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Environmental Statement

Non-Technical Summary

North Hemel Hempstead

December 2025

Q240503

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References

1. Introduction

This Non-Technical Summary (NTS) provides a non-technical overview of the findings of an Environmental Impact Assessment (EIA) undertaken on behalf of Pigeon Limited and Bloor Homes (the 'Applicant') and reported in an Environmental Statement (ES). The ES accompanies an outline planning application for a residential-led development which will provide up to 1,500 new homes, a local centre, new primary school and green infrastructure. The planning application is submitted to St Albans City and District Council in outline which means that matters such as building layout and appearance are reserved for future approval. Details are provided for two new access junctions from the B487 Hemel Hempstead Road.

The ES was prepared in line with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017¹ (as amended²) ('EIA Regulations'), planning policy requirements and good practice.

The Site

The site of the proposals ('Site') is adjacent to the eastern edge of Hemel Hempstead, approximately 4 km north east of Hemel Hempstead town centre as shown on Figure 1. The Site extends to approximately 105.6 hectares (ha) of land in agricultural use with mature trees and hedgerow boundaries. The Site also includes a section of the B487 Hemel Hempstead Road and land to the south.

The Site is bound by Holtsmere End Lane to the east rural agricultural fields and Holtsmere End Lane to the north. Little Revel End, a lane crosses the Site east to west. Three Public Rights of Way cross the Site.

The topography of the Site slopes upwards towards the north (at 135m Above Ordnance Datum) to approximately 104mAOD in the eastern part of the Site adjacent to Hemel Hempstead Road.

An overhead high voltage electricity pylon route crosses the centre of the Site on a north to south alignment. A high-pressure oil fuel pipeline crosses the Site diagonally from north-west to south-east. The Site is not subject to any statutory or non-statutory designations as shown on Figure 2.

Surrounding uses include:

Residential - About 4 hectares at Little Revel End which contains homes and gardens in the centre of the Site but outside of the application boundary. The residential area of Woodhall Farm is to the west, Tullochside Farm, a gypsy and traveller site, is to the east, and other residential properties are present along lanes. Spencer's Park is under construction 600 m southwest of the Site. The village of Redbourn village is c. 1.1 kilometres northeast beyond the M1 motorway.

Agricultural - Land to the north, east, and south of the Site is predominantly in arable agricultural use.

Other - Along Little Revel End, there are small businesses including a cattery, dog grooming, training facilities, and business and storage units.

Planning Policy Context

The Site is identified in the submitted Draft St Albans City and District Council Local Plan (Site H1 – North Hemel Hempstead Broad Location) to provide a new neighbourhood extension, with up to 1,500 new homes. The Site also forms part of the proposed Hemel Garden Communities (HGC) and is located to the north east of Hemel Hempstead.

Hemel Garden Communities is an ambitious development project backed by the local authorities and Government. It aims to transform Hemel Hempstead and create attractive and sustainable new neighbourhoods and communities to the north and east of Hemel Hempstead, through the delivery of around 11,000 new homes and 10,000 new jobs by 2050.

Figure 1: Site Location Plan

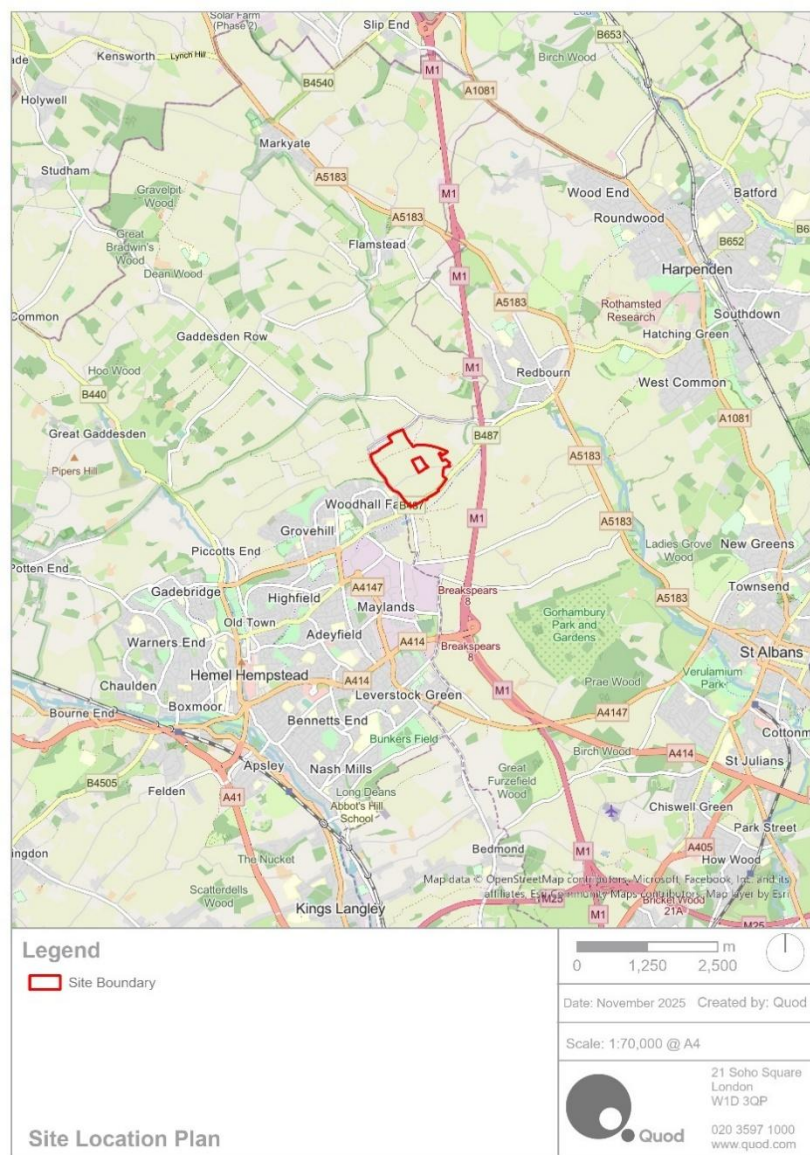
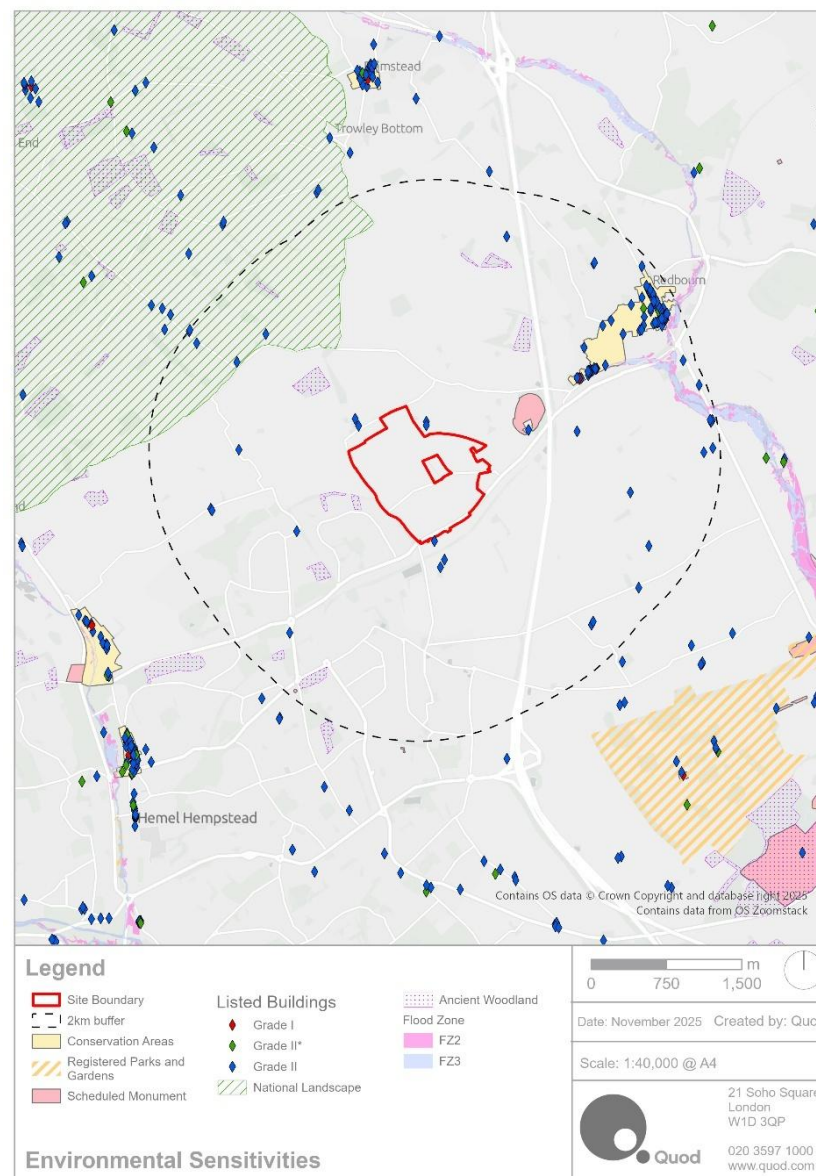


Figure 2: Environmental Sensitivities within 2km of the Site



2. What is an EIA and an ES

Environmental Impact Assessment ('EIA') is required by UK legislation for certain development projects. EIA is a process which assesses the likely significant impacts of a development on the environment and reports this enabling the information to be considered by decision makers and the public as part of the determination as to whether the development should be granted planning permission. The EIA also identifies mitigation measures to prevent, reduce or offset any significant adverse effects identified, together with any monitoring that may be necessary. The ES reports the findings of the EIA.

Scope of the EIA

The EIA scoping process aims to identify the likely significant environmental effects of the development and determine the level of detail required in the ES.

A request was submitted to SADC in March 2025 for an EIA Scoping Opinion which is the Council's view on scope of the EIA. This request was supported by an EIA Scoping Report which set out the topics to be included in the ES and the proposed methods to be used. The report also explained why certain topics were proposed to be scoped out of the ES where significant effects are unlikely.

SADC issued a Scoping Opinion in May 2025 which included comments from consultation bodies. It confirmed that the ES should include an assessment of the following topics: Socio Economics, Human Health, Transport and Access, Air Quality, Noise and Vibration, Water Resources and Flood Risk, Biodiversity, Cultural Heritage, Climate Change, Agricultural Land and Soil, and Landscape and Visual Impacts.

Identifying and Assessing Significant Environmental Effects

The following stages are used to identify significant environmental effects:

1. Identify current environmental conditions (the 'baseline').
2. Identify how the environment may change in the future (the 'future baseline').
3. Identify sensitive receptors to the Development, e.g. local residents, designated sites, habitats and species, road users and the local economy.
4. Assess the environmental effects of construction and operation of the completed Development. This is conducted using a variety of methods including computer modelling, calculations, desk studies and field studies. The assessment was undertaken in line with relevant technical guidance.
5. Assess significance (scale of change) of effect (i.e. major, moderate, minor or negligible) using best practice guidance and published standards. Technical specialists applied professional judgement where no legislation, definitive standards and / or industry guidance was available.
6. Identify if the effects are either adverse (negative), negligible or beneficial (positive).

Consultation

Consultation was undertaken by the project team during the EIA and design process with statutory consultees and other key stakeholders. This included pre-application meetings with SADC, Hertfordshire County Council (HCC), National Highways, Historic England, Natural England and The Crown Estate (TCE) (developers of an adjacent application for East Hemel Hempstead).

The Applicant held a public consultation event between 14 July 2025 and 1 August 2025 which included an event at Redbourn village on 14 July 2025

and Hemel Hempstead on 16 July 2025. The Applicant also hosted a consultation website where feedback could be provided by members of the public: <https://northhemel.co.uk/home/>

Design and Mitigation

The EIA was undertaken in parallel with the design process. Early testing and analysis was used to identify measures to avoid, mitigate, or as a last resort compensate, adverse environmental effects. This included landscape and visual appraisal to inform building heights, noise modelling, heritage site walkovers, tree surveys, ecological studies, and drainage modelling. Where possible measures to avoid or minimise environmental effects were designed into the Development and planning application. The Applicant engaged with TCE regarding the provision of transport and access mitigation.

Where significant adverse effects were identified, the Applicant has proposed additional mitigation measures to reduce the significance of the effect. 'Residual effects' are those that will remain after mitigation measures have been implemented. Short and long-term (temporary and permanent), direct and indirect effects were assessed. Each topic chapter in the ES provides further detail regarding the specific methodology applied.

Cumulative Effects

The ES consider two types of 'cumulative' effects:

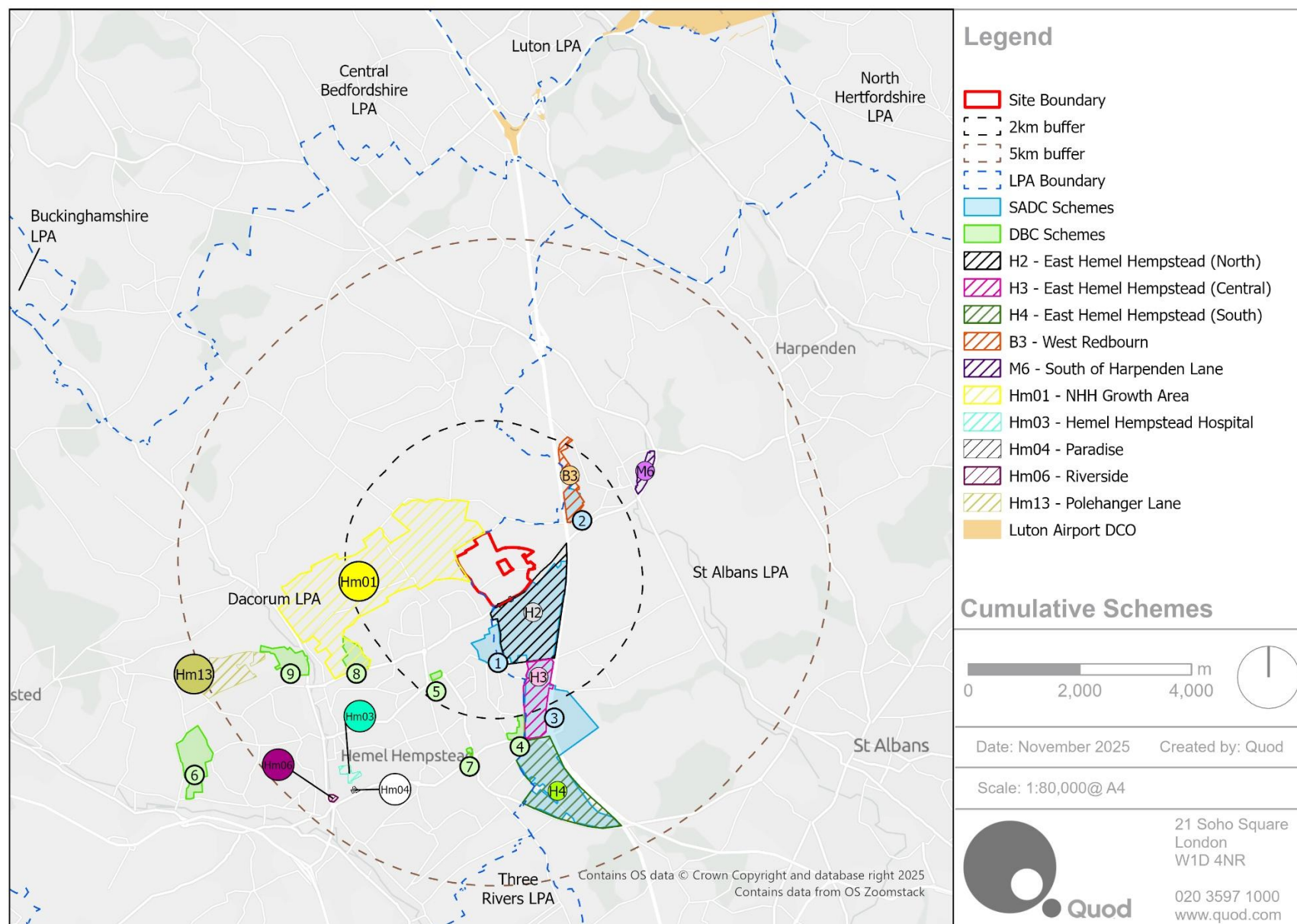
- Effect Interactions: Effects that can arise from individual effects of the Development interacting, such as traffic and air quality on the same receptor. No significant effect interactions were found; and
- Cumulative Effects: Effects that could result from the Development in combination with other nearby development schemes. Figure 3 shows the cumulative schemes that were considered within the cumulative assessment which were agreed with SADC.

ES Structure

The ES comprises:

- Non-Technical Summary (this document);
- Volume I: Main Text; and
- Volume II: Appendices.

Figure 3: Cumulative Schemes



3. The Development

Bloor Homes and Pigeon are working together to bring forward proposals for a high-quality landscape and design-led scheme located North of Hemel Hempstead. The proposals have been designed to align to SADC's aspirations for the Site Allocation as set out the Draft SADC Local Plan and the pillars/principles of the Hemel Garden Community Spatial Vision.

The description of the Development is defined as the following:

'Outline application for residential-led mixed use development comprising up to 1,500 new dwellings (including residential accommodation and specialist accommodation for older people) (Use Class C3), a care home (Use Class C2), a 3FE primary school (including early years provision) (Use Class F1), a local centre, mobility hub, open space, amenity space, allotments, green infrastructure, sustainable drainage systems, vehicular and active travel routes, and supporting infrastructure and works. All matters reserved save for access from the B487.'

An outline planning permission results in the principle of a development being consented, with a scheme that is not wholly fixed. Some parts will be subject to specific controls set out within 'control documents'. These control documents include a Land Use and Green Infrastructure Parameter Plan (Figure 4), Access and Movement Parameter Plan (Figure 5) and Development Specification document. Detailed drawings are also submitted for the new junctions on the B487 Hemel Hempstead Road.

Key Components

The Development will deliver up to 1,500 new homes, and a care home (providing c 70 beds). It is expected that up to 40% of the residential units will be affordable homes to respond to the affordable housing needs. The affordable housing provision will be secured through the S106 agreement.

The Land Use and Green Infrastructure Parameter Plan (Figure 4) shows the maximum extent of the built development which would be located west of the existing overhead powerlines and pylons. A Community Park is proposed in the eastern part of Site which would also avoid recreational pressure on a European designated site (the Chilterns Beechwoods Special Area of Conservation) from new residents. This type of referred mitigation is known as a 'Suitable Alternative Natural Greenspace' (SANG). The Community Park/SANG would be at least 28.8ha. In addition, the Development would provide:

- A local centre and 3 form entry primary school, with provision for early years, in the centre of the Site.
- Play space and sports pitches, associated changing facilities and car park.
- A Mobility Hub with facilities to encourage and facilitate modes of transport other than the private car.
- Green infrastructure – open space, allotments, strategic structural planting, habitat creation, grassland, retained vegetation.
- A Sustainable Travel Corridor (STC) to join with adjacent planned communities – a movement corridor which will run through the future extent of the Hemel Garden Community, prioritising active travel and public transport.
- Existing public rights of way, new recreational routes and pedestrian/cycle links.

Figure 6 shows an illustrative masterplan which shows one way in which the Development could be delivered.

Heights

Some earthworks will be required across the Site due to the existing levels. Proposed levels will be designed to respond to the existing topography. Buildings will be predominantly 2 storeys, with some 2.5 and 3 storey. 3-

storey buildings will be focused around the B487 Hemel Hempstead Road, the STC, and the local centre, making areas of good access to public transport and social infrastructure.

Appearance

The appearance of the Development will be agreed at the reserved matters stage although will be informed by key design principles for character areas across the Site in the Development Specification.

Landscape and Open Space

The Land Use and Green Infrastructure Parameter Plan (Figure 4) shows the green infrastructure proposed as part of the Development which will include the Community Park/SANG, allotments, sports pitches and habitat creation. Existing vegetation such as hedgerows will largely be kept and will be enhanced through planting and management.

Access

Detailed permission is being sought for two new junctions (as shown on Figure 7) on the B487 Hemel Hempstead Road to provide access to the Development:

- Eastern Access – designed for all transport modes. This will link to the STC and East Hemel Hempstead (a proposed development to the south and allocated in the Draft Local Plan).
- Western Access – a junction for buses, pedestrians and cyclists only.

Holtsmere End Lane would be closed to vehicles with access restricted at its junction with the B487 Hemel Hempstead Road. Little Revel End Lane, which provides access to Little Revel End Farm, would be closed to vehicles to the west of this existing property. This closure will be subject to a separate Traffic Regulation Order. Existing public rights of way will be retained and are

designed into the Development. The Development will also support bus services linking the Site, town centre, and railway station.

Construction Works

The construction programme and phasing will depend on market conditions although works could commence in 2028 and could be complete by 2041 (an indicative programme of 13 years). The first new homes could be complete in 2030. The phasing of the Development would be agreed with SADC although it is anticipated that works would commence with the Western and Eastern Junctions and would progress northwards. The SANG would be delivered in phases.

The Applicants have committed to the following management plans which support the application and are designed to mitigate construction effects:

Outline Construction Environmental Management Plan (CEMP) – This document outlines how environmental impacts arising from the construction activities will be managed, reduced, and monitored. The Outline CEMP provides a framework for preparing more detailed CEMP(s), which will be developed and implemented by the construction Contractor(s). The CEMPs will be adhered to throughout the construction of the Development and will include measures to manage soil, waste, resources, noise, dust, light, etc.

Construction Traffic Management Plan (CTMP) – This plan will help control traffic and transport during construction, to minimise disruption to local residents, businesses and road users. The CTMP will control access to the construction site which will only be via the B487 Hemel Hempstead Road with vehicles routing along the A5183 to reach the M1. Approximately 92% of construction traffic is expected to use the M1, with the remaining 8% via the A5183.

Figure 4: Land Use and Green Infrastructure Parameter Plan

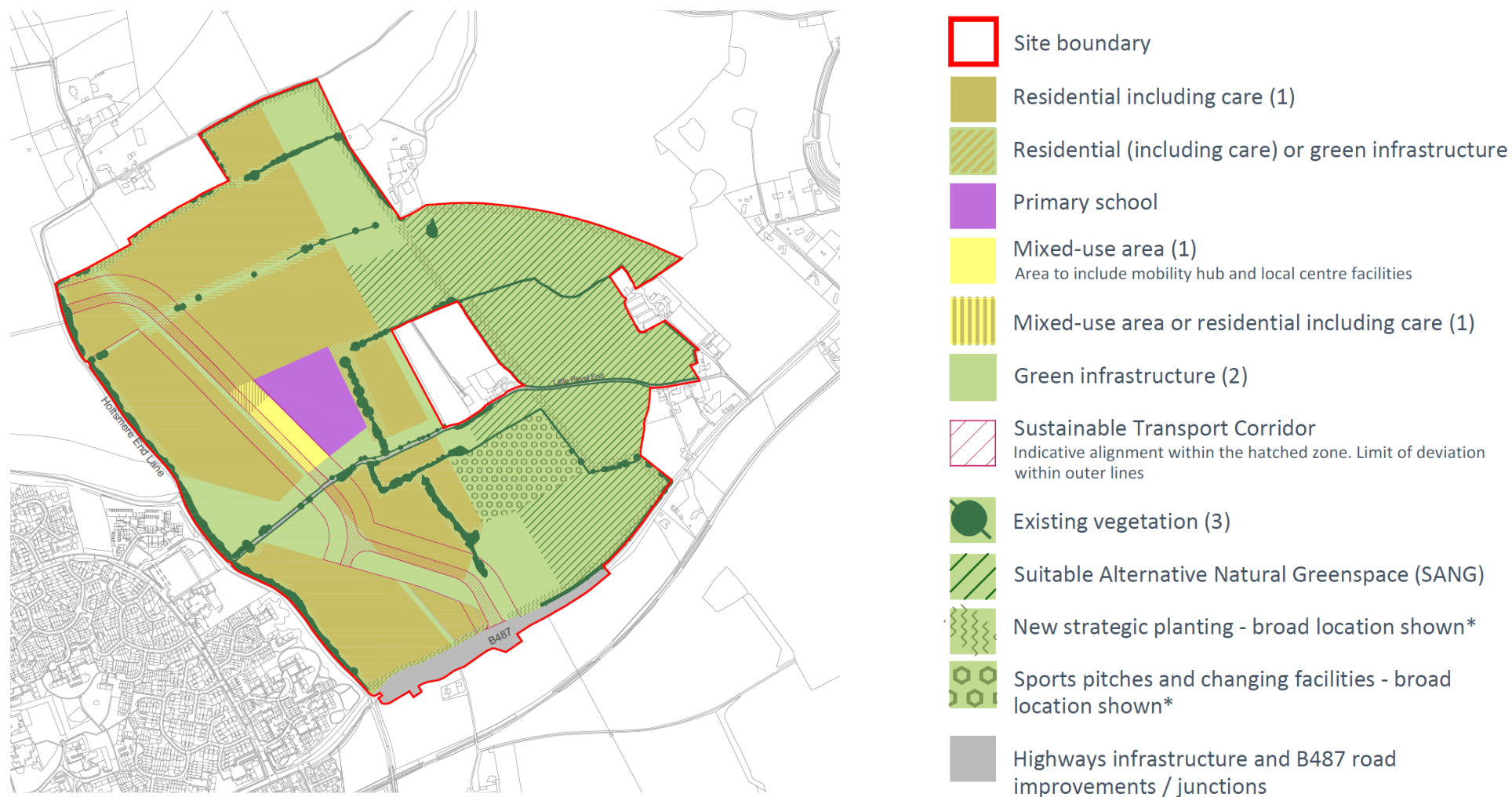


Figure 5: Access and Movement Parameter Plan

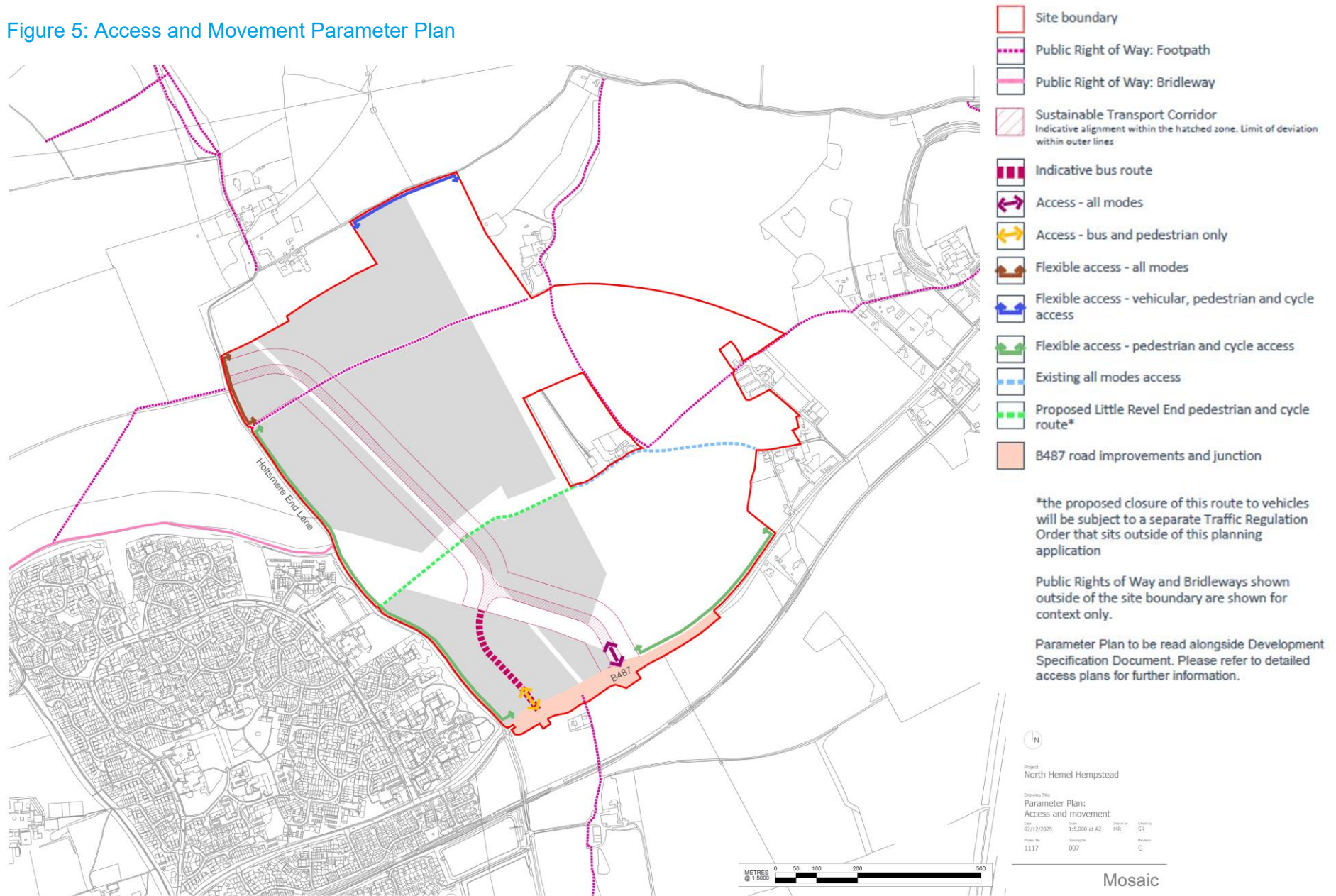
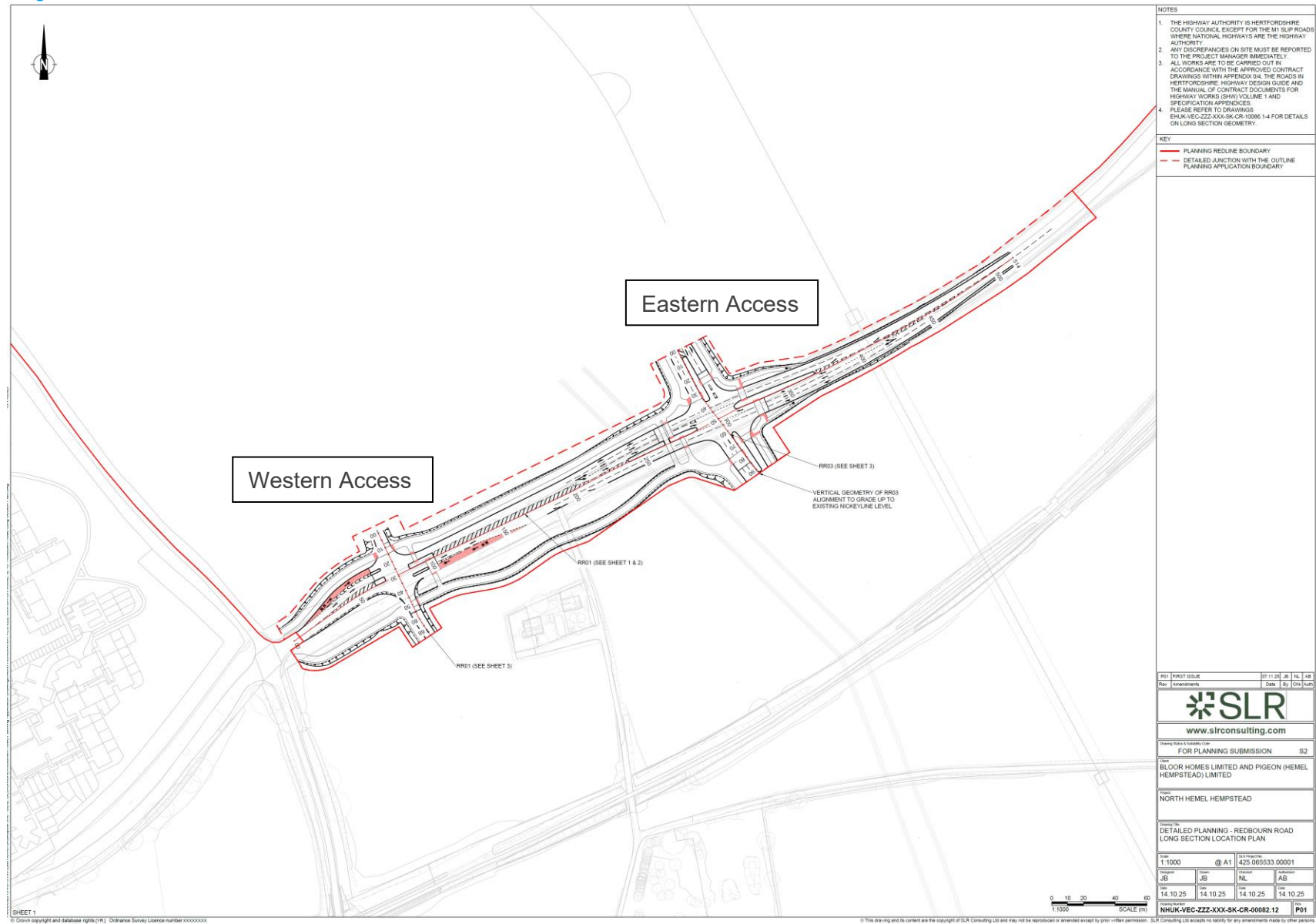


Figure 6: Illustrative Framework Plan



Figure 7: B487 Eastern Access and Western Access



4. Alternatives Studied

The EIA Regulations require a description of the reasonable alternatives considered. This section summarises the alternatives that the Applicant considered when developing the proposals, including a comparison of the environmental effects.

No alternative sites were considered by the Applicant as the proposals respond to the Site's allocation for development in the Draft SADC Local Plan. The Development has been designed to seek to adhere to emerging Policy H1 for the North Hemel Broad Location in the Draft SADC Local Plan and as such no alternative land uses were considered.

The Development proposals were informed by technical and consultation with the planning authority, local community and other stakeholders. The Applicant also worked closely with The Crown Estate, developers of an adjacent application to the south known as 'East Hemel Hempstead'.

At scoping stage, the site boundary was the same as that for the site allocation in the Draft SADC Local Plan (Policy H1). The Site boundary was reduced after scoping as land to the east was not needed for development.

The design has evolved in parallel with the preparation of the Draft SADC Local Plan and through consultation with stakeholders (e.g. SADC, HCC, Natural England and environmental studies). The layout and main elements of the scheme have however remained the same.

Some of the alternatives and main reasons for choosing the final design are as follows:

- **Built development location:** maximises public access to green space and provides clear east-west connectivity.
- **Building Height** – The highest buildings (3 storey) are placed closest to where activity and services are located including the STC, local centre and primary school. Lower building heights on the edges minimise visual impact.
- **Local Centre and Primary School** -The local centre and primary school were always proposed to be located together in the centre of the Development to benefit from access to public transport by proximity to the STC and ensure safe access.
- **STC Routing** - The STC is proposed to run through the Site in a north-to-south direction and continue onto SADC Draft Site Allocation H2 (the East Hemel Hempstead development) to the south. An STC alignment further east within the Site than shown on the Parameter Plans was considered but was moved further west to avoid conflicts with the high-pressure pipeline and electricity pylons.
- **Eastern Junction** - Initially, use of a large roundabout on the B487 was considered. However, following traffic modelling it was agreed with HCC that a signalised junction would be better than a roundabout at minimising driver, pedestrian and cyclist delay. A roundabout would also require more land.
- **B487 Western Junction** – Initially, the Western Junction was proposed as being available for use by cars and all other forms of transport. However, following discussions with HCC, this was changed to bus and pedestrian only to ensure efficient public transport and encourage its use.
- **SANG** - The Applicant consulted SADC and Natural England on draft proposals for the SANG and the design principles were subsequently updated to comments made including the provision of a circular walk which meets minimum length requirements.

5. Socio-economics

Baseline

The Site is to the north-east of the town of Hemel Hempstead and is currently agricultural fields. There are 16 existing primary schools within 5km of the Site, which currently have 6% spare capacity (303 spare places). More surplus places are expected to become available over the coming years as demand is expected to reduce. There are six existing secondary schools in Hemel Hempstead and nine in St Albans, which have a combined 5% surplus capacity (710 spare places). The average patient list size of the doctors (GP) surgeries within 5km of the Site is below the England average which indicates surplus capacity is currently available. The nearest existing open space and playspace is at Datchet Close.

The Site is predominantly used for agriculture, and employment associated with this use is very low. There are no existing homes within the Site.

The Site forms part of the Hemel Garden Communities programme which proposes a range of new community facilities to support housing growth in the area, including new primary schools, secondary schools and healthcare facilities.

Construction Phase

It is estimated that construction of the Development will support 150 construction jobs. As construction workers tend to move between different sites, the overall effect of the Development at the Regional level will be **negligible** and not significant.

Completed Development

- Housing delivery - Up to 1,500 homes (10% of St Albans District Council's 2024–2041 housing target of 14,603), plus a care home – this would be a **major beneficial** (significant) effect.
- Education - it is estimated the Development could accommodate approximately 604 primary school age children and 359 secondary school children. The Development provides a new primary school and new secondary school provision is planned – **negligible** effect (not significant).
- Healthcare – the Development would accommodate around 3,670 residents and the additional demand is demand for GPs is assessed as being **negligible to minor adverse** (not significant).
- Open space provision will meet the needs of the Development – **minor beneficial** effect (not significant) at the Site level and **negligible** at the local level.
- Facilities and employment – the local centre could offer retail, leisure, and community facilities, with a minor beneficial effect at Site level and negligible at Local level. The Development could support c 246 jobs (minor **beneficial** locally; and **negligible** district-wide (not significant)).
- Spending – local spending from households and employees is estimated at £18 million annually, a **moderate beneficial** (significant) locally and **minor beneficial** (not significant) at a District level.

Cumulative Effects

The assessment of the Development and cumulative schemes has not identified any significant adverse socio-economic effects. Effects are expected to be **negligible to major beneficial**.

6. Human Health

Baseline

The community around the Development has generally good health outcomes. Life expectancy for men and women is higher than the national average, and mortality rates are also lower. Emergency hospital admissions for respiratory disease and coronary heart disease are below national averages as are admissions for other causes (e.g. stroke and lung disease) in the immediate area.

The community shows healthier lifestyle and behaviour compared to the national average. It has lower rates of suicide, dementia, emergency admissions (self-harm; and alcohol), and lower prevalence of smoking in adults. Alcohol-related hospital admissions for under-18s are currently in line with national levels. Adults are more physically active, with fewer classified as overweight or obese. Finally, the baseline local healthcare capacity estimates that for GPs within 5km of the Site, there is capacity for an additional 28,047 patients, based on the target list size of 2,000 patients per GP.

Construction Phase

During the construction phase, health effects could arise from changes in air quality, noise and transport.

- No significant effects with regards to changes in air quality; or noise are likely. The construction phase will have an overall **negligible** effect in terms of human health impact for low sensitivity receptors and a **minor adverse** effect (not significant) for high sensitivity receptors.
- No significant effects with regards to changes in traffic are likely. The operational phase will have an overall **negligible** effect in terms of human health impact for low and high sensitivity receptors.

Completed Development

During the operational phase, health effects could also arise from changes in local air quality, noise and transport.

- No significant effects with regards to changes in air quality; or noise are likely. The operational phase will have an overall **negligible** effect in terms of human health impact for low sensitivity receptors and a **minor adverse** effect for high sensitivity receptors.
- No significant effects with regards to changes in traffic are likely. The operational phase will have an overall **negligible** effect in terms of human health impact for low and high sensitivity receptors.

Cumulative Effects

- No significant cumulative effects are anticipated and so the assessment of effects remains the same as that reported above.

7. Transport and Access

Baseline

The Site is located north east of Hemel Hempstead, north of the B487 Hemel Hempstead Road. This road provides a key local connection between Hemel Hempstead town centre to the west and Redbourn to the east, continuing towards the M1 motorway at Junction 9 via the A5183.

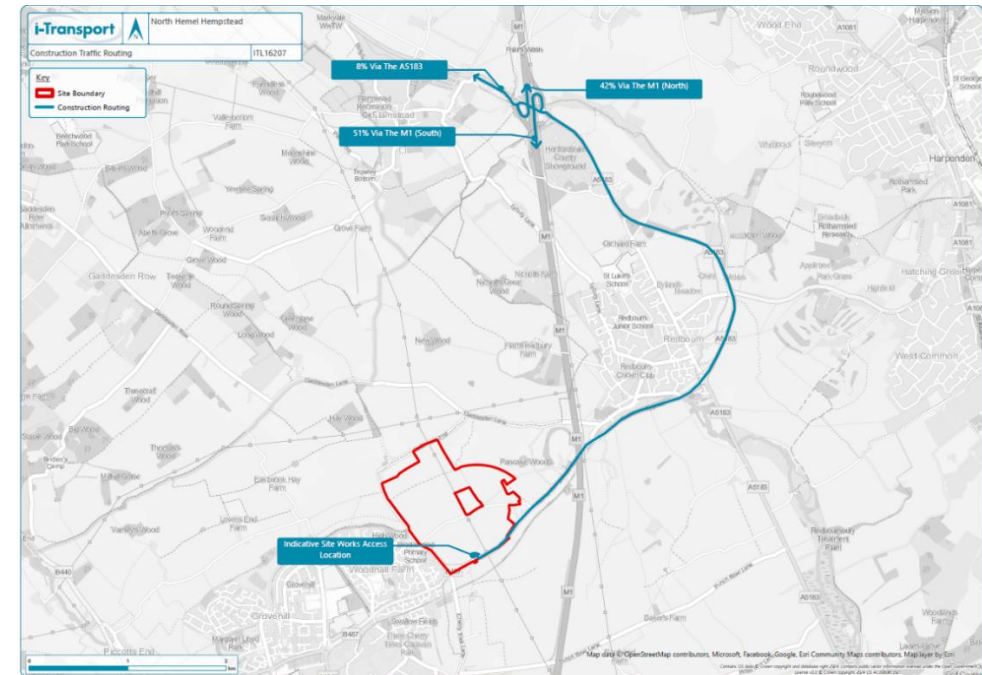
Hemel Hempstead is a large town with many amenities, a large centre for employment focused at Maylands close to the Site, and excellent rail connections between London, Milton Keynes and Northampton. The Nickey Line, which is a short distance from the Site, provides an attractive and popular active travel route into the town centre, promoting healthy lifestyles. This is supplemented by a good network of local on and off-street walking and cycling routes. The Site benefits from being located on the route of the existing Centrebus route 46 service which runs along Hemel Hempstead Road between Hemel Hempstead town centre and Luton.

Construction Phase

HGVs are expected to access the Site via the B487 Hemel Hempstead Road. HGVs would be routed east along the B487, then north along the A5183 to Junction 9 of the M1 motorway as shown on Figure 8. A CTMP would be in place to manage construction traffic effects. Assessment of construction trips during peak periods demonstrates that the temporary uplift in total vehicles or HGVs during the construction phase would not exceed 30% of existing traffic flows. Therefore in accordance with industry guidance (i.e. 'the number of heavy good vehicles will increase by more than 30%'), does not require further assessment.

- The construction phase will have an overall **negligible** effect in terms of impacts on road users, public transport, pedestrians and cyclists.

Figure 8: Construction Traffic Routing



vehicles with other developments with those from the Development are expected to be **negligible**.

Completed Development

The implementation of the STC and other highway improvement works across the Development and cumulative schemes will improve the transport situation. Permanent, **minor beneficial** (not significant) effects will be realised for pedestrian and cycle delay and safety in the local area.

The cumulative assessment identified **negligible** effects for the severance of communities; road vehicle driver and passenger delay; non-motorised user amenity; and fear and intimidation on and by road users.

8. Noise and Vibration

Baseline

A noise surveys shows that noise levels across the Site are mainly influenced by road traffic vehicles using the surrounding road network including the B487 and the M1 motorway.

Construction Phase

Noise and vibration from peak construction traffic and activities has been assessed using reasonable worst-case assumptions. The effects are assessed as follows:

- Construction activities - construction work would be phased and controlled through a CEMP and effects would be **negligible**.
- Construction traffic – noise and vibration effects would be **negligible**.

Completed Development

The assessment was informed by a computer model of the Development and traffic data provided by the transport consultant. Potential effects on existing and proposed noise sensitive receptors were considered, including existing and future residents. The effects are assessed as follows:

- Road traffic noise - The highest increase in noise due to traffic from the Development would be less than 1 decibel which would be a negligible effect on existing residents. With good design and noise barriers or fencing for certain gardens close to the B487 Hemel Hempstead Road, noise levels in garden areas within the Development would be **negligible**.
- Other Development-related noise sources (school, sports pitches) - effects would be **negligible** on existing and future residents.

With mitigation for certain properties adjacent to the B428 Hemep Hempstead Road, the Site is suitable for the proposed uses.

Cumulative Effects

No significant cumulative effects are anticipated and so the assessment of effects remains the same as that reported above.

10. Water Resources & Flood Risk

Baseline

No surface waterbodies are located within the Site apart from a pond which will be retained. There are no rivers within 1km of the Site. The Site is underlain by chalk and groundwater is at considerable depths below ground. The Site is a groundwater source protection zone which protects groundwater around a water supply source. The supply of water in the region is recognised as being under stress.

The majority of the Site is at low risk of flooding from surface water (usually caused by intense rainfall). Small areas of 'low' and 'high' surface water risk are present due to the Site's topography as shown on Figure 11. Figure 11 has been informed by modelling which takes account of future changes due to climate change.

Construction Phase

Potential effects arising from construction include impacts due to water demand and sewage infrastructure from the new population, risks of pollution to waterbodies, and impacts on groundwater. These effects are assessed as follows:

- Water quality (watercourses and groundwater) – A risk assessment will be undertaken in line with industry standards. Effects will be **negligible**.
- Groundwater flow - Further groundwater investigation is proposed to understand the movement and presence of groundwater at the Site. Effects will be **negligible**.
- Foul water / potable water - Surveys to identify the presence of any water infrastructure to avoid potential damage. Effects will be **negligible**.

No significant effects are likely. The construction phase will have an overall **negligible** effect in terms of water resources and flood risk impact.

Completed Development

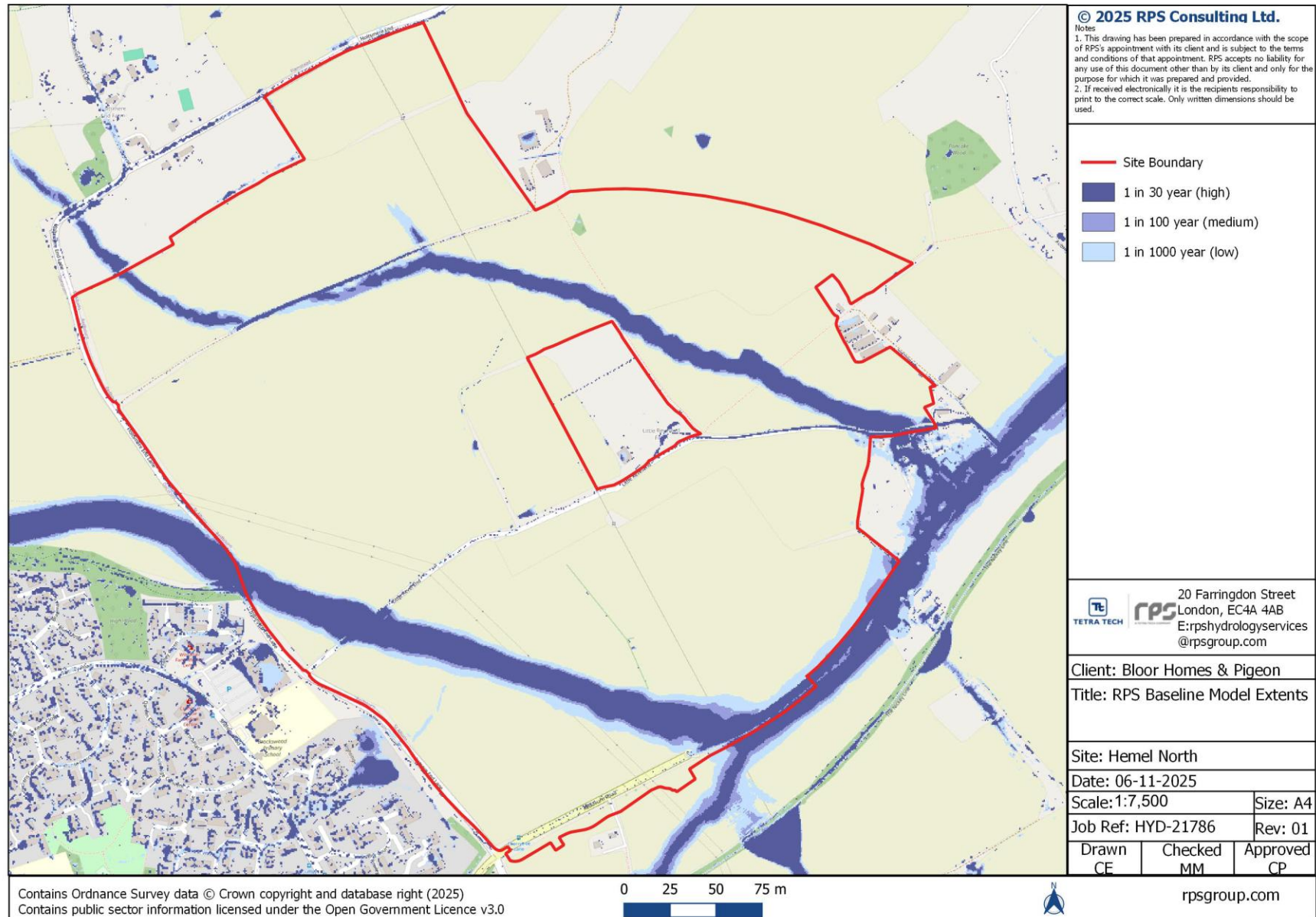
Potential effects from the completed Development are assessed as follows:.

- Flood risks to properties and people on and off-site – design measures will ensure surface water during storm events does not cause flooding and the Development is safe. Effects will be **minor beneficial** (not significant) due to improvements in the existing drainage regime;
- Groundwater and surface water – potential changes to the water below ground and surface water quality/quantity will be **minor beneficial** (not significant); and
- Potable water and foul water – effects will be **negligible – minor adverse** (not significant).

Cumulative Effects

Potential impacts arising from cumulative developments will be managed and mitigated through design in line with planning policy requirements. Therefore cumulative effects can be considered **negligible**.

Figure 11: Flood Risk Baseline Model



11. Biodiversity

Baseline

The Site is mostly comprised of agricultural land used to grow arable crops with a small area of species-poor grassland, scrub, woodland and hedgerows bordering fields and the Site boundaries.

Chilterns Beechwoods Special Area of Conservation, a European designated site is approximately 7.3km from the Site. There are five Local Wildlife Sites within 1km of the Site.

Surveys show that the Site was found to be used by breeding and wintering birds. It also supports a variety of bat species which use the Site for foraging and commuting. Barbastelle bat were also recorded at the Site in low numbers and badgers regularly use the Site.

Construction Phase

Existing hedgerows are mostly incorporated into the Development as shown on Figure 4 and will be improved through planting. The CEMP will include measures to protect wildlife from harm and disturbance during construction. The SANG / Community Park and other green infrastructure will be delivered in phases. The construction phase effects are as follows:

- Chilterns Beechwoods SAC, Local Wildlife Sites, on-Site habitats (hedgerows), breeding and wintering birds (with mitigation) - overall negligible effect.
- Bats - sensitive lighting during construction will ensure a negligible effect.
- Badger - badger setts would be retained or closed under a protected species licence which will ensure a negligible effect.
- Skylarks – The Development will create and manage new habitats for skylarks (a ground nesting farmland bird) and other bird species within the SANG and wider Site which will be a minor beneficial effect (not significant).
- Bats, badger and generalist breeding and wintering birds - Habitat creation will have a permanent minor beneficial effect at a Site level.

Completed Development

The Development will provide significant areas of new habitat and green infrastructure, enhancing existing hedgerows. The effects would be as follows:

- Chilterns Beechwoods SAC - The provision of a SANG / Community Park will ensure new residents have easy access to natural open space as an alternative to visiting the SAC. The Applicant will also contribute to a Council-run access mitigation scheme which will result in a **negligible effect**.
- Local Wildlife Sites and Ancient woodland – the effect on LWS or ancient woodland from air quality changes or recreational pressure would be **negligible**.
- Habitats – the Development will lead to a long-term **moderate beneficial effect** (significant) on habitats through habitat management.
- Bats – a sensitive lighting scheme will be required which will result in the Development having a **negligible effect**.
- Badger - traffic calming measures would be used where appropriate which will result in the Development having an overall **negligible effect**.

- Breeding and wintering birds - The completed Development will have an overall **negligible effect** on breeding and wintering birds due to the creation and management of new habitats.

Cumulative Effects

The Development is not expected to give rise to significant cumulative effects on designated sites, other habitats or species. This is partly because all developments will be required to provide mitigation for their own effects. Larger scale developments, such as the adjacent East Hemel Hempstead development, will also be required to provide a SANG. All developments will also be required to deliver at least a 10% increase in biodiversity value of their site, known as 'biodiversity net gain'. These measures will in turn benefit animals through increasing habitats for feeding and breeding with connections to the wider area. Collectively, the new habitats will have a long term **negligible - minor beneficial effect** (not significant) at local level.

12. Cultural Heritage

Baseline

The Site consists of eight agricultural fields divided by Little Revel End Lane and reflects post-World War II land management. Three Grade II Listed Buildings: Holtsmere Manor, Wood End Farm Cottages, and Great Revel End Farmhouse, may potentially be affected the Development, with sensitivities to change within the Site ranging from low to medium. Little Revel End Farm (adjacent to the Site boundary) in the centre of the Site is not a listed building but considered to be of local heritage value/ a non-designated heritage asset. While the Site forms part of the setting of these assets, its role in their significance is limited.

The Aubreys camp (Iron Age earthwork) lies c. 320m east of the Site and is designated as a Scheduled Monument for its national importance. Due to the presence of trees, other vegetation and ground levels however, the Site contributes little to its significance as part of its setting and is not visible from the monument. Archaeological evaluation, using a variety of methods found no evidence of contemporary Iron Age settlement activity within the Site, though undated features and Bronze Age remains were identified which may inform regional research agenda.

Relevant heritage assets are shown on Figure 12.

Construction

Construction activities will impact the setting of all assessed heritage assets close to the Site on a temporary basis.

Earthworks could damage archaeological remains of local to regional significance and further investigation will be undertaken to inform detailed design and before construction work commences. Overall, construction may

cause permanent adverse effects on below-ground remains, where present. Construction effects would be as follows:

- Aubreys Camp Scheduled Monument: **negligible** temporary adverse effect as result of noise and traffic impacts.
- Great Revel End Farmhouse - temporary **minor/moderate adverse** effect (potentially significant).
- Holtsmere Manor, Wood End Farm Cottages and Little Revel End Farm: temporary **moderate to minor adverse** effect (not significant).
- Below ground archaeological remains (late prehistoric features): **minor to moderate adverse** effect (not significant) due to loss of archaeological remains.

Further archaeological investigation will be undertaken post-planning permission, ahead of and possibly during construction.

Completed Development

Below ground archaeology will not be affected by the Development once it is complete. The following effects on built heritage assets have been identified:

- Holtsmere Manor and Wood End Farm Cottages - **negligible/minor adverse** (not significant). This would be less than substantial harm at the lowest end of the spectrum. In addition, a tentative negligible beneficial effect would arise at Holtsmere Manor.
- Little Revel End Farm - **neutral/negligible adverse** effect (not significant).
- Great Revel End Farmhouse - **minor adverse** effect (not significant). This would be less than substantial harm at the lowest end of the spectrum. In addition, a tentative negligible beneficial effect would arise.

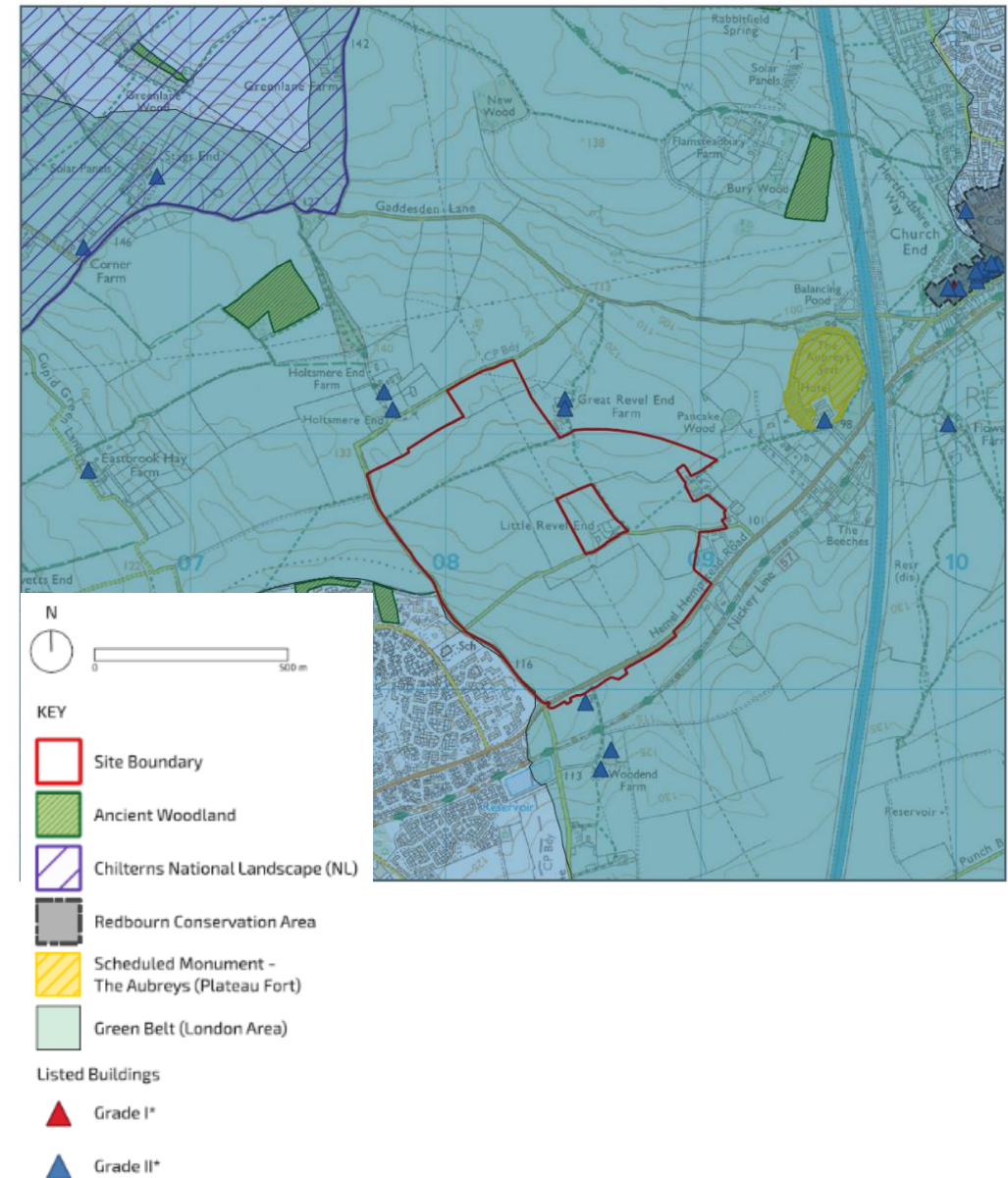
- The Aubreys camp Scheduled Monument – in summer and winter there are no clear views between the Site and the Scheduled Monument due to tree coverage on the earthworks and also, in part, due to topography. The Development will therefore have **no effect** on the way in which the Scheduled Monument is experienced or appreciated.

Cumulative Effects

The Development would not have a significant cumulative effect on any heritage asset. The East Hemel Hempstead development is likely to give rise to a moderate adverse effect which may be significant, but this would not become significant due to the Development, but rather due to the impact of the cumulative scheme alone. Similarly the North Hemel Hempstead scheme may give rise to a **moderate adverse** effect, which may be significant, but again, this would not be due to the Development.

No future projects that have planning permission or are awaiting consent have been identified that would lead to cumulative effects on archaeological assets.

Figure 12: Listed Buildings and Scheduled Monument



13. Climate Change

Baseline

The Site currently consists of agricultural land with minimal greenhouse gas emissions. Climate risks are expected to increase over time, with the UK facing warmer, wetter winters, higher risk of heatwave and drought conditions in summers and more frequent extreme weather events.

Construction Phase

Greenhouse gas effects: The Development would cause greenhouse gas emissions directly and indirectly from manufacturing the materials used in construction (the ‘embodied carbon’), delivery of materials to the Site, and from use of construction plant and energy used on-site. The detailed design of the Development and choices of materials are not known at this stage. However, based on reasonable worst-case assumptions, it is estimated that construction of the Development could lead to emissions of around 115,600 tonnes of carbon dioxide equivalent (tCO₂e). This includes carbon emissions from the manufacturing and transport and materials to the Site. This would be a major adverse (significant) effect prior to further mitigation. Additional mitigation is possible and good-practice principles have been suggested, but it has not been commercially possible for the Applicant to make specific commitments at this stage. Conservatively, **major adverse** and **significant** residual effects are predicted.

Climate risks: Construction is expected to place over several years and could be complete by 2041. Conditions during the early construction programme will be similar to today’s climate, although the frequency and intensity of extreme weather such as heatwaves, droughts, and heavy rainfall is likely to increase over time. With a commitment to managing construction workforce health and safety using guidance from the Health and Safety Executive (secured through the Construction Environmental Management Plan), risks to workforce health can be controlled to **low** and **not significant**.

Completed Development

Greenhouse gas effects: Once completed and occupied, the Development would give rise to GHG emissions which, based on worst case assumptions, could be 8,445 tCO₂e/annum from energy use and transport emissions. This would be a moderate adverse (significant) effect prior to further mitigation. Additional mitigation is possible and good-practice principles have been suggested, but it has not been commercially possible for the Applicant to make specific commitments at this stage for energy use. Conservatively, **moderate adverse** and **significant** residual effects are predicted. Full implementation of good-practice measures including electric vehicle charging points and accessible walking and cycling links could reduce the residual effect of transport to **minor adverse** and **not significant**.

Climate risks: During its lifetime, risks from climate change could affect the Development and its users in a number of different ways including overheating, flooding and effects on building fabric. The assessment considers these potential risks associated with future climate change and how the Development would respond to these. Moderate risks (significant) have been predicted and further mitigation has been recommended, for example, through the detailed design of buildings to prevent overheating, landscape design which provides shade, and a drainage scheme which takes account of climate change. With full implementation of these appropriate design measures, the risks from climate change could be reduced to **low** and **not significant**.

Cumulative Effects

In line with guidance, cumulative effects due to other specific local development projects have not been predicted individually, but are taken into account when considering the impact of the Development.

14. Agricultural Land and Soil

Baseline

The Site is mostly agricultural land with small areas of roads and lanes and has been surveyed using industry standard methods to identify the quality of the soil for agriculture (Agricultural Land Classification). These soil surveys show the Site comprises: 4% Grade 2 'very good' quality and 30% Grade 3a 'good' quality, which make approximately 34% of the Site Best and Most Versatile (BMV) land. The majority of the Site (58%) is Grade 3b, of 'moderate' quality as shown on Figure 13.

Soils are fertile silty clay or silty clay loam over clay. The land is all in arable (crop) farming use as part of a large farm unit.

Construction Phase

The potential effects of construction include the permanent loss of agricultural land in the areas of built development, and permanent or irreversible damage to soils. Approximately 45ha of the 105.6 ha Site will be the developable area. Arable farming activities will cease. The effects are assessed as follows:

- Agricultural land - **moderate adverse** effect (significant) due to loss of 36 ha of very good and good quality (BMV) agricultural land.
- Soil - temporary, **minor adverse** effect (not significant) on soils as they are moderately susceptible to damage. Soils will be handled and managed carefully through the CEMP.
- Farm business - **minor adverse** effect (not significant) on an arable farm business.

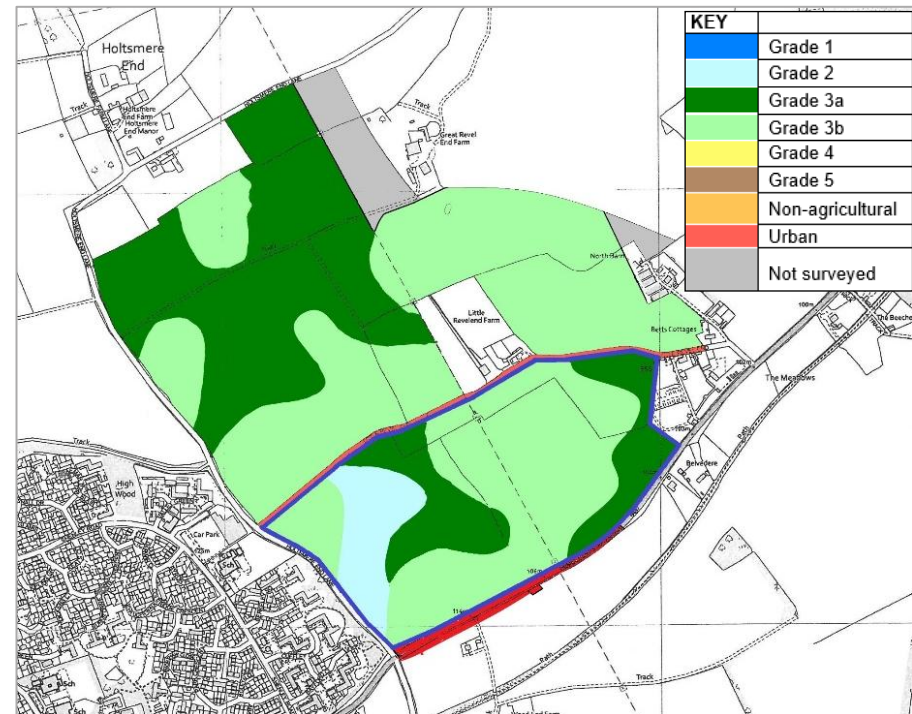
Completed Development

No further effects were identified from the completed Development.

Cumulative Effects

A number of sites included in the cumulative assessment involve land of BMV quality, and the cumulative effect in some cases could be **major adverse** (significant) depending on the scale and quality of the agricultural land.

Figure 13: Agricultural Land Classification



15. Landscape and Visual Impacts

Baseline

The Site is not within a designated landscape area, and while the Chilterns National Landscape lies to the northwest (as shown on Figure 14), the Development will not affect its setting during or after construction.

The Site is in agricultural use comprising a series of open undulating fields defined partly by mature tree belts and hedgerows with trees. A tree belt borders the Site's western edge along Holtsmere End Lane. Little Revel End (Lane) runs through the centre of the Site and Public Rights of Way cross the Site (as shown on Figure 14). Tall electricity pylons and powerlines cross the Site in a north-south direction.

The Site and its surroundings are of medium landscape value and local landscape character areas are shown on Figure 15. Site work and computer modelling has identified potential viewpoints from residential properties and communities (e.g. Hemel Hempstead and Redbourn); footpaths, receptors from within the Chilterns National Landscape and users of local roads. Viewpoints considered in the assessment are shown on Figure 14.

Construction

Construction will occur in phases and would be managed to protect vegetation and minimise visual effects. The effects would be as follows:

- Landscape character - significant effects (**major/moderate adverse**) upon landscape character within the Site and its immediate context. There would be no significant effects upon the Site landscape features or wider landscape, including the Chilterns National Landscape.
- Local views - significant effects (**major – major/moderate adverse**) upon local views from receptors nearest the Site with direct views. No significant effects upon receptors with more distant views.

Completed Development

The Development layout is landscape-led and will retain and enhance existing features such as tree belts, hedgerows, and public rights of way, including Little Revel End Lane. Open spaces are incorporated within the built area and across the eastern part of the Site, with other planting and a Community Park/SANG which will contain views and improve amenity. Additional planting along the B487 Hemel Hempstead Road will reduce visibility from the road. The Development includes connected public open spaces, a large Community Park/SANG, and retained public rights of way, supplemented by new paths and cycleways within green corridors to create a linked recreational network. The effects would be as follows:

- Landscape character - Significant effects (**major/ moderate adverse**) within the Site and its immediate context at completion (Year 1). These effects will reduce as the new landscape planting establishes and matures and will **not be significant** in the long term (Year 15). No significant effects upon the Site landscape features or wider landscape, including the Chilterns National Landscape.
- Visual Effect - Significant effects (**major adverse**) upon views from the 'Redbourn 011' public right of way crossing the Site at completion (Year 1), reducing to **major/ moderate adverse** in the long term (Year 15) which will also be significant.
- Visual Effect - (**major/ moderate adverse**) upon views from residential properties and PRow within or near to the Site with direct views, as well as views from Little Revel End (lane) at completion (Year 1). These effects will reduce as the new landscape planting establishes and matures and will **not be significant** in the long term (Year 15).

Cumulative Effects

The cumulative landscape and visual effects would be as follows:

- Landscape - Long term landscape effects arising from the Development in combination with H2 – East Hemel Hempstead (North) upon LCAs 96: Upper Ver Valley and 94: Buncefield Plateau are not judged to be significant.
- Local Views - Long term effects upon some local views (receptors A8: Woodend Cottages, B1: Nickey Line/ Hertfordshire Way, B6ii: 'Redbourn 013') are judged to be significant (**major/ moderate adverse**).
- Landscape - Long term landscape effects arising from the Development in combination with Hm01 – North Hemel Hempstead Growth Area upon LCA 95: Revel End Plateau are not judged to be significant. Long term effects upon some local views (receptors A4: Holtsmere End, Holtsmere Manor, B11: Great Gaddesden 048) are judged to be significant (**major/ moderate adverse**) however, assuming a carefully considered landscape mitigation strategy forms part of the Hm01 proposals to include sensitive landscaping between the built development edge and the receptor, the level of effect is likely to reduce.

Figure 14: Visual Appraisal and Assessed Viewpoints

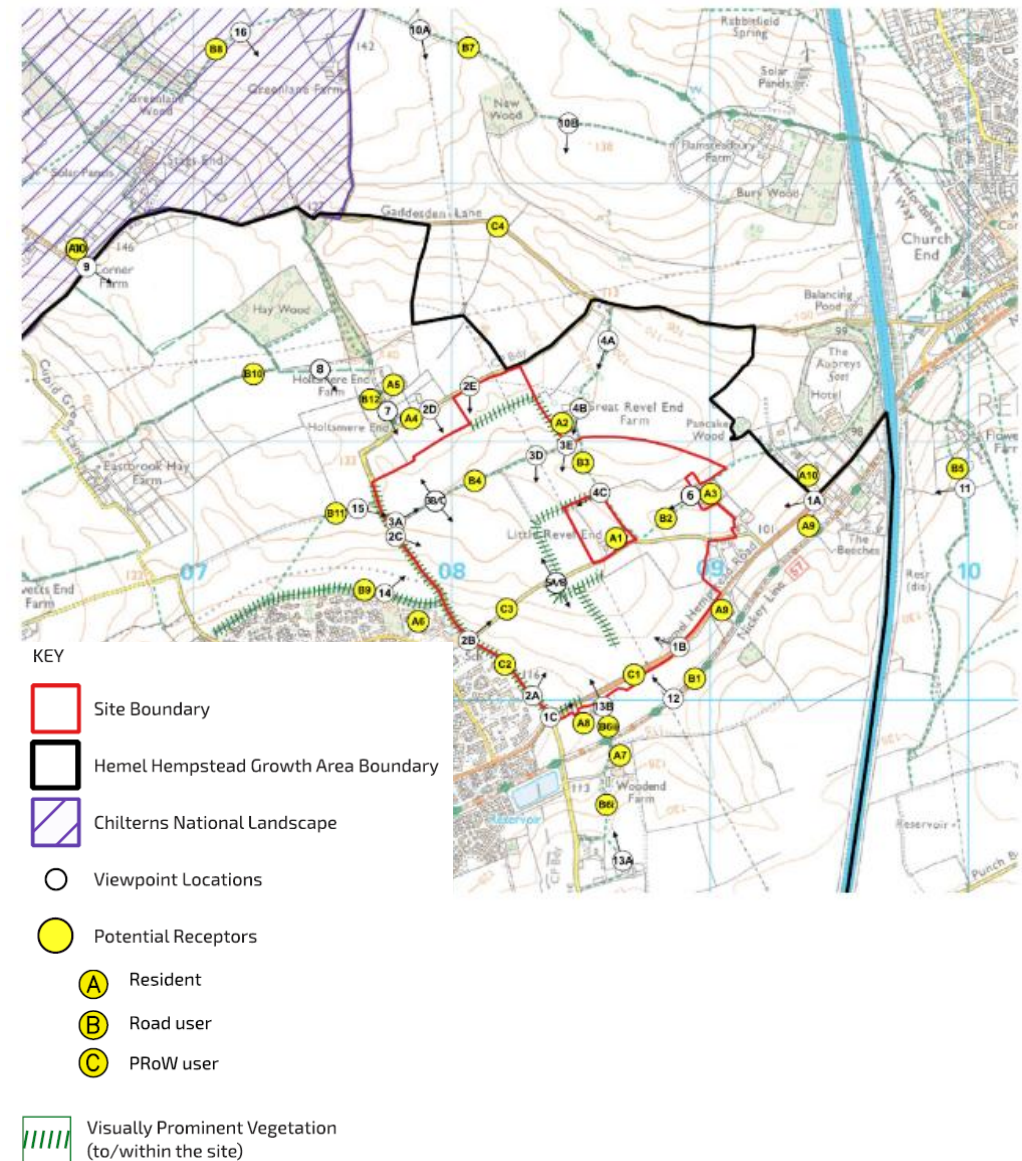
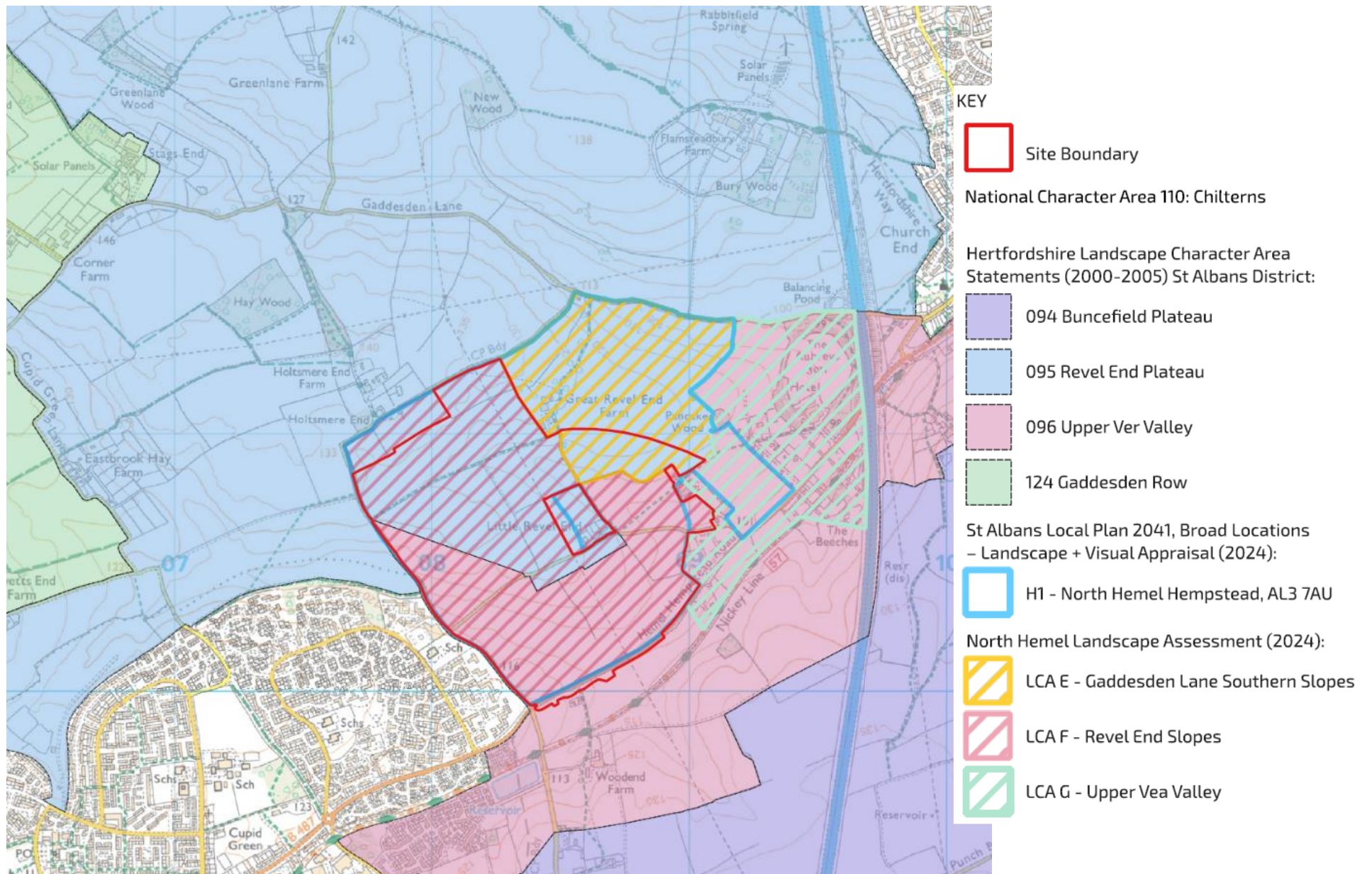


Figure 15: Landscape Character Areas



16. Summary

The section summarises the likely significant effects identified by the ES:

Construction

Agricultural Land and Soil: Loss of land of BMV Quality – **Moderate adverse**.

Landscape and Visual: Landscape - Construction works, traffic movement, temporary spoil heaps/ fencing, tree/ hedgerow removal to facilitate road infrastructure landscape impacts on the Site and its immediate context and; Revel End Slopes – **Major/moderate adverse**.

Visual - Construction activity on viewpoints: Holtsmere End; Holtsmere Manor; Woodend Cottages; Nickey Line/Hertfordshire Way; Redbourn 010; Redbourn 013; Great Gaddesden 048; and Little Revel End – **Major/moderate adverse**. Visual - Construction activity on viewpoint Redbourn 011 – **Major adverse**.

Completed Development

Socio-economics: Housing Delivery within the district – Major beneficial. Spending by new residents and employees at the local level – **Moderate beneficial**.

Transport and Access: Road vehicle driver and passenger delay on Green Lane (north of Boundary Way) – **Moderate adverse** (this effect is unlikely as with the complete STC in place, effects will be not significant).

Biodiversity: Favourable management through the HMMP – **Moderate beneficial**.

Landscape and Visual: Landscape: Loss of green fields, replaced with built development and green infrastructure to the Site and immediate context – **Major/moderate adverse**.

Visual: Visual impacts to Holtsmere End, Holtsmere Manor (Year 1); Woodend Cottages (Yr 1); Nickey Line/ Hertfordshire Way (Year 1); Redbourn 010 (Year 1); Redbourn 011 (Year 15); Redbourn 013 (Year 1); Great Gaddesden 048 (Year 1); Little Revel End (Year 1) – Major/Moderate adverse. Visual: Visual impacts to Redbourn 011 (Year 15) – **Major adverse**.

Cumulative Effects

Socio-economics: Housing Delivery – **Major beneficial**.

Cultural Heritage: Wood End Cottages – **Moderate adverse**.

Agricultural Land and Soil: Loss of land of BMV Quality – **Major adverse**.

Landscape and Visual:

- Allocation H2 (Construction) – Visual Effects: **Major / moderate adverse** (Year 15).
- Allocation H2 (Completed Development - Visual Effects - **Major / moderate adverse** (Year 15).
- Allocation Hm01 (Construction) – Visual Effects: **Major / moderate adverse** (Year 15).
- Allocation Hm01 (Completed Development) – Visual Effects: **Major / moderate adverse** (Year 15).

References

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

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