be assessed within the technical assessments.

Table 4.1: Assessment Year and Scenarios

Assessment Year	Assessment Phase	Scenario Description
2020/2021	Baseline	Baseline conditions
2023	Construction	Peak construction year

Assessment Year	Assessment Phase	Scenario Description
2025	Future Baseline	Without Development
	Completed Development	With Development

Cumulative Effects Assessment

4.22 Cumulative effects can occur either when different effects from the Development interact to exacerbate effects on sensitive receptors ('effect interactions'), or, when the magnitude of an effect is exacerbated by other future neighbouring developments, thus creating a more significant effect on a receptor.

4.23 Further details on Effect Interactions is provided in Section 13 of this report.

4.24 The cumulative effects of the Development and other cumulative schemes in the local area is considered on a topic-by-topic basis with the cumulative assessment methodologies and the cumulative effects reported in a subsection of each ES chapter, along with mitigation measures where necessary.

4.25 A set of screening criteria has been developed to identify which cumulative schemes in the area should be subject to assessment, as follows:

- Expected to be built-out at the same time as the Development and with a defined planning and construction programme;
- Spatially linked to the development (within 1km of the Site boundary);
- Considered an EIA development and for which an ES has been submitted with the planning application;
- Those which have received planning consent from the planning authority (granted or resolution to grant) and / or,
- Introduces sensitive receptors near to the Site (but are not EIA development).

4.26 A planning search was undertaken considering the above criteria and through discussion with the project transport consultant. A hybrid planning application for a site at Heyford Park for construction of up to 1,175 new dwellings, 35,175m^2 employment space, retail floorspace and new medical and educational facilities (ref: 18/00825/HYBRID) is considered. The approved NW Bicester development for outline planning permission for the erection of up to 53,000 sqm of floor space to be for B1, B2 and B8 (use classes) employment and 150 residential units (ref: 14/01675/OUT as amended by NMA 19/00347/OUT and MMA 20/03199/OUT) is also identified. These will be included in the transport modelling due to the potential for cumulative traffic impacts, subject to agreement from OCC and Highways England, and has the potential for indirect implications for the air quality. The socio-economics assessment will consider the Heyford Park scheme given its location within the same ward, and the LVIA will also provide cumulative assessment of this development scheme given its proximity to the Site.

4.27 A scheme recently approved at appeal, referred to as 'Land to the east of M40 and south of A4095, Chesterton, Bicester, Oxfordshire' (appeal ref: APP/C3105/W/20/3259189) for the provision of a new leisure resort incorporating waterpark, family entertainment, hotel,

conferencing facilities and restaurants with associated access, parking and landscaping will be considered as part of the cumulative assessment going forward.

4.28 Figure 4.1 illustrates the cumulative schemes that will be considered in this assessment.

4.29 Following legal advice, the Oxfordshire Strategic Rail Freight Interchange (SRFI) proposal will not be considered within any cumulative assessments. The DCO proposal is at an early stage and cannot be reasonably considered to be "committed"[2], therefore there is no requirement to consider it for cumulative assessment purposes for the Development that targets submission end of August 2021. Engagement with SRFI developers is likely to ensure the Development is taken into account in the SRFI Scheme moving forwards.

4.30 It is not considered that the Development would have significant cumulative effects in relation to other emerging and consented schemes in the local area in respect of noise and vibration and archaeology. Cumulative assessment will not be provided for these topic assessments.

Structure of the ES Technical Chapters

4.31 Each environmental topic scoped into the EIA will be structured as set out in Appendix A.

Scoping Summary

4.32 This scoping exercise has been informed by desk-based research, physical surveys, professional judgement and other information available for the Site. Table 4.2 provides a summary of the scoping exercise.

4.33 In accordance with the EIA Regulations, all assessments will be prepared by consultants considered to have competent expertise in their discipline.

Table 4.2: EIA Scoping Summary

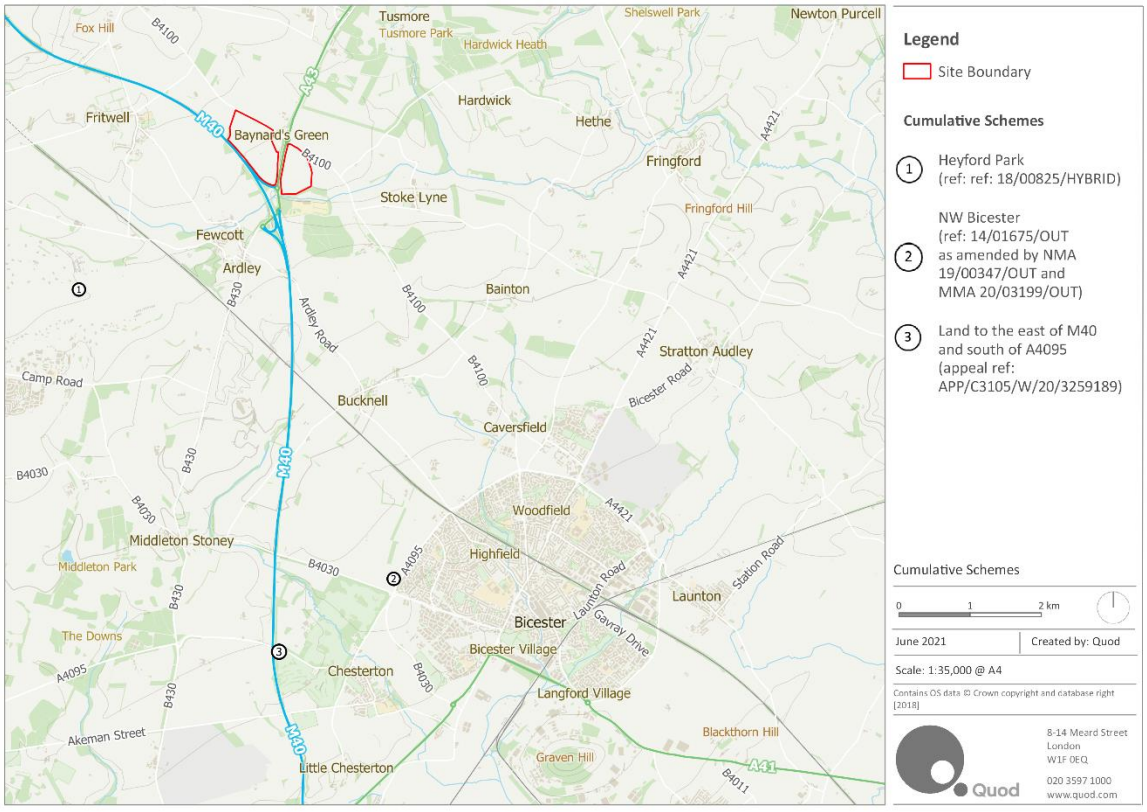
Technical Topics	Potential Significant Construction Effects	Potential Significant Operational Effects	Comments
Socio-economics	✓ - T	✓ - P	ES Chapters to be prepared
Transport and Access	✓ - T	✓ - P	
Air Quality	✓ - T	✓ - P	
Noise and Vibration	✓ - T	✓ - P	
Archaeology	✓ - P	x	
Ecology and Biodiversity	✓ - T & P	✓ - P	
Landscape and Visual Impacts	✓ - T	✓ - P	
Climate Change and Greenhouse Gases	✓ - T	✓ - P	
Human Health	x	x	Topics scoped
Water Resources, Flood Risk & Drainage	x	x	

[2] As defined by the Town and Country Planning (EIA) Regulations (2017): Schedule 4, Regulation 5e.

Technical Topics	Potential Significant Construction Effects	Potential Significant Operational Effects	Comments
Built Heritage	x	x	out of the ES
Ground Conditions and Contamination	x	x	
Agriculture, Land and Soils	x	x	
Waste	x	x	
Wind Microclimate	x	x	
Vulnerability to Major Accidents or Disasters	x	x	
Energy and Sustainability	x	x	
Utilities	x	x	
Light Pollution	x	x	
Daylight, Sunlight and Overshadowing (DSO) and Solar Glare	x	x	
Telecommunications	x	x	
Electromagnetic Fields	x	x	

Key: ✓ Likely Significant Effect / x No Likely Significant Effect. T – Temporary Effect / P – Permanent Effect

Figure 4.1: Cumulative schemes



5 Socio-Economics

Study Area and Spatial Scope

5.1 The Site is located within Fringford and Heyfords ward within the administrate area of CDC.

5.2 The baseline assessment will consider relevant social and economic conditions for the Local Area (defined as 'Fringford and Heyfords ward') which will be put into context against the wider district (CDC), county (Oxfordshire) and regional profile.

Baseline Conditions

5.3 The Site is currently in agricultural use. At present there are limited employment opportunities on the Site, restricted to the current agricultural activities on the land.

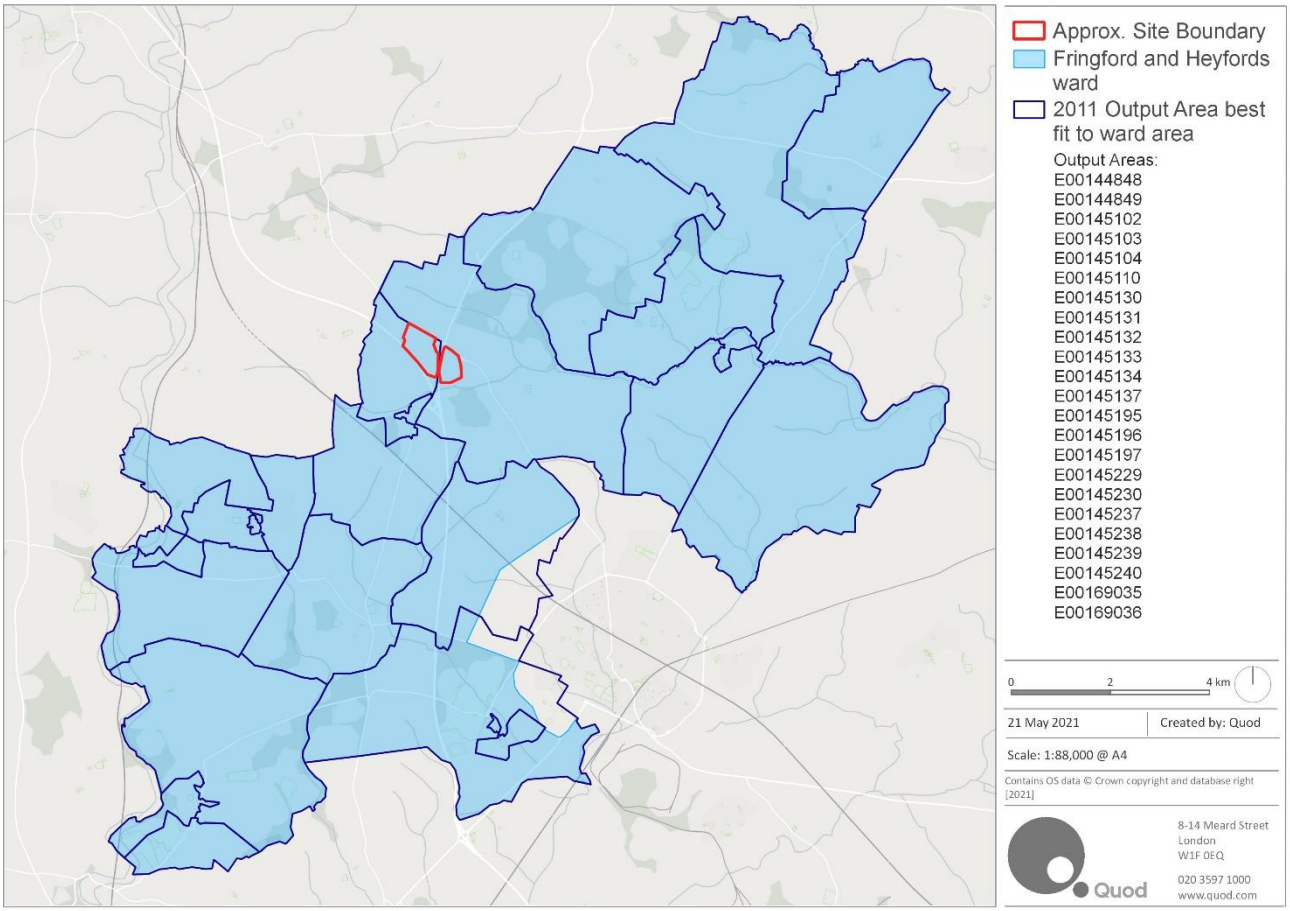
5.4 The socio-economic baseline will draw on a range of data sources to establish the prevailing socio-economic conditions focussing on population, deprivation, employment and the economy. The sources of this information will include (but not be limited to):

- 2011 Census[7];
- ONS Mid-Year Population Estimates (2020)[8];
- Business Register and Employment Survey (2019)[9];
- Claimant Count (2021)[10]; and
- Indices of Multiple Deprivation (IMD) (2019)[11]

5.5 Where more up-to-date data is available than stated here, this will be used.

5.6 Ward boundaries in Cherwell district were revised in 2016, therefore Census 2011 data for the Local Area will be based on a best-fit of output areas to the new ward area as shown in Figure 5.1.

Figure 5.1: Fringford and Heyfords ward (the 'Local Area')



Key Receptors

5.7 The following receptors are considered sensitive to potential likely significant effects arising from the Development:

- The construction industry and its employees; and
- The local economy and labour market i.e. local businesses and economically active residents.

Future Baseline

5.8 The future baseline will consider population projections[3] for the years 2022 to 2025, when the Development is anticipated to be complete and operational.

Assessment Scope

Likely Significant Effects

Construction

5.9 The assessment will consider the following potential likely significant effects:

[3] Office for National Statistics (2020) Population Projections – 2018 based

- Generation of temporary employment during the construction period most likely at a local and regional level.

Completed Development

5.10 The assessment will consider the following potential likely significant effects:

- Generation of employment opportunities.

Non-Significant Effects

Construction

5.11 Indirect construction effects such as supply chain effects and spending by construction workers are not likely to be significant. The number of construction workers will fluctuate on-site over the course of the construction programme, as such it will not be possible to quantify the level of spending captured locally. It is also not possible to quantify supply chain and procurement effects as the level of information required will not be available at the planning application stage. The spatial context of supply chain effects can range from local to national and even international depending on the supply and sourcing of construction materials. Whilst these effects are likely to be beneficial, they are unlikely to be significant and further assessment will not be provided.

Completed Development

5.12 The Development will generate economic benefits for the local economy through indirect spending by employees accommodated by the Development. Shops and services within the Local Area may capture some of this spending, however, given the Site is not in close proximity to a local centre, the effect is unlikely to be significant and further assessment will not be provided.

Cumulative Assessment

5.13 The cumulative assessment will assess the identified cumulative scheme at Heyford Park and will consider the same likely significant effects as identified for the Development (outlined above). However, this will not be assessed in the same level of detail as the main assessment.

Assessment Methodology

5.14 The assessment of potential likely significant effects will be undertaken using the following methodology and/or tools:

- Construction-related employment effects will be assessed using the Construction Industry Training Board (CITB) Labour Forecasting Tool[12]; and
- Direct operational employment effects will be assessed by applying standard job density ratios from the Homes and Communities Agency Guidance (2015)[13].

6 Transport and Access

Study Area and Spatial Scope

6.1 The study area of the Development will be defined by the journey to work catchment area of the Site (thirty-minute drive time). Walking, cycling and horse-riding (WCHAR) will be appraised within a five-kilometre catchment area in accordance with current Design Manual for Roads and Bridge (DMRB) guidance[14].

6.2 The extent of detailed operational and safety appraisal of the road network will be reviewed based on the nature of forecast change in traffic patterns within the study area and agreed with the respective highway authorities. This will include:

- The B4100 between Souldern and Bicester;
- A43 between M40 Junction 10 and Tusmore;
- M40 Junction 10; and
- Baynards Green (A43 – B4100) Roundabout.

Baseline Conditions

6.3 The Site is dissected by the A43. It is bound by the B4100 to the north and the M40 to the south with two roundabouts adjacent to the Site boundary at the junction of both roads with the A43. Junction 10 of the M40 is to the south of the Site.

6.4 The Definitive Map and Highways England Highway Boundary mapping will be obtained to confirm highway extents and PRoWs within and adjacent to the Site. Ordnance Survey mapping will also inform the WCHAR appraisal with respect to the wider assessment of PRoWs.

6.5 Baseline traffic flow conditions will be based on traffic model data (where available), published traffic survey results (including WebTRIS and Department for Transport (DfT) count data), commissioned traffic surveys, and published transport studies (including relevant Transport Assessments for other committed development sites).

6.6 The road safety appraisal will be informed by recorded incidents reported within STAT19 accident data for a period of at least five years. This will be supported by causality data obtained from OCC.

6.7 There are no existing bus stops in the vicinity of the Site, however there are existing bus services operating on B4100 and A43 which provide connections to Bicester and Brackley. Published public transport information will be obtained from the bus companies to establish the existing service pattern.

6.8 Baseline journey to work trip patterns will based on published 2011 Census data. Demand will be assigned to the local road network using ESRI's ArcGIS software to route trips onto the road network based on typical network conditions.

Future Baseline

6.9 Future baseline traffic demand forecasts will be based on the National Trip End Model as reported through TEMPRO, traffic models developed by the highway authorities and published transport studies including Transport Assessments for other development sites.

Key Receptors

6.10 The key receptors are properties (residents and businesses) adjacent to the Site and users of the transport network affected by the Development (including drivers, public transport passengers, cyclists and pedestrians).

Assessment Scope

Likely Significant Effects

6.11 The Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic[15] sets out the environmental impacts that could be considered as potentially significant whenever a new development is likely to give rise to changes in traffic flows:

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

6.12 In accordance with the IEMA Guidelines, the following rules are applied to define the scale and extent of the assessment:

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

Construction

6.13 The assessment will consider the likely significant environmental effects from construction traffic on the capacity and safety of the surrounding road network. These are likely to be localised to the Site and relate primarily to road construction activities during which traffic management is likely to be required. The assessment will also consider the implications for public transport and pedestrian and cycling movements.

Completed Development

6.14 The assessment will consider the likely significant environmental effects from the completed Development traffic on the capacity and safety of the surrounding road network, as well as implications for public transport, pedestrian and cycling movements. The potential impacts on PRoWs within the Site will be assessed, including the effect of any changes to routes.

Cumulative Assessment

6.15 The Development will be assessed against a baseline that will take account of the traffic implications of development more widely within the region. As such, the cumulative assessment will explicitly include the North West Bicester Eco-town planning allocation and the proposed development at Heyford Park (see Section 3 of this report for further details), along with any other planned developments agreed with the highway authorities through the scoping process for the Transport Assessment. Wider growth within the region from planned growth will be represented by growth forecasts based on TEMPRO.

Non-Significant Effects

Completed Development

6.16 The Site is not located in close proximity to any Conservation Areas, with one Grade II listed heritage asset in proximity to the Site, to the north on Baynards Green Farm adjacent to the A34. Other heritage assets of note are located within nearby local settlements (e.g. Fewcott) over 50m from the Site boundary and strategic road network. Operational HGV traffic would be routed via the strategic road network and avoid local roads. Therefore, it is not anticipated that the Development would result in traffic-related effects on heritage assets.

6.17 It is not anticipated that the Development will require carriage of materials listed on "The Carriage of Dangerous Goods" in the UK. As such, an assessment of traffic-related environmental effects with respect to Hazardous Loads and Heritage and Conservation, which are set out in the IEMA Guidelines for EIA can be scoped out. Traffic-related effects in terms of ecology, dust, dirt and noise and vibration are unlikely to be significant but will be considered elsewhere in other chapters of the ES.

Assessment Methodology

6.18 The scope of the Transport Assessment will be agreed with OCC and Highways England as relevant transport authorities. It is intended that a Framework Travel Plan, that will set out the sustainable travel policies for the Site, will be developed in parallel to the Transport Assessment.

6.19 The appraisal will be undertaken in accordance with the following technical guidance:

- DfT Circular 02/2013 Strategic Road Network[16] and the delivery of sustainable development;
- IEMA Guidelines for the Environmental Assessment of Road Traffic[15];
- Design Manual for Roads and Bridges technical guidance (CD109, CD116, CD122 CD123, CD143, CD195)
- LA 104 Environmental assessment and monitoring;
- GG101 Introduction to the Design Manual for Roads and Bridges (DMRB);
- GG104 Requirements for safety risk assessment;
- GG119 Road Safety Audit;
- GG142 Walking, Cycling and horse-riding assessment and review;

- Manual for Streets 2;
- FTA Designing for Deliveries; and
- TRICS User Guide.

6.20 Development trips will be forecast informed by the TRICS travel database and bespoke travel surveys. TRICS is a database of trip generation from a wide variety of land uses *retail, employment, leisure etc) across the UK. The database provides an estimate of likely trip generation to and from a land use by comparing it with trip generation from existing comparative sites of the same land use.

6.21 Traffic will be assigned to the local road network using ESRI software on an all or nothing basis between the Site and population weighted centroids at a middle super output area level (unit of geographic area with an average population 7200). Operational assessments will be undertaken using appropriate industry standard software packages including TRL's Junctions and JCT's LINSIG.

6.22 Access to the Site by pedestrians and cyclists will be assessed through the WCHAR assessment process (as per GG142). An independent road safety audit will be carried out and appended to the Transport Assessment.

6.23 The scenarios to be tested will be as per Table 4.1 relating to baseline, construction and operation. Additional scenarios, if required by planning or highway authorities, will be assessed within the Transport Assessment. The assessment of potential likely significant effects will be carried out in accordance with the methodology set out in LA104 and IEMA Guidance.

7 Air Quality

Study Area and Spatial Scope

7.1 The study area will focus on where the air quality impacts of the Development could be significant. For construction dust impacts, this is defined in Institute of Air Quality Management (IAQM) 'Guidance on the assessment of dust from demolition and construction'[17] as within 350 m of a boundary of the construction site, and within 50m of the roads affected by the trackout of dust and dirt onto the highway by construction vehicles.

7.2 The study area for the assessment of impacts of road traffic emissions, during both the construction and operational phases, will be determined by where the increases in road traffic exceed the following screening criteria, defined in the Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) Guidance on 'Land Use Planning and Development Control: Planning for Air Quality'[18]:

- An increase in light duty vehicle traffic of 500 Annual Average Daily Traffic (AADT), or 100 AADT within or adjacent to an Air Quality Management Area (AQMA).
- An increase in heavy duty vehicle traffic of 100 AADT, or 25 AADT within or adjacent to an AQMA.

7.3 Receptors for the assessment will be identified based on the road links where a potentially significant change in traffic is predicted. These are likely to be residential properties in proximity to the Site boundary, the M40, the A43 and the B4100 roads.

Baseline Conditions

7.4 The Site is not located within or in the vicinity of an AQMA, the nearest of which is located in Bicester, approximately 6.5 km to the south east of the Site. This AQMA was declared for exceedances of the annual mean nitrogen dioxide (NO_2) objective.

7.5 CDC carries out monitoring of NO_2 concentrations at 42 diffusion tube sites. The nearest monitoring site is located approximately 1km to the south of the Site, on the B430 road in Ardley. Annual mean concentrations of NO_2 were well below the air quality objective (40 µg/m^3) in 2019 (24 µg/m^3). CDC does not undertake any monitoring of particulate matter (PM_{10} or $PM_{2.5}$) in the district.

7.6 Receptors for the assessment will be identified based on the road links where a potentially significant change in traffic is predicted. These are likely to be residential properties in proximity to the Site boundary, the M40, the A43 and the B4100 roads.

Key Receptors

7.7 Receptors for the assessment will be identified based on the road links where a potentially significant change in traffic is predicted. These are likely to be residential properties in proximity to the Site boundary, the M40, the A43 and the B4100 roads.

Future Baseline

7.8 Future year (2025) background pollutant concentrations will be predicted using the national background maps, which predict concentrations each year up to 2030. Future baseline pollutant concentrations at sensitive receptors will be predicted using dispersion modelling, using background concentrations and emissions factors defined by Defra.

Assessment Scope

Likely Significant Effects

Construction

7.9 The potential impacts of dust and PM_{10} during construction will be assessed in line with the IAQM's 'Guidance on the assessment of dust from demolition and construction', which will be used to inform appropriate mitigation measures to be employed during the construction phase. The assessment will consider potential dust and particulate emissions from demolition, earthworks, construction and trackout.

7.10 The potential significant effects of construction traffic emissions will include changes to NO_2, PM_{10}, and $PM_{2.5}$ concentrations that may arise at existing sensitive receptors. Construction traffic generation will be screened against the EPUK/IAQM criteria, and a detailed assessment of impacts undertaken where required.

Completed Development

7.11 The potential significant effects to be assessed will include changes to NO_2, PM_{10}, and $PM_{2.5}$ concentrations that may arise at existing sensitive receptors due to emissions from additional traffic from operation of the Development. Operational traffic generation will be screened against the EPUK/IAQM criteria, and a detailed assessment of impacts undertaken where required.

Cumulative Assessment

7.12 The assessment of cumulative schemes for this chapter will be based on the transport modelling scenario that underpins the Transport Assessment. As such it will provide a discrete assessment of potential cumulative effects in combination with the proposed development at Heyford Park.

Non-Significant Effects

Construction

7.13 It is expected that on-site plant and equipment will conform to existing emissions standards for non-road mobile machinery, and will comply with the measures within the CEMP, which is expected to be secured by planning condition. With these measures in place, it is unlikely that exhaust emissions from construction machinery will give rise to significant effects on air quality.

Completed Development

7.14 At this stage of design, the energy and sustainability strategy for the Development has not been confirmed, however it is unlikely to incorporate significant amounts of centralised combustion plant, such as centralised boilers or Combined Heat and Power (CHP) plant. It is therefore unlikely that significant effects will arise from the provision of heating and hot water within the Development, and all proposed plant will be screened in line with the EPUK/IAQM

guidance. Furthermore, opportunities for low emission and renewable energy will be fully detailed in the energy strategy to be submitted with the planning application. For these reasons, pollutant emissions from energy plant are unlikely to be significant and will not be considered in the ES.

Assessment Methodology

7.15 Consultation will be undertaken with the Environmental Health Officer at CDC in order to agree the proposed approach to the air quality assessment. It is anticipated that the methodology will include:

- Defining baseline conditions by identifying relevant monitoring data and existing sources of pollutants in the area. This will include a review of CDC's air quality review and assessment reports, a review of nearby industrial operations using Defra's Pollutant Release and Transfer Register[19], and defining background concentrations using Defra's background maps[20].
- Assessing the risk of construction dust impacts using the methodology outlined in the IAQM's 'Guidance on the assessment of dust from demolition and construction', in order to determine the appropriate mitigation measures to employ during the construction phase.
- Assessing the impacts of road traffic using the ADMS-Roads dispersion model, using traffic data provided by the project transport consultant. This will include the assessment of the likely effects of changes in NO_2, PM_{10} and $PM_{2.5}$ concentrations at existing receptors along the local road network affected by the Development. Concentrations will be predicted for the baseline year (2019) and future year (2025) with and without the Development. Emission factors will be defined using Defra's latest Emissions Factors Toolkit (EFT). Model verification will be carried out using 2019 meteorological data and pollutant concentrations.
- The significance of air quality impacts and effects will be determined with reference to EPUK/IAQM guidance 'Land Use Planning and Development Control: Planning for Air Quality'[17] and professional judgement. Where significant air quality effects are identified, appropriate mitigation measures will be proposed.

8 Noise and Vibration

Study Area and Spatial Scope

8.1 The spatial extent of the study area for the construction noise and vibration assessment is proposed to be consistent with those adopted in recent major infrastructure projects, including High Speed Two (HS2) Phases 1 and 2a and Heathrow Expansion:

- 300m: noise from construction activities, such as material movements, earthworks, ground improvement and piling, crushing and breaking;
- 100m: ground-borne vibration effects from high energy construction activities, including piling works; and
- 1dB change: noise effects from construction vehicle movements to and from the construction site likely to result in a change of 1 decibel (dB) $L_{Aeq,T}$ or greater.

8.2 The spatial extent of the study area for the operational road traffic noise assessment is based on the extent of noise effects from operational road traffic to and from the Development likely to result in a change of 1dB $L_{Aeq,T}$ or greater during either the day or night-time periods. This is based on the distance at which the noise exposure could exceed the relevant daytime and night-time Lowest Observed Adverse Effect Level (LOAEL); this is the level of noise exposure above which adverse effects on health and quality of life can be detected.

Baseline Conditions

8.3 The baseline noise conditions at the Site and the nearby noise-sensitive receptors, including the residential properties to the north and hotel to the south east, are likely to be dominated by road traffic noise from the M40 and A43, and to a lesser extent the B4100.

8.4 An understanding of the baseline noise environment will be based on the results of a noise survey.

Key Receptors

8.5 The assessment will consider the key potential noise and vibration effects associated with the Development. It is anticipated that the assessment will consider the likely significant effects of the Development on:

- Residential receptors – at nearby dwellings (including Baynards House and Medkre), communities and open areas; and
- Non-residential receptors – including the Travelodge hotel to the south and the potentially sensitive commercial premises to the north.

8.6 The closest dwellings to the Development are the residential receptors adjacent to the north east of the western parcel – Baynard House and Medkre – and the closest non-residential receptor is the Travelodge hotel to the south of the eastern parcel.

8.7 The baseline noise survey will include unattended measurements of the existing ambient noise levels at a minimum of two locations, together with additional spot measurements as required. The unattended measurements will be undertaken for a period of up to 24 hours, including:

- A location to the north of the Site, representative of Baynard House and Medkre; and
- A location to the south of the Site, representative of the Travelodge hotel.

8.8 The measurement positions will be agreed with a representative of CDC's Environmental Health Department.

Future Baseline

8.9 Without the Development, baseline noise levels are likely to experience a gradual increase over time, primarily due to growth in road traffic. On low speed roads, changes in car technology may potentially offset some of the expected noise level increases due to traffic growth.

8.10 Noise generated from tyre-road interaction dominates on higher speed roads therefore expected growth in road traffic is likely to increase ambient noise levels regardless of changes in technology.

Assessment Scope

Likely Significant Effects

Construction

8.11 The assessment will consider the following potential likely significant effects:

- Noise effects from construction activities; and
- Noise effects from construction vehicle movements to and from the Site.

Completed Development

8.12 The assessment will consider the following potential likely significant effects:

- Noise effects associated with the operation of the Development; and
- Noise effects from Development-related traffic.

Cumulative Assessment

8.13 The assessment of road traffic noise will be based on the transport modelling scenarios that underpin the Transport Assessment and which include committed developments. As such it will provide an assessment of the potential cumulative effects of road traffic noise together with other committed schemes, including Heyfords Park.

8.14 In terms of operational noise, no committed developments have been identified which could lead to any potentially significant cumulative effects and therefore it is not proposed to address cumulative effects in the assessment.

Non-Significant Effects

8.15 The principal contractor(s) will ensure adherence to standard good site practice construction measures set out in a CEMP, such as hoarding, controls on use and maintenance of plant and machinery and hours of work.

8.16 Ground-borne vibration effects from construction and operational road traffic on new, altered or existing roads are not expected, as roads are assumed to have a well-maintained surface and would not be a significant source of vibration and are therefore scoped out. It is also anticipated that operation of the proposed development would not involve any significant sources of vibration. Therefore, operational vibration has been scoped out of the assessment.

Assessment Methodology

Construction

8.17 The assessment of construction activity noise will be based upon British Standard 5228-1:2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites. Noise' (BS 5228, 2014)[21]. Significance criteria for construction noise will be selected by reference to existing ambient noise levels and the 'ABC' method which is described in Annex E of BS 5228 (2014)[20].

8.18 The noise exposure arising from changes in traffic flows on the existing road network will be calculated using the Department of Transport's 'Calculation of Road Traffic Noise' (CRTN, 1988)[22] method, to derive the Basic Noise Level (BNL) at locations 10m perpendicular from the kerb. This enables a direct comparison to be made of the change in noise level as a result of the proposed development associated with particular sections of road. Significance criteria for road traffic noise will be selected by reference to Table 3.17 of Highways England Design Manual for Roads and Bridges, LA111 'Noise and vibration' (DMRB, 2020)[23].

Completed Development

8.19 The potential effects of operational noise from the Development, including from fixed plant and equipment, will be considered by reference to BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound' (BS 4142, 2019)[24] . Reference will also be made to associated internal noise levels at nearby residential receptors where appropriate, and guidance presented within BS 8233 'Guidance on sound insulation and noise reduction for buildings' (BS 8233, 2014)[25] .

8.20 Noise associated with changes in road traffic noise due to the Development will be assessed in accordance with the DMRB (2020)[22] advocated assessment criterion.

9 Archaeology

Introduction

9.1 The likely significant effects of the Development on the buried archaeological assets that may be present on the Site will be assessed. Any buried archaeological assets form part of the Site's cultural heritage. A full assessment of the planning policy context at national, strategic and local level will be set out together with the relevant methodology and assessment criteria.

Study Area and Spatial Scope

9.2 The Study Area will comprise a 1km buffer from the Site boundary and will be agreed with the Oxfordshire County Archaeologist in their role as advisors to Cherwell District. A Written Scheme of Investigation for an Archaeological Desk Based Assessment has been submitted to OCC for approval and to agree the scope of the Desk Based Assessment. This Study Area is based on professional judgement and standard archaeological practice.

9.3 A programme of Geophysical Survey is being undertaken to inform the baseline conditions at the Site and has been agreed with the OCC Archaeologist. Geophysical surveys are designed to detect buried features and create a 'map' of subsurface anomalies, including potential archaeological anomalies. The survey will comprise of initial phases prior to crop height becoming a constraint, with additional phases post-harvest to infill areas of survey that are already constrained by crop.

Baseline Conditions

9.4 Archaeological heritage assets are recorded in national and/or local historic environment databases, such as the Oxfordshire Historic Environment Record (HER) and the Historic England National Heritage List. A Desk Based Assessment and Geophysical Survey will be undertaken to establish a suitable baseline. At present, the following baseline information can be presented.

9.5 In terms of relevant nationally designated heritage assets, no World Heritage Sites, Scheduled Monuments, Historic Wreck or Historic Battlefield sites have been identified either within the Site itself, or within 1km of the Site on the National Heritage List. The nearest such asset comprises a Scheduled Monument moated ringwork at Ardley Wood circa 1.4km to the south west.

9.6 A brief review of historic mapping and aerial photography suggests that the Site has comprised open land throughout its mapped history since at least the 18th century. No development has been undertaken within the Site, aside from very localised agricultural buildings, and the Site is shown as agricultural land on aerial photographs from 1945 and 2004 onwards. The Site therefore represents undeveloped land which will have been subject to widespread but shallow past ground disturbance as a result of plough activity. The potential for survival of archaeological remains, if present, is therefore considered to be good.

9.7 There is therefore the potential for survival of archaeological remains at the Site, which will be further informed by an upcoming Archaeological Desk Based Assessment and a programme of Geophysical Survey.

Key Receptors

9.8 Demolition of the small number of existing agricultural structures, followed by excavation to create foundations and service trenches for the new development could have an adverse impact upon any archaeological remains which may be present within the Site. This will be established through further phases of archaeological work.

Future Baseline

9.9 Baseline conditions for below ground archaeology at the Site are not likely to change unless the Site is subject to ground disturbance or redevelopment.

Assessment Scope

Likely Significant Effects

Construction

9.10 The Site will be reviewed for its below ground archaeological potential as part of an Archaeological Desk Based Assessment, informed by Geophysical Survey. This will include a review of below ground archaeological findspots, records and previous archaeological work within a 1km buffer study area from the Site. The assessment will form the baseline for agreeing an appropriate archaeological strategy for the Site, in accordance with archaeological industry guidelines and standards and feedback from CDC and their archaeological advisor at OCC.

9.11 It is considered that, based on no known knowledge of significant archaeology being present, that should any archaeological remains be present at the Site, these would most likely be of a local or possibly regional importance (Low to Medium).

9.12 The demolition and construction works associated with the Development will most likely have up to a direct, high adverse below ground magnitude of impact through machine stripping and the construction of new foundations and associated groundworks.

9.13 There is therefore the potential for significant effects during the construction phase in relation to possible below ground archaeological remains if present at the Site.

Completed Development

9.14 Any impacts and effects to buried archaeological remains will occur during the construction works. No impacts / effects will occur to buried archaeological remains on completion of the Development.

9.15 There are no relevant designated archaeological assets within the nearby area which may be subject to a setting impact as a result of the Completed Development.

Assessment Methodology

9.16 In line with the National Planning Policy Framework (NPPF)[26], local planning policies and industry standards and guidance, an Archaeological Desk Based Assessment will be prepared to establish the significance and value of known buried heritage assets, the potential for the presence of unknown buried heritage assets and to review the potential development impacts upon any such assets. This assessment will be informed by a programme of geophysical survey. These assessments and survey will establish the archaeological baseline conditions at the Site.

9.17 The importance of an archaeological heritage asset is based on existing statutory designations. For undesignated assets, the Secretary of State's non-statutory criteria for Scheduling Monuments[27], Historic England's Conservation Principles[28] and professional judgement are applied. The NPPF and the NPPG contain criteria for the assessment of the importance of archaeological heritage assets and these will be factored into the assessment.

9.18 Importance of relevant archaeological assets will be categorised as High (National), Medium (Regional), Low (Local), None, or Unknown/Uncertain and will require a qualitative judgement in line with relevant industry guidance and criteria.

9.19 There will be an assessment of the impacts of the construction of the Development on the identified archaeological resource. This will be followed by an assessment of the overall significance of effect upon archaeological assets, both before and after mitigation. The significance of effect reflects both the importance of the resource and the degree to which the resource would be impacted (i.e. magnitude of impact).

9.20 If required and subject to the results of archaeological evaluation work which will characterise the Site's archaeological potential and likely significance of remains if present, an appropriate mitigation strategy will be identified and discussed and agreed as appropriate. All work will be undertaken in consultation with the OCC Archaeologist, in their role as advisors to CDC. It is anticipated that such work could be reasonably secured by an appropriately worded planning condition.

10 Ecology and Biodiversity

Study Area and Spatial Scope

10.1 The Study Area is defined by the Zone of Influence (ZoI) of the Development and is broadly confined to the Site itself and the immediate surrounding area. In accordance with good practice guidance[4], likely effects that could occur at greater distances will be assessed with respect to international statutorily protected sites at up to 10km from the Site and national statutorily and non-statutorily protected sites up to 2km. In addition, likely effects to protected and priority fauna species at the Site will be considered, with data records on these species within the Site and within 2km of the Site used for contextual information.

Baseline Conditions

10.2 An "extended" Phase I habitat survey and Preliminary Bat Roost Assessment (PBRA) were undertaken on the 16th November 2020 and the 23rd March 2021 (respectively) by an experienced field ecologist and member of CIEEM. A further badger survey, Habitat Suitability Index (HSI) and eDNA survey for Great Crested Newts (GCN) was undertaken by an experienced field ecologist and member or CIEEM on the 16th June 2021 in line with best practice guidance[29, 30,31]. Figure 10.1 illustrates identified habitat features.

10.3 These surveys identified that the Site comprises arable fields, bare ground, buildings, dry ditches, hedgerows (species rich hedgerows, defunct species-poor hedgerows and hedgerows with trees), improved grassland, a waterbody (WB1), scattered trees, dense and scattered scrub, and tall ruderal vegetation.

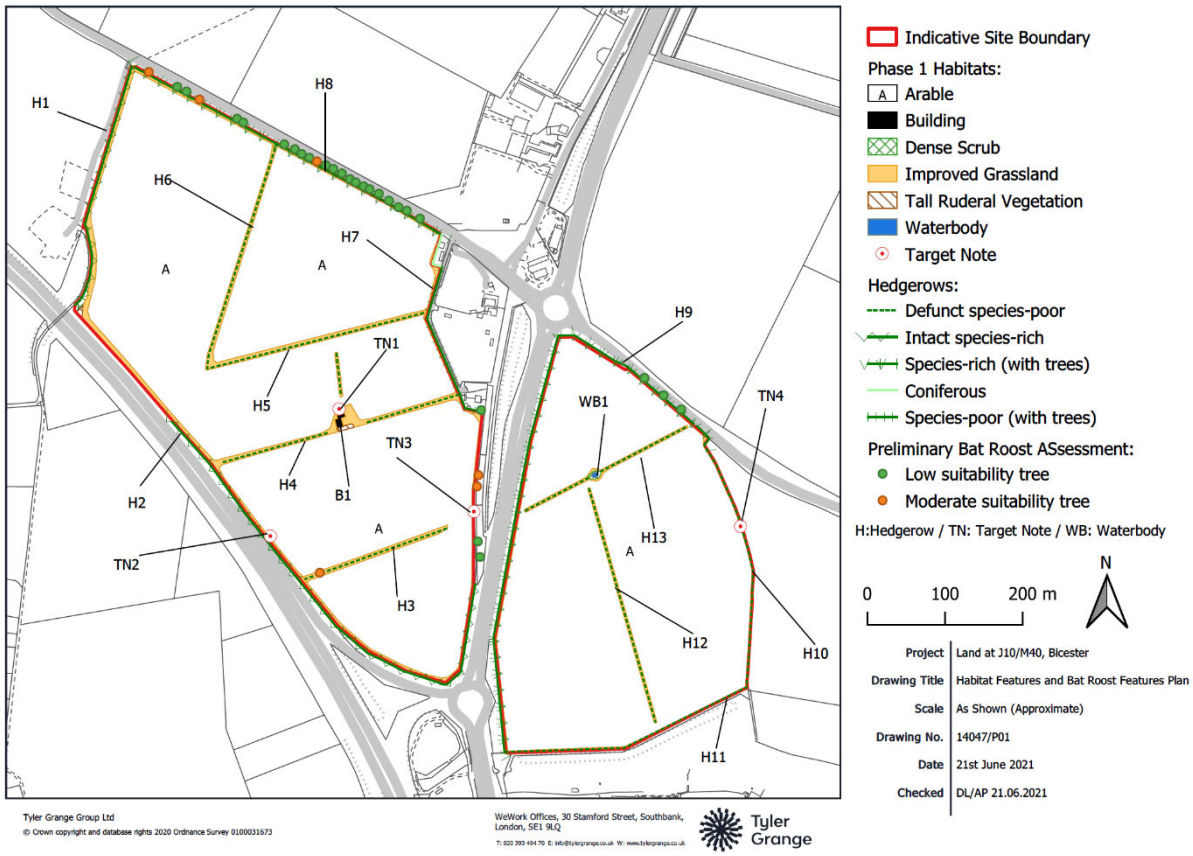
10.4 The western parcel is enclosed by the B4100 to the north, the A43 to the east and the M40 to the south with arable fields to the west and there is a strip of grassland between the M40 and the southern boundary and an area of immature woodland between the A43 and the eastern boundary. The eastern parcel is enclosed by the A43 to the west and the B4100 to the north, with arable fields to the east and an area of woodland (designated as a Habitat of Principal Importance (HoPI) and considered to be of district ecological importance) to the south[5]. Four waterbodies and a number of ditches were identified through aerial imagery within 250m of the Site boundary.

10.5 A desk study using Multi-Agency Geographic Information for the Countryside (MAGIC) Maps[32] shows there are no statutory designated sites within or adjacent to the Site boundary.

[4] CIEEM (2019). Guidelines for Ecological impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. CIEEM: Winchester

[5] UK priority species and habitats are those subject to conservation action and referred to as Species of Principal Importance (SoPIs) or Habitats of Principal Importance (HoPIs). They are listed at Section 41 [42 in Wales] of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act states that local planning authorities must have regard for the conservation of both SoPIs and HoPIs.

Figure 10.1: Habitat features and bat roost features plan



10.6 There are no European designated sites[6] of international importance within 10km of the Site. Two nationally important designated sites[7] were identified within 2km of the site: Ardley Cutting and Quarry SSSI (located 1.3km south west of Site) and Ardley Trackways SSSI (located 1.8km south of the Site). There were no statutory sites of local ecological importance[8] identified within the 2km search area.

10.7 The Site falls within the impact risk zone (IRZ) of Ardley Cutting and Quarry SSSI. This IRZ is for Discharges and Water Supply and requires the LPA to consult Natural England on likely risks from large infrastructure such as warehousing/industry where total net additional gross internal floorspace following Development is 1,000 sqm or more.

10.8 A 2km data search from Thames Valley Environmental Records Centre (TVERC) shows there are no non-statutory designated sites[9] within or directly adjacent to the Site boundary. Six non-statutory sites are present within 2km of the Site including one Berkshire, Buckinghamshire and Oxfordshire (BBO) Wildlife Trust reserve and five Oxfordshire Local Wildlife Site (LWS), with the closest, Stoke Wood LWS, located 0.34km south of the eastern parcel.

[6] European designated sites include designated and candidate Special Areas of Conservation (SAC), designated and potential Special Protection Areas (SPA) and wetlands of international importance (Ramsar sites).

[7] Designated sites of national importance include Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR).

[8] Designated sites of local importance include Local Nature Reserves (LNR).

[9] Non-Statutory sites include Local Wildlife Sites (LWS), Sites of Importance for Nature Conservation (SINCs), Sites of Nature Conservation Importance (SNCIs) and County Wildlife Sites.

10.9 There are no areas of ancient woodland on or adjacent to the Site. The nearest ancient woodland is Stoke Wood located 0.32km south of the eastern parcel.

10.10 The species-rich hedgerows, hedgerows with trees, dense and scattered scrub, improved grassland, defunct species-poor hedgerow, dry ditches, scattered trees and waterbody are considered to be of local ecological importance. The arable fields, bare ground, buildings, and tall ruderal vegetation are considered to be of negligible ecological importance.

10.11 During the Phase I habitat survey and subsequent PBRA, evidence that the following protected and notable species/species groups are present on or directly adjacent to the Site was found:

- Badger *Meles meles*;
- Barn owl *Tyto alba*;
- Brown hare *Lepus europaeus*;
- Nesting birds; and
- Skylark *Alauda arvensis*.

10.12 In addition to the above species/species groups, the following protected and notable species/species groups have been considered as part of the scoping assessment due to the presence of suitable habitat on or adjacent to the site and/or as the data search returned records of these species/species groups within the ZoI of the Development:

- Bats (roosting, foraging and commuting);
- Great Crested Newt (GCN) *Triturus cristatus*;
- Breeding birds;
- Hazel dormouse; *Muscardinus avellanarius*;
- Hedgehog *Erinaceus europaeus*; and
- Reptiles.

10.13 Surveys for protected/notable species (badger, bats, barn owl, breeding birds and GCN) are ongoing or due to be completed, and so at this stage data for these species is not available to inform the scoping assessment.

Key Receptors

10.14 The Development falls within the impact risk zone (IRZ) of Ardley Cutting and Quarry SSSI for Discharges Water Supply.

10.15 The Development would lead to the loss of habitats of local importance, namely species-rich hedgerows, hedgerows with trees, dense and scattered scrub, improved grassland, defunct species-poor hedgerow, dry ditches, scattered trees and a waterbody.

10.16 The area of HoPI woodland directly south of the eastern parcel may be subject to impacts from construction activities, along with indirect effects such as lighting at the operation phase.

10.17 The Development would lead to the loss or disturbance to habitats that have the potential to support the following protected species/species groups:

- Badger Meles meles;
- Bats (roosting, foraging and commuting);
- Barn owl *Tyto alba*;
- Breeding birds (including Skylark *Alauda arvensis*); and
- Great Crested Newt (GCN) *Triturus cristatus.*

Future Baseline

10.18 It is considered that the future baseline conditions at the Site and in the surrounding area without the Development would be largely unchanged from those at present. The Site would most likely continue to be intensely managed for agriculture with very little change in the marginal/boundary habitats.

Assessment Scope

Likely Significant Effects

Construction

Habitats

10.19 The Development may lead to the loss of habitats of local ecological importance, namely species-rich hedgerows, hedgerows with trees, dense and scattered scrub, improved grassland, defunct species-poor hedgerow, dry ditches, scattered trees and a waterbody. The loss of these habitats would lead to a potential likely significant effect. Where possible, habitat loss will be avoided and where it is required, habitat loss will be compensated for through habitat creation and enhancement.

10.20 Habitat losses will be quantified and assessed through the use of an appropriate metric (namely DEFRA 2.0).

10.21 The woodland directly south of the eastern land parcel is designated as a HoPI. Therefore, construction activities could lead to a potential likely significant effect on this woodland, namely from dust, noise, light and chemical pollution, alongside damage to the trees/associated root protection areas. It is considered likely that significant effects can be avoided through the implementation of a CEMP but further arboriculture information is needed and therefore this receptor is scoped in on a precautionary basis.

Protected/Notable Species

[redacted]

[redacted]

Bats

10.25 The data search returned 12 records of bats within 2km of the Site.

10.26 The PBRA survey identified a barn (B1) and a tree with moderate potential to support roosting bats within the Site which would be lost to Development. These structures will require further emergence/re-entry surveys to determine if roosting bats are present. If roosting bats are present, the loss of the roost(s) at the construction phase could lead to a potential likely significant effect.

10.27 With regard to roosting bats, it is considered that significant effects could be avoided through the use of a suitable mitigation strategy and associated mitigation licence from Natural England. Insufficient information is available at this stage to determine whether a significant effect will/will not occur and therefore this receptor is scoped in.

10.28 The hedgerows, improved grassland, ruderal vegetation, scattered trees and scrub provide suitable commuting and foraging opportunities for bats and the Site is considered to have low potential for foraging/commuting bats. Therefore, the Site will require further survey for foraging and commuting bats. The loss of habitats suitable for foraging/commuting bats, and lighting associated with the construction phase of the Development, could lead to a potential likely significant effect.

10.29 A sensitive lighting strategy will be implemented that maintains dark and unlit areas on foraging/commuting habitats. The Site can be further enhanced for bats through the creation and enhancement of linear green infrastructure with a focus on increasing connectivity to the broader landscape.

Barn Owl

10.30 Evidence of barn owl was found in the barn on the western parcel. Further surveys are required to determine if the barn is an active breeding site. In the absence of further survey data, it is considered that the loss of the barn at the construction phase could lead to a potential likely significant effect.

10.31 It is considered that significant effects could be avoided through the use of a suitable mitigation strategy. Insufficient information is available at this stage to determine whether a significant effect will/will not occur and therefore this receptor is scoped in.

Breeding Birds

10.32 Skylark were observed on both parcels of the Site. The Site has habitats that could support other similarly protected breeding birds.

10.33 The Development could lead to losses of habitat that supports notable assemblages of breeding birds, particularly farmland specialists, such as skylark, given the nature of the habitats present.

10.34 In the absence of further survey data, it is considered that the loss of the arable and some boundary habitats at the Site may lead to a potential likely significant effect.

10.35 Breeding bird surveys will be undertaken in which bird species and their behaviour are mapped and an assessment is made of the significance of the species present and an estimate of the number of breeding territories. This information will be used to assess any potential adverse impacts on breeding birds and to design works to avoid, reduce or mitigate for any loss of habitat.

10.36 It is considered that significant effects could be avoided through the use of a suitable mitigation strategy. Insufficient information is available at this stage to determine whether a significant effect will/will not occur and therefore this receptor is scoped in.

Great Crested Newts

10.37 The data search returned 27 records of GCN within 2km of the Site. Waterbodies on and within 250m of the Site were identified using aerial imagery and were subject to a Habitat Suitability Index (HSI) assessment, in line with best practice guidance (results detailed in Table 10.1).

Table 10.1: Results of HSI Assessments

Waterbody ID	Location	Description: GCN Suitability	eDNA Survey Undertaken[10]
WB1	Eastern Parcel	Small drainage pond: Poor	No
WB2	20m NE of the Western Parcel	Large garden fishpond: Below Average	Yes
WB3	35m NE of the Western Parcel	Small garden wildlife pond: Average	Yes
WB4	40m NE of the Western Parcel	Small garden fishpond: Poor	No
WB5	60m S of the Eastern Parcel	Large SUDS: Waterbody Dry	No
WB6	100m SE of the Eastern Parcel	Drainage Ditch: Waterbody Dry	No

10.38 The Development could lead to losses of some suitable GCN resting and foraging habitat including scrub and improved grassland. WB2 and WB3 have been eDNA surveyed, with results to be confirmed. If present, further surveys will be required to determine population size.

10.39 If GCN are present, a potential likely significant effect could occur due to the loss of limited areas of suitable GCN habitats. It is considered that significant effects could be avoided through the use of a mitigation strategy, together with a licence from Natural England to

[10] GCN eDNA sampling is a survey technique in which water samples are analysed for the presence of GCN environmental DNA (DNA fragments from remnants of skin, mucous or faeces etc) to give a more rapid indication of GCN presence/likely absence.

undertake the work if survey results indicate this is necessary. Insufficient information is available at this stage to determine whether a significant effect will/will not occur and therefore this receptor is scoped in.

Completed Development

Designated Sites

10.40 The Development falls within the IRZ of Ardley Cutting and Quarry SSSI for Discharges Water Supply. Therefore, at this stage it is considered that impacts on water supply mechanisms to this SSSI could lead to a potential likely significant effect.

10.41 It is considered that significant effects could be avoided through iterative scheme design. Insufficient information is available at this stage to determine whether a significant effect will/will not occur and therefore this receptor is scoped in. Natural England will be consulted to determine whether impacts on the SSSI can be scoped out.

Habitats

10.42 The woodland directly south of the eastern land parcel is designated as a HoPI. Therefore, activities associated with the operation of the Development could lead to a potential likely significant effect on this woodland, namely through light pollution. A sensitive lighting strategy should be implemented that maintains a dark corridor along this boundary. Insufficient information is available at this stage to determine whether a significant effect will/will not occur and therefore this receptor is scoped in.

10.43 A suitable buffer (8-10m) should be installed between the Development and this woodland in order to mitigate any potential impacts on the woodland. Similar buffers (albeit smaller) should be implemented to buffer retained boundary features, namely hedgerows, from impacts at the operation phase of the Development.

Protected/Notable Species

Bats

10.44 At the operation phase, roosting/foraging and commuting bats could be subject to a potential likely significant effect from lighting associated with the operation phase of the Development, namely in areas where habitats suitable for foraging/commuting bats or roosting bats have been retained or created.

10.45 A sensitive lighting strategy would be implemented that maintains dark and unlit areas on foraging/commuting habitats. The Site can be further enhanced for bats through the creation and enhancement of linear green infrastructure with a focus on increasing connectivity to the broader landscape.

Cumulative Assessment

10.46 Two schemes requiring consideration for cumulative assessment have been identified (Heyford Park and NW Bicester) within the ZoI of the Development. Further information is required regarding some of the ecological receptors, and therefore these cumulative schemes will be scoped into, and assessed, within the ES Chapter.

Non-Significant Effects

Construction

Habitats

10.47 The Development may lead to the loss of habitats of negligible ecological importance, namely arable fields, bare ground, buildings, and tall ruderal vegetation. Whilst the loss of these habitats would not lead to a potential likely significant effect, the loss of these habitats will be quantified and assessed through the use of an appropriate metric (namely DEFRA 2.0).

Protected/Notable Species

Brown Hare

10.48 One record of brown hare was returned by the data search. The Site does support habitat that is suitable for brown hare, namely a matrix of open arable fields with marginal vegetation and hedgerows. The majority of these habitats would be lost to development, however, owing to the availability and extent of suitable habitat in the wider landscape it is considered that this will not represent a significant loss to the brown hare population that may be utilising the site, and as such they are scoped out of further assessment.

10.49 Retention and enhancement of boundary habitats and native-species soft-landscaping would provide further mitigation for brown hare by maintaining connectivity to the broader landscape.

Hazel Dormouse

10.50 No records of dormouse were returned by the data search. The Site does support limited areas of habitat that have the potential to support hazel dormice, including native species-rich hedgerows and hedgerows with trees as well as some limited woodland habitat immediately adjacent to the Site. However, given the largely arable nature of the Site, hazel dormouse are considered unlikely to be present and are scoped out of the assessment.

10.51 In any event, the majority of habitats suitable for dormice are to be retained under the current Development proposals.

Hedgehog

10.52 The habitats on Site have some limited potential to support hedgehog.

10.53 On a precautionary basis, to avoid killing/injuring hedgehogs during the construction phase, clearance of areas of suitable habitat should be undertaken under precautionary working methods, for example, phased strimming of long grass, scrub and tall ruderal vegetation and hand searches of brash (vegetation) or rubble piles, all of which should happen under an Ecological Clerk of Works (ECoW). Should any hedgehogs be encountered during site clearance or construction works, they will be safely removed by hand and placed in suitable and similar habitat to where originally located.

10.54 Based on the above, it is considered that potential likely significant effect on hedgehog will not occur and hedgehog are scoped out of the assessment.

Nesting Birds

10.55 Nesting birds were identified in the arable fields and the barn during the site visit and scattered trees, areas of dense scrub and hedgerows on site offer nesting opportunities for birds.

10.56 All wild birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981 (as amended). As such, any removal of vegetation such as hedgerows or scrub, that can support nesting birds, should be timed to avoid the nesting season (March to September inclusive) or preceded by a check by a suitably qualified ECoW. Should any active nests be found, an appropriate buffer must be maintained until such time as the nest is deemed to be no longer in supporting young, as confirmed by an ecologist. It is considered that if these recommendations are followed, as required by legislation, impacts on nesting birds can be scoped out.

10.57 Based on the above, it is considered that potential likely significant effect on nesting birds will not occur and nesting birds are scoped out of the assessment.

Reptiles

10.58 One record of reptile was returned from within 2km of the Site boundary. The hedgerows, poor semi-improved grassland, dense scrub and brash piles offer some limited foraging and refuge opportunities that could support low population densities of more common and widespread reptile species.

10.59 To minimise potential impacts during the construction phase potentially suitable habitat such as brash piles and grassland should be removed at suitable times (March – October) of the year to minimise impacts, and removal should be undertaken under precautionary working methods for example phased strimming of long grass and hand searches of brash piles which should happen under the supervision of a suitably qualified ECoW. Any reptiles found should be placed in suitable, retained habitats on, or immediately adjacent to, the Site. Retention and enhancement of the boundary hedgerows and semi-improved grassland would further minimise impacts on reptiles that could potentially be present on site.

10.60 Based on the above, it is considered that potential likely significant effect on reptiles will not occur and reptiles are scoped out of the assessment.

Completed Development

Designated Sites

10.61 There are six non-statutory designated sites within 2km of the Site, the closest of which is Stoke Wood LWS, located 0.34km south of the eastern parcel. Impacts from the completed development on designated sites are likely to be limited to increased disturbance and effects on air-quality associated with increases in traffic flow. As such, it is considered that designated sites over 1km from the Site can be scoped out of further assessment.

10.62 Owing to this Site's proximity to major transport routes (the M40 and B4100) and Cherwell Valley Services it is considered that the completed Development is unlikely to lead to any further significant increases in disturbance or regressions in air quality that would impact this LWS, and as such can be scoped out of further assessment.

Habitats and Protected/Notable Species

10.63 No specific habitats or species are anticipated to be impacted by the operational phase of the Development. There is the opportunity to deliver enhancements to habitats and for species that would be of benefit to biodiversity in the locality.

10.64 These enhancement measures can be provided through adopting good general design principles, namely:

- The enhancement/creation (with a suitable buffer) of the boundary hedgerows/vegetation, along with the creation of new boundary features (for example, new hedgerows in place of those defunct hedgerows to be lost);
- By focussing habitat creation on areas adjacent to areas of high quality off-site habitats such as to the southeast of the western parcel and to the south of the eastern parcel, with a focus on increasing connectivity;
- Through the implementation of multi-functional green and blue infrastructure features such as Sustainable Drainage Systems (SuDS); and
- Through the implementation of a sensitive lighting strategy that maintains dark and unlit areas along the Site boundaries and on adjacent woodland habitats.

Cumulative Assessment

10.65 Two schemes requiring consideration for cumulative assessment have been identified (Heyford Park and NW Bicester) within the ZoI of the Development. Further information is required regarding some of the ecological receptors, and therefore these cumulative schemes will be scoped into, and assessed, within the ES Chapter.

Assessment Methodology

10.66 TVERC was contacted for details of protected and priority species and non-statutory sites within 2km of the Site boundary. Information on statutory designated sites was obtained from the online MAGIC database, which utilises data provided by Natural England.

10.67 An extended Phase I habitat survey was undertaken following the Joint Nature Conservancy Council (JNCC) method. The survey involved identification of the main habitat types present as well as more conspicuous fauna and potential of the habitats present to support protected and notable flora and fauna. A PBRA, badger survey and a HSI and eDNA survey of waterbodies for GCN have also been completed.

10.68 The approach to the assessment will follow the Guidelines for Ecological Impact Assessment in the UK and Ireland[33]. The evaluation of ecological resources will identify important ecological receptors that are likely to be affected by the Development. The level of importance of specific ecological features will be assigned using a geographic frame of reference. When describing likely effects, reference will be made to the following characteristics where relevant: positive or negative, extent, magnitude, duration, timing, frequency and reversibility. The significance of effects will be assessed using terminology derived from CIEEM guidance. The assessment will be qualitative in nature.

10.69 With respect to designated sites and ecosystems, significant effects encompass impacts on the structure and function of defined sites and ecosystems. For designated sites the focus is whether the Development and associated activities are likely to undermine the sites

conservation objectives or negatively affect the conservation status of the species or habitats for which the site is designated. For ecosystems, the focus is whether the Development is likely to result in a change in its structure or function.

10.70 With respect to habitats and protected and notable species, consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance. Conservation status for habitats is determined by the sum of the influences acting on the habitat that may affect its extent, structure and function as well as its typical species composition within a given geographical area. For species, it is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

10.71 As previously noted, the likely significant effects of the Development together with relevant Cumulative Schemes (Heyford Park and NW Bicester) will be assessed insofar as relevant information exists. Accordingly, the above methodologies will be applied to the assessment of likely significant cumulative effects, where possible. Where a potential lack of information in relation to specific Cumulative Schemes does not allow for this, the assessment (or components of the cumulative assessment) will be based upon professional and expert judgement.

11 Climate Change and Greenhouse Gases

11.1 Greenhouse Gas (GHGs) are gaseous compounds that have been identified as contributing to a warming effect in the earth's atmosphere. The primary GHG of concern with respect to the Development is carbon dioxide (CO_2) which is emitted from combustion sources such as vehicular transport and heating and energy plant. Other GHGs such as methane also contribute to climate change and these will be accounted for based on their Global Warming Potential (GWP). The combined effect of all GHG emissions will be presented as carbon dioxide equivalent (CO2e).

11.2 The Climate Change assessment will quantify the GHG emissions resulting from the Development and determine their significance in the context of local, regional and national climate change policy. The resilience of the Development to future climate change will be qualitatively assessed.

Study Area and Spatial Scope

11.3 GHGs contribute to climate change, which is a global environmental effect and, as such, the study area for the assessment is not limited by any specific geographical scope or defined by specific sensitive receptors. The scope is therefore determined by identifying emission sources associated with the Development over which the Applicant has some ability to control or influence.

Baseline Conditions

11.4 The Site is currently undeveloped land and there are no activities associated with the Site that result in GHG emissions. The existing vegetation on the Site could provide some limited sequestration (removal) of carbon, however this would be of marginal magnitude and therefore the baseline GHG emissions for the Site are assumed to be zero for the purposes of assessment.

Key Receptors

11.5 The assessment of GHG does not include identification of sensitive receptors, as GHG emissions do not directly affect specific locations, but lead to indirect effects by contributing to climate change.

Future Baseline

11.6 Assuming the Site remains as undeveloped land, the future baseline GHG emissions will remain unchanged as zero.

Assessment Scope

Likely Significant Effects

11.7 The assessment will quantify the GHG emissions from the Development over its lifetime. This will include GHG emissions during the construction and operational phase of the Development.

11.8 In line with IEMA Guidance on assessing GHG emissions[34], all GHG emissions are included as they all contribute to climate change and may be considered significant, irrespective of whether there is an increase or decrease in emissions.

Construction

11.9 The GHG emissions from the construction phase will be calculated, subject to availability of data, for the following activities:

- Transport of construction materials to the Site; and
- Embedded in the materials used to construct the Development.

Completed Development

11.10 The GHG emissions from the completed Development will be calculated over its lifetime, subject to availability of data for the following activities:

- Operational energy used by the Development;
- Operational transport activities related to the Development; and
- Repair and refurbishment of the Development during its lifetime.

Cumulative Assessment

11.11 IEMA guidance makes clear that climate change is "*the largest interrelated cumulative environmental effect"* and therefore the assessment of GHG emissions which contribute to climate is intrinsically cumulative. In terms of this assessment the following are also relevant:

- The assessment will consider the effects of the Development in the context of national and local cumulative totals. Since the national totals assume that other developments will contribute GHGs, the assessment will consider their implications in determining significance; and
- The geographical location of emissions has no relevance to the assessment. Therefore, the effects of the Development are independent of any local cumulative emissions.

11.12 Taking this into account, an assessment of the GHG emissions associated with cumulative developments will not be undertaken and the cumulative GHG effects are considered to be the same as those for the completed Development.

Non-Significant Effects

11.13 A small number of minor activities, detailed further below will be scoped out of the assessment within the EIA, which is consistent with IEMA guidance. IEMA guidance recommends that activities with emissions that in total equal less than 5% the lifecycle emissions of the Development can be scoped out of the assessment.

Construction

11.14 GHG emissions from construction plant and disposal of waste materials will be scoped out. GHG emissions from these activities are likely to represent less than 1% of total lifetime emissions and are difficult to estimate due to need for detailed data that is not normally available at the planning application stage.

11.15 GHG emissions resulting from land use change (e.g. due to loss or addition of trees on the Site that would sequester carbon dioxide) will be scoped out as they are likely to be minimal and be less than 1% of lifetime emissions. Any net increase in land use GHG emissions from the Development will be minimised through the biodiversity and landscape planning for the Site.

Completed Development

11.16 GHG emissions from the treatment and disposal of waste materials during operation are scoped out since they are very small component of the GHG emissions of the Development and will be minimised through standard best practice including the implementation of Site Waste Management Plans.

11.17 GHG emissions associated with water use (including water treatment and supply (pumping)) are expected to result in very small contributions to lifetime GHG emissions and are also scoped out.

Assessment Methodology

11.18 The assessment will be undertaken in line with the IEMA guidelines and best practice, taking account of all relevant national, regional and local policies relating to GHG emissions and climate change, and will include a summary of mitigation measures designed into the Development to prevent, reduce and offset its GHG emissions.

11.19 The assessment of GHG emissions during construction will utilise the following approaches:

- The embedded carbon from construction will be calculated using GHG factors published by the University of Bath[35], which are applied to the individual construction materials used. This will include GHG emissions arising from the manufacture and production of construction materials. If the quantum of construction materials is not known at the application stage, the embedded GHG emissions will be estimated based on GHG factors published by the Royal Institution of Chartered Surveyors[36], which consider the scale and nature of the Development; and
- GHG emissions from construction traffic will be calculated based on predicted construction traffic volumes, average travel distances and government published GHG emission factors for construction vehicles[37].

11.20 The assessment of operational effects will utilise the following approaches:

- GHG emissions from operational transport will be calculated using government published GHG emission factors for public transport modes, and transport modelling of visitor and staff annual trips and distances travelled;
- GHG emissions associated with the repair, maintenance and refurbishment of the Development during its lifetime will be calculated based on benchmarking data from Royal Institution of Charted Surveyors[38];
- GHG emissions from operational energy consumption will be calculated using appropriate benchmarks and modelling as required; and

- GHG emissions in future years will be calculated based on government published data on the decarbonisation of the grid and transport modes reflecting UK climate change policy and strategies.

11.21 The net increase in GHG emissions from construction, during operation in the opening year and over the Development's lifetime will be calculated by comparison to the future baseline emissions.

11.22 The assessment will present GHG mitigation being proposed, which will follow the principles of the GHG management hierarchy (avoid, reduce, offset), in order to minimise, as far as reasonably practicable, the anticipated GHG emissions over the Development's lifecycle.

11.23 The approach to classifying and defining likely significant effects will rely on IEMA guidance and apply expert judgment on the significance of the Development's lifecycle GHG emissions taking into account:

- any net change in emissions;
- their likely contribution to local and regional GHG emissions;
- their consistency with relevant policy; and
- an evaluation of the mitigation measures proposed to avoid, reduce and compensate GHG emissions.

11.24 The Climate Change chapter will also include a qualitative assessment of the vulnerability of the Development to future climate change.

12 Landscape and Visual Impacts

Study Area and Spatial Scope

12.1 Following creation of an initial Zone of Theoretical Visibility (based on terrain alone and a maximum assumed building height parameter of 23m) a study area has been identified on Figure 1 extending out 5km from the Site. This is proposed as a suitable extent given the generally level nature of the topography and the scale of the Development. The landscape and visual Study Area is proposed to be same as this will enable effects on viewers in the surrounding area and indirect landscape effects to be adequately assessed.

Baseline Conditions

The Site

12.2 The Site comprises a series of arable fields to the east and west of the A43 and to the immediate north of its junction (Junction 10) with the M40 motorway.

12.3 The western parcel is broadly diamond shaped and comprises six arable fields, bordered to the south west by the M40 and to the south east by the A43. The boundary with the A43 is well-vegetated with an overgrown hedgerow boundary with some trees. The boundary with the motorway is more open, with views possible across the western part of the Site. The north eastern boundary is formed by the B4100, which is again marked by an overgrown hedgerow with some trees. The western boundary is marked by the access track to a communications mast which is separated from the Site by a hedgerow. The north east corner of the western parcel is separated from the junction of the B4100 and the A43 by the grounds of 3 residential properties - Baynard House, The Cottages and associated buildings.

12.4 The eastern parcel is irregularly shaped and comprises three arable fields, bordered to the west by the A43 and to the north east by the B4100. The eastern boundary comprises a native hedgerow field boundary, beyond which is more arable fields. The southern boundary is marked by a large tree belt, separating the Site from Cherwell Valley Services.

Site Context

12.5 The Site is situated within the settled countryside north of Bicester, with the M40 and A43 forming audible and visual features within the landscape. The settlement of Ardley is situated c. 1.2km to the south west of the Site, and Upper Heyford, with its disused airfield, is situated 4.3km to the south west. The small settlement of Baynards Green is situated immediately to the east of the western parcel, mainly comprising old farmsteads. A petrol station is situated to the east of the Site, immediately adjacent to the junction of the A43 and B4100. Cherwell Valley motorway services is situated immediately to the south of the Site.

12.6 There is a large network of Public Rights of Way (PRoW) within the local area but no long distance trails.

12.7 The Site is situated on the gently sloping dipslope of the Cotswolds, c. 5km to the east of the valley of the River Cherwell. The land rises up to over 135m AOD (Above Ordnance Datum)

c. 3.5km to the west of the Site and 140mAOD to the north south west before sloping gently towards the east. The Site is situated at between 110 and 125mAOD. As such, there are no elevated viewpoints.

12.8 Woodland occurs to the south and south east of the Site and large tree belts occur around Tusmore Park 1km the north east of the Site. The result is a more wooded landscape to the south east and east of the A43 and M40, with a more open landscape to the north and west.

Designations

12.9 The Site is not covered by any statutory or local landscape designations and there are none in the Study Area.

12.10 Stoke Wood to the south of the Site is an area of Ancient and Semi-Natural Woodland (ASNW).

12.11 The Grade II Listed Aynho Park is situated c. 3km north west of the Site.

Planning Policy Baseline and Evidence Base

12.12 Policy and evidence base documents will comprise the following:

- Saved policies of the Cherwell Local Plan 1996;
- Non-Statutory Cherwell Local Plan 2011 (December 2004);
- Cherwell Local Plan 2011-2031 (Part 1) Partial Review – Oxford's Unmet Housing Need (2020);
- Adopted Cherwell Local Plan 2011-2031 (Part 1) (2020);
- Employment Land Review (2006);
- Employment Land Review Update (2012);
- Landscape Sensitivity and Capacity Assessment (2010); and
- Upper Heyford Landscape Sensitivity and Capacity Assessment Addendum (2014).

Landscape Character

12.13 The Site is situated within National Character Area 107: Cotswolds[39]. This character area describes the high wold dipping towards the south east and dissected by river valleys, characterised by arable farming on the high wold and dipslope. Field boundaries are formed by drystone walls with hedgerows on the areas of deeper soil and valleys.

12.14 The Site is mainly within the Wooded Estatelands Landscape Character Type (LCT) within the Oxfordshire Wildlife and Landscape Study (OWL)[40], with the north western part of the Site within the Farmland Plateau. The Wooded Farmlands is described as a rolling topography with localised steep slopes, large blocks of woodland, large parklands, a regularly shaped arable field pattern and small villages with a strong vernacular character. The Farmland Plateau LCT is described as level or gently rolling with large arable fields enclosed by walls and hedges with rectilinear plantations and shelterbelts. This LCT contains few nucleated settlements.

12.15 Further key characteristics of the local character areas, within an agreed study area, would be identified through the landscape and visual impact assessment (LVIA) process.

Visual Baseline

12.16 A Site visit has not yet been undertaken. The views chosen will be based upon the ZTV analysis and confirmed with CDC.

12.17 The Site is situated on the gently sloping dipslope of the Cotswolds, rising up towards the north west and down to the south east. There is very little undulation within the Study Area, resulting in a lack of elevated viewpoints. The landscape to the east and south east is more wooded, characteristic of the Wooded Estatelands LCT, whereas the landscape to the north and west is more open with fewer blocks of trees.

Future Baseline

12.18 Further development land is allocated at Upper Heyford, south of the airfield.

Key Receptors

Landscape Receptors

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

Visual Receptors

12.20 Visual receptors will comprise the following:

- Users of footpath 109/5/10 and 367/28/10 as it crosses the Site;
- Users of bridleway 109/2/40 as it passes along the Site's northern boundary;
- Users of bridleway 367/21/10 as it passes along the south east side of the Site;
- Users of PRoW to the north, between the A43 and B4100;
- Users of PRoW north of Ardley;
- Users of PRoW east of Fritwell;
- Users of PRoW west of Stoke Lyne;
- Users of PRoW within Tusmore Park;
- Residents of Fritwell;
- Residents of Ardley;
- Residents of Stoke Lyne;
- Residents of Baynards Green;
- Drivers on the B4100 to north west and south east;
- Drivers on roads south of Tusmore Park.

Assessment Scope

12.21 Landscape and visual effects are considered likely to arise during both the construction and completed development phases of the Development. For the purposes of the assessment, the

terms ‘impact’ refers to the causation of change. The changes will be judged to be positive (beneficial) or negative (adverse) in their consequences for landscape or for views and visual amenity.

Likely Significant Effects

Construction

12.22 Construction stage landscape impacts are anticipated to arise from earthworks and site regrading, building works, construction activity and compounds and visual impacts from construction activity and building work (including the temporary impact of tower cranes).

12.23 Landscape impacts which could cause significant effects in this instance, during construction, are likely to include: the construction of new buildings of approximately 22m in height and associated tower cranes and temporary construction activity and operations, across what is currently relatively open agricultural land; and the addition of buildings of a relatively large scale and mass in a plateau location.

12.24 Potential visual impacts which could give rise to significant effects during construction are likely to include: the impacts of building and construction works on the most sensitive receptors in close proximity or where there is a relatively clear line of sight including local residents, particularly the community of Ardley, Stoke Lyne and Fritwell, visitors on local rights of way and users of local roads.

Completed Development

12.25 Operation stage landscape impacts would include the direct change in character from arable fields to a fully operational and implemented scheme on the Site and surrounding local landscape character areas. Impacts will arise from the completed scheme buildings, servicing activities around the building and from the developing associated green infrastructure, over time (which will contribute to integration and deliver character enhancements and environmental gain). Visual impacts will arise from the new building locations, height, scale and massing, associated lighting, the maturation of the landscape framework over time, together with worker and visitor activity on the Site.

12.26 Visual impacts arising from the completed built development and associated operational activity, most likely to result in significant effects include: the scale and massing of the new buildings and from building operations, servicing and ancillary buildings and structures, if not sensitively sited, on the same receptor groups as identified, during construction. There is, however, notable potential on this Site to deliver a well-integrated, positive, iterative building and landscape design which avoids and minimises local and wider impacts.

Cumulative Assessment

12.27 There may be cumulative effects arising from new development at Upper Heyford, stemming from greater effects on character and on views, experienced together or sequentially. These may be experienced by users of local rights of way and roads, and residents of Fritwell, Ardley and Stoke Lyne.

Assessment Methodology

12.28 The LVIA is to be undertaken as a process, providing input into the design development of the proposals from the initial stages in order to embed mitigation measures into the Development, and seek opportunities to avoid or reduce adverse effects and identify opportunities for beneficial effects.

12.29 The landscape and visual ES Chapter will be prepared in accordance with the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) and Landscape Institute advice notes.

12.30 Proposed Representative viewpoints, preliminary Landscape Receptors and the proposed methodology will be submitted to CDC for their consideration and approval. The Landscape and Visual Impact Assessment Methodology Summary of Approach and Criteria Tables is appended to this report (at Appendix B). A plan showing the Proposed Viewpoint Locations is appended to this report (at Appendix C).

12.31 The LVIA ES chapter will also address and consider crossovers between disciplines and will involve collaborative working with Heritage consultants, Ecologists and Lighting specialists.

Mitigation and Mitigation Effectiveness

12.32 In addition to measures developed through iterative design, embedded in the scheme design, other further mitigation measures will be identified, where appropriate. The effectiveness of the delivery of mitigation included within the Development will also be considered and assessed.

13 Cumulative Effects

13.1 The EIA Regulations specify the information to be included in an ES (Schedule 4) and require that in assessing the effects of a particular development, consideration should be given to cumulative effects. Potential cumulative effects can be categorised into two types:

- **Combined effects -** occur when two or more different environmental effects from the Development (e.g. dust, noise, traffic) act together to produce a different level of effect/ impact experienced by a particular receptor. These combined effects (or 'Intra-Project') can be additive or synergistic such that the sum of the impacts can be less or more than the individual impacts (i.e. because they may exacerbate or neutralise one another).
- **Cumulative effects -** are those that accrue over time and space from a number of different development activities and projects in geographical proximity to one another, which individually might be insignificant, but when considered together, could create a significant cumulative effect (also referred to as 'Inter-project' effects).

13.2 The cumulative assessment is important to ensure that the combined impacts of other schemes are understood and appropriately considered in decision making. The cumulative effects of the Development itself, and with other planned or committed development in the local area, will be considered on a topic-by-topic basis and reported in a subsection of each technical ES Chapter, and mitigation measures proposed where necessary. Combined effects will be considered in a separate chapter titled 'Effect Interactions'. The approach for both the Effect Interaction assessment and the Cumulative Effects Assessment with other developments is outlined below.

Effect Interactions

Baseline

13.3 The Effect Interactions assessment focusses on individual receptors that have the potential to be affected by multiple impacts addressed under more than one specialist topic in the EIA as a result of the Development. Therefore, the baseline for the Effect Interactions assessment will be determined by the results of the individual topic assessments.

Methodology

13.4 There is no consistent guidance or standardised approach to the assessment of Effect Interactions. However, it is recognised that the Development has the potential to give rise to a variety of impacts upon a number of different receptors some of which may combine to become significant effects.

13.5 Table 13.1 summarises the proposed receptor-based assessment process to be used for both construction and operation of the Development.

Table 13.1: Effect Interaction Assessment Process

Step	Description
Step 1: Identify and categorise receptors	Identify all topic sensitive receptors and their geographical locations based on the study areas and Zones of Influence (ZoI) of the respective technical assessments. These will then be categorised by type.
Step 2: Identify impacts	Identify all topic impacts associated with sensitive receptor(s)/ receptor types.
Step 3: Screen receptors and associated impacts	A screening exercise will be undertaken upon the identified receptors and impacts. Items are screened out from further assessment if they are: • Receptors where no topic impacts overlap; • Receptors with no temporal overlap with topic impacts; or • Receptors where topic impacts are identified as 'negligible'
Step 4: Assess effect interactions	Qualitative assessment based on professional judgement of the effect interactions.

13.6 It is proposed that an assessment of socio economics, transport and access, air quality, noise and vibration, archaeology, ecology and biodiversity, climate change and greenhouse gases, and landscape and visual effects be scoped into the EIA. In categorising the sensitive receptors for each assessment (Step 1), the assessments of both socio-economics and archaeology effects will concern different sensitive receptors than the other topics. There is therefore no potential for effect interactions for these two topics.

13.7 The assessments of transport, air quality, noise and vibration, ecology and biodiversity and landscape and visual effects will all concern ground level human receptors, namely drivers, pedestrians and cyclists on the surrounding road network, the occupants of properties on the surrounding road network, and users of PRoWs. The study areas for the assessment of transport, air quality, noise and vibration, ecology and biodiversity and landscape and visual effects have a spatial overlap. Drivers, pedestrians and cyclists on the surrounding road network, occupants of properties on the surrounding road network, and users of PRoWs within 5km of the Site have the potential to experience an effect interaction. These potential effects will be experienced once the Development is completed and fully operational, meaning there is also a temporal overlap.

13.8 Given the shared receptor group and the spatial and temporal overlap, these receptors have the potential to experience an effect interaction. An assessment of this effect interaction will therefore be scoped into the EIA. The assessment of effect interactions will be limited to this receptor group.

13.9 Table 13.2 below diagrammatically summarises the potential effect interaction to be scoped into the EIA.

Table 13.2: Effect Interactions to be Scoped into EIA

Topic	Socio Economics	Transport and Access	Air Quality	Noise and Vibration	Archaeology	Ecology and Biodiversity	Climate Change and Greenhouse Gases	Landscape and Visual Impacts
Socio Economics		N	N	N	N	N	N	N
Transport and Access	N		Y	Y	N	Y	Y	Y
Air Quality	N	Y		Y	N	Y	Y	Y
Noise and Vibration	N	Y	Y		N	Y	N	N
Archaeology	N	N	N	N		N	N	N
Ecology and Biodiversity	N	Y	Y	Y	N		Y	N
Climate Change and Greenhouse Gases	N	Y	Y	N	N	Y		N
Landscape and Visual Impacts	N	Y	Y	N	N	N	N	

N: No potential for effect interaction, and therefore scoped out of the EIA.

Y: Potential for effect interaction, and therefore scoped into the EIA.

14 Non-Significant Topics

Introduction

14.1 As stated within the EIA Regulations, an ES is required to identify only the 'likely significant environmental effects' of a development.

14.2 The rationale for this scoping exercise has been guided by the current National Planning Practice Guidance on EIA (updated July 2017), which highlights the expectation that the ES should focus on the 'main' or 'significant' environmental effects only. The Guidance states:

"Whilst every Environmental Statement should provide a full factual description of the development, the emphasis should be on the "main" or "significant" environmental effects to which a development is likely to give rise. The Environmental Statement should be proportionate and not be any longer than is necessary to assess properly those effects. Where, for example, only one environmental factor is likely to be significantly affected, the assessment should focus on that issue only. Impacts which have little or no significance for the particular development in question will need only very brief treatment to indicate that their possible relevance has been considered."

14.3 The following topics are considered to be those where 'significant' effects are unlikely to arise as a consequence of the Development. As such, these issues would not be assessed in detail through the EIA process. Non-significant issues have also been identified within previous topics sections where relevant.

Built Heritage

14.4 There are no WHS, Scheduled Monuments, Registered Parks and Gardens or Registered Battlefields within the Site or within 1km of the Site boundary. Neither does the Site lie within or in the vicinity of a Conservation Area or statutorily or non-statutorily designated listed building/structure. The closest Conservation Area, the Fewcott Conservation Area, is located approximately 750m to the south west of the Site boundary and contains a number of listed buildings. The closest listed building/structure is the Grade II listed barn on Baynards Green Farm, located approximately 200m north of the Site boundary.

14.5 The Site is well screened to mid and long range views by topography and intervening visual barriers and the design of the Development will be subject to a Landscape Strategy to ensure that adverse effects to the surrounding landscaping are minimised. For these reasons, it is considered that the Development will not give rise to significant direct or indirect effects on setting or significance of any built heritage assets. It is therefore proposed that further assessment be scoped out of the EIA.

Light Pollution

14.6 The Site comprises unlit farmland and sits within a broadly rural landscape. However, the adjacent M40, A43 and associated roundabouts are currently lit to highway requirements. The

region is typical of an E2 (low district brightness) and partial E3 (medium district brightness) Environmental Zone location[11].

14.7 The CEMP, as secured by planning condition, will contain standard measures in order to appropriately mitigate light pollution onto nearby sensitive receptors. It is therefore expected that construction of the Development will not give rise to significant effects.

14.8 The lighting strategy for the completed Development is still emerging. However, the Development will provide a modern, efficient and controlled lighting scheme which incorporates best practice design principles, including those from the Guidance Notes for The Reduction of Obtrusive Light[41]). Principles of the lighting design will be set out within the design code and/or lighting statement and summarised within the ES, giving consideration to sensitive human and ecological receptors in order to reduce light pollution where practicable.

14.9 Due to the Site location, constraints and proposed mitigation it is professionally judged that potential significant effects can be avoided or minimised. Therefore, as a result it is considered unlikely that new lighting installations will result in significant adverse effects to sensitive receptors and it is proposed that an assessment of light pollution be scoped out of the ES.

Wind Microclimate, DSO and Glare

14.10 It is not considered that the scale and spatial density of the buildings within the Development will alter the wind microclimate or the daylight, sunlight and overshadowing of the Site and surrounding area. There is sufficient distance between the Development on the Site and the existing residential receptors such that any microclimate impact at existing receptors in terms of wind generation, daylight, sunlight and overshadowing would be expected to be negligible. With sensitive design principles in place, it is not considered that there will be significant effects.

14.11 There is no specific criterion for assessing the significance of solar glare or dazzle and professional judgment has therefore been used in establishing whether the Development is likely to give rise to significant effects. Sensitive receptors are likely to include road users, including drivers along the M40 and A43 and neighbouring junction locations, as well as on-Site vehicle operators. Solar glare to these receptors might cause visual distraction or disability to transport controllers.

14.12 The emerging design of the Development does not propose to incorporate any significantly reflective components with façade treatment likely to include a mix of flat panel composite and perforated aluminium cladding. Subject to confirmation upon design completion, no significant solar glare effects are likely and it is therefore proposed to scope this topic out of the EIA.

14.13 It is therefore proposed to scope a wind microclimate and daylight, sunlight and overshadowing, and glare assessments out of the EIA.

Agriculture and Soils

14.14 From British Geological Survey (BGS) information (1:50,000), the land at the Site is underlain by bedrock limestone in the White Limestone Formation. The bedrock is not covered by any

[11] As per the categories defined in the Institute of Lighting Professionals (ILP) Guidance Note 01/20 for the Reduction of Obtrusive Light

superficial deposits, apart from a narrow 'finger' of Head comprising clay, silt and sand in a shallow dry valley in the field to the west of the A43. Therefore, in the main, the soil is developed directly over limestone. This gives rise to shallow, well drained (Wetness Class I) and brashy (stony) calcareous clay loam soils over limestone rock.

14.15 These soils are grouped in the Aberford Association. From detailed (Post 1988) Agricultural Land Classification (ALC) surveys on similar land, i.e., Aberford-type soils developed over limestone, to the west at Fritwell, and south west at the former RAF Upper Heyford, the former Ministry of Agriculture, Fisheries and Food (MAFF) has determined the quality of agricultural land is mainly in Subgrade 3b. Land quality is limited by a shallow depth of stony soil over limestone, which has a shortage of water available in the soil for crops during the growing season, i.e., soil droughtiness limitation. The size and content of limestone fragments/stones in the soil can also restrict the quality of agricultural land to Subgrade 3b in isolation, and/or as a contributory factor to soil droughtiness. It is predicted there is a high likelihood agricultural land quality at the Site will be the same as that determined by MAFF on similar land in the vicinity, i.e., Subgrade 3b. Consequently, significant effects are not expected from the Development and this topic can be scoped out of the EIA.

14.16 A definitive ALC grading of agricultural land at the Site will be determined by carrying out a detailed ALC survey, i.e., at a density of 1 auger-bore per hectare (ha), following the MAFF ALC Guidelines (1988) and will be submitted as part of the planning application.

Ground Conditions and Contamination

14.17 An intrusive Ground Investigation is presently being undertaken, however ground investigation desktop studies to-date confirm that the Site has been undeveloped land since early records in 1880. In 1992-94 the M40 and Junction 10 of the A43 was constructed with the nearby Service Station being built later.

14.18 BGS records indicate that the topsoil is underlain by small areas of superficial deposits overlying the White Limestone Formation. Groundwater has been encountered at depths of 1.73m, 4.0m and 7.0m within the limestone. There was no evidence of any contamination, mining, radon or other ground related problems.

14.19 While there is the possibility of very localised points of contamination such as hydrocarbon spillages, the Site is not considered to be of an inherent contaminative risk. Potential point sources of contamination during the construction works will be of a temporary nature and be effectively managed by standard mitigation measures. These measures will be set out in the CEMP and secured by planning condition to ensure sensitive receptors are protected.

14.20 The completed Development will not introduce any potentially contaminative uses.

14.21 It is therefore considered that construction and operation of the Development will not give rise to significant effects from a ground conditions perspective and that this topic be scoped out of the EIA.

14.22 A Land Contamination Preliminary Risk Assessment will acompany the planning application.

Water Resources, Flood Risk and Drainage

14.23 The Site lies entirely within Flood Zone 1 meaning it is subject to a low probability of fluvial flooding (i.e. a less than 1 in 1000-year annual probability). The majority of the Site is subject to a very low risk of flooding from surface water, although a localised area of land within the southern corner of the wester Site parcel is subject to a medium risk of flooding from surface water. As such, it is considered that all forms of flood risk to the Development can be appropriately mitigated and therefore the effects would be considered insignificant.

14.24 Potential adverse effects associated with surface water flows and water quality (e.g. fuel spillages) during construction activities will be controlled by standard management practices and measures within the CEMP, as secured by planning condition. For this reason, it is considered that the Development will not give rise to significant construction-related effects.

14.25 A Flood Risk Assessment (FRA) will be prepared in line with NPPF and CDC requirements and will likely be submitted with the planning application in full liaison with the Local Lead Flood Authority (LLFA). The FRA will assess the Site's flood risk from all sources and demonstrate how any flood risk to the Site and surrounding areas would be managed, taking into account climate change allowances.

14.26 As part of the FRA, a drainage strategy will be provided to demonstrate how both surface water discharge from the Site can be managed appropriately. The need for any reinforcement works associated with foul water discharge will be set out within the drainage strategy and will be taken into account in the detailed design work, to ensure that appropriate reinforcement works are undertaken, if necessary.

14.27 The Development will lead to some increase in potable water demand. However, reflecting the size of the Development and the B8 floorspace to be provided, it will not introduce an extremely high potable water demand rate. The Site is also not situated within an area of extreme deficit for potable water supply. For this reason, the Development is not anticipated to give rise to a significant effect in terms of increased potable water demand.

14.28 The Development will lead to some increase in foul water discharge from the Site. However, reflecting the size of the Development and the B8 floorspace to be provided, it will not introduce a high foul water discharge demand rate. A pre-development enquiry will be submitted to Anglian Water to confirm whether they have adequate capacity to accommodate the flows from the Site and, should they be required, reinforcement works to the public foul sewers will be undertaken. The additional foul water discharge associated with the Development is not considered to be significant assuming reinforcement works are undertaken if required.

14.29 For these reasons, it is considered that the completed Development will not give rise to significant effects and it is proposed that further assessment be scoped out of the EIA.

Human Health

14.30 The EIA Regulations require the consideration of the potential effects on human and population health where significant effects are likely to occur. The assessment should be proportionate to the project being considered.

14.31 Where people live and work could have indirect impacts on their personal state of wellbeing. Therefore, new developments could potentially have a beneficial or adverse effect on health, particularly in areas of existing poor health conditions.

14.32 Poor health outcomes could arise from construction effects such as dust or pollution from construction traffic. However, the Applicant will require construction and environmental management measures to be put in place to manage the construction of the Development addressing issues related to health and wellbeing, including public safety, noise and vibration controls, and air and dust management. A number of these measures will be included in management plans, such as the CEMP and a Construction Traffic Management Plan.

14.33 Poor design and access in end uses could also have effects on health outcomes. However, through appropriate mitigation and design these effects can be managed and potentially give rise to either neutral or indirect beneficial effects on human health.

14.34 At the system level, greater access to employment may be positively correlated with good health, but these effects will be uncertain and not measurable at the level of an individual site. The incidence of any such health effects will be widely dispersed through marginal changes to the employment markets, and so the effect is not significant at any level.

14.35 Despite the indirect links that have been identified between new development and health and wellbeing, the potential effects of a new development on the health and wellbeing of new and existing and future workers would be largely determined by the way the Development's buildings and spaces are used (rather than constructed) and by lifestyle factors which cannot be accurately quantified or controlled at the planning stage. Notwithstanding, the Development is being designed with full consideration of future health and wellbeing factors including the high-quality design and inclusion of amenity and open space, and active travel mechanisms (including sustainable travel options).

14.36 The following assessments within the EIA are contributing to the emerging design and will consider the Development's indirect or secondary impacts which could have an effect on health and wellbeing:

- Socio-economics ES chapter;
- Traffic and Access ES chapter;
- Noise and Vibration ES chapter;
- Air Quality ES chapter;
- Ecology and Biodiversity ES chapter;

14.37 In addition, the following reports that will be produced to accompany the planning application will also consider the Development's impacts on health and wellbeing:

- Design and Access Statement (DAS);
- Flood Risk Assessment and Surface Water Drainage Strategy; and
- Land Contamination Preliminary Risk Assessment.

14.38 As there are inherent mechanisms to address the indirect health and wellbeing effects including identification of appropriate mitigation in the ES, it is considered appropriate to scope a discrete health and wellbeing assessment out of the EIA.

Materials and Waste

14.39 Waste streams arising from the construction stage of the Development would mainly comprise soil from excavation and foundation work, however it would be the intention to reuse as much material on-site as practicable. Waste produced during construction would be subject to the 'Duty of Care' under the Environmental Protection Act. The waste hierarchy would be followed and waste streams would be managed by the contractor in line with current legislation and best practices, with construction waste materials disposed of by the contractor/s to appropriate recycling facilities or appropriately licensed landfills. The appropriate landfill for the disposal of any contaminated material off-site will depend on the waste classification determined from the chemical analysis or Waste Acceptance Criteria testing as necessary.

14.40 The ES will outline likely waste quantities arising from construction works and present the Applicant's commitments to waste minimisation and management during these works. A Waste Management Plan would form one of the commitments within the CEMP.

14.41 The Environment Agency's Guidance for Pollution Prevention and other relevant guidance will be followed during the handling, storage and use of such materials, including oil, chemicals, cement, cleaning materials and paint. The CEMP will set out roles and responsibilities such that the Site Manager will audit waste carriers and disposal facilities and maintain documentary evidence that these requirements are being met, including a register of waste carriers, disposal sites (including transfer stations) and relevant licensing details for each waste stream.

14.42 Operational waste from the completed Development would predominately comprise commercial waste arisings from the warehouse and distribution uses. This would predominantly be collected under waste disposal contracts with commercial operators.

14.43 The Development will be designed to comply with CDC's recycling and waste requirements and ensure the provision of sufficient waste storage areas across the Development to enable occupants to segregate their waste and recyclables, building managers to manage capacity and appropriate access for refuse collection vehicles. The ES will summarise the operational waste management measures which would be included within the Development.

14.44 Volumes of waste generated by the completed Development during construction and operation are therefore not expected to give rise to a significant impact on waste management infrastructure. As such, waste is proposed to be scoped out of the ES.

Aviation

14.45 The Development includes provision of buildings up to a maximum ridge height of the circa 22m only. Bicester Aerodrome is located a sufficient distance from the Site at approximately 5.3km south east of the Site. Therefore, no significant effects in terms of aviation are considered likely and this topic is proposed to be scoped out of the EIA.

Vulnerability to Major Accidents or Disasters

14.46 With reference to Regulation 4(4) and Schedule 4 of the EIA Regulations, this Scoping Report also considers whether there are likely to be any significant effects on the environment or the

project arising from the vulnerability of the Development to major accidents or disasters. The EIA Regulations require the ES to consider the inclusion *"A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned"*.

14.47 Available guidance (IEMA Quality Mark Article 'Assessing Risks of Major Accidents / Disasters in EIA'[42]) defines major accidents and disasters as *"man-made and natural events which are considered to be likely, and are anticipated to result in substantial harm that the normal functioning of the project is unable to cope with /rectify"*.

14.48 Overall, the vulnerability of the Development to risks of major accidents and /or disasters is considered to be low. The proposed use is not considered hazardous and the most likely foreseeable vulnerability of the Development with regards to risks of major accidents and /or disasters are related to flood risk. This will be considered as part of the FRA and drainage strategy. Risks to fire can be assumed to be low provided the detailed design and fire strategy are developed in line with the latest fire safety guidance.

14.49 The Southern Bomb Store warehouse, situated circa 2.7km south west of the Site boundary in Upper Hayford, undertakes activities which are regulated under the Control of Major Accident Hazards (COMAH) Regulations 2015[43]. The Health and Safety Executive (HSE) Planning Advice mapping however indicates that the Site lies outside the Inner, Middle and Outer Zones of Consultation Distance of the Brenntag lower-tier COMAH site. Further consideration for the type of development suitable for the Site with respect to the COMAH site is therefore not required.

14.50 No other significant effects relating to the vulnerability of the Development to major accidents and disasters have been identified for further assessment within the EIA.

Energy and Sustainability

14.51 The planning application will likely be supported by an Energy and Sustainability Strategy. This negates the need for further energy and sustainability assessments within the ES and accords with the Department of Communities and Local Governments (DCLG) consultation paper on EIA Good Practice[44] (2006) which states:

"there is no requirement to include a sustainability appraisal within the Environmental Statement. If such an assessment is required by the Local Planning Authority, it should be provided as a separate document supporting the planning application."

14.52 The main sustainability features of the Development (e.g. Sustainable Drainage Systems (SuDS) strategy, energy strategy) will be summarised in the description of the Development included in the ES. As such, all technical assessments will inherently test the principal sustainability design features sought as part of the planning application.

Utilities

14.53 The Development will have a minor demand on the grid network in relation to power and water utilities. Consultation with the relevant statutory bodies will be undertaken to ensure the existing electricity, gas and clean water networks, as well as local foul drainage, will have sufficient capacity to supply the Development. Therefore, it is not considered that the

Development is likely to give rise to significant effects on utility infrastructure or demand. As such, this topic will be scoped out of the ES.

Electromagnetic Fields

14.54 All new electrical plant will be designed in accordance with the current British Standards (e.g. BS EN 62041:2010) which set the specific limits for electro-magnetic fields.

14.55 No major sources of electro-magnetic fields (such as high voltage transformers or electricity transmission line/cables) are proposed as part of the Development. As such, no significant effects are likely and therefore this issue will not be considered further within the ES.

Appendix A – Structure of ES Technical Chapters

Introduction

The introduction will provide a brief summary of what is considered in the chapter and will state the author and/or relevant technical contributor and their competence.

Legislation, Planning Policy and Guidance

This section will summarise the relevant planning policy, legislation and guidance that form the context for the topic in bullet point form to minimise length. A detailed review of relevant planning policy, legislation and guidance will be provided as an Appendix to the chapter or within the supporting technical report within Volume II of the ES.

Assessment Methodology

The assessment methodology section in each chapter will provide an explanation of methods used in undertaking the technical assessment and the prediction of effects. Reference will be made to published standards, professional guidelines and best practice of relevance to the topic.

This section will also describe any topic-specific significance criteria applied in the assessment, particularly where these differ from common or generic criteria applied elsewhere in the ES. However, wherever possible, a common scale and language for assessing effects will be applied.

Consultation undertaken as part of the assessment to agree scope or methodology will be set out in the chapter. Where appropriate, it will describe the assumptions and limitations related to the assessment of the topic and any constraints to undertaking the assessment.

Baseline Conditions

A description of the environmental conditions that exist in the absence of the Development both now and, where relevant, those that are projected to exist in the future will be provided. The results of baseline surveys and desktop research will be summarised in this section.

Relevant receptors to the specific topic-based effects (e.g. noise, air quality) will be described, together with an indication of the relative sensitivity of these receptors to such effects. Comment will also be made on the future baseline conditions as required by the EIA Regulations.

Scheme Design and Management

This section will present the embedded design and / or management measures that will form part of the Development to avoid, prevent, reduce or offset environmental effects. These measures will be clearly defined to ensure transparency and to ensure that the impact assessment does not assess a scenario that is unrealistic in practice.

Construction

This section will present the assessment of potential effects/ impacts that are predicted to occur during the construction phase. Mitigation measures, over and above those proposed for inclusion in the CEMP will also be presented, together with residual effects.

Completed Development

This section will present the assessment of potential effects that are predicted to occur once the Development is complete and occupied together with the mitigation and residual effects.

Cumulative Effects

This section will present the assessment of potential cumulative effects with other projects in the vicinity that are predicted to occur during both the construction and completed Development phases together with the mitigation and residual effects.

Summary

This section will include a tabulated summary of the potential effects, mitigation measures and residual effects. The potential mechanisms by which the proposed mitigation measures will be implemented (e.g. CEMP, specific planning conditions or Section 106 obligations) will be specified, where appropriate.

Appendix B – EIA Landscape and Visual Impact Assessment Methodology summary of Approach and Criteria Tables

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

The key terms used within assessments are:

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

Sensitivity

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

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

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

Magnitude of Change

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

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

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

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

Level of Effect

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

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

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

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

Significance

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

Table.1 Sensitivity of Receptors Criteria: Landscape Receptors

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

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

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

Table.2 Sensitivity of Receptors Criteria: Visual Receptors

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

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

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

Table.3 Magnitude of Change Criteria: Landscape Receptors

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

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

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

Table.4 Magnitude of Change Criteria: Visual Receptors

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

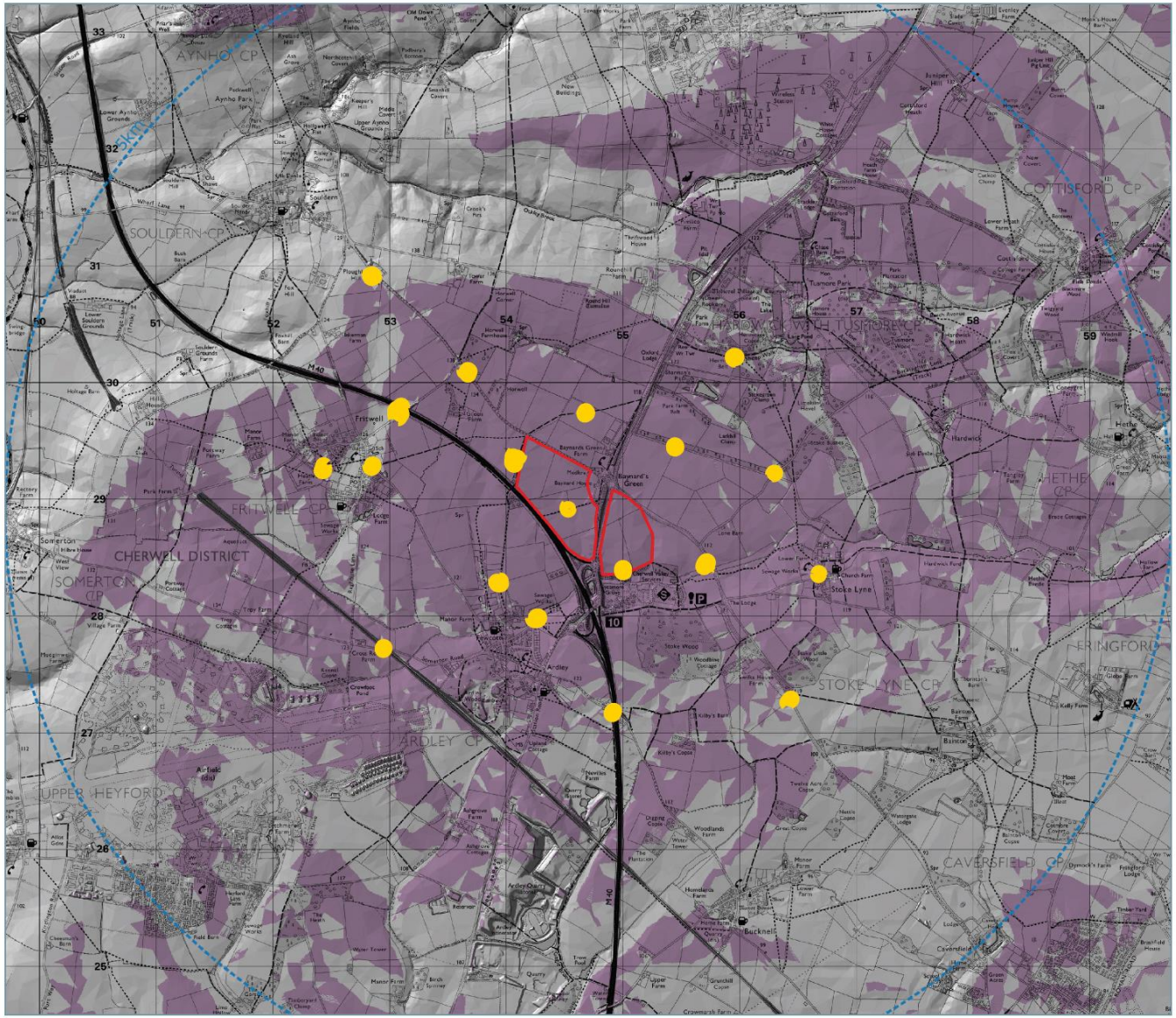
	Scale	***Geographical Extent***	***Duration and Reversibility***
	identifies the degree of change which would arise from the development	*Wide, and/or within close proximity, and/or open views.*	*identifies the time period over which the change to the receptor would arise as a result of the development.*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

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

Table.5 Level of Effect Criteria

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

Appendix C – Proposed viewpoint locations



Tyler Grange Group Ltd

Site Boundary

Zone of Theoretical Visibility (ZTV)

Potential Visibility

Source:
The Zone of Theoretical Visibility (ZTV) illustrates the extent to which the development at an 23m ridge height is potentially visible within a 5km radius (1.6m high receptor). The ZTV has been modelled using GIS computer software (Global Mapper) and Ordnance Survey Terrain 5 data, and as such does not take into account built form or vegetation present within the landscape. Field verification is required to refine the accuracy of the ZTV.

N

0km 1km

Project	Land at J10, M40
Drawing Title	**GIS Zone of Theoretical Visibility**
Scale	As Shown (Approximate)
Drawing No.	14047/P02
Date	May 2021
Checked	KC/WL

Tyler Grange

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