



UNIVERSAL DESTINATIONS & EXPERIENCES UK PROJECT

Former Kempston Hardwick Brickworks
and adjoining land, Bedford

Environmental Statement Volume 4 Non-Technical Summary

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1 INTRODUCTION

1.1 OVERVIEW

- 1.1.1. This document is the Non-Technical Summary (NTS) of the Environmental Statement (ES) which has been prepared to support the planning proposal for the Universal Destinations & Experiences Project (hereinafter referred to as the Proposed Development) on land located southwest of Bedford, Bedfordshire (hereinafter referred to as the Site).
- 1.1.2. The Proposed Development comprises an Entertainment Resort Complex (ERC) and associated development.
- 1.1.3. The **Zonal Plan (Document Reference 1.8.0)** shows the location of the Site and how it is being considered as four zones:
 - Core Zone;
 - Lake Zone;
 - West Gateway Zone; and
 - East Gateway Zone.
- 1.1.4. A description of the Site is presented in Section 4 of this document.

1.2 WHAT IS AN ENVIRONMENTAL IMPACT ASSESSMENT (EIA)?

- 1.2.1. EIA is a legal requirement for certain types of projects that have the potential to cause significant beneficial and/or adverse environmental effects. It is undertaken in accordance with *the Town and Country Planning (Environmental Impact Assessment) Regulations 2017* (the *EIA Regulations*). The EIA process identifies potential significant beneficial and adverse environmental effects of a project or proposal and describes how these environmental effects will be enhanced or mitigated, respectively.
- 1.2.2. The aim of EIA is to ensure that when a decision maker decides to grant planning permission for a project which is likely to have significant effects on the environment they take this into account in the decision-making process.
- 1.2.3. A formal EIA scoping process has not been undertaken in support of the preparation of the ES and therefore all technical disciplines have been scoped in and are summarised in this NTS. Each environmental topic assessment has been undertaken in line with best practice guidance, whilst engaging with the relevant statutory bodies and using professional judgement.

1.3 MITIGATION MEASURES

- 1.3.1. The ES identifies that a range of mitigation measures relating to both the Construction Phase and the Operational Phase are necessary. Mitigation relevant to the EIA is summarised in this NTS. The mitigation measures will be secured by the planning consent.

1.4 WHAT IS THE PURPOSE OF THIS DOCUMENT?

1.4.1. This NTS presents the outputs of the ES in non-technical language and is set out in a question and answer style format, in line with best-practice guidance. The ES is presented in the following four volumes, which should be read together:

- Volume 1: Main Text;
- Volume 2: Figures;
- Volume 3: Technical Appendices; and
- Volume 4: Non-Technical Summary.

1.5 HOW IS THIS DOCUMENT SET OUT?

1.5.1. This NTS is structured as follows:

- Introduction (Section 1);
- What is the Proposed Development? (Section 2);
- What reasonable alternatives have been considered? (Section 4);
- What are the existing conditions at the Site and the surrounding area? (Section 5);
- How will construction take place? (Section 5);
- What is the approach to undertaking an EIA? (Section 6);
- What mitigation and monitoring is required to reduce environmental effects? (Section 7); and
- What will the residual effects of the Proposed Development be following mitigation? (Section 8).

2 WHAT IS THE PROPOSED DEVELOPMENT?

2.1 OVERVIEW

- 2.1.1. The Site is divided into four main land Zones referred to as the Core Zone, Lake Zone, West Gateway Zone, and East Gateway Zone as shown in the **Zonal Plan (Document Reference 1.8.0)**, and which have been used in this NTS.
- 2.1.2. The Theme Park will only be located within the Core Zone. The Core Zone, West Gateway Zone and Lake Zone will provide a flexible range of complementary ERC uses. The Lake Zone also provides for the Utility Compound, and certain ERC uses that are only permitted in the Lake Zone. The East Gateway Zone provides for a new expanded Wixams Railway Station along with works associated with the Manor Road level crossing, supporting uses and transportation hubs. The West Gateway Zone also includes a Highway Service Area.
- 2.1.3. An area of land is safeguarded for EWR Station as shown on **Parameter Plan – East West Rail Safeguarded Land Plan (Document Reference 1.15.0)**. If a station is brought forward on the safeguarded land, a transport hub and other rail related development will be developed within the Core Zone to facilitate the movement of passengers, in the location shown on the **Parameter Plan – Core Zone Transport Hub (Document Reference 1.13.0)**.
- 2.1.4. **Appendix 2.4: Description of Development for EIA and Examples (Volume 3)** sets out in detail the Proposed Development for which planning permission would be granted including the ERC, utilities, roads, rail-related development and construction.
- 2.1.5. The Proposed Development is controlled by a series of Operative documents and Controlling documents. Other documents submitted, such as this NTS, are for information only.
- 2.1.6. The Operative documents (**Site Location Plan (Document Reference 1.6.0)** and **Primary Access Plan (Document Reference 1.7.0)**) are intended to be part of the operative part of any planning permission granted for the Proposed Development.
- 2.1.7. The list of Controlling documents is provided in the **Proposed Operative and Controlling Documents (Document Reference 1.16.0)**. The Controlling documents, together with the **Proposed Conditions (Document Reference 1.5.0)** are proposed to secure the mitigation of the likely significant effects of the Proposed Development as identified in the ES and to achieve other planning policy aims. The Controlling documents include the following parameter plans which provide information on the spatial definition of the project:
 - Entertainment Resort Complex Land Use;
 - Access and Roadways (Redacted version available);
 - Active Travel;
 - Core Zone Transport Hub;
 - Utility Compound; and
 - East West Rail (EWR) Safeguarded Land.

2.2 PROPOSED DEVELOPMENT TIMESCALES

2.2.1. The Proposed Development will be delivered in two main phases – Primary Phase and Full Buildout.

PRIMARY PHASE

2.2.2. The Primary Phase of the ERC is designed to accommodate 8.5M annual visitors and 55,000 visitors per peak day, and consists of:

- A "destination" (meaning "international" as opposed to "regional" or "local") Theme Park of at least 32.37 hectares in size (excluding guest parking) with emphasis on highly immersive storytelling and theming with an international draw, focused on providing a first-class guest experience.
- Dining and entertainment venues available to ticketed and non-ticketed visitors to the ERC.
- Visitor accommodation with a minimum of 500 hotel rooms.
- Associated services and uses for any operational or administrative functions, such as office buildings and warehouse/storage facilities.
- Vehicles and cycle parking, maintenance and servicing and transportation hubs, including a minimum of 7,106 car parking spaces, 100 coach parking spaces, and 250 cycle spaces.
- Access routes and circulation spaces.
- Green infrastructure including environmental enhancement areas to be provided at a combined minimum of 49.3 hectares and landscaping.
- Active travel routes throughout the Site, which will facilitate connections from the ERC to the surrounding active travel network.

2.2.3. Associated infrastructure, including;

- Utility infrastructure, and utilities generation, storage, collection, treatment, and processing facilities.
- A new A421 junction.
- Realigned and upgraded Manor Road to a dual carriageway access road between Ampthill Road and the Marston Vale Railway Line.
- Public Road A, and Public Road B, segment 1 (as shown in **Parameter Plan – Access and Roadways (Document Reference 1.11.0)**).
- An expanded 4-platform Wixams Railway Station,
- Shuttle bus service between the expanded Wixams Railway Station and the Theme Park

2.2.4. The Primary Phase may consist of non-Theme Park elements such as visitor accommodation, and retail, dining and entertainment venues (and associated vehicle parking) in the West Gateway Zone and/or Lake Zone so long as the peak hour traffic counts do not exceed what has been assessed in **Appendix 5.1: Transport Assessment (Volume 3)** and controlled by **Appendix 5.6: Travel Plan (Volume 3)**. For purposes of this ES and assessment of a cautious worst case scenario, it is assumed that the Primary Phase construction will take approximately five years and is assumed to occur by Primary Opening Year.

FULL BUILDOUT

- 2.2.5. Full Buildout consists of construction of the balance of the ERC, roads, utilities and rail-related development that was not completed during the Primary Phase (assumed to occur over a twenty year period following the Primary Opening Year, completing in 2051) and operation of same thereafter, including the evolution and expansion of the same over time in accordance with the planning permission.

2.3 DESCRIPTION OF THEME PARK AND RESORT.

- 2.3.1. The theme parks and resorts UDX creates and operates globally are very different to a typical amusement park and are unlike anything that currently exists in the UK. UDX takes guests to places that typically exist only in their imagination. To do this, UDX uses cutting-edge technology and partners with beloved storytellers to create fully immersive experiences where the attractions, placemaking, food, merchandise and costumes all work together.
- 2.3.2. A UDX theme park and resort is an integrated ERC under unified control (explained further below), including an assortment of uses beyond the theme park, including Entertainment Resort Complex Support uses, hotel, retail, dining and entertainment, together with other related and complementary uses, all described in more detail below.
- 2.3.3. As part of the Theme Park offering in the Core Zone, UDX invites guests to experience beloved stories and exhilarating adventures in immersive new ways. The rides and attractions UDX creates are only made possible by pairing innovation and technology with exceptional creative delivery. Each theme park is unique and allows guests to be fully immersed in different lands.
- 2.3.4. As well as exhilarating experiences, UDX theme parks provide spectacular live entertainment. This is hosted both within the resort and by the theme park entrance as part of the themed retail, dining and entertainment area (known as the Entry Plaza) which is proposed in the Core Zone. This restricted access area is outside of the 'ticketed' Theme Park gate but requires visitors to pass a security screening before entry. It is aimed at encouraging visitors to extend their visit by arriving earlier than the Park's opening time or staying longer after the Theme Park's closing time. Whilst these uses are designed primarily for Theme Park guests, they can also be used by the general public. The uses that would be permitted in the ERC includes a range of other complementary uses including hotels, retail, leisure, restaurant and conference facilities which together provide customers with the full range of entertainment facilities and places to stay that will help to make this project a success.

2.4 MAXIMUM HEIGHT

- 2.4.1. The scale of the development will vary across the Site, depending on the components proposed and the part of the site in which it is located. **Design Standards (Document Reference 6.3.0)** have been developed to reflect the maximum permissible heights which are set out in Table MH01 and MH02 of the Design Standards. The approach sets a maximum permissible base height for buildings and structures, with an 'attraction overlay zone' which allows the overall height of a structure to exceed the base height by up to 40m within specified areas (the Attraction Overlay Zone and Attraction Overlay Limit of Deviation) for any non-occupiable or non-habitable features where the destination is difficult to access or inaccessible, such as architectural features of buildings (i.e. cornices, eaves, gutters, towers, spires, monuments, skylights, flagpoles, domes and cupolas), cranes temporarily mounted on buildings during construction, fire or parapet walls, roof structures for

housing elevators, stairways, tanks, ventilating fans, solar energy collectors or similar equipment to operate and maintain the building, or in the case of an amusement ride, tracks or other structural components. This is to allow for the signature and feature elements of the theme park, as well as infrastructure such as communications equipment.

- 2.4.2. These maximum heights vary by, and within each, zone. The maximum height above ground level (AGL) and AOD for Proposed Development Elements, and corresponding zones for each key element of the Proposed Development are set out in **Table 2-1 of Chapter 2: Description of Development (Volume 1)** of the ES, whilst the maximum height limits by land area are set out in **Table 2-2**. The lowest applicable height for any specified component in any given land area applies in each case. The maximum heights considered in **Tables 2-1 and 2-2 of Chapter 2: Description of Development (Volume 1)** identifies the maximum height of a structure including non-occupiable features, such as a rollercoaster, within the area of the Core Zone which allows the tallest structures (the Attraction Overlay Zone), would be 115m AGL (157m AOD). The maximum height above ground level for the ERC outside of the Attraction Overlay Zone is 75m (117m AOD for the Core Zone; 110.5m AOD for the Lake Zone; 111m AOD for the West Gateway Zone).
- 2.4.3. The height strategy has sought to address effects on sensitive receptors through:
- To the south of the Site, closest to Stewartby, buildings and structures within 100m of the Site boundary will be restricted to 10m (AGL) in height [unless the residential property in ERC expansion area D (the property at Broadmead Road) is no longer occupied for residential use and has been demolished, or planning permission has been granted and implemented for a change to a non-residential use]. Other than an isolated dwelling, the closest residential properties in this location are then another circa 200m from the Site boundary.
 - Within 30m of the southern edge of Manor Road, the height of buildings and structures are limited to 10m (AGL), and then to 30m in height (AGL) for the next 45m.
 - Buildings and structures in the Lake Zone are limited to 75m (AGL) in height at the centre of the Site with maximum heights limited to 10m (AGL) along the access road, stepping up to 30m within the next 45m of the access road, with a substantial EEA around the Site perimeter and adjoining the County Wildlife Site.
- 2.4.4. The overall approach to building heights will also follow a design principle called the Open Sky Concept, which creates a varied and interesting skyline across the Site. This helps maintain visual interest and to help reduce landscape and visual impact. This is described in **Chapter 2: Description of the Proposed Development (Volume 1)**.
- 2.4.5. The Proposed Development will achieve an articulated skyline by implementing the following key design principles:
- Variety in building and structure heights; and
 - Urban design and architectural features: Incorporating diverse architectural elements such as varied forms, spacing, and setbacks. These features break up the mass of buildings and provide focal points within the urban landscape.

2.5 A421 JUNCTION AND ACCESS ARRANGEMENTS

- 2.5.1. The **Parameter Plan - Access and Roadways (Document Reference 1.11.0)** shows the proposed access routes within the Site boundary, which are described below.

- 2.5.2. The main access routes for visitors and staff travelling to the Proposed Development by car will be from the A421 to the west of the Site, via the new A421 Junction and dual carriageway access road through the West Gateway Zone. The road will cross the Marston Vale Railway Line by bridge into the Core Zone. Visitors and staff departing the Proposed Development and heading west or south will join the A421 via a new southbound slip road at the new A421 Junction. Those heading north or east will use the existing Woburn Road and Marsh Lees interchange with the A421.
- 2.5.3. Initial engineering design has been undertaken for the new A421 Junction and other public road infrastructure to be delivered as part of the Proposed Development to demonstrate that a technically acceptable solution is achievable within the parameters shown on the **Parameter Plan - Access and Roadways (Document Reference 1.11.0)**. This work identified highway access arrangements which have been deemed to be suitable and deliverable with the relevant highway authorities (National Highways and Bedford Borough Council) and illustrative general arrangement drawings are provided in **Appendix 5.1: Transport Assessment (Volume 3)**, with detailed design to be approved by MHCLG and/or Bedford Borough Council as appropriate. If the detailed design varies from the illustrative general arrangement drawings, sensitivity testing would be carried out as required to demonstrate that the impact on the highway network is acceptable and that the alternative design would not result in greater significant effects than those assessed in the ES.
- 2.5.4. Local vehicular access to the Proposed Development will also be possible via Manor Road which will be realigned and upgraded to a dual carriageway between Amptill Road and the Marston Vale Railway Line.
- 2.5.5. A new dualled access road “Public Road A” will be built within the Core Zone parallel to the Marston Vale Railway Line. This will connect the new access from A421 to Manor Road.
- 2.5.6. A new access road “Public Road B” will be built within the Lake Zone connecting Manor Road to Amptill Road (B530).
- 2.5.7. Separate to the Proposed Development, Network Rail proposes to replace the Manor Road level crossing of the Marston Vale Railway Line with a grade separated crossing (i.e. a road bridge over the railway). It is not yet definite that the grade separated crossing will be delivered and therefore the Proposed Development includes three options to retain flexibility to adapt to Network Rail’s proposals:
- Option A includes elevated highways east of the Marston Vale Railway Line to tie in to the new grade separated crossing to be delivered by Network Rail;
 - Option B recognises that Network Rail may close the level crossing and Manor Road may be closed and instead provide an active travel bridge to connect the platforms at Kempston Hardwick Station. The Proposed Development would therefore provide active travel connections to the new active travel bridge, while the highways to east of the Marston Vale Railway Line would be delivered at grade; and
 - Option C recognises that the level crossing may be retained. This option therefore retains the at grade highway connection to the level crossing and provides a new active travel bridge over the Marston Vale Railway Line.
- 2.5.8. All new public roads provided as part of the Proposed Development will be in accordance with standards agreed with the overseeing highway authority.
- 2.5.9. Visitors and staff will also arrive at the Site via the following potential rail options:

- An expanded Wixams Station will be built on the Midland Main Railway Line within the Eastern Gateway Zone. This will be serviced by East Midlands Railway (EMR) and Thameslink trains currently operating on the line, which will in the future be able to stop at the expanded station. Shuttle buses will run between the Wixams Rail Station along Manor Road and into the Core Zone via Public Road A; and
- The Proposed Development safeguards an area of land for a new EWR Station on the Marston Vale Railway Line between the West Gateway Zone and Core Zone. Visitors arriving via the EWR Station would be provided direct access to the Core Zone as part of the design of the Station to ensure there is a safe, convenient and efficient means of separating modes of transportation between the Station and Core Zone from Public Road A. If the EWR Station does not come forward, it is assumed that the EWR line is completed from Oxford to Milton Keynes by Primary Opening Year and buses accommodate the demand for rail-based movement from Milton Keynes station to and from the Site.

2.6 SUPPORTING DESIGN STRATEGIES

- 2.6.1. A number of supporting design strategies have been prepared and form part of the Proposed Development and which have been assessed in this ES where relevant. In addition, the planning proposal includes **Design Standards (Document Reference 6.3.0)** which control the way in which the Proposed Development is delivered to secure a well-designed, high quality new urban environment for the ERC centred around the theme park and resort.
- 2.6.2. The landscaping strategy for the Proposed Development presented in **Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3)** has been developed in a manner meant to enhance the Site through the following measures:
- Creation of new landscape areas and enhancement of selected existing landscape areas which uplift the aesthetic quality of the Site and surrounding area;
 - Use of green infrastructure to contribute to local ecological networks, enhance biodiversity, improve the local microclimate and help to meet Forest of Marston Vale targets for tree coverage;
 - Use of landscape elements and planting mixes which tie in with and enhance local landscape character, including using native species of local provenance wherever possible;
 - Create dynamic landscapes internal to the park for the immersive experiences that UDX is known for worldwide;
 - Retention, protection, and enhancement of existing vegetation and landscape features, where practicable; and
 - Creation of new compensatory habitats of high ecological value.
- 2.6.3. The Site lighting will be consistent with delivering a well-designed, high quality new urban environment that is mindful of light spill and light sensitive fauna and flora. Lighting controls will be delivered by the **Design Standards (Document 6.3.0)**.
- 2.6.4. **Appendix 12.3: Drainage Strategy (Volume 3)** shows that both the West and East Gateway Zones have connections to nearby watercourses, controlled run-off rates and local attenuation. A combined approach to water run-off and storage has been taken in the drainage strategy for the Core and Lake Zones. This includes conveyance and storage in the Core Zone along its eastern and northern boundary, with an outflow under Manor Road into the Lake Zone. The Lake Zone includes water

treatment and storage volumes for both Core and Lake Zones, and a connection into Elstow Brook as well as proposals to enhance the existing lake features for attenuation and biodiversity enhancements.

- 2.6.5. An **Energy Statement (Document Reference 6.9.0)** has been prepared and outlines the energy strategy and efficiency measures required to be implemented for the Operational Phase of the Proposed Development. The Proposed Development will comprise a 'net zero' ready solution for heating and cooling, whilst design measures will reflect energy efficiency and sustainability objectives associated with Leadership in Energy and Environmental Design (LEED) Gold Certification, including reducing emissions, improving efficiency and incorporating clean energy sources. The energy strategy accords with zero-carbon and future building standards, demonstrating that energy efficiency and reduction in carbon emissions within the Proposed Development lifecycle is achievable and will be implemented.
- 2.6.6. A **Sustainability Statement (Document Reference 6.8.0)** has been prepared and outlines the sustainability measures to be reflected in the design of the Proposed Development, considering national and local policy requirements. The Proposed Development aims to achieve sustainability by following the LEED and UDX's own internal sustainability design standard for sustainability. UDX will focus on the following key areas for aspects of the Proposed Development:
- Site: Selecting sites with access to public transit and amenities and develop sites with minimal impact to local ecosystems;
 - Water: Conserving freshwater resources through reduction and recycling of non-potable water;
 - Energy: Reducing emissions, improving efficiency, and shifting to clean energy;
 - Materials: Prioritising circular, low-carbon, and healthy materials;
 - Waste: Strive to limit waste in facility construction and operations; and
 - Health and Wellbeing: Create healthy, vibrant spaces that promote wellbeing.
- 2.6.7. Additionally National Highways and Network Rail have sustainability strategies in place that would be applied to the aspects of the Proposed Development for which they are responsible. What reasonable alternatives have been considered?

3 WHAT REASONABLE ALTERNATIVES HAVE BEEN CONSIDERED?

3.1 OVERVIEW

- 3.1.1. The EIA Regulations require that an ES should include a description of the reasonable alternatives relevant to the Proposed Development, together with the principal reasons for proceeding with the option chosen, taking into account the environmental effects. Reasonable alternatives are not just alternative sites but could also be alternative design or configurations of the Proposed Development.
- 3.1.2. The reasonable alternatives considered in the ES are summarised below.

3.2 ALTERNATIVE SITES

- 3.2.1. Universal Destinations & Experiences (UDX) considered a range of potential sites, based on criteria which included:
- Good transport links for national and international visitors, including close proximity to an existing or potential railway station (Kempston Hardwick Station, Wixams Rail Station, EWR Rail Station), no more than a two hour drive from London and close to a motorway or a main A road;
 - Site size greater than 200 acres (80.94 hectares) in single ownership to facilitate the Proposed Development;
 - Relatively flat topography to reduce requirements for levelling/profiling needed to facilitate theme park development; and
 - A supportive Local Authority, including suitable local planning policy or allocation that might accommodate a theme park and resort.
- 3.2.2. The process followed by UDX included the following main phases to identify potentially feasible sites and thereafter refine this set of sites through increasingly detailed selection criteria:
- Identification of a long list of potential sites in the UK;
 - Refinement of this long list, driven mainly by the need for a suitable size, proximity to London and site availability;
 - Further refinement based on access and proximity to transport connections and shape and topography of potential sites; and
 - Consideration of technical and economic factors, and whether there were any major significant planning, legal or policy designations or constraints.
- 3.2.3. From an environmental perspective, consideration was given to the proximity of sensitive receptors, such as sites of ecological importance, the nature of the surrounding area, and previous site uses and land quality.
- 3.2.4. During the site selection process, it was recognised that a different developer has previously given consideration to the development of a major theme park (known as the London Resort) in Swanscombe, Kent, and submitted a Development Consent Order (DCO) application in 2020. The application for a DCO for the London Resort was withdrawn in 2022 following Natural England's intention to have the site designated as a Site of Special Scientific Interest. Given the ecological

interest and the designation of the site as a Site of Special Scientific Interest, the London Resort site was not considered as a viable alternative by UDX.

3.3 A421 JUNCTION DESIGN

- 3.3.1. The location of the Proposed Development was selected, in part, due to its sustainable transport links and proximity to the A421. An iterative approach to the design of the access from the A421 to the Proposed Development has been undertaken. The main options considered include the following:
- "Do Nothing" scenario;
 - New A421 Junction with construction of new access road across Marston Vale Railway Line, connecting into the north of Core Zone; and
 - New A421 Junction with construction of new access road across Marston Vale Railway Line, connecting into the south of the Core Zone.
- 3.3.2. An iterative approach was taken for the design of a new strategic access for the ERC from the A421 to the Core Zone. A range of options were considered in order to select an access solution that provided the best technical design whilst seeking to minimise negative environmental impacts where possible. A Do-Nothing approach and the construction of a new A421 Junction and access road providing access into the north of the Core Zone were discounted due to the potential for congestion, the potential requirement for additional land, potential removal of community woodland, and potential noise, air quality and visual impacts on existing businesses.
- 3.3.3. The selected new A421 Junction access option for the Proposed Development is a refined iteration of several options and comprises the provision of new A421 slip roads, a new access road and a junction on Woburn Road connecting into the south of the Core Zone. The land required for the new access road and new A421 Junction will not require the purchase of additional third party land, will not result in the loss of community woodland, provides the most direct route onto the A421 for traffic heading north and enables a more efficient exit onto the A421 for ERC visitors and staff heading south, thereby reducing potential impacts on the local road network, and it has the smallest overall footprint of any access option, reducing overall land take.

3.4 DRAINAGE DESIGN OPTIONS FOR THE CORE ZONE

- 3.4.1. An existing privately maintained watercourse in the form of a ditch crosses the Core Zone diagonally from the southeast corner (high point 33.36m above ordnance datum (AOD)) to the northwest corner (low point 32.50m AOD). The outflow from the ditch joins drainage swales along Manor Road.
- 3.4.2. Consideration was given to a number of options for the ditch within the sustainable drainage strategy including abandonment/stopping up, culverting, incorporating the ditch into Proposed Development and diversion of the ditch.
- 3.4.3. Considering the value of this watercourse not only for the drainage of the Proposed Development, but also for the neighbouring areas such as Stewartby and the Coronation Pits, diversion of the watercourse along the eastern boundary of the Core Zone was selected as the preferred option due mainly to it being shorter in length, shallower in depth whilst maintaining existing incoming drainage connections from the east. Its design can be incorporated within the Core Zone, whilst allowing the flexibility required to deliver the core elements of the Proposed Development. From an ecological

perspective, the selected watercourse diversion will provide a stable channel morphology which will support the development of new aquatic and riparian habitat.

3.5 EAST WEST RAIL STATION

- 3.5.1. The Proposed Development includes the safeguarding of land within the West Gateway Zone for a new EWR Station and the land would be brought forward for ERC development should the rail station not be brought forward.
- 3.5.2. Consideration was given to including the new EWR Station within this planning proposal. However, as the station would be delivered by East West Rail it was considered preferable for it to be consented separately.
- 3.5.3. As explained in **Chapter 3: Approach to EIA (Volume 1)**, to provide a conservative assessment that accords with the cautious worst case approach used throughout this ES, the EIA has considered the delivery of an EWR Station within the safeguarded land as an inherent part of the assessment. It is recognised that the non-delivery of the EWR Station may represent the cautious worst case scenario from a transport perspective for the assessment of effects during operation. As a result the assessment of transport-related effects, including of noise and air quality emissions from transport, has also been assessed through consideration of multiple scenarios, including the non-delivery of the EWR Station, as set out in **Chapter 3: Approach to EIA (Volume 1)**.
- 3.5.4. Should the EWR Station not be delivered then the safeguarded area would be brought forward as ERC. Such development would be of a comparable type and scale to the adjacent Proposed Development within the West Gateway Zone. It would also be subject, during both construction and operation, to the same controls and mitigation as that adjacent development. As such, the development of the safeguarded land as ERC would be unlikely to introduce new or different significant environmental effects to those reported in this ES.

3.6 SUMMARY

- 3.6.1. In summary, the environmental benefits of each option have been considered as part of the iterative design process. The overarching environmental benefits of the Proposed Development relate to its proximity to public transport options, the existing Site profile, and the Site extents able to accommodate a development of this size and scale.

4 WHAT ARE THE EXISTING CONDITIONS AT THE SITE AND THE SURROUNDING AREA?

4.1 LOCATION AND LAND USE

- 4.1.1. The Site (**Site Location Plan (Document Reference 1.6.0)**) is located in an area broadly defined on all four sides by existing road and rail infrastructure. The A421 passes from northeast to southwest along the western side of the Site, with local access provided by Woburn Road running in parallel on the A421's eastern edge. Ampthill Road runs from north-south to the eastern edge of the Site. Broadmead Road connects from Woburn Road, running west to east along the southern edge of the Site.
- 4.1.2. The Marston Vale Railway Line bounds the western edge of the Lake Zone and Core Zone and bisects the Site (north-south) between the Core Zone and West Gateway Zone. The Midland Main Railway Line runs from north-south to the east of the Site, parallel to and west of Ampthill Road.
- 4.1.3. Elstow Brook, a tributary of the Great River Ouse, follows the line of Marston Vale Railway Line along the western boundary of the Lake Zone, then diverges slightly to cross through the West Gateway Zone. Existing waterbodies bound the Site to the north, east and southeast, while warehouse units bound the Site to the northwest. To the west and south the Site is primarily surrounded by agricultural land and open fields.
- 4.1.4. The Site is situated in a semi-rural location, split by Manor Road which connects the village of Kempston Hardwick to Woburn Road on the west and Ampthill Road to the east. There are a small number of residential properties with direct frontage along Manor Road, in addition to the CEMEX Bedford Concrete Plant and BCA Bedford car auction site.
- 4.1.5. The Lake Zone (**Zonal Plan (Document Reference 1.8.0)**) is located to the north of Manor Road, part of which is a brownfield site whose former uses include brickworks, clay pits and an electrical substation. The Lake Zone also comprises an area of unused hard standing, associated with the former Kempston Hardwick Brickworks along with stockpiles of former demolition waste. The previous clay extraction pits are now either in-filled or flooded semi-permanent waterbodies. The Lake Zone also includes areas of grass scrub and arable farmland used to grow crops. The Core Zone, located to the south of Manor Road comprises primarily arable fields, hedgerows and drainage ditches.
- 4.1.6. Four public rights of way (PRoW) cross the Site as shown in **Annex 2: Active Travel – Existing of Appendix 5.1: Transport Assessment (Volume 3)**. One links the eastern end of Manor Road to Woburn Road, crossing the Core Zone and the Marston Vale Railway Line at a footpath level crossing near the centre of the Core Zone. A second PRoW runs from north to south through the Core Zone (and across the other PRoW) from Manor Road to Broadmead Road. The third and fourth PRoWs skirt the northeastern boundary of the Lake Zone following along field edges from Ampthill Road, meeting the field's edge to cross under the A421 adjacent to the Marston Vale Railway Line.

4.2 ENVIRONMENTAL CHARACTERISTICS

- 4.2.1. This section 4.2 provides an overview of the existing baseline conditions relative to the Site and surrounding area.

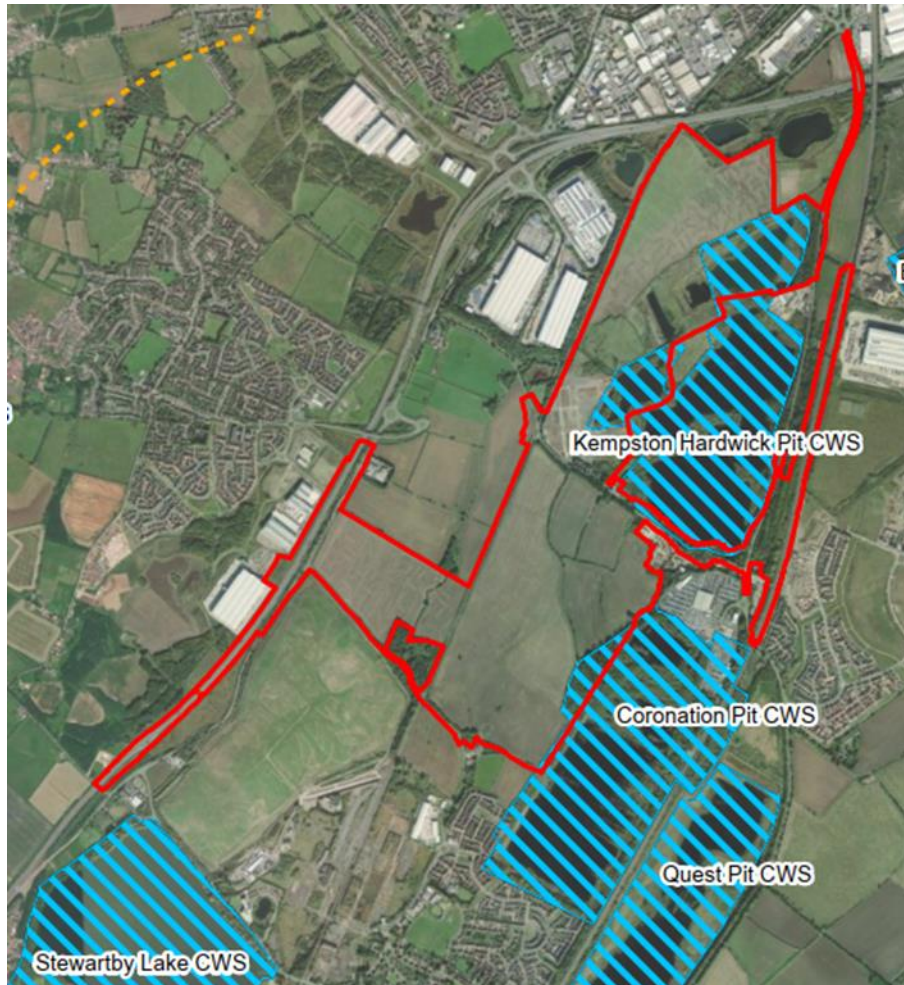
TRAFFIC AND TRANSPORT

- 4.2.2. The Site is well located in terms of rail access, including the Marston Vale Railway Line and the Midland Main Railway Line, as referred to above.
- 4.2.3. There is some walking and cycling infrastructure located in and around the Site, including the four existing PROWs referred to above. The existing bus network in the surrounding area connects the existing settlements to Bedford.
- 4.2.4. The road network in and around the Site provides several north-south and east-west links, connecting to the A421 and the strategic road network, including the M1 and A1. The A421/A428 Marsh Leys Interchange and the A421/A6 Elstow Interchange are the main current gateways available from the strategic road network to the Site.

ECOLOGY AND NATURE CONSERVATION

- 4.2.5. There are no Statutory Designated Sites of International importance (SACs, Special Protection Areas (SPAs); and Ramsar sites) located within 10km of the Site. The closest Statutory Designated Site of International Importance is Upper Nene Valley Gravel Pits SPA and Ramsar Site, which is located approximately 22km northwest from the Site. The closest SAC comprises Eversden and Wimpole Woods SAC, located approximately 29km from the Site.
- 4.2.6. There are no Statutory Designated Sites of National Importance (e.g. SSSIs) located within 2km of the Site. The nearest is Kings Wood and Glebe Meadows, Houghton Conquest SSSI located 2.3km southeast from the Site.
- 4.2.7. Ten non statutory designated sites are present within 2km of the Site. Of these, two County Wildlife Sites (CWS); Kempston Hardwick Pit CWS and Coronation Pit CWS, extend partially into the Site, with approximately 26.7ha and 5ha extending within the Site, respectively, as shown in **Image 4-1**.
- 4.2.8. Habitats of Conservation Importance present within the Site include areas of deciduous woodland, reedbed, standing open water, scrub, watercourses and open mosaic habitats. One veteran tree, a multi-stemmed willow (*Salix* sp.) is located within the Site. One Water Framework Directive (WFD)-designated water body, Elstow Brook (US Shortstown) and several lakes are also present within the Site boundary.
- 4.2.9. A UK Habitat survey was undertaken across the Site, which is a comprehensive approach to classifying habitats, and which was used to inform baseline ecological conditions within the Site boundary. A total of 22 UKHab habitat types are present of which seven types are HPIs. The majority of HPI recorded during the UKHAB survey are located within the Lake Zone, with some extents of woodland and hedgerows within the Core Zone.
- 4.2.10. The Site supports protected and notable species including badger, great crested newt, reptiles, roosting, foraging and commuting bats, transient otter, breeding and wintering birds, fish and terrestrial and aquatic invertebrates of conservation importance.

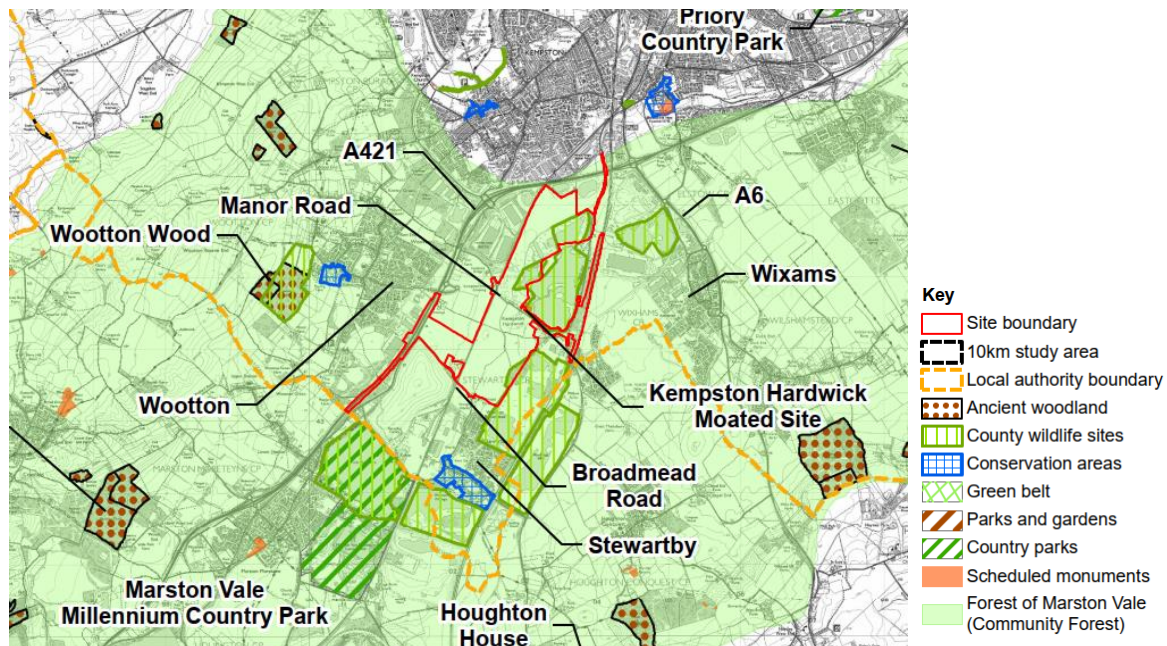
Image 4-1: Country Wildlife Sites Plan



LANDSCAPE AND VISUAL

- 4.2.11. There are no designated landscapes in the vicinity of the Site, the closest formally designated landscape is the Chilterns National Landscape which is approximately 12km to the south of the Site.
- 4.2.12. At a broad geographic scale the Site falls within National Character Area (NCA) 88: Bedfordshire and Cambridgeshire Claylands, whilst the southern part of the study area falls within NCA 90: Bedfordshire Greensand Ridge.
- 4.2.13. The Site is located within local Landscape Character Area (LCA) 5D: North Marston Clay Vale. There are several local designations within the context of the Site which, whilst not landscape designations, do contribute to the landscape value of the study area. These designations are shown in **Image 4-2** and include ancient woodlands, conservation areas, County Wildlife Sites, and registered parks and gardens, such as Amphill Park; a Grade II registered Park, which lies 3.8km south of the Site.

Image 4-2: Landscape Designations Plan



- 4.2.14. The topography in the immediate locality of the Site is generally low lying and flat, lying between approximately 30 and 35m AOD, however, there is a marked increase in levels towards the south and east as the land rises appreciably towards the Greensand Ridge where the highest point (within the study area for the landscape and visual assessment) is located at an approximate height of 120m AOD.
- 4.2.15. Vegetation within the immediate locality of the Site is characterised by arable fields separated by hedgerows, and ruderal vegetation adjoining the flooded clay pits. Blocks of planted woodland visually contain distribution centres, whilst several areas of ancient woodland are present within the study area.
- 4.2.16. There are several large distribution warehouses that form noticeable linear built forms within the landscape, and which are visible over a considerable distance, which to the north of the study area the land use becomes more developed with the urban areas of Kempston and Bedford. Elsewhere within the study area former developed land has been used for landfill sites, energy production and recreational open space.
- 4.2.17. The settlements of Bedford and Kempston form the main development however recent expansion of residential development is emerging within the study area, including some of the outlying villages. Ongoing development of warehousing and distribution centres within the landscape form prominent areas of development within the wider landscape.
- 4.2.18. The transport network is characterised by a strong road and rail network typically orientated north-south and which crosses or is immediately adjacent to the study area. The principal road route is the dual carriageway that forms the A421 (west of the study area) which joins the A6 to the north. There are two railway lines which extend across the study area from north-south. These are the Midland Main Railway Line and the Marston Vale Railway Line.

- 4.2.19. Several PROWs and cycle routes extend across much of the study area, including several promoted routes (The John Bunyan Trail/The Marston Vale Trail/The Greensand Ridge Walk/The Clay Way and National Cycle Network Route 5).
- 4.2.20. The highest levels of tranquillity occur within the south of study area, in the vicinity of the Greensand Ridge along with high levels also perceived around The Forest Centre and Millenium Country Park and in the southeastern part of the study area to the south of Wixams and east of the B530 road. The areas with lower levels of tranquillity are associated with larger settlements in the study area such as Wooton, Wixams and Shortstown and along major transport routes such as the A421, the Midland Main Railway Line and Marston Vale Railway Line.

AIR QUALITY

- 4.2.21. Air quality conditions within at and around the Site are generally considered to be good and improving. Neither Bedford Borough Council (Bedford BC) nor Central Bedfordshire Council have highlighted any air quality issues in the immediate vicinity of the Site.
- 4.2.22. The nearest Air Quality Management Areas (AQMA) are Bedford BC's Bedford Town Centre AQMA at approximately 2.3km to the north of the Site on the A5141 Ampthill Road (within the study area) that was declared by Bedford BC in 2009, and Central Bedfordshire Council's AQMA Ampthill No.3 at approximately 5km to the south of the Site on the B530 (not within the study area) that was declared by Central Bedfordshire Council in 2015.
- 4.2.23. Both AQMA were declared due to the air quality standard for annual mean nitrogen dioxide concentrations not being met due to road vehicle emissions. Over recent years, nitrogen dioxide concentrations within both councils' AQMA have improved. With regard to particulate matter (PM₁₀ and PM_{2.5}), Bedford BC has reported that concentrations meet - and are well below - current air quality standards.
- 4.2.24. It is expected that further improvements in air quality will be realised in future years as the proportion of ultra-low emissions road vehicles (including electric vehicles) increases, and that air quality standards will continue to be met.

NOISE ENVIRONMENT

- 4.2.25. A baseline noise survey was undertaken in March 2024 with further measurements made in February 2025 to establish the existing ambient and background noise levels on the Site and ascertain measurement positions representative of the nearest receptors to the Site.
- 4.2.26. It identified that the baseline noise climate on the Site is dominated by road traffic noise from the A421 to the north and west, with contributions from other sources including the local road network (B530, Manor Road, and Broadmead Road), rail movements on the Marston Vale Railway Line and Midland Main Railway Line, and industrial uses located around the Site.

CULTURAL HERITAGE AND ARCHAEOLOGY

- 4.2.27. The Site does not contain any nationally designated (protected) heritage assets, such as scheduled monuments, listed buildings, or registered parks and gardens. However, there are above ground heritage assets in the local area that are potentially impacted through changes to their setting. A 5km study area was defined using professional judgement, liaison and engagement with the Landscape team and statutory consultees, utilisation of the Zones of Theoretical Visibility (ZTV) and informed by the site visits.

- 4.2.28. The 5km study area is intended as a guide. A number of assets, including those of the highest grades (such as scheduled monuments, and Grade I and Grade II* listed buildings) beyond this study area were also included on a case-by-case basis where appropriate.
- 4.2.29. Kempston Hardwick moated site, which is a scheduled monument is located off Manor Road, just south of the Lake Zone. It is the closest designated heritage asset to the Proposed Development and is of high significance.
- 4.2.30. The settings of assets of the highest significance are considered in the assessment, including a group located on the Greensand Ridge at Ampthill which have views across the Marston Vale towards the Site. These assets include the scheduled and Grade I listed Ruins of Houghton House (scheduled as Houghton House: a 17th century mansion and associated courtyard and formal garden remains and listed Grade I as Ruins of Houghton House, Houghton Park), the scheduled Ampthill Castle, the Grade II* listed Park House, and the Ampthill Conservation Area (these are located at approximately 4 – 5km south of the Core Zone of the Site). There are also several Grade II listed buildings connected to these assets at Ampthill.
- 4.2.31. The Site lies in a low-lying area that was well settled in the past. Geophysical survey followed by archaeological trial trench evaluation has identified at least four discreet multi-phased Iron Age and Roman settlements within the Site. In the Core Zone, these lie beside a north-south trackway, within a network of smaller trackways and field systems that extend into the West Gateway Zone. The Lake Zone has evidence of further Iron Age and Roman settlement, along with cremation burials.
- 4.2.32. At the southern end of the Core Zone is the site of a medieval moat, which once enclosed a manor house. Much of the Site in the medieval and post-medieval periods was agricultural land, until the Kempston Hardwick brickworks was established in the southern part of the Lake Zone during the late 19th and 20th centuries.
- 4.2.33. A north-south hedgerow within the Core Zone which forms a historic parish boundary that may date from medieval times. It is historically important under *the Hedgerow Regulations 1997* and is of medium significance.

GROUND CONDITIONS, SOILS AND AGRICULTURAL LAND

- 4.2.34. Previous ground investigations undertaken in parts of the Site encountered varying depths of Made Ground across the Lake Zone up to a maximum thickness of 10 m. A significantly thinner layer of Made Ground (i.e. man-made ground) was encountered within the Core Zone and West Gateway Zone. The underlying natural geology includes Alluvium and Head Deposits. The underlying bedrock is present in the following sequence:
- The Peterborough Member (Oxford Clay Formation);
 - The Kellaways Formation;
 - The Cornbrash Formation;
 - The Forest Marble Formation;
 - The Blisworth Formation; and
 - The Rutland Formation
- 4.2.35. Groundwater bodies were recorded within the Made Ground and natural soils.

- 4.2.36. The hydrogeological assessment indicates that the Site contains a mix of aquifer types classified by the Environment Agency. The Site is not located in a designated groundwater Source Protection Zone (SPZ) and no active licensed groundwater abstractions are recorded within 500m of the Site.
- 4.2.37. There are no Regionally Important Geodiversity Sites located at the Site or within 250m of the Site boundary.
- 4.2.38. The Site is not located within a coal mining reporting area and no natural cavities or mining cavities, have been reported on-Site or within 250m of the Site.
- 4.2.39. Soils within the Site are predominantly slowly draining, clayey and loamy types with seasonal waterlogging, as identified by national soil mapping. Agricultural Land Classification (ALC) mapping indicates the presence of mostly Grade 3 land (good to moderate quality), with some potential for Best and Most Versatile (BMV) soils (Grade 3a and above) in limited areas, particularly in the Core Zone. A detailed ALC survey found that most of the surveyed land was non-BMV Grade 3b, with around 12 hectares of BMV land identified. Parts of the Site are currently in agricultural use, although some areas are classed as non-agricultural.
- 4.2.40. Potential ground stability hazards assessed by the British Geological Survey include shrink-swell clays and compressible deposits. The likelihood of running sands and landslides is low. Collapsible deposits present little hazard, while ground dissolution of soluble rocks is considered unlikely. Overall, the identified geohazards have no high-risk features.
- 4.2.41. A review of available data on radon confirms that the Site is in an area where less than 1% of properties are likely to exceed the Radon Action Level.
- 4.2.42. Historical and current waste records indicate past and present waste-related activities both on and near the Site. Historically, one landfill was located on-Site in a clay pit next to the former Kempston Hardwick Brickworks, accepting various types of waste including inert, industrial, commercial and household materials. Nearby, a former clay pit had three surrendered landfill licences from 1978, 1984, and 1986 for a range of waste types, including special and liquid sludge. Another record relates to the Elstow Brickworks. On-Site waste activity also included a 1996 planning application for a waste transfer station on Manor Road. Two similar off-site waste transfer station records from 1996 to 1997 were found in close proximity to the Site.
- 4.2.43. Currently, the Site hosts a licensed metal recycling facility for Japanese Car Breakers. Additionally, there are three records in close proximity to the Site.

WATER RESOURCES

- 4.2.44. There are a number of existing surface water features within the Site:
 - The Internal Drainage Board maintained watercourse, Elstow Brook, flows south-north through the east of the West Gateway Zone, leaving the Site at its northern boundary. It then continues to flow north, crossing Manor Road in a culvert to the west of the Site and then turns east to flow back towards the Site, entering via a culvert under the Marston Vale Railway Line on the western boundary of the Lake Zone. It then flows north directly adjacent to the rail line, before leaving the Site at the northern boundary.

- There are two tributaries of the Elstow Brook present within the Site. One unnamed tributary flows through the centre of the Core Zone, entering the Site at its southeastern boundary and then flowing north beneath Manor Road and discharging to the Claypits in the Lake Zone. The other flows west-east along the northern boundary of the West Gateway Zone and discharges to Elstow Brook within the Site.
- A further watercourse has been identified at the southern end of the East Gateway Zone, flowing east through a culvert under the Midland Main Railway Line.
- To the southeast, outside of the Site boundary, is the Coronation Pit, a former clay pit.
- There are two further clay pits to the south of the Lake Zone referred to as Kempston Hardwick Clay Pits (South) and are partially within the Site boundary.
- There are further clay pits located in the northern part of the site in the Lake Zone referred to as Kempston Hardwick Clay Pits (North). The westerly of the two pits is identified as an artificial lake and the northerly pit or series of interlinked pits are identified as disused pits.
- There are a further three waterbodies outside of the Site boundary to the north and west of the Lake Zone. The eastern most of these is a former Borrow Pit for the construction of the new A421 Junction

- 4.2.45. Based on the Environment Agency Flood Map for Planning, the majority of the Site is located in Flood Zone 1 (low probability of flooding). The Lake Zone has a small area in the northern periphery located in Flood Zone 2 (medium probability of flooding) and Flood Zone 3 (high probability of flooding). There are further areas of Flood Zone 2 and 3 adjacent to the Elstow Brook in the West Gateway Zone.
- 4.2.46. The Site is located within the catchment of Bedford Water Recycling Centre. There are no existing adopted surface water sewer or foul water sewer drainage networks serving the Site.
- 4.2.47. As the Site currently comprises of greenfield and redundant brickworks, there is no foul water demand from the Site on existing infrastructure.

SOCIO-ECONOMICS

- 4.2.48. The UK is projected to have a steady, but slow period of economic growth from 2024 to 2027. However, increased economic growth forms a key part of the new Labour Government's mandate.
- 4.2.49. The Site lies within a one-hour labour catchment that already supports a substantial and highly mobile construction workforce. The proportion of residents employed in construction is marginally above the national average, and sector apprenticeship provision is comparatively strong, indicating that most skills required for the build could be sourced locally. Professional forecasts nevertheless point to industry-wide recruitment pressure over the next five years, which may heighten competition for certain trades.
- 4.2.50. Hotel supply in the Core Socio-Economics Study Area is modest and typically well-occupied; peak demand from the construction phase could absorb a large share of the available rooms, with any shortfall met by the private-rented sector in the wider region. While rental stock appears sufficient in aggregate, increased demand is likely to place upward pressure on prices during peak periods.
- 4.2.51. Immediate neighbours to the Site comprise logistics depots, vehicle services and small retail units that depend on uninterrupted HGV access and predictable noise conditions.

- 4.2.52. Emergency and health services presently operate at, or slightly below, national capacity benchmarks; A&E performance tracks the England average; fire-service response times align with national norms; and police officer provision is below the national ratio.
- 4.2.53. At the national scale, the UK lacks a theme park of global attendance ranking, and market analyses highlight both robust growth in the international attractions sector and increasing domestic demand for large-scale leisure experiences. This leaves a strategic gap that a high-calibre destination resort could occupy without materially displacing existing operators. Tourism and leisure already make a significant contribution to the regional economy.
- 4.2.54. Residents in the Core Study Area exhibit strong labour-market fundamentals. Participation is high, employment exceeds national norms and both unemployment and out-of-work benefit claimant levels sit below the national profile. Median earnings outpace the England average, indicating comparatively well-remunerated local jobs. While only a small share of the economically inactive actively seek work, continuing population growth is steadily enlarging the labour pool, suggesting headroom for future employment expansion.

MAJOR ACCIDENTS AND DISASTERS

- 4.2.55. There is one lower tier Control of Major Accident Hazards (COMAH) site within a 5km radius of the Site: Stewartby Waste Management Site operated by Veolia ES (UK) Limited. This site is located approximately 730m southeast of the closest point of the Site boundary along the A421 and approximately 1km southwest of the Core Zone. The consultation zones associated with this facility do not overlap the Site boundary.
- 4.2.56. The Health and Safety Executive's (HSE) Land Use Planning tool also indicates that there is a consultation zone associated with a chilled distribution centre which overlaps the Site boundary in the northwest of the Lake Zone.
- 4.2.57. There are four working aerodromes within 15km of the Site boundary, as follows:
 - Cranfield Airport (licenced aerodrome) is located approximately 5.7km west of the closest point of the Site boundary;
 - Old Warden Aerodrome (licenced aerodrome) is located approximately 11.3km east of the closest point of the Site boundary;
 - Meppershall Airfield (non-licensed airfield) is located approximately 11.4km southeast of the closest point of the Site boundary; and
 - Sandy Airfield (non-licensed airfield) is located approximately 12km east of the closest point of the Site boundary.
- 4.2.58. Of the identified airfields, the CAA recommended that engagement was undertaken with Cranfield Airport and Old Warden aerodrome as both are licensed and could potentially be affected by the Proposed Development.

POPULATION AND HUMAN HEALTH

- 4.2.59. Areas in the Local Area have a younger population than is recorded across comparator geographies. The Local Area also includes a settled Gypsy and Traveller population.

- 4.2.60. Overall life expectancy and most core health indicators match or exceed national patterns, yet notable areas of concern for Bedford or Central Bedfordshire include smoking, low physical activity and occasions of self-harm and violence admissions.
- 4.2.61. Primary care is under strain as the patient list per general practitioner already exceeds accepted planning benchmarks, and hospital emergency departments have missed national performance targets.
- 4.2.62. The wider Bedford and Central Bedfordshire area is projected to grow steadily over the coming decades and to age in the process.
- 4.2.63. GP and hospital services are expected to face continuing pressure from population growth.
- 4.2.64. General health outcomes are likely to remain broadly favourable.

5 HOW WILL CONSTRUCTION TAKE PLACE?

5.1 OVERVIEW

- 5.1.1. The Proposed Development will be delivered in two main phases as noted in Section 2.2 above, the Primary Phase and the Full Buildout.
- 5.1.2. The construction access arrangements during the Primary Phase are presented in **Annex 3: Construction Access and Phasing** of **Appendix 2.3: Outline Construction and Environmental Management Plan (OCEMP) (Volume 3)**.

5.2 CONSTRUCTION MANAGEMENT

- 5.2.1. Areas of construction will be secured (for security and public safety).
- 5.2.2. The following working hours will be adhered to during the construction of the Proposed Development:
 - 07:00 – 19:00 (Monday to Friday);
 - 07:00 – 13:00 (Saturday); and
 - No Sunday, Bank Holiday or Public Holiday working unless by prior approval for specific works.
- 5.2.3. The first hour of any working day (07:00 – 08:00) is to consist of mobilisation works to include, but not limited to, deliveries, movement to place of work, unloading, maintenance and general preparation works.
- 5.2.4. Certain construction activities may require extended working hours for reasons of engineering practicability, weather and safety such as major concrete pours and piling, surveys, lifting/fitting of infrastructure and equipment, and abnormal deliveries. The nature and timing of these works and the associated extended working hours will be agreed ahead of time by the Principal Contractor(s) and notified to with Bedford BC and relevant stakeholders.

5.3 ENVIRONMENTAL MANAGEMENT

- 5.3.1. An OCEMP has been produced which identifies the main environmental mitigation measures associated with the Construction Phase of the Proposed Development, as presented in the **Appendix 2.3: OCEMP (Volume 3)**.
- 5.3.2. The Principal Contractor(s), responsible for delivery of the Proposed Development, will prepare detailed CEMPs which will take account of the measures outlined within **Appendix 2.3: OCEMP (Volume 3)**. It is anticipated that the detailed CEMPs will be reviewed and updated on a regular basis throughout the Construction Phase as new environmental mitigation measures are potentially required and new environmental legislation comes into force.

6 WHAT IS THE APPROACH TO UNDERTAKING AN EIA?

6.1 INTRODUCTION

- 6.1.1. Environmental effects have been assessed using best practice guidance and appropriate standards or limits. In the absence of relevant standards, professional judgement by technical specialists has also been used where appropriate. To carry out these assessments, study areas relating to specific environmental topics have been defined/justified in the relevant environmental topic chapters of the ES. Likely significant effects as a result of the Proposed Development are described in each of the ES chapters, in relation to the changes from the existing environmental characteristics and conditions (baseline environment) within the Site and/or relevant study areas.

6.2 ENGAGEMENT

- 6.2.1. As part of the EIA process, technical engagement has been undertaken with a range of Governmental and other consultation bodies, which is referred to further in each of the technical ES chapters where relevant. In addition, where useful, Summaries of Agreed Position (SoAP) have been prepared that set out matters that have been agreed between the parties covering matters such as use of models and datasets, assessment methodology, and proposed mitigation. These documents are provided in **Appendix 4 to the Planning Statement (Document Reference 6.1.0)**. Meetings were held with Officers from Bedford BC, Central Bedfordshire Council, Milton Keynes Borough Council and Luton Council, representatives from business and education groups, emergency services, religious groups and community and voluntary organisations, councillors and the gypsy and traveller community. A period of public engagement was undertaken from 8 April to 3 May 2024. During this time, two public engagement events were held locally inviting comments on particular aspects of the Proposed Development, as well as inviting general comments on the proposals. Key statutory bodies including the Department for Transport and National Highways were also engaged with from Autumn 2023 through Spring 2024.
- 6.2.2. A formal EIA scoping opinion has not been sought for the Proposed Development. The scope of the EIA has been informed by the responses and comments received during the 30-day engagement period and as a result of the technical engagement with various bodies as described above. The scope of the EIA has also been informed by UDX's extensive experience constructing and operating ERCs globally, thereby leading to a strong understanding of the areas of likely interest for development of this nature.

6.3 APPROACH TO THE ASSESSMENT OF THE PROPOSED DEVELOPMENT

- 6.3.1. The assessments presented in the ES are based on an assessment of a cautious worst case scenario (which provides a robust assessment of likely significant effects) arising from the Proposed Development parameters described in the ES.
- 6.3.2. Various methodologies have been applied to determine the likelihood for significant environmental effects as a result of the Construction and Operational Phases of the Proposed Development. The methodologies are provided in the technical chapters in the ES (**Chapters 5 to 18**) and in **Appendix 3.2: Significance Criteria for All ES Technical Topics (Volume 3)**.

BASELINE SCENARIOS

- 6.3.3. The approach to establishing baseline conditions is set out in the relevant environmental topic chapters. The baseline environment comprises the prevailing existing environmental characteristics and conditions of the Site, based upon site visits and desk-based studies.
- 6.3.4. Future baseline conditions have been used in the assessment of future effects. These refer to the description of the likely evolution of the baseline scenario without the implementation of the Proposed Development, as far as natural changes from the baseline scenario can be assessed with reasonable effort and on the basis of available environmental information and scientific knowledge.

ASSESSMENT SCENARIOS

- 6.3.5. The ES considers both construction (including demolition) and operation. The assessments are based on various construction scenarios (i.e. years and assumptions) including a Peak Construction Year assumed to be in 2029. For the operational years for assessment, these are considered to be the completion of the Primary Phase (2031) and Full Buildout (2051). A range of traffic scenarios have been modelled to identify the likely traffic-related effects of the Proposed Development. This includes responding to the current uncertainty about the timing for future phases of EWR between Bletchley/Milton Keynes and Cambridge with certain traffic modelled scenarios not including the operation of the new EWR Station in the West Gateway Zone.

CAUTIOUS WORST CASE SCENARIO FOR ASSESSMENT

- 6.3.6. The assessments are based on an assessment of the cautious worst case scenario (see **Appendix 2.1: Environmental Statement Basis of Assessment (Volume 3)**) arising from the Proposed Development parameters. By assessing parameters that describe the maximum extents of the Proposed Development and worst case scenarios, a precautionary approach is taken in the ES with regards to identification of likely environmental effects and the corresponding mitigation measures. Each of the topic chapters identify how the cautious worst case scenario has been identified for that topic.

ASSESSMENT CRITERIA

- 6.3.7. The assessment of effects considers effects during demolition, construction and operation. Several criteria are used to determine if the potential effects of the Proposed Development are 'significant'. The effects are assessed quantitatively wherever possible.
- 6.3.8. In general, the significance level attributed to each assessed effect is based on the magnitude of change as a result of the Proposed Development and the sensitivity or value of the affected environmental receptor receiving the change. Residual effects (the environmental effects which remain after all mitigation measures are implemented) have been identified. **Table 6-1** sets out the general matrix used to determine the significance of the effects, although some environmental topics have used different terminology or methodology to determine significance of effect to accord with topic specific guidance (see **Appendix 3.2: Significance Criteria for All ES Technical Topics (Volume 3)**).

Table 6-1 – Matrix for Classifying Effects

		Value/Sensitivity			
		High	Medium	Low	Negligible
Magnitude of change	High	Major	Moderate to Major	Minor to Moderate	Negligible
	Medium	Moderate to Major	Moderate	Minor	Negligible
	Low	Minor to Moderate	Minor	Negligible to Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible
	No change	No change	No change	No change	No change

- 6.3.9. The terms used within **Table 6-1** have been defined below, applying to both beneficial and adverse effects:
- **Major Positive or Adverse effect** – where the Proposed Development would cause a large improvement (or deterioration) to the existing environment;
 - **Moderate Positive or Adverse effect** – where the Proposed Development would cause a noticeable improvement (or deterioration) to the existing environment;
 - **Minor Positive or Adverse effect** – where the Proposed Development would cause a small improvement (or deterioration) to the existing environment; and
 - **Negligible** – no discernible improvement or deterioration to the existing environment as a result of the development.
- 6.3.10. Effects described as **Moderate** or **Major (Positive or Adverse)** are generally deemed to be **Significant** for this assessment. Effects that are **Minor (Positive or Adverse)**, or **Negligible**, are considered **Not Significant**. **Chapter 19: Summary of Residual Likely Significant Effects (Volume 1)** sets out all of the likely significant effects allowing for mitigation.
- 6.3.11. Some topics differ from the criteria provided above, such as Climate Resilience where in some cases a **Moderate** effect can be deemed **Not Significant** and the Landscape and Visual assessment uses **Slight** and **Large** to describe effects (this is also the case for the Ground Conditions and Water assessments), please see **Appendix 3.2: Significance Criteria for All ES Technical Topics (Volume 3)** where further detail on these criteria is provided.
- 6.3.12. A distinction is made between direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and adverse effects of the Proposed Development as appropriate.

APPROACH TO MITIGATION

- 6.3.13. Where likely significant adverse effects have been identified in the assessments, measures (mitigation measures) to avoid, prevent or reduce and, if feasible, offset these likely significant adverse effects on the environment are described.

APPROACH TO CUMULATIVE ASSESSMENT

- 6.3.14. The ES also reports the likely significant cumulative effects of the Proposed Development. These comprise effect interactions with other identified Committed Developments (as set out in **Chapter 18: Cumulative Effects (Volume 1)**) and In-combination effects which relate to effects arising from a number of topic assessments affecting the same receptor (as set out in relevant ES topic chapters).

7 WHAT MITIGATION AND MONITORING IS REQUIRED TO REDUCE ENVIRONMENTAL EFFECTS?

- 7.1.1. The ES sets out the proposed mitigation, monitoring or other measures to prevent, minimise and/or offset the effects of the Proposed Development, as well as the proposed delivery mechanism. Key mitigation and control measures are summarised in the sections below.
- 7.1.2. In general, the construction mitigations measures are set out in **Appendix 2.3: OCEMP (Volume 3)**. Specific mitigation measures are also detailed in various plans, strategies and agreement(s), and those relevant to specific topics are provided in each topic section below.

7.2 KEY MITIGATION AND CONTROL MEASURES

TRAFFIC AND TRANSPORT

Construction

- 7.2.1. Key mitigations include those related to the careful consideration and control of construction access, vehicle routing, signalisation of junctions and impact on level crossings.
- 7.2.2. Physical works are embedded mitigation measures and are part of the design of the Proposed Development. Non-physical works (i.e management measures and routing) are set out within **Appendix 2.3: OCEMP (Volume 3)**. These are summarised below:
 - An Outline Construction Environmental Management Plan (OCEMP) (**Appendix 2.3: Outline Construction Environmental Management Plan (OCEMP) (Volume 3)**) forms part of the Proposed Development's management documents. Section 3.3 of **Appendix 2.3: Outline Construction Environmental Management Plan (Volume 3)** includes an Outline Construction Traffic Management Plan (OCTMP), while the OCEMP also sets out the phasing and strategy, the management measures, the monitoring approach and the compliance structure, and includes the proposed routing strategy using the SRN and avoiding local roads where possible;
 - Creation of a direct construction access from Broadmead Road via Woburn Road; and
 - The junction of Broadmead Road and Woburn Road/Bedford Road will be signalised when required.

Operation

- 7.2.3. Key mitigations include those related to vehicle access arrangements, active travel connections, public transport, car parking and travel planning. Physical works are embedded mitigation measures and are part of the design of the Proposed Development.
- 7.2.4. These are summarised below:
 - A new A421 Junction - A new road junction on the A421, including a new eastbound off slip into the Site, a new westbound off slip into the Site and a new westbound on slip away from the Site; and
 - Public Road A, and Public Road B, segments 1 and 2 as shown in **Parameter Plan – Access and Roadways (Document Reference 1.11.0)**.

- Manor Road improvements - Realigned and upgraded Manor Road to a dual carriageway access road between Amphill Road and the Marston Vale Railway Line;
- Broadmead Road Junction Signalisation - The junction of Broadmead Road and Woburn Road/Bedford Road will be signalised as part of the works associated with creating the new A421 Junction. The form and location of the works, while similar in nature to those during the Construction Phase, are slightly different as the tie-in between Woburn Road/Bedford Road and Broadmead Road changes as a result of the new A421 Junction
- Pedestrian and cycle routes as shown on the **Parameter Plan – Active Travel (Document Reference 1.12.0)**;
- Rail services to a Full Wixams Rail Station, a new west-facing plaza and last-mile connection to the Proposed Development;
- Shuttle buses between Milton Keynes Rail Station and the Site as set out in **Appendix 5.6: Travel Plan (Volume 3)**;

7.2.5. Non-physical works (i.e management measures) are controlled by the planning conditions related to the **Travel Plan (Appendix 5.6 Volume 3)**.

ECOLOGY AND NATURE CONSERVATION

Construction

7.2.6. Key mitigation and control measures include:

- Pre-construction surveys/checks;
- Early implementation of landscape proposals;
- Retention and creation of a minimum of 49.3ha of habitats including within Ecological Enhancement Areas (EEAs) across the Site;
- Establishing protected zones for ecology during construction;
- Obtaining protected species licences including a District Level Licence (DLL) for great crested newts and site specific licences from Natural England for bats and badger including mitigation measures for these species;
- Ecological Clerk of Works supervision and monitoring during construction; and
- Construction of widespan crossing of Elstow Brook and ecological connections between EEAs and habitat outside the Site.

7.2.7. Construction measures are detailed within **Appendix 2.3: OCEMP (Volume 3)**, **Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3)**, **Appendix 12.3: Drainage Strategy (Volume 3)**, **Appendix C: Tree Removal and Protection Plan** of the **Arboricultural Impact Assessment Report (Document Reference 6.11.0)**, **Appendix D: Outline Arboricultural Method Statement** of the **Arboricultural Impact Assessment Report (Document Reference 6.11.0)** and the **Design Standards (Document Reference 6.3.0)**.

7.2.8. As part of the overall package of mitigation measures proposed it is likely that some capture and translocation/relocation of protected species will (or may) be required. Some limited translocation/relocation of habitat features within the Site may also occur. **Table 7-1** below identifies the habitats, species or species groups that may require relocating.

Table 7-1 – Translocation/Relocation Requirements

Habitat, Species or Species Group	Expected Relocation Requirements	Notes
Hedgerow habitats	Existing hedgerows within the Site that would otherwise be lost to development may be translocated to areas of the Site where hedgerow habitats are proposed within EEA, rather than planting new hedgerows in these locations. This would be subject to detailed assessment to confirm it was a viable and suitable alternative to new planting.	See Section 3.4 of Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3) for further details.
Reedbed habitats	Areas of existing reedbed may be used to 'seed' areas of newly proposed reedbed habitats within the EEA. This would be subject to detailed assessment to confirm it was a viable and suitable alternative to new planting.	See Section 3.4 of Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3) for further details.
Fish	Should any part of a watercourse or waterbody need to be impounded, a fish relocation exercise may be required. Any captured fish are expected to be relocated to retained areas of suitable aquatic habitat within the Site.	See Section 3.2 of Appendix 2.3: OCEMP (Volume 3) for further details. Any fish relocation exercise would require a permit from the Environment Agency.
Great Crested Newts	Great crested newts will need to be relocated from parts of the Site that would be subject to development. Any captured great crested newts would be released into suitable habitats within the EEA.	See Section 3.2 of Appendix 2.3: OCEMP (Volume 3) for further details. Capture and relocation of great crested newts is a requirement of the District Level Licence for great crested newts, which UDX intend to sign up to, to provide mitigation for effects on great crested newts.
Reptiles	Reptiles will need to be relocated from parts of the Site that would be subject to development. Any captured reptiles would be released into suitable habitats within the EEA.	See Section 3.2 of Appendix 2.3: OCEMP (Volume 3) for further details.
Bats	Some existing bat roosts are expected to be removed to enable the Proposed Development to be built. Bats are not expected to be captured and relocated as part of the Proposed Development, as it is preferred to allow bats to leave existing roosts themselves prior to these being removed. If this is not fully effective as a mitigation technique, it may be necessary for small numbers of bats to be captured by hand and relocated to replacement roosts to be provided within the EEA.	See Section 3.2 of Appendix 2.3: OCEMP (Volume 3) for further details. Any capture and relocation of bats would need to be carried out under a site-specific protected species licence, to be obtained from Natural England.

Operation

- 7.2.9. Key mitigation and control measures include the management of retained and created habitats within the EEA. In particular, the lake and watercourse areas will be managed to provide enhanced wetland habitats, benefitting wetland bird species, otters, aquatic invertebrate and fish populations. Other specialist habitat features such as reptile hibernation sites and basking banks, invertebrate hotels, bat and bird boxes, sensitive lighting, dark corridors for bats, wildlife fencing and connectivity features such as wildlife underpasses and the wide-span crossing of Elstow Brook will also be constructed and maintained. Measures to control populations of American mink (an invasive non-native species) on the Site will also be implemented. Operational measures are detailed within **Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3)**, **Appendix 6.5: Outline Landscape and Ecology Management Plan (Volume 3)**, **Appendix 12.3: Drainage Strategy (Volume 3)** and the **Design Standards (Document Reference 6.3.0)**.

Overlap with other Regimes

- 7.2.10. In some cases, other ecologically-driven consenting regimes are relevant to ecological features predicted to be affected by the Proposed Development. A summary of these is provided in **Table 7-2**, below. It is intended that the Proposed Development would comply with the legislation/regimes referred to.

Table 7-2 – Overlaps With Other Regimes

Consenting Regime	Relevant Ecological Features	Consenting Regime Interaction with Proposed Development ¹
Bedfordshire District Level Licensing	Great Crested Newts	Aspects of the Proposed Development are predicted to lead to effects on great crested newts. These may also incidentally result in contraventions of the legislation protecting great crested newts. District Licensing is a Natural-England approved protected species licensing system. Licences are held by local planning authorities instead of individual developers. Individual developments can use the DLL system to mitigate impacts on great crested newts at a strategic level. Reliance on the DLL can be secured by providing a financial contribution and, where required by the DLL, delivering limited on-site mitigation. UDX intends to use the Bedfordshire District Level Licence scheme to provide mitigation for effects on great crested newts. NatureSpace Partnership Ltd, are the Delivery Partner for the Bedfordshire DLL, administering it on behalf of Bedford Borough Council. NatureSpace Partnership has issued a letter of no impediment (see Appendix 6.19: Letters of Comfort - Protected Species Licensing (Volume 3)) stating that they see '...no impediment to licence coverage, should the SDO be granted'.

¹ This column provides a high level overview of relevant consenting regimes only, the up to date underpinning legal provisions and regimes should be referred to as required.

Consenting Regime	Relevant Ecological Features	Consenting Regime Interaction with Proposed Development ¹
Site-specific protected species licencing	Bats Badgers	Aspects of the Proposed Development are predicted to lead to effects on bats and badgers. These may also incidentally result in contraventions of the legislation protecting bats and badgers. Development projects can apply to Natural England, the statutory nature conservation body for England, for protected species licences than enable a derogation of the legislation protecting these species. Licences are granted by Natural England subject to certain conditions, including the delivery of suitable mitigation by the development, being met. UDX intends to secure protected species licences for bats and badgers, to enable a derogation of the legislation protecting these species. Natural England has issued letters of no impediment (see Appendix 6.19: Letters of Comfort - Protected Species Licensing (Volume 3)) for bats and badgers, identifying that they see no impediment to the issuing of the relevant protected species licences.
Fish rescue permit	Fish	Should any part of a watercourse or waterbody need to be impounded, a fish relocation exercise may be required. Any fish relocation exercise would require a permit from the Environment Agency. In the event of a fish rescue permit operation being required for the Proposed Development, an application for a permit would be submitted to the Environment Agency. Any fish rescue would be carried out in accordance with the granted permit.

LANDSCAPE AND VISUAL

Construction

- 7.2.11. Key mitigation and control measures include pre-construction checks, early implementation of landscape proposals, housekeeping measures to maintain tidiness of the construction site, strategic use of hoarding to screen views for neighbouring residents and the protection and retention of existing landscape vegetation at certain locations. These construction mitigation measures are detailed within **Appendix 2.3: OCEMP (Volume 3)**.

Operation

- 7.2.12. Key mitigation and control measures include early implementation of landscape proposals, tree planting, use of mitigation planting or alternative visual screening, retaining vegetation at certain locations, long term management of planting including weed control, grassland/hedgerow maintenance and woodland management, these measures are set out in **Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3)**, **Appendix 6.5: Outline Landscape and Ecology Management Plan (Volume 3)** and the **Design Standards (Document Reference 6.3.0)**.

- 7.2.13. In addition to the above, the Proposed Development will adopt an Open Sky Concept Articulated Skyline standard, which will comprise differentiating buildings heights, a varied architectural style, spacing and setbacks which will break up the mass of the buildings to create a varied skyline. This will be controlled by defining maximum building heights according to the location and percentage of land area, as set out in the **Design Standards (Document 6.3.0)**.

AIR QUALITY

Construction

- 7.2.14. Key mitigation and control measures include best practicable means to limit construction dust emissions following industry best practice, and strategically controlled vehicle routing to minimise emissions from heavy vehicle movements, manage and regulate traffic by a delivery management system. These measures are set out in **Appendix 2.3: OCEMP (Volume 3)**.

Operation

- 7.2.15. No mitigation is required in the Operational Phase. Any mitigation measures required for impacts on ecological receptors due to traffic emissions are identified in the Ecology and Nature Conservation section of Section 7.2 above.

NOISE AND VIBRATION

Construction

- 7.2.16. Key mitigation and control measures include best practicable means to limit construction noise and vibration (for example, by the use of silencers and localised acoustic screens where appropriate, shutting down items of plant when not in use and by the careful selection of construction methods that generate lower noise and vibration levels than traditional methods, where it is reasonably practicable to do so), strategically controlled vehicle routing to minimise heavy vehicle movements, manage and regulate traffic by a delivery management system. These construction measures are set out in **Appendix 2.3: OCEMP (Volume 3)**.

Operation

- 7.2.17. In order to provide confidence regarding future noise levels generated by the development when operational, UDX will commit to specific maximum allowable noise limits from the Core Zone at designated Receptor Control Locations. UDX advises that these limits are practical and achievable and in line with noise levels achieved at existing UDX theme parks. Evidence in the form of community noise monitoring data has been provided to support this. Mitigation measures have been proposed and will be implemented where necessary to control noise to the proposed limits and these include undertaking a predictive noise assessment for the significant noise generating attractions and events, utilising buildings around the theme park as noise screens, and designing roller coasters to project noise into the park rather than into the community. These measures are set out in **Appendix 9.5: Demonstration of Compliance with Operational Phase Noise Limits (Volume 3)** and the **Design Standards (Document Reference 6.3.0)**.

CULTURAL HERITAGE AND ARCHAEOLOGY

Construction

- 7.2.18. Key mitigations comprise archaeological excavation and recording prior to construction activities to achieve preservation by record, along with construction lighting control measures. These measures are detailed within **Appendix 2.3: OCEMP (Volume 3)** and **Appendix 10.3: Archaeological Mitigation Strategy (Volume 3)**.

Operation

- 7.2.19. Key mitigations include those related to minimising disturbance to receptors from noise, vibration and lighting. These measures are set out in **Appendix 9.5: Demonstration of Compliance with Operational Phase Noise Limits (Volume 3)** and the **Design Standards (Document Reference 6.3.0)**.

GROUND CONDITIONS, SOILS AND AGRICULTURAL LAND

Construction

- 7.2.20. Key mitigation and control measures include those related to managing dust and protection of surface water, groundwater and soils. Further ground investigation and risk assessments including Materials Management Plan, Piling Risk Assessment, Soil Resource Survey and Soil Management Plan would be undertaken prior to construction works as detailed in **Appendix 2.3: OCEMP (Volume 3)** and **Appendix 11.4: Outline Land Remediation Strategy (Volume 3)**.

Operation

- 7.2.21. No mitigation is required in Operational Phase.

WATER RESOURCES

Construction

- 7.2.22. Key mitigation and control measures include those related to managing the water environment. The relocated watercourse in the Core Zone will be designed through engagement with the Internal Drainage Board and Environment Agency. Anglian Water will be engaged with on the necessary connections for potable and foul water during the Construction Phase. These measures are detailed in **Appendix 2.3: OCEMP (Volume 3)**, **Appendix 12.1: Flood Risk Assessment (Volume 3)** and **Appendix 12.3: Drainage Strategy (Volume 3)**.

Operation

- 7.2.23. Key mitigation and control measures include the implementation of the Surface Water Strategy, rainwater harvesting, use of water efficient fittings and appliances, use of more water efficient systems (local closed-loop system) in water features and attractions.
- 7.2.24. Implementation of the Surface Water Strategy includes the following measures:
- Capturing Core Zone surface water run-off within the Core Zone Watercourse, which will be diverted and enhanced, where flows will be directed to;
 - The Kempston Hardwick Clay Pits (North) where flows from the Core and Lake Zones will be attenuated and stored – the Pits will carefully reprofiled and enhanced to provide pollutant control and a supporting environment, encouraging biodiversity and self-sustaining resilient ecosystems.

- Flows will then be discharged either; to the water processing and collection plant and provide process water for the Proposed Development; or at times when the water processing and collection plant does not require inflows, discharge to the Kempston Hardwick Clay Pits (North) - artificial lake or Elstow Brook at a flow rate not exceeding existing runoff rates.
- Run-off in the East and West Gateway Zones will be stored and discharged to existing watercourses at a flow rate not exceeding existing runoff rates, with upstream SuDS for pollution control where required.

7.2.25. These measures are detailed in **Appendix 12.1: Flood Risk Assessment (Volume 3)** and **Appendix 12.3: Drainage Strategy (Volume 3)**.

SOCIO-ECONOMICS

Construction

7.2.26. Key mitigation and control measures include the implementation of **Employment and Skills Plan (Document Reference 6.12.0)**, **Security and Emergency Management Plan (Document Ref 6.4.2.0)**, **Appendix 13.1: Temporary Workforce Accommodation Strategy (Volume 3)**, traffic arrangements to minimise heavy vehicle movements and best practicable means to minimise noise and vibration with measures detailed in **Appendix 2.3: OCEMP (Volume 3)**.

Operation

7.2.27. Key mitigation and control measures are included within the **Employment and Skills Plan (Document Reference 6.12.0)** and the **Security and Emergency Management Plan (Document Ref 6.4.2.0)**.

GREENHOUSE GASES

Construction

- 7.2.28. Key mitigation measures to reduce GHG emissions arising from the Construction Phase of the Proposed Development and provide consistency with the UK's trajectory towards net zero are identified below. The mitigation measures will be secured through verification by relevant independent third-party certification bodies accredited to provide assessment of compliance with the PAS 2080:2023 standard and LEED certification.
- UDX will apply the PAS 2080:2023 standard for carbon management in buildings and infrastructure, as a basis for design optimisation and establishing metrics and targets for carbon reduction during the Construction Phase, incorporating UDX's LEED certification goals for the applicable components of the Proposed Development for which UDX is the Undertaker (more information on the LEED approach is given in Section 2.6 of **Chapter 2: Description of the Proposed Development (Volume 1)** and measures identified in **Appendix 14.1: Carbon Management Plan (Volume 3)**. This will be secured through the development of Carbon Management Reports produced at each project Stage summarising the carbon management process adhered to through that stage of work. More information on reporting requirements is provided in **Appendix 14.1: Carbon Management Plan (Volume 3)**.

- UDX will use procurement mechanisms through PAS 2080:2023 (and UDX's LEED certification process relevant to the applicable components of the Proposed Development for which UDX is the Undertaker) to include carbon management as a differentiating factor through the supply chain. Procurement documentation will identify that materials and products with reduced embodied carbon emissions and materials/resources featuring recycled content are preferred (where safe and of sufficient integrity for engineering).

Operation

7.2.29. Key mitigation measures to reduce GHG emissions arising from the Operational Phase of the Proposed Development and provide consistency with the UK's trajectory towards net zero are identified below. The mitigation measures will be managed by organisations accredited to provide assessment of compliance with the PAS 2080:2023 standard and LEED certification.

- UDX will apply the PAS 2080:2023 standard for carbon management in buildings and infrastructure, to integrate whole life carbon management into design decisions for the Proposed Development, including identifying responsibilities for carbon management; targets for whole life carbon; and a regular review process to allow for adoption of future innovations or recommendations for carbon management (see **Appendix 14.1: Carbon Management Plan (Volume 3)**).

CLIMATE RESILIENCE

Construction

7.2.30. No mitigation is required in the Construction Phase.

Operation

7.2.31. Key mitigation and control measures include implementation of a site wide surface water drainage strategy, use of resilient and heat-resistant materials in the design of structures, low-water fixture and fittings, drainage provision on paved areas and structures, maintenance regime for the highway infrastructure, provision of backup power sources. Details of these measures are provided within **Appendix 12.1: Flood Risk Assessment (Volume 3)**, **Appendix 12.2: Water Strategy (Volume 3)**, **Appendix 12.3: Drainage Strategy (Volume 3)**, **Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3)**, **Appendix 6.5: Outline Landscape and Ecology Management Plan (Volume 3)**, **Appendix 2.3: OCEMP (Volume 3)**, the **Security and Emergency Management Plan (Document Reference 6.4.2.0)** and the **Design Standards (Document Reference 6.3.0)**.

MAJOR ACCIDENTS AND DISASTERS

Construction

7.2.32. The Proposed Development will be constructed and managed in accordance with standards and systems such as Environmental, Health & Safety Management systems and **Appendix 2.3: OCEMP (Volume 3)** for Construction Phase environmental mitigation. These are to ensure sound management of mitigation and control measures, health and safety, hazard and risks during the Construction Phase.

7.2.33. Key mitigation and control measures include measures to manage the potential risks associated with an aircraft impacting a crane.

Operation

- 7.2.34. Apart from the standards and systems above, key mitigation and control measures include management of risks within the Proposed Development through the implementation of the **Security and Emergency Management Plan (Document Reference 6.4.2.0)**. These mitigation measures will follow relevant safety legislation and regulations and be managed by other regulatory drivers.

POPULATION AND HUMAN HEALTH

Construction

- 7.2.35. Key mitigation and control measures include the implementation of **Employment and Skills Plan (Document Reference 6.12.0)**, **Appendix 2.3: OCEMP (Volume 3)**, **Appendix 13.1: Temporary Workforce Accommodation Strategy (Volume 3)**, traffic arrangements to minimise heavy vehicle movements, best practicable means to minimise noise and vibration, and health and safety measures.

Operation

- 7.2.36. Key mitigation and control measures include the implementation of the **Employment and Skills Plan (Document Reference 6.12.0)**, best practise measures to reduce noise and vibration, and operational health and safety measures.

8 WHAT WILL THE RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT BE FOLLOWING MITIGATION?

8.1 INTRODUCTION

- 8.1.1. This Section sets out the residual environmental effects identified through the EIA process following the implementation of the mitigation measures summarised in Section 7.

8.2 HOW WILL THE PROPOSED DEVELOPMENT AFFECT TRAFFIC AND TRANSPORT?

- 8.2.1. The Proposed Development has the potential to result in severance and potential impacts associated with non-motorised users amenity value and fear and intimidation effects relating to road users and community.

CONSTRUCTION

- 8.2.2. During the Construction Phase (Scenario 2 and 2a), including embedded mitigation, the following significant temporary effects are anticipated:
- Effect on users of Link 31 (Wooton - Woburn Road)) relating to amenity of non-motorised users, such as pedestrians and cyclists, will be **Moderate Adverse (Significant)** and relating to fear and intimidation, will be **Moderate Adverse (Significant)**.
 - Effect on users Link 35 (Woburn Road) relating to amenity of non-motorised users, such as pedestrians and cyclists will be Moderate Adverse (Significant) and relating to hazards, fear and intimidation, will be **Moderate Adverse (Significant)**.
- 8.2.3. Currently, there are limited pedestrian and cycling facilities heading south from Fields Road, and north of Field Roads roundabout. These parts of the road are not expected to attract many pedestrians, and during site visits, very little activity by walkers or cyclists was observed.
- 8.2.4. As part of the Proposed Development, a new pavement will be added on the east side of the road where it is currently missing to the south of Fields Road. However, it may not be completed before the peak year of construction.
- 8.2.5. Given the low level of current use and lack of clear walking or cycling routes in this area, the change in amenity for NMUs is expected to be limited. However, due to the predicted increase in heavy goods vehicles (HGVs) of over 100% during the peak construction period, there will still be a **Moderate Adverse Significant Effect** the amenity, comfort and sense of safety for anyone walking or cycling along the road in this location.

OPERATION

- 8.2.6. During all of the operational scenarios (Scenario 4 – Primary Opening Year - Reference Case plus Development, Scenario 4a – Primary Opening Year - Reference Case plus Development plus Construction and Scenario 5 – Future Year - Reference Case plus Development) including embedded mitigation and additional mitigation, the following significant effects are anticipated:
- Effects on users of Link 36 (Manor Road) relating to non-motorised users in terms severance will be **Moderate Beneficial (Significant)** as high quality pedestrian and cycling facilities will be provided;

- Effects on Link 42- Fisherwood Road relating to Driver Delay will be **Moderate Adverse (Significant)** as there will be a significant reduction in vehicle speed. However these delays are limited to a single hour and only in one direction.

8.3 HOW WILL THE PROPOSED DEVELOPMENT AFFECT ECOLOGY AND NATURE CONSERVATION?

- 8.3.1. The Proposed Development has the potential to result in various (direct/indirect, permanent/temporary, long term/short term) effects on Designated Sites, habitats and protected and notable species.

CONSTRUCTION

- 8.3.2. During the Construction Phase, following mitigation, the following likely significant effects are anticipated:

Designated Sites

- Direct, permanent, medium term effect on Kempston Hardwick Pit CWS relating to temporary disturbance, pollution risk and long-term change of CWS Habitats will be **Major Adverse (Significant)**; and
- Direct, permanent, medium term effect on Kempston Hardwick Pit CWS arising from proposed habitat modification and enhancement measures will be **Moderate Beneficial (Significant)**.

Habitats of Principal Importance

- Direct, permanent, medium term effect on Watercourses and waterbodies arising from aquatic habitat creation and enhancement will be **Moderate Beneficial (Significant)**;
- Direct, permanent, medium term effect on Woodlands arising from habitat loss and pollution risk will be **Moderate Adverse (Significant)**; and
- Direct, permanent, medium term effects on Reedbeds arising from habitat loss and pollution risk will be **Moderate Adverse (Significant)**.

Protected or Notable Species

- Direct, permanent, long term effects on otter arising from habitat modification will be **Moderate Beneficial (Significant)**;
- Direct, permanent, medium term effect on Bats (Non-roosting) relating to the loss and disturbance of bat foraging and commuting habitat will be **Moderate Adverse (Significant)**;
- Direct, permanent, long term effect on Non-Breeding/Wintering Birds will be **Moderate Adverse (Significant)**;
- Direct, permanent, long term effect effects on Annex 1 Birds Directive species, Schedule 1 Wildlife and Countryside Act bird species, bird Species of Principal Importance under the NERC Act and/or Birds of Conservation Concern 5 Red Listed species relating to potential for destruction/damage of nests, disturbance to breeding and the loss of nesting sites and foraging habitat will be **Moderate Adverse (Significant)**;
- Direct, permanent, long term effect on Terrestrial invertebrates relating to the loss of habitats/habitat features supporting important species will be **Moderate Adverse (Significant)**;

- Direct, permanent, long term effect on Fish relating to the loss and disturbance of habitats supporting important species and fragmentation/severance effects, plus provision of increased and enhanced extents of aquatic habitat will be **Moderate Beneficial (Significant)**; and
- Direct, permanent, long term effect on Aquatic macroinvertebrates and Macrophytes as a result of changes to water quality and quantity, plus provision of increased and enhanced extents of aquatic habitat will be **Moderate Beneficial (Significant)**.

OPERATION

Habitats of Principal Importance (HPI)

- Indirect, permanent, long term effects on HPI - Aquatic Habitats (waterbodies and watercourses) relating to water quality and quantity improvements will be **Moderate Beneficial (Significant)**.

Protected or Notable Species

- Direct, permanent, medium term effects on Bat (Non-Roosting) relating to increased disturbance and fragmentation of foraging habitats and collision risk will be **Moderate Adverse (Significant)**; and
- Indirect, permanent, long term effect on Fish, Macrophytes and Aquatic macroinvertebrates relating to risk of disturbance from operational activities and ongoing maintenance and management of habitats will be **Moderate Beneficial (Significant)**.

8.3.3. Proposed ecological enhancements are detailed in **Appendix 6.4: Outline Habitat and Creation Plan (Volume 3)** and are also outlined in **Table 8-1** below.

DESIGNATED SITES, HABITAT AND SPECIES SUMMARY INFORMATION

- 8.3.4. A summary of the findings for habitats and species is set out in **Table 8-1**, below. This sets out a high-level overview of any relevant results, relevant mitigation and/or enhancement measures, and notes on any timing considerations for implementing mitigation.

Table 8-1 – Habitats and Species Summary Information

Ecological Feature(s)	Mitigation and/or Enhancement Measures	Timing Considerations	Compliance with Other Regimes
Habitats	<p>Retention and protection of existing habitat.</p> <p>Pollution control measures.</p> <p>Creation of new habitat.</p> <p>Ongoing management and maintenance of retained and created habitats.</p> <p>Potential for habitat translocation (reedbeds and hedgerows) to support early establishment of new habitat areas.</p> <p>Improvements in water quality.</p> <p>Invasive species control and management measures.</p>	<p>Habitat creation, translocation and management activities would be carried out at the appropriate time of year, which would depend on the habitat/activity in question. More details on timings are provided in Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3).</p>	N/A
Badger	<p>Provision of replacement artificial setts to mitigate for any loss of main setts.</p> <p>Retention and protection of existing areas of habitat.</p> <p>Creation of new habitat.</p>	<p>Habitat creation, translocation and management activities would be carried out at the appropriate time of year, which would depend on the habitat/activity in question. More details on timings are provided in Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3).</p>	<p>A protected species licence would be required from Natural England to enable a derogation of the legislation protecting badgers.</p>

Ecological Feature(s)	Mitigation and/or Enhancement Measures	Timing Considerations	Compliance with Other Regimes
	<p>Installation of measures to maintain habitat connectivity within the Site and with off-site areas.</p> <p>Ongoing management and maintenance of retained and created habitats.</p> <p>Carefully managed exclusion of badgers from existing setts where required</p> <p>Measures to manage disturbance of badgers.</p>	<p>Artificial setts to be provided ahead of excluding badgers from any main sett.</p> <p>Protected species licence required from Natural England ahead of activities that would otherwise constitute an offence under the legislation protecting bats.</p> <p>Badgers are typically excluded from active setts between July to November inclusive.</p>	
Bats	<p>Provision of replacement roosting features (e.g. bat boxes and/or dedicated structures).</p> <p>Careful timing, ecological inspections and sensitive methodologies during removal of existing roost features (existing structures and trees).</p> <p>Measures to sensitively exclude bats from existing roost features as part of their removal.</p> <p>Measures to manage disturbance of individual bats during construction and operation.</p> <p>Retention and protection of existing areas of habitat.</p> <p>Creation of new habitat.</p>	<p>Habitat creation, translocation and management activities would be carried out at the appropriate time of year, which would depend on the habitat/activity in question. More details on timings are provided in Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3).</p> <p>Protected species licence required from Natural England ahead of activities that would otherwise constitute an offence under the legislation protecting bats.</p> <p>Replacement roost features to be provided ahead of loss of existing roosts for which they provide mitigation.</p>	<p>A protected species licence would be required from Natural England to enable a derogation of the legislation protecting badgers.</p>

Ecological Feature(s)	Mitigation and/or Enhancement Measures	Timing Considerations	Compliance with Other Regimes
	<p>Installation of measures to maintain habitat connectivity within the Site and with off-site areas.</p> <p>Ongoing management and maintenance of retained and created habitats.</p> <p>Pollution control measures.</p> <p>Drone and firework shows to have a horizontal clearance from sensitive areas for bats of at least 50m</p>	<p>Timing restrictions may apply to the demolition/felling of existing roosts. For example, roosts used in the winter by hibernating bats will not typically be removed during the winter, whilst roosts used only in the summer would not typically be removed in the summer. Precise timings for any exclusion and removal of roosts would be confirmed through the protected species licensing process (see right).</p>	
Otter	<p>Measures to manage the risk of harm and disturbance of individual otter during construction and operation.</p> <p>Retention and protection of existing areas of habitat.</p> <p>Creation of new habitat.</p> <p>Installation of measures to maintain habitat connectivity within the Site and with off-site areas, including use of underpasses and otter-fencing as appropriate.</p> <p>Ongoing management and maintenance of retained and created habitats.</p> <p>Pollution control measures.</p>	<p>Habitat creation, translocation and management activities would be carried out at the appropriate time of year, which would depend on the habitat/activity in question. More details on timings are provided in Appendix 6.4: Outline Habitat Creation and Enhancement Plan (Volume 3).</p>	<p>N/A – survey data for otters (see Appendix 6.11: Otter and Water Vole Survey Report (Volume 3)) indicates no requirement for a protected species licence for otter.</p>

Ecological Feature(s)	Mitigation and/or Enhancement Measures	Timing Considerations	Compliance with Other Regimes
Water vole (currently absent from the Site)	Removal of American mink during Operation and provision of additional and enhanced wetland habitats may provide opportunities for water vole to colonise the Site.	N/A	N/A – water vole likely to be absent from the Site (see Appendix 6.10: Otter and Water Vole Survey Report (Volume 3)).
Great Crested Newt	<p>Limited trapping and relocation exercise to remove great crested newts from certain parts of the Proposed Development ahead of development commencing, with release of captured GCN into retained habitats.</p> <p>Securing strategic mitigation measures via the Bedfordshire District Level Licence scheme (see 'Compliance with Other Regimes', to right).</p> <p>Pollution control measures.</p>	<p>Protected species licence required from Natural England ahead of activities that would otherwise constitute an offence under the legislation protecting great crested newts.</p> <p>Relocation of great crested newts is typically carried out during the main 'active season' for this species. This varies with weather conditions, but broadly runs from March to October inclusive.</p>	District Level Licence for great crested newts to be secured, to enable a derogation of the legislation protecting this species.
Reptiles	<p>Retention and protection of existing habitat.</p> <p>Creation of new habitat including specific features for reptiles such as basking banks and artificial hibernacula.</p> <p>Ongoing management and maintenance of retained and created habitats.</p> <p>Capture and relocation of reptiles from areas of habitat to be removed</p>	<p>Receptor site locations to be available prior to capture and relocation of reptiles.</p> <p>Reptiles can typically only be effectively captured during the main active season for these species. This varies with weather conditions, but broadly runs from mid-March to mid-October.</p>	Implementation of mitigation measures will support compliance with legislation protecting reptiles.

Ecological Feature(s)	Mitigation and/or Enhancement Measures	Timing Considerations	Compliance with Other Regimes
	<p>to facilitate development, to areas of retained/created habitats.</p> <p>Measures to manage the risk of harm and disturbance of individual reptiles during construction and operation.</p> <p>Installation of measures to maintain habitat connectivity within the Site and with off-site areas.</p> <p>Pollution control measures.</p>		
Breeding and wintering birds	<p>Retention and protection of existing habitat.</p> <p>Creation of new habitat including specific features for birds such as artificial nest boxes and sand martin/kingfisher banks.</p> <p>Ongoing management and maintenance of retained and created habitats and other mitigation features.</p> <p>Seasonal timing of works to avoid sensitive periods where practicable.</p> <p>Production of Method Statement to manage potential effects on Schedule 1 bird species during Construction.</p> <p>Measures to manage the risk of harm and disturbance to individual birds during construction and operation.</p>	<p>Where possible, the clearance of vegetation with the potential to support any nesting bird species will be undertaken outside the breeding bird season (the breeding season is typically from 1 March to 31 August inclusive). Where this is not possible, checks for nesting birds will be carried out by a suitably qualified ecologist no more than 48 hours prior to clearance.</p> <p>To minimise disturbance to wintering birds, particularly within wetland habitats, the duration of vegetation clearance and subsequent construction activities would be limited to the shortest time feasible. Strict adherence to construction working zones and fencing around these zones would also be employed during the Construction Phase.</p>	Implementation of mitigation measures will support compliance with legislation protecting breeding birds.

Ecological Feature(s)	Mitigation and/or Enhancement Measures	Timing Considerations	Compliance with Other Regimes
	<p>Drone and firework shows to have a horizontal clearance from sensitive areas for birds of at least 50m.</p> <p>Pollution control measures.</p>	Measures to manage disturbance impacts during Operation may include seasonal controls over access into sensitive locations.	
Terrestrial invertebrates	<p>Retention and protection of existing habitat.</p> <p>Creation of new habitat including specific features for terrestrial invertebrates such as purpose-built 'invertebrate' hotels.</p> <p>Ongoing management and maintenance of retained and created habitats and other mitigation features.</p> <p>Installation of measures to maintain habitat connectivity within the Site and with off-site areas.</p> <p>Pollution control measures</p>	N/A	N/A
Fish	<p>Measures to manage risks associated with piling operations.</p> <p>Measures to manage the risk of harm and disturbance to individual fish during construction and operation.</p> <p>Retention and protection of existing habitat.</p> <p>Creation of new habitat including watercourses and wetland features.</p>	No strictly defined seasonal restrictions, but works directly affecting fish habitats may be timed to avoid periods of extreme weather.	A fish rescue permit would be obtained from the Environment Agency, should it be necessary to conduct a fish rescue, thus supporting compliance with legislation controlling the means by which fish may legally be captured.

Ecological Feature(s)	Mitigation and/or Enhancement Measures	Timing Considerations	Compliance with Other Regimes
	<p>Fish rescue and relocation, if required for any watercourse/waterbody impoundments.</p> <p>Installation of measures to maintain habitat connectivity within the Site and with off-site areas.</p> <p>Pollution control measures.</p>		
Aquatic macroinvertebrates	<p>Measures to manage the risk of harm and disturbance to aquatic macroinvertebrates during construction and operation.</p> <p>Retention and protection of existing habitat.</p> <p>Creation of new habitat including watercourses and wetland features.</p> <p>Installation of measures to maintain habitat connectivity within the Site and with off-site areas.</p> <p>Pollution control measures.</p>	N/A	N/A

8.4 HOW WILL THE PROPOSED DEVELOPMENT AFFECT LANDSCAPE AND VISUAL IMPACT?

- 8.4.1. Due to the scale and nature of the Proposed Development and the existing Site conditions it is anticipated that the Proposed Development has the potential to result in various (direct/indirect, permanent/temporary) effects on Landscape Character Areas (LCA) and visual receptors.
- 8.4.2. The assessment has considered the potential for likely significant effects of the Proposed Development on landscape and visual resource during both the Construction and Operational Phases. This includes Year 1, once construction is complete, and Year 15, once planting has matured. Additionally, it considers the potential for construction associated with the full buildout to be underway ensuring that a cautious worst case scenario is assessed in accordance with industry best practice.

CONSTRUCTION

Landscape Character Areas (LCA)

- Residual effect on LCA 5D: North Marston Clay Vale relating to noticeable loss of agricultural land and wooded areas within the LCA will be **Moderate Adverse (Significant)**;
- Residual effects on LCA 6B: Mid Greensand Ridge relating to long-distance views will be **Moderate Adverse (Significant)**;
- Residual effect on Bedford Urban Area LCA relating to the loss of trees and woodland will be **Moderate Adverse (Significant)**; and
- Effects on landscape elements within the Site relating to noticeable loss of trees and woodland, altering the perception of open countryside will be **Large Adverse (Significant)**.

Visual Amenity

- 8.4.3. The following receptors will experience residual effects of **Large Adverse (Significant)** significance:
- Residential properties along Manor Road, and users of Manor Road;
 - Residents on Broadmead Road, and users of Broadmead Road;
 - Residential receptors at the northern edge of Wootton, and recreational receptors at Wootton Play Park and Community Centre;
 - Residential receptors at southern edge of Kempston Hardwick, Meadow Road;
 - Residents of Stewartby;
 - Informal footpath south of Marsh Leys Industrial Estate (refer to RVP 33)
 - Residential receptors at the northern edge of Stewartby and
 - Recreational receptors along PRoW and transport receptors along A421.
- 8.4.4. The following receptors will experience residual effect of **Moderate Adverse (Significant)**:
- Residential receptors at Potters Cross and recreational users of footpath north of Wootton;
 - Residential receptors at the northern edge of Wixams;
 - Residential receptors at northern edge of Houghton Conquest;

- Residential receptors along northeastern edge of Stewartby;
- Recreational receptors at the Forest Centre and Marston Vale Millennium Country Park;
- Residential receptors on the elevated Green Sandstone ridge, recreational receptors visiting Houghton House, and users of local PRow;
- Residential receptors to the northeast of Wootton, and recreational receptors along bridleway and transport receptors along A421;
- Residential receptors of Lower Shelton, and recreational receptors along footpath between Lower Shelton and Wootton Green;
- Residential receptors at the northern edge of Kempston Hardwick;
- Representative of visitors to Ampthill Park Registered Park and Garden (RPG) and parkland/users of PRow/Greensand Ridge Walk/John Bunyan Trail; and
- Representative of visitors to Ampthill Park RPG/Ampthill Park House residents

OPERATION (YEAR 1)

8.4.5. Operation (Year 1) considers the significant effects once construction has been completed.

Landscape Character Areas (LCA)

- Residual effect on LCA 5D: North Marston Clay Vale (Host LCA) relating to noticeable loss of agricultural land and wooded areas will be **Moderate Adverse (Significant)**.
- Residual effect on LCA 6B: Mid Greensand Ridge relating to long-distance views resulting in minor adjustments to perceptual characteristics will be **Moderate Adverse (Significant)**.
- Residual effects on Bedford Urban Area LCA relating to the loss of trees and woodland will be **Moderate Adverse (Significant)**.
- Residual effect on landscape elements within the Site relating to noticeable loss of trees and woodland, altering the perception of open countryside will be **Large Adverse (Significant)**.

Visual Amenity

8.4.6. The following receptors will experience residual effect of **Large Adverse (Significant)**:

- Residential receptors at southern edge of Kempston Hardwick, Meadow Road;
- Residential properties along Manor Road, and users of Manor Road;
- Residential receptors at the northern edge of Stewartby;
- Residents on Broadmead Road, and users of Broadmead Road;
- Residents of Stewartby;
- Residential receptors at the northern edge of Wootton, and recreational receptors at Wootton Play Park and Community Centre; and
- Informal footpath south of Marsh Leys Industrial Estate.

8.4.7. The following receptors will experience residual effect of **Moderate Adverse (Significant)**:

- Recreational receptors along PRow and transport receptors along A421.

- Residential receptors at the northern edge of Kempston Hardwick;
- Residential receptors at the northern edge of Wixams;
- Residential receptors at northern edge of Houghton Conquest;
- Residential receptors on the elevated Green Sandstone ridge, recreational receptors visiting Houghton House, and users of local PRow;
- Residential receptors along northeastern edge of Stewartby;
- Visitors to Ampthill Park RPG/Ampthill Park House residents;
- Visitors to Ampthill Park RPG and parkland/users of PRow/Greensand Ridge Walk/John Bunyan Trail;
- Recreational receptors at the Forest Centre and Marston Vale Millennium Country Park;
- Residential receptors of Lower Shelton, and recreational receptors along footpath between Lower Shelton and Wootton Green;
- Residential receptors to the northeast of Wootton, and recreational receptors along bridleway and transport receptors along A421; and
- Residential receptors at Potters Cross and recreational users of footpath north of Wootton.

OPERATION (YEAR 15)

- 8.4.8. Operation (Year 15) has been assessed for significant effects as the Landscape and Visual assessment assumes that from the fifteenth year after Primary Phase Opening Year (2031) the original landscape mitigation measures, for example, planting of trees, can be assumed substantially effective.

Landscape Character Areas (LCA)

- Residual effect on LCA 5D: North Marston Clay Vale (Host LCA) relating to noticeable loss of agricultural land and wooded areas will be **Moderate Adverse (Significant)**.
- Residual effect on LCA 6B: Mid Greensand Ridge relating to long-distance views resulting in minor adjustments to perceptual characteristics will be **Moderate Adverse (Significant)**.
- Residual effects on Bedford Urban Area LCA relating to the loss of trees and woodland will be **Moderate Adverse (Significant)**.
- Residual effect on landscape elements within the Site relating to noticeable loss of trees and woodland, altering the perception of open countryside will be **Large Adverse (Significant)**.

Visual Amenity

- 8.4.9. The following receptors will experience residual effect of **Large Adverse (Significant)**:
- Residential properties along Manor Road, and users of Manor Road;
 - Residents on Broadmead Road, and users of Broadmead Road;
 - Residential receptors at the northern edge of Wootton, and recreational receptors at Wootton Play Park and Community Centre;
 - Informal footpath south of Marsh Leys Industrial Estate;

- Residential receptors at southern edge of Kempston Hardwick, Meadow Road;
- Residents of Stewartby;
- Residential receptors at the northern edge of Stewartby; and
- Recreational receptors along PRow and transport receptors along A421

8.4.10. The following receptors will experience residual effect of **Moderate Adverse (Significant)**:

- Residential receptors at the northern edge of Kempston Hardwick ;
- Residential receptors at the northern edge of Wixams ;
- Residential receptors at northern edge of Houghton Conquest ;
- Residential receptors on the elevated Green Sandstone ridge, recreational receptors visiting Houghton House, and users of local PRow;
- Residential receptors along northeastern edge of Stewartby;
- Visitors to Ampthill Park RPG/Ampthill Park House residents;
- Visitors to Ampthill Park RPG and parkland/users of PRow/Greensand Ridge Walk/John Bunyan Trail;
- Recreational receptors at the Forest Centre and Marston Vale Millennium Country Park;
- Residential receptors of Lower Shelton, and recreational receptors along footpath between Lower Shelton and Wootton Green;
- Residential receptors to the northeast of Wootton, and recreational receptors along bridleway and transport receptors along A421; and
- Residential receptors at Potters Cross and recreational users of footpath north of Wootton.

8.5 HOW WILL THE PROPOSED DEVELOPMENT AFFECT AIR QUALITY?

8.5.1. The Proposed Development has the potential to affect human health and sensitive ecological features on and surrounding the Site through:

- Fugitive dust emissions affecting amenity and human health/human receptors (residential premises, schools and hospitals and designated habitat sites (ecological receptors);
- Road traffic emissions affecting air quality in terms of ambient concentrations of NO₂, PM₁₀ and PM_{2.5} (human receptors); and
- Road traffic emissions affecting air quality in terms of ambient concentrations of NO_x and ammonia (NH₃), and nitrogen deposition rate (N-dep) (ecological receptors).

8.5.2. The human and ecological receptors that would be sensitive to potential changes to dust impacts and changes in ambient air quality have been identified in **Chapter 8: Air Quality (Volume 1)** within the study area. The high sensitivity human receptors accounted for include:

- Residential properties in Bedford, Marston Moretaine, Caulcott/Lower Shelton Wootton, Kempston Hardwick, Wixams, Stewartby, and along Woburn Road and Ampthill Road;

- Schools including Bedford Free School, Blue Orkids Wootton Nursery, Wootton Lower School, Lakeview School, Wixams, Kimberley Sixth Form College on Green Lane and Busy Bees day nursery at Progress Park, Elstow; and
- Bedford Hospital.

- 8.5.3. Less sensitive human receptors include open recreation areas, commercial/retail and light industrial premises.
- 8.5.4. Sensitive ecological receptors include Stewartby Lake County Wildlife Site (CWS), Rookery Clay Pit CWS, Quest Pit CWS, Kempston Harwick Pit CWS, Elstow Pit CWS, Kempston West End CWS, Maulden Wood and Pennyfathers Hills Site of Special Scientific Interest, and Maulden Wood Ancient Woodland.
- 8.5.5. The Air Quality assessment considers all of these receptors and is summarised below.

CONSTRUCTION

- 8.5.6. During the Construction Phase, with mitigation, the following effects due to dust are anticipated:
- Effects on human receptors (residential properties on Manor Road and at Kempston Hardwick Caravan Site) relating to a loss of amenity due to surface soiling associated with construction dust are likely to be direct, temporary, short-term and will be **Minor/Negligible Adverse (Not Significant)**;
 - Effects on human health from elevated PM10 and PM2.5 concentrations at human receptors are likely to be direct, temporary, short-term and will be **Negligible Adverse (Not Significant)**; and
 - Effects on ecological receptors (Kempston Hardwick Pit CWS and Coronation Pit CWS) relating to elevated construction dust level are likely to be direct, temporary and short term and will be **Negligible Adverse (Not Significant)**.
- 8.5.7. The effects due to the impacts of construction traffic emissions on air quality will be **Negligible Adverse (Not Significant)**.

OPERATION

- 8.5.8. The effects due to the impacts of operational phase traffic emissions on air quality will be **Negligible Adverse (Not Significant)**. Any impacts during operation resulting from traffic emissions that are likely to impact ecological receptors are identified in Section 8.3 above.

8.6 HOW WILL THE PROPOSED DEVELOPMENT AFFECT NOISE AND VIBRATION?

8.6.1. The Proposed Development has the potential to result in various effects to relevant noise sensitive receptors.

CONSTRUCTION

8.6.2. During the Construction Phase, following mitigation, the following effects are anticipated:

- Effect on residential properties/houses on Manor Road (noise sensitive receptors 9 -10 (NSR09-10)) relating to reduced traffic on Manor Road will be **Moderate Beneficial (Significant)**;
- Effect on Broadmead Farm (NSR06) relating to increased construction road traffic along Broadmead Road will be Moderate Adverse (Significant);
- Effect on CP Farm Cottage (NSR05), Broadmead Farm (NSR06), residential properties along Ampthill Road (NSR08) and residential properties on Manor Road (NSR09-10) relating to the impacts from construction noise will be **Moderate to Major Adverse (Significant)**;
- Effect on CP Farm Cottage (NSR05), Broadmead Farm (NSR06), residential properties along Ampthill Road (NSR08) and residential properties on Manor Road (NSR09-10) relating to the impacts from construction vibration will be **Moderate Adverse (Significant)**; and
- Effect on Kempston Hardwick moated site monument relating to the impacts from construction vibration will be **Moderate Adverse (Significant)**.

OPERATION

8.6.3. During the Operational Phase, following mitigation, the following effects are anticipated:

- Effect on residential properties on Manor Road associated with receptor control location 01 (RCL01) and not owned by UDX relating to operational noise from the Core Zone will be **Moderate Adverse (Significant)** at the maximum allowable noise levels;
- Effect on Broadmead Farm associated with RCL05 and residential properties to the north of Stewartby associated with RCL06 relating to operational noise from the Core Zone will be **Major Adverse (Significant)** at the maximum allowable noise levels;
- Effect on residential properties on Manor Road associated with RCL02 relating to operational noise from the Core Zone will be Major Adverse (Significant) at the maximum allowable noise levels and **Moderate Adverse (Significant)** at the typical noise levels;
- Effect on properties associated with the traveller's site on Ampthill Road associated with RCL03 relating to operational noise from the Core Zone will be Moderate Adverse (Significant) at the maximum allowable noise levels and **Negligible (Not Significant)** at the typical noise levels;
- Effect on residential properties in Wixams associated with RCL04 relating to operational noise from the Core Zone will be Moderate Adverse (Significant) at the maximum allowable noise levels and **Negligible (Not Significant)** at the typical noise levels;
- Effect on residential properties on Manor Road associated with receptor control location 01 (RCL01) and not owned by UDX relating to operational noise from the Utility Compound will be **Moderate Adverse (Significant)**.

8.7 HOW WILL THE PROPOSED DEVELOPMENT AFFECT CULTURAL HERITAGE AND ARCHAEOLOGY?

- 8.7.1. The Proposed Development has the potential to result in permanent loss, damage and/or disturbance to known or possible buried heritage assets and designated and non-designated above ground heritage assets within and beyond the 5km study area.

CONSTRUCTION

- 8.7.2. During the Construction Phase, following mitigation, the following effects are anticipated:
- Effect on buried heritage remains relating to the loss of assets will be **Negligible to Minor Adverse (Not Significant)**;
 - Effect on the setting of Kempston Hardwick Scheduled Monument will be **Moderate Adverse (Significant)**;
 - Effect on historically 'important' hedgerow assuming its removal prior to construction will be **Minor Adverse (Not Significant)**; and
 - Effect on designated above ground heritage assets relating to construction activities having a temporary impact on the setting of the asset and how it is understood and experienced will be **Moderate Adverse (Significant)**.

OPERATION

- 8.7.3. During the Operational Phase, following mitigation, effects on designated and non-designated above ground heritage assets (including those of the highest significance) relating to permanent changes in the setting of the asset and how it is understood and experienced due to the introduction of new built form are expected to be **Moderate Adverse (Significant)**.

8.8 HOW WILL THE PROPOSED DEVELOPMENT AFFECT GROUND CONDITIONS, SOILS AND AGRICULTURAL LAND?

- 8.8.1. The Proposed Development has the potential to result in effects to the ground conditions and agricultural land during the Construction Phase.

Ground Conditions

- 8.8.2. Effect on occupants of neighbouring land, controlled waters, below ground services relating to potential contamination and migration of pollutants will be **Minor Positive (Not Significant)**. Mitigation measures will help negate against the release of dust, particulates and fibres and subsequent exposure to occupants of neighbouring land, pathways being formed during construction that could adversely impact on controlled waters and new subsurface construction materials being at risk of chemical attack or creating new contaminant pathways. Therefore, the change from the current baseline risk and effects following mitigation would lead to a positive effect.

Soils and Agricultural Land

- 8.8.3. Effects on agricultural soils due to the extent of the loss of best and most versatile agricultural land relating to construction activities will be **Large Adverse (Significant)**.
- 8.8.4. Effects on soil function relating to construction activities will be **Slight Adverse (Not Significant)**.

8.9 HOW WILL THE PROPOSED DEVELOPMENT AFFECT WATER RESOURCES?

- 8.9.1. The Proposed Development has the potential to result in various effects to relevant water resources receptors.

CONSTRUCTION

- 8.9.2. Effects on these receptors relating to increased pollutants and risks from construction activities are **Slight Adverse (Not Significant)**:

- Elstow Brook;
- Existing Watercourse Core Zone; Kempston Hardwick Clay pits (North) – Artificial Lake;
- Kempston Hardwick Clay pits (South) CWS;
- Kempston Hardwick Clay pits (North) disused Clay pits;
- Water Supply Resources;
- Foul Water Infrastructure Receiving Water Environment;
- Alluvium Secondary A and head Secondary (undifferentiated) superficial deposits aquifers;
- People/Property/Infrastructure affected by Surface Water Drainage capacity; and
- Site Users.

OPERATION

- 8.9.3. There will be **Moderate Beneficial (Significant)** effect on the diverted watercourse in the Core Zone. The Proposed Development will bring enhancement to vegetation, landscape, habitats and reduce on and off-Site flood risk by increased capacity cross section and convey planned flows from Core Zone.
- 8.9.4. There will be **Moderate Beneficial (Significant)** effect on Kempston Hardwick Clay Pits (north) – disused clay pits 1987. Primary positive effects are from enhancement and re-profiling of the pit of to include varied side slopes, flat landings, and enhanced landscaping as part of the sustainable drainage strategy, providing a supporting environment, encouraging biodiversity and self-sustaining resilient ecosystems. Resulting in a major beneficial improvement to a low quality feature, from a water perspective.
- 8.9.5. Effect on Kempston Hardwick Clay pits (north) – Artificial Lake relating to pollution from surface water runoff and accidental leaks will be **Slight Adverse (Not Significant)**.
- 8.9.6. There will be a **Slight Adverse (Not Significant)** effect on Elstow Brook at bridge crossings due to loss of riparian habitat, loss of vegetation, risk of bank collapse and risk of pollution from runoff.

8.10 HOW WILL THE PROPOSED DEVELOPMENT AFFECT SOCIO-ECONOMICS?

- 8.10.1. The Proposed Development has the potential to result in various effects on socio-economics.

CONSTRUCTION

- 8.10.2. There will be a **Moderate Beneficial (Significant)** effect on construction employment at the labour catchment area level in the Peak Year of the Primary Phase due to the size, scale and variety of employment opportunities on offer. The **Employment and Skills Plan (Document Reference 6.12.0)** provides records in delivering good quality employment and training and includes commitments that the Principal Contractor(s) shall commit to during construction which are in line with best practice. This further generates a **Moderate Beneficial (Significant)** effect for residents in the Core Study Area (CSA) who would stand to benefit from these opportunities.
- 8.10.3. There are other non-significant effects identified with respect to construction, including:
- Temporary effects on accommodation for businesses and residents at the CSA and Sub Regional Context Area (SRCA);
 - Disruption to businesses in the local area; and
 - Provision of emergency services in the CSA and SRCA.

OPERATION

- 8.10.4. There will be a **Major Beneficial (Significant)** effect on businesses with respect to trade creation, and a **Moderate Beneficial (Significant)** with regards to economic output generated to national economy and employment opportunities.
- 8.10.5. The **Employment and Skills Plan (Document Reference 6.12.0)** provides records in delivering good quality employment and training and includes commitments that UDX shall commit to during the operational phase which are in line with best practice, and through its implementation give rise to a **Moderate beneficial (Significant)** effect on employment and skills for local residents.
- 8.10.6. There will be a **Moderate/Major Beneficial (Significant)** effect on businesses in the CSA through additional visitor spending generated through the Proposed Development and a Moderate (Significant) effect for businesses in the SRCA who stand to benefit from the additional expenditure.
- 8.10.7. There will be further **Moderate/Major Beneficial (Significant)** effects at several geographical areas through the direct, indirect and induced employment opportunities created by the ERC.
- 8.10.8. There are other non-significant effects identified in respect to construction, including:
- Conference centre facility provision for businesses at the CSA and National Area;
 - Disruption to businesses in the local area;
 - Provision of emergency services in the CSA and SRCA.

8.11 HOW WILL THE PROPOSED DEVELOPMENT AFFECT GREENHOUSE GASES?

- 8.11.1. The Proposed Development has the potential to result in an increase in GHG emissions with subsequent adverse effects on the global climate.

CONSTRUCTION

- 8.11.2. Effect on Global Climate from embodied carbon with materials used, relating to an increase in GHG emissions will be **Minor Adverse (Not Significant)**.

OPERATION

- 8.11.3. Effect on Global Climate relating to an increase in GHG emissions, from ongoing maintenance, repair and refurbishment activities from the Proposed Development, visitor vehicle emissions and energy use, will be **Minor Adverse (Not Significant)**.

8.12 HOW WILL CLIMATE CHANGE POTENTIALLY AFFECT THE PROPOSED DEVELOPMENT?

- 8.12.1. The assessment of significance of effects considered the consequence and the likelihood of the potential impacts of climate change on the Proposed Development. The Construction Phase was scoped out of the climate change resilience assessment. The Operational Phase was scoped into the climate change resilience assessment but the findings showed there were not significant effects when taking into account embedded mitigation measures.

8.13 HOW WILL THE PROPOSED DEVELOPMENT AFFECT MAJOR ACCIDENTS AND DISASTERS?

- 8.13.1. Major accidents and disasters by their nature are defined as low likelihood high consequence events. The Proposed Development has the potential to result in major accidents and disasters which may impact members of the public. However, mitigation measures have been identified for each of the potential major accident and disaster events which have been identified. The implementation of these identified mitigation measures, manages the risk of these events occurring to be As Low As Reasonably Practicable (ALARP). The potential major accident and disaster events are listed below as, should they occur, they will have a **Major (Significant)** effect on the environment.

CONSTRUCTION

- 8.13.2. There is a risk of injury/death on members of the public and construction works relating to the damage to aircraft and/or collapse of cranes. This risk will be managed to be ALARP if all mitigation measures outlined are correctly implemented. Due to the nature of a major accident and disaster, if this event occurred it would have a **Major (Significant)** effect on the environment.

OPERATION

- There is a risk to members of the public (natural environment, neighbouring properties and/or those people in the immediate area) relating to natural gas toxicity hazard and risk of injury. This will be considered to be ALARP if all mitigation measures outlined are correctly implemented. Due to the nature of a major accident and disaster, if this event occurred it would have a **Major (Significant)** effect on the environment;
- There is a risk to members of the public (natural environment, neighbouring properties and/or those people in the immediate area) relating to the risk of injury/death as a result of damage to aircraft and/or collapse of structure(s). This will be managed to be ALARP if all mitigation measures outlined are correctly implemented. Due to the nature of a major accident and disaster, if this event occurred it would have a **Major (Significant)** effect on the environment; and

- There is a risk to members of the public relating to the risk of injury/death as a result of the presence of an attacker in a crowded area. This risk will be managed to be ALARP if all mitigation measures outlined are correctly implemented. Due to the nature of a major accident and disaster, if this event occurred it would have a **Major (Significant)** effect on the environment.

8.14 HOW WILL THE PROPOSED DEVELOPMENT AFFECT POPULATION AND HUMAN HEALTH?

- 8.14.1. In the construction phase, the Proposed Development will generate significant beneficial effects in relation to population and human health for the following effects:
- Employment and training opportunities for future workers – **(Moderate Beneficial (Significant))**.
- 8.14.2. The Proposed Development is not expected to generate any significant adverse effects in the construction phase.
- 8.14.3. In the operational phase, the Proposed Development will generate significant beneficial effects in relation to population and human health for the following effects:
- Effect on the community of new sports provision (only if this comes forward) – **(Moderate Beneficial (Significant))**; and
 - Employment and training opportunities for future workers at the Proposed Development – **(Moderate Beneficial (Significant))**.
- 8.14.4. The Proposed Development is not expected to generate any significant adverse effects in the operational phase.



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