Quod

Environmental Statement Volume I: Main Text

Land at Junction 10, M40

SEPTEMBER 2021

Q210325

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Glossary

Amenity	A pleasant or advantageous aspect of the environment.
Aquifer	A below ground, water-bearing layer of soil or rock.
Baseline Studies	Studies of existing environmental conditions which are designed to establish the baseline conditions against which any future changes can be measured or predicted.
Brownfield site	A site comprising previously developed land.
Conservation Area	An area designated by the Local Authority as being of special architectural or historic interest under the provisions of the Planning (Listed Buildings and Conservation Areas 1990) Act, the character or appearance of which it is desirable to preserve or enhance.
Construction Environmental Management Plan	Tool for implementing the mitigations identified within the Environmental Statement and the conditions of the planning application.
Construction Traffic Management Plan	A tool for controlling the movement of freight associated with the design and construction phase. This will aid in minimising disturbance to receptors such as residents, businesses and the environment.
The 'Development'	**Please see definitions for Enabling Works, Eastern Site and Western Site – together these form 'the Development'.*
Dust	Particles typically in the size range 1 to 75 µm in aerodynamic diameter
Eastern Development	Application for outline planning permission (all matters reserved except for access) for the erection of buildings comprising logistics (Use Class B8) and ancillary office (Use Class E(g)(i) floorspace and associated infrastructure; construction of new site access from the B4100; creation of internal roads and access routes; and hard and soft landscaping.
Eastern Site	Land to the east of the A43 and south of the B4100, extending to circa 23.18ha.
Enabling Works	Site clearance, construction of new site access from the B4100, permanent and temporary internal roads, an internal roundabout and a foul drainage station, diversion of an existing overhead power cable and public right of way, and soft landscaping.
Environmental Impact Assessment	A process by which information about the environmental effects of a project is collected, both by the developer and from other sources, and taken into account by the relevant decision making body before a decision is given on whether the development should go ahead.

Environmental Statement	A statement that includes such information that is reasonably required to assess the environmental effects of a development.
Flood Risk	The risk of flooding posed to a defined receptor. Sources can include fluvial (rivers), tidal (estuaries and the sea), groundwater, surface water runoff, artificial drainage systems, canals and impounded waterbodies (i.e. canals, reservoirs, ponds, flood defences). Receptors that can be affected include people, property, infrastructure and wildlife.
Gross External Area	A measure of floor space calculated in accordance with the Royal Institution of Chartered Surveyors (RICS) code of Measuring Practice.
Gross Internal Area	The area of a building measured to the internal face of the perimeter walls at each floor level.
Impact Significance	Opinions from a relevant planning authority at an initial stage as to what are the nature and potential scale of the environmental impacts arising from the proposed development, and assessing what further studies are required to establish their significance.
Listed Buildings	A building or structure included in the list made by the Secretary of State for Culture Media and Sport of special architectural or historic interest.
Local Nature Reserve	Statutory designations made under Section 21 of the National Parks and Access to the Countryside Act 1949, and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006, by principal local authorities with wildlife or geological features that are of special interest locally.
Mitigation	Any process, activity of thing designed to avoid, reduce or remedy adverse environmental impacts likely to be caused by a development project.
Mitigating Factor	A matter to be taken into account as a benefit on balance to offset against any perceived or demonstrable harmful impact.
Mitigation Measure	Measure aiming at reducing an adverse environmental effect.
Net Internal Area	The usable area within a building measured to the internal face of the perimeter walls at each floor level.
Non-technical Summary	A summary of the Environmental Statement in ‘non-technical language’.
On-site	Taking place or available on the Site.
Off-site	Referring to a location other than the Site.
Ordnance Datum	Land levels are measured relative to the average sea level at Newlyn, Cornwall. This average level is referred to as ‘Ordnance Datum’.

Pathways	The routes by which impacts are transmitted through air, water, soils or plants and organisms to their receptors.
Permeability	The extent to which an environment allows people a variety of access routes through it. A permeable environment is one where there is ease of movement and where people have a choice of the routes they may use.
Phase 1 Contaminated Land Desk Study	An assessment to establish the previous uses of the Site or land nearby or adjacent to it, and to identify potential sources of contamination, receptors and pathways.
$PM_{2.5}$	The term $PM_{2.5}$ refers to the fraction of particles with aerodynamic diameters equal to, or less than, 2.5 µm. More precisely, the definitions specify the inlet cut-off for which 50% collection efficiency by a particle separator is obtained for these sizes.
PM_{10}	The term PM_{10} refers to the fraction of particles with aerodynamic diameters equal to, or less than, 10 µm. More precisely, the definitions specify the inlet cut-off for which 50% collection efficiency by a particle separator is obtained for these sizes.
Residual Impacts	Those impacts of the development that cannot be mitigated following implementation of mitigation proposals.
Risk Assessment	An assessment of the likelihood and severity of an occurrence.
Runoff	The overland flow of water from either impermeable surfaces, or areas where precipitation is collecting faster than it can infiltrate into the ground.
Scheduled Monument	A 'nationally important' archaeological site or historic building, given protection against unauthorised change.
Scoping	An initial stage in determining the nature and potential scale of the environmental impacts arising from the proposed development, and assessing what further studies are required to establish their significance.
Scoping Opinion	A written statement of the opinion of the relevant planning authority as to the information to be provided in the Environmental Statement.
Setting	The context in which a building or area can be appreciated.
The ‘Site’	Two parcels of agricultural land adjacent to Junction 10 of the M40 motorway either side of the A43. The land parcels are referred to as the ‘Western Site’ and ‘Eastern Site’ and extend to approximately 66.63ha in total.
Site of Special Scientific Interest	The best sites for wildlife and geological features in England as designated under the Wildlife and Countryside Act 1981.

Topography	The natural and man-made features of an area collectively.
Western Development	Application for outline planning permission (all matters reserved except for access) for the erection of buildings comprising logistics (Use Class B8) and ancillary office (Use Class E(g)(i)) floorspace; construction of new site access from the B4100; creation of internal roads and access routes; hard and soft landscaping including noise attenuation measures; and other associated infrastructure.
Western Site	Land to the west of the A43 and south of the B4100, extending to circa 43.45ha.

Abbreviations

AADF	Annual Average Daily Flows
AADT	Annual Average Daily Traffic flows
AAP	Area Action Plan
ACM	Asbestos Containing Materials
AOD	Above Ordnance Datum
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQMP	Air Quality Management Plan
AQO	Air Quality Objective
AQS	Air Quality Standard
ATC	Automatic Traffic Counter
BRES	Business Register and Employment Survey
CA	Conservation Area
CCS	Considerate Contractors Scheme
CDC	Cherwell District Council
CEMP	Construction Environmental Management Plan
CHP	Combined Heat and Power
CIEEM	Chartered Institute of Ecology and Environmental Management
CITB	Construction Industry Training Board
COMAH	Control of Major Accident Hazard
COSHH	Control of Substances Hazardous to Health
CRTN	Calculation of Road Traffic Noise
CTMP	Construction Traffic Management Plan
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DMPO	Development Management Procedure (England) Order
DPD	Development Management Document
DSP	Delivery and Servicing Plan
EA	Environment Agency

EcIA	Ecological Impact Assessment
EPA	European Protection Act
EPSML	European Protected Species Mitigation Licence
EHO	Environmental Health Officer
EIA	Environmental Impact Assessment
ES	Environmental Statement
EPUK	Environmental Protection UK
FRA	Flood Risk Assessment
FTE	Full-time Equivalent
GEA	Gross External Area
GIA	Gross Internal Area
GLVIA	Guidelines for Landscape and Visual Impact Assessment
Ha	Hectares
HoPI	Habitat of Principal Importance
HGV	Heavy Goods Vehicles
HSE	Health and Safety Executive
HUDU	Healthy Urban Development Unit
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management Assessment
LAQM	Local Air Quality Management
LPA	Local Planning Authority
LNR	Local Nature Reserve
LOAEL	Lowest Observed Adverse Effect Level
LSOA	Lower Super Output Area
LVIA	Landscape and Visual Impact Assessment
km	Kilometres
m	Metres
MCC	Manual Classified Counts
NIA	Net Internal Area
NMR	National Monuments Record
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides

NOAEL	No Observed Adverse Effect Level
NPPF	National Planning Policy Framework.
NPSE	Noise Policy Statement for England
NSR	Noise Sensitive Receptor
OCC	Oxfordshire County Council
ONS	Office for National Statistics
OS	Ordnance Survey
PBRA	Preliminary bat roost assessment
PERA	Preliminary Environmental Risk Assessment
PPG	Pollution Prevention Guidance
PPS	Planning Policy Statement
PPV	Peak Particle Velocity
PTAL	Public Transport Accessibility Level
SAC	Special Areas of Conservation
SPA	Special Protection Area
SINC	Sites of Importance for Nature Conservation
SSSI	Site of Special Scientific Interest
SOAEL	Significant Observed Adverse Effect Level
SPD	Supplementary Planning Document
SPG	Supplementary Planning Guidance
SFRA	Strategic Flood Risk Assessment
SUDs	Sustainable Drainage Systems
TA	Transport Assessment
TPO	Tree Preservation Order
ZoI	Zone of Influence
ZTV	Zone of Theoretical Visibility
ZTVI	Zone of Theoretical Visual Influence

1 Introduction

1.1 Purpose

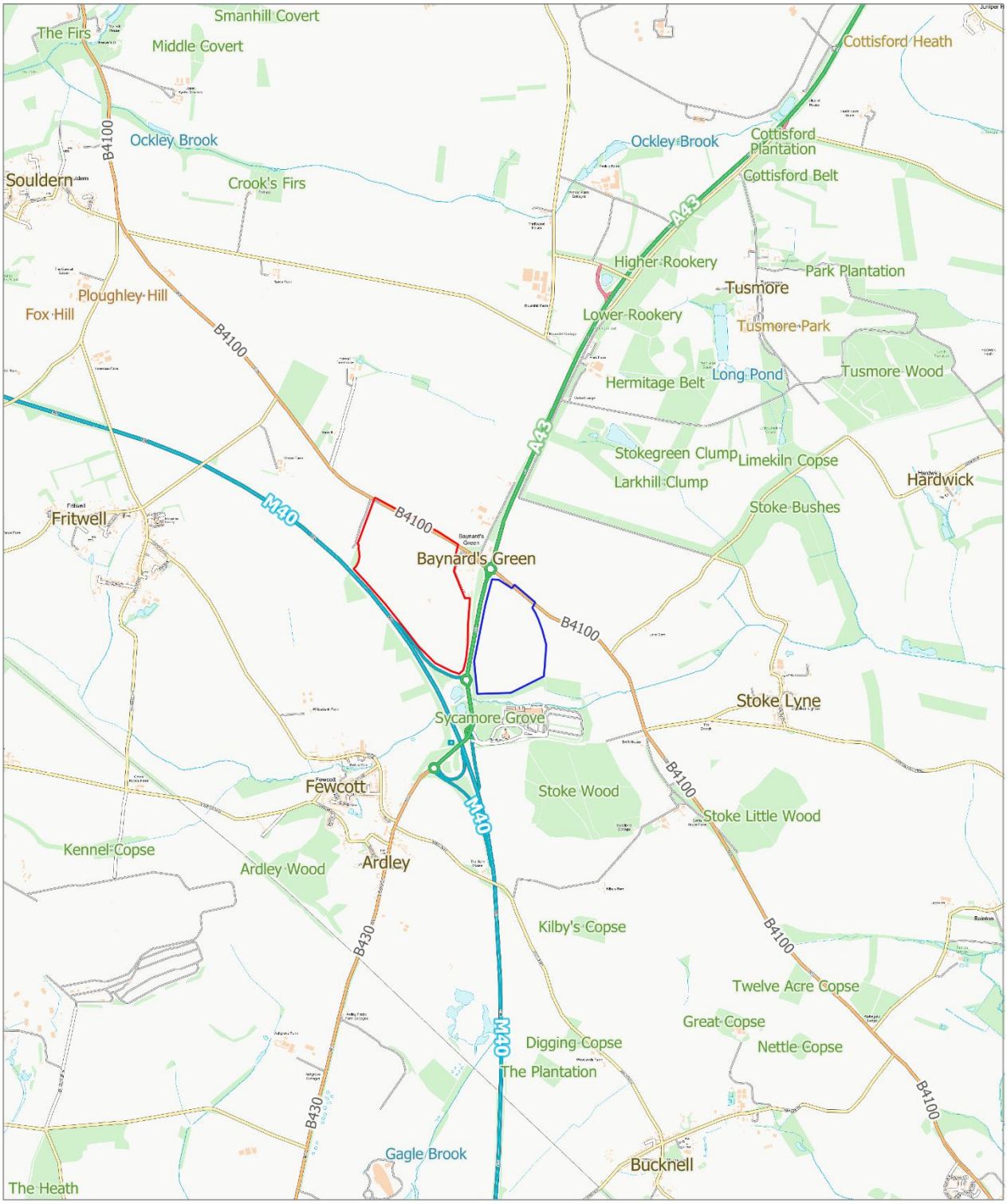
1.1.1 This Environmental Statement (ES) was prepared by Quod and a team of technical specialists on behalf of Albion Land (the 'Applicant'). The ES accompanies three planning applications submitted to Cherwell District Council (CDC) for employment development of land immediately north of Junction 10 of the M40 motorway.

1.1.2 The purpose of the ES is to provide information to decision-makers, stakeholders and the public about the likely significant effects of the proposed development. The ES identifies measures required to prevent, reduce or offset any significant adverse environmental effects, together with any monitoring that may be necessary, to help inform the planning application decision-making process.

1.1.3 The proposed development is located approximately 6.5km north west of Bicester town centre and comprises of two parcels of agricultural land east and west of the A43 referred to as the 'Eastern Site' and 'Western Site' respectively. Collectively, the Eastern Site and Western Sites are referred to as the 'Site'. The M40 motorway forms the southern boundary of the Western Site and is less than 200m to the south west of the Eastern Site boundary. The Site location is shown in Figure 1.1. The Eastern Site extends to 23.18ha and the Western Site extends to 43.45ha.

1.1.4 A description of the Site and its surrounds, together with figures showing the planning application boundaries, is provided in Chapter 2: Site and Setting.

Figure 1.1: Site Location



1.2 Overview of the Development

1.2.1 The planning applications, one submitted in detail and two which are submitted in outline with all matters reserved apart from access (where details are submitted), comprise:

- **Eastern Development** (Eastern Site) – *"Application for outline planning permission (all matters reserved except for access) for the erection of buildings comprising Storage and Distribution (Use Class B8) and ancillary Office (Use Class Eg(i) floorspace; associated infrastructure including electricity substation(s); construction of new site access from the B4100; creation of internal roads and access routes; and hard and soft landscaping".*

- **Western Development** (Western Site) – *"Application for outline planning permission (all matters reserved except for access) for the erection of buildings comprising Storage or Distribution (Use Class B8) and ancillary Office (Use Class Eg(i) floorspace; construction of new site access from the B4100; creation of internal roads and access routes; hard and soft landscaping including noise attenuation measures; and other associated infrastructure".*

- **Enabling Works** (Western Site) – *"Site clearance, construction of new site access from the B4100, permanent and temporary internal roads, an internal roundabout and a foul drainage station, diversion of an existing overhead power cable and public right of way, and soft landscaping".*

1.2.2 Collectively, the Enabling Works, Eastern Development and Western Development proposals are referred to as the 'Development'. A full description of the Development is provided in Chapter 5: Description of the Development.

1.3 Planning Context

1.3.1 The Site comprises agricultural land and is not allocated in the Cherwell Local Plan 2011 – 2031[1] (the 'Local Plan') and is not subject to any extant or historic planning permissions.

1.3.2 The Development proposals are therefore considered against the Local Plan policies including 'SLE1: Employment Development'. Saved policies of the 1996 Cherwell Local Plan also carry some weight including EMP4: Employment Development in Rural Areas. Consideration has also been given to the Cherwell Local Plan Partial Review consultation document[2].

1.3.3 An assessment of the Development in the context of relevant national, regional and local planning policy is provided within the Planning Statements that accompany the planning applications. Relevant planning policy is summarised in the technical chapters of this ES as appropriate for context in consideration of the environmental effects of the Development.

1.4 Environmental Impact Assessment Process

1.4.1 The ES reports on an Environmental Impact Assessment ('EIA') process, which is a systematic assessment of the likely significant effects of the Development. The EIA process is required by UK law for certain types of development projects.

1.4.2 In view of the nature and scale of the Development proposals and recognition that it has the potential to give rise to significant environmental effects, the Applicant voluntarily committed to undertake one EIA for the two outline applications. The Enabling Works application was subject to a request for an EIA Screening Opinion from CDC, received on 16th August 2021, that stated that EIA was required for this application. As such, the Enabling Works are inherently assessed in the respective technical topic chapters.

1.4.3 The Applicant has submitted planning applications for the Development under the Town and Country Planning Act 1990[3], therefore the ES has been prepared in line with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017[4] (as amended[5,6]) (the 'EIA Regulations').

1.4.4 A scoping study was undertaken as the first stage of the EIA process to determine the scope of the ES and the general approach to the assessments. A Scoping Opinion was provided by CDC on 29th July 2021 which set out their view on the scope of the ES. Assessments for each environmental discipline scoped into the EIA were then undertaken and an ES was prepared to report the methodology and results of the assessments. Further information on the scope of the ES and general EIA methodology is provided in Chapter 3: EIA Methodology.

1.5 Environmental Statement Preparation

1.5.1 The ES contains such information referred to in Regulation 18(3) and Schedule 4 of the EIA Regulations as is reasonably required to assess the likely significant environmental effects of the Development. Chapter 3: EIA Methodology sets out how the ES is compliant with the EIA Regulations and the information specified in the EIA Regulations.

1.5.2 The ES reports on the existing and future baseline conditions and provides an assessment of the likely environmental effects of the Development and their significance. In accordance with the EIA Regulations, the ES considers the effects of all stages of the Development including construction and operation.

1.5.3 Assessments are reported in topic-based chapters which also consider the potential for cumulative effects which may arise from the Development when considered alongside other development proposals. The ES also includes an assessment of the combined effects of individual effects resultant from the Development upon a single receptor ('effect interactions'). Where significant adverse effects on the environment are identified, the ES proposes ways to prevent, reduce and, where possible, offset these effects ('mitigation measures').

1.6 ES Structure and Project Team

1.6.1 The project team, authors of ES Chapters and structure of the ES are set out in Table 1.1.

Table 1.1: Consultant Project Team

Consultant Role/Input	Organisation
Applicant	Albion Land
Planning Consultants Environmental Planning and EIA Co-ordinator	Quod
Architect	Cornish Architects
Landscape Architects and Arboriculture	Tyler Grange
Accurate Visual Representations	Troopers Hill
Foul Sewage/Utilities; Flood Risk and Drainage; Land Contamination; Civil Engineering	Bailey Johnson Hayes
Agricultural Land and Soils Assessment	Askew Land and Soils
ES Volume I (ES Chapters)	
Chapters 1 – 6: Introduction; Site and Setting; EIA Methodology; Alternatives; Description of the Development; Construction.	Quod
Chapter 7: Socio-Economics	Quod
Chapter 8: Transport and Access	David Tucker Associates (DTA)
Chapter 9: Air Quality	Air Quality Consultants
Chapter 10: Noise and Vibration	Noise Consultants
Chapter 11: Cultural Heritage	RPS Group
Chapter 12: Ecology and Biodiversity	Tyler Grange
Chapter 13: Landscape and Visual Impacts	Tyler Grange
Chapter 14: Climate Change and Greenhouse Gases	Ecolyse
Chapter 15: Hydrology, Flood Risk and Drainage	Bailey Johnson Hayes
Chapter 16: Effect Interactions	Quod
Chapter 17: Summary of Mitigation, Monitoring and Residual Effects	Quod
ES Volume II – Appendices	Various
ES Non-Technical Summary	Quod

1.6.2 In addition to the ES, the planning applications are accompanied by a series of technical reports, including:

- Design and Access Statement;
- Landscape Strategy;
- Arboricultural Report;
- Agricultural Land/ Soils Assessment;

- Land Contamination Assessment.

1.6.3 As defined by paragraph 18(5)(a) of the EIA Regulations, the ES must be prepared by 'competent experts'.

1.6.4 Quod is the lead editor of this ES and author of certain chapters as identified in Table 1.1. Quod is a member of the Institute of Environmental Management and Assessment EIA Quality Mark Scheme, an accreditation scheme which sets high standards for EIA practice and demonstrates a commitment to excellence in EIA activities.

1.6.5 Each member of the project team is a suitably qualified professional and details of the professional competency of the technical author is provided in each technical chapter. The Applicant provided the following statement confirming that it considers the experts to be competent.

"In accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended), Albion Land (the Applicant) can hereby confirm that the technical consultants appointed to contribute and author this Environmental Statement are competent experts and have demonstrated evidence of sufficient expertise to carry out robust assessment and reporting. This is evidenced in the technical chapters of the Environmental Statement."

1.7 Environmental Statement Availability

1.7.1 The ES and all planning application documents are available for review online via CDC's online planning portal (link below).
https://planningregister.cherwell.gov.uk/

1.7.2 Due to COVID-19 restrictions at the time of writing, hard copies have not been made available for physical inspection at CDC's Planning Offices in line with emergency planning legislation in force until 31st December 2021 (The Town and Country Planning (Local Planning, Development Management Procedure, Listed Buildings etc.) (England) (Coronavirus) (Amendment) Regulations 2020 (SI 2020/1398)).

1.7.3 Hard copies can be requested for a reasonable fee and a USB stick of the ES can be made available free of charge. The Non-Technical Summary can be obtained free of charge upon request in hard copy or as an electronic file. All ES documents are available by emailing hello@quod.com and quoting Reference No. Q210325.

References

[1] Cherwell District Council, 2016. Cherwell Local Plan 2011-2031. December 2016.

[2] Cherwell District Council, 2016. Cherwell Local Plan 2011 – 2031 (Part1) Partial Review. November 2016

[3] The Stationary Office, 1990. Town and Country Planning Act 1990. United Kingdom.

[4] HMSO, 2017. The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. The Stationary Office. April 2017.

[5] HMSO, 2018. The Town and Country Planning and Infrastructure Planning (Environmental Impact Assessment) (Amendment) Regulations 2018. The Stationary Office. October 2018.

[6] HMSO, 2020. The Town and Country Planning (Local Planning, Development Management Procedure, Listed Buildings etc.) (England) (Coronavirus) (Amendment) Regulations 2020. The Stationary Office. December 2020.

2 Site and Setting

2.1 Introduction

2.1.1 This chapter provides a brief description of the Site and its surrounding areas, including key features, designations and key sensitive receptor locations that may be affected by the Development. A full description of the baseline conditions relevant to the technical assessments is provided in each technical chapter (i.e. Chapters 7 to 15).

2.2 Site Context

Location and Extent

2.2.1 The Site, comprising two parcels of agricultural land, is located in Oxfordshire, wholly within the administrative boundary of Cherwell District Council (CDC). It is situated approximately 6.5km north west of Bicester and 1.2km north east of Ardley, at Ordnance Survey (OS) National Grid Reference (NGR) SP 54512 29039 (Western Site) and SP 55017 28706 (Eastern Site). A site location plan is shown in Figure 1.1 and the application boundaries, Eastern Site and Western Site (including the Enabling Works Site), are shown in Figure 2.1a and 2.1b respectively. Collectively, the two parcels of land cover an area of approximately 66.63 hectares (ha).

Site Description

2.2.2 The Site comprises agricultural land, currently in use for arable farming. The fields have narrow tree belts around some of their perimeters and hedgerows are present along the majority of Site boundaries and within the Site itself. The Site also comprises bare ground around the perimeters of the Site, a derelict farm building in the centre of the Western Site, a waterbody (small pond) within the north portion of the Eastern Site, dry ditches, scrub and tall ruderal vegetation, and scattered trees along Site perimeters and within hedgerows.

2.2.3 The Western Site extends to circa 43.45ha and is bound by the B4100 (a single carriageway road which runs between Bicester and Banbury) to the north, the A43 (linking the M40 and the M1 at Northampton) 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 Western Site. Three residential properties are located adjacent to, but outwith, the north east corner of the Western Site (including Baynard House), bound by the A43 and B4100 on other sides. Access to these properties is from the B4100. An overhead power line crosses the Western Site, running a north east – south west trajectory. The topography of the Western Site falls gently from the north west corner towards the south east, from a height of 128m Above Ordnance Datum (AOD) to 111mAOD.

2.2.4 The Eastern Site is the smaller of the two parcels of land and extends to circa 23.18ha. It is bound by the B4100 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 petrol station, Travelodge hotel and parking) to the south; and the A43 to the west. The topography falls gently from north west to south east, from a height of 116mAOD to 109mAOD.

2.2.5 Aside from an extent of the B4100 to the B4100/A4 roundabout, the Enabling Works Site boundary (the 'Enabling Works Site') is wholly located within the Western Site boundary and is illustrated on Figure 2.1b.

Figure 2.1a: Indicative Planning Application Site Boundary – Eastern Site

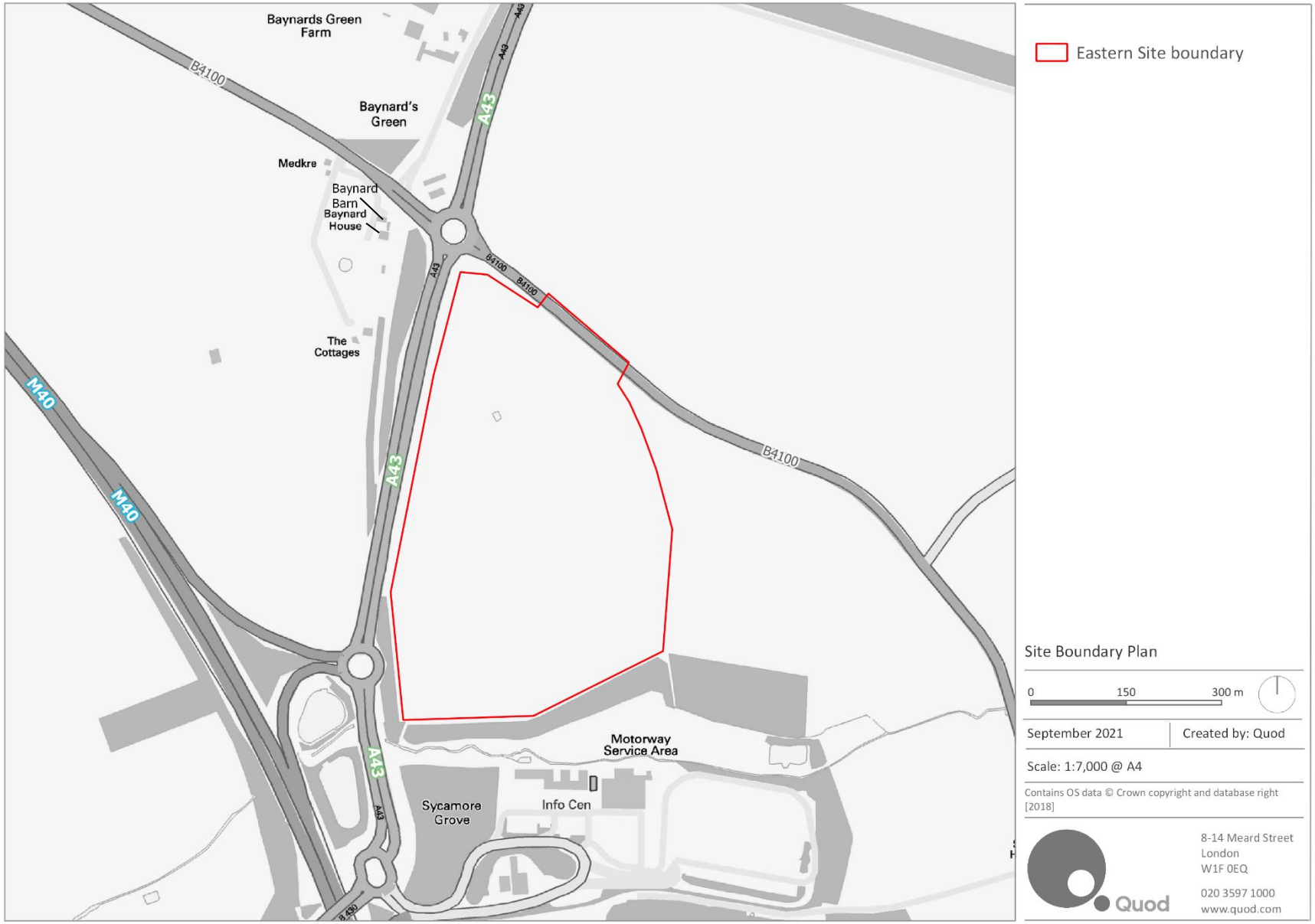
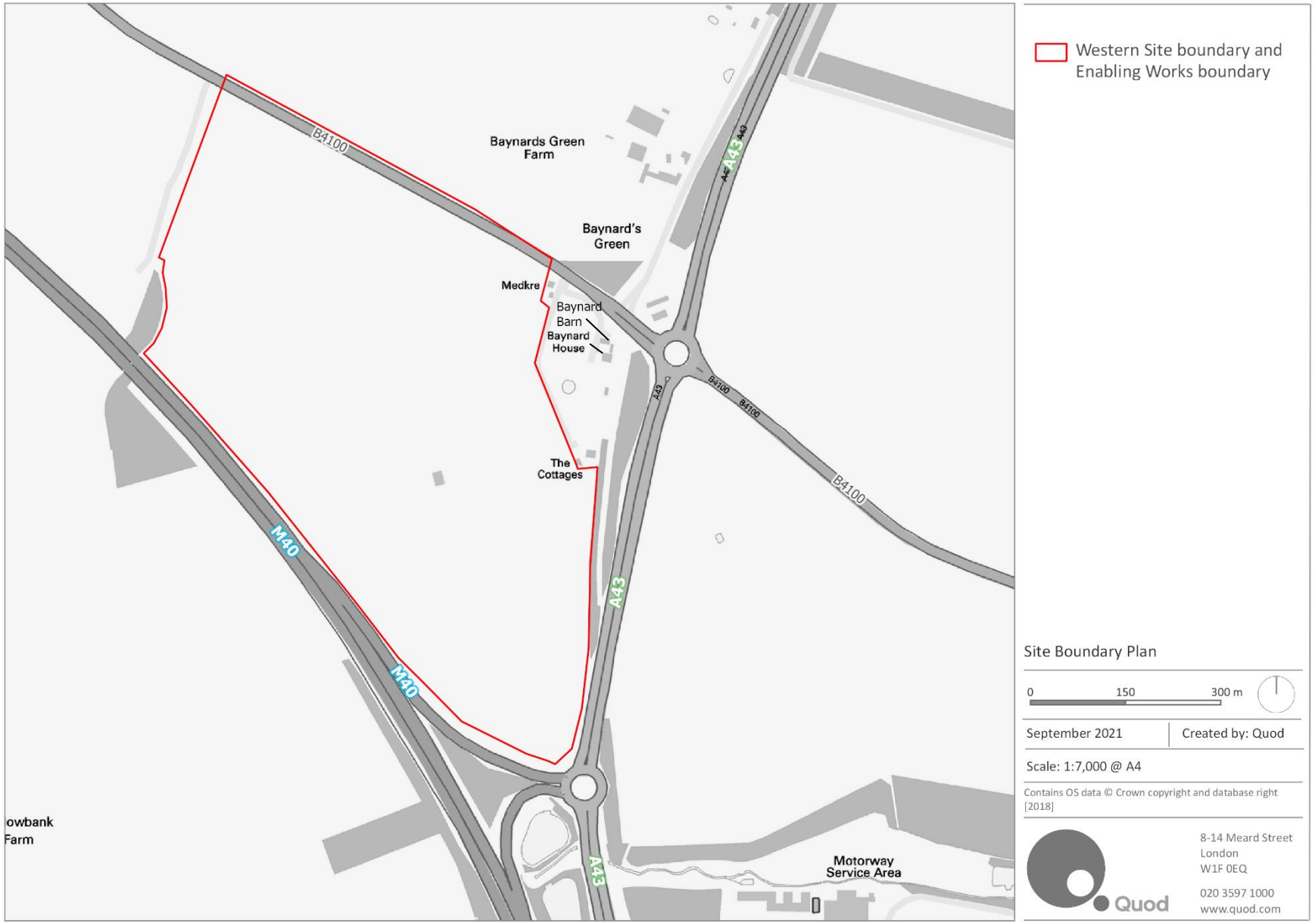


Figure 2.2b: Indicative Planning Application Site Boundary – Western Site (including Enabling Works Site)



Site History

2.2.6 The Site currently and historically has been in agricultural use. No previous development or other uses are known to have occurred on the Site.

Land Uses

2.2.7 The Site is located in an area which is dominated by agricultural land, with sparsely located residential and commercial development. Baynard House, Baynard Barn, The Cottages and associated outbuildings, and Medkre are located in close proximity to the north east corner of the Western Site. These houses are the only residential receptors in the vicinity (i.e. a 500m radius) of the Site.

2.2.8 The nearest settlement is Fewcott, approximately 750m south west of the Site boundary beyond the M40. Fritwell is located circa 1.2km to the west. 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, 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

2.2.9 Vehicular and pedestrian access to both the Eastern and Western Site is currently gained via the B4100 on the northern Site boundary. The B4100 connects to the A43 at a roundabout adjacent to the north of the Site boundary.

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

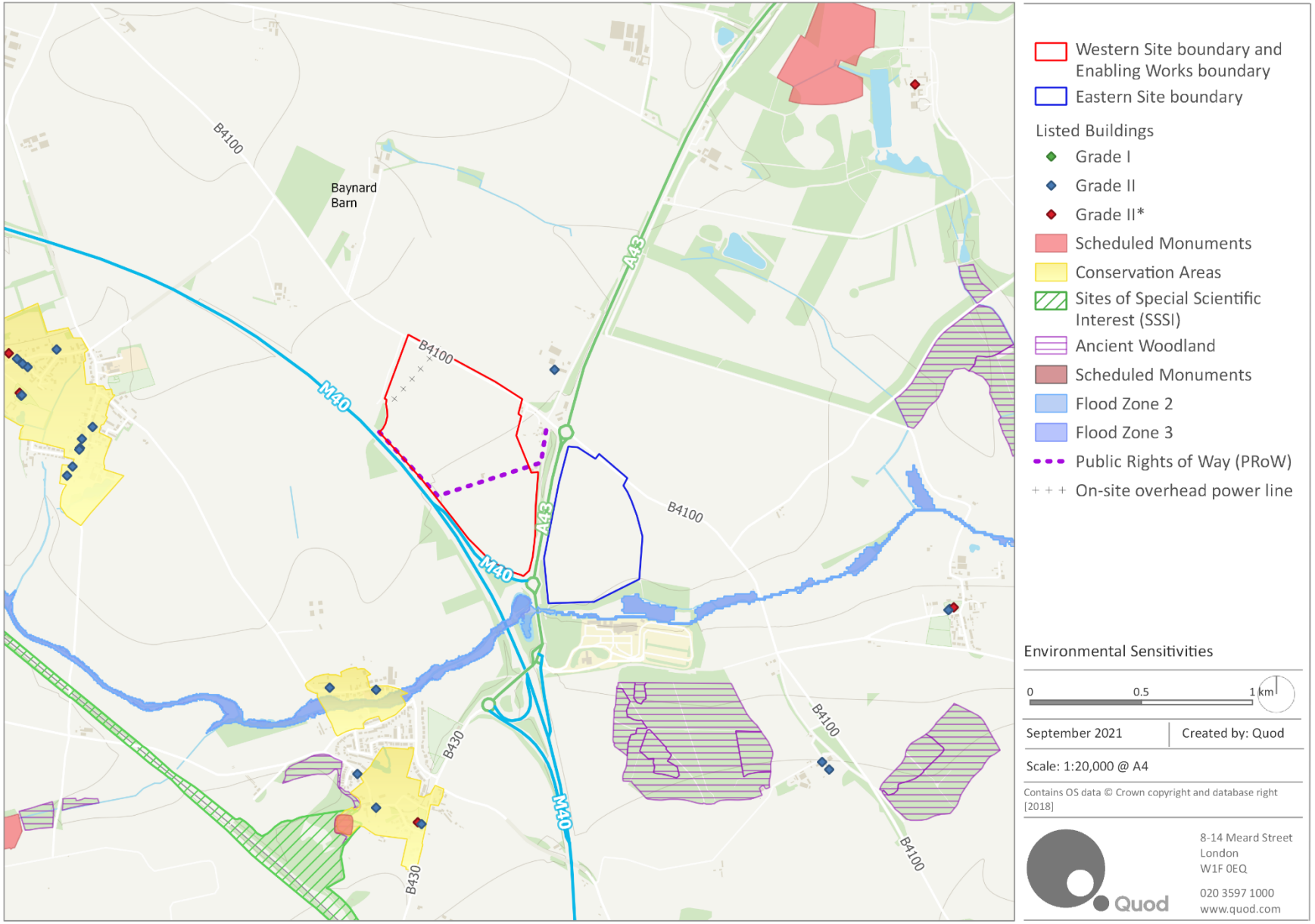
Site and Surrounding Sensitivities

2.2.11 Figure 2.2 identifies the key environmental sensitivities within and close to the Site.

2.2.12 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, 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.

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

Figure 2.3: Environmental Sensitivities Map



Archaeology, Built Heritage and Townscape

2.2.13 The Site is not located within or in proximity to a Conservation Area and there are no listed or (non-statutory) locally listed buildings on-Site. The closest listed structure is the Grade II listed barn at Baynards Green Farm ('Barn at SP 5487 2940') located approximately 200m north of the Site boundary. Two other built heritage assets are located within 1km of the Site boundary: Grade II listed Manor Farmhouse and Fewcott Farmhouse, located circa 800 and 900m south of the Site boundary respectively. Fewcott Conservation Area and Ardley Conservation Area are located approximately 800m south west from the Site boundary, at the closest point. Fritwell Conservation Area is located approximately 1.2km west of the Site boundary.

2.2.14 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. Tusmore Park, a Scheduled Monument, is located circa 1km north east of the Site and Ardley Wood moated ringwork Scheduled Monument is situated circa 1.4km to the south west of the Site.

2.2.15 The Site is not located within or in the vicinity of any statutorily designated or locally (non-statutorily) designated views.

2.2.16 The Site is not located in an Area of Archaeological Potential. However, due to the undeveloped, greenfield nature of the Site, there is potential for survival of archaeological remains. Consultation was therefore undertaken with the Council Archaeologist and a Written Scheme of Investigation was agreed for the Site. Further details are provided within the Archaeological Desk-Based Assessment (DBA) (see Appendix 11.1).

Biodiversity

2.2.17 There are no European Protected sites within 10km of the Site (e.g. RAMSAR, Special Area of Conservation (SACs), Special Protection Areas (SPAs)) and there are no statutory or non-statutory ecological designations within a 1km radius of the Site. The Site does not fall within the boundaries of Sites of Special Scientific Interest (SSSI), Natural Nature Reserves (NNR) or Local Nature Reserves (LNR).

2.2.18 The closest statutory designations for nature conservation are the Ardley Cutting and Quarry SSSI and the Ardley Trackways SSSI, situated approximately 1.3km south west and 1.8km south of the Site respectively. It is designated for approximately 6km along a section of the Chiltern Main Line railway. 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 Sites (LWS), with the closest, Stoke Wood LWS, located 0.34km south of the Eastern Site boundary. A pocket of ancient woodland and semi natural woodland is located within Stoke Wood LWS.

2.2.19 The Western Site boundary is well-vegetated with native hedgerows and interspersed trees. The Eastern Site boundary comprises a native hedgerow field boundary with the southern boundary marked by a large tree belt, separating the Site from Cherwell Valley Services.

Air Quality

2.2.20 The Site is not located within or in the vicinity of an Air Quality Management Area (AQMA), the nearest of which is located in Bicester, approximately 6.5km south east of the Site. This AQMA was declared for exceedances of the annual mean nitrogen dioxide (NO_2) objective. Ardley Energy from Waste (EfW) Plant and the Ardley Landfill Site are located approximately 2.2km south of the Site.

Water Resources and Flood Risk

2.2.21 Based on the Environment Agency flood maps, the Site is shown to be located entirely within a Flood Zone 1, meaning 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 Western Site is subject to a medium risk of flooding from surface water. The Site is not subject to a risk of flooding from reservoirs.

Future Development

2.2.22 There are three proposed planning schemes that are being considered with regard to their cumulative effects. Further details on these cumulative schemes is provided in Chapter 3: EIA Methodology and Appendix 3.5.

2.2.23 The A43/B4100 is in need of improvement to address existing congestion concerns. The A43/B4100 roundabout and the A43/M40 southbound off-slip junction are each subject to programmed improvement with secured funding as a Growth Fund scheme. The more substantive improvement arises at the A43/B4100 roundabout which is due to be upgraded by 2024. Schematic plans are available from publicly available sources, with the proposals involving signalisation and redesign of the roundabout, but details are limited so the exact proposals are not yet fully understood.

3 EIA Methodology

3.1 Introduction

3.1.1 This chapter sets out the scope and methodology adopted in the EIA process. It explains how the scope of the EIA was defined, the baseline assumptions, methods used to assess the environmental effects and the general criteria used to evaluate their significance. The methodology applied to each of the technical impact assessments is set out in each technical chapter.

3.1.2 This chapter is accompanied by the following appendices:

- Appendix 3.1: Location of Specified Information in the ES;
- Appendix 3.2: EIA Scoping Report (June 2021)
- Appendix 3.3: CDC EIA Scoping Opinion (July 2021) and scoping consultation responses;
- Appendix 3.4: a) Enabling Works EIA Screening Request and b) CDC Screening Opinion (August 2021); and
- Appendix 3.5: List of Cumulative Schemes.

3.2 Regulatory Requirements and Good Practice

3.2.1 This ES is prepared to comply with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017[1] (as amended)[2,3] (the 'EIA Regulations'). The information required for inclusion in an ES is defined by Regulation 18(3) - (5) and Schedule 4 of the EIA Regulations. Appendix 3.1 sets out these information requirements together with their location within the ES.

3.2.2 Good practice guidance documents have also been considered when undertaking this EIA, including:

- Planning Practice Guidance ('PPG') – Environmental Impact Assessment[4];
- Guidelines for Environmental Impact Assessment: Institute of Environmental Management and Assessment ('IEMA')[5];
- Special Report: The State of Environmental Impact Assessment Practice in the UK (IEMA)[6];
- EIA – Shaping and Delivering Quality Development (IEMA)[7];
- Delivering Proportionate EIA (IEMA)[8];
- Design Manual for Roads and Bridges (DMRB), Volume 11[9]; and
- Topic specific guidance referred to in each technical chapter of this ES where appropriate.

3.2.3 Each technical assessment (Chapters 7 – 15) followed respective national and local planning policy and guidance as appropriate to their discipline.

3.2.4 The following key policy documents have also been consulted during the EIA process:

- The National Planning Policy Framework (NPPF) (2021)[10];
- The Cherwell Local Plan 2016 - 2031[11]; and
- Saved polices from Cherwell Local Plan (1996)[12].

3.3 Design and EIA Interface

3.3.1 The EIA was undertaken in parallel with the design process. In particular, transport, ecology, noise and vibration, landscape and visual, climate change and flood risk specialists worked closely with the project design team through an iterative process to reduce, or eliminate where possible, adverse environmental effects through the scheme design. Further information on how environmental issues have influenced the design is provided in Chapter 4: Alternatives. Opportunities for enhancement, such as incorporating biodiversity enhancements and landscape screening into the design, were also identified through the EIA process.

3.4 Scope of the EIA

3.4.1 As set out in Chapter 1: Introduction, a separate planning application is submitted for the Enabling Works on the Western Site. A screening appraisal concluded that the Enabling Works were unlikely to give rise to significant environmental effects. However, CDC's Screening Opinion (August 2021, see Appendix 3.3) considered that the Enabling Works should be considered as part of a larger development and that the application comprises EIA development. As such, the potential environmental impacts of all three applications are assessed within this ES as part of the 'EIA Development' to allow a holistic approach to mitigation of effects.

3.4.2 The EIA Regulations require the ES to consider only the *'likely significant environmental effects'* of a development. UK Government's online PPG highlights the expectation that the ES should remain *'proportionate'* and focus on the *'main'* or *'significant'* environmental effects only.

3.4.3 The purpose of the EIA scoping process is to identify the likely significant environmental consequences of the EIA development and the level of detail of the information to be provided in the ES. An applicant who intends to submit an EIA application may ask the local planning authority to state their opinion as to the scope and level of detail of the information to be provided in the ES, in accordance with Regulation 15 of the EIA Regulations.

3.4.4 A request for a scoping opinion was submitted by the Applicant to CDC on 24th June 2021. An EIA Scoping Report (the 'Scoping Report') accompanied the request and identified the proposed topics and approach to the assessments during the EIA process (see Appendix 3.2). The Scoping Report also provided justification for 'scoping out' certain topics from the EIA, because the Development would have either no influence on these environmental aspects or it is unlikely to result in significant effects.

3.4.5 An EIA scoping opinion (the 'Scoping Opinion') was issued by CDC on 29th July 2021. The Scoping Opinion, together with scoping responses from bodies consulted by CDC on Scoping Report, are included at Appendix 3.3.

3.4.6 The Scoping Opinion broadly agreed with the proposed scope of the EIA as set out by the EIA Scoping Report, although also requested that Built Heritage and Water, Flood Risk and Drainage chapters be included within the ES. These topics are included at Chapter 11: Cultural Heritage and Chapter 15: Water, Flood Risk and Drainage. Each topic chapter sets out how the relevant matters raised in the Scoping Opinion has been addressed by the assessment under 'Assessment Methodology - Consultation'.

3.4.7 In accordance with the Scoping Opinion, the topics assessed in this ES are listed in Table 3.1.

Table 3.1: ES Technical Chapters

Socio-economics (Chapter 7)	Ecology and Biodiversity (Chapter 12)
Transport and Access (Chapter 8)	Landscape and Visual Impacts (Chapter 13)
Air Quality (Chapter 9)	Climate Change and Greenhouse Gases (Chapter 14)
Noise and Vibration (Chapter 10)	Water, Flood Risk and Drainage (Chapter 15)
Cultural Heritage (Chapter 11)	

3.4.8 A review of the Scoping Opinion and associated consultation comments has been carried out to ensure that, as required by Regulation 18(4)(a) of the EIA Regulations, the ES is "based on" the Scoping Opinion while maintaining a proportionate approach.

3.4.9 Topic specific cumulative inter-project effects and, where relevant, in-combination effects (intra-project effects) are assessed in each topical chapter. Combined effects on receptor groups from multiple topics (intra-project effects) are considered within Chapter 16: Effect Interactions.

3.5 Consultation

3.5.1 As stated above, a number of consultees were consulted by CDC following the Scoping Opinion request. These responses are included at Appendix 3.3. As part of CDC's responsibility under Regulation 15(4) of the EIA Regulations 2017, consultation was undertaken with the following consultees:

- CDC and Oxfordshire County Council (OCC) Highways;
- CDC Environmental Protection; and
- Thames Water.

3.5.2 Further consultation was undertaken by the project team during the EIA and design process with statutory consultees and other key stakeholders. Engagement was sought with CDC, OCC, and other key stakeholders on the Development. A summary of the key issues raised during consultation which is relevant to the EIA process and how these are addressed in the EIA is provided in the 'Assessment Methodology - Consultation' section of each technical chapter.

3.5.3 In summary, technical consultation has been undertaken with the following:

- OCC Highways and National Highways – regarding proposed scope of transport assessment (Chapter 8: Transport and Access);
- CDC Environmental Health Officer – regarding confirmation of agreement on noise baseline survey (Chapter 10: Noise and Vibration);
- OCC Archaeology – regarding proposed methodology of archaeological survey through submission of draft archaeological desk-based assessment (DBA) and Written Schemes of Information (WSIs) (Chapter 11: Cultural Heritage);
- CDC Ecology – regarding scope of ecology surveys and Biodiversity Net Gain (BNG) strategy (Chapter 12: Biodiversity); and
- CDC Landscape Officer – regarding agreement on Viewpoints and the Zone of Theoretical Visibility (ZTV) (Chapter 13: Landscape and Visual Impacts).

3.6 Defining the Baseline

Study Area

3.6.1 The study area, also known as the spatial Zone of Influence (ZoI), for each topic is based on the geographical scope of the potential impacts relevant to the topic or the information required to assess the likely significant effects, as well as topic specific guidance and consultation with stakeholders. This is defined in each technical ES chapter as appropriate as the ZoI varies from topic to topic and between construction and operational phases in some cases. A summary of the ZoIs applied to the topics in this EIA is provided in Table 3.2 and illustrated in Figures 3.1 and 3.2.

Table 3.2: ZoI of Potential Effects During the (i) Construction and (ii) Operation of the completed Development

Topic	ZoI during Construction	ZoI during Operation of completed Development
Socio-economics	The Site, local area, district (CDC) and regional level (south east England).	The Site, local area, district (CDC) and regional level (south east England).
Transport and Access	N/A	The following are assessed: ▪ the B4100; ▪ J10 M40; ▪ the A43 and the B4100/A4095 junction; ▪ the A4095 on the northern fringe of Bicester. The study area for appraisal of the Public Right of Way (PRoW) network is a 3km radius from the Site boundary.

Topic	ZoI during Construction	ZoI during Operation of completed Development
Air Quality	Dust - within 350m the Site boundary, or 50m of the route(s) used by construction vehicles on the public highway.	The study area for the assessment has been determined using professional judgement, by identifying the sensitive receptors adjacent to roads along which the Development will lead to a potentially significant change in traffic flows. Study area includes: ▪ the A43 north and south of Baynards Green roundabout; ▪ the B4100 east and west of the Baynards Green roundabout.
Noise and Vibration	To assess the effects of construction noise and vibration, the spatial extents of the study area were: ▪ 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) LAeq,T or greater.	For operational road traffic on new, altered or existing roads, the study area was defined based on the combined extent of: ▪ The area within 50m of other road links with the potential to experience a short-term Basic Noise Level (BNL) change of more than 1 dB(A) as a result of the Development; ▪ Identified receptors with the potential to experience a short-term Basic Noise Level (BNL) change of more than 1 dB(A) as a result of the Development; and ▪ Where the noise level at identified receptors is forecast to exceed the relevant Lowest Adverse Effect Level (LOAEL).
Cultural Heritage	1km from Site boundary	
Ecology and Biodiversity	Site itself and immediate surrounding area. Consideration of international statutorily protected sites at up to 10km from the Site and national statutorily and non-statutorily protected sites up to 2km.	
Landscape and Visual Impacts	2km radius from the centre of the Site.	
Climate Change and Greenhouse Gases	Climate change is a global environmental effect and as such the study area for the assessment is not limited by any specific geographical scope. The assessment considers the release of greenhouse gases from	

Topic	ZoI during Construction	ZoI during Operation of completed Development
	activities associated with the Development which the Applicant has some ability to control or influence.	
Hydrology, Flood Risk and Drainage	The Site	The Site and Padbury Brook catchment

Figure 3.1: Construction Phase ZoI

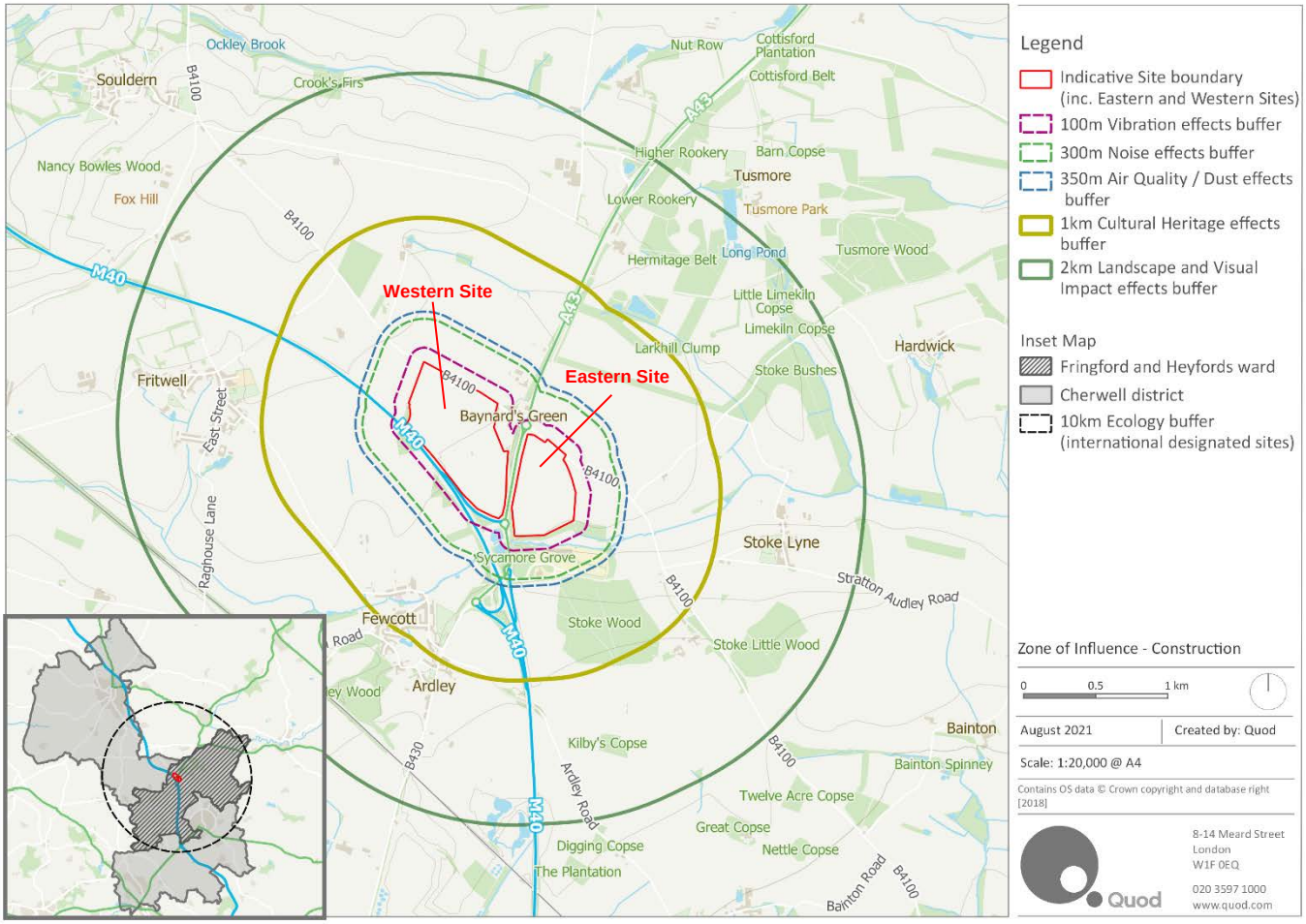
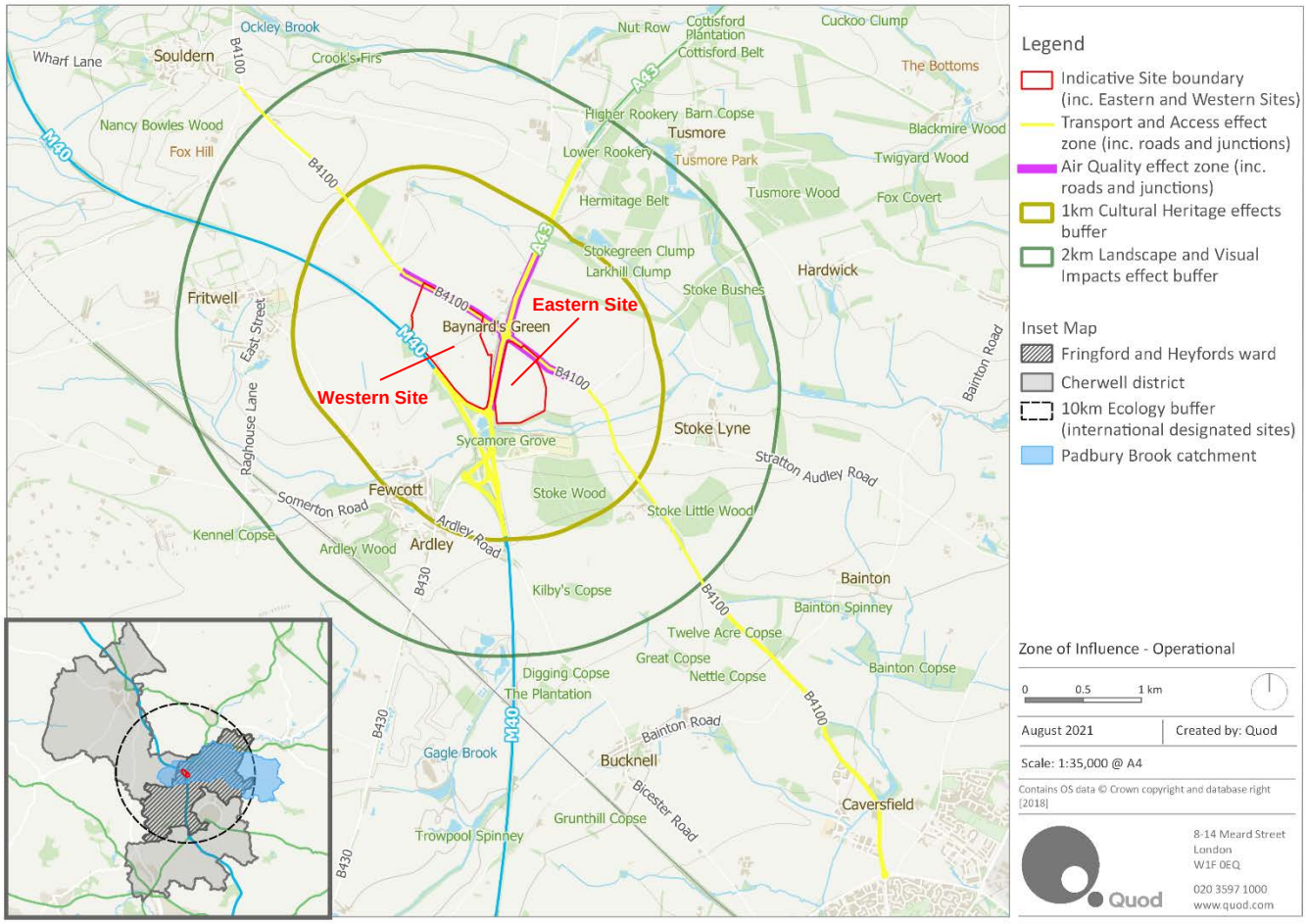


Figure 3.2: Operational Phase/ completed Development ZoI



Baseline Conditions and Future Baseline

Existing Baseline

3.6.2 The baseline environmental conditions need to be established to enable an accurate assessment of the potential changes that may occur and to assess the resultant environmental effects of the Development. Understanding baseline conditions also assists in the identification of the most appropriate mitigation to be employed to minimise significant effects.

3.6.3 Baseline information was gathered to define the existing environmental characteristics and receptors for each environmental topic. The baseline assessment year for the EIA is taken as 2021, unless otherwise stated. The baseline conditions and existing environmental characteristics and conditions of the Site were informed by:

- Desk-based studies
- Site visits and surveys;
- Computer modelling;
- Review of local planning policies; and
- Consultation with the statutory consultees, through the EIA scoping exercise and other consultation.

3.6.4 Baseline information is presented for both the Western Site and Eastern Site. Where appropriate, information is clearly identified for each application site.

3.6.5 A planning application for Enabling Works on the Western Site is being submitted by the Applicant and these will be completed in advance of the construction of the commercial units associated with the Eastern and Western Developments. As such, the baseline for assessment purposes is taken as the existing Site before the commencement of the Enabling Works for all topics. For example, the biodiversity assessment considers the Site prior to the removal of vegetation as part of the Enabling Works, to ensure that the loss of species-supporting habitat is appropriately mitigated.

Future Baseline

3.6.6 The EIA Regulations require an ES to include a description of the future baseline, i.e. the baseline conditions 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. Future baseline conditions are therefore also considered under the 'Baseline Conditions' section as appropriate within each technical chapter. Consideration is also given to the committed development schemes (as set out in Appendix 3.5) within each technical chapter and how the future baseline would change if they are brought forward ahead of the Development. However, the cumulative effects of the Development with other approved and planned schemes are assessed under the 'Cumulative Assessment' section of each topic chapter.

Sensitive Receptors

3.6.7 As part of the EIA process, the environmental effects of a given development or scheme are typically assessed in relation to sensitive receptors, including human beings (e.g. future site users), built resources (e.g. buildings) and natural resources (e.g. controlled waters). The criteria used for identifying potentially sensitive receptors include:

- Proximity to the Site;
- Presence or absence of impact pathways;
- Extent and duration of potential exposure to environmental impacts; and,
- Vulnerability and ability to respond to change.

3.6.8 Key sensitive receptors to the Development are the residential dwellings adjacent to the Western Site boundary, nearby built heritage assets and ecology on and in the vicinity of the Site. Further details on sensitive receptors are provided in the baseline assessment section of each technical chapter of the ES (i.e. Chapters 7 to 15). The chapters consider both existing and future sensitive receptors, on-site and off-site. A summary of the receptors and their sensitivity is provided at the end of each baseline section for the topic chapters.

3.7 Basis of the Impact Assessments

3.7.1 The Applicant is seeking outline planning permission for two applications, both with all matters reserved apart from access, and full planning permission of enabling works on the Western Site. All the applications are capable of being delivered independently of each other. The ES therefore assesses the environmental effects of the following in turn:

- Western Development (including Enabling Works);
- Eastern Development; and
- Western Development (including Enabling Works) and Eastern Development together; and
- Western Development and Eastern Development and cumulative schemes.

3.7.2 The following documents, provided for both the Western Development and Eastern Development applications form the basis of the assessments included within the ES for the outline applications:

- Parameter Plans – The Parameter Plans provide the upper building limits and establish a 3-dimensional (3D) building envelope within which the detailed design of buildings can come forward through the submission of outline applications with all matters reserved except access. Further details are provided in Chapter 5: Description of Development.
- Development Specification – this document describes the principal components of the Development including the maximum amount of development and the uses proposed. It also sets out embedded mitigation, environmental design standards and rules that control the detailed design of future development, including principles of internal access and parking, cladding and landscaping.

3.7.3 A suite of detailed drawings define the access and Enabling Works.

3.7.4 The EIA has principally assessed the Development by reference to the Parameter Plans and the Development Specification. Due to the level of design flexibility provided by the Parameter Plans (particularly in respect of defining maximum building envelopes and Gross External/Internal Areas (GEA/GIA) by land use), the technical assessments in this ES provide an assessment of the maximum extent of the Development which would represent a 'worst-case' assessment. The basis of the worst-case approach is clearly defined in each topic assessment.

3.7.5 A description of the Development and each application is provided in Chapter 5: Description of the Development.

3.7.6 The following technical disciplines of the EIA use parameters which define the height and massing of the buildings to assess impacts:

- Landscape and Visual Impacts;
- Cultural Heritage; and
- Noise and Vibration.

3.7.7 The Development Specification describes the type and amount of development by land use and square metres, respectively. The technical disciplines of the EIA that are dependent on the amount and uses proposed within the Development (i.e. the proposed floor areas) and development uses (i.e. Class Use) for the purposes of the assessment are principally:

- Socio-Economics: particularly in relation to employment creation, and additional local spending; and

- Transport and Access: In relation to trip generation and model split (indirectly - Noise and Vibration, Air Quality and Climate Change and Greenhouse Gases in relation to the assessment of road traffic noise, air quality and climatic impacts).

3.7.8 The amount and design of the parking provision will be a matter for detailed design and subsequent reserved matters submissions. Car Parking will be provided in accordance with OCC's adopted parking standards and cycle parking provision will be in-line with local policy requirements.

3.8 Assessment of Effects

Construction

3.8.1 Enabling Works are expected to commence in early 2022, with construction of the Western Development to commence in 2022 following completion of these works and Eastern Development to follow. First occupation is expected in 2024, and full completion across the Site in 2025. This would represent an indicative build out period of 3 years. Further details are provided in Chapter 6: Construction. A different start date would not materially alter the ES findings related to the assessment of likely significant effects or mitigation.

3.8.2 Construction of the Development would be phased, with some likely overlap in construction phases. While there is potentially a scenario where the Site is part-occupied while construction works are ongoing, the peak construction year is assumed to be 2023 for the purposes of assessment.

3.8.3 Each technical assessment in the ES assumes a notional 'likely-worst case' scenario with respect to the envisaged construction methods, location (proximity to sensitive receptors) and timing as outlined in Chapter 6: Construction. These assumptions may vary between the topic specific assessments, therefore each individual assessment accounts for a 'hypothetical' construction site that is representative of the 'worst-case' scenario for any given set of receptors, relevant to that particular technical assessment. Both permanent and temporary construction effects are identified.

3.8.4 The key activities during the construction phase which informed the technical assessments of the ES are described within each chapter as relevant. General commentary on the construction programme and method is provided in Chapter 6: Construction.

3.8.5 This ES is accompanied by a Framework CEMPs for the Eastern and Western Sites respectively (Appendices 6.1 and 6.2), which are prepared for the Development by Quod with input from technical specialists. These would be applied to each application and set out a series of measures and standards of work that would be applied by contractors throughout the construction period. These requirements would provide effective planning, management and control measures during construction to control effects that may affect the natural and human environment, local communities, amenity and safety of residents, road users and traffic flow, businesses and the public.

3.8.6 Implementation of the CEMP would be secured by planning conditions attached to each application. It is assumed that a detailed site-specific CEMP will be prepared and submitted to CDC for approval for both the Eastern and Western Developments in-line with the Framework CEMPs once contractors are appointed.

3.8.7 In-line with the IEMA best practice, 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 contractors' practices that manage activities which have potential nuisance effects"*.

3.8.8 As such, the CEMP forms part of the project description and is taken as being inherent mitigation in the assessment of environmental effects.

Completed Development

3.8.9 The assessment of potential effects of each completed and occupied development incorporates analysis of the permanent effects that could arise as a result of their operational use.

3.8.10 The Development across both sites is assumed to be completed in 2025 and therefore this is taken as the principal year of assessment. This year may be subject to change, however this would not materially alter the ES findings related to the assessment of likely significant effects or mitigation.

Cumulative Effects

3.8.11 The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration should also be given to any cumulative effects. Potential cumulative effects are categorised into two types:

- **Intra-project effects**: The combined effects of individual effects resultant from the Development upon a set of defined sensitive receptors, for example, noise, dust and visual effects; and
- **Inter-project effects**: The combined effects arising from another development site(s), which individually might be insignificant, but when considered together, could create a significant cumulative effect.

3.8.12 Details on the methodology and approach of the cumulative effects assessment for intra-project effects and inter-project effects of the Development are provided below.

Intra-Project Effects Assessment Methodology

3.8.13 Intra-project effects from multiple topics are assessed within Chapter 16: Effect Interactions. The effect interactions assessment focussed on receptors groups that have the potential to be affected by multiple effects from more than one specialist topic in the EIA, as a result of the Development.

3.8.14 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. As a result, a receptor group based approach was adopted. The methodology used for the assessment of effect interactions as well as the results of the assessment are set out in Chapter 16: Effect Interactions.

Inter-Project Effects Assessment Methodology

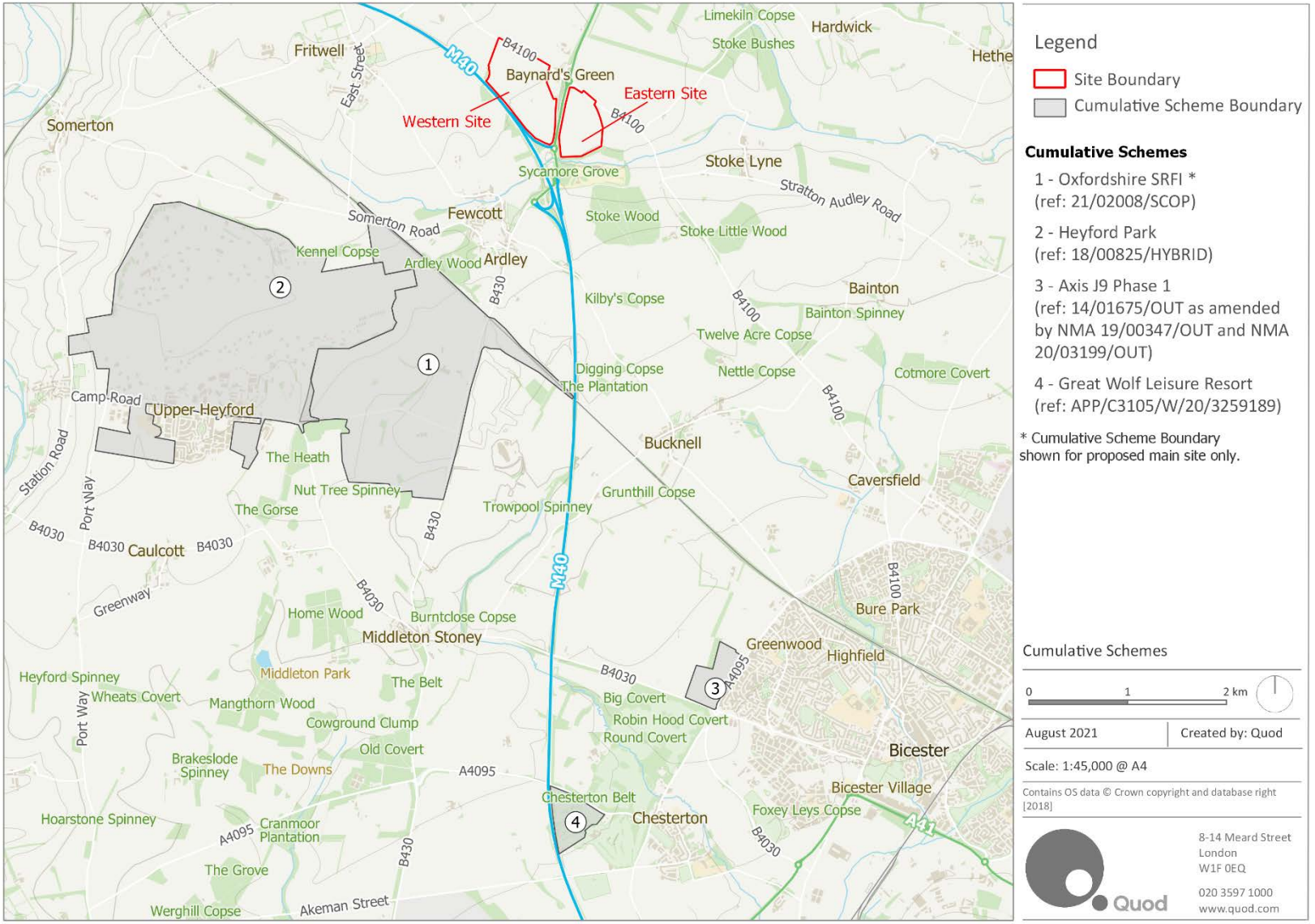
3.8.15 There is currently no guidance on how to define an appropriate study area for considering cumulative effects. Therefore, a set of screening criteria has been developed to identify which reasonably foreseeable developments in the vicinity of the Site should be subject to assessment. This screening criteria was informed by the government's PPG[4] 'When should cumulative effects be assessed?' and the PINS Advice Note 17[13]. Schemes to be considered have been identified based on the following criteria:

- 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 Development);
- Considered an EIA development and for which an ES was submitted with the planning application;
- Those which have received planning consent from the planning authority (granted or resolution to grant); and/or,
- Introduce sensitive receptors within close proximity to the Site boundary (but are not EIA development).

3.8.16 The development schemes which meet the above criteria, and which were included within the cumulative assessment are identified in Figure 3.3. Appendix 3.5 provides further detail of each cumulative scheme and its status. Each technical chapter assesses and presents the potential for inter-project effects arising from the cumulative schemes.

3.8.17 The Scoping Opinion requested additional consideration of the Strategic Rail Freight Interchange (SRFI) within the cumulative assessment. At the time of writing, no planning application had been submitted for this proposed development; as such each technical assessment has provided qualitative consideration of this scheme as far as possible based on information that is publicly available.

Figure 3.3: Cumulative Schemes



3.9 Identifying and Determining the Significance of Environmental Effects

Identifying Impacts and Effects

3.9.1 The Development has the potential to create a range of 'impacts' and 'effects' with regard to the physical, biological and human environment. The definitions of impact and effect used in this assessment are drawn from the DMRB Guidance as follows:

- **Impact** - a change that is caused by an action. For example, road traffic from the Development would result in increased levels of noise (impact). Impacts can be classified as direct, indirect, secondary, cumulative and inter-related. They can be either positive (beneficial) or negative (adverse); and
- **Effect** - is used to express the consequence of an impact. For example, increased levels of road traffic noise (impact) has the potential to disturb local noise sensitive receptors (effect).

3.9.2 For consistency, the findings of the various studies undertaken as part of the EIA adopt the following terminology to express the nature of the effect:

- Adverse: Detrimental or negative effect to an environmental resource or receptor;
- Negligible: No significant effect to an environmental resource or receptor; and
- Beneficial: Advantageous or positive effect to an environmental resource or receptor.

3.9.3 Following their identification, beneficial or adverse impacts are classified on the basis of their nature and duration as follows:

- Temporary: Effects that persist for a limited period only (due, for example, to particular activities taking place for a short period of time);
- Permanent: Effects that result from an irreversible change to the baseline environment (e.g. land-take) or which will persist for the foreseeable future (e.g. noise from regular or continuous operations or activities);
- Direct: Effects that arise from the effect of the project itself (e.g. removal of vegetation);
- Indirect: Effects that arise which are not a direct result of the project but are closely linked (e.g. changes to surface water quality due to change in land use and urbanisation);
- Secondary: Effects that arise as a consequence of an initial effect of the scheme (e.g. induced employment elsewhere);
- Cumulative: Effects that can arise from a combination of different effects at a specific location or the interaction of different effects over different periods of time.

3.9.4 In the context of the Development, short (up to 24 months duration) to medium (up to 48 months duration) term effects are generally determined to be those associated with construction activities, and the long-term effects are those associated with the completed and occupied Development. Therefore, all construction effects are considered temporary and all operational effects considered permanent, unless otherwise stated.

3.9.5 Local effects are those effects affecting receptors within and in close proximity to the Site, whilst district and regional effects are those affecting receptors in the CDC and OCC administrative areas respectively.

Defining Magnitude of Impact and Sensitivity of Receptor

Magnitude of Impact

3.9.6 For impacts assessed in this ES, a magnitude of impact is assigned, taking into account the spatial extent, duration, frequency and reversibility of the impact, where relevant. Scales of magnitudes of impact are defined in each chapter of this ES where this is possible, otherwise professional judgement is applied to the following scale:

- No change;
- Negligible;
- Low;
- Medium; and
- High.

Sensitivity of Receptor

3.9.7 Sensitive receptors are defined as the physical or biological resources or user groups that would be affected by the potential impacts of the proposed development. The identification of sensitive receptors is informed by baseline studies carried out as part of the EIA. The sensitivity of a receptor is defined by each topic and based as appropriate for each topic on the relative importance of the receptor taking into account:

- Legislative/designated status;
- The number of individual receptors;
- The characteristics/rarity; and
- Ability to absorb change.

3.9.8 A summary of sensitive receptors is provided within each baseline assessment sections of the ES topic chapters. Sensitivity is defined within each topic according to the following scale:

- Negligible;
- Low;
- Medium; and
- High.

Evaluation of Significance of Effect

3.9.9 The assessment of environmental effects is undertaken in accordance with relevant industry standards and legislation where such material is available. In cases where it is not possible to quantify effects, qualitative assessments have been carried out and based on the available knowledge of the Site and potential effect, alongside professional judgement. Where uncertainty exists, this is detailed in the ‘Assumptions and Limitations’ section under ‘Assessment Methodology’ in the respective technical chapters.

3.9.10 Each technical chapter provides the specific criteria, including sources and justifications, for quantifying the level of effect significance. Where possible, this is based upon quantitative and accepted criteria, together with the use of value judgements and expert interpretations to establish to what extent an effect is significant.

3.9.11 There is no statutory definition of what constitutes a significant effect and guidance is of a generic nature. However, it is widely recognised that 'significance' reflects the relationship between the magnitude of an impact and the sensitivity (or value) of the affected resource or receptor. Statutory designations and any potential breaches of environmental law take precedence in determining significance because the protection afforded to a particular receptor or resource is already established as a matter of law, rather than requiring a project or site-specific evaluation.

3.9.12 Specific criteria for the assessment of each potential effect were developed giving due regard to the following:

- Extent and magnitude of the effect;
- Effect duration (whether short, medium or long term);
- Nature of effect (whether direct or indirect, reversible or irreversible);
- Performance against environmental quality standards;
- Whether the effect occurs in isolation or cumulatively;
- Sensitivity of the receptor; and
- Compatibility with environmental policies.

3.9.13 Where adverse or beneficial effects are identified, these were generally assessed against the scale set out in Table 3.3.

Table 3.3: Description of the Level of Significance of Environmental Effects

Level of Significance	Description
Major	Large effects (by extent, duration or magnitude) and/or a highly pronounced change in environmental conditions. Effects, both adverse and beneficial, which are likely to be important considerations at a regional level because they contribute to achieving regional or council wide objectives, or, could result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Intermediate effects (by extent, duration or magnitude) and/or pronounced change in environmental conditions. Effect that is likely to be an important consideration at a local level.
Minor	Noticeable but small effect or change in environmental conditions. These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Typically, 'Minor' effects are considered 'Not Significant' in EIA terms unless otherwise stated within the technical chapter.
Negligible	No discernible change or neutral effect on environmental conditions. An effect that is likely to have a negligible influence, irrespective of other effects. Negligible effects are considered 'Not Significant' in EIA terms.

3.9.14 The matrix presented in Table 3.4 is generally applied throughout this ES to determine the scale or magnitude of effects. Where different assessment criteria were used, this is clearly stated within the relevant chapter.

Table 3.4: Significance of Effects Matrix

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

3.9.15 Professional judgement is applied to define the significance where a potential effect falls in the major/moderate and moderate/minor categories.

3.9.16 Unless otherwise stated in the technical chapters, effects classified as moderate or major in scale are considered 'significant'. Effects classified as minor or negligible are considered 'not significant'.

Mitigation, Monitoring and Residual Effects

3.9.17 The development of mitigation measures is an integral part of EIA. Mitigation measures are set out in each of the technical assessment chapters where significant effects are identified, with the aim of avoiding, reducing, or offsetting for potential adverse effects and maximising potential beneficial effects. In each technical chapter, the specialists undertaking the EIA identified appropriate mitigation measures based on their assessment of potential significant impacts.

3.9.18 The following mitigation measures are considered where relevant:

- Inherent (primary) mitigation measures - are those which are 'designed in' or embedded to the scheme and certain to be delivered, i.e. what is proposed by the application forms and drawings.
- Standard (secondary) mitigation measures - e.g. construction mitigation with a high degree of certainty over delivery, i.e. measures to be included in the CEMP.
- Actionable (tertiary) mitigation measures - those that require a controlling mechanism or legal undertaking to be implemented, but are under the control of the Applicant, CDC or statutory bodies, e.g. planning conditions, Section 106 and Section 278 agreements, but for the purposes of the assessment have been considered as inherent to scheme design, so are taken into account as part of the assessment.

3.9.19 Residual effects are those that remain following the consideration of mitigation within the assessment. When applying the matrix set out in Table 3.4, these are defined as either 'significant' (i.e. major or moderate residual effect) or 'not significant' (i.e. minor residual effect or negligible). 'Not significant' effects would not be considered material to the planning decision and 'significant' effects would be considered material to the planning decision process.

References

[1] HMSO, (2017). The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. The Stationary Office.

[2] HMSO, (2018). The Town and Country Planning and Infrastructure Planning (Environmental Impact Assessment) (Amendment) Regulations 2018. The Stationary Office. October 2018.

[3] HMSO, 2020. The Town and Country Planning (Local Planning, Development Management Procedure, Listed Buildings etc.) (England) (Coronavirus) (Amendment) Regulations 2020. The Stationary Office. December 2020.

[4] UK Government, (2020). Guidance: Environmental Impact Assessment. Available at: https://www.gov.uk/guidance/environmental-impact-assessment . Last accessed: July 2021.

[5] Institute of Environmental Impact and Assessment (IEMA), (2004). Guidelines for Environmental Impact Assessment. IEMA.

[6] IEMA, (2011). Special Report: The State of Environmental Impact Assessment Practice in the UK. IEMA.

[7] IEMA, (2016). EIA – Shaping and Delivering Quality Development. July 2016.

[8] IEMA, (2017). Delivering Proportionate EIA: A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice. July 2017.

[9] Highways Agency et al. (2008), Design Manual for Roads and Bridges.

[10] Ministry of Housing, Communities and Local Government, (2021). National Planning Policy Framework. July 2021.

[11] Cherwell District Council, 2016. Cherwell Local Plan 2011-2031. December 2016.

[12] CDC, 2016. Cherwell Local Plan 2011-2031 (Part 1): Schedule of Saved Policies. https://www.cherwell.gov.uk/downloads/file/103/schedule-of-saved-policies

[13] Planning Inspectorate. (2019). Advice Note 17: Cumulative Effects Assessment Relevant to Nationally Significant Infrastructure Projects. August 2019.

4 Alternatives

4.1 Introduction

4.1.1 In accordance with the EIA Regulations, this chapter describes the reasonable alternatives to the Development considered by the Applicant, prior to the selection of the final design and provides a description of the main reasons for the choice made, including a comparison of the environmental effects if available.

4.1.2 The alternatives that are considered in this chapter include:

- Alternative sites / Site extents;
- The 'No Development' alternative; and
- Alternative designs including layout, heights, massing and other aspects.

4.2 Alternative Sites / Site Extents

4.2.1 The Site does not fall under any extant planning permissions and is unallocated in the Cherwell Local Plan 2011 – 2031[1] (the 'Local Plan') and will therefore be considered with regard to Policy SLE 1: Employment Development' of the Local Plan. Policy SLE 1 directs new employment development to locations in accordance with Policy ESD 1 of the Local Plan, distributing growth to locations identified as sustainable. Policy ESD 1 involves directing employment development to existing employment sites and main urban settlements (Banbury, Bicester and Kidlington). Employment development in rural areas should be located within or on the edge of category A villages unless exceptional circumstances are demonstrated.

4.2.2 Policy SLE 1 sets out criteria that requires the applicant to demonstrate why a rural location is required and that there is no other available land within existing nearby employment areas that would be suitable for the proposed use. Given the nature and scale of the Development, it requires immediate access to the strategic highway network due to the high levels of HGVs which service the proposed uses likely to occupy the Site. The Site is considered to afford excellent access in this regard.

4.2.3 Development has already commenced or completed at most of the strategic employment sites allocated in the Local Plan and there are no other suitable sites within the urban areas that are capable of accommodating the Development. Although there are other smaller sites located along the M40 corridor, these are generally incapable of accommodating large scale warehouse development that is proposed. Further discussion is provided in the Planning Statement submitted with the outline planning applications.

4.2.4 Given the considerations set out above, no alternative sites have been considered by the Applicant as being reasonable alternatives to the Site. Alternative sites are therefore not considered further in this ES.

4.2.5 Initially, the Applicant intended to submit a single detailed planning application for the Site, which would comprise both the Western and Eastern Sites. This approach was subsequently amended to the preparation and submission of individual outline planning

applications for development of both the Western and Eastern Sites to allow greater flexibility in how the sites could come forward for development.

4.3 The 'No Development' Alternative

4.3.1 In line with best practice, this section outlines the consequences of no development taking place at the Site. In this scenario the Site remains in its current state. Chapters 7 to 15 set out the baseline conditions for the Site together with the future baseline conditions which are likely to arise in the absence of the Development. These are not repeated here.

4.3.2 The Site does is not subject to any extant planning permissions and is unallocated in the Local Plan. As such, it would be reasonable to assume that in the absence of development, both the Western Site and Eastern Site would remain in agricultural use. However, given the Site's location proximity and good access to the M40 motorway, it is likely to be subject to future consideration by developers due to the significant demand for logistics developments in this location.

4.3.3 In the absence of development, adverse environmental effects related to construction would not occur, for example some habitat loss and biodiversity impacts, construction traffic, air quality, dust, noise and landscape and visual effects. However, these effects have been found by the EIA process to be not significant. Temporary beneficial socio-economic effects, such as construction employment, economic benefits through supply chain effects and local spending by construction workers would also not arise.

4.3.4 Adverse environmental effects associated with the completed Development would not occur, including landscape and visual, transport, noise and vibration, biodiversity and air quality impacts. However, these would be mitigated as far as practicable through detailed design of the new buildings and operational management plans (e.g. adherence to the CTMP, CEMPs, LEMP, Travel Plan).

4.3.5 Chapter 7: Socio-economics identifies that the Development would result in significant beneficial effects, including the creation of circa 2,840 to 3,840 FTE jobs through the operation of the completed Development. The nature of the roles and travel to work distances indicate that these jobs would likely be of direct benefit the local / regional impact area (i.e. Fringford and Heyfords ward and Cherwell District). If the Development did not come forward in this location, it is likely that these jobs would be displaced to another location outwith CDC along the M40 corridor.

4.4 Environmental Design Considerations

4.4.1 The project has been informed through discussions with stakeholders, primarily with CDC and Oxfordshire County Council (OCC). Environmental analysis of baseline conditions and sensitivities and testing of early scheme designs were also used to inform the proposed Development.

4.4.2 A summary of the main environmental considerations and constraints and how the design responds to these is provided in Table 4.1.

Table 4.1: Main Design Considerations

Topic	Considerations	Design Response
Existing and surrounding uses	The Site is not occupied by sensitive uses although a small number of sensitive residential receptors are located in close proximity to the Site, adjacent to the north-eastern Western Site boundary.	Built form within the Western Development is set back from the northern and north eastern boundary towards the west and south of the Western Site. This maximises the separation distance between the proposed employment uses and the residential receptors.
Cultural heritage	The Grade II listed barn on Baynards Green Farm is approximately 200m north of the Site boundary and the Fewcott Conservation Area and Ardley Conservation Area are located approximately 800m south west from the Site boundary, at its closest point. Fritwell Conservation Area is located approximately 1.2km west of the Site boundary.	
Landscape and visual impacts	Initial Zone of Theoretical Visibility analysis of the Site highlighted the likely visibility of the Development due to the building heights required by the employment uses. This work confirmed the importance of landscape buffers around the perimeter of both the Western and Eastern Developments. The landscape and visual consultant identified that the north eastern boundary of the Eastern Site was particularly visible and as such required a landscaping buffer to act as visual screening.	Maximum building heights are fixed for the Development by market demands for buildings of the scale proposed. Ground levels for the development could not with lowered without the need for significant export of material off-Site which would generate additional HGV movements and associated effects. As such, this was rejected as a reasonable alternative. The location of potential built form within the Build Zones (as illustrated on Parameter Plans 01 and 06) was located away from sensitive Site boundaries as far as practicable. The External Lighting Strategy seeks to ensure that required lighting levels are achieved whilst minimising glare and light spillage to surrounding areas (e.g. via back-shields) and ensuring that there is no direct contribution to upward light pollution. The Development includes provision for retaining and strengthening existing vegetation boundaries through

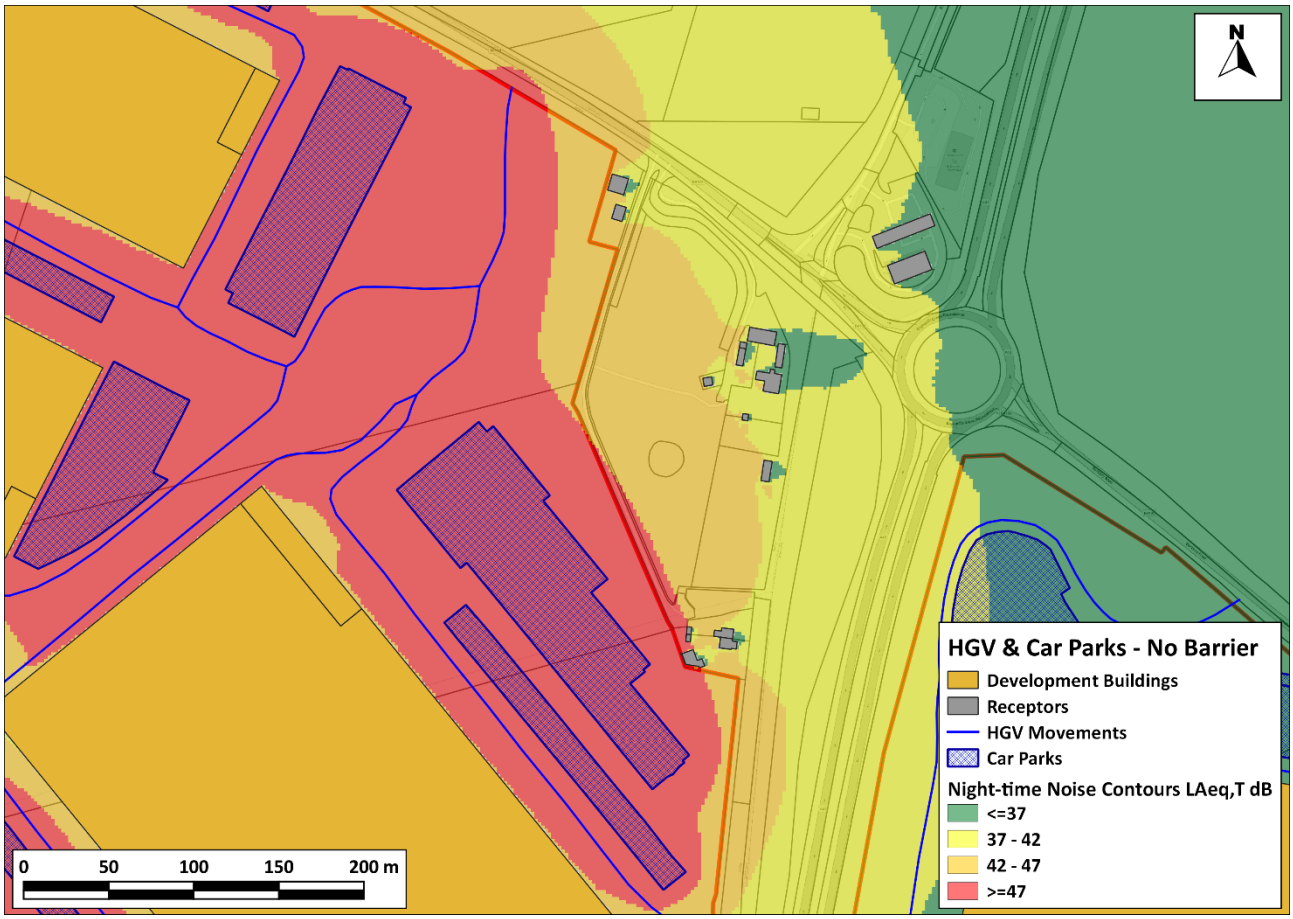
Topic	Considerations	Design Response
		planting to provide a visual buffer, as shown in the Vegetation and Removal Parameter Plans.
Transport and access	Traffic surveys carried out by the project transport consultants on the local road networks and nearby A43 roundabout identified that traffic speeds were higher than initial anticipated and required careful consideration to ensure safe access to the Development.	Access to the Western Development will be completed as part of the Enabling Works, although the initial designs for the access roundabout to the B4100 shifted eastwards position towards the B4100/A43 roundabout following analysis of traffic speeds to ensure compliance with standard highways safety design requirements. The access roundabout for the Eastern Development was also located further westwards from its initial position towards the B4100/A43 roundabout. These iterations to the proposed access arrangements were in line with consultation feedback from OCC and National Highways.
	An existing Public Right of Way (ProW) 105/5/10 traverses the Western Site.	Options to divert the PRoW within the Western Development were explored, including around the northern or south eastern Western Site boundaries or the centre of the Western Site. The central landscape corridor was chosen to provide the most direct, efficient diversion as possible and reflected OCC's pre-application recommendation for potential route.
Noise	Initial analysis of the emerging proposals was undertaken by the project noise consultant. This initial analysis predicted that residents of Baynards House would experience high noise levels due to a combination of the future operational HGV use of the Development and the proximity of parking and service yards towards the north east Site boundary associated with the Western Development (as illustrated in Figure 4.1).	To overcome the potential for significant noise impacts at the nearby residential dwellings, an acoustic barrier was integrated into the Development located between the B4100 and the Western Site boundary. It is anticipated that this will be a 2m acoustic screen. Acoustic screening will also be implemented between the Build Zones and the sensitive receptors outwith the north eastern boundary of the Western Site. Chapter 10: Noise and Vibration demonstrates that these measures would effectively avoid significant noise and vibration effects.

Topic	Considerations	Design Response
Flood risk and drainage	The Site is predominantly at low risk of all types of flooding from all sources. However, given that the proposed development would bring forward large impermeable areas associated with the new buildings and associated car parks, service yards and access roads, a drainage strategy is required that seeks to reduce flood risk, reduce pollution and provide landscape and wildlife benefits.	Whilst the Site is at low risk of flooding, a drainage strategy has been developed which seeks to reduce flood risk, reduce pollution and provide landscape and wildlife benefits. Multiple swales have been incorporated into the design to mitigate excess surface water discharge. The Development Zone located at the lower part of the Western Development, close to the A43, comprises a system of large swales / infiltration basins to capture surface water flows. A system of large swales / infiltration basins will be implemented on the Eastern Development to reduce outflows to below greenfield runoff rates. Further details are provided within Chapter 5: Description of the Development and Chapter 15: Water Resources, Flood Risk and Drainage.

Topic	Considerations	Design Response
Ecology and biodiversity	The Site is currently in agricultural use, supporting a variety of protected species including breeding birds, bats and badgers. Development will potentially lead to the loss or disturbance to some habitats which support these species.	The Development seeks to retain and enhance hedgerows where possible, following consultation with the projects' ecologist, thus minimising habitat loss on-Site (see Vegetation and Removal Parameter Plans). The Applicant has obtained approximately 20ha of nearby land which will be designated as an 'off-site compensation site', with proposed habitat compensation at this location to offset the potential biodiversity loss caused by the Development. The Applicant considered a range of fields and sites for the habitat compensation site but the final site in Piddington was selected as it is not an optimal site for farming due to wet conditions; by creating this compensation site, high-quality agricultural land is not being taken. It is also located with an area identified as 'Network Enhancement Zone 1' by Natural England which is defined as *"Land connecting existing patches of primary and associated habitats which is likely to be suitable for creation of the primary habitat..."*[1] Chapter 5: Description of Development provides further details on the off-Site compensation site.

[1] Edwards J, Knight M, Taylor S & Crosher I. E (May 2020) 'Habitat Networks Maps, User Guidance v.2', Natural England.

Figure 4.1: Indicative noise modelling results (with no barrier)



4.5 Alternative Designs

4.5.1 The following sections set out the iterative design evolution of the Development and details how environmental considerations have informed these scheme changes.

Concept Scheme (April 2021)

4.5.2 A concept scheme was created in April 2021, as illustrated in Figure 4.2. This iteration of the scheme was based on a four-unit scheme across the Site, providing a total of circa 280,281 sqm (GEA) warehouse floorspace and car parking in accordance with OCC's adopted parking standards.

Figure 4.2: Concept Illustrative Scheme (April 2021)

4.5.3 An initial series of Parameter Plans were developed for land use, building heights, vegetation removal and retention, and access for both the Western Site and Eastern Sites. The initial Land Use Parameter Plan is shown in Figure 4.3 showing inclusion of 'Development Zones' and 'No Build Zones'.

Figure 4.3: Concept Scheme – Land Use Parameter Plan (April 2021)

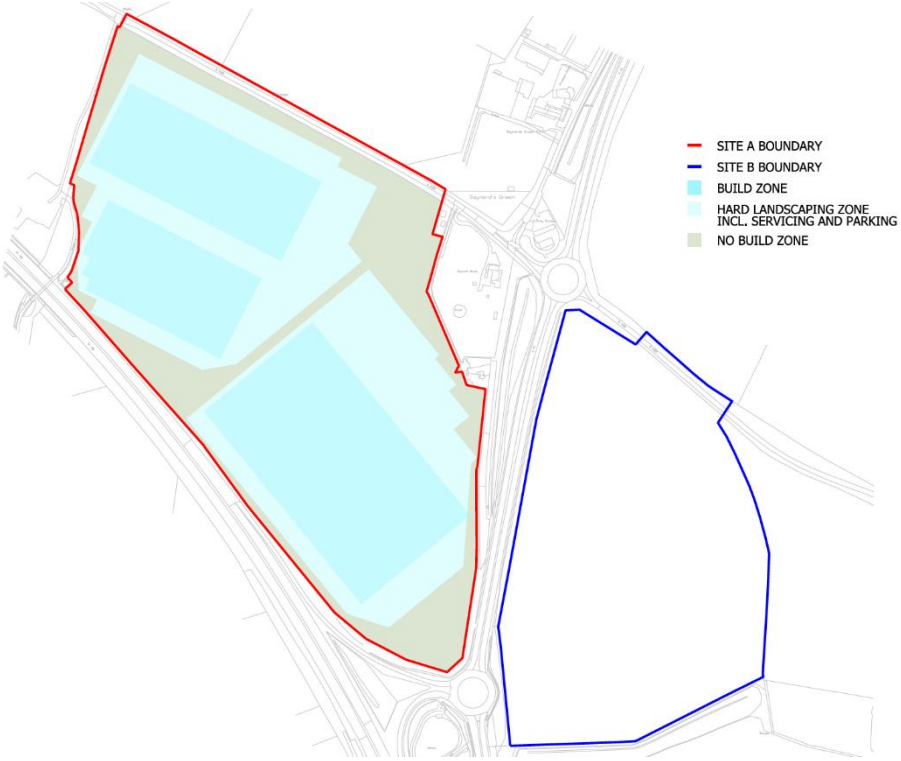
July 2021 Scheme

4.5.4 The April 2021 Parameter Plans were refined in response to technical appraisal and review to allow for additional space for embedded mitigation in the form of increased landscape buffers and to facilitate a more representative assessment of impacts of the proposed built form. The 'Development Zone' shown in the April 2021 Land Use Parameter Plan was reduced in scale and refined to allow greater habitat retention and depth of landscape buffers along the Site boundaries within the No Build Zone.

4.5.5 Following discussions between the Applicant and potential future occupiers, the north western Build Zone was split into two, making potential discrete provision for separate commercial units and allowing more detailed assessment of this potential built form.

4.5.6 The Development Zone was also split into the 'Build Zone' defining where construction of the warehouse units could be located and 'Hard Landscaping Zone', proposed for areas of internal access, car parking and servicing. This iteration is illustrated in Figure 4.4 for the Western Development. This splitting of the Development Zone into two-sub-zones accommodated the final access location to the Eastern Development from the B4100 (as discussed in Table 4.1) and allowed a clearer understanding of the proposed locations for warehouse development and parking and servicing areas. This enabled a more detailed understanding of where the likely landscape and visual, noise and cultural heritage constraints would occur. In turn, this informed further development of the landscape design and mitigation strategy through greater understanding of the potential locations of new structures within the Site.

Figure 4.4: Land Use Parameter Plan - Western Development (July 2021)

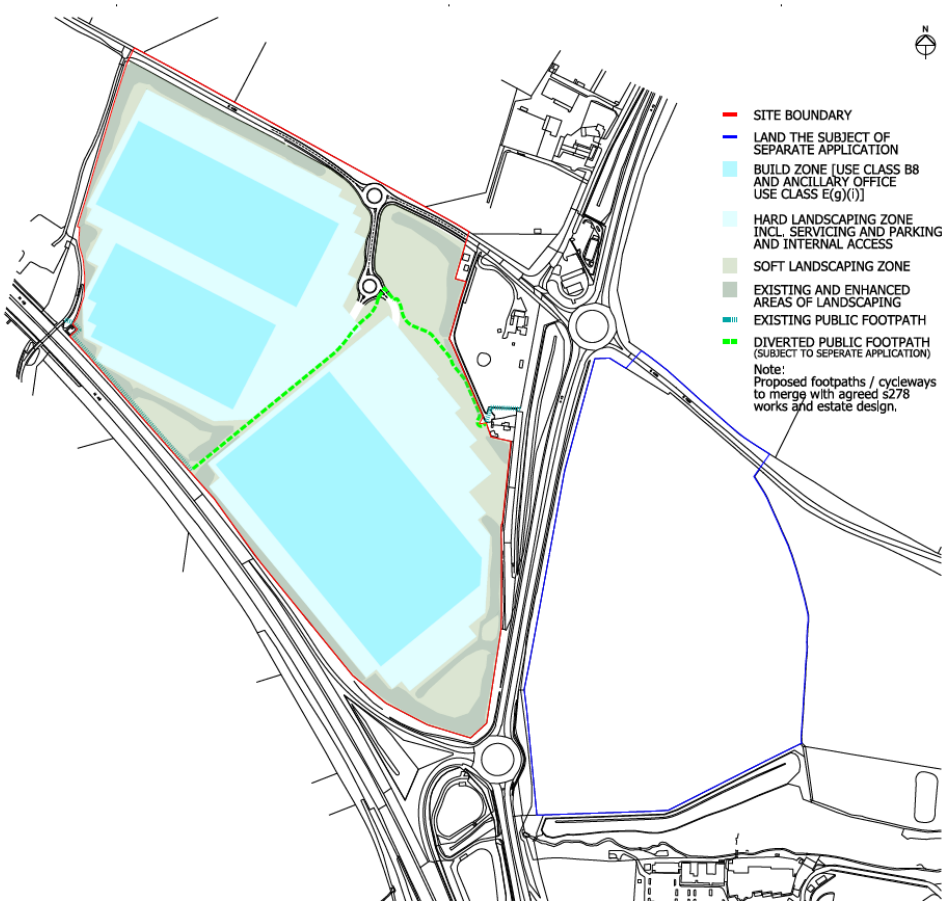


Preferred Scheme (September 2021)

4.5.7 Following consultation feedback including CDC Landscape and OCC, further environmental testing and design reviews, the Preferred Scheme (i.e. the Development as proposed by the planning applications) was defined. An additional landscaping zone was incorporated – the Existing and Enhanced Areas of Landscaping Zone, as illustrated in Figure 4.5 – that made greater provision for landscape buffering along the Site boundary. This is most pertinent on the Eastern Development's western perimeter where the project landscape and visual consultants identified the greatest potential impact to the surrounding landscape and views. The site access locations were also shifted further away from the A43 roundabout to optimise traffic flows.

4.5.8 The PRoW that extends on a south westerly trajectory across the Western Site (ref. 105/5/10) will be diverted to run through the central landscape corridor within the Western Site boundary. This is in accordance with the recommended alignment suggested by OCC during pre-application consultation.

Figure 4.5: Land Use Parameter Plan - Western Development (September 2021)



4.5.9 Maximum heights of the Development have remained unchanged from the Concept Scheme as this was determined by the occupier requirements for the height of proposed warehouse units. An engineering study to define the cut and fill strategy and proposed ground levels informed the proposed site levels that set the maximum heights Above Ordnance Datum on the Building Heights Parameter Plans.

4.5.10 A high-level comparison of the April 2021 Concept Scheme against the proposed Development is provided below in Table 4.2.

Table 4.2: Comparisons between Concept Scheme (April 2021) and the Development

	Concept Scheme (April 2021)	The Development	Change
Commercial warehousing floorspace (Use Class B8) (Gross Internal Area)	277,254 sqm	265,542 sqm	-11,712 sqm
Number of units	4 units (Units 1, 2 and 3 in Western Development and Unit 4 in Eastern Development)	5 units (Units 1, 2 and 3 in Western Development and Units 4 and 5 in Eastern Development)	+1 unit
Maximum Height	23m AOD (ridge height)	23m AOD (ridge height)	No change

References

[1]Cherwell District Council, 2016. Cherwell Local Plan 2011-2031. December 2016.

5 Description of the Development

5.1 Introduction

5.1.1 This chapter provides a description of the Development which forms the basis of the EIA and has been written by Quod, based on information provided by the project architects (Cornish Architects) and other members of the project team.

5.1.2 This chapter is supported by the following appendices:

- Appendix 5.1: Parameter Plans and Drawings; and
- Appendix 5.2: Development Specification.

5.1.3 A description of the anticipated construction programme and a description of proposed key construction activities is provided within Chapter 6: Construction.

5.2 Overview of the Development

5.2.1 The Applicant is seeking outline permission for redevelopment of the Site alongside full planning permission for enabling works for commercial logistics development. The Enabling Works planning permission would be implemented in advance of the outline planning permissions.

5.2.2 The completed Development is anticipated to involve 24-hour operations.

Enabling Works

5.2.3 The Applicant is seeking full planning permission for enabling works (the 'Enabling Works') as follows:

"Site clearance, construction of new site access from the B4100, permanent and temporary internal roads, an internal roundabout and a foul drainage station, diversion of an existing overhead power cable and public right of way, and soft landscaping."

5.2.4 The Enabling Works are defined through a suite of planning drawings (see Appendix 5.1), with expected works comprising the following activities:

- Clearance of existing vegetation and structures;
- Construction of a new access roundabout on the B4100;
- Construction of an internal roundabout, including adjacent footpaths, landscape verge and street lighting;
- Construction of a 7.3m wide roadway (and adjacent footpaths, landscape verge, street lighting and a bus layby) to connect the new roundabouts;
- Construction of a foul drainage station to serve the Site and a temporary access road and electrical point;
- Construction of swales;

- Installation of utility connections, including electricity, water, BT and GTT fibre infrastructure;
- Diversion of an existing overhead cable;
- Provision of soft landscaping and planting; and
- Diversion of the existing public right of way.

5.2.5 The Enabling Works would not involve the construction of development platforms, earthworks or levelling beyond the Enabling Works Site boundary shown in Figure 2.1, or construction of buildings / structures other than those which may be required to support services and drainage infrastructure.

Outline Development Proposals

5.2.6 The Applicant is seeking outline planning permission through two outline planning applications for the following:

"Application for outline planning permission (all matters reserved except for access) for the erection of buildings comprising logistics (Use Class B8) and ancillary office (Use Class E(g)(i) floorspace and associated infrastructure; construction of new site access from the B4100; creation of internal roads and access routes; and hard and soft landscaping (the Eastern Development)." and

"Application for outline planning permission (all matters reserved except for access) for the erection of buildings comprising logistics (Use Class B8) and ancillary office (Use Class E(g)(i)) floorspace; construction of new site access from the B4100; creation of internal roads and access routes; hard and soft landscaping including noise attenuation measures; and other associated infrastructure (the Western Development)."

5.2.7 It is necessary to retain flexibility within the outline applications so that the detailed design of the scheme can effectively meet market demands at a later date. Therefore, the outline planning applications are put forward with details of access to the Site and all other matters reserved for future planning approval. The outline planning applications comprise a series of parameter plans and detailed access drawings (Appendix 5.1). These are summarised as follows:

- **Parameter Plans**: six parameter plans (as defined in Table 5.3 and included in Appendix 5.1) are submitted which illustrate the defined parameters for the Development. Collectively, the Parameter Plans establish: land use (including build zones, hard landscaping zone, soft landscaping zone and existing and enhanced vegetation zone); maximum building heights; and vegetation retention and removal.
- **Drawings**: six detailed drawings provide the details the Enabling Works and access to the Site, which are the only components of the Development being applied for in detail.

5.2.8 The proposed development sought through the two outline planning applications and the Enabling Works is hereafter referred to as the 'Development'.

5.2.9 The Development will provide up to 265,542 sqm GIA of commercial floorspace (Use Class B8) comprising up to 167,747 sqm GIA in the Eastern Development and up to 97,795 sqm GIA in the Western Development. All units will have adjoining ancillary space, specifically

office areas (Use Class E(g)(i)). The Development will also deliver new access, car and cycle parking, HGV parking, service yards and loading bays, internal footways and roads, on-site utilities such as substations and energy infrastructure, waste storage, external hard landscaping, and green infrastructure and open space.

5.3 Parameter Plans

5.3.1 The outline planning applications are defined by a suite of parameter plans, which are listed in Table 5. 5.1 and included in Appendix 5.1, and the Development Specification in Appendix 5.2.

Table 5.1: Parameter Plan Drawings

Drawing Reference	Drawing Title
TP 002	Land Use – Western Development
TP 003	Building Heights – Western Development
TP 004	Vegetation Retention and Removal – Western Development
TP 008	Land Use – Eastern Development
TP 009	Buildings Heights – Eastern Development
TP 010	Vegetation Retention and Removal – Eastern Development

5.4 Site Layout

5.4.1 Figure 5.1 and 5.2 illustrate the proposed land uses across the Site, with Figure 5.3 providing an indicative layout of the Site and a visual depiction of the illustrative scale and massing of the Development.

Figure 5.1: Land Use Parameter Plan: Eastern Development

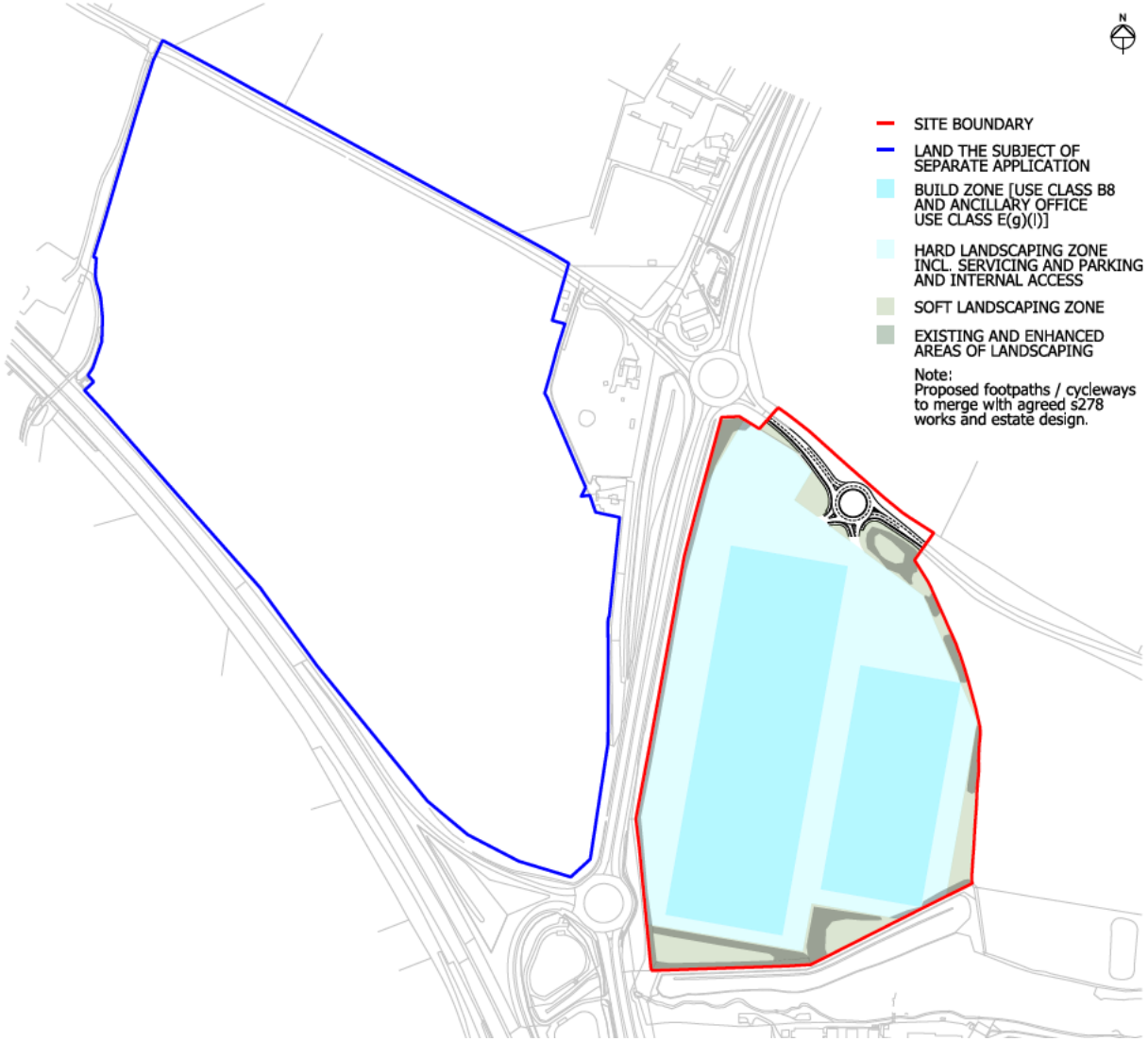


Figure 5.2: Land Use Parameter Plan: Western Development

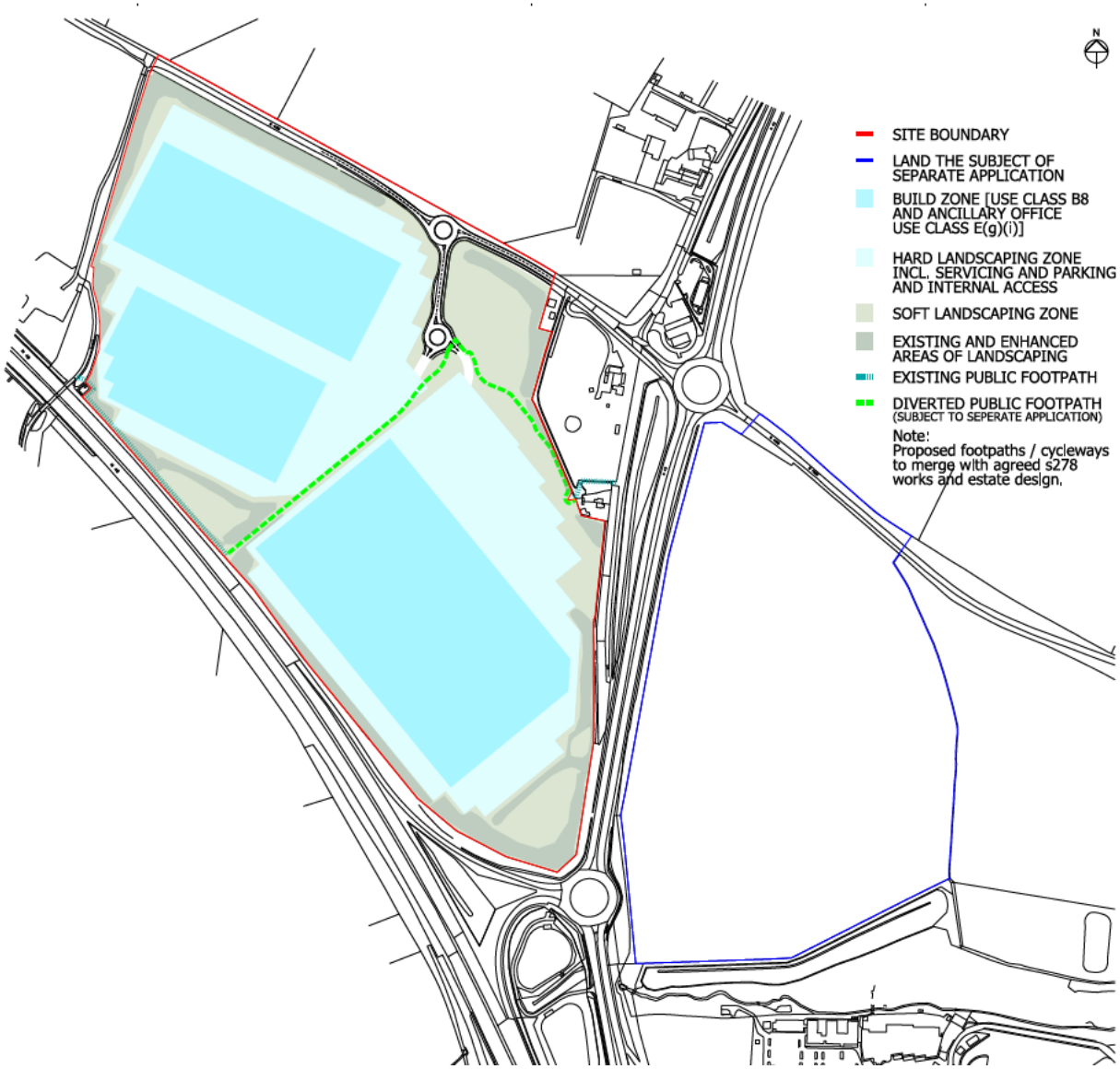


Figure 5.3: Site Layout - Illustrative Scheme

5.5 Development Zones

5.5.1 As set out in the Land Use Parameter Plans, the Development will be carried out within three primary zones across the Site, as follows:

- Build Zone – area designated for construction of commercial units (B8 Use);
- Hard Landscaping Zone – area designated for internal Site access, substations, parking, loading, servicing and ancillary uses;
- Soft Landscaping Zone – area designated for soft landscaping, including green infrastructure, sustainable drainage systems (SuDS), structural and soft planting and open space; and
- Existing and Enhanced Areas of Landscape Zone – area designated for retention and strengthening of existing vegetation

Eastern Development

5.5.2 Two Build Zones are defined for the Eastern Development, with Hard Landscaping Zones surrounding these areas and encompassing the majority of the Eastern Site. Existing and Enhanced Areas of Vegetation are located along the Eastern Site boundaries, with Soft Landscaping Zones comprising the remainder of the development area.

Western Development

5.5.3 Three Build Zones are defined for the Western Development, with Hard Landscaping Zones surrounding these areas. Existing and Enhanced Areas of Vegetation are located along the Western Site boundaries, with Soft Landscaping Zones comprising the remainder of the development area.

5.6 Building Heights

5.6.1 The Building Heights Parameter Plans set maximum ridge heights of 23.00m from structural slab level (SSL) for all development in Build Zones across the Site. The Development will be situated at a maximum finished floor level (FFL) of 147.00m Above Ordnance Datum (AOD).

Eastern Development

5.6.2 The topography of the Eastern Development will gently fall from the north to south of the Site, from 116.80mAOD to 114.00mAOD. The highest point of a Build Zone is at 115.00mAOD so the maximum ridge height of Units on the Eastern Development would be 138.00mAOD.

Western Development

5.6.3 The topography of the Western Site will gently fall from the north to south of the Site, from 124.25mAOD to 116.50mAOD. The highest point of a Build Zone is at 124.25mAOD so the maximum ridge height of Units on the Western Development would be 147.25mAOD.

5.7 Appearance

5.7.1 The appearance of the Development is designed with recognition of the surrounding area, drawing on the local architecture, character and materials palate, which is reflected within the proposed façade treatment of each unit. Glazing will be used along the office facades to provide high levels of natural light internally and create active frontages. Composite cladding, curtain walling, windows, translucent polycarbonate wall panels, brise-soleil and other suitable materials and features are proposed. The use of light metallic grey materials and other light coloured cladding will be considered, particularly at upper levels. Further description of these treatments is provided in the Development Specification (see Appendix 5.2) and illustrated in the Design and Access Statement (DAS) submitted with the application.

5.8 Access and Parking

5.8.1 The Site benefits from its strategic location in proximity to Junction 10 of the M40, via the A43.

Eastern Development

5.8.2 The Eastern Development will be accessed from the B4100 in the form of a new roundabout junction; this will connect to internal roads within the Eastern Development. The new access / egress point will provide access for HGVs, cars, buses, cyclists and pedestrians. HGV, car, and cycle parking will be provided in the Hard Landscaping Zone, as illustrated in the Land Use – Eastern Site Parameter Plan. The Development will bring forward car parking numbers accordance with OCC's adopted parking standards. The Illustrative Masterplan makes provision for 510 car parking spaces (of which 5% will be blue badge spaces) on the Eastern Development, with cycle parking provision in accordance with CDC standards. 10% active and 15% passive electric vehicle (EV) provision is provided in accordance with OCC policy.

Western Development

5.8.3 Upon completion of the Enabling Works, the Western Site will have a new access point onto the B4100 that will be utilised by the Western Development. As with the Eastern Development access, this will be a roundabout junction and will provide access for all modes of transport.

5.8.4 As for the Western Development, HGV, car, and cycle parking will be provided in the Hard Landscaping Zone, as illustrated in Parameter Plan 06. The Illustrative Masterplan makes provision for 844 car parking spaces (of which 5% will be blue badge spaces), with cycle parking provision in accordance with CDC standards. EV parking provision is provided as per the Eastern Development in accordance with OCC policy.

5.8.5 As part of the Enabling Works, a Public Right of Way (PRoW) that extends on a south westerly trajectory across the Western Site (ref. 105/5/10) will be diverted through the central landscape corridor of the Western Site, as shown in the Land Use – Western Site Parameter Plan.

Development

5.8.6 The Applicant will commit to a number of measures to assist public access to the Development. A 3m wide off road footway/cycleway will be delivered on the B4100 from the Site to the A4095 providing a safe and convenient route for staff (and visitors) from the Bicester area. The footway/cycleway would be delivered via Section 278 (S.278) Agreement.

5.8.7 A pedestrian refuge crossing of B4100 (W) will be delivered via S278 Agreement to enable easier access for employees who want to visit the nearby roadside services in Baynards Green.

5.8.8 The Development will also deliver crossings of the A43 and the B4100 (West) via S.278 Agreement in order to provide access to the local services, but until the A43 Growth Fund Scheme is further developed (see Chapter 2: Site and Setting and Chapter 8: Transport and Access for further details), the specific design cannot be finalised. An interim scheme has been identified should the Growth Fund scheme be materially delayed; further details are provided in Chapter 8 and Appendix 8.1: Transport Assessment.

5.8.9 Furthermore, the Applicant will provide financial contributions, via S.106 Agreement, to the Public Right of Way network and to deliver a scheduled bus service linking each Development to Bicester.

5.9 Landscaping and Biodiversity

5.9.1 A variety of soft landscaping will be provided within the Site within the Soft Landscaping and Existing and Enhanced Areas of Landscaping Zones. Local species will be used as far as possible. The landscaping design outlines measures for establishing and enhancing green corridors within and outside of the Site; improving and enhancing biodiversity; and screening the proposed built form e.g. visual and acoustic buffers will be provided along the north-eastern boundary of the Western and Eastern Sites.

5.9.2 Areas of grassland, native tree planting and shrub planting will be provided on areas of land between each Unit and their associated access roads, parking areas and servicing yards. Ecological enhancements will also be provided and connectivity between green spaces on the Site to facilitate movements of native species, particularly taking into account the Site's surrounding agricultural habitats. Further details on the landscaping strategy are provided in the Development Specification (Appendix 5.2).

Eastern Development

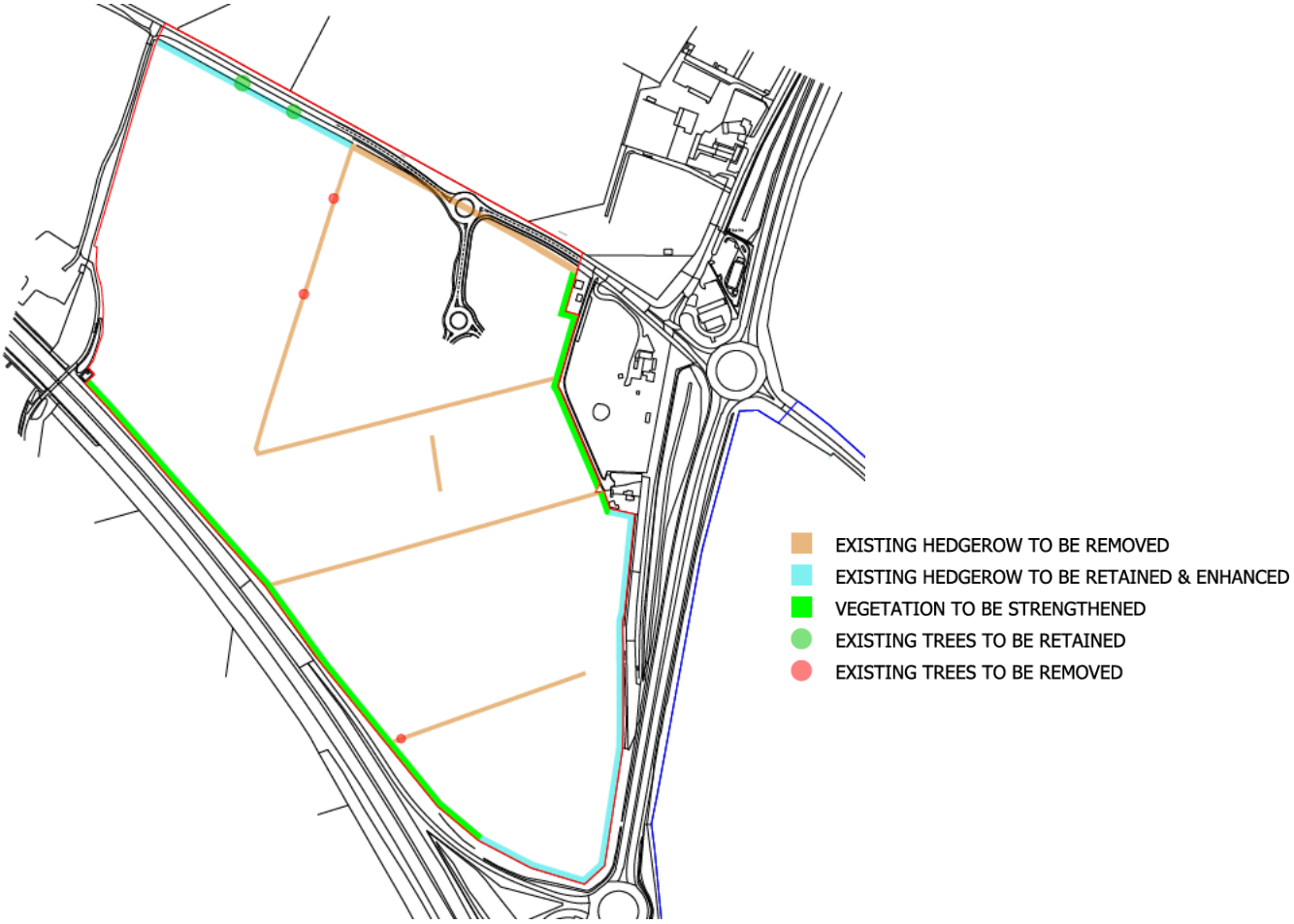
5.9.3 Three sections of hedgerow are proposed for removal on the Eastern Site to facilitate access and new development within the Site. Aside those proposed for removal, the existing hedgerows around the Eastern Site boundary are all proposed to be retained and enhanced, as illustrated in Figure 5.5.

Figure 5.5: Vegetation retention and removal for Eastern Development (Parameter Plan 08)

Western Development

5.9.4 Six sections of hedgerow are proposed for removal for the Western Development to facilitate access and new development within the Western Site. Aside those proposed for removal, existing hedgerows on the northern and eastern Western Site boundary are proposed to be retained and enhanced, while vegetation on the north eastern and southern Western Site boundaries are proposed to be strengthened. This is illustrated in Figure 5.6.

Figure 5.6: Vegetation retention and removal for Western Development (Parameter Plan 03)



Biodiversity Net Gain (BNG) Offsetting

5.9.5 As part of the Development, the Applicant has obtained ownership of a nearby off-site compensation site. This will contribute to the Development's positive BNG target. Furthermore, following implementation of both on-site and off-site habitat creation and enhancement, it is anticipated that the Development will be able to achieve a net gain of over 10% with initial calculations resulting in an +11.96% gain in habitat units and an +11.17% gain in hedgerow units (assuming the creation of 20ha of neutral grassland and 1.5km of hedgerows at the Piddington off-site compensation site in addition to on-site creation of neutral grassland, street tree, mixed scrub, hedgerows and broadleaved woodland habitats where possible). These will be delivered through the Section 106 agreement within the compensation site.

5.10 Site-Wide Principles

Drainage

5.10.1 The Development has been designed to operate safely and without significantly increasing flood risk elsewhere. Proposals for drainage have taken due regard to the requirements of the NPPF, the Local Plan and regional and local policy with proposals for surface and foul water drainage undertaken in liaison with the OCC (as the Local Lead Flood Authority) and Thames Water.

5.10.2 The drainage strategy aims to achieve greenfield runoff rates. The surface water drainage strategy will incorporate SuDS to manage surface water runoff, subject to detailed design, with permeable paving in parking areas, and infiltration basins and swales proposed on both the Eastern and Western Development.

5.10.3 A Flood Risk Assessment (FRA) (Appendix 15.1) and Drainage Strategy is provided to accompany the planning application that provides further details on these proposals.

Lighting

5.10.4 External lighting will be designed in compliance with the Institute of Light Pollution guidance[1]. The external lighting strategy, as set out in the Development Specification, has been developed to ensure Site users feel safe whilst minimising potential adverse light spill, glare and light pollution impacts on sensitive receptors, including nearby residents, sensitive habitats, and local road users. The following principles are incorporated into the external lighting strategy:

- Lighting would be directed away from potential biodiverse habitats and sensitive residential receptors;
- Utilising Light Emitting Diode (LED) luminaires with replaceable light source modules where possible to minimise reduce light spill on habitat during construction and operation; and
- Where lighting columns are positioned near to neighbouring dwellings or located on the perimeter of the Site near sensitive habitats, they shall have back-shields to prevent light spill.

5.10.5 Detailed lighting design would come forward in line with the principles defined in the Development Specification and external lighting strategy (submitted as a standalone document with the planning application) through Reserved Matters application(s).

Waste and Servicing

5.10.6 The waste strategy will adhere to the principles of the CDC Planning and Waste Management Design Guide[2]. This will ensure that adequate storage areas for waste management facilities are provided for the Units and good access is maintained for collection crews and vehicles as this can be difficult to retrofit at later stages in the design process.

Climate Change Adaption and Mitigation Measures

5.10.7 A number of measures are incorporated within the Development to reduce risks associated with climate change. The Development will meet BREEAM ‘Very Good’ standards and climate change adaption and mitigation are actively and passively embedded into the design of the Development to the extent feasible. This includes the proposed use of photovoltaic energy panels, high efficiency LED lighting and installation of Air Source Heat Pumps where appropriate. Moreover, materials with a low lifecycle environmental impact and low embodied energy will be used where possible during the design development.

5.10.8 Additional design measures that would assist in the adaption to potential climate change effects include soft landscaping and specific SuDS mechanisms to enhance biodiversity

and increase surface water runoff mechanisms such as the incorporation of numerous swales within the red line boundary. The Development will have capability for electric vehicle charging, as set out below:

- 10% of car parking spaces will have active electric charging provision;
- 10% of HGV parking spaces will have active electric charging provision;
- 15% of car parking spaces will have passive electric charging provision; and
- 15% of HGV parking spaces will have passive electric charging provision.

References

[1] The Institute of Lighting Engineers, 2021. Guidance Note 1 for the reduction of obtrusive light 2021.

[2] CDC, 2009. Planning and waste management design guide. October 2009.

6 Construction

6.1 Introduction

6.1.1 This chapter describes the construction processes and the key construction activities that will be undertaken prior to completion and occupation of the Development, along with an indicative programme of the construction works and phasing for the Development.

6.1.2 Quod has prepared this chapter in conjunction with the Applicant and its design and consultant team. Information on enabling and construction works is general at this time and may be subject to modification following appointment of a principal contractors(s). For this reason, the EIA is based on reasonable assumptions as set out in this chapter and the collective experience and professional judgement of the EIA, design and consultant team with similar projects.

6.1.3 It should be noted that this is a descriptive chapter. Assessments of construction impacts of the Development are provided in each technical chapter of this ES (i.e. Chapters 7 to 15). In addition, each technical chapter assesses the cumulative impacts of construction of the Development in conjunction with other schemes in the vicinity.

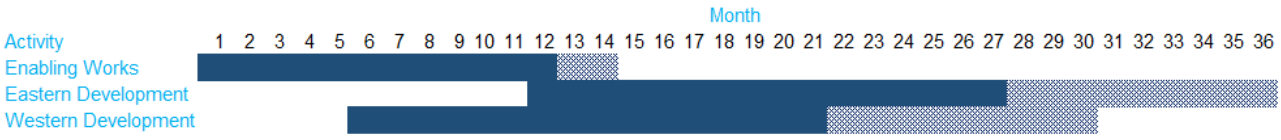
6.1.4 This chapter is supported by two Framework Construction Environmental Management Plans (CEMPs) for the Eastern Development and Western Development (inclusive of Enabling Works), provided in Appendix 6.1 and Appendix 6.2 respectively.

6.2 Programme of Works

6.2.1 Enabling Works are expected to commence in early 2022. Following completion, overall construction of both Sites is anticipated to commence in the fourth quarter ('Q4') of 2022 and be complete by 2025. The indicative delivery programme for both the Eastern and Western Developments is estimated to be approximately 3 years, including the Enabling Works. Following completion of Enabling Works, it is proposed that construction of the Western Development will begin, with the Eastern Development to follow. However, there will likely be some overlap in the construction phases, albeit at different levels of intensity over the three year period. It should be noted that soft / hard landscaping, drainage works and internal access roads surrounding the units will be completed as part of each phase.

6.2.2 The indicative duration of works is summarised in Figure 6.1[1]. This indicative phasing has been assumed for the EIA, however should the phasing change it is not considered that the conclusions of the ES would be materially altered.

Figure 6.1: Indicative Construction Programme



[1] The solid blocks indicative expected core programme; hatched blocks indicate provisional contingency period.

6.2.3 Contractors have not yet been appointed for any aspect of the Development and as a consequence of this, there is a degree of uncertainty about how the Development would be constructed and the likely length of the construction programme.

6.2.4 Whilst details regarding future construction are not finalised at this stage, it is possible to provide general information about the construction activities.

Enabling Works

6.2.5 As noted in Chapter 1: Introduction, Enabling Works are required to facilitate early development of the Western Site. These are described in Chapter 5: Description of Development and will be completed before construction of the Eastern and Western Developments commences. The Enabling Works will take approximately 9 months to complete, starting in early 2022.

6.2.6 To ensure legislation compliance and as good practice, a complete suite of ground investigation surveys, ecology surveys, an archaeological desk-based assessment and geophysical survey have been undertaken, allowing for appropriate mitigation measures to be put in place where necessary.

Western Development

6.2.7 The Western Development will commence following completion of the Enabling Works, expected in early 2023. A period of circa 16 months is expected for construction of the proposed Units with completion in early 2025, subject to the grant of detailed planning consents.

Eastern Development

6.2.8 The Eastern Site would commence after the Western Development, potentially in mid-2023. Construction works are expected to last circa 17 months with completion in late 2025, subject to the grant of detailed planning consents.

6.3 Description of Works

6.3.1 The following sections provide an overview of the anticipated enabling works and construction strategy for the Development as well as site preparation works.

Enabling Works, Remediation and Infrastructure and Services

6.3.2 The following works are likely to form the basis of the Enabling Works, remediation and infrastructure and services stage, where relevant, for all phases of the Development – across the Eastern Development and Western Development – as required:

1. Ground/drainage/utilities works and/or further archaeological investigations would be undertaken, as required;
2. Hoarding or safety fencing would be erected around the boundary of construction areas, with fencing to protect sensitive features (e.g. vegetation to be retained, heritage assets, watercourse buffers);
3. Enabling works to utilities and any further infrastructure and services required by the Development would be carried out. This may include but is not limited to, capping-off

or removal of redundant utilities and boreholes, new supplies, diversions and connections for electrical, telecommunications, gas, potable water, foul water and surface water drainage infrastructure (including SuDS), as agreed with the statutory authorities;

4. To achieve the required Site levels there could be some general civil engineering groundwork activities including excavation, grading and preparation of surfaces as well as the placement/compaction of fill. During engineering groundwork activities for the Site, the removal of topsoil and vegetation will be undertaken. Additionally, land remediation may be undertaken (in the event that contamination is identified during intrusive ground investigations); and,

Construction

6.3.3 Construction of the Western Development would commence on building structures following completion of the Enabling Works. Construction activities of the Eastern Development would commence in-line with the phasing programme summarised in Figure 6.1.

6.3.4 The method of construction is dependent on the nature of the buildings and detailed design and has therefore not been fixed at this outline planning stage. However, likely standard construction activities are applicable to both Sites, as are outlined below:

1. **Structures –** A steel frame construction would be used. The building will be erected from pad foundations using scaffolding, mobile cranes or mobile platforms as appropriate.
2. **Cladding and Fit Out –** The wall and roof cladding of the units will be progressively installed/constructed and may overlap steel frame construction where site logistics and structural integrity allows. Upon completion of each unit's façade, the interior floor slab will be laid and fit out and installation of mechanical, electrical and plumbing systems will commence.
3. **External Works and Landscaping –** Areas of landscaping and open space would be completed during the end of the respective Development programmes, prepared using large and small excavators. Necessary drainage works and internal roads would be built as part of each phase to relevant design standards.

6.4 Construction Waste and Materials

6.4.1 Reuse of material reduces deliveries to the Site and the amount of waste for disposal. Where feasible, excavated materials would be re-used to create suitable platforms for development. Exact quantities would be defined during Reserved Matters on completion of detailed design. Re-use of such materials would be dependent on it meeting relevant geotechnical specification requirements and being inert.

Waste and Materials Management

6.4.2 Waste produced during all construction activities on-site will be subject to the 'Duty of Care' under the Environmental Protection Act 1990[1]. It will be the joint responsibility between the Principal Contractor and the Applicant to ensure that waste produced on-site is disposed of in accordance with legislation.

6.4.3 All relevant contractors will be required (this will be controlled via a planning condition on the planning permission) to operate in accordance with the Framework CEMPs (Appendices

6.1 and 6.2) and will be required to investigate opportunities to minimise and reduce waste generation in line with the Government aim of *"Work towards eliminating all avoidable waste by 2050"* by:

- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme;
- Implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste;
- Use of standard size components in design detailing to eliminate risk at source where possible to do so;
- Attention to material quantity requirements to avoid over-ordering and generation of waste materials;
- Re-use of materials wherever feasible, e.g. re-use of excavated soil for landscaping;
- Segregation of waste at source where practical;
- Re-use and recycling of materials off-site, where feasible, and where re-use on-site is not practical (e.g. through use of an off-site waste segregation facility and re-sale for direct re-use or re-processing);
- Skips will be colour coded and signposted to reduce risk of cross contamination and covered to prevent dust and debris blowing around the Site, these will be cleared on a regular basis; and
- Burning of wastes or unwanted materials will not be permitted on-site.

6.4.4 The relevant contractors will be required to carry out works in a way that, as far as is reasonably practicable, minimises the amount of waste to be disposed of by landfill. Any waste arisings from the Site will be transported and disposed of in accordance with relevant legislation, including the following:

- The Environmental Permitting (England and Wales) Regulations 2016[2] (as amended)[3];
- The Waste (England and Wales) (Amendment) Regulations 2011[4] (as amended)[5];
- The Waste Management (England and Wales) (Amendment) Regulations 2006[6]; and
- Clean Neighbourhoods and Environment Act 2005[7].

6.4.5 The project will seek to maximise the reuse of suitable soils on-site, where possible, in order to minimise waste disposal. Intrusive site investigation work will be undertaken to identify any significant areas of contamination. It is likely that the intrusive site investigation work will comprise soil chemical testing to further characterise soil material for disposal, including Waste Acceptance Criteria (WAC) analysis.

6.4.6 Hazardous waste will be kept separately from other wastes and in appropriate containers and Duty of Care will be ensured for the transfer and removal of all site wastes. Further details are provided in the Framework CEMPs for the Sites (Appendix 6.1 and 6.2).

6.5 Construction Methods

Plant and Equipment

6.5.1 An indicative list of large plant and equipment that are likely to be used at various stages of construction are shown in Table 6..

Table 6.5: Plant and Equipment

Plant and Equipment	Stage of Works				
	Enabling Works, Drainage, Infrastructure and Servicing	Superstructure	Facade	Fit-Out	Landscape
360^0 Excavator	✔				
Tower / Mobile Crane	✔	✔	✔		
Dumper	✔	✔			✔
Breaker	✔				
Compressor & Air Tools	✔	✔	✔	✔	
Drills / Cutters	✔	✔	✔	✔	✔
Compacter / Roller	✔	✔			
Concrete Pumps	✔	✔	✔		
Generators	✔	✔	✔		
Concrete Vibration Equipment	✔	✔			
Scaffolding		✔	✔	✔	
Fork Lift Truck	✔	✔	✔	✔	✔
Goods/ Passenger Hoist	✔	✔	✔	✔	✔
Mast-climber Platforms	✔	✔	✔	✔	
Mechanical Road Sweeper	✔	✔	✔	✔	✔
Floodlights	✔	✔	✔	✔	✔
Hydraulic benders and cutters	✔	✔	✔	✔	
Lorries and Vans	✔	✔	✔	✔	✔
Muck away Lorries		✔			
Ready mix concrete trucks	✔	✔			

Hours of Work

6.5.2 The prescribed hours of construction work would be agreed with CDC. It is anticipated that the core working hours for the Development will be as follows:

- 07:00 – 18:00 hours weekdays;
- 07:00 – 13:00 hours Saturday; and,
- No working on Sundays or Bank Holidays.

6.5.3 Approval from CDC will be required for any works that need to be undertaken outside of permitted hours.

6.5.4 Typically, works that may need to be undertaken out of hours would be for the delivery and removal of abnormal loads, for which the Principal Contractor will be expected to make the necessary road closure applications to CDC and/or OCC, if required.

6.6 Construction Traffic

Construction Vehicle Movements

6.6.1 During construction, vehicles will access and egress the Site via roundabouts connecting to the B4100 (Chapter 5: Figure 5.4). Access to the Western Development during the construction works will be gained via a roundabout constructed during the Enabling Works on the B4100. Access to the Eastern Development will be gained via a temporary access/ egress point on the B4100, until a permanent roundabout will be constructed as part of the Development.

6.6.2 The estimated numbers of enabling works and construction-related vehicle journeys, including staff trips and Heavy Goods Vehicle (HGV) movements, have been projected for the busiest periods during the Enabling Works and construction programme for each of the Sites to allow for an assessment of the 'worst case' scenario; thereby making the assessment as robust as possible. This has been calculated based on volumes of construction waste material, together with imported concrete, piling and cladding.

6.6.3 Table 6.6 summarises construction traffic information for the Enabling Works, the Eastern Development and the Western Development. It is assumed that there will be 40 HGV deliveries and 190 car/ Light Goods Vehicle (LGV) trips to the respective Sites per day. Further details on construction traffic on the surrounding road network is provided within Chapter 8: Transport and Access.

Table 6.6: Summary of construction traffic movements

	Car/ LGV trips	HGV trips
Enabling Works traffic (assumed construction duration = 0.5 years)	27,375	7,300
Western Development traffic (assumed construction duration = 2 years)	109,500	29,200
Eastern Development traffic (assumed construction duration = 1.5 years)	82,125	21,900
Total Development construction traffic	**219,000**	**58,400**

Construction Vehicle Management

6.6.4 Extensive swept path analysis studies will be conducted to establish the most efficient construction site layout for the Development. The construction site layout will be phased to reflect the sequence of works from site preparation to groundworks and piling onto superstructure.

6.6.5 On-Site parking for construction workers will be restricted to a reasonable minimum. This will only be made available to those construction personnel who need to carry heavy equipment or materials to the Site. The labour force will be encouraged to use public transport. Local traffic management measures for Site access will be agreed with CDC prior to construction commencing in conjunction with surrounding development sites. These measures would be set out in a Construction Traffic Management Plan, with key principles set out in the Framework CEMPs.

6.6.6 The Principal Contractor and sub-contractors will ensure a commitment to careful management of Site deliveries and collections by scheduling them in a manner that consciously avoids, where possible, the most congested times of the day.

6.6.7 There will be no road closures during the construction of the Development. Traffic controls will be implemented.

6.7 Potential Environmental Effects

6.7.1 All construction sites have the potential to cause temporary nuisance effects and other disruption to sensitive receptors situated on the Site or in the surrounding area. Detailed assessments of effects resulting from demolition and construction works are provided in Chapters 7 to 15. Table 6.7 provides a summary of potential effects which could arise in the absence of mitigation.

Table 6.7: Summary of Potential Construction Effects

Topic	Potential Effects
Socio-Economics	Temporary increase in construction related employment and jobs. Increased local expenditure as a result of the Development construction workforce in the surrounding area.
Transport and Access	Temporary traffic disruptions caused by site vehicles and an increase in HGV movements. Transfer of mud and materials from vehicles onto the public highway. Disruption to pedestrian / cycle access and routes within the locality of the Site.
Air Quality	Generation of temporary dust and emissions including particulate matter from construction works and construction traffic.
Noise and Vibration	Temporary increased road noise and vibration generated from construction vehicles, plant and machinery required for construction of the Development.
Cultural Heritage	Temporary adverse effects within the setting of built heritage receptors including increased noise, light and dust levels as well as the temporary visual effect of the construction of the Development.

Topic	Potential Effects
Biodiversity	Habitat loss, disturbance on faunal populations on and in the vicinity of the Site and disruption to habitats / faunal populations within receiving range of dust etc. during the construction phase.
Landscape and Visual Impacts	Temporary visual intrusion of construction, with respect to tower cranes/ hoarding/ machinery/ plant/ site offices etc., to nearby residents, occupiers of commercial and industrial properties in the surrounding area; pedestrians and road users
Climate Change and Greenhouse Gases	Increase in Greenhouse Gas (GHG) emissions associated with construction transport, site activities and embedded carbon within construction materials.
Hydrology, Flood Risk and Drainage	Accidental spills and discharges from the storage of fuels, construction materials, plant and machinery to surface waters.

6.7.2 Several potential effects are not assessed within the ES such as waste, hazardous waste and contaminated land, materials usage, indirect effects of energy use, construction lighting and fuel storage. Discussion on the scoping out of these topic assessments is provided in Chapter 3: EIA Methodology. Section 6.4 provides information on waste and management. Further details on waste and the other effects listed above are provided within the Framework CEMPs appended to the planning applications. In addition, further information on topics not assessed within the ES is provided in the documents that support the planning applications.

Environmental Management and Mitigation Measures

6.7.3 The Applicant has committed to implementing a CEMP during enabling and construction activities. Framework CEMPs are provided in Appendix in 6.1 and 6.2 for the Eastern and Western Developments (inc. Enabling Works). The Framework CEMPs set out the strategy, standards, control measures and monitoring procedures that will be implemented to manage and mitigate any adverse environmental effects of the construction process, including mitigation measures defined by the ES.

6.7.4 The CEMPs will be developed pursuant to the Frameworks CEMPS and will refer to industry standards, good practice and guidance, such as the Guidance for Pollution Prevention (GPPs) notes (i.e. GPP13: Vehicle Washing and Cleaning[8]; and GPP22: Dealing with Spills[9]) and will remain a live document to ensure that it is specific to the works and processes that are to be employed during construction site activities. The CEMPs include details on roles and responsibilities, control measures and activities to be undertaken to minimise environmental effects, as well as monitoring and record-keeping requirements. It also provides a framework for engaging with local residents and communities and their representatives throughout the construction period.

6.7.5 The CEMPs will include roles and responsibilities, details on control measures and activities to be undertaken to minimise environmental effects, and monitoring and record-keeping requirements.

6.7.6 The CEMPs will detail the practical execution of the construction works that demonstrates compliance with the measures and controls of the CEMPs and other requirements. They

will also provide details of the general site layout and operations, working hours, site lighting, security, emergency planning and response, fire prevention and control, utility works and worker access and welfare. The mitigation measures within the technical chapters (i.e. Chapters 7 to 15) are included within the Framework CEMPs and will be reviewed at the detailed construction planning stage as part of the development of the detailed CEMPs to ensure that they are sufficient to meet the commitments made throughout the assessments.

6.7.7 The CEMPs will each comprise, but not be limited to, the following elements to minimise the environmental effects of the Development's construction on the surrounding area:

- Construction Traffic Management Plan (CTMP);
- Considerate Constructors Scheme;
- Neighbour and public relations;
- Management of trade contractors;
- Archaeology;
- Noise and vibration;
- Air quality;
- Waste management;
- Protection of water resources;
- Biodiversity and Ecology; and,
- Energy and water usage.

Considerate Constructors' Scheme

6.7.8 The principal contractor will be registered with the 'Considerate Constructors Scheme' (CCS)[10]. The CCS ensures that contractors carry out their operations in a safe and considerate manner with due regard to passing pedestrians, road users and surrounding properties.

Neighbour and Public Relations

6.7.9 The Principal Contractor will be the first line of response to resolve issues of concern or complaints. Reasonable steps will be taken to engage with local residents during the construction works. Occupiers of neighbouring properties will be informed in advance of works taking place. Site boards outlining information on the scheme and forthcoming works will be erected at the entrance to the Site. Site contact numbers will be displayed as appropriate, along with the complaint procedure.

Dust, Noise and Vibration

6.7.10 Dust emissions escaping the work area may cause nuisance through, for example, surface soiling, loss of visibility due to deposition, and effects on nearby flora and fauna. Since it is difficult to suppress dust once it is airborne, it is optimal, where possible to prevent dust from being generated at source and good practice site mitigation measures, such as covering of stockpiles, on-site traffic management, wheel washing and good plant and vehicle maintenance, will be employed to minimise these effects as far as practicable, as set out in the Framework CEMPs.

6.7.11 Potential sources of noise and vibration include (but are not be restricted to) plant and usage of heavy machinery, piling activities, crushing activities and vehicles movements. The Principal Contractor will implement the necessary management and operational controls on-site in order to minimise adverse noise and vibration impacts on nearby sensitive receptors from construction site activities.

6.7.12 Good practice site measures will seek to minimise potentially adverse noise and vibration effects that result from these activities. Should a complaint be received regarding noise and/or vibration, the Principal Contractor will consider installing monitoring equipment to measure the level of noise and/or vibration being caused and, if it is deemed necessary, additional mitigation measures will be implemented to further reduce these impacts.

6.7.13 Further details on these potential effects and mitigation measures can be found in Chapter 9: Air Quality and 10: Noise and Vibration respectively and the Framework CEMPs.

Water Resources and Land Pollution

6.7.14 Surface water, groundwater and land will be protected from polluting materials through the construction process through adequate bunding, provision of spill kits, implementation of correct storage measures and adherence to washing down and refuelling procedures. Contractors will adhere to GPP13: Vehicle Washing and Cleaning and GPP22: Dealing with Spills to mitigate potential adverse effects during the construction phase. In the incidences of a spill, the Site Manager will be notified and work will be halted.

6.7.15 Further details on these potential effects and mitigation measures can be found in Chapter 15: Water, Flood Risk and Drainage and the Framework CEMPs.

Cultural Heritage

6.7.16 The archaeological Desk-Based Assessment (DBA) indicated it is unlikely that archaeological assets will be encountered. Notwithstanding, if a potential buried heritage asset is encountered, the Site Manager will be notified and works will be halted.

6.7.17 Further details on these potential effects and mitigation measures can be found in Chapter 11: Cultural Heritage.

Biodiversity mitigation and safeguards

6.7.18 Contractors will ensure good practice construction measures are implemented to protect sensitive flora and fauna on or in the vicinity of the Site. This will include but not be limited to the use of protective fencing around root protection areas, hoarding and adherence to lighting, dust and noise and vibration mitigation measures. In the unlikely event that protected species are encountered during construction works, the Construction Manager shall be informed. A strategy will be agreed with CDC and relevant statutory consultees (if required) to define the most appropriate method for resolving this issue.

6.7.19 Further details on these potential effects and mitigation measures can be found in Chapter 12: Biodiversity and the Framework CEMPs.

References

[1] Her Majesty's Stationary Office (1990). *The Environmental Protection Act 1990*.

[2] Her Majesty's Stationary Office (2016). *The Environmental Permitting (England and Wales) Regulations 2016.*

[3] Her Majesty's Stationary Office (2018). *The Environmental Permitting (England and Wales) (Amendment) Regulations 2018.*

[4] Her Majesty's Stationary Office (2011). *The Waste (England and Wales) Regulations 2011.*

[5] Her Majesty's Stationary Office (2014). *The Waste (England and Wales) (Amendment) Regulations 2014.*

[6] Her Majesty's Stationary Office (2006). *The Waste Management (England and Wales) Regulations 2006.*

[7] Her Majesty's Stationary Office (2005). *Clean Neighbourhoods and Environment Act 2005.*

[8] Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environment Protection Agency (2017). *Guidance for Pollution Prevention: Vehicle Washing and Cleaning PPG13.*

[9] Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environment Protection Agency (2018). *Guidance for Pollution Prevention: Dealing with Spills.*

[10] Considerate Constructors Scheme. Available at: https://www.ccscheme.org.uk/

7 Socio-Economics

7.1 Introduction

7.1.1 This chapter of the ES has been prepared by Quod and presents an assessment of the likely significant effects of the Development with respect to Socio-Economics. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. The nature and significance of the likely residual effects are reported

Competence

7.1.2 This assessment was overseen and approved by Barney Stringer. Barney has over 15 years of experience leading on Socio-Economic Impact Assessment and socio-economic EIA expertise, for well over 100 schemes. His education background includes a Joint Honours BSc, Politics MSc and an Economics Postgraduate Degree (PGCert).

7.1.3 This work was supported by Alice Noyce-Mead. Alice has five years' experience of undertaking socio-economic assessment for major development projects. She has a 1st Class degree in Geography BSc (University of Sheffield), is a practitioner member of IEMA and an associate of the Royal Town Planning Institute (RTPI).

7.2 Legislation, Planning Policy and Guidance

Legislation Context

7.2.1 There is no legislation of relevance to the assessment of socio-economic effects arising from the Development.

Planning Policy Context

National

7.2.2 The National Planning Policy Framework (NPPF) (2021)[1] is the key national planning policy relevant to the Development. The policy framework set out within Chapter 6 'Building a strong, competitive economy' is of greatest importance to this assessment.

Regional

7.2.3 The Oxfordshire Plan 2050[2] is an emerging policy document at the regional level (currently at Regulation 18 Part 2). Policy Option 22 encourages the creation of jobs and Policy Option 23 supports appropriate growth of economic assets.

Local

7.2.4 The Cherwell Local Plan[3] is the local planning policy of relevance to the Development, specifically 'Policy SLE 1: Employment Development' which supports new employment development subject to meeting criteria set out within the policy.

7.2.5 Cherwell District Council (CDC)'s Developers Contributions SPD[4] is also of relevance to the Development, which seeks to secure an Employment, Skills and Training Plan (ESTP) as part of S106 agreements, to cover both the construction and end-use phases.

7.2.6 The Mid-Cherwell Neighbourhood Plan 2018-2030[5], Policy PC1 'Local Employment' supports proposals for 'new small businesses' where they provide diverse employment opportunities for people living in the neighbourhood area or otherwise benefit the local economy.

Guidance

7.2.7 Planning Practice Guidance (PPG) (Live Document)[6] is an online resource which provides further detail on the policies set out within the NPPF. The PPG is relevant to the Development and highlights the need for local authorities to identify economic needs in their areas in order to plan efficiently and effectively.

7.3 Assessment Methodology

Consultation

7.3.1 The scope of this assessment was proposed in the Scoping Report submitted to CDC. Within their Scoping Opinion, CDC agreed with the proposed scope and methodology of the socio-economics assessment. CDC requested the consideration of the proposed Oxfordshire Strategic Rail & Freight Interchange (SRFI); this scheme was considered within the cumulative assessment.

7.3.2 Fritwell Parish Council requested impacts on nearby Fritwell village be assessed. Fritwell village was therefore considered within the baseline and scheme assessment.

Study Area and Scope

7.3.3 The baseline assessment considered the current social and economic conditions at different spatial levels (i.e. study area) as defined below:

- Site level – the Site (where data is available at this spatial level);
- Local Area – Fringford and Heyfords ward;
- District – Cherwell;
- County – Oxfordshire; and
- Regional – South East of England.

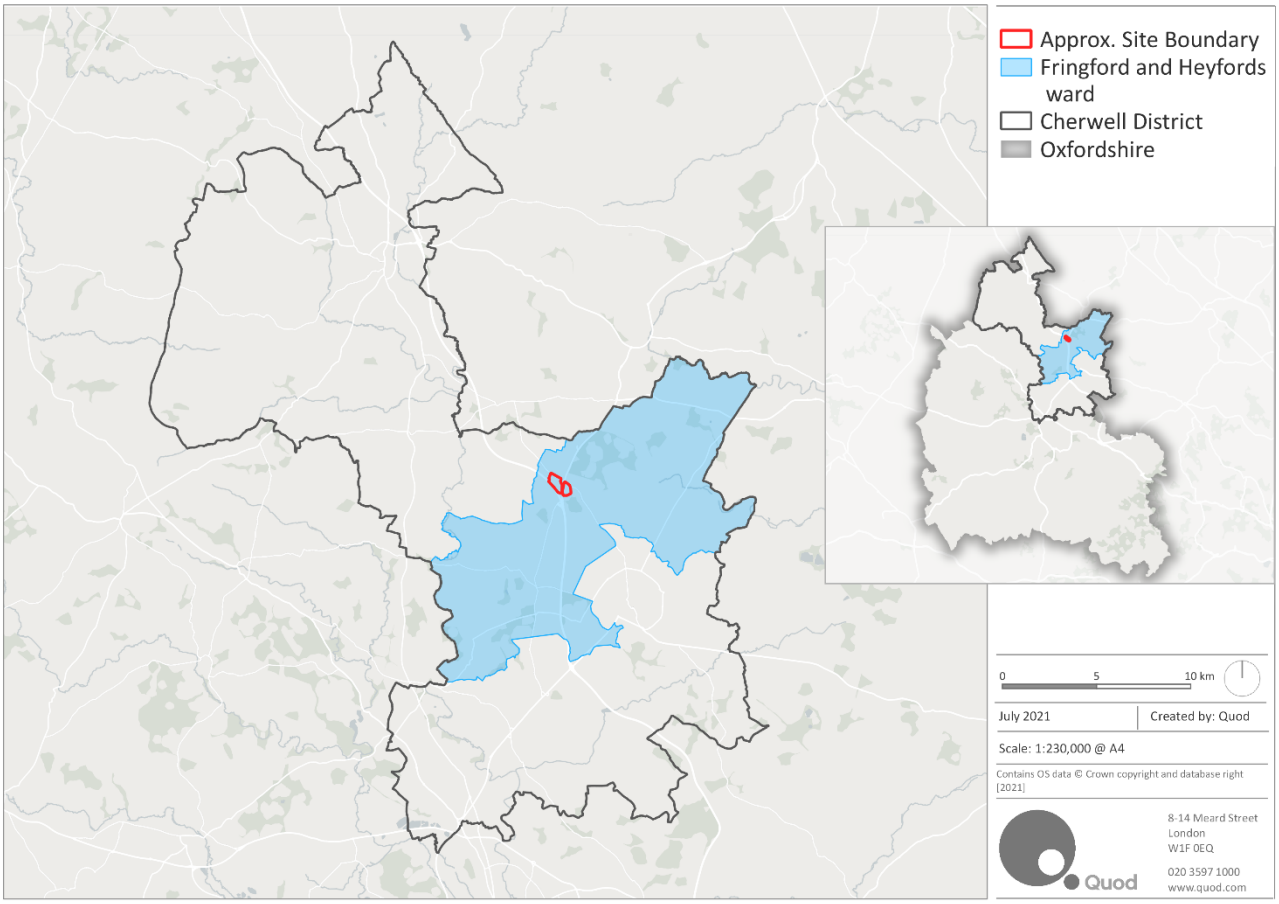
7.3.4 A map showing the spatial areas is provided in Figure 7.1.

7.3.5 The scope of this chapter was limited to an assessment of the aspects where there is considered a potential for likely significant effects. Given the scale and nature of the Development, the assessment has considered direct employment effects during the construction and operations phase.

7.3.6 The Development would also generate economic benefits for the local economy through indirect spending by employees. Shops and services within the surrounding 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. Consideration of spending is therefore not deemed necessary.

Figure 7.1: Site Context Map



Establishing Baseline Conditions

7.3.7 Baseline socio-economic conditions were established through analysis of nationally recognised research and survey information and datasets including:

- Census data (2011)[7];
- ONS Mid-Year Population Estimates (2020)[8];
- Business Register and Employment Survey (BRES) data (2019)[9];
- Indices of Multiple Deprivation (IMD) (2019)[10]; and
- Claimant Count Data (2020/21)[11].

7.3.8 Ward boundaries in Cherwell were revised in 2016, therefore Census 2011 data presented for the Local Area is based on a best-fit of 2011 Census output areas to the new ward area[i].

[i] Outputs Areas: E00144848, E00144849, E00145102, E00145103, E00145104, E00145110, E00145130, E00145131, E00145132, E00145133, E00145134, E00145137, E00145195, E00145196, E00145229, E00145230, E00145237, E00145238, E00145239, E00145239, E00169035, E00169035.

7.3.9 The Future Baseline is established using ONS 2018-based population projections data[12] for 2025 when the Development would be expected to be complete and operational. This data is not available at ward level.

Identifying Likely Significant Effects

Construction

Construction Employment

7.3.10 Construction-related employment expected to be generated by the Development was assessed using the Construction Industry Training Board (CITB) Labour Forecasting Tool[13]. This tool computes an estimated average number of Full Time Equivalent (FTE) jobs over the duration of the construction phase based on the total construction cost, duration / start-finish dates, location and type of construction.

Completed Development

Employment Creation

7.3.11 Employment was calculated by applying the standard job density ratios from the Homes and Communities Agency (HCA) Employment Density Guide (2015)[14] ('HCA Guidance'). For the Use Class B8 floorspace, the job density of one employee per every 70-95 sqm GEA was applied.

Cumulative Effects

7.3.12 The assessment of cumulative effects considered the four cumulative schemes identified in Chapter 3: EIA Methodology and Appendix 3.5, by reviewing available planning application documents. Where detailed information was unavailable, professional judgement has been applied on approach to consideration of schemes.

Determining Effect Significance

7.3.13 There is no published or formalised technical guidance or criteria available relating to the assessment of socio-economic effects. Professional judgement and experience were therefore drawn upon to assess the significance of the Development's socio-economic effects.

Sensitivity of Receptor

7.3.14 Receptor sensitivity is largely driven by the baseline conditions and the extent to which socio-economic issues are present in the area. Receptor sensitivity was based on the scale set out in Table 7.1.

Table 7.1: Receptor Sensitivity Descriptors

Value (Sensitivity)	Descriptor
High	Above average levels of socio-economic deprivation, unemployment or low access to employment
Medium	Average levels of socio-economic deprivation, unemployment or access to employment
Low	Below average levels of socio-economic deprivation, unemployment or high access to employment

Magnitude of Impact

7.3.15 The assessment of the magnitude of the socio-economic impact is quantified where possible and an objective qualitative assessment is made in the cases where quantification is not possible. The magnitude of impact was based on the scale set out in Table 7.2.

Table 7.2: Magnitude of Impact Descriptors

Impact Magnitude	Descriptor
High	Substantial change to one or more of the socio-economic receptors
Medium	Noticeable change to one or more of the socio-economic receptors
Low	Hardly perceptible change to one or more of the socio-economic receptors
Negligible	No perceptible change to one or more of the socio-economic receptors

Assessing Significance

7.3.16 The significance of effects was determined by reference to the criteria set out in Chapter 3: EIA Methodology (Tables 3.3 and 3.4). Determining the scale of socio-economic effects requires professional judgement therefore the determination includes a degree of flexibility when considering the magnitude of an impact in the context of the sensitivity of the receptor. Effects classified as moderate or major in scale are considered 'significant'. Effects classified as minor or negligible are considered 'not significant'.

Assumptions and Limitations

7.3.17 As with any dataset, baseline data will change over time. The most recent published data sources were used in this assessment; but in some instances this data may not be up-to-date. For example, the latest Census data available is from 2011. This is an inevitable limitation that is not considered to adversely impact the validity of the assessment undertaken to identify the likely significant socio-economic effects.

7.3.18 As set out in Chapter 6: Construction, there is a degree of uncertainty as to the length of the construction phase as contractors have not yet been appointed. To assess a worst-case scenario – the upper estimate of 36 months was assumed for the duration.

7.3.19 The assessment has not considered the potential effects of the Covid-19 pandemic on the baseline and changes to working practices in the construction industry. It is not known at this time how long the Covid-19 pandemic is likely to continue, what the long-term effects on construction practices, the labour market or the economy may be. The available baseline analysis and projections are largely based on data that predates the Covid-19 crisis and therefore the assessment is benchmarked against a baseline that will not reflect any effects caused by the Covid-19 pandemic. This is considered robust since it is not skewed by recent (and potentially temporary) health and economic anomalies.

7.3.20 Similarly, construction employment was estimated based on the CITB labour forecasting tool which uses historical data to make forward projections. The total construction employment generated through the construction of the Development is likely to remain unchanged, but the number of construction workers allowed on-Site at any given time may be affected by restrictions intended to control the spread of Covid-19. This could affect the

profile of construction employment but is unlikely to affect the average reported in this assessment.

7.3.21 The parameters for the Development are for up to 270,000 sqm (GIA) of Use Class B8 floorspace. As the applications for the Eastern and Western Sites are in outline, the exact quantum of development will be determined though reserved matter applications. For the purposes of this socio-economic assessment, employment creation from the completed Development has been assessed based on the Illustrative Masterplan (see Appendix 5.1) which represents a realistic scenario for how the floorspace will come forward.

7.4 Baseline Conditions

Current Baseline Conditions

7.4.1 The Site is adjacent to Junction 10 of the M40 motorway in Fringford and Heyford ward. The Site (Eastern and Western Sites) and surrounding area is predominantly agricultural. Cherwell Valley services are directly south of the Eastern Site. Baynards Green comprising a petrol station, takeaway restaurant and small number of industrial units and residential units is directly north of the Site. Ardley is the closest village to the Site, circa 700m to the south west.

7.4.2 Whilst outside of the Local Area, the village of Fritwell is also close to the Site, circa 1km to the west of the Site boundary. Baseline data for Fritwell (located within Deddington ward) has therefore also been considered alongside the Local Area in the economic baseline below, because employment is considered the most relevant socio-economic baseline for considering the effects of a new employment proposal.

Demographic Baseline

7.4.3 At the time of the 2011 Census, the total resident population of the Local Area was 7,550, with 142,000 residents in Cherwell as a whole.

7.4.4 Mid-year ONS population estimates indicate that the population of the Local Area in 2019 had increased to 11,000, showing a population growth of 46% since the 2011 Census. This is a significantly higher rate of growth compared to Cherwell, Oxfordshire and the South East (all 6%).

7.4.5 The age structure within the Local Area is in line with the age profiles of the wider spatial levels, with 73% of population of working age (age 16-74 years).

7.4.6 A summary of the demographic baseline is presented below in Table 7.3.

Table 7.3: Demographic Baseline Summary

Measure	Local Area	Cherwell	Oxfordshire	South East
Total Population				
2011 Census	7,550	142,000	654,000	8,630,000
2019 Mid-year Population Estimates	11,000	151,000	692,000	9,180,000

Measure	Local Area	Cherwell	Oxfordshire	South East
2011 to 2019 Population Growth	46%	6%	6%	6%
Age Profile: 2011 Census				
0-15	20%	20%	19%	19%
16-74	73%	73%	74%	73%
75+	7%	7%	8%	8%

Source: 2011 Census, ONS Mid -year Population Estimates, 2019. Note: figures may not sum due to rounding

Economic and Employment Baseline

7.4.7 At the time of the 2011 Census, there were 5,480 working age residents living in the Local Area. Levels of economic activity in the Local Area were in line with the District average (both 76%), which is higher than the average rates in Oxfordshire (73%) and the South East (72%).

7.4.8 The unemployment rate in the Local Area was 2.9% at the time of the 2011 Census, which was lower than the averages for the District (3.8%), Oxfordshire (3.7%) and the South East (4.8%).

7.4.9 Claimant count provides more recent data on the proportion of working age residents claiming unemployment-related benefits in an area. It is calculated for residents aged 16-64 years. This is currently considered an experimental data set. Claimant count does not capture all unemployment in an area such as those unwilling or unable to claim Universal Credit or Job Seekers Allowance.

7.4.10 The most recent claimant count data available is for May 2021 which indicates a claimant rate of 2.9% in the Local Area which was lower than the rates in Cherwell (4.0%), Oxfordshire (3.7%) and the South East region (4.9%).

7.4.11 This claimant count data captures the economic impacts of the Covid-19 pandemic. In January 2020 (pre-Covid-19), the claimant rate for Local Area was also lower at 1.0% compared to the rates in Cherwell (1.5%), Oxfordshire (1.5%) and the South East (2.1%).

7.4.12 The adjacent ward of Deddington which contains Fritwell village has a similar claimant rate to that of the Local Area – with a claimant rate of 3.0% (155 claimants) as of May 2021 and a rate of 0.8% in January 2020 (40 claimants).

Qualifications

7.4.13 2011 Census data suggests that a higher proportion of residents in the Local Area hold degree-level qualifications (37%) when compared to the average for Cherwell (28%), Oxfordshire (36%) and the South East (30%).

7.4.14 Conversely, the Local Area has a lower proportion of residents with no formal qualifications (16%), compared to slightly higher rates in Cherwell (20%), Oxfordshire (17%) and the South East (19%).

Occupation of Residents

7.4.15 The Local Area has a significantly higher proportion of residents employed in highly-skilled occupations (managerial, professional and technical positions) at 52%, compared to lower proportions of 41% in Cherwell, 48% in Oxfordshire and 45% in the South East.

7.4.16 2011 Census data also indicates that the Local Area has a lower proportion of residents working in lower-skilled roles (sales, process and elementary positions) at 19%, compared to higher proportions in Oxfordshire (22%) and the South East (23%), and a significantly higher proportion in Cherwell (27%).

Business Structure

7.4.17 According to 2019 BRES data, there are 4,500 jobs in the Local Area – the largest sector is accommodation and food services, accounting for 16% of jobs, which is greater than proportions in Cherwell (6%), Oxfordshire (7%) and the South East (8%).

7.4.18 The second largest sector in the Local Area is the retail sector accounting for 12% of jobs, compared to lower or equal proportions in Cherwell (8%), Oxfordshire (12%) and the South East (9%).

7.4.19 Deddington ward has 3,000 jobs – as with the Local Area, the largest sector is accommodation and food services, accounting for 20% of jobs in Deddington ward.

7.4.20 The largest sectors in Cherwell and Oxfordshire are retail and education, respectively. These two sectors account for 12% and 15% of all jobs in their respective areas. In contrast, the largest sector at the Regional level is health, accounting for 13% of jobs in the South East.

7.4.21 Construction jobs comprise 7% of Local Area employment, which is higher than proportions across Cherwell (4%), Oxfordshire (6%) and the South East (5%). The construction workforce is highly mobile, with workers frequently travelling regionally (and sometimes nationally and internationally) to fill vacancies. Therefore, the construction economy is best considered at a higher spatial level – there are 236,000 construction jobs in the Region (South East).

7.4.22 A summary of the economic and employment baseline is presented below in Table 7.4.

Table 7.4: Economic and Employment Baseline

Measure	Local Area	Cherwell	Oxfordshire	South East
Working Age Residents				
Total number of working age residents	5,480	103,000	482,000	6,270,000
Economic Activity (residents)				
Economic Active	76%	76%	73%	72%
Unemployed	2.9%	3.8%	3.7%	4.8%
Claimant Count (residents)				
Claimants January 2020	65 (1.0%)	1,355 (1.5%)	6,415 (1.5%)	115,330 (2.1%)

Measure	Local Area	Cherwell	Oxfordshire	South East
Claimants May 2021	190 (2.9%)	3,710 (4%)	15,930 (3.7%)	274,810 (4.9%)
Highest Level of Qualification (residents)				
No formal qualifications	16%	20%	17%	19%
GCSEs and A Level equivalent	43%	47%	42%	46%
Further and higher education	37%	28%	36%	30%
Other qualifications	4%	5%	5%	5%
Occupation (residents)				
Management/ professional/ technical	52%	41%	48%	45%
Admin/skilled trades/ services	29%	31%	29%	32%
Sales/ process/ elementary	19%	27%	22%	23%
Key Employment Sectors (jobs)				
Total Jobs	4,500	84,800	389,000	4,340,000
Accommodation and food services	700 (16%)	5,500 (6%)	28,500 (7%)	331,000 (8%)
Retail	550 (12%)	10,500 (12%)	35,000 (9%)	421,500 (10%)
Professional, scientific & technical	500 (11%)	6,500 (8%)	45,500 (12%)	395,000 (9%)
Construction sector	325 (7%)	3,750 (4%)	22,000 (6%)	236,000 (5%)

Source: 2011 Census, ONS Claimant Count, January 2020 & May 2021; Business Register and Employment Survey, 2019.
Note: figures may not sum due to rounding

Indices of Multiple Deprivation

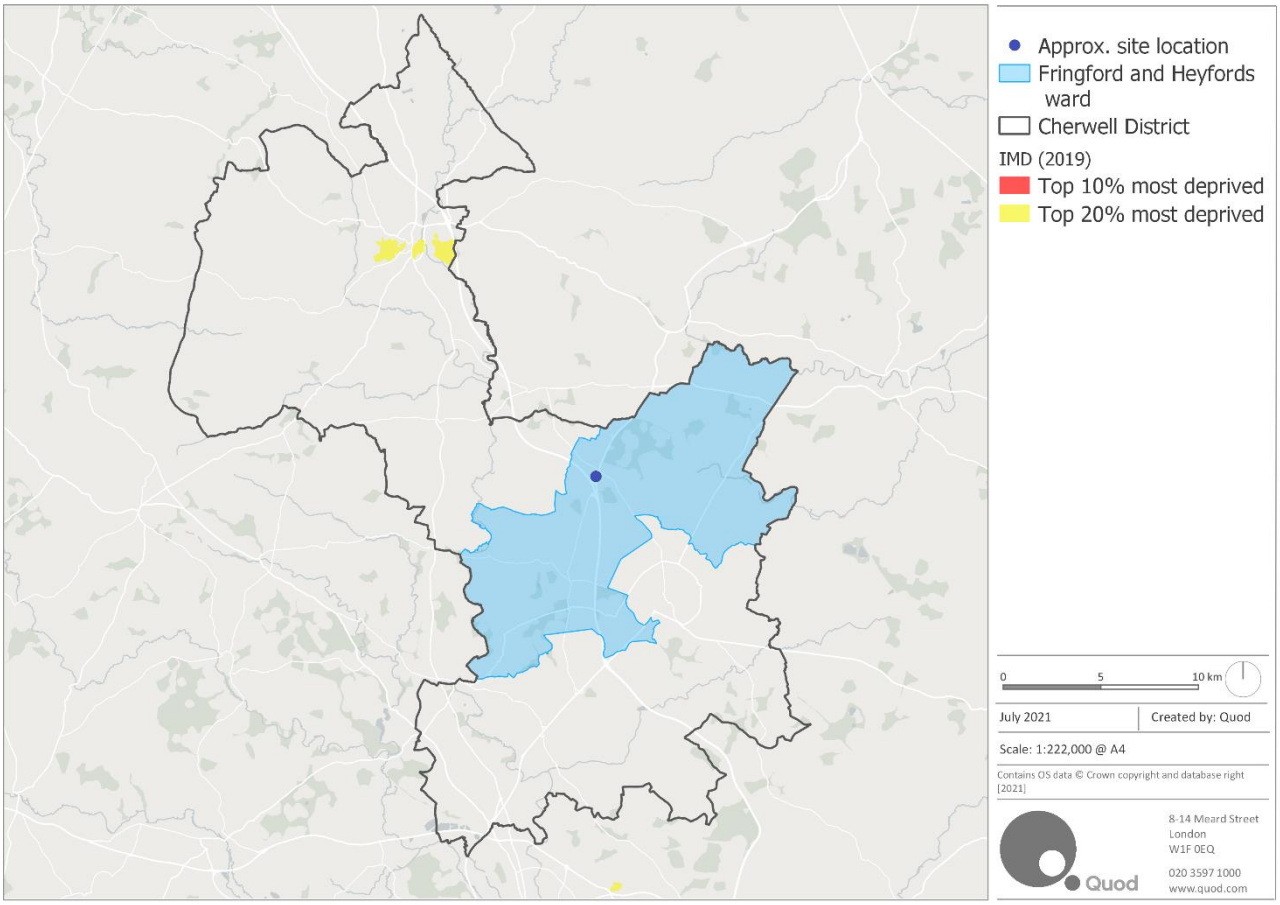
7.4.23 The Government's Indices of Multiple Deprivation[15] measures deprivation by combining a number of indicators, including social, economic and housing factors, to give a single deprivation score for each small area (Lower-layer Super Output Area (LSOA)) across England. These factors are divided into seven domains as listed below:

- Income Deprivation;
- Employment Deprivation;
- Education, Skills and Training Deprivation;
- Health Deprivation and Disability;
- Crime;
- Barrers to Housing and Services; and
- Living Environment Deprivation

7.4.24 All areas across England are then ranked relative to one another according to their level of deprivation. Figure 7.2 presents the relative levels of deprivation within Cherwell, with areas shown in yellow being within the top 20% most deprived in England.

7.4.25 As shown in Figure 7.2, Cherwell does not suffer from high levels of deprivation, although there are some areas in Banbury in the north of the District which fall within the top 20% most deprived in England.

Figure 7.2: Indices of Multiple Deprivation (2019)



Future Baseline

7.4.26 Table 7.5 sets out the projected population for 2025, and growth over the 2019 base presented in Baseline Conditions – Demographic Baseline Summary (Table 7.3). This shows that the District population is projected to increase by 4.4% by 2025, which is a greater rate of growth compared to the County and Regional projections (2.9% and 2.8%, respectively).

Table 7.5: Future Baseline Population

Measure	Cherwell	Oxfordshire	South East
Population Growth			
2025 Total Population (growth over 2019 base)	6,600 (4.4%)	20,400 (2.9%)	261,000 (2.8%)

Source: ONS, 2018-based population projections

Summary of Receptors and Sensitivity

7.4.27 Table 7.6 sets out existing receptors and their sensitivity.

Table 7.6: Summary of Receptor Sensitivity

Receptor	Sensitivity (Value)	Rationale
Construction industry and its employees	Low (Region)	Effects on the construction industry are assessed at a Regional level due to the mobility of the construction workforce. There are 236,000 construction workers in the South East (regional economy).
Local economy and labour market	Low (Local and District)	Accessibility of employment is key to the success of a population. Equally so, businesses are sensitive to access to the labour market. Baseline analysis shows that unemployment is relatively low in the local area surrounding the Site and the District as a whole compared to the Regional average.

7.5 Scheme Design and Management

7.5.1 The ways in which socio-economic effects have been or will be avoided, prevented, reduced or offset through design and/or management of the Development are outlined below. These are inherent to the scheme and as such are taken into account as part of the assessment of the potential effects. Proposed enhancements are also described where relevant.

Construction

7.5.2 Measures will be implemented to minimise disruption to neighbouring areas, as outlined in Chapter 6: Construction, including:

- A CEMP will be prepared and implemented that will seek to avoid or mitigate effects on the local residents and community (see Appendices 6.1 and 6.2). Noise, vibration and dust will be controlled through measures including acoustic hoarding barriers, dust minimisation measures, and the setting of vibration limits. The CEMPs will also include a Construction Traffic Management Plan that will seek to minimise disruption to existing transport routes;
- The Site will be registered with the 'Considerate Constructors Scheme' which seeks to ensure construction is carried out in a safe and considerate manner.

7.5.3 Whilst these tertiary interventions do not directly relate to socio-economics, they indirectly affect socio-economic receptors, including the local businesses, employees, the local economy and community. The management of the construction site to minimise noise, dust, air pollution and safety risks will help to reduce potential amenity and disruption effects on receptors in the Local Area.

Completed Development

7.5.4 There is no primary mitigation of relevance to the operational phase of the socio-economic assessment.

7.6 Construction

Assessment of Effects

Construction Employment

7.6.1 The construction of the Development would generate employment within the construction industry.

Enabling Works

7.6.2 It is estimated that the Enabling Works will take 14 months (worst-case) and that there would be an average of 26 FTE jobs over this duration (30 person year's worth of labour).

7.6.3 Construction employment is highly mobile and therefore assessment of the construction works is best considered at the Regional level. In a regional context (there are 236,000 jobs in the construction sector in the South East), the impacts of the construction jobs associated with the Enabling Works is considered to be 'negligible' magnitude of impact on the construction industry (low sensitivity). The scale and significance of the effect in the case of the Enabling Works would be negligible (not significant) at the Regional level.

Eastern Development

7.6.4 It is estimated that the construction of the Eastern Development will take 24 months (worst-case) and that there would be an average of approximately 200 FTE jobs over the duration of this construction period (415 person years' worth of labour).

7.6.5 In a regional context, the impacts of the construction jobs associated with the Eastern Development is considered to be 'low' magnitude of impact on the construction industry (low sensitivity). Whilst additional employment generated within the construction sector will be beneficial, the scale and significance of the effect in the case of the Eastern Development would be negligible (not significant) at the Regional level.

Western Development

7.6.6 It is estimated that the construction of the Western Development will also take 24 months (worst-case) and that there would be an average of approximately 360 FTE jobs over the duration of this construction period (740 person years' worth of labour).

7.6.7 In a regional context, the impacts of the construction jobs associated with the Western Development is considered to be 'low' magnitude of impact on the construction industry (low sensitivity). Whilst additional employment generated within the construction sector will be beneficial, the scale and significance of the effect in the case of the Western Development would be negligible (not significant) at the Regional level.

The Development

7.6.8 Construction of the Development as a whole, including Enabling Works, is estimated to take approximately 36 month (worst-case), with an overlap between the construction of the Eastern and Western Developments (See Chapter 6: Construction for further details). Labour demands will vary between the different phases and as trades move on and off-site.

7.6.9 Overall, it is estimated that construction of the Development would require 1,185 person years' worth of labour which would equate to 385 FTE jobs averaged over the duration of the 36 month construction period.

7.6.10 Construction employment is highly mobile and therefore assessment of the construction works is best considered at the Regional level. In a regional context (there are 236,000 jobs in the construction sector in the South East), the impacts of the construction jobs associated with the Development is considered to be 'low' magnitude of impact on the construction industry (low sensitivity). Whilst additional employment generated within the construction sector will be beneficial, the scale and significance of the effect in the case of the Development would be negligible (not significant) at the Regional level.

Mitigation, Monitoring and Residual Effects

7.6.11 The likely effects of the Enabling Works, Eastern Development, Western Development and the Development as a whole during the construction phase are considered to be negligible beneficial (not significant). As no adverse effects are identified, no additional mitigation is required beyond implementation of the CEMPs.

7.6.12 CDC's Developer Contributions SPD (2018)[4] requires an Employment, Skills and Training Plan (ESTP) to be secured by Section 106 Agreement. The ESTP would enhance beneficial effects of employment creation, through helping local people better access job opportunities arising from the Development, including through providing construction apprenticeships.

7.6.13 All residual effects remain as the potential effects stated. No monitoring is considered necessary as no adverse effects are identified.

7.7 Completed Development

Assessment of Effects

Employment Creation

7.7.1 The Development will deliver up to 270,000 sqm GIA of warehousing floorspace (Use Class B8). The assessment of employment creation is based on the indicative masterplan which comprises 269,096sqm GEA / 265,542 sqm GIA of warehousing floorspace – this represents a realistic scenario for how the Development will come forward.

7.7.2 The number of jobs that would be accommodated by this floorspace has been calculated by applying standard job density ratio from the HCA Guidance as set out in the Assessment Methodology (Para. 7.3.11).

7.7.3 As set out in the Baseline Conditions section, unemployment is relatively low in the Local Area as well as the District as a whole (low sensitivity receptor). As of May 2021, there were 190 residents claiming unemployment related benefits in the Local Area and 155 residents in adjacent Deddington ward which contains Fritwell.

7.7.4 Whilst the Development will provide new employment opportunities for working age residents living in the local settlements surrounding the Site, for a scheme of this scale and nature the workforce will be drawn from a wider catchment - therefore the effect of employment creation has been assessed at District level.

Enabling Works

7.7.5 The Enabling Works will not generate any end-use employment.

Eastern Development

7.7.6 The indicative masterplan for the Eastern Development comprises 99,390 sqm GEA / 97,795 sqm GIA of warehousing floorspace which would accommodate 1,050 to 1,420 FTE jobs. Assessed against the lower range of employment (worst-case scenario), the effect of 1,050 FTE jobs (high magnitude impact) on the local and district economy (low sensitivity receptor) would be direct, permanent, moderate beneficial at the Local and District level, and negligible at all other spatial scales.

Western Development

7.7.7 The indicative masterplan for the Western Development comprises 169,706 sqm GEA / 167,747 sqm GIA of warehousing floorspace which would accommodate 1,790 to 2,420 FTE jobs. Assessed against the lower range of employment (worst-case scenario), the effect of 1,790 FTE jobs (high magnitude impact) on the local and district economy (low sensitivity receptor) would be direct, permanent, moderate beneficial at the Local and District level, and negligible at all other spatial scales.

The Development

7.7.8 The Development as a whole is likely to accommodate 2,840 to 3,840 FTE jobs. Assessed against the lower range of employment (worst-case scenario), the effect of 2,840 FTE jobs (high magnitude impact) on the local and district economy (low sensitivity receptor) would be direct, permanent, moderate beneficial at the Local level and District level, and negligible at all other spatial scales.

Mitigation, Monitoring and Residual Effects

7.7.9 The likely effects of the Eastern Development, Western Development and the Development as a whole once completed and operational are considered to be moderate beneficial. As no adverse effects are identified, no additional mitigation is required beyond that inherent to the scheme.

7.7.10 CDC's Developer Contributions SPD (2018)[4] requires an Employment, Skills and Training Plan (ESTP) to be secured by Section 106 Agreement. The ESTP would enhance the beneficial effects of employment creation, through helping local people better access job opportunities arising from the Development.

7.7.11 All residual effects remain as stated for the potential effects. No monitoring is considered necessary.

7.8 Cumulative Effects

Construction

Assessment

7.8.1 The Development, together with the cumulative schemes, would be expected to generate employment opportunities during construction. However, it is not possible to make a quantitative assessment of this level of employment. Variance in methodologies between

projects for calculating construction jobs means that inaccuracies would arise from summing available figures.

7.8.2 In addition, construction projects do not always occur concurrently due to variance in commencement date and programme length. Fluctuation in the intensity of labour demand on construction sites can also enable contractors to move around between sites. Therefore, the employment generated through the construction of the Development and the cumulative schemes may not occur at the same time in a cumulative manner.

7.8.3 Given the size and mobility of the regional construction labour market, it is not expected that the cumulative construction effects would generate any adverse effects with respect to socio-economics. All effects are likely to be negligible and beneficial (not significant).

Mitigation, Monitoring and Residual Effects

7.8.4 Given that all cumulative construction effects are likely to be negligible and beneficial no further mitigation is required. The residual effects will remain as stated above.

Completed Development

Assessment

7.8.5 The cumulative effects on employment have been assessed by identifying the estimated employment set out within the planning applications of the relevant schemes.

7.8.6 An application for Cumulative Scheme 4 (Oxfordshire SRFI) has not yet been submitted, therefore employment has been estimated by applying standard job density ratios from the HCA Guidance to the indicative floorspace area (up to 675,000 sqm of B8 floorspace) set out within the Scoping Report (ref: 21/02008/SCOP).

7.8.7 Should the identified cumulative schemes come forward (including Scheme 4), they would generate approximately 9,500 to 13,000 FTE jobs.

Eastern Development

7.8.8 The cumulative schemes alongside the Eastern Development would generate a minimum of 10,550 FTE jobs (worst-case scenario) (high magnitude impact). The cumulative effect of these schemes is considered to be direct, permanent, major beneficial at the Local and District level, and minor beneficial at the Regional level.

Western Development

7.8.9 The cumulative schemes alongside the Western Development would generate a minimum of 11,290 FTE jobs (worst-case scenario) (high magnitude impact). The cumulative effect of these schemes is considered to be direct, permanent, major beneficial at the Local and District level, and minor beneficial at the Regional level.

The Development

7.8.10 The cumulative schemes alongside the Development would generate a minimum of 12,340 FTE jobs (worst-case scenario) (high magnitude impact). The cumulative effect of these schemes on the local and district economy (low sensitivity receptor) is considered to be

direct, permanent, major beneficial at the Local and District level, and minor beneficial at the Regional level.

Mitigation, Monitoring and Residual Effects

7.8.11 The cumulative assessment has identified beneficial effects with respect to employment creation, therefore no mitigation is necessary. The residential effects will remain as stated above.

Table 7.5: Summary of Residual Effects

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Parcel	Magnitude of Impact	Mitigation and Monitoring	Residual Effect
Construction							
Construction employment	Construction industry (low)	Region	Temporary	Enabling Works	Negligible	None required	Negligible
				Eastern Development	Low	None required	Negligible (Beneficial)
				Western Development	Low	None required	Negligible (Beneficial)
				The Development	Low	None required	Negligible (Beneficial)
Completed Development							
Provision of employment floorspace	Local & District economy (low)	Local, District	Permanent	Eastern Development	High	None required	Moderate Beneficial
				Western Development	High	None required	Moderate Beneficial
				The Development	High	None required	Moderate Beneficial
Cumulative Effects							
Construction Employment	Construction industry (low)	Region	Temporary	Enabling Works	Not quantified	None required	Negligible (Beneficial)
				Eastern Development		None required	Negligible (Beneficial)
				Western Development		None required	Negligible (Beneficial)
				The Development		None required	Negligible (Beneficial)
Provision of employment floorspace	Local & District economy (low)	Local, District, Region	Permanent	Eastern Development	High	None required	Major Beneficial at the Local and District level, Minor Beneficial at the Regional level
				Western Development	High	None required	Major Beneficial at the Local and District level, Minor Beneficial at the Regional level
				The Development	High	None required	Major Beneficial at the Local and District level, Minor Beneficial at the Regional level

References

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8 Transport and Access

8.1 Introduction

8.1.1 This chapter of the ES was prepared by David Tucker Associates and presents an assessment of the likely significant effects of the Development on transport, access and traffic. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. The nature and significance of the likely residual effects are reported.

8.1.2 The chapter is supported by the following appendices:

- Appendix 8.1: Transport Assessment; and
- Appendix 8.2: Framework Travel Plans.

Competence

8.1.3 The principal author of this chapter was Simon Parfitt MSc, BA, CILT, director at David Tucker Associates with over thirty years' experience in the appraisal of transport and traffic implications, including EIA. The secondary author is Richard McCulloch BEng, GMICE, Associate Director at DTA with over twenty years' similar experience.

8.2 Legislation, Planning Policy and Guidance

Legislation Context

8.2.1 There is no legislation of relevance to this assessment.

Planning Policy Context

National

8.2.2 A review of national, regional and local transportation and land use policies as well as how the Development meets those policy objectives is provided in the TA (Appendix 8.1).

8.2.3 The National Planning Policy Framework (NPPF)[1] which sets out the Government's policies to achieve sustainable development, is the key national planning policy relevant to the Development.

Regional

8.2.4 There is no regional policy of relevance to the Development.

Local

8.2.5 The following local planning policy is relevant to the Development:

- Oxfordshire Local Transport Plan 4 2015-2031 adopted September 2015[2], updated 2016[3]; and
- Cherwell Local Plan (2011-2031) adopted July 2015, updated December 2016[4]. Relevant policies include:

- SLE Improved Transport and Connections; and
- ESD1 Mitigating and Adapting to Climate Change.

- Mid Cherwell Neighbourhood Plan (2018-2031), adopted 2019[5]:
  - T1 Rural Road Traffic Capacity, Safety and HGV content; and
  - CAP TO1 Mitigation of car and HGV volumes on rural roads.

Guidance

8.2.6 The following guidance is relevant to the Development:

- Institute of Environmental Management and Assessment (IEMA), Assessment Guidelines on the Environmental Assessment of Road Traffic[6] (the 'IEMA Guidelines');
- Planning Practice Guidance (Live Document);
- Guidance on Transport Assessment (DfT 2007)[7] – formally withdrawn; and
- Design Manual for Roads and Bridges (DMRB, various)[8], including CD109, CD123, CD116, CD143, CD169, CD195 and LA104[9].

8.3 Assessment Methodology

Consultation

8.3.1 Table 8.1 summarises key comments raised by consultees of relevance to this assessment and how the assessment has responded to them.

Table 8.1: Consultation Response Summary

Consultee and Comment	Response
CDC, EIA Scoping Opinion (29/07/21)	
▪ Potential effects of construction traffic must be assessed.	▪ A construction traffic assessment is provided in Section 8.6 of this chapter.
▪ The cumulative assessment should consider potential in-combination impacts with the North-west Bicester Eco-town, Heyford Park, Great Wolf and Strategic Rail & Freight Interchange (SFRI).	▪ The potential cumulative effects with the North-west Bicester Eco- town, Heyford Park and Great Wolf have been assessed and are discussed in Section 8.8 of this chapter. The SRFI development proposal is at an early (scoping) stage with little information publicly available to inform an understanding of the potential cumulative effects. As such, the cumulative impacts cannot be explicitly assessed at this stage and this scheme is not included in the cumulative assessment.
Oxfordshire County Council Pre-application Advice (30/07/21)	
▪ A capacity and design appraisal of the Site access junctions is	▪ Section 4.5 of the TA sets out a detailed description of the site accesses demonstrating compliance with relevant standards. Traffic capacity assessment set out within Section 5.4 of the TA illustrate the

Consultee and Comment	Response
required including independent Road Safety Audit.	suitability in an operational sense. The proposals are supported by independent Stage 1 Road Safety Audit reports and are appended to the TA (Appendix N).
▪ Assessment of National Highways (NH) Growth Fund improvement scheme at the A43 Baynards Green roundabout is required.	▪ NH announced that 'improving the junction on the A43 at Baynards Green, and the M40 roundabout at Padbury will increase capacity, reduce congestion, help reduce journey times and improve safety'. Prior to the confirmed design and hence capability to provides a modelled appraisal of the Growth Fund Scheme, it is not possible to confirm this at this time. This will be continue to be discussed with OCC/NH.
▪ A future year scenario of 2031 should be assessed using data from the Bicester Transport Model.	▪ There is currently a lack of clarity regarding the design detail of the Growth Fund Scheme. This will be continued to be discussed with OCC. The 2031 assessments included are based on count data.
▪ Consideration of Public Rights of Way (PRoW) across or near the Site should be provided.	▪ The Development provides for diversion of the PRoW within the Western Site along a similar alignment.
▪ Alternative consideration of trip parameters is sought.	▪ Further research was undertaken and an alternative set of trip rates presented. Trip rates based on similar large sites have been derived, with details set out at Section 5.2 of the TA. The OCC and NH responses on trip distribution differ.
▪ The Development should be assessed via use of HE VISSIM model.	▪ This has not yet been undertaken as the models were not available prior to submission of the applications.
▪ Additional junctions further afield may need to be assessed.	▪ This has not yet been undertaken as the models were not available prior to submission of the applications.
▪ Accident data to be assessed.	▪ This is provided at para 8.4.18 and Section 3.4 of the TA.
▪ Parking details to be provided.	▪ Parking details as required within context of outline application are provided at Section 4.6 of the TA.
▪ A SRFI sensitivity test is required.	▪ As set out previously, the potential cumulative effects of the SFRI have not been assessed due to the lack of sufficient publicly available information to inform modelling.

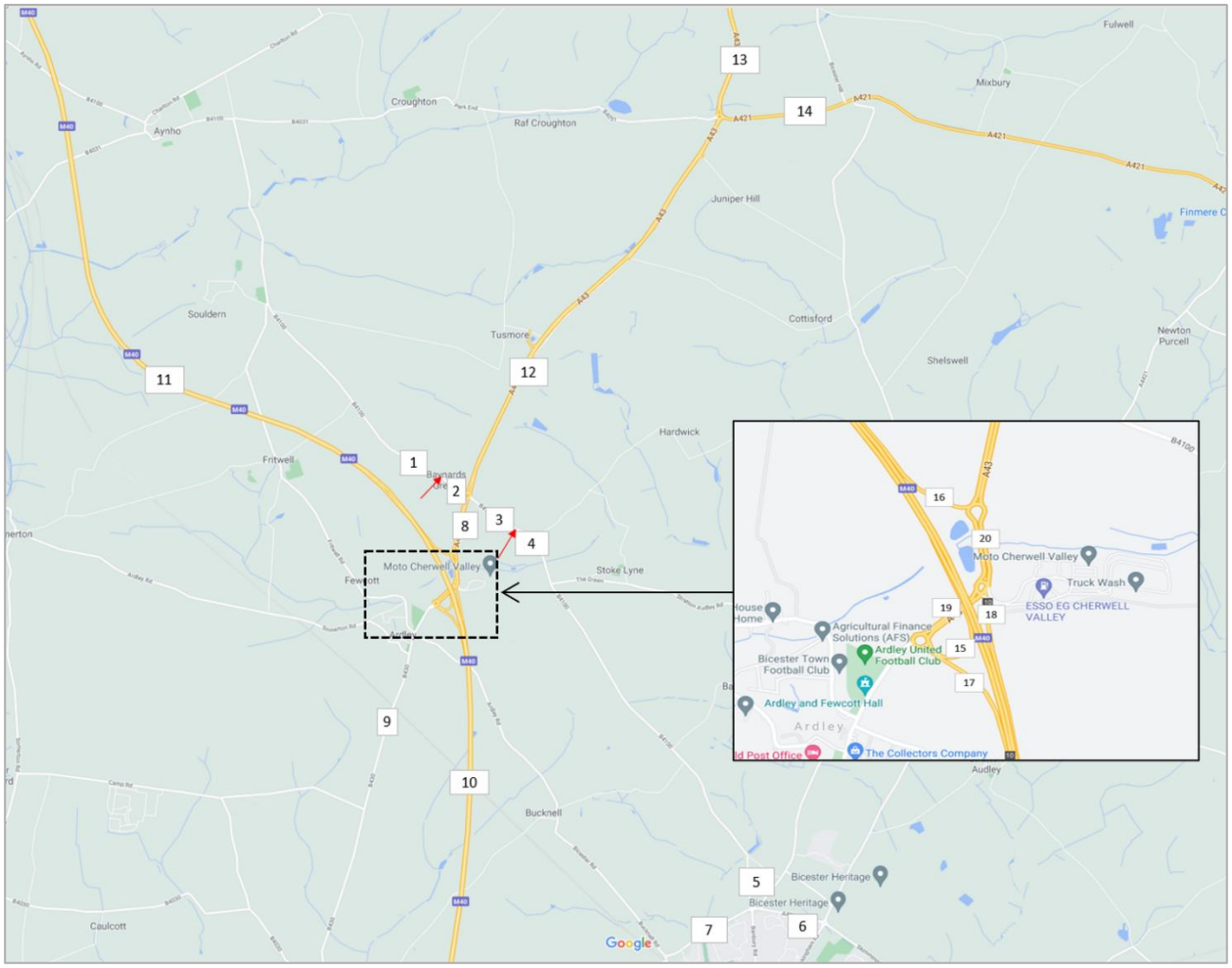
Consultee and Comment	Response
▪ A public transport strategy is required. Financial contributions are anticipated.	▪ The proposed public transport strategy is described at Section 4.4 of the TA and summarised in 'Scheme Design and Management' within this chapter.
▪ A safe cycling route between the Site and Bicester is required.	▪ A safe cycling route is proposed and described in detail at Section 4.3 of the TA.
▪ Consideration needs to be given to pedestrians crossing the A43 and B4100 (to the services).	▪ An interim scheme design is presented illustrating crossing of both roads, but the permanent solution will depend upon the final proposals for the HE A43 Growth Fund roundabout scheme.
▪ Electric vehicle charging is required.	▪ Provision is made within the Development equating to 10% active and a further 15% passive EV spaces.
National Highways (NH) Pre-application Response (16/7/21)	
▪ Alternative consideration of trip parameters is sought within additional time periods.	▪ Trip rates derived from similarly sized sites were derived and included within detail at Section 5.2 of the TA. These were based on commissioned surveys of five large scale employment sites with similar usage to the proposed scheme.
▪ Additional evidence regarding HGV distribution/assignment is required.	▪ Evidence regarding HGV distribution and assignment is included at Section 5.2 of the TA.
▪ Assessment of the M40, J10 junction is required.	▪ Paragraphs 5.4.21- 5.4.25 of the TA provide an initial assessment (pending the arrival of modelling information from NH) of the impacts on M40 J10.

Study Area and Scope

8.3.2 The study area has been informed by pre-application discussions with OCC and HE as described in Table 8.1. It includes the B4100, M40 J10, the A43 and the B4100/A4095 junction and the A4095 on the northern fringe of Bicester. Figure 8.1 illustrates the study area. The extent of the network was derived from highway authority feedback and regard to the IEMA Guidelines.

8.3.3 The study area for appraisal of the PRoW network is a 3km radius from the Site boundary.

Figure 8.1: Highway Link Study Area



8.3.4 The ES chapter provides an assessment of the likely significant effects of the Enabling Works, construction phase and operation of the Eastern and Western Developments, and consideration of the Development as a whole. The following assessment scenarios have been defined:

- Baseline – existing conditions at the time of time of the survey (i.e. 2021);
- Construction – assumed peak construction year 2024;
- Future Baseline (without Development) – 2025; and
- Completed Development – 2025.

8.3.5 Within the TA, junction capacity assessments are presented for the site accesses for the Completed Development (Year 10 after application submission) in 2031. The remainder of the network will be similarly assessed once the confirmed design of the Growth Fund Scheme is known.

Establishing Baseline Conditions

8.3.6 The following data sources have been used to inform the assessment:

- Commissioned traffic surveys;

- Webtris (National Highways) Traffic Information System for Strategic Road Network (SRN);
- Historic Transport Assessment for North West Bicester Masterplan (2014)[10];
- Site and adjacent highway topographic survey;
- CDC and OCC websites (used to obtain planning policy, information on Public Rights of Way, Personal Injury Collision Data and committed development information to inform the future base flows);
- OS Mapping;
- TEMPro (Trip End Model Presentation Program) incorporating NRTF 2018 used to provide projections of growth over time for use in local and regional transport models. TEMpro presents projections of growth in planning data, car ownership and resultant growth in trip making by different modes of transport;
- TRICS (used to generate trip rates and trip generation for the Development);
- Base Year Freight Matrices published by the Department for Transport (2012);
- ESRI ArcGIS to inform trip assignment; and
- Site visits.

Field Surveys

8.3.7 Multiple site visits have been undertaken within the study area over the period between April and September 2021. This has included visits undertaken during operational network peak conditions and inter-peaks.

8.3.8 Traffic count data has been collected in the form of turning counts undertaken by high mast camera and independent enumerator at the A43/B4100 links. This has been supplemented with historic modelled data at the B4100/A4095 junction obtained from OCC.

8.3.9 Traffic data collection comprised:

- Classified turning count and queues: A43/B4100 roundabout: 23/06/21 (0700-1900);
- 24-hour Automatic Traffic Count: B4100, east of A43: 19/06/21 - 25/06/21; and
- 24-hour Automatic Traffic Count: B4100, west of A43: 13/07/21 - 19/07/21.

Identifying Likely Significant Effects

8.3.10 The IEMA Guidelines sets out the recommended list of 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 and cyclist delay and amenity;
- Accidents and safety; and
- Hazardous loads.

8.3.11 Due to the nature of the construction activities it is not anticipated that the construction process will require carriage of materials listed on The Carriage of Dangerous Goods in the

UK [11]. It is also not expected that would be a requirement for unusual or hazardous HGV movements from the Development once completed and operational. As such, the assessment of hazardous loads is scoped out of this chapter.

8.3.12 The environmental implications arising from noise and vibration, air quality and cultural heritage effects are dealt with in other chapters of this ES and, as such, not discussed further within this ES Chapter. Potential consequential effects arising from traffic movements on designated ecological sites are assessed within Chapter 9: Air Quality and Chapter 12: Biodiversity and associated appendices and should be read in conjunction with this ES Chapter.

Construction

8.3.13 During the construction of the Development, it will be necessary for various plant, equipment, and materials to be transported to the Site. The construction of the Development will take place in a phased approach, with commencement expected in early 2022 with the Enabling Works. Development of the Western Development would follow and be completed prior to the Eastern Development, but coincidental construction traffic patterns are considered as a worst case within this assessment.

8.3.14 Construction traffic effects have been based upon the anticipated vehicle routing, professional judgement on quantum of trips, and comparison with baseline flows and the assessment undertaken for a 2024 scenario which is considered to provide a representative peak in construction traffic activity when both the Eastern and Western Developments could be under construction concurrently. The possible outcome whereby either the Eastern or Western Development is operational and the other under construction has not been explicitly assessed. This is because the outcome of completed Development would reflect a worse case as this would involve a higher number of traffic movements.

Completed Development

8.3.15 Operational traffic effects have been based on forecast trip generation, distribution and assignment of light and HGV traffic compared against baseline flows. The site traffic forecasts are based on similarly sized and operationally equivalent existing facilities and represents a robust appraisal of peak and daily operation. This is based on the assumption of 24 hour, 7 day a week operations.

Cumulative Effects

8.3.16 Cumulative traffic effects have been based on forecast trip generation, distribution and assignment of light and HGV traffic from the Development and the cumulative schemes and compared against baseline flows. Following review of the identified cumulative schemes and consultation feedback from statutory consultees, the following schemes have been included as committed development for the purposes of cumulative assessment, as described in detail within Chapter 3: EIA Methodology, Figure 3.3 and Appendix 3.5:

- Heyford Park (18/00825/HYBRID);
- North-West Bicester (14/01675/OUT, as amended); and
- Land to the east of M40 and south of A4095, Chesterton (Great Wolf Leisure Resort) (APP/C3105/W/20/3259189).

8.3.17 As these three cumulative schemes have been incorporated in the transport modelling scenarios, the assessment of cumulative impacts is inherent through the inclusion of the agreed committed developments in the future baseline (2025). As such, no explicit cumulative assessment is provided in this chapter.

8.3.18 As set out in Table 8.1, while CDC and OCC requested consideration of the SFRI within the cumulative assessment, this has not been possible due to the lack of sufficient information in the public domain to make a robust assessment of the potential cumulative effects of the Development with this proposed scheme at the time of submission. Should the SFRI come forward, it will be lead to an increase in traffic flows on the strategic road network and lead to cumulative effects, however it will be a requirement of that planning application to consider and mitigate the potential impacts of this proposed development.

8.3.19 The design of the Eastern Site access junction is influenced by the programmed HE Growth Fund Scheme at the A43/Baynards Green roundabout, due for completion in 2024. As it is not known whether the design iteration of the roundabout upgrade available for consideration represents the final scheme, two iterations of the Eastern Development access are assessed: one pre-implementation of the Growth Fund A43 Scheme and the second post-implementation of the Growth Fund A43 Scheme. However, given the potential for the latter scenario to be subject to change pending cohesion with a finalised A43 roundabout design, it is considered a "working scenario". It is considered unlikely that the finalised Growth Fund Scheme would necessitate amendment to the Western Site access design, but this will be confirmed when the Growth Fund Scheme design is fixed.

Determining Effect Significance

8.3.20 The assessment of likely significant effects as a result of the Development has taken into account both the Enabling Works, construction phase and once the Development is completed and occupied. Given that the Development is comprised of three interlinked planning applications, the potential effects of each application (i.e. the Enabling Works, Eastern Development and Western Development) are assessed in turn along with an assessment of the three combined (i.e. the Development).

8.3.21 The significance of an effect is determined by the interaction of two factors:

- The magnitude, scale or severity of the impact or change; and
- The value, importance or sensitivity of the environmental resource being affected.

8.3.22 The significance of levels of traffic change varies depending upon the environmental impact criteria being considered e.g. severance, driver delay, with reference made to the IEMA Guidelines on each criterion.

8.3.23 The assessment of likely significant environmental effects has been undertaken by comparing the identified baseline conditions of the Site and its surrounds with the Development proposals. In accordance with the IEMA Guidelines, the following rules of thumb are applied to delimit 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 heavy goods vehicles will increase by more than 30%).
- Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10% or more.

8.3.24 Where the predicted increase in traffic flows is lower than the above thresholds, the IEMA Guidelines suggest the significance of the effects can be stated to be negligible and further detailed assessments are not warranted. Furthermore, increases in traffic flows below 10% are generally considered to be insignificant in environmental terms given that daily variations in background traffic flow may vary by this amount.

Sensitivity of Receptor

8.3.25 Table 8.2 provides the definitions of receptor sensitivity applied in the assessment.

Table 8.2: Definitions of Receptor Sensitivity

Sensitivity/Value	Definition
High	Receptors with the greatest sensitivity to changes in traffic flows such as junctions and links at capacity, points of access to schools, hospitals and playgrounds; urban and residential roads used by pedestrians without pavements; and areas with no public transport provision.
Medium	Traffic flow-sensitive areas such as junctions and links with high flows but that are not at capacity. Heavily used areas such as local or district centres and employment areas, surgeries, hospitals, shopping areas with roadside frontage, community centres and parks; areas with narrow or poor quality pavements and unsegregated cycleways; areas with limited public transport provision (e.g. peak hour only or over-subscribed services); and Conservations Areas.
Low	Receptors with some sensitivity to changes in traffic flows such as links and junctions with moderate or low flows that are operating within capacity, places of worship, public open space, nature conservation areas, listed buildings, residential areas with adequate footway provision, and areas with good public transport provision (i.e. frequent services within capacity).
Negligible	Receptors with a very low sensitivity to traffic flows those sufficiently distant from affected roads and junctions.

Magnitude of Impact

8.3.26 Reference is made to DMRB LA 104 Environmental assessment and monitoring in terms of definition of measure of magnitude and significance of impact. Some elements differ from thresholds suggested in the IEMA Guidance. For example, severance of thresholds are higher. Table 8.3 provides a consolidated set of the definitions of magnitude of impact applied in the assessment based on professional judgement.

Table 8.3: Definitions of Magnitude of Impact

Impact Magnitude	Definition
High	A change in traffic flow of greater than 50% or any change in traffic flow that would result in the capacity of a link or junction being exceeded. Removal or addition of a public transport service(s).
Medium	A change in traffic flow of between 25% and 50%. Permanent severance of an existing footpath or cycleway or alterations to public transport services (e.g. frequency of service or patronage). Creation of new cycleway or public footpath.
Low	A change in traffic flow of between 10% and 25% or temporary severance of an existing footpath or cycleway. Enhancement to the pedestrian and cycle environment.
Negligible	A change in traffic flow of less than 10%.

Assessing Significance

8.3.27 Table 8.4 shows how the significance of effect is determined based on the sensitivity of the receptor and the magnitude of the impact.

Table 8.4: Significance of Effects Matrix

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

8.3.28 As stated in Chapter 3: EIA Methodology, a Major or Moderate significance of effect is considered significant.

Assumptions and Limitations

8.3.29 The construction traffic forecasts are based on the indicative construction programme defined within Chapter 6: Construction, as well as a number of assumptions on matters such as materials quantities, number of workers etc. However, worst-case assumptions have been applied to determine the forecast construction vehicles for this Site which has been used to determine the associated effects.

8.3.30 Traffic data collection on the B4100 links and A43 junction was undertaken in June 2021. The HE has since issued updated feedback stating that post September 2021 data collection would be deemed representative. Additional validation has therefore been undertaken against the 2019 link traffic data and historic turning counts which confirms that that the data is representative within day-to-day variations pre-pandemic.

8.3.31 The appraisal is based upon contemporary traffic data. The traffic modelling undertaken in the TA is based upon a series of assumptions pertaining to traffic generation and distribution forecasts for the Development proposals. These assumptions were subject to discussion with OCC Highways, with agreement that they are fit for purpose for traffic forecasting. In the absence of a definitive A43 Baynards Green Growth Fund scheme and lack of sufficiently publicly available information, further modelling will be undertaken during a later design stage.

8.3.32 The reliability and accuracy of the cumulative development sites traffic flows are based on the traffic data sourced for committed developments from the respective Transport Assessments.

8.4 Baseline Conditions

Site Location and Access

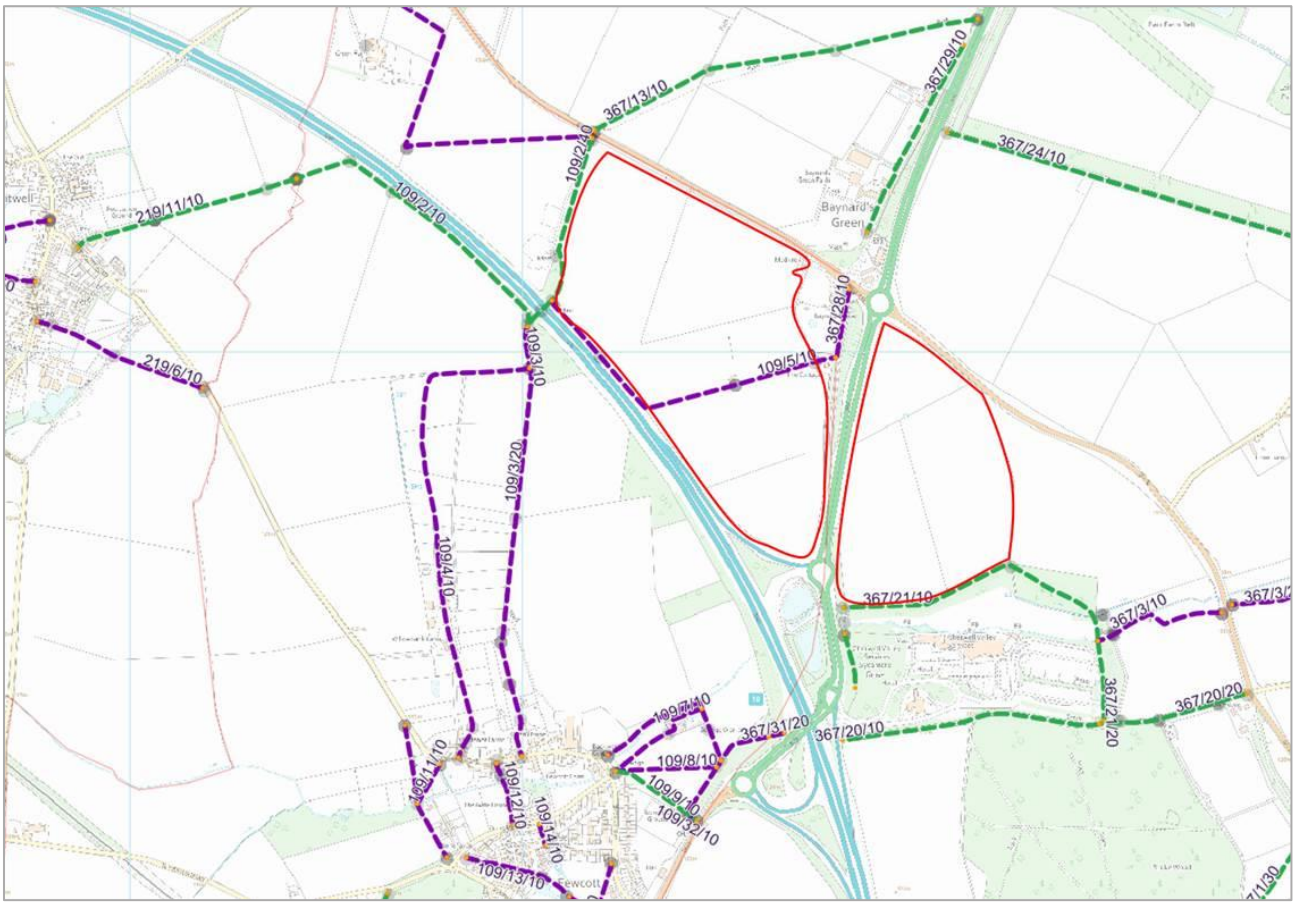
Eastern Site

8.4.1 The Eastern Site is bounded to the west by the A43, to the north by the B4100 and to the south by the Cherwell Valley Motorway Service Area (MSA). The Eastern Site is informally accessed by agricultural vehicles at the eastern extremity of the B4100 site frontage. Beyond occasional agricultural vehicles, the Eastern Site does not generate any trips.

Western Site

8.4.2 The Western Site is informally accessed by agricultural vehicles at the north-western extremity of the B4100 site frontage. Apart from occasional agricultural vehicles, the Western Site does not generate any vehicular trips. Public Footpath 109/5/10 crosses the site between the A43 and M40 as shown on Figure 8.2, before continuing inside the south-western boundary of the site. Bridleway 109/2/40 runs within the western boundary of the Western Site.

Figure 8.2: Public Right of Way Network



Local Highway Network

8.4.3 The Eastern Site is bounded to the west by the A43(T), a dual all-purpose road which runs between the M40 (at Junction 10) to the M1 at Northampton at Junction 15A. It is lit and subject to national speed limit.

8.4.4 The Eastern Site is bounded to the north by the B4100. The B4100 connects Bicester (to the south east) and Banbury to the north west. The section fronting the Eastern Site is subject to a 50mph speed limit and is unlit. The carriageway is approximately 7.5m wide.

8.4.5 The Western Site is bounded to the B4100 to the north. This section is also unlit, but subject to national speed limit.

8.4.6 Part of the Western Site is bounded by the A43(T) to the east. The south western boundary is the M40 mainline and southbound off-slip.

8.4.7 The M40 runs between London and Birmingham. The adjacent section is dual three lanes, which northbound and southbound slips.

8.4.8 The junction of the A43/B4100, known as Baynards Green, is a large four-arm at grade priority controlled roundabout with an inscribed circular diameter of 75m. The circulatory carriageway is 12m wide marked out in two lanes. There are no flares on the A43 approaches. Entry path curvature on both approaches is larger than recommended in

current design guidance (CD116). The exit width on the B4100 eastern arm is narrower than recommended in CD116.

8.4.9 There are roadside services in the north-western quadrant of the roundabout accessed from the B4100 western arm. These are served by a priority junction where the right turn out movement is banned. There is a right turn lane for inbound movements.

8.4.10 The junction of A43 and M40 at M40 Junction 10 is a grade separated junction with an off-line motorway service area. The junction comprises a roundabout junction on the western side linking the northbound carriageway slip roads, the B430 and dual two lane overbridges. On the eastern side of the junction is a partially signalised gyratory with the cut-through. The M40 southbound off-slip runs into the A43 Padbury junction, designed in the form of a roundabout although with no circulation at its southern point.

8.4.11 The B4100(E) forms a 4-arm 40m ICD roundabout junction with the A4095 on the edge of Bicester.

Traffic Flows

8.4.12 In addition to traffic surveys undertaken, as set out in para 8.3.9, published traffic data has been used. Figure 8.1 illustrates the area wide extent of link data collected.

8.4.13 Link flow data for the A43 and M40 Junction 10 link and slip roads was obtained from HE webtris online database. This data was extracted for the 2019 pre-pandemic period on an AADT (Annual Average Daily Traffic), AAWT (Annual Average Weekday Traffic) and neutral month weekday peak hours.

8.4.14 2019 AADT link flow data for the B4100, B430 and A421 was obtained from the Department of Transport (DfT) and OCC online databases. 2026 Reference Case data for junctions within Bicester was extracted from OCC's Bicester Traffic Model. 2021 (based on 2019 pre-pandemic traffic) baseline traffic data is summarised in Table 8.5.

Table 8.5: Baseline Traffic Flows - Daily 2021

Location	Total Flows	Heavy Goods Vehicle (HGV) Flows
B4100 (West)	6,900	179
B4100 (East)	12,349	494
A4095	17,700	708
A43 (South)	33,799	4,935
A43 (North)	37,011	4,441
B430	8,147	383
M40 (South)	120,806	17,275
M40 (North)	92,974	11,436
A421	11,843	983
M40 Northbound On Slip	5,480	756
M40 Southbound Off Slip	6,528	920
M40 Northbound Off Slip	17,984	2,770
M40 Southbound On Slip	17,919	3,064

8.4.15 To derive future year base traffic forecasts, factors have been extracted from TEMPRO for Cherwell 11 Middle Layer Super Output Area (MSOA) & 2018 Road Traffic Forecasts (RTF) as listed in Table 8.6.

Table 8.6: Tempro Growth Factors

		Future year		
		2019-2024	2019-2025	2019-2031
Average Day	Principal	1.071	1.083	1.133
	Trunk	1.091	1.106	1.162
	Motorway	1.094	1.111	1.184
AM (0700-1000)	Principal	1.061	1.071	1.112
	Trunk	1.080	1.093	1.141
	Motorway	1.084	1.098	1.163
PM (1600-1900)	Principal	1.065	1.076	1.12
	Trunk	1.084	1.098	1.149
	Motorway	1.088	1.103	1.17
Interpeak (1000-1600)	Principal	1.081	1.095	1.156
	Trunk	1.101	1.117	1.186
	Motorway	1.104	1.122	1.208
Offpeak (1900-0700)	Principal	1.065	1.076	1.119
	Trunk	1.085	1.099	1.148
	Motorway	1.088	1.104	1.17

Severance and Driver Delay

8.4.16 There is currently limited need to cross the highway links on foot in close proximity to the site. The Roadside Services at A43/Baynards Green roundabout and a small number of residential dwellings are the extent of the existing land uses. The PRoW network crosses the B4100 (W) at the north-western corner of the Western Site. Whilst safe crossing of the A43 is challenging, there is currently little need to do so. The B4100 (W) does not present a challenging link to cross in the vicinity of the PRoW.

8.4.17 M40 Junction 10 and the A43/Baynards Green are subject to congestion particularly during peak periods. Drivers do experience delay and this is reflected in the identification by the strategic highway authority for enhancement as programmed to be delivered as part of the Growth Fund Scheme.

Highway Safety

8.4.18 Personal Injury Collision data (STATS19) data as published by Department of Transport has been reviewed for the most recent available five-year period. The study area includes the area within five kilometres of the site as per the requirements of GG142.

8.4.19 At the Baynard's Green roundabout there have been an average of two reported incidents per year between 2015 and 2020 inclusive. Most incidents were of slight severity. One incident was serious. There are clusters of four incidents at both B4100 entries/A43 exits.

8.4.20 There are no reported incidents on the B4100 frontage of the western site. There was a single slight incident on the eastern site frontage which appears related to the A43 roundabout operation and included above.

8.4.21 Overall, there are no existing accident patterns that have a bearing on the proposed development.

Walking and Cycling Network

8.4.22 There is no pedestrian or cycleway provision on the B4100 or A43 frontage, or indeed on any part of either road within the study area.

8.4.23 Bridleway 109/2/40 runs along the western edge of the Western Site. This crosses the motorway at an overbridge where it turns to follow parallel to the northbound carriageway; the bridleway 109/2/10 continues to the village of Fritwell. Footpath 109/3/10 continues south from the overbridge into Fewcott.

8.4.24 Footpath 109/5/10 follows the southern boundary of the Western Site. Approximately midway along the southern boundary it diverts into the Western Site and joins footpath 367/28/10 south of Baynard House. Footpath 109/5/10 is intended to be retained but diverted within the Site.

8.4.25 Bridleway 367/21/10 which runs along the southern boundary of the Eastern Site with the Cherwell Valley Service Area.

Bus Services

8.4.26 An existing bus service, the 505 operated by Stagecoach, runs along the Eastern Site frontage on the B4100. There are currently no bus stops within convenient walking distance. The service operates from Bicester Village railway station, through the centre of Bicester, along the Banbury Road, onto the B4100 past the Eastern Site before joining the A43 north, from where it completes a loop of the Brackley area including the northern urban extension at Radstone Fields. It is an hourly service running from around 0700-1900 weekdays, with a slightly reduced frequency on Saturdays. There is no Sunday service.

Rail Services

8.4.27 The nearest rail services are at Bicester North and Bicester Village, both over 6km from the Site boundary. Both train stations are managed by Chiltern Railways. Bicester North's station provides an hourly service to Birmingham and Banbury and twice hourly to London Marylebone. Bicester Village provides a half hourly service between London Marylebone and Oxford.

Summary of Receptors and Sensitivity

8.4.28 The users of the nearby road links are considered sensitive receptors. Table 8.7 provides a summary of receptor sensitivity.

Table 8.7: Summary of Receptor Sensitivity

Receptor	Sensitivity (Value)
Existing	
A43/B4100 Junction	High
M40 Junction 10	High
B4100 (West of A43)	Low
B4100 (East of A43)	Negligible
Future	
Western Development Site Access	Low
Eastern Development Site Access	Low

Future Baseline Conditions

8.4.29 There will be changes on the highway network in the absence of the Development. These are due to vehicle movements arising from other developments (i.e. cumulative schemes) in the area and planned highway upgrade schemes.

8.4.30 The A43/B4100 is in need of improvement to address existing congestion concerns. The A43/B4100 roundabout and the A43/M40 southbound off-slip junction are each subject to programmed improvement with secured funding as a Growth Fund scheme. The more substantive improvement arises at the A43/B4100 roundabout which is due to be upgraded by 2024. Schematic plans are available having been reproduced within the Heyford Park TA, but the detailing is limited, and similar but differing designs have been obtained from different sources. The proposals involve signalisation and redesign of the roundabout. The sketch design is not sufficiently advanced to be able to evaluate its compliance with relevant design standards. Insufficient detail is therefore publicly available at present to properly understand the implications of these future planned infrastructure works for assessment against a future baseline scenario.

8.5 Scheme Design and Management

Construction

8.5.1 It is anticipated that most construction vehicles will approach the Site via the A43 as opposed to the B4100 and this is what has been assumed within the assessment. The routes taken by construction traffic will be agreed with the planning and highway authorities by way of a Construction Traffic Management Plan (CTMP), to be secured by planning condition and agreed with CDC and OCC at the Reserved Matters stage. Contractors will be encouraged to minimise the impact of travel by considering alternative modes of transport to the site compound. Due to the rural location, sustainable travel will be best achieved through the promotion of car sharing.

8.5.2 The Applicant has committed to construction site working hours, on-site compounds and other mitigation measures such as wheel-washing in a Framework Construction Environmental Management Plan (CEMP) (Appendices 6.1 and 6.2).

Completed Development

8.5.3 Access to the Western Development will be provided via a new 40m inscribed circle diameter (ICD) roundabout on B4100. The junction has been designed to relevant DMRB standards and will fully accommodate pedestrian and cyclist infrastructure.

8.5.4 The proposed B4100 access roundabout feeds onto an internal link road leading into an internal roundabout (ICD 36m). The internal link comprises a 7.3m carriageway with bus layby to allow scheduled bus services to enter the site, turn at the internal roundabout and leave in forward gear. This element forms part of the enabling works.

8.5.5 Access to the Eastern Development will be provided via a new 55m ICD roundabout. This junction will also meet relevant DMRB standards and will fully accommodate pedestrian and cyclist infrastructure.

8.5.6 Both access designs (and the Enabling Works) have been subject to independent Stage 1 Road Safety Audit. The Audit advised that the junctions be lit and required that detailed regard be paid to the relationship with the A43. This has particular relevance for when the Growth Fund Scheme design is finalised.

8.5.7 Parking demand will be accommodated within the Development in full. The precise configuration is not fixed and will be addressed when the occupiers are known as part of subsequent Reserved Matters applications. The Illustrative Masterplan makes provision for parking at a ratio of 1 space per 200m^2 GIA. On the basis of the Illustrative Masterplan, the total car parking provision on the Western Development site is 844 spaces; and the total car parking provision on the Eastern Development is 510 spaces.

8.5.8 A total of 5% of the car parking spaces would be Blue Badge spaces which accords with relevant standards; 10% of the total parking would be active electric vehicle charging spaces with an additional 15% passive EV spaces reflecting OCC's policy requirement to achieve 25% EV charging points.

8.5.9 Cycle parking would be provided to CDC standard at 1 space per 500m^2 GIA for employees and 1 space per 1,000m^2 GIA for visitors.

8.5.10 Both schemes have been designed such that scheduled bus services are brought into the Developments to provide convenient travel options. These include bus stops with laybys and shelters.

8.5.11 It is proposed to divert Public Footpath PRoW 109/5/10 which runs through the Western Site. The alignment reflects the expressed preference of OCC and passes through the Site rather than along the boundary. Overall walking times will remain similar.

8.5.12 The A43/B4100 is in need of improvement to address existing congestion concerns. The junction is therefore the subject of a funded committed upgrade. Concept drawings of a design (for implementation in 2024) to be delivered by NH have been provided, but the design is not sufficiently advanced to accurately appraise the impact of the development on the committed infrastructure. Therefore, an interim mitigation proposal has been proposed by the applicant to mitigate the impact of the Development on the B4100.

8.5.13 In summary, proposed enhancements brought forward through the Development will include:

- Off road footway/cycleway on B4100 linking the Development to Bicester (A4095) delivered via Section 278 (S278) Agreement;
- Commitment to deliver a crossing of the A43 (detail subject to Growth Fund scheme);

- Footway/cycleway on B4100 from A43 to Western Development via S278 Agreement;
- Commitment to deliver scheduled bus service linking each Development to Bicester, as appropriate via Section 106 (S106) Agreement. This is discussed in more detail within Section 4.4 of the TA;
- An interim improvement scheme on the B4100 approaches to the A43 in advance of the delivery of the A43 Baynards Green Growth Fund Scheme. This is described at Section 5.4 of the TA;
- Financial contribution towards the Public Right of Way network via S106 Agreement;
- Pedestrian refuge crossing of B4100 (W) to link with roadside services via S278 Agreement; and
- Diversion of existing Public Right of Way within Western Development.

8.6 Construction

Assessment of Effects

Enabling Works (Western Development)

8.6.1 The Enabling Works provide the infrastructure measures to allow the Development to proceed. In transport terms they include the construction of the Western Site Access and a section of internal road infrastructure which facilitates development. As such it does not generate vehicular traffic in an operational stage, since the works themselves are not a trip attractor or generator. The Enabling Works include the diversion of PRoW within the Western Site.

8.6.2 The ES transport appraisal of these works therefore is only relevant to the construction assessment.

8.6.3 The number of HGV movements associated with the construction of the Enabling Works is difficult to estimate with certainty on a daily basis, as it will depend upon the preferred construction techniques and will also vary between construction phases. However, based upon construction experience of similar schemes, it is considered that during the main construction phases, there could be a total of 40 two-way HGV movements on a daily basis on the Western Site.

8.6.4 Throughout the Enabling Works programme, it is estimated that there would be approximately 40 construction personnel present, of whom 75% are estimated to drive to the Western Site. Therefore, are there likely to be in the order of 25 vehicles parked on the Western Site at any one time. The arrival of construction staff is assumed to follow a similar distribution to future employees of the Eastern and Western Developments with just over half of the staff forecast to reside in Bicester, as set out in Table 7 of the TA.

8.6.5 A comparison of the estimated HGV movements of the Enabling Works against the existing baseline flows on the A43 is set out in Table 8.8.

Table 8.8: Percentage Increase in Daily HGV Movements During Construction (2024) – Enabling Works

Link	Baseline HGV Flows (2-way)	Predicted Increase in HGV Movements	% Increase
A43 (N)	4,964	20	0.004%
A43 (S)	5,514	20	0.004%

Severance

8.6.6 Given the low level of daily flows generated by Enabling Works traffic, no significant severance effect will result. The sensitivity of the receptor is negligible and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

Driver Delay

8.6.7 Given the low levels of traffic flows generated by construction traffic there will be no significant effect on driver delay. Background traffic peak hour movements are unlikely to coincide with any peak (however limited in view of overall numbers) in construction traffic. The sensitivity of the A43 receptor is high and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible. The construction of the Western Site Access will result in traffic management which would lead to some measure of driver delay. This traffic management is likely to be made via traffic signal control or similar and the extent of delay not significant. The impact of the construction HGV traffic itself will be negligible on driver delay.

Pedestrian and Cyclist Delay and Amenity

8.6.8 Pedestrian and cyclist activity will not be significantly affected by construction traffic and the recommended routing as there are few existing pedestrians or cyclists, and because the HGV movements are insufficient to affect delay or amenity. Routeing of vehicles reflects the objective of minimising the areas of residential development affected and hence pedestrian activity. The sensitivity of the receptor is negligible and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

8.6.9 The PRoW diversion may lead to short term temporary inconvenience for pedestrians using the PRoW while works are undertaken, but the significance of the effect is negligible and temporary.

Accidents and Safety

8.6.10 The expected changes in traffic are too small in comparison with base flows to have any statistically meaningful effects upon the observed local accident rate record. The sensitivity of the receptor is negligible and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible. Standard safety measures would be in place for construction traffic and highway works as part of the CEMP and necessary highway approvals.

Eastern Development

8.6.11 As with the Enabling Works, the number of HGV movements associated with the construction of the Eastern Development is difficult to estimate with certainty on a daily basis. However, based upon similar schemes, it is considered that during the main construction phases, there would be a total of 40 two-way HGV movements on an average daily basis.

8.6.12 Throughout the construction programme, it is estimated that there would be approximately 80 construction personnel present on the Eastern Development, of whom 75% are estimated to drive to the Eastern Site. There are therefore likely to be in the order of 50-60 vehicles parked on the Eastern Development at any one time. The arrival of construction staff is assumed to follow a similar distribution to employees of the Enabling Works.

8.6.13 A comparison of the estimated HGV movements of the Eastern Development against the existing levels on the A43 is set out in Table 8.9.

Table 8.9: Percentage Increase in Daily HGV Movements During Construction (2024) – Eastern Development

Link	Baseline HGV Flows (2-way)	Predicted Increase in HGV Movements	% Increase
A43 (N)	4,964	20	0.004%
A43 (S)	5,514	20	0.004%

Severance

8.6.14 Given the low level of daily flows generated by construction traffic, no significant severance effect will result. The sensitivity of the A43 receptor is high and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible. The construction of the Eastern Site Access will result in traffic management which would lead to some measure of driver delay. This traffic management is likely to be made via traffic signal control for part of the construction with the extent of delay not significant. The impact of the construction HGV traffic itself will be negligible on driver delay.

Driver Delay

8.6.15 Given the low levels of traffic flows generated by construction traffic there will be no significant effect on driver delay. Background traffic peak hour movements are unlikely to coincide with any peak in construction traffic (however limited in view of overall numbers). The sensitivity of the receptor is negligible and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

Pedestrian and Cyclist Delay and Amenity

8.6.16 Pedestrian and cyclist activity will not be significantly affected by construction traffic and the recommended routing partly due to the low level of existing pedestrian and cyclist activity in the vicinity and partly due to the low numbers of construction vehicles. Routeing of vehicles reflects the objective of minimising the areas of residential development affected and hence pedestrian activity. The sensitivity of the receptor is negligible and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

Accidents and Safety

8.6.17 The expected changes in traffic are too small in comparison with base flows to have any statistically meaningful effects upon the observed local accident rate record. The sensitivity of the receptor is negligible and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible. Standard safety measures would be in place for construction traffic and highway works as part of the CEMP and necessary highway approvals.

Western Development

8.6.18 As with the Enabling Works and construction of the Eastern Development, the number of HGV movements associated with the construction of the Western Development is difficult to estimate with certainty on a daily basis. However, based upon similar schemes, it is considered that during the main construction phases, on a daily basis there could be a total of 40 two-way HGV movements on the Eastern Site.

8.6.19 Throughout the various stages of the construction programme, it is estimated that there would be approximately 80 construction personnel present, of whom 75% are estimated to drive to the Western Site. There are therefore likely to be in the order of 50-60 vehicles parked on the Western Development at any one time. The arrival of construction staff is assumed to follow a similar distribution to future employees of the Eastern Development and Enabling Works.

8.6.20 A comparison of the estimated HGV movements of the Western Development against the existing levels on the A43 is set out in Table 8.10.

Table 8.10: Percentage Increase in Daily HGV Movements During Construction (2024) – Western Development

Link	Baseline HGV Flows (2-way)	Predicted Increase in HGV Movements	% Increase
A43 (N)	4,964	20	0.004%
A43 (S)	5,514	20	0.004%

Severance

8.6.21 Given the low level of daily flows generated by construction traffic, no significant severance effect will result. The sensitivity of the A43 receptor is high and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

Driver Delay

8.6.22 Given the low levels of traffic flows generated by construction traffic there will be no significant effect on driver delay. Background traffic peak hour movements are unlikely to coincide with any peak (however limited in view of overall numbers) in construction traffic. The sensitivity of the receptor is negligible and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

8.6.23 The construction of the Western Site Access will result in traffic management which would lead to some measure of driver delay. This traffic management is likely to be made via traffic

signal control for part of the construction with the extent of delay not significant. The impact of the construction HGV traffic itself will be negligible on driver delay.

Pedestrian and Cyclist Delay and Amenity

8.6.24 Pedestrian and cyclist activity will not be significantly affected by construction traffic and the recommended routing as there are few existing pedestrians or cyclists and because the HGV movements are insufficient to affect delay or amenity. Routeing of vehicles reflects the objective of minimising the areas of residential development affected and hence pedestrian activity. The sensitivity of the receptor is negligible and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

Accidents and Safety

8.6.25 The expected changes in traffic are too small in comparison with base flows to have any statistically meaningful effects upon the observed local accident rate record. The sensitivity of the receptor is negligible and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible. Standard safety measures would be in place for construction traffic and highway works as part of the CEMP and necessary highway approvals.

Development

8.6.26 As set out in Chapter 6: Construction, peak construction of the Development is expected in 2024 when construction of the Eastern and Western Developments will be occurring concurrently. The daily number of HGV movements will depend upon the preferred construction techniques and vary between construction phases. However, based upon the combined estimates set out previously, it is considered that an average daily peak could total 80 two-way HGV movements.

8.6.27 Construction staffing would fluctuate through the construction phase, however at peak it is estimated that there would be approximately 160 construction personnel present on the Development, of whom 75% are estimated to drive to the Site. There are therefore likely to be in the order of 100-120 vehicles parked on the Site at any one time.

8.6.28 A comparison of the estimated HGV movements of the Development against the existing levels on the A43 is set out in Table 8.11.

Table 8.11: Percentage Increase in Daily HGV Movements During Construction (2024) – Development

Link	Baseline HGV Flows (2-way)	Predicted Increase in HGV Movements	% Increase
A43 (N)	4,964	40	0.008%
A43 (S)	5,514	40	0.007%

Severance

8.6.29 Given the low level of daily flows generated by construction traffic, no significant severance effect will result. The sensitivity of the A43 receptor is high and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

Driver Delay

8.6.30 Given the low levels of traffic flows generated by construction traffic there will be no significant effect on driver delay. Background traffic peak hour movements are unlikely to coincide with any peak (however limited in view of overall numbers) in construction traffic. The sensitivity of the A43 receptor is high and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

8.6.31 The construction of the Site Accesses will result in traffic management which would lead to some measure of driver delay. This traffic management is likely to be made via traffic signal control for part of the construction with the extent of delay not significant. The impact of the construction HGV traffic itself will be negligible on driver delay.

Pedestrian and Cyclist Delay and Amenity

8.6.32 Pedestrian and cyclist activity will not be significantly affected by construction traffic and the recommended routing as there are few existing pedestrians or cyclists and because the HGV movements are insufficient to affect delay or amenity. Routeing of vehicles reflects the objective of minimising the areas of residential development affected and hence pedestrian activity. The sensitivity of the A43 receptor is high and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

8.6.33 The PRoW diversion on the Western Site will be in place as a result of the Enabling Works and hence will be completed. Any impact during construction will be temporary and minor.

Accidents and Safety

8.6.34 The expected changes in traffic are too small in comparison with base flows to have any statistically meaningful effects upon the observed local accident rate record. The sensitivity of the A43 receptor is high and the magnitude of the impact is negligible and therefore the overall significance of the effect is negligible.

Mitigation, Monitoring and Residual Effects

8.6.35 Other than routeing and timing agreements, together with details of site compound and parking provision, which would form part of the subsequent detailed applications for the Eastern and Western Developments, there is no requirement for site specific mitigation to accommodate the construction phase as no significant adverse effects have been identified. However, as set out under Section 8.5: Scheme Design and Management, the Applicant has committed to ensuring that the contractor(s) implement CTMPs throughout construction of the Development which would include standard control measures for minimising, managing and monitoring construction effects. CTMPs for both the Eastern and Western Developments will be provided at the Reserved Matters stage and can be secured via planning condition. Standard safety measures would be in place for construction traffic and highway works as part of the CEMP and necessary highway approvals.

8.6.36 The sensitive receptors within the vicinity of the Site are users of the congested A43/Baynards Green roundabout and M40 Junction 10 which will be subject to increased volumes of traffic from construction-related traffic from the Development. Potential effects will be temporary and short-term. There would be negligible residual effects as a result of

the construction phase for the Enabling Works, Eastern Development; Western Development; and for the Development as a whole.

8.7 Completed Development

Assessment of Effects

Development Traffic

8.7.1 Traffic generation, distribution and assignment methodology and case peak hour and daily vehicular trip generation forecasts for the Eastern Development, Western Development and Development are set out in Section 5 of the TA (Appendix 8.1).

8.7.2 A summary of the daily traffic generation for the Eastern Development, Western Development and combined Development is set out within Table 8.12. The site is expected to operate on the basis 24 hours/day, 7 days/week.

Table 8.12: Daily Development Traffic Generation

	Car/vans	HGVs	Total
Eastern Development	1,929	747	2,665
Western Development	3,454	1,343	4,797
Development (i.e. combined)	5,424	2,064	7,487

8.7.3 A summary of the peak hour traffic generation for the Eastern Development, Western Development and Combined Development is set out within Table 8.13.

Table 8.13: AM and PM Peak Hour Development Traffic Generation

	Car/vans	HGVs	Total
AM Peak			
Eastern Development	119	38	157
Western Development	215	68	283
Development (i.e. combined)	334	106	440
PM Peak			
Eastern Development	123	31	154
Western Development	223	56	279
Development (i.e. combined)	346	87	433

8.7.4 The effects of Development generated traffic on the wider highway network are considered to allow an investigation of the potential effects which may result. Tables included in the TA at Section 5.3 show the predicted traffic flows on the relevant network for Eastern Development, Western Development and Development in 2025. Tables 8.13 and 8.14 set out the percentage change for total traffic and HGVs respectively with reference to the AADT flows in 2025.

8.7.5 Future Traffic Flows for 2031 are only produced to allow highway junction capacity appraisals in the TA at Section 5.4, in accordance with highway authority requirements. Predicted traffic flows in 2031 are therefore not included in the ES chapter.

Table 8.14: Percentage Daily Traffic Increase for Western Development; Eastern Development; and Combined Development

Link Ref.	Road	% change relative to 2025 incl. committed development		
		Western Development	Eastern Development	Development
		2025 (AADT)		
1	B4100 West	4%	2%	6%
2	B4100 between Western Access and A43	61%	2%	63%
3	B4100 between A43 and Eastern Access	14%	11%	25%
4	B4100 East	14%	8%	21%
5	B4100 (Bicester)	12%	7%	19%
6	A4095	3%	2%	5%
7	A4095	4%	2%	6%
8	A43 between B4100 and Padbury junction	4%	2%	7%
9	B430	1%	1%	2%
10	M40 South	1%	0%	1%
11	M40 North	0%	0%	1%
12	A43 North of B4100	2%	1%	3%
13	A43 North of A421	2%	1%	2%
14	A421	2%	1%	3%

Link Ref.	Road	% change relative to 2025 incl. committed development		
		Western Development	Eastern Development	Development
		2025 (AADT)		
15	M40 Northbound On	2%	1%	4%
16	M40 Southbound Off	2%	1%	4%
17	M40 Northbound Off	1%	0%	1%
18	M40 Southbound On	1%	1%	1%
19	M40 Overbridge	1%	1%	2%
20	MSA to Padbury	1%	1%	2%

Table 8.15: Percentage Daily HGV Traffic Increase Western Development; Eastern Development; and Combined Development

Link Ref.	Road	% change relative to 2025 incl. committed development		
		Western Development	Eastern Development	Development
		2025 (AADT)		
1	B4100 West	0%	0%	0%
2	B4100 between Western Access and A43	683%	0%	683%
3	B4100 between A43 and Eastern Access	12%	120%	132%
4	B4100 East	12%	7%	18%
5	B4100 (Bicester)	10%	6%	16%
6	A4095	8%	5%	13%
7	A4095	0%	0%	0%
8	A43 between B4100 and Padbury junction	15%	8%	23%
9	B430	0%	0%	0%
10	M40 South	3%	2%	2%
11	M40 North	2%	1%	3%
12	A43 North of B4100	8%	5%	13%
13	A43 North of A421	6%	4%	10%

Link Ref.	Road	% change relative to 2025 incl. committed development		
		Western Development	Eastern Development	Development
		2025 (AADT)		
14	A421	11%	6%	17%
15	M40 Northbound On	13%	7%	20%
16	M40 Southbound Off	10%	5%	15%
17	M40 Northbound Off	4%	2%	7%
18	M40 Southbound On	3%	2%	5%
19	M40 Overbridge	5%	3%	8%
20	MSA to Padbury	4%	2%	7%

8.7.6 As previously outlined in paragraph 8.3, the IEMA Guidelines suggest that *"detailed environmental studies will only be triggered where road links experience a change in traffic greater than 30%, or more than 10% where the links contain sensitive interest"*.

Eastern Development

8.7.7 Table 8.11 indicates that no links are expected to experience total traffic flows percentage increases exceeding 30%.

8.7.8 Table 8.12 indicates that the following links are expected to experience percentage increases in HGV flows exceeding 30%:

- B4100 between the A43 and the proposed Eastern Development access.

8.7.9 There are no further links which exceed the 10% threshold relevant to sensitive receptors.

Severance

8.7.10 There is no existing requirement to cross the B4100 at this location. Similar there will be no requirement in the future for users of the Eastern Development to cross the B4100 and no severance effects are predicted. The sensitivity of the B4100 is low and the magnitude of change is low. Therefore the significance of the effect on severance is Negligible.

Driver Delay

8.7.11 Peak hour operational assessments were undertaken within the TA at a number of junctions on the local network in future year of 2031. The results of these are included in Section 5 of the TA.

Site Access Junction and B4100

8.7.12 The assessments show that the Eastern Development access will operate satisfactorily in all modelled scenarios with modest queuing and minimal delay during the peak hour periods. The sensitivity of the B4100 is low and the magnitude of change is low. The significance of the effect on driver delay of the Site Access on the B4100 is considered to be low.

A43/B4100 junction and M40 Junction 10

8.7.13 The sensitivity of the A43 receptor is high, and the magnitude of change is low. Therefore, in the interim period before the implementation of the Growth Fund scheme, the significance of the effect is concluded to be moderate adverse. Following implementation of the Growth Fund highway scheme the sensitivity of the receptor is likely to reduce because it will add additional capacity to the junction. As such, the significance of the effect of the Eastern Development on the A43/B4100 junction would be likely to reduce. However, prior to the confirmed design and hence modelled appraisal of the Growth Fund Scheme, it is not possible to confirm this.

8.7.14 The highway network implications of the Growth Fund scheme will also benefit the operation of the M40 Junction 10 interchange since the operation of M40 J10 and the A43 roundabout are linked. Congestion at the M40 J10 is partly as a consequence of the A43 queuing. The

sensitivity of the M40 Junction 10 receptor is high, and the magnitude of change associated with the Eastern Development is low. Therefore, in the interim period, i.e. before the implementation of the Growth Fund highway scheme, the significance of the effect is concluded to be moderate adverse.

8.7.15 Following implementation of the Growth Fund scheme, the sensitivity of the M40 Junction 10 interchange receptor is likely to reduce. As such, the significance of the effect of the Eastern Development would be likely to reduce. However, prior to the confirmed design and modelled appraisal it is not possible to confirm this.

Pedestrian and Cyclist Delay and Amenity

8.7.16 Pedestrian and cyclist delay and amenity relate to existing users and future employees. The IEMA Guidelines describe a range of thresholds of pedestrian crossing time of 10 seconds (lower) to 40 seconds (upper) which equates, for a link with no crossing facilities, to the lower threshold of a two-way flow of about 1,400 vehicles per hour. The guidance suggests that assessors judgement is more appropriate than strictly held thresholds, but nonetheless it is informative as a point of reference.

8.7.17 The Eastern Development will deliver a comprehensive predominantly 3m wide footway/cycleway on the B4100 from the Site to the A4095 providing a safe and convenient route for staff (and visitors) from the Bicester area. The Western Development would utilise the same footway/cycleway but extended further to the west. The footway/cycleway would be delivered via S278 Agreement. Details are provided with Section 4.3 of the TA.

8.7.18 The Eastern Development will deliver crossings of the A43 and the B4100 (West) via S 278 Agreement in order to provide access to the local services, but until the A43 Growth Fund Scheme is further developed, the specific design cannot be finalised. An interim scheme has been identified should the Growth Fund scheme be materially delayed. Details are provided within Section 4.5 of the TA.

8.7.19 The Applicant has committed to bring a scheduled bus service into the Eastern Development with a bespoke drop off area near the Eastern Site entrance, such that passengers do not need to access the public highway on foot.

8.7.20 The effects of Eastern Development traffic are permanent on pedestrians and cyclists. The Development will provide new pedestrian and cycle facilities in the form of a new footway/cycleway and pedestrian crossings on the A43 and B4100 (W). The sensitivity of the receptor is high and magnitude of change is low. The significance of the effect is minor beneficial.

Accidents and safety

8.7.21 The site access junctions will be designed in accordance with relevant design guidance presenting safe additions to the highway. The adjacent network (A43, M40 J10) is congested, but does not exhibit a poor accident history. The effects of Eastern Development traffic are permanent on road users. The sensitivity of the receptor is high and magnitude of change is low. The significance of the effect is minor adverse.

8.7.22 The Growth Fund scheme at the A43/Baynards Green will introduce traffic signal control, removing existing elements of vehicle conflict. With this scheme in place, the effects of the Development may change, subject to the final design of the Growth Fund Scheme.

Western Development

8.7.23 Table 8.11 indicates that no links are expected to experience increased total traffic flows exceeding 30%.

8.7.24 Table 8.12 indicates that the following links are expected to experience increased HGV flows exceeding 30%:

- B4100 between the A43 and the proposed Western Development access.

8.7.25 There are no further links which exceed the 10% threshold relevant to sensitive receptors.

Severance

8.7.26 There is no requirement for future users of the Western Development to cross the B4100 to access the site. It is plausible that employees may visit the roadside services. A pedestrian refuge is proposed. The sensitivity of the receptor is low, and the magnitude of change is high (in terms of HGV movement). The significance of the effect is minor adverse.

Driver delay

8.7.27 Peak hour operational assessments were undertaken within the TA at a number of junctions on the local network in future year of 2031. The results of these are included in Section 5 of the TA.

Site Access Junction and B4100

8.7.28 The assessments show that the Western Development access will operate satisfactorily in all modelled scenarios with negligible queuing and minimal delay during the peak hour periods. The sensitivity of the B4100 is low and the magnitude of change is high (in terms of HGV movement). The significance of the effect is therefore minor adverse on road users on the B4100 between the Western Site and the A43 Baynards Green roundabout.

A43/B4100 junction and M40 Junction 10

8.7.29 The sensitivity of the A43 receptor is high, and the magnitude of change is low. Therefore, in the interim period before the implementation of the Growth Fund scheme, the significance of the effect is moderate adverse. On implementation of the Growth Fund scheme the sensitivity of the receptor is likely to reduce because it will add additional capacity to the junction. As such the effect of the Western Development on the A43/B4100 junction would be likely to reduce. However, prior to the confirmed design and hence modelled appraisal of the Growth Fund Scheme, it is not possible to confirm this.

8.7.30 The highway network implications of the Growth Fund scheme will benefit the operation of the M40 Junction 10 interchange. The sensitivity of the M40 Junction 10 receptor is high, and the magnitude of change is low. Therefore, in the interim period before the implementation of the Growth Fund scheme, the significance of the effect is concluded to be moderate adverse. On implementation of the Growth Fund scheme, the sensitivity of the receptor is likely to reduce. However, prior to the confirmed design and hence modelled appraisal it is not possible to confirm this.

Pedestrian and Cyclist Delay and Amenity

8.7.31 The Western Development will deliver a comprehensive footway/cycleway on the B4100 from the Site to the A4095 providing a safe and convenient route for staff (and visitors) from the Bicester area.

8.7.32 The Western Development will deliver crossings of the A43 to access the Western Site and the B4100 (West) via S278 agreement in order to access the local services, but until the A43 Growth Fund Scheme is further developed, the specific design cannot be finalised. An interim scheme has therefore been identified should the Growth Fund scheme be materially delayed. Details are provided within Section 4.5 of the TA.

8.7.33 There will be a localised re-routing of an existing Public Right of Way within the Western Development. Overall walking times will remain similar.

8.7.34 The Applicant has committed to bringing a scheduled bus service into the Western Development with a bespoke drop off area, such that passengers do not need to access the public highway on foot. These works are included within the Enabling Works.

8.7.35 The effects of Western Development traffic are permanent on pedestrians and cyclists. The Development will provide new pedestrian and cycle facilities. The sensitivity of the receptor is low and magnitude of change is high (in terms of HGVs). The significance of the effect is minor adverse.

Accidents and Safety

8.7.36 The site access junctions to both Developments will be designed in accordance with relevant design guidance presenting safe additions to the highway. The adjacent network (A43, M40 J10) is congested, but does not exhibit a poor accident history. The Growth Fund scheme at the A43/Baynards Green will introduce traffic signal control, removing elements of vehicle conflict.

8.7.37 The effects of Western Development traffic are permanent on road users. The sensitivity of the receptor is low and magnitude of change is high (in terms of HGVs). The significance of the effect is minor adverse. Both access junctions are roundabouts designed to relevant standards hence turning movements are provided for in a safe manner.

Development

8.7.38 Table 8.14 indicates that the B4100 between the Western Access and the A43 is expected to experience percentage traffic increases exceeding 30% with both the operational Eastern and Western Developments. Table 8.15 indicates that both sections of the B4100 between the A43 junction and two new Site accesses are expected to experience increased HGV flows exceeding 30%.

8.7.39 There are no further links with sensitive receptors (high, medium or low) which would exceed a percentage increase of 10% threshold for total traffic or HGVs.

Severance

8.7.40 There is no requirement for future users of the Development to cross the B4100 to access the Site although it is plausible that employees may wish to visit the roadside services. A pedestrian refuge is therefore proposed. The sensitivity of the receptor is low and the

magnitude of change is high (in terms of HGV movement). The significance of the effect is minor adverse.

Driver Delay

8.7.41 Peak hour operational assessments were undertaken within the TA at a number of junctions on the local network in future year of 2031. The results of these are included in Section 5 of the TA.

8.7.42 The assessments show that the Development access will operate satisfactorily in all modelled scenarios with modest queuing and minimal delay during the peak hour periods. The sensitivity of the B4100 is low and the magnitude of change is high (in terms of HGV movement). The significance of the effect is minor adverse on road users on the B4100 between the Western Site and the A43 Baynards Green roundabout.

A43/B4100 junction and M40 Junction 10

8.7.43 The sensitivity of the receptor is high, and the magnitude of change is low. Therefore, in the interim period before the implementation of the Growth Fund scheme, the significance of the effect is moderate adverse. On implementation of the Growth Fund scheme the sensitivity of the receptor is likely to reduce.

8.7.44 The highway network implications of the Growth Fund scheme will benefit the operation of the M40 Junction 10 interchange. The sensitivity of the M40 Junction 10 receptor is high, and the magnitude of change is low. Therefore, in the interim period before the implementation of the Growth Fund scheme, the significance of the effect is concluded to be moderate adverse. On implementation of the Growth Fund scheme, the sensitivity of the receptor is likely to reduce. For both the A43/Baynards Green roundabout and the M40 Junction 10, until the Growth Fund Scheme details are finalised, it is not possible to confirm this.

Pedestrian and Cyclist Delay and Amenity

8.7.45 The Development itself will provide a safe environment for pedestrians and cyclists by delivering connectivity within the Site integrated with a comprehensive footway/cycleway on the B4100 from the Site to the A4095. The Development will also provide bus stops in both the Eastern and Western Sites for a scheduled bus service such that passengers do not need to access the public highway on foot. It will also deliver crossings of the A43 and the B4100 (West) in order to access the local services. The specific design of these crossings will be finalised when the A43 Growth Fund Scheme is further developed. An interim scheme has therefore been identified should the Growth Fund scheme be materially delayed.

8.7.46 The effects of Development traffic are permanent on pedestrians and cyclists. The sensitivity of the B4100 receptor is low and magnitude of change is high (in terms of HGV). The sensitivity of the A43 is high, and magnitude of change is low. Therefore, the significance of the effect is minor adverse.

Accidents and Safety

8.7.47 The site access junctions will be designed in accordance with relevant design guidance presenting safe additions to the highway. The adjacent network (A43, M40 J10) is congested but does not exhibit a poor accident history.

8.7.48 The effects of the combined traffic from the Western and Eastern Developments will be permanent on road users. The sensitivity of the A43 receptor is high and magnitude of change is low. The sensitivity of the B4100 is low and the magnitude of change is high (in terms of HGVs). Therefore the significance of the effect is minor adverse.

8.7.49 The Growth Fund Scheme at the A43/Baynards Green will introduce traffic signal control, removing elements of vehicle conflict. With this scheme in place the effects of the Development may change, subject to the final design of the Growth Fund Scheme.

Mitigation, Monitoring and Residual Effects

8.7.50 Framework Travel Plans (FTP) for the Development are included in Appendix 8.2. The FTP set a target of reducing single occupancy staff and visitor travel by 10% against the baseline levels, currently established by local census journey to work figures. A key part of the sustainable transport strategy is based upon providing a high-quality cycleway to Bicester, where the most significant component of the future workforce is expected to be drawn from.

8.7.51 The details of the measures to be included in the detailed Travel Plans will be established with the occupiers in due course. The Travel Plans provide a formal monitoring and review process against which the Development is evaluated, including review of bus usage and frequency.

8.7.52 The effect of the footway/cycleway and funding of scheduled bus services is not quantified in either the assessment and therefore it can be considered a worst-case, but the effect should be to increase the modal shift away from the private car usage and improve the operational performance of local highway links.

8.7.53 Based on the available information to date no significant residual adverse effects remain from the Development proposals following the implementation these measures. On receipt of appropriate OCC/HE modelling data and in the context of more clarity with regard to the design of the Growth Fund Scheme, further analysis and assessment will be undertaken. This will inform whether any further mitigation is required to support the Eastern Development, the Western Development or the Development.

Cumulative Effects

8.7.54 The cumulative effects for committed schemes are inherent within the assessment. It is acknowledged that sensitivity testing of the SRFI with the Development will follow as those proposals come forward in more detail. Were the SRFI to come forward it would be supported by further major highway mitigation over and above anything identified in this assessment.

Table 8.16: Summary of Residual Effects

Effect	Receptor (Sensitivity)	Geographic Scale	Temporal Scale	Magnitude of Impact		Mitigation and Monitoring		Residual Effect	
Construction									
Severance	Low	Local	Temporary	Enabling Works	Negligible	Enabling Works	Adherence to CTMP.	Enabling Works	Negligible
				Eastern Development	Negligible	Eastern Development		Eastern Site	Negligible
				Western Development	Negligible	Western Development		Western Site	Negligible
				Development	Negligible	Development		Development	Negligible
Driver Delay	Low	Local	Temporary	Enabling Works	Negligible	Enabling Works		Enabling Works	Negligible
				Eastern Development	Negligible	Eastern Development		Eastern Development	Negligible
				Western Development	Negligible	Western Development		Western Development	Negligible
				Development	Negligible	Development		Development	Negligible
Pedestrian and Cyclist Delay Amenity	Low	Local	Temporary	Enabling Works	Negligible	Enabling Works		Enabling Works	Negligible
				Eastern Development	Negligible	Eastern Development		Eastern Development	Negligible
				Western Development	Negligible	Western Development		Western Development	Negligible
				Development	Negligible	Development		Development	Negligible
Fear and Intimidation	Low	Local	Temporary	Enabling Works	Negligible	Enabling Works		Enabling Works	Negligible
				Eastern Development	Negligible	Eastern Development		Eastern Development	Negligible

				Western Development	Negligible	Western Development		Western Development	Negligible
				Development	Negligible	Development		Development	Negligible
Accidents and Safety	Low	Local	Temporary	Enabling Works	Negligible	Enabling Works		Enabling Works	Negligible
				Eastern Development	Negligible	Eastern Development		Eastern Development	Negligible
				Western Development	Negligible	Western Development		Western Development	Negligible
				Development	Negligible	Development		Development	Negligible
Completed Development									
Severance	Low	Local	Permanent	Eastern Development	Low	Eastern Development	B4100 Footway/Cycleway	Eastern Development	Negligible
				Western Development	B4100 (West) High	Western Development	B4100 Footway/Cycleway B4100 (West) Pedestrian Refuge and Footway/Cycleway	Western Development	Minor Adverse
				Development	B4100 (West) High	Development		Development	Minor Adverse
Driver Delay	A43/B4100 junction and M40 Junction 10 (High) B4100 (Low)	Local	Permanent	Eastern Development	Low	Eastern Development	Interim Works Improvement Scheme; Bus Service Commitment; Footway/Cycleway; Travel Plans	Eastern Development	Moderate Adverse
				Western Development	B4100 (West) High	Western Development		Western Development	Moderate Adverse
				Development	B4100 (West) High	Development		Development	Moderate Adverse
Pedestrian and Cyclist Delay Amenity	Low	Local	Permanent	Eastern Development	Low	Eastern Development	B4100 Footway/Cycleway	Eastern Development	Minor Beneficial
				Western Development	B4100 (West) High	Western Development	B4100 Footway/Cycleway B4100 (West) Pedestrian Refuge and Footway/Cycleway	Western Development	Minor Adverse
				Development	B4100 (West) High	Development		Development	Minor Adverse
Fear and Intimidation	Low	Local	Permanent	Eastern Development	Low	Eastern Development	B4100 Footway/Cycleway	Eastern Development	Negligible

				Western Development	B4100 (West) High	Western Development	B4100 Footway/Cycleway B4100 (West) Pedestrian Refuge and Footway/Cycleway	Western Development	Minor Adverse
				Development	B4100 (West) High	Development		Development	Minor Adverse
Accidents and Safety	A43/B4100 junction and M40 Junction 10 (High) B4100 (Low)			Eastern Development	Low	Eastern Development	Interim Works Improvement Scheme; Bus Service Commitment; Footway/Cycleway; Travel Plans	Eastern Development	Negligible
				Western Development	B4100 (West) High	Western Development		Western Development	Minor Adverse
				Development	B4100 (West) High	Development		Development	Minor Adverse

References

1 Ministry of Housing, Communities and Local Government (MHCLG), 2021. National Planning Policy Framework. July 2021.

2 Oxfordshire County Council (OCC), September 2015, Oxfordshire Local Transport Plan 4 2015-2031

3 Oxfordshire County Council (OCC), 2016, Oxfordshire Local Transport Plan 4 2015-2031

4 Cherwell District Council (CDC), 2016, Cherwell Local Plan (2011-2031) adopted July 2015, updated December 2016

5 Mid Cherwell Neighbourhood Plan (2018-2031), adopted 2019:

6 Institute of Environmental Management and Assessment (IEMA), Assessment Guidelines on the Environmental Assessment of Road Traffic (the 'IEMA Guidelines');

7 Department for Transport (DfT), 2009, Guidance on Transport Assessment (withdrawn)

8 Department for Transport (DfT), various, Design Manual for Roads and Bridges (DMRB, various), including CD109, CD123, CD116, CD143, CD169, and CD195

9 Department for Transport (DfT), various, Design Manual for Roads and Bridges LA104 Environmental Assessment and Monitoring.

10 Hyder Consulting (June 2014) North West Bicester Masterplan Access and Travel Strategy

11 Health and Safety Executive (HSE), 2009, The Carriage of Dangerous Goods in the UK

9 Air Quality

9.1 Introduction

9.1.1 This chapter of the ES was prepared by Air Quality Consultants and presents an assessment of the likely significant effects of the Development on air quality. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. The nature and significance of the likely residual effects are reported.

9.1.2 The chapter is supported by the following appendices:

- Appendix 9.1: Legislation and Policy Context;
- Appendix 9.2: Construction Dust Assessment Methodology;
- Appendix 9.3: Environmental Protection UK (EPUK) / Institute of Air Quality Management (IAQM) Planning for Air Quality Guidance;
- Appendix 9.4: Modelling Methodology;
- Appendix 9.5: Construction Mitigation Measures; and
- Appendix 9.6: Glossary and Appendices References.

Competence

9.1.3 This chapter was authored by Tom Richardson (Consultant), MSci (Hons) AMIEnvSc AMIAQM. He has undertaken a wide range of air quality assessments, including road traffic and energy plant dispersion modelling, construction dust risk assessments and the assessment of impacts on designated ecological sites.

9.1.4 This chapter was checked by Dr Imogen Heard (Senior Consultant), BSc (Hons) MSc PhD MInstPhys. She has over ten years' experience in the field of air quality and has been involved in numerous development projects across a broad range of sectors. These have included the preparation of air quality assessment reports and air quality chapters for Environmental Statements.

9.1.5 Guido Pellizzaro (Associate Director), BSc (Hons) MIAQM AMIEnvSc PIEMA has technically approved this document. Mr Pellizzaro has over 15 years' experience in the field of air quality management and assessment and has delivered air quality assessments for major planning applications and EIA development. He is a Member of the Institution of Environmental Sciences, the Institute of Air Quality Management, and an IEMA Practitioner.

9.2 Legislation, Planning Policy and Guidance

9.2.1 Legislation, policy and guidance relevant to the air quality assessment is detailed further in Appendix 9.1.

Legislative Context

9.2.2 The following legislation is relevant to the Development:

- Air Quality (England) Regulations 2000[1];
- Air Quality (England) (Amendment) Regulations 2002[2];
- Air Quality Standards Regulations 2010[3];
- The National Air Quality Strategy (2007)[4]; and
- The Clean Air Strategy (2019)[5].

Planning Policy Context

National

9.2.3 The National Planning Policy Framework (2021)[6], which sets out the Government's policies to achieve sustainable development, is the key national planning policy relevant to the Development.

Local

9.2.4 The following local planning policy is relevant to the Development:

- The Cherwell Local Plan 2011-2031[7] (Policy ESD10);
- Saved Policies of the Adopted Cherwell Local Plan 1995[8] (Policies TR10 and ENV1); and
- Developer Contributions Supplementary Planning Document[9].

Guidance

9.2.5 The following guidance is relevant to the Development:

- Planning Practice Guidance (2019)[10].
- Guidance on the Assessment of Dust from Demolition and Construction v1.1, IAQM[11];
- Land-Use Planning & Development Control: Planning for Air Quality v1.2, EPUK and the IAQM[12];
- Local Air Quality Management Technical Guidance (TG16), April 2021 Version, Defra[13]; and
- A Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites v1.1, IAQM[14].

9.3 Assessment Methodology

Consultation

9.3.1 No topic-specific consultation was carried out for air quality. The EIA Scoping Opinion (see Appendix 3.3) agreed that air quality should be scoped into the ES and raised no concern with the methodology proposed in the Scoping Report (see Appendix 3.2). As such, this assessment was carried out following the methodology outlined in the Scoping Report.

Study Area and Scope

9.3.2 The study area for the assessment was determined using professional judgement, by identifying the sensitive receptors adjacent to roads along which the Development will lead to a potentially significant change in traffic flows, with reference to the road traffic screening

criteria outlined in the EPUK / IAQM guidance (see paragraphs 9.3.15 to 9.3.21). The study area extends 200m from each of the sensitive receptors – shown in Figure 9.1 – and includes the A43 north and south of Baynards Green roundabout, the B4100 east and west of the Baynards Green roundabout, and the B4100 south east of the Development towards Bicester along with its junction with the A4095. It also includes the monitoring sites shown in Figure 9.2.

9.3.3 As the Development is for employment use, an assessment of site suitability was not carried out and on-site receptors were not included. Workplaces are not considered relevant receptors to the air quality objectives and are covered under a separate regulatory regime (this is discussed further in Paragraph 9.3.14).

Sensitive Receptors

Human Health

9.3.4 Human health receptors for the assessment were identified to represent a range of exposure to air pollution, including worst-case locations (these being at the façades of residential properties closest to roads). Particular attention was paid to assessing impacts close to junctions, where traffic may become congested and where there is a combined effect of several road links, and close to the roads where the traffic increases as a result of the Development will be greatest.

9.3.5 Seventeen existing residential receptors were identified for the assessment, representing exposure to existing sources of air pollution. These are described in Table 9.1 and shown in Figure 9.1. Selected receptors may be representative of air quality conditions at a number of nearby properties; consideration was given to how many sensitive locations each receptor represents when considering the impacts of the Development and the overall effect of significance.

Figure 9.1: Human Health Receptor Locations

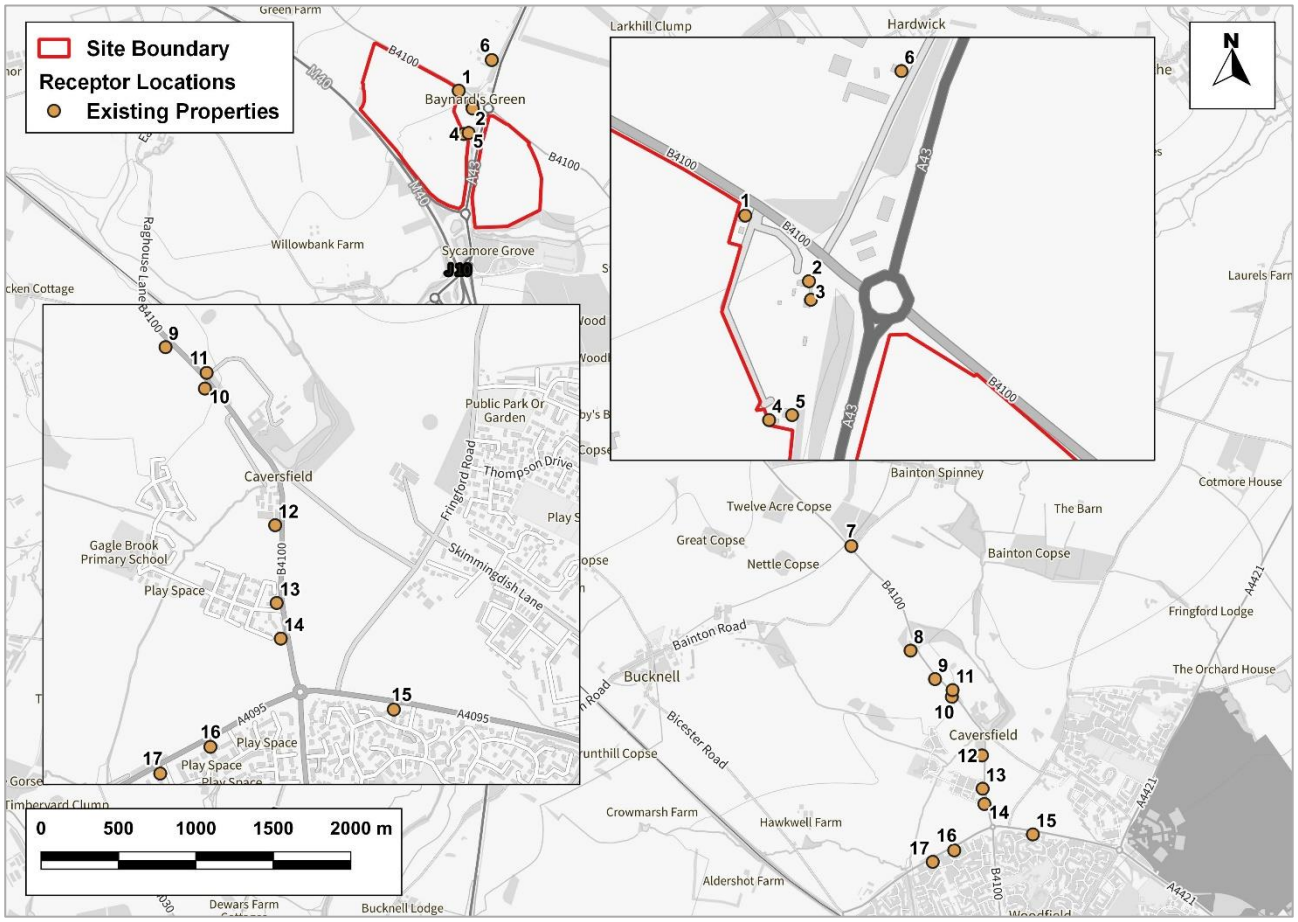


Table 9.1: Description of Receptor Locations

Receptor	Description	OS X coordinate (easting)	OS Y coordinate (northing)	Height modelled (m) [i]
1	Medkre, B4100	454716.2	229237.1	1.5
2	Baynard House	454803.3	229147.3	1.5
3	Baynard House	454806.1	229122.0	1.5
4	The Cottages	454748.8	228957.5	1.5
5	The Cottages	454780.3	228964.3	1.5
6	Baynards Green Farm	454929.9	229434.7	1.5
7	Watergate Lodge	457251.9	226297.7	1.5
8	Bicester Eco Town	457634.5	225623.1	1.5
9	Blueberry Drive	457792.4	225439.1	1.5
10	Haricot Vale Road	457901.4	225324.6	1.5
11	Northside Lodge	457906.0	225368.2	1.5
12	Green Acres	458095.9	224946.6	1.5
13	Charlotte Avenue	458099.9	224731.4	1.5
14	Orchard Walk	458111.5	224632.9	1.5
15	Heather Road	458424.4	224436.6	1.5

[i] Representing ground floor exposure.

Receptor	Description	OS X coordinate (easting)	OS Y coordinate (northing)	Height modelled (m) [i]
16	Germander Way	457916.6	224333.4	1.5
17	Saffron Close	457777.7	224259.6	1.5

Ecological Receptors

9.3.6 The Ardley Cutting and Quarry Site of Special Scientific Interest (SSSI) is located, at its closest point, 1.3km south west of the Site boundary (see Figure 2.3 in Chapter 2: Site and Setting). This habitat is designated as lowland calcareous (limestone) grassland and is considered to be sensitive to nitrogen and acid deposition. The M40 and B430 pass a small section of the Ardley Cutting and Quarry SSSI via a road bridge which is elevated over the SSSI. Consideration was thus given to the potential effect of NO_x emissions arising from Development-generated road traffic on the Ardley Cutting and Quarry SSSI from the M40 and B430 (see from paragraph **Error! Reference source not found.**).

9.3.7 Ardley Trackways SSSI is located 1.8km to the south of the Site. However, this designation is for geological interest and is not sensitive to changes in air pollution, and was not considered further in the assessment.

Establishing Baseline Conditions

9.3.8 Existing sources of emissions and baseline air quality conditions within the study area were defined using the following existing data sources:

- Industrial and waste management sources that may affect the area were identified using Defra's Pollutant Release and Transfer Register[15];
- Local sources were identified through consultation with CDC and through examination of the Council's air quality Review and Assessment reports;
- Information on existing air quality was obtained by collating results of monitoring carried out by CDC;
- Background concentrations were defined using Defra's 2018-based background maps[16], which cover the whole of the UK on a 1x1 km grid. The background annual mean nitrogen dioxide (NO_2) maps were calibrated against concurrent measurements from national monitoring sites[17]. The calibration was also applied to future year backgrounds. Mapped background concentrations of particulate matter (PM_{10} and $PM_{2.5}$) were not adjusted;
- Whether or not any exceedances of the annual mean limit value for NO_2 in the study area was identified using the maps of roadside concentrations published by Defra[18,19]. These maps are used by the UK Government, together with results from national Automatic Urban and Rural Network (AURN) monitoring sites that operate to the required data quality standards, to identify and report exceedances of the limit value. The national maps of roadside PM_{10} and $PM_{2.5}$ concentrations, available for the years 2009 to 2019, show no exceedances of the limit values anywhere in the UK in 2019.

9.3.9 In addition, baseline air quality at existing, nearby sensitive receptors was also established using dispersion modelling, the methodology of which is discussed below in paragraphs 9.3.26 to 9.3.31.

Identifying Likely Significant Effects

Assessment Criteria

Human Health

9.3.10 The Government has established a set of air quality standards and objectives to protect human health. The 'standards' are set as concentrations below which effects are unlikely (even in sensitive population groups) or below which risks to public health would be exceedingly small. They are based purely upon the scientific and medical evidence of the effects of an individual pollutant. The 'objectives' set out the extent to which the Government expects the standards to be achieved by a certain date.

9.3.11 The UK-wide objectives for NO_2, PM_{10} and $PM_{2.5}$ were to have been achieved by 2005, 2004 and 2020, respectively, and continue to apply in all future years thereafter. The relevant air quality criteria for this assessment are provided in Table 9.2.

9.3.12 EU Directive 2008/50/EC sets limit values for NO_2, PM_{10} and $PM_{2.5}$, and is implemented in UK law through the Air Quality Standards Regulations 2010. These are the same numerical values as the UK objectives, but meeting them is a national obligation rather than a local one.

Table 9.2: Air Quality Standards, Objectives, Limit and Target Values

Pollutant	Objective	Concentration Measured as	Date to be achieved and maintained thereafter	European Obligations	Date to be achieved and maintained thereafter
PM_{10}	50 µg/m³ not to be exceeded more than 35 times a year	24-hour mean	31st December 2004	50 µg/m³ not to be exceeded more than 35 times a year	1st January 2005
	40 µg/m³	Annual Mean	31st December 2004	40 µg/m³ [ii]	1st January 2005
$PM_{2.5}$	25 µg/m³	Annual Mean	31st December 2020	25 µg/m³ [iii]	1st January 2010
NO_2	200 µg/m³ not to be exceeded more than 18 times a year	1-Hour Mean	31st December 2005	200 µg/m³ not to be exceeded more than 18 times a year	1st January 2010

[ii] A proxy value of 32 µg/m³ as an annual mean is used in this assessment to assess the likelihood of the 24-hour mean PM_{10} objective being exceeded. Measurements have shown that, above this concentrations, exceedances of the 24-hour mean objective are possible.
[iii] The $PM_{2.5}$ objective is not in Regulations and there is no requirement for local authorities to meet it.

Pollutant	Objective	Concentration Measured as	Date to be achieved and maintained thereafter	European Obligations	Date to be achieved and maintained thereafter
	40 µg/m³	Annual Mean	31st December 2005	40 µg/m³	1st January 2010

9.3.13 Measurements across the UK have shown that the 1-hour NO_2 objective is unlikely to be exceeded at roadside locations where the annual mean concentration is below 60 µg/m³. Where relevant, this value was used as an indication of the likelihood of the 1-hour mean NO_2 objective to be exceeded. Measurements have also shown that the 24-hour PM_{10} objective could be exceeded at roadside locations where the annual mean concentration is above 32 µg/m³. The predicted annual mean PM_{10} concentrations were thus used as a proxy to determine the likelihood of an exceedance of the 24-hour mean PM_{10} objective. Where predicted annual mean concentrations are below 32 µg/m³, it is unlikely that the 24-hour mean objective will be exceeded.

9.3.14 The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective, as set out in the Local Air Quality Management Technical Guidance (TG16). The annual mean objectives for NO_2 and PM_{10} are considered to apply at the façades of residential properties, schools, hospitals etc.; they do not apply at hotels. The 24-hour mean objective for PM_{10} is considered to apply at the same locations as the annual mean objective, as well as in gardens of residential properties and at hotels. The 1-hour mean objective for NO_2 applies wherever members of the public might regularly spend one hour or more, including outdoor eating locations and pavements of busy shopping streets. The air quality objectives do not, however, apply at workplaces where members of the public do not have regular access.

Construction Dust

9.3.15 Construction activities could give rise to short term elevated dust and / or PM_{10} concentrations within the vicinity of the Site. This may arise from construction activities, vehicle movements, soiling of the public highway, or windblown stockpiles. Assessment of the potential effects of construction was undertaken within 50m of the Site boundary, and 50m of roads within 500m radius of the Site.

9.3.16 There are no official assessment criteria for dust. In the absence of formal criteria, the approach developed by the IAQM was used. Full details of the approach are provided in Appendix 9.2.

Construction Plant Emissions

9.3.17 In relation to emissions from on-site plant, the IAQM Guidance[11] states:

"Experience of assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur."

9.3.18 On-site plant will typically operate well away from nearby sensitive receptors, such as residential properties, and there is therefore considered to be no risk of significant effects at existing receptors as a result of on-site machinery emissions and this is therefore scoped out of further assessment.

Road Traffic Screening Criteria

9.3.19 EPUK and the IAQM Guidance recommends a two-stage screening approach to determine whether emissions from road traffic generated by a development have the potential for significant air quality impacts. The approach, as described in Appendix 9.3, first considered the size and parking provision of a development; if the development is non-residential and will provide less than 1,000m^2 of floor space or cover a site area of less than 1 ha, and will provide ten or fewer parking spaces, then there is no need to progress to a detailed assessment.

9.3.20 The second stage then compared the changes in vehicle flows on local roads that a development will lead to against specified screening criteria. The screening thresholds outside an Air Quality Management Area (AQMA) are a change in flows of more than 100 heavy goods vehicles (HGVs) or 500 light duty vehicles per day; within an AQMA they are a change of more than 25 HGVs or 100 light duty vehicles per day. Where these criteria are exceeded, a detailed assessment is required, although the guidance advises that *"the criteria provided are precautionary and should be treated as indicative"*, and *"it may be appropriate to amend them on the basis of professional judgement"*. A detailed assessment was carried out in this instance, given increases in road traffic exceed the screening criteria; the methodology of the assessment is described below.

9.3.21 While these screening criteria are specifically intended to act as a trigger for a detailed assessment, they can also be used to identify the extent of the road network that requires assessment; where the change in traffic on a given road link is less than the relevant screening threshold, it is unlikely that a significant impact would occur, and these links can be disregarded unless there are additional sources affecting the link (e.g. emissions from a point source).

Assessment Methodology

9.3.22 For the assessment of road traffic emissions, concentrations were predicted for the Enabling Works, Eastern Development and Western Development, and the Development (i.e. Enabling Works, Eastern and Western Developments combined). These are presented separately in the assessment of likely significant effects.

Construction Dust

9.3.23 The construction dust assessment considers the dust soiling and human health impacts within 350m of the Site, or within 50m of roads that may be affected by tracked out dirt and dust arising from construction vehicles up to 500m from the Site exits. It also considers the potential impacts on designated ecological sites within 50m of both the Site and the roads used by construction vehicles; as there are no designated sites within 50m of either the Site boundary or the roads along which material may be tracked by construction vehicles, construction dust impacts on ecological sites was not considered further.

9.3.24 The assessment methodology followed the IAQM Guidance and is described in further detail in Appendix 9.2. Step 1 is a basic screening stage, to determine whether the more

detailed assessment provided in Step 2 is required. Step 2a determines the potential for dust to be raised from on-site works and by vehicles leaving the site. Step 2b defines the sensitivity of the area to any dust that may be raised. Step 2c combines the information from Steps 2a and 2b to determine the risk of dust impacts without appropriate mitigation. Step 3 uses this information to determine the appropriate level of mitigation required to ensure that there should be no significant impacts.

Construction Traffic

9.3.25 The number of construction vehicles associated with the Development is predicted to be below the EPUK/IAQM screening criteria for significant effects on air quality (see paragraphs 9.3.19 to 9.3.20 and Chapter 8: Transport and Access for further details). Furthermore, the number of construction vehicles is considerably lower than the predicted operational traffic generation. A separate assessment of the impact of construction vehicles has therefore been scoped out.

Completed Development

9.3.26 Pollutant concentrations at the identified human health receptors (shown in Figure 9.1) were predicted using the ADMS-Roads dispersion model for vehicle emissions on the local road network, with vehicle emissions derived using Defra's Emission Factor Toolkit (EFT) v10.1. Details of the model inputs and the model verification are provided in Appendix 9.4.

9.3.27 Given the outline nature of the scheme proposals and lack of detail on internal Development layouts, it is not easy to predict any localised effects of vehicle movements within the Site. Notwithstanding, these are expected to be located away from sensitive receptors as far as practicable with workers subject to HSE Regulations so significant impacts are not expected and this is not assessed further.

9.3.28 Concentrations of NO_2, PM_{10} and $PM_{2.5}$, the pollutants of potential concern, were predicted for the following scenarios:

- Baseline year (2019);
- Future baseline ('Without Development') (2025); and
- Completed Development (2025).

9.3.29 For the future baseline and Completed Development scenarios, emission factors for the predicted year of first occupation (2024) were used with traffic data from the year of full occupation (2025). This presents a conservative assessment of likely significant effects, as emission factors in the EFT improve (i.e. decrease) with time, due to improvements in emission standards and turnover of the vehicle fleet.

9.3.30 Traffic data for the assessment were provided by David Tucker Associates, who have undertaken the Transport Assessment for the Development (see Appendix 8.1). Further details of the traffic data used in this assessment are provided in Appendix 9.4.

9.3.31 Predictions for future years are based on a return to 'typical' road traffic levels and assume no lasting impact as a result of the Covid-19 pandemic, to ensure a worst-case assessment. This is because the influence of the pandemic has generally been to reduce concentrations of the pollutants considered in this assessment.

9.3.32 Predicted contributions of Development-generated traffic to NO_x emissions along the M40 and the B430 close to the Ardley Cutting and Quarry SSSI were derived using Defra's EFT, using traffic data from the year of full occupation (2025) and emissions factors from 2024.

9.3.33 Emissions from operational buildings, such as those arising from combustion plant for heating or emergency generators, were not considered in this assessment as exact specifications are yet to be determined. It is expected that emissions from operational plant will be assessed at the reserved matters stage and suitably controlled by planning condition where appropriate. It is expected that such measures as air source heat pumps would be installed for the provision of heat to the proposed office space, which have no direct emissions to air (refer to paragraph 9.5.5).

Cumulative Effects

9.3.34 Cumulative schemes, as identified in Chapter 3: EIA Methodology form an inherent part of the future baseline traffic data. The road traffic air quality effect of the Development in combination with cumulative schemes was determined in the air quality assessment presented in this chapter.

9.3.35 As set out in Chapter 3 and Chapter 8: Transport and Access, there is insufficient detail available on the Strategic Rail & Freight Interchange (SFRI) to provide a detailed cumulative assessment at this time. Should it come forward, it is acknowledged that there would be a cumulative increase in road traffic emissions however this cannot be quantified at this time.

Determining Effect Significance

9.3.36 Within this chapter, the air quality assessment used published guidance and criteria to determine the likely air quality impacts at a number of sensitive locations (see Table 9.1). The overall significance of the air quality effects was then determined using professional judgement, giving consideration to various factors including the magnitude of the predicted impacts and the presence of any objective exceedances. Full details of the EPUK / IAQM approach are provided in Appendix 9.3.

Sensitivity of Receptor

Enabling Works and Construction

9.3.37 IAQM Guidance on construction dust provides criteria to define receptor sensitivity to dust soiling or health effects of PM_{10} (see Table 9.2.2 in Appendix 9.2). Residential properties are considered 'high' sensitivity receptors to both dust soiling and health effects of PM_{10}; places of work are considered 'medium' sensitivity receptors.

9.3.38 The sensitivity of the area to dust soiling and human health effects was determined based on the number of receptors located within certain distances from the Site, and their sensitivity (Step 2b, see Tables 9.2.3 and 9.2.4 in Appendix 9.2). This step combines the sensitivity of individual receptors to dust effects with the number of receptors in the area and their proximity to the Site. It also considers additional site-specific factors (such as topography and screening), and in the case of sensitivity to human health effects, baseline PM_{10} concentrations. Area sensitivities are defined for each type of effect (dust soiling or human health) and are described as 'low', 'medium' or 'high'.

Completed Development

9.3.39 The Air Quality Strategy explains that air quality standards and objectives were determined based on expert recommendations, and represent *"levels at which no significant health effects would be expected in the population as a whole"*. The application of these objectives is discussed in Paragraph 9.3.14.

9.3.40 Within this chapter, all human health receptors where the air quality objectives apply were considered to be of 'high' sensitivity. Locations where the objectives do not apply must be considered not to be sensitive, therefore there are no medium or low sensitivity receptors within the context of this assessment.

9.3.41 The Ardley Cutting and Quarry SSSI is a nationally designated ecological habitat and was considered to be a 'high' sensitivity receptor (refer to Table 12.5).

Magnitude of Impact

Enabling Works and Construction

9.3.42 There are no formal assessment criteria for dust. In the absence of formal criteria, the approach developed by the IAQM was used. Step 1 is a basic screening stage, to determine whether the more detailed assessment provided in Step 2 is required.

9.3.43 Step 2 consists of determining the risk of dust impacts for each activity (i.e. earthworks, construction and the trackout of material from the Site onto the local road network). The 'dust emission magnitude' was determined for each of the activities, and was defined as 'small', 'medium' or 'large' (Step 2a, see Table 9.2.2 in Appendix 9.2).

9.3.44 The dust emission magnitudes determined at Step 2a were combined with the sensitivities of the area to determine the risk of dust soiling and human health impacts for each activity, with no mitigation applied. Impacts were defined as 'negligible', 'low', 'medium' or 'high'. Full details of this approach are provided in Appendix 9.2.

Completed Development

9.3.45 There is no official guidance on how to describe air quality impacts and effects for a completed development, nor how to assess their significance. The approach developed by EPUK and the IAQM was therefore used. This includes defining descriptors of the impacts at individual receptors, which take account of the percentage change in concentration relative to the air quality assessment level (AQAL); in this case the air quality objectives, as provided in Table 9.2, rounded to the nearest whole number, and the absolute concentration relative to the AQAL.

9.3.46 Table 9.3 sets out how the impact descriptors were determined within this assessment. Impacts may be adverse or beneficial, depending on whether the change is positive or negative.

Table 9.3: Magnitude of Impact Descriptors

Long-term average concentration at receptor in assessment year	Change in concentration relative to AQAL				
% of AQAL	*0%*	*1%*	*2-5%*	*6-10%*	*>10%*
75% of less of AQAL	Negligible	Negligible	Negligible	Minor	Moderate
76-94% of AQAL	Negligible	Negligible	Minor	Moderate	Moderate
95-102% of AQAL	Negligible	Minor	Moderate	Moderate	Major
103-109% of AQAL	Negligible	Moderate	Moderate	Major	Major
110% or more of AQAL	Negligible	Moderate	Major	Major	Major

Assessing Significance

Enabling Works and Construction

9.3.47 IAQM Guidance states that, with appropriate mitigation in place, the effects of construction dust will be 'not significant'. The assessment thus focused on determining the appropriate level of mitigation, by combining the dust emission magnitude with the sensitivity of the area to determine the overall risk of dust impacts (see Table 9.2.6 in Appendix 9.2), so as to ensure that effects will normally be 'not significant'.

Completed Development

9.3.48 Once operational, there is no official guidance in the UK in relation to development control on how to assess the significance of effects on existing receptors. The approach developed jointly by EPUK & IAQM was therefore used. This approach takes account of the magnitude of impact and whether there is a risk of exceedance of the AQAL at each receptor, as well as the geographical extent and scale of the impacts overall. Professional judgement is then used to determine whether the effect is 'significant' or 'not significant'. Full details of the approach to determining significance are provided in Appendix 9.3.

Assumptions and Limitations

9.3.49 The study area, as outlined from Paragraph 9.3.2, was defined with reference to the road traffic screening criteria (see Paragraphs 9.3.19 to 9.3.21). Detailed assessment was carried out at receptors where Development-generated changes in road traffic exceed the EPUK / IAQM screening criteria on adjacent roads. However, there are a number of roads which were excluded from study area, despite Development-generated traffic exceeding these criteria. These roads include the A43 between Baynards Green and Brackley, to the north of the Development, and the A421 between the A43 and the A4421 (towards Buckingham). In both cases, the areas surrounding the roads are very rural in nature, with no identified sensitive receptors at the roadside; Development-generated traffic is expected to disperse to a level below the screening criteria before reaching roads alongside which sensitive receptors are located.

9.3.50 Furthermore, the study area excludes roads in Bicester south of the junction of the B4100 and A4095. In consultation with David Tucker Associates, the project transport consultants, it was concluded that many car driver movements would originate from future staff travel across residential areas of Bicester, and it is thus not possible to predict car driver trip

origins and destinations with sufficient accuracy. It was therefore assumed that Development-generated vehicle movements south of the B4100 / A4095 would distribute across residential areas in Bicester relatively quickly, and detailed assessment is unlikely to be required.

9.3.51 There are components that contribute to the uncertainty of modelling predictions, which are discussed in greater detail in Appendix 9.4:

- Inherent uncertainties associated with the traffic data which were used to input into the road traffic dispersion model;
- Uncertainties associated with the model itself, which simplifies real-world conditions into a series of algorithms;
- Uncertainty in pollutant concentrations in the future, which are dependent on predictions in traffic volumes, future background pollutant concentrations and trends in vehicle emissions; and
- The effects of the Covid-19 pandemic on traffic volumes and travel behaviour.

9.3.52 Worst-case assumptions have been incorporated into the assessment, and professional judgement has been employed in interpreting the model results. The conclusions of the assessment are thus considered to be robust.

9.4 Baseline Conditions

Existing Baseline Conditions

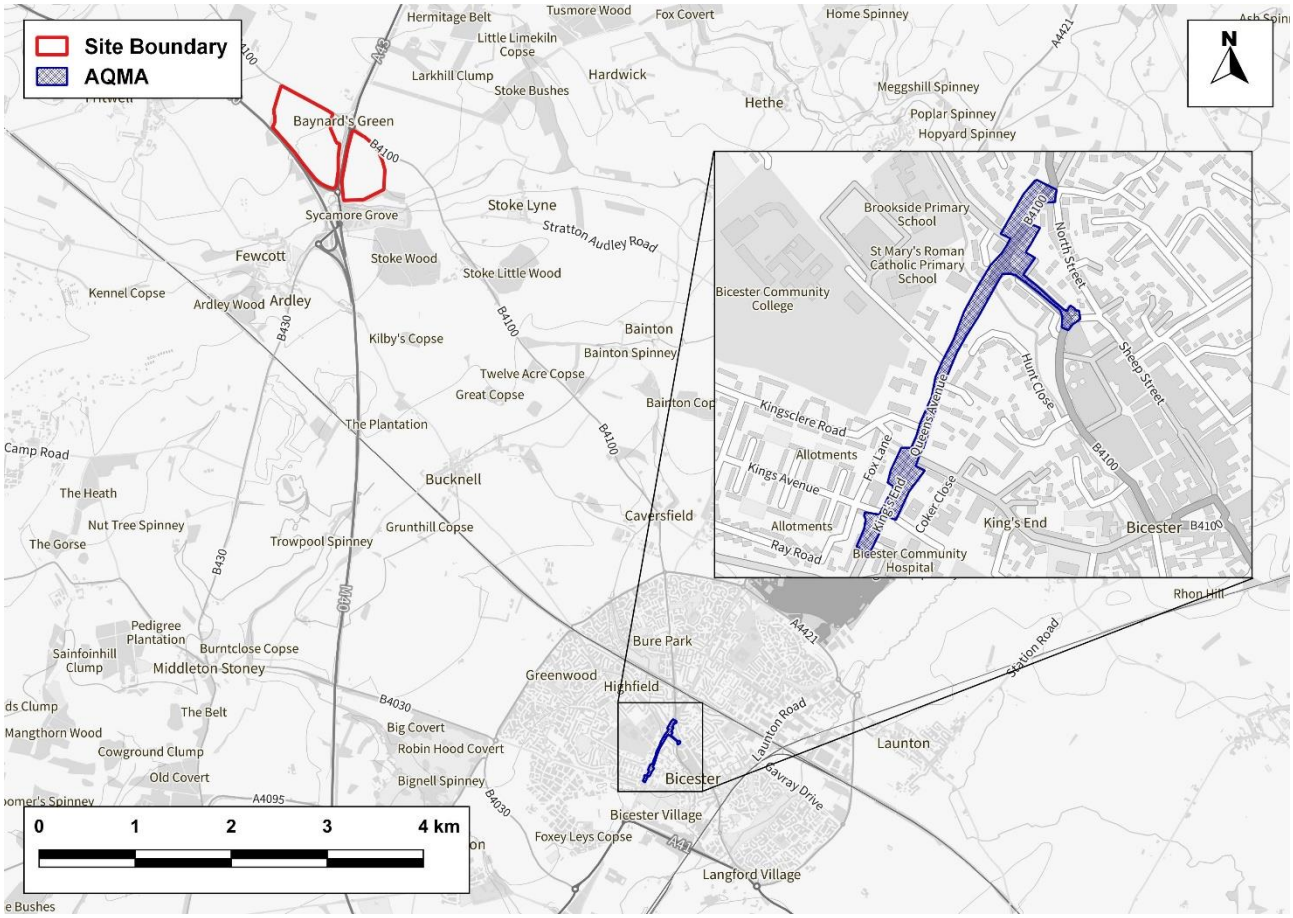
Industrial Sources

9.4.1 A search of the UK Pollutant Release and Transfer Register[15] has identified the Ardley Energy from Waste (EfW) Plant and the Ardley Landfill Site approximately 2.2km south of the Site. The Ardley EfW Plant reported releases of 402,341kg of NO_x in 2019 (as well as releases of other air pollutants not relevant to the assessment, including carbon dioxide (CO_2), N_2O and chlorine). The Ardley Landfill Site reported releases of methane and chlorofluorocarbons. However, it is unlikely that these facilities will affect the assessment in air quality terms; releases of NO_x from the EfW Plant will be accounted for by predicted background concentrations.

Air Quality Management Areas

9.4.2 CDC has investigated air quality under the LAQM regime and has declared four AQMAs within its administrative area. The nearest AQMA to the Site is located approximately 6.5km to the south east in Bicester, incorporating areas of Kings End, Queens Avenue, Field Street and St Johns Street (known as AQMA No. 4), declared for exceedances of the annual mean NO_2 objective. A map of AQMA No. 4 in relation to the Site is provided in Figure 9.2.

Figure 9.2: AQMA No. 4 (Bicester)



Local Air Quality Monitoring

9.4.3 CDC does not operate any automatic air quality monitoring sites within its area, although it does operate a number of NO_2 monitoring sites using passive diffusion tubes. The nearest diffusion tube monitoring site is located in Ardley, approximately 1 km south of the Site. There are also three monitoring sites located on the A4095 road around Bicester.

9.4.4 The monitoring locations are shown in Figure 9.3, with the annual mean results for the years 2015 to 2019 summarised in Table 9.4. Data have been taken from CDC's 2020 Air Quality Annual Status Report[20].

Figure 9.3: CDC Air Quality Monitoring Locations

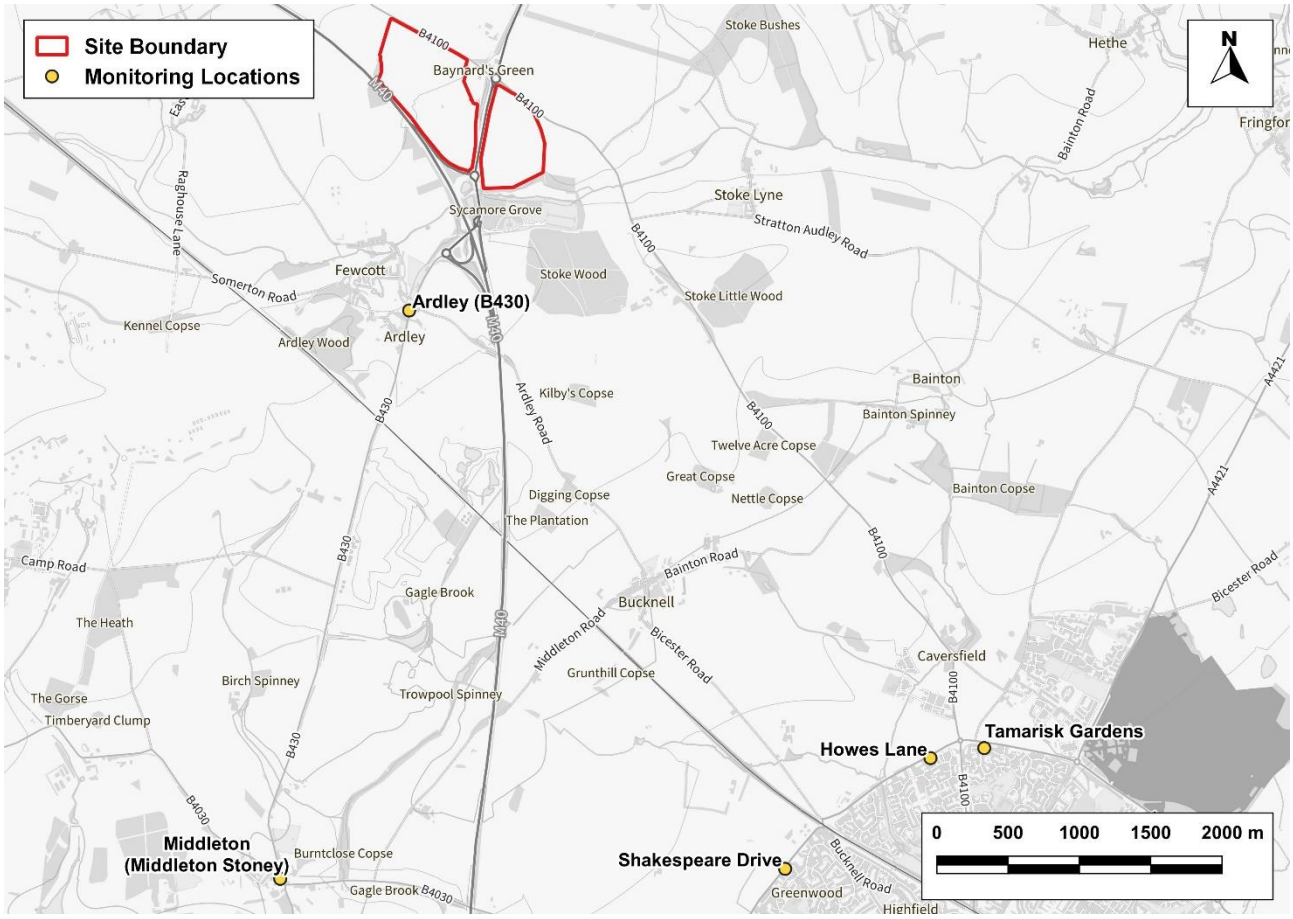


Table 9.4: Summary of Annual Mean NO_2 Monitoring (2015-2019) ($\mu g/m^3$)

Site Name	Site Type	2015	2016	2017	2018	2019
Ardley (B430)	Roadside	29.6	28.7	27.2	26.0	24.4
Howes Lane	Roadside	23.9	25.6	25.6	24.5	20.7
Tamarisk Gardens	Urban Background	15.7	17.2	16.3	15.9	15.0
Shakespeare Drive	Roadside	-	23.2	24.0	23.4	23.2
Middleton (Middleton Stoney)	Kerbside	32.4	33.3	33.6	33.1	31.3
Objective		40				

9.4.5 The results in Table 9.4 show that annual mean NO_2 concentrations are well below the objective at all monitoring sites, including roadside and kerbside sites which are closer to vehicle tailpipe emissions.

9.4.6 CDC do not undertake the monitoring of PM_{10} or $PM_{2.5}$ within the administrative area.

Exceedances of the Limit Value

9.4.7 There are no AURN monitoring sites within the study area with which to identify exceedances of the annual mean NO_2 limit value. Defra's roadside annual mean NO_2

concentrations[19], which are used to identify and report exceedances of the limit value, do not identify any exceedances anywhere in the study area in 2019. As such, there is considered to be no risk of a limit value exceedance in the vicinity of the Development by the time it is operational.

Background Concentrations

9.4.8 Estimated background concentrations across the study area, derived from the Defra background maps, are set out in Table 9.5. Concentrations are all well below the objectives. A range of values is presented, as the study area covers multiple 1 km x 1 km grid squares.

Table 9.5: Estimated Annual Mean Background Pollutant Concentrations in 2019 and 2025 (µg/m^3)

Year	NO_2	PM_{10}	$PM_{2.5}$
2019	9.3 - 18.1	14.6 - 16.5	9.3 - 10.2
2025	7.8 - 13.6	13.7 - 15.6	8.4 - 9.5
Objective	40	40	25

Baseline Dispersion Model Results

9.4.9 Existing baseline (2019) concentrations of NO_2, PM_{10} and $PM_{2.5}$ have been modelled at each of the receptor locations (refer to Figure 9.1 and Table 9.1 for receptor locations), in accordance with the methodology described in Paragraphs 9.3.26 to 9.3.31, and are presented in Table 9.6. The modelled road component of NOx concentrations has been increased from those predicted directly from the model based on a comparison with local monitoring data (see Appendix 9.4 for verification methodology).

Table 9.6: Modelled Annual Mean Existing Baseline (2019) Concentrations of NO_2, PM_{10} and $PM_{2.5}$ (µg/m^3)

Receptor	NO_2	PM_{10}	$PM_{2.5}$
1	18.7	16.9	10.2
2	22.2	17.0	10.3
3	22.4	17.0	10.3
4	22.8	16.5	10.4
5	24.5	16.6	10.4
6	21.9	17.1	10.3
7	22.2	15.5	9.6
8	12.4	15.0	9.4
9	14.0	15.1	9.5
10	13.7	15.1	9.5
11	21.5	15.6	9.8
12	16.6	15.6	10.5
13	16.9	15.6	10.5
14	17.0	15.6	10.5
15	18.7	15.7	10.5
16	18.1	15.9	10.1
17	17.8	15.9	10.1
Objective	40	40	25

9.4.10 As shown in Table 9.6 the predicted annual mean concentrations of NO_2 are well below the objective at all receptors. As concentrations are also well below 60 µg/m^3, there is no risk of exceedance of the 1-hour mean objective at any receptor.

9.4.11 In addition, Table 9.6 shows predicted annual mean concentrations of PM_{10} and $PM_{2.5}$ are also well below the objectives set out in Table 9.2 (repeated for ease of reference in Table 9.6). Concentrations of PM_{10} are well below 32 µg/m^3, and so there is unlikely to be any exceedance of the 24-hour mean PM_{10} objective.

Future Baseline Conditions

9.4.12 Future baseline (2025) concentrations of NO_2, PM_{10} and $PM_{2.5}$ at existing receptor locations are presented in Table 9.7.

Table 9.7: Modelled Annual Mean Future Baseline (2025) Concentrations of NO_2, PM_{10} and $PM_{2.5}$ (µg/m^3)

Receptor	NO_2	PM_{10}	$PM_{2.5}$
1	13.8	16.0	9.5
2	15.9	16.1	9.5
3	16.0	16.1	9.5
4	16.6	15.6	9.6
5	17.6	15.7	9.7
6	15.9	16.3	9.6
7	17.9	14.8	9.0
8	10.1	14.1	8.7
9	11.4	14.3	8.8
10	11.2	14.2	8.8
11	17.3	14.9	9.2
12	13.5	14.7	9.8
13	13.7	14.8	9.8
14	13.7	14.7	9.8
15	14.4	14.8	9.8
16	14.4	15.1	9.4
17	14.2	15.1	9.4
Objective	40	40	25

9.4.13 Table 9.7 shows predicted annual mean concentrations of NO_2 are well below the objective at all receptors. As concentrations are also well below 60 µg/m^3, there is no risk of exceedance of the 1-hour mean objective at any receptor.

9.4.14 In addition, as shown in Table 9.7, predicted annual mean concentrations of PM_{10} and $PM_{2.5}$ are also well below the objectives. Concentrations of PM_{10} are well below 32 µg/m^3, and so there is unlikely to be any exceedance of the 24-hour mean PM_{10} objective.

9.5 Scheme Design and Management

Construction

9.5.1 Measures will be undertaken during the construction phase in order to minimise disruption and manage the impacts of the Development.

9.5.2 IAQM Guidance describes the measures that should be employed, appropriate to the identified risk of dust impacts, to reduce the impacts. Guidance has also been produced on monitoring of dust and particulate matter during demolition and construction[21]. This reflects best practice and experience and has been used to draw up a set of measures that should be incorporated into the specification of the works.

9.5.3 The measures are described in detail in Appendix 9.5, and should be incorporated into the CEMPs pursuant to the Framework CEMP, to be secured by condition. These will incorporate a Dust Management Plan. Such plans may also include a requirement for monitoring of dust or particulate matter, to be agreed with the local authority, to ensure implemented mitigation measures remain suitable and effective. Framework CEMPs are provided in Appendices 6.1 and 6.2.

9.5.4 Where mitigation measures rely on water, it is expected that only sufficient water will be applied to damp down the material. There should not be any excess to potentially contaminate watercourses.

Completed Development

9.5.5 The following design measures represent primary mitigation of relevant to the air quality assessment:

- Use of efficient design measures such as air source heat pumps to provide heating to the office spaces of the Development, reducing the need for on-site combustion such as gas boilers, as noted in the Development Specification;
- Provision for a scheduled bus service with drop-off area to encourage the use of public transport to access the development, to be secured through Section 106 Agreement;
- Provision of a comprehensive footway/cycleway on the B4100 between the Development and Bicester, providing a safe and convenient route for staff and visitors, as well as crossings on the A43 and B4100 to access local services on foot pursuant to a Section 278 Agreement;
- Active and passive EV parking provision in line with OCC standards;
- On-site cycle parking provision in line with CDC standards, to encourage access to the Site using alternatives to private vehicles; and
- Provision of a Framework Travel Plan to encourage uptake of public transport and active travel modes.

9.6 Construction

Assessment of Effects

9.6.1 As discussed in Paragraph 9.3.25, traffic volumes generated by the Development during the construction phase will be considerably lower than the operational traffic generation (up

to 190 vehicles per day, of which 40 are HGVs). As such, the assessment of construction traffic emissions associated with the Development has been scoped out, as impacts during the operational phase are considered worst-case.

9.6.2 The assessment of effects during the construction phase focuses on determining the risk of significant effects arising from emissions of dust and PM_{10} during construction activities. These will give rise to a risk of dust impacts during earthworks and construction, as well as from trackout of dust and dirt by vehicles onto the public highway. There is no requirement for any demolition.

Enabling Works

9.6.3 The assessment of construction dust impacts at the Western Development, from Paragraph 9.6.13 to 9.6.17, inherently considers the impact of the Enabling Works. This includes the construction of the new roundabout, internal access roads, foul drainage station, utility connections, diversion of existing services, diversion of a public right of way and soft landscaping.

Eastern Development

Dust Emission Magnitude

9.6.4 Most of the Eastern Site will be subject to earthworks for the Eastern Development. Dust may arise from vehicles travelling over unpaved ground and from the handling of dusty materials, such as dry soil. Based on the example definitions in Table 9.2.1 in Appendix 9.2, the dust emission magnitude for earthworks is considered to be large.

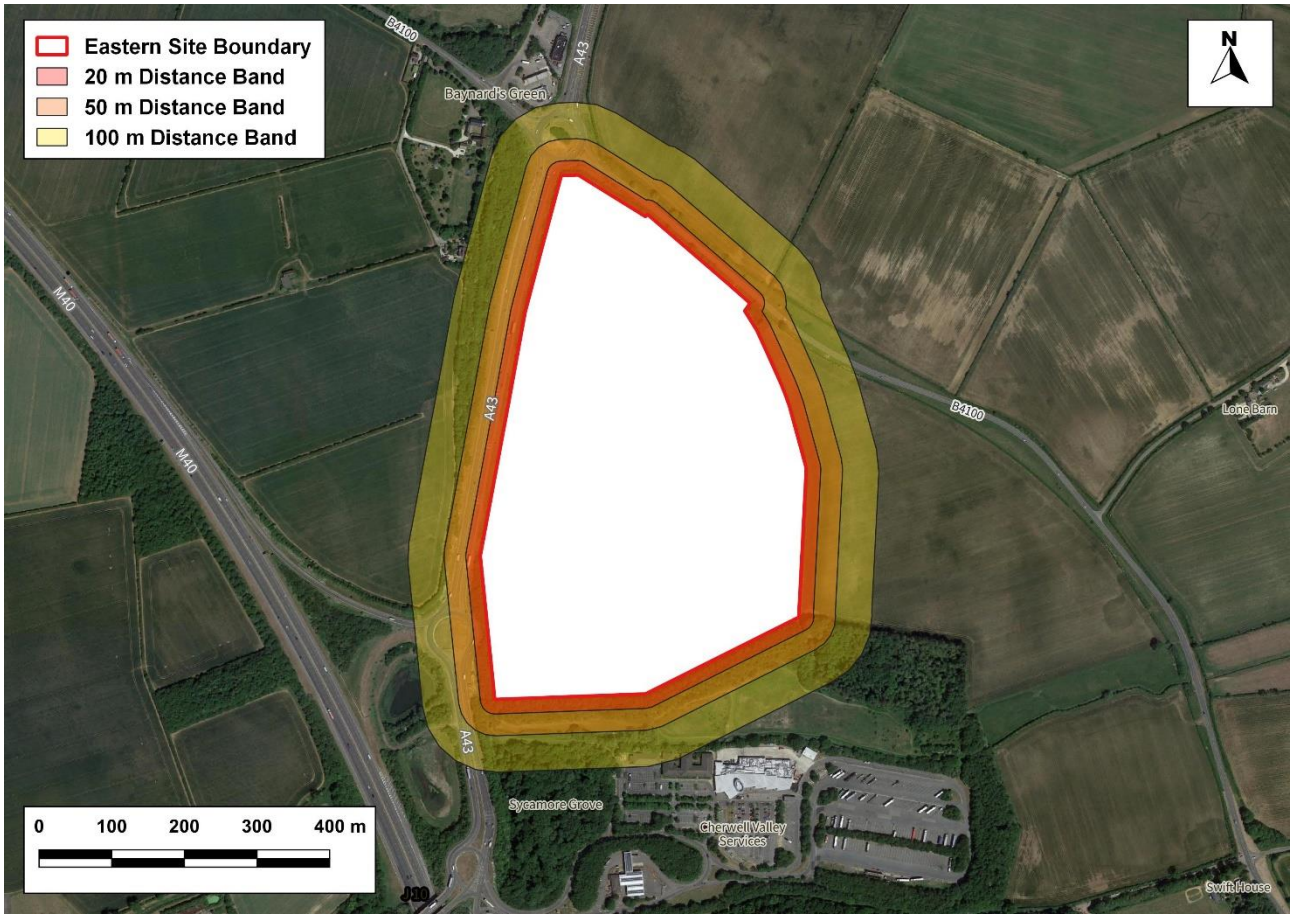
9.6.5 Construction will involve the erection of warehouse buildings with a volume greater than 100,000m^3 and the construction of roads and hardstanding. While of large scale, most of the building volume is unlikely to consist of particularly dust-generating material. Based on the example definitions in Table 9.2.1 in Appendix 9.2, the dust emission magnitude for construction is considered to be medium.

9.6.6 It is likely that the maximum number of outward HGV movements will be between 10 and 50 per day, although these vehicles may travel over a significant length of unpaved road. As a result, and based on the example definitions in Table 9.2.1 in Appendix 9.2, the dust emission magnitude as a result of trackout is considered to be large.

Sensitivity of the Area

9.6.7 There are no sensitive receptors within 50m of the Eastern Site boundary, and two residential properties within 100m (see Figure 9.4). Using the matrix in Table 9.2.3 in Appendix 9.2, the area surrounding on-site works is considered to be of low sensitivity to dust soiling.

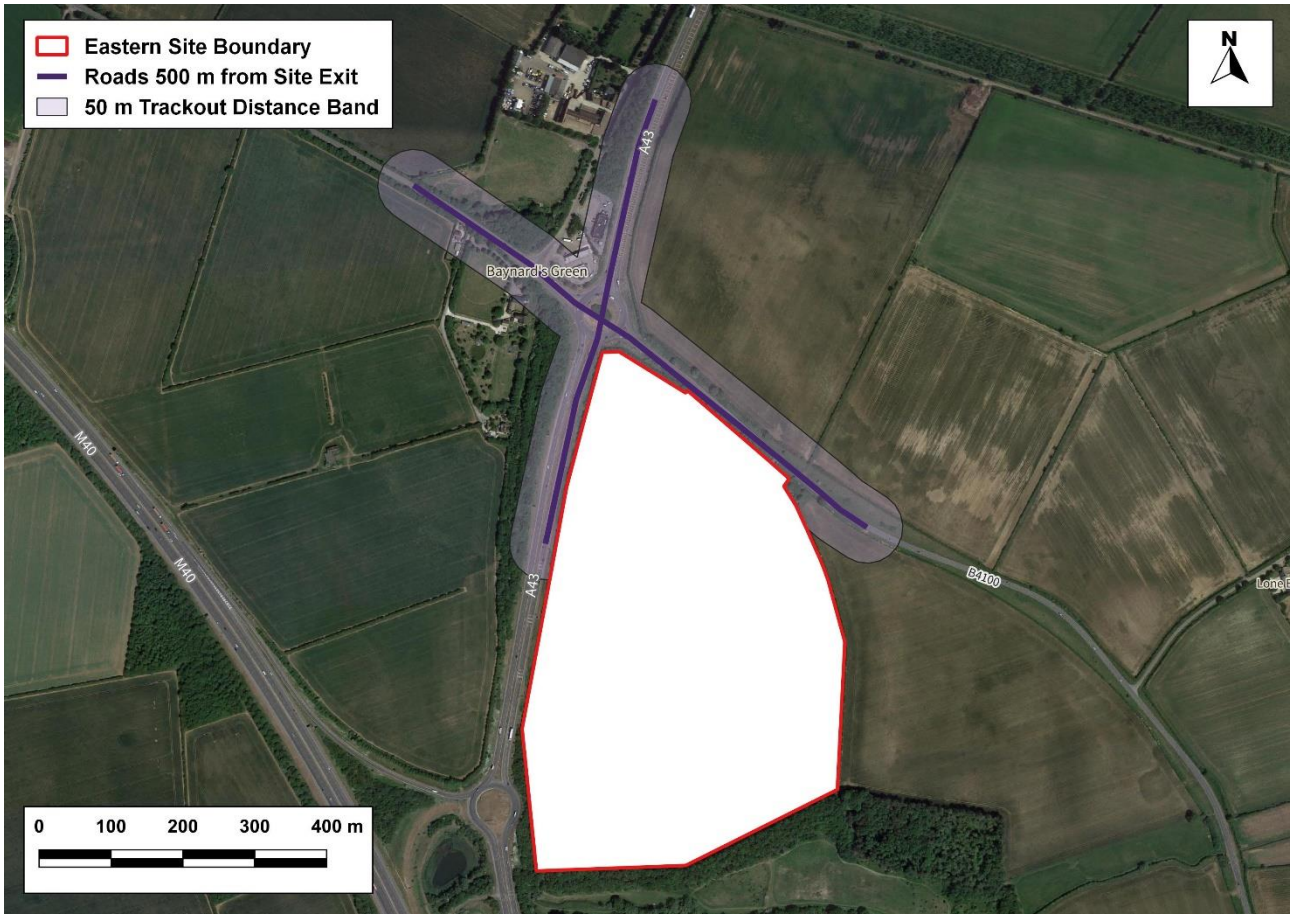
Figure 9.4: 20m, 50m and 100m Distance Bands around Eastern Site



9.6.8 The matrix in Table 9.2.4 in Appendix 9.2 requires information on baseline PM_{10} concentrations to determine sensitivity to human health effects. Existing baseline PM_{10} concentrations modelled at Receptors 1-5 (see Table 9.6) best represent existing conditions surrounding the Eastern Site, which demonstrate annual mean concentrations below 24 µg/m^3. Using the matrix in Table 9.2.4 in Appendix 9.2, the area surrounding on-site works is also of low sensitivity to human health impacts.

9.6.9 Paragraph 9.6.6 explains that the dust emissions magnitude as a result of trackout is large, and there is thus a risk of material being tracked out 500m from the Eastern Site exit. As the exact route of construction vehicles is not known, it has been assumed all possible routes could be affected. There are no receptors within 20m of roads along which material could be tracked, and less than 10 receptors within 50m (see Figure 9.5).

Figure 9.5: 50m Distance Bands around Roads within 500m of Eastern Site



9.6.10 Using the matrix in Table 9.2.3 in Appendix 9.2, the area is considered to be of low sensitivity to dust soiling from trackout. Using the matrix in Table 9.2.4 in Appendix 9.2, the area is also of low sensitivity to human health effects from trackout.

Risk and Significance

9.6.11 The dust emission magnitudes have been combined with the sensitivities of the area using the matrix in Table 9.2.7 in Appendix 9.2, to assign a risk category to each construction activity. The resulting risk categories, without mitigation, are set out in Table 9.8, and have been used to determine the appropriate level of mitigation to be applied during the construction phase.

Table 9.8: Summary of Risk of Impacts (Eastern Development) Without Mitigation

Source	Dust Soiling	Human Health
Earthworks	Low Risk	Low Risk
Construction	Low Risk	Low Risk
Trackout	Low Risk	Low Risk

9.6.12 Without mitigation, the construction phase of the Eastern Development would result in a low risk of temporary, medium-term, direct adverse effects. The IAQM guidance is clear, however, that with appropriate mitigation in place, the residual effect will be 'not significant'.

Western Development

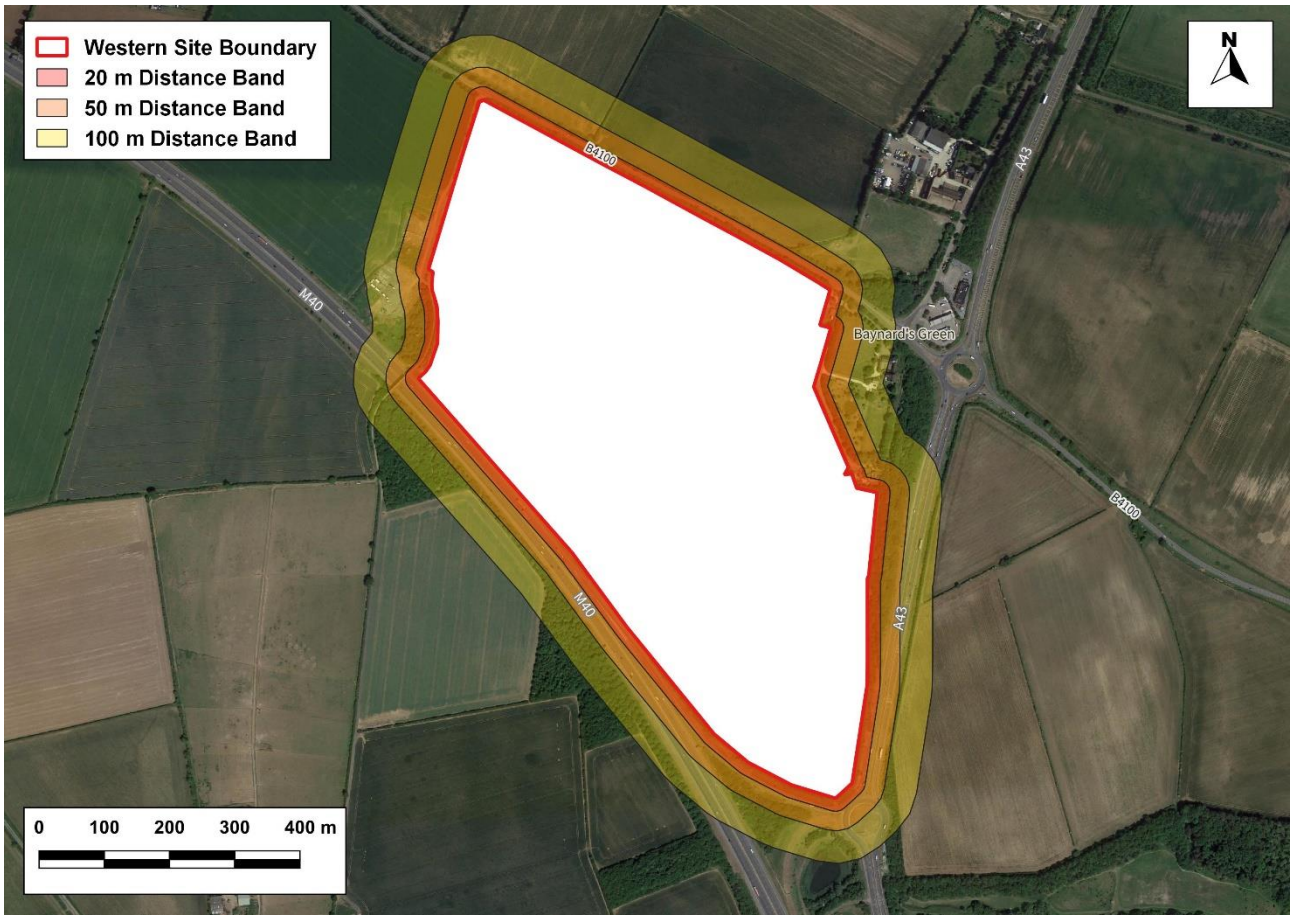
Dust Emission Magnitude

9.6.13 As with the Eastern Development, the dust emission magnitude for earthworks and trackout is considered to be large. Construction will involve the erection of warehouse buildings with a volume well in excess of 100,000m^3, as well as the construction of paved roads and hardstanding. Based on the example definitions in Table 9.2.1 in Appendix 9.2, the dust emission magnitude for construction is considered to be large.

Sensitivity of the Area

9.6.14 There are three residential properties within 20m of the Western Development boundary, and less than 10 residential properties within 100m (see Figure 9.6). The area surrounding on-site works is considered to be of medium sensitivity to dust soiling and of low sensitivity to human health impacts.

Figure 9.6: 20m, 50m and 100m Distance Bands around Western Site



9.6.15 Paragraph 9.6.13 explains that the dust emissions magnitude for trackout is large, and there is thus a risk of material being tracked out 500m from the Western Site exit. As the exact route of construction vehicles is not known, it has been assumed all possible routes could be affected. There is one residential property within 20m of roads along which material could be tracked, and less than 10 receptors within 50m (see Figure 9.7). Using the matrix in Table 9.2.3 in Appendix 9.2, the area is considered to be of medium sensitivity to dust soiling from trackout. Using the matrix in Table 9.2.4 in Appendix 9.2, the area is of low sensitivity to human health effects from trackout.

Figure 9.7: 20m and 50m Distance Bands around Roads within 500m of Western Site

Risk and Significance

9.6.16 Risk categories, without mitigation, are set out in Table 9.9, and have been used to determine the appropriate level of mitigation to be applied during the construction phase.

Table 9.9: Summary of Risk of Impacts (Western Development) Without Mitigation

Source	Dust Soiling	Human Health
Earthworks	Medium Risk	Low Risk
Construction	Medium Risk	Low Risk
Trackout	Medium Risk	Low Risk

9.6.17 Without mitigation, the construction phase of the Western Development would result in a medium risk of temporary, medium-term, direct adverse effects. The IAQM guidance is clear, however, that with appropriate mitigation in place, the residual effect will be 'not significant'.

Development

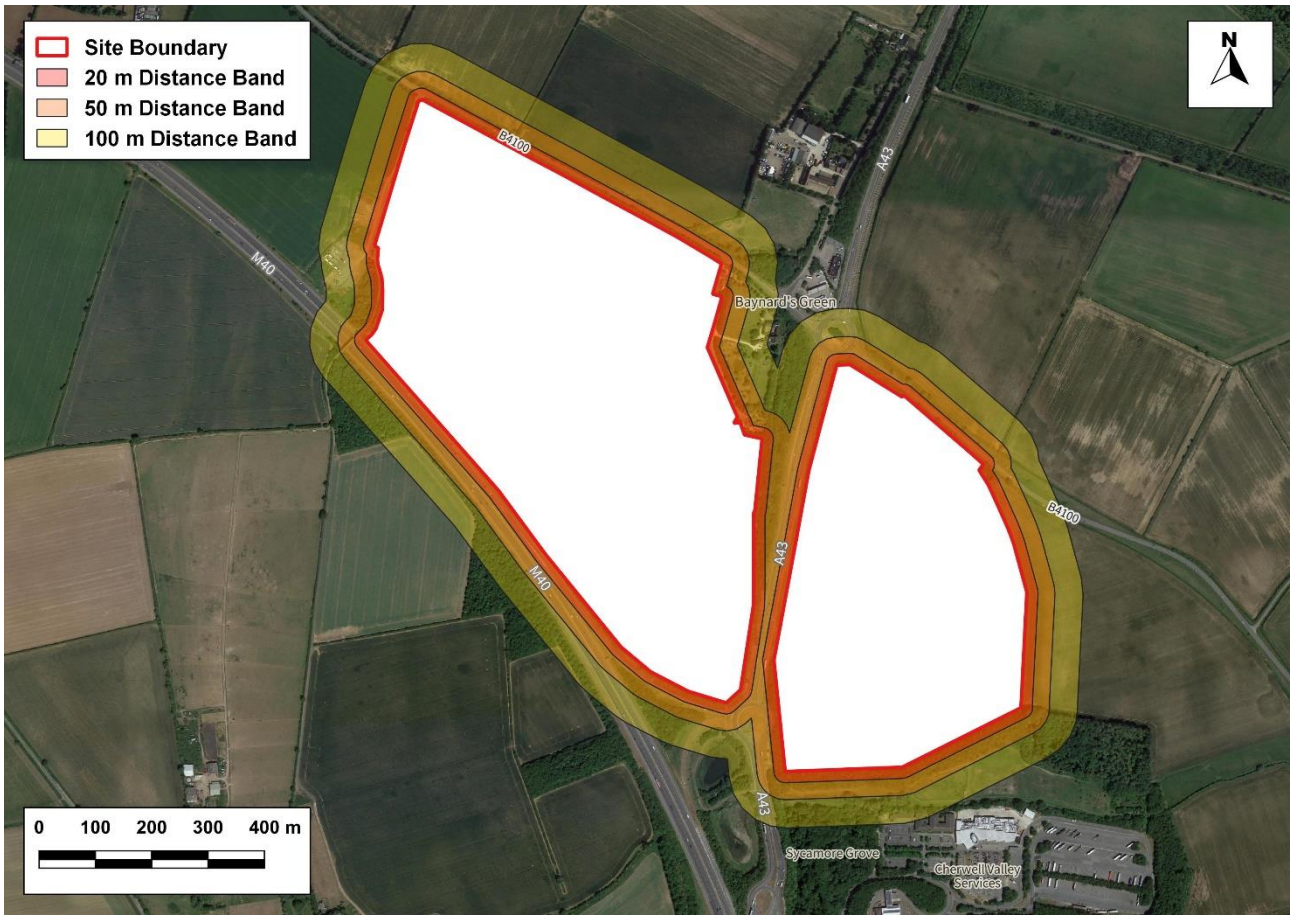
Dust Emission Magnitude

9.6.18 For the Development as a whole, the dust emission magnitude for earthworks, construction and trackout is considered to be large.

Sensitivity of the Area

9.6.19 There are three residential properties within 20m of the Site boundary, and less than 10 residential properties within 100m (see Figure 9.8). The area surrounding on-site works is considered to be of medium sensitivity to dust soiling and of low sensitivity to human health impacts.

Figure 9.8: 20m, 50m and 100m Distance Bands around Site



9.6.20 Paragraph 9.6.18 explains that the dust emissions magnitude for trackout is large, and there is thus a risk of material being tracked out 500m from the exit of both the Eastern and Western Developments. As the exact route of construction vehicles is not known, it has been assumed all possible routes could be affected. There is one residential property within 20m of roads along which material could be tracked, and less than 10 receptors within 50m (see Figure 9.9).