Gravity Local Development Order

Environmental Statement February 2022 Non-Technical Summary

Final Adopted Version

On behalf of **This is Gravity** and **Sedgemoor District Council**

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Contents

Tables

Appendices

1 Introduction

1.1 Project Background

1.1.1 This document is the Non-Technical Summary (NTS) of the Environmental Statement (ES) that has been prepared to present the findings of the Environmental Impact Assessment (EIA) undertaken in relation to the Gravity Local Development Order (LDO) for the Gravity Smart Campus and Community ("Proposed Development") for a Site known as Gravity, to the east of Junction 23 of the M5, in Sedgemoor, Somerset (referred to hereafter as 'the Site'). A Site Location Plan is provided at **Appendix A**.

1.1.2 An LDO is intended to grant planning permission for specific types of development within a defined area. LDOs streamline the planning process by removing the need for developers to make a detailed planning application to a Local Planning Authority. The implementation process is replaced by a fast-track compliance process when individual proposals can be authorised within the LDO framework. LDOs create certainty for prospective occupiers and save time for those involved in the planning process, whilst ensuring that public interests such as an inefficient land-use and environmental protection are balanced.

1.1.3 This document summarises the ES in non-technical English. The aim of this NTS is to present the technical information included in the ES in an easily understandable, concise format.

1.1.4 The 261.54 hectare Site is within ownership of This is Gravity Ltd and is within the administrative boundary of Sedgemoor District Council (SDC). The Site is a Government approved Enterprise Zone, designated to attract international inward investment.

1.1.5 The description of development, is as follows:

(a) any operations or engineering works necessary to enable the development of the Site, including demolition, excavation and earthworks, the formation of compounds for the stockpiling, sorting and treatment of excavated materials, import of material to create development platforms, piling, and any other operations or engineering necessary for site mobilisation, office and worker accommodation, communications, drainage, utilities and associated environmental, construction and traffic management.

(b) the development of a smart campus including:

i. commercial building or buildings with a total Gross External Area of up to 1,000,000m^2 which would sit within current Use Classes E (a)- (g), B2, B8 and sui generis floorspace uses and

ii. a range of buildings up to 100,000m^2 within Use Classes C1, C2, E (a) – (g), F, B8, including restaurants / cafes, shops, leisure, education, and sui generis uses; and

iii. up to 750 homes in Use Class C3.

together with associated infrastructure including restoration of the railway line for passenger and freight services, rail infrastructure including terminals, sidings and operational infrastructure and change of use of land to operational rail land, multi-modal transport interchange, energy generation, energy distribution and management infrastructure, utilities and associated buildings and infrastructure, digital infrastructure, car parking, a site wide sustainable water management system and associated green infrastructure, access roads and landscaping.

1.1.6 Part of the Site, then known as Huntspill Energy Park, received planning permission for an Energy Park in November 2017 (the '2017 Planning Consent'). Some elements of the 2017 Planning Consent, including the Gravity Link Road, and an earlier planning consent for remediation to clear and decontaminate the site, have already been implemented with remediation complete and the road completing in October 2021.

1.2 The EIA, the Environmental Statement and Other Documents

1.2.1 The ES presents the findings of an EIA undertaken in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended), referred to as the 'EIA Regulations'. Particular provision for LDOs is made in Regulation 32 of the EIA Regulations.

1.2.2 The EIA process has been used to inform the design of the Proposed Development and has identified appropriate design and construction measures to both mitigate likely significant adverse environmental effects and to maximise the environmental opportunities that might arise as a consequence of the construction and operation of the Development. Such measures have been incorporated into the final design and are shown in the plans and documents supporting the LDO. These measures are documented within the ES as 'embedded mitigation' which will be provided as part of the Proposed Development.

1.2.3 The ES identifies the likely significant environmental effects of the Proposed Development at the construction and operation stages and identifies opportunities for additional measures required to mitigate any potential significant adverse effects that may occur ('further mitigation').

1.2.4 Much of the mitigation is secured through a Design Guide. The Design Guide identifies design principles for a deliverable scheme that responds to the Site's technical constraints and opportunities. Mitigation set out in the ES has been incorporated into the Design Guide as appropriate. Development proceeding under the LDO will have to conform to the Design Guide and the ES. The remainder of the mitigation is secured by way of legal requirements.

1.2.5 The ES comprises the following documents:

- **Volume 1** - Main Report;
- **Volume 2** – Appendices; and
- **Non-Technical Summary** - (this document).

2 Site and Surrounding Area

2.1 Site History

2.1.1 The majority of the Site, formerly known as Huntspill Energy Park (HEP), received planning permission for an Energy Park in November 2017 (the '2017 Planning Consent').

2.1.2 Approximately 250 hectares (616 acres) of the HEP site was part of the former Royal Ordnance Factory (ROF) owned by BAE Systems. The ROF site was closed by BAE Systems in 2008. The Site was acquired by Gravity in 2017. Since 2017, Gravity has focused on remediation of the former ROF site, construction of the Gravity Link Road and the re-imagination of the Site to facilitate a new era of clean and inclusive commercial growth which will deliver on climate action and create high quality jobs.

2.1.3 Prior to determination of the Huntspill Energy Park application, the Site secured Enterprise Zone (EZ) status in April 2017. The EZ became live on the 1 April 2017 and runs for 25 years until 2042.

2.1.4 Demolition of existing structures and remediation works for the former ROF site were subject to a separate planning application which was approved by SDC on 3 April 2012 (42/11/00017).

2.1.5 A few buildings, including some buildings currently being used as site offices by Gravity, are still located on the Site. These will be demolished under the LDO. The majority of demolition and all of the remediation works were completed by November 2020.

2.2 Site Location

2.2.1 The Site is located between the villages of Puriton and Woolavington, approximately 6km north east of the centre of Bridgwater. The Site lies approximately 2km to the east of Junction 23 of the M5 motorway. A Site Location Plan is included in **Appendix A**.

2.3 Site Description

2.3.1 The majority of the Site, associated with the ROF, is brownfield land hosting a primary industrial manufacturing use over the past 70 years. Land on the edges of the Site, in particular to the south and east, is greenfield agricultural land.

2.3.2 The Site includes four spurs from the main relatively square central Site area:

- To the north-west: which comprises the route of the former railway spur, crossing the M5 motorway, to join the Bristol-Exeter mainline railway;
- To the north, a spur runs from the central Site area to the Huntspill River and contains a large system of reed beds;
- To the east, the Site is linked to the B3141 Causeway by a narrow strip of land which is the current access track to the fishing lakes; and
- To the south, a large spur which is the route of the new Gravity Link Road connecting the central area of the Site from its south west end to the A39 and M5 Junction 23 via a route running to the east and south of the village of Puriton and linking in to the A39 immediately south of Puriton.

2.3.3 The area of the Site relating to the former ROF has been remediated to ensure that any residual contamination does not pose an unacceptable risk to the health of future occupants or the environment.

2.3.4 The Site is low lying and flat with levels across the Site varying between 4.5 to 7.3 metres above ordnance datum (AOD). The underlying geology is mapped as Langport Member, Blue Lias Formation, and Charmouth Mudstone Formation interbedded Limestone and Mudstone which are overlain, across most of the Site, by superficial Tidal Flat Deposits.

2.3.5 The local area is known as Puriton Level and is crossed by rhynes (drainage ditches). These provide the existing surface water drainage on Site, eventually discharging into the Huntspill River to the north or River Parrett to the west. Some of these rhynes pass through the Site, conveying flows from the upstream catchment, whilst the rhynes on site discharge into these.

2.3.6 Broadly, the Site comprises a brownfield site with areas of grasslands, woodland, scrub, hedgerows, tall ruderal, and ephemeral vegetation along with standing water, reed bed, wet and dry ditches, as well as buildings, hardstanding and significant infrastructure and utilities from the former use buried underground and now primarily subject to completed removal. There are also areas of disturbed / bare ground. Materials from the Site are being processed and sorted for reuse.

2.4 Environmental Context

2.4.1 The village of Puriton lies immediately to the south west of the Site and the village of Woolavington lies immediately to the south east. Beyond Puriton, approximately 2km west of the Site, lies junction 23 of the M5 motorway and the motorway runs in north-south orientation. Puriton and Woolavington contain the closest dwellings to the Site.

2.4.2 As well as the M5 motorway, the closest roads are Woolavington Road which runs in an east-west direction between the villages of Woolavington and Puriton to the south of the Site, the B3141 Causeway which runs in a north south direction between the villages of East Huntspill and Woolavington to the east of the Site.

2.4.3 The Huntspill River lies immediately to the north of the Site. It is essentially a large reservoir constructed to provide a water supply to the former ROF. Water levels are managed by the Environment Agency to be 3.5mAOD in the summer and 2.9mAOD in the winter.

2.4.4 Within 5km of the Site there are a number of internationally and nationally designated nature conservation sites. These are:

- Huntspill River National Nature Reserve (NNR) - located immediately to the north of the Site, with a small section (c.0.7ha) overlapping with the Site. This NNR consists of open water, lowland grassland, and small areas of woodland. It supports populations of Otter and Barn Owl. It is also designated due to its supporting and connecting habitat between the Severn Estuary Special Protection Area (SPA) located 2 km to the west of the Site and Somerset Levels SPA located 4 km to the east of the Site;

- Bridgwater Bay Site of Special Scientific Interest (SSSI) and NNR - situated approximately 2.4km to the west of the Site at its closest point. The SSSI forms part of the Severn Estuary Special Protection Area (SPA) and Ramsar Site. Part of the Bridgwater Bay SSSI also forms part of the Severn Estuary Special Area of Conservation (SAC). This area is designated for its important populations of wildfowl and waders, its coastal habitats and three annex II species of fish;

- Catcott, Edington and Chilton Moors SSSI is situated 3.1km to the east of the Site. This SSSI forms part of the Somerset Levels SPA and Ramsar Site, the latter being designated for its important assemblages of wintering wildfowl and waders.

2.4.5 The Environment Agency flood maps (which do not take account of flood defences) indicate that the majority of the Site is in Flood Zone 3 (defined as land with a 1 in 100 or greater annual probability of fluvial flooding or with a 1 in 200 or greater annual probability of tidal flooding). Some small areas are located in Flood Zone 2 and 1, with medium and low probability of flooding respectively and particularly those areas to the south. The tidal reaches of the River Parrett pass within 5km west of the Site and tidal flood defences have been constructed along the Parrett Estuary which are effective in this location and will be supplemented by the Bridgwater Tidal Barrier, due for delivery by 2024 (target date at time of writing), as a comprehensive, long-term solution. Detailed flood modelling demonstrating low risk of inundation has been completed as part of the baseline and evidence base and it is important to note that there are no records of flood events having affected the Site since its construction.

2.4.6 The Site falls within three Landscape Character Areas: Levels and Moors (Levels), Lowland Hills (Polden Hills) and Levels and Moors (Clay Moors). To the south of the Site the ground begins to rise up more steeply to form the Polden Hills. From the Site centre, the Quantock Hills Area of Outstanding Natural Beauty (AONB) lies approximately 12km to the south-west of the Site and the Mendip Hills AONB approximately 14km to the north and north-east of the Site.

2.4.7 The Site is not considered to be a sensitive area as defined by the EIA Regulations (Regulation 2).

3 The Proposed Development

3.1 Introduction

3.1.1 The Proposed Development is defined by a series of parameter plans to show the flexibility in the development consented by the LDO, provided in **Appendix B**:

3.1.2 A Concept Plan has been prepared to provide a graphic representation of a scenario that could come forward within the Parameter Plans. This is provided at **Appendix C**.

3.2 Description of the Proposed Development

3.2.1 The description of development is set out at **Paragraph 1.1.5**. Further details are provided below for the different elements of the Proposed Development.

Commercial Land Use

3.2.2 The LDO will grant consent for a total of 1,000,000m^2 gross external area (GEA) of use classes E (a) – (g) (commercial, business and service), B2 (general industrial), B8 (storage or distribution) and Sui Generis.

3.2.3 The LDO will facilitate the creation of a minimum of 4,000, and up to approximately 7,500, jobs which will be delivered primarily from the Commercial land uses proposed within the LDO. However, jobs will also be generated through other land uses including leisure, sport, hotel, education and community uses.

3.2.4 The LDO is market-led and therefore flexibility is being sought for the commercial land use classes across the Site. There is the potential for one operator to occupy the whole of the Advanced Manufacturing part of the Site with an Advanced Manufacturing facility. Alternatively, this part of the Site could consist of a series of smaller units with several operators.

3.2.5 Commercial use E (a) – (g) is also proposed. Commercial (employment generating) uses will be integrated within residential and leisure areas to encourage an integrated community and a live-work environment.

Rail Land Use

3.2.6 Rail land use relating to both passenger and freight rail, associated terminals and infrastructure is shown in the orange hatched area on the Land Uses Parameter Plan in **Appendix 3.1a**. The Parameter Plan shows a corridor for the rail infrastructure to allow for configuration of the infrastructure to accord with the requirements of an operator(s).

3.2.7 Passenger rail will enter the north west corner of the Site, and pass down the western side of the Site, terminating in a passenger station in the south west corner. Freight rail will also enter the north west corner of the Site to serve the commercial land use. It is anticipated that sidings will be provided at this location, along with associated infrastructure including mobile gantry cranes and roads. The Building Heights Parameter Plan (**Appendix B**) shows a maximum height of 11 metres in this area to accommodate gantry cranes and associated infrastructure.

3.2.8 There is also the potential that the rail bridge over the M5 motorway will require replacement to facilitate the restoration of passenger and freight rail provision to the Site.

Sui Generis

3.2.9 Sui Generis land uses could also come forward. An example of this use class could include an electric vehicle charging forecourt.

Sport and Leisure

3.2.10 The Proposed Development provides several opportunities for play areas, sport and recreation, including public sport, children's equipped play and teen provision. Opportunities for provision include:

- The pitches and facilities in the south west corner of the Site, shown as blue hatched on the Land Uses Parameter Plan in **Appendix B**; and
- Leisure uses such as gyms, cafes, community facilities, nursery and residential accommodation across the blue and green hatched areas.

3.2.11 The scope of the provision will of course be determined by future occupiers and provision may be driven by meeting the needs of the workforce on the campus. Opportunities to integrate and offer services to the Site and the wider community are captured in the Design Guide to enhance corporate environmental and social governance and to ensure community cohesion.

3.2.12 There is also provision for community facilities under use class F, for example small shops, a hall or meeting place or outdoor sport and recreation use.

Education and Training

3.2.13 Education and training uses will be brought forward to respond to operator(s) demand and will be linked to the employment uses and workforce on Site, for example a campus training facility to deliver research, development and training specific to the demands of occupiers including the potential need for start-up and small business space. If demand requires, a nursery/day care facility will be provided.

3.2.14 If there is demand for early years, primary and/or secondary education as a result of the residential element of the Proposed Development, contributions to education (and health) will be through Community Infrastructure Levy.

Hotel

3.2.15 The Proposed Development includes provision for a hotel, which would be provided to serve the business and operational needs of the Gravity Smart Campus and Community.

Residential and Associated Community Uses

3.2.16 Up to 750 dwellings will be provided to serve the Gravity Smart Campus and Community and to provide capacity in the housing market to support the jobs on Site and reduce impacts on the local housing market. These homes will be tied to Gravity and will not be open market housing. They are proposed within the green and purple hatched areas on the Land Uses Parameter Plan (**Appendix B).**

3.2.17 The homes will be designed to fit within the ethos of the smart campus and will offer high specification accommodation that achieves net zero carbon commitments, reduced parking, and electric vehicle (EV) charging, supporting attractiveness to those who wish to adapt to a lower carbon lifestyle and achieve a better work life balance. The homes will be designed to attract and retain a skilled workforce and be targeted at Gravity's young professionals and key workers. They will therefore not compete with the open market housing market in nearby

communities being of a style and nature to respond directly to the demand created by Gravity, rather than to respond to local market demand. The priority for local workforce development and sustainable connectivity will also support that the local community secures work opportunities on Site.

3.2.18 Campus community uses are also expected to be brought forward under the Use Class F. Examples are a small shop, community space / halls, and will be provided to serve the Gravity Smart Campus and Community to meet on-site needs.

3.2.19 Wider community and locality uses are also proposed in the blue hatched area, such as for re-provision of a new 37 Club, which could be supported by other uses to support viability including a café, playground, cycle hire.

3.2.20 Sports pitches and other outdoor recreation is proposed, and this will be confirmed by the future occupiers to meet workforce needs and for them to consider opportunities to open facilities to wider communities.

Energy Generation, Distribution and Management Infrastructure

3.2.21 Energy generation land use will be designed to be compatible with surrounding uses and could, for example, include roof-mounted photovoltaic solar panels and ground source heat pumps.

3.2.22 The 'Energy Distribution and Management Infrastructure' area will include a connection into the overhead power lines via a substation to provide an energy supply to the Site, and its associated infrastructure. The Proposed Development will also include infrastructure to assist with site-wide energy management.

Landscaping and Green Infrastructure

3.2.23 The Proposed Development is underpinned by a Strategic Landscape Parameter Plan (**Appendix B**) which includes the retention, reinforcement and evolution of the existing landscape framework.

3.2.24 The Strategic Landscape Parameter Plan allocates areas on the Site for greenspace, structural tree and woodland planting, the Gravity Park (see below), placemaking nodes, landscape bund, planting and water attenuation areas. These areas are primarily located on the edges of the Site but are substantial areas of greenspace, often exceeding 100 metres in width.

3.2.25 The Proposed Development includes a variety of pocket gardens and parks, offering outdoor recreation on the campus for the workforce and its residents and community. The land shown as blue hatched on the Land Uses Parameter Plan (**Appendix B** located in the south west corner of the Site will accommodate buildings on only up to 50% of the zone area, with the remainder being blue and green infrastructure, a tree nursery, community uses, sports, leisure and associated infrastructure such as rail, road and cycle routes.

3.2.26 A 'Green Edge' (an east to west landscape corridor) will be provided along Woolavington Road to provide landscaping adjacent to the road and to achieve a campus environment and provide a biodiversity corridor. Several 'placemaking nodes' (Central Park, Gravity Green and Gravity Plaza) will be incorporated and landscaped as appropriate. These are considered important focal points for this area that the development will respond to appropriately through landscape and built form. The location of these placemaking nodes is not fixed but illustrative locations are shown on the Strategic Landscape Parameter Plan in **Appendix B**.

3.2.27 Within the rail corridor, trees will be retained where possible, subject to the rail alignment and other necessary associated infrastructure. The existing landscape bund along the western Site

boundary will be retained with existing trees also retained where possible, and with structural tree and woodland planting incorporated to the west of the bund.

3.2.28 Aa north to south biodiversity corridor will be achieved in the 400kV corridor. Landscaping within the Site will incorporate street trees and rhynes and be informed and shaped by the Design Guide. Opportunities to strengthen landscaping and improve the setting of leisure facilities such as the fishing lakes will be incorporated in the Design Guide.

3.2.29 Paths on Gravity land will be Permissive Pathways rather than Public Rights of Way. New pavements constructed on the existing highway land will become part of the highway owned and maintained by the Local Highways Authority.

Layout

3.2.30 As shown on the Land Uses Parameter Plan (**Appendix B**), the layout of the Proposed Development is designed to provide areas for commercial, energy distribution/management infrastructure, residential and associated community uses, leisure, education, hotel, energy generation, sport and leisure and community facilities.

3.2.31 Open space and biodiversity zones, including surface water attenuation features, watercourses, woodland, hedgerows and trees is also allocated on the Land Uses Parameter Plan, as well as a rail corridor for freight, passenger and associated infrastructure, and a passenger station.

Building Heights

3.2.32 Building Heights are shown on the Building Heights Parameter Plan (**Appendix B**) which provides for buildings of up to 35 metres ridge height in the orange hatched area, scaling down to a maximum 23 metres ridge height in the green hatched area, 12 metres ridge height in the purple hatched area and 11 metres ridge height in the blue hatched area.

3.2.33 Within the Advanced Manufacturing zone (shown orange hatched on the Land Uses Parameter Plan), an additional 25 metres is proposed for stacks relating to the end-use. Whilst is it most likely that an additional 10 metres is likely to be sufficient, an additional 25 metres is included as it is understood some commercial uses could require this height.

3.2.34 Flues may also be required in relation to Energy Generation land use and an additional 3 metres above adjacent building height is therefore required and shown on the Building Heights Parameter Plan. The height and number of flues associated with the Energy Generation will be determined by dispersion modelling.

3.2.35 Adjacent to the village of Puriton, in the area shaded pink on the Building Heights Parameter Plan, the ridge height is shown to be up to 11 metres, however, up to 50% of this area will accommodate buildings, and the remainder will be associated infrastructure such as green infrastructure, community uses, sports, leisure or associated infrastructure such as roads, footpaths and cycle routes.

Water Bodies and Drainage

3.2.36 The Site currently includes waterbodies and drainage systems. The Strategic Landscape Parameter Plan shows the existing water bodies, rhynes and Internal Drainage Board (IDB) rhynes that will be retained. These are primarily the fishing lakes on the eastern edge of the Site and the network of rhynes within the greenspace in the east, north and west parts of the Site.

3.2.37 The existing rhynes in the north east and south west of the Site will remain in situ, as indicated on the Infrastructure and Utilities Parameter Plan. There is also an existing reedbed system in the north of the Site, which runs north to the Huntspill River which will also be retained.

3.2.38 In addition, there are two water attenuation areas that are to be delivered as part of the Gravity Link Road, in the south west part of the Site. A further area of water attenuation will be provided in the north of the Site, in the vicinity to the southern end of the existing reedbed system.

3.2.39 The existing rhynes, reedbeds and water bodies to be retained, as well as other rhynes to be incorporated, will be included in the Site-wide Drainage Strategy which has been prepared for the LDO. This Strategy will also incorporate the use of sustainable drainage systems (SuDS) which will also allow for ecological and amenity benefits.

Operational Waste

3.2.40 An Operational Waste Management Strategy (OWMS) has been prepared for the operation phase to support the LDO. This Strategy examines the relevant waste policy that needs to be considered and estimates the levels of waste expected to be generated, in addition to proposing waste management strategies through the operational phases of the Proposed Development.

3.2.41 The Strategy seeks to minimise the negative environmental and carbon impacts associated with resource extraction, use and disposal through lifecycle analysis and circular economy thinking. Further information, including regarding the Gravity 4R's approach (Recover, Recycle, Repurpose and Reuse) can be found in the OWMS.

Access and Movement

3.2.42 Access and movement is shown on the Transport: Micromobility and Transport: Strategic Infrastructure Parameter Plans in **Appendix B**.

3.2.43 Flexibility is required for the internal transport, road and micromobility connections. As shown on the Parameter Plans, these locations are not fixed and will be located to respond to operator(s) requirements.

3.2.44 Within the movement hierarchy, pedestrian, cycle and other micromobility modes will take precedence. The Micromobility Parameter Plan shows a network of micromobility routes within the southern part of the Site. These will comprise:

- **Key Pedestrian/Cycle Connections** – Pedestrian and cycle connection that provide strategic connections within the Proposed Development;
- **Shared Pedestrian and Cycle Paths** – Paths that allows for simultaneous pedestrian and cycle movements. These would not include micromobility modes as set out below and are likely to be within development parcels in low key streets / spaces;
- **Micromobility Routes** – Designated routes for all forms of micromobility including cyclist, but also e-scooters, e-bikes, shared bikes and all other small, lightweight vehicles operating speeds typically lower than 15mph; and
- **Mobility Route –** Route with sustainable modes of travel; route to integrate into other street type(s); could include, for example, autonomous vehicles, electric scooters or bikes.

3.2.45 In addition to the above, the Village Enhancement Scheme is now consented and will be completed in 2022. This provides an off-road pedestrian and cycle route between the villages of Puriton and Woolavington, connecting through the Site.

3.2.46 The Transport: Strategic Infrastructure Parameter Plan shows the more strategic access and movement elements across the Site, which will comprise:

- **The Gravity Link Road** — construction of which is due to be completed in October 2021;
- **Primary Road and Main Access** – which will be from the Gravity Link Road in the south-west corner of the Site and include associated pavements / cycle paths and routes as well as drainage as part of previous planning consent;
- **Primary Road Corridor** – will be subject to centre line deviation limits of +/- 50 metres, which will accommodate HGV movements. It will also be used by other vehicles and have cycle and pedestrian connections alongside. It will include a green cross section to accommodate significant planting and drainage;
- **Secondary Access** - which could be provided from Woolavington Road along the southern boundary of the Site at several locations. This also includes the existing roads leading to the ROF site access, which will be retained;
- **Access from the east** - A further access point will be available from the B3141 Causeway to the east for pedestrian and cycle use only, and also emergency and operations use when required;
- **Indicative vehicular crossing** – Crossing points will be provided at various locations on all major routes on desire lines to ensure that active travel users are able to easily cross these routes and create a permeable network of active travel routes. Again, to respond to the required flexibility, indicative locations are shown;
- **Transport Corridor** – will be subject to centre line deviation limits of +/- 30 metres, and will be mixed use streets through the centre of the Proposed Development; they will have a higher degree of enclosure, have animated frontages where possible and public realm; and
- **Rail corridor** - Restoration of the railway line for both freight and passenger use could provide access by rail from the north-west of the Site to the mainline between Bristol and Exeter. A corridor for the rail route is provided on the Parameter Plans to enable the exact routing within the Site to be developed to respond to occupier(s) demand.

3.2.47 The Proposed Development will also include ‘mobility hubs’, which will allow people to switch between different modes of travel. Mobility hubs will typically include at least 2-3 modes of travel with at least one of them more strategic in nature, most likely located near to the passenger rail station, bus stop/interchange and main access to the Site in the south west corner, and will also include associated services at the hub.

Car Parking

3.2.48 Sustainable travel modes will be encouraged as much as possible and there will be a limited number of cars circulating within the Gravity Smart Campus and Community. Multi-storey car parking (MSCP) could be provided together with at-grade surface car parking within the area hatched blue on the Land Uses Parameter Plan, for people working at Gravity. These are expected to be located close to the Site entrance to limit traffic movements within the Site and prioritise internal movement by sustainable modes. Temporary surface car parking may be provided prior to the availability of the MSCPs.

3.2.49 Car parking for people living at the Gravity Smart Campus and Community will be provided at a rate of no more than one space per dwelling with managed additional parking provided for visitors accessing the onsite facilities.

3.2.50 Heavy Goods Vehicle (HGV) parking associated with the core employment uses could be provided within the orange hatched area on the Land Uses Parameter Plan.

3.2.51 Electrical vehicle charging will be provided to encourage the transition to electric vehicles.

Sustainability

3.2.52 Sustainability is at the heart of the design and development of Gravity. Ambitions to achieve regeneration and place transformation are set out in the Clean and Inclusive Growth Strategy which was developed taking into account a full review of the UN Sustainable Development Goals. The review resulted in the determination of key themes and priorities to shape the approach to the LDO.

3.2.53 Gravity will host and support companies who are committed to making a difference socially, economically, and environmentally, driving the UK's transition to a cleaner economy.

3.3 Consideration of Alternatives

3.3.1 The EIA Regulations require an ES to include a description of the reasonable alternatives considered, indicating the main reasons for the choices made, including a comparison of the environmental effects. This legal requirement is expressed in very general and high-level terms, requiring only the inclusion of 'reasonable' alternatives and an indication of 'main' reasons.

3.3.2 The ES considered the following alternatives. A brief description of also provided for each alternative considered.

- **No Development** - the Site is identified in the Bridgwater Vision (2009) as a transformational opportunity for the area and in the Sedgemoor Core Strategy as the key economic development led project within Sedgemoor District. Planning permission was granted for the HEP in 2017 therefore given that there is already a planning permission in place to develop the Site, no development is not a reasonable alternative.

- **Alternative Sites** - The Site is highlighted in several Local Development Plan documents and is within the control of the Developer, therefore no other sites have been considered. In addition, the 2013 HEP Application made use of a brownfield site, which has subsequently been remediated through the Remediation Planning Consent and a new access provided by way of the Gravity Link Road. Use of an alternative site would not have led to the former ROF site being remediated and would not capture the potential boost to the local and national economy through bringing the Site back into beneficial use.

- **Alternative Consenting Mechanisms** -The function of an LDO is to accelerate delivery. They are designed to enable the implementation of a local solution by simplifying planning and providing local authorities with a flexible tool to address particular circumstances. In comparison to the outline and reserved matters approach, an LDO will save time and reduce the administrative planning requirements for SDC. It will also enable the economic benefits of the Site to be expedited and is recommended by government for use on Enterprise Zones such as Gravity.

- **Alternative Forms of Development**

  - **LDO Boundary** - The 2013 planning application boundary comprised a total area of 219.5 ha (542 acres) including the access road area which lies outside of the Enterprise Zone area. The Enterprise Zone boundary comprises an area of 249.4 ha (616 acres) and the overall LDO area, including all land in the control of This is Gravity Ltd, totals 263 ha (650 acres). This includes the additional land of the Gravity

Link Road and fishing lakes for placemaking, and also land for reinstatement of the rail line. The LDO boundary is therefore wider than the EZ boundary.

- **Land Use**

  - ***Commercial*** - The broad location of the commercial land use within the Site has remained consistent with where it was proposed to be located in the 2017 Planning Consent. Commercial land use in this area is likely to be larger scale, such as an Advanced Manufacturing (AM) facility. Different land use scenarios were considered, based on current market interest. A range of occupier requirements ranging from a known Gigafactory requirement through to a mix of smaller units which reflected known market requirements at the time were considered. It was concluded that preparation of the LDO would proceed on the basis of a single development scenario with parameters developed to accommodate a large AM facility reflecting market demands and requirements in the context of the UK transition to a clean growth future.

  - ***Education and Training*** - Education and training provision will be introduced on Site to respond to demand and will be linked to the employment uses of the Site. For example, campus training facilities and centres will be constructed and used to deliver the skills required to upskill the local workforce for careers in AM, in collaboration with local higher education providers.

  - ***Residential*** - The 2017 Planning Consent and early design iterations for the Proposed Development did not include a residential element. However, the Proposed Development now includes the provision of up to 750 dwellings to serve (and thus be tied to) Gravity and these will not take on the characteristics of typical open market housing. The provision of up to 1,300 dwellings was considered in the early design stages. Numbers have been reduced to 750 during the design process.

  - ***Community and local centres*** - The core purpose of the Smart Campus is to provide large scale AM. Given the rail access to the north and the large-scale nature of the buildings located to the north of the Site, and the likely need for security for the commercial land uses, the community land uses were located on the southern part of the Site from the outset. These have been deliberately located close to existing villages to ensure inclusivity. These facilities also provide a positive ‘front door’ appeal to the Proposed Development and the sensitive nature of the south of the Site lends itself to these less industrial land uses. Community uses will be designed to sit alongside leisure uses in the south of the Site to start to build up a compelling offer for visitors and residents.

  - ***Energy infrastructure*** - The design process has identified an important site for energy infrastructure beneath and adjacent to the 400kV powerlines on the eastern edge of the Site, as additional connectivity, and a substation is required for the Proposed Development. This was included in response to Western Power Distribution (WPD) advice regarding the size of the substation required to service the Site and a requirement for battery storage. It is located partly under the 400kV pylon corridor which helps to make efficient use of land. No reasonable alternatives were identified due to the restrictions on built development under powerlines, for health and safety. This location has the additional benefit of being in a peripheral location away from the main body of the Site.

  - ***Railway line*** - The reintroduction of the railhead is considered important in creating sustainable transport choice and to reduce the reliance on road-

based transport into the Site. It was safeguarded within the 2017 Planning Application along the western edge as shown on the Land Uses Parameter Plan (**Appendix B**), as a combined freight/passenger spur. The rail corridor, as shown on this Parameter Plan has been retained to ensure that there is sufficient scale and flexibility to accommodate both occupier and Network Rail requirements. Given the existing alignment, no alternatives were considered.

- **Other design aspects**

  - ***Building Heights*** - Consideration of the distribution of density and building heights has progressed through the design process in collaboration with the project landscape architects and master planners. The proposed building heights in the south of the Site accord with the principles of lower building heights close to Puriton and Woolavington. The distribution of height and massing across the Site is considered to create a legible separation of the zones whilst providing an integral Smart Campus which will meet market needs. Alternatives considered include the provision of taller buildings in some parts of the Site, but it was considered that a maximum should be set which was considered appropriate to remain in keeping with existing built development on the southern settlement edge of Puriton and Woolavington.

  - ***Biodiversity*** - Biodiversity Net Gain has been a principal design driver for the Proposed Development and is a key element in ensuring that Gravity alleviates its impacts on biodiversity and provides social and environmental benefit to existing and future occupiers. The Strategic Landscape Parameter Plan (**Appendix B**) has been driven by the market facing approach to the LDO whilst seeking to integrate site assets and achieve strong placemaking.

  - ***Drainage*** - A number of drainage solutions were considered, largely dictated by the size of the AM facility. Consideration was made for the retention of the long north-south ditch that would provide a direct conveyance route through the Site. However, this conflicted with the need to retain flexibility for a large northern plot. In addition, options to culvert underneath the large northern plot were considered, however this option was considered to pose a high level of constraint on potential development and also a potential for challenges to ongoing maintenance of any culverts under such large buildings.

  - ***Access and Movement*** - The approach to access and movement for the Proposed Development has evolved with the design of the proposals and has also been influenced by the wider delivery and strategy proposals relating to the Gravity Link Road. The access and movement framework is essential to supporting the overall Smart Campus approach and to support the Clean and Inclusive Growth Strategy, in particular to de-carbonise transport, minimise transport impacts on the strategic and local road network, establish multi-modal transport infrastructure including the rail restoration, encouraging micromobility blending community and campus movement and providing corridor infrastructure to enable autonomous movement.

3.3.3 The consideration of alternatives concludes that the Parameter Plans for the Proposed Development have been based on the requirements of national and local policy, the design brief set by Gravity and in response to market analysis and demand. Its objective is to meet the market demand whilst taking into account environmental conditions, public consultation, viability considerations and by responding to the constraints and opportunities of the Site.

4 Assessment Methods

4.1 Introduction

4.1.1 In general terms the main stages in the EIA are as follows:

- Screening – determining the need for EIA;
- Scoping – identify significant issues, determining the scope of the EIA;
- Establishing Baseline – drawing together and reviewing existing available data and undertaking surveys to determine the existing and future baseline conditions;
- Assessment and iteration – assess likely significant effects of development, both adverse and beneficial, evaluate alternatives, provide feedback to the design team on potential adverse impacts, modify development or impose parameters, incorporate mitigation (including potential monitoring and long-term management), assess effects of mitigated development;
- Preparation of the ES; and
- Consultation on the ES.

4.1.2 The EIA Regulations require that a local planning authority must not make a Local Development Order unless it has prepared information on screening as set out in the EIA Regulations. A Screening Opinion outlining the description of development and likely significant effects of the development was adopted by SDC on 23rd June 2021 (application no 99/21/00127) identifying that an EIA is required for the LDO.

4.1.3 An EIA Scoping Report was prepared to document the proposed scope and approach to the EIA, in accordance with Regulation 15 of the EIA Regulations (reference 42/21/00021). Statutory consultation with relevant statutory and non-statutory bodies was undertaken from 29th June 2021 to 3rd August 2021 on the Scoping Report to inform assessments being undertaken for the ES. An EIA Scoping Opinion was issued by SDC on 27th September, planning reference 42/21/00021.

4.2 Assessing Effects

4.2.1 The EIA has assessed the likely significant effects of the Proposed Development against baseline conditions on site, which have been established based on technical surveys and assessments, including data collected to inform previous planning applications at the Site.

4.2.2 The year 2032 has been identified as the assessment year for operational effects for the majority of the technical assessments included in the ES. This year has been identified as it is the end of the current Local Plan period and a date by which it is reasonable to assume that the development approved by the LDO will have been delivered.

4.2.3 The current conditions at the Site and in the surrounding area have been factored forward to predict likely conditions at the Site in 2032 to enable the effects of the LDO to be considered against a 'do nothing' scenario.

4.2.4 The following elements are therefore included in the 2032 Baseline:

- The implemented 2017 Planning Consent. The safeguarded land uses are not included in the 2032 baseline as they have not been granted consent (i.e., they were safeguarded only and would require a new planning permission or consent to progress).

- The approved village enhancement scheme was identified as mitigation for the 2017 Planning Consent and will be implemented one year from the opening of the Gravity Link Road, i.e., by autumn 2022. Therefore, this is factored into the 2032 baseline.

- Landscaping associated with the Gravity Link Road, which is due to be implemented from October 2021.

- Other existing and approved development in the surrounding area. This includes development that has been allocated in the Local Plan 2011-2032

- Likely changes to the natural environment between now and 2032. This includes natural changes such as growth in vegetation and establishment of habitats, especially of landscaping implemented as part of the 2017 Planning Consent. It also includes anthropogenic changes such as changes to climate, air quality and human behaviours where there can be a high degree of confidence that such changes will occur (for example the transition towards electric vehicles on the basis of clear Government policy on the phasing out of internal combustion engines and the increase in bus services to avoid private vehicle usage as promoted in the recently published national bus strategy). Each chapter outlines as appropriate how these changes have been considered in establishing the 2032 baseline.

4.2.5 For the assessment of effects during operation, the EIA assumes that the Proposed Development will be constructed in accordance with the maximum build out of the mix, quantum and parameters documented in **Section 3** (and further detailed in **Chapter 3** of the ES).

4.2.6 The assessment of likely significant environmental effects during the construction phases has been based on available information and reasoned judgements based on professional experience to enable the likely significant environmental effects to be identified.

4.2.7 In determining the significance of construction effects, it has been assumed that the construction mitigation measures contained within the Framework Demolition Construction Environmental Management Plan (FDCEMP), which is provided with the ES, are fully implemented. For operation, it has been assumed that the mitigation measures as set out in the Mitigation Checklist in Chapter 4 of the Design Guide are fully implemented.

4.2.8 Specific significance criteria have been prepared for each specialist topic for adverse and beneficial effects as required, based on the generic criteria set out in **Table 4.1**. The two key criteria for determining significance of an environmental effect are the magnitude of the effect and the sensitivity of the receptor, in addition the likelihood of the effect occurring is also considered as appropriate.

4.2.9 For the purposes of undertaking the assessment in accordance with the EIA Regulations, effects determined to be moderate or greater are considered significant in EIA terms. Where significant effects have been identified, appropriate mitigation and monitoring requirements have been proposed to result in effects being reduced to an acceptable level.

	Level of Effect	Criteria
Significant	Substantial	These effects are assigned this level of significance as they represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites and features of national or regional importance. A change at a county scale site or feature may also enter this category.
	Major	These effects are likely to be important considerations at a district scale and may become key factors in the decision-making process.
	Moderate	These effects, while important at a local scale, are not anticipated to be key decision-making issues.
Not significant	Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process.
	Negligible or No Effect	These effects are imperceptible, or within normal bounds of variation, or in the margins of forecasting errors. Such effects should not be considered by the decision-maker.

Table 4:1: Generic Significance Criteria

4.2.10 Given the approach as set out above, approved developments (or those considered likely to have been approved and implemented by 2032) are factored into the 2032 baseline, and therefore the assessment of likely significant cumulative effects with these developments is inherent to the assessment and is not reported separately.

4.2.11 Impact interactions, i.e., receptors being affected by more than one environmental effect and therefore potentially being subject to a more significant combined effect than the individual effects reported in each of the topic chapters, have been assessed. This is provided in **Chapter 17**.

5 Planning Policy Context

5.1 Introduction

5.1.1 This section summarises the relevant planning policy context for the Proposed Development at national, regional and local levels. More discipline-specific policy and legislation is referred to under technical chapters of the ES where necessary and in **Chapter 6 Planning Policy Context** of the ES.

5.2 Legislation

5.2.1 Local Development Orders have been available for use by Local Planning Authorities (LPAs) since the 1990 Town and Country Planning Act came into force. They are locally focussed planning tools that LPAs can use to grant planning permission for specific types of development within a defined geographical area. They are designed to help streamline the planning process by removing the need for developers to make planning applications.

5.3 National Planning Policy

The National Planning Policy Framework

5.3.1 At a National Level planning policy is set out within the National Planning Policy Framework, revised in July 2021 (the Framework). The Framework explains that the purpose of the planning system is to contribute to the achievement of sustainable development. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.

5.3.2 The Framework continues to explain that in order to achieve this aim the planning system has three overarching objectives; an economic objective; a social objective and an environmental objective. The framework must be read as a whole including footnotes and it is very clear that the UK Government Industrial Strategy forms a key part of it.

5.3.3 The Framework states, at paragraph 81, that significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development. The approach taken should allow each area to build on its strengths, counter any weaknesses and address the challenges of the future. This is particularly important where Britain can be a global leader in driving innovation, namely in the Grand Challenge areas set out within the Industrial Strategy (including artificial intelligence and big data; clean growth; future mobility), and in areas with high levels of productivity, which should be able to capitalise on their performance and potential. Planning policies should:

a. set out a clear economic vision and strategy which positively and proactively encourages sustainable economic growth, having regard to Local Industrial Strategies and other local policies for economic development and regeneration;

b. set criteria, or identify strategic sites, for local and inward investment to match the strategy and to meet anticipated needs over the plan period;

c. seek to address potential barriers to investment, such as inadequate infrastructure, services or housing, or a poor environment; and

d. be flexible enough to accommodate needs not anticipated in the plan, allow for new and flexible working practices (such as live-work accommodation), and to enable a rapid response to changes in economic circumstances.

5.4 The Adopted Development Plan

5.4.1 The Sedgemoor Development Plan is made up of the Sedgemoor Local Plan 2011-2032. It is supported by a suite of Supplementary Planning Documents (SPDs) and other adopted strategies and guidance. The Sedgemoor Local Plan sets out the policy framework for future development in the District, including provision of housing, employment, retail and other facilities and infrastructure. It was adopted in February 2019. It therefore is the development plan for the District and is a main consideration in the determination of planning applications with appropriate weight being afforded to those policies ahead of any out of date or older policy documents. A neighbourhood plan for Puriton is currently in preparation, but this is at a relatively early stage in preparation with consultation on a draft still to take place.

5.4.2 The Local Plan relates to the whole District and provides a strategy for delivering growth up to 2032. Below the Local Plan sit a number of adopted SPDs, including an SPD relating to the Site itself to which limited weight should now be afforded, strategies (including the Sedgemoor Transport Investment Strategy 2050, for example) and guidance.

5.5 Other Planning Policy

5.5.1 The ES also considered the following policy and other documents:

- Industrial Strategy into the Plan for Growth and its related strategies (March 2021);
- Build Back Better Plan: the 4 Grand Challenges focused on the global trends which will transform our future, including Clean Growth;
- Decarbonising Transport: Setting the Challenge (March 2020);
- Planning for the Future White Paper (August 2020);
- Bridgwater Vision (2009);
- Sedgemoor Core Strategy (September 2011); and
- Puriton Energy Park Supplementary Planning Document (March 2012).

6 Assessment of Effects

6.1 Introduction

6.1.1 This chapter provides a non-technical summary of the technical assessment chapters of the ES.

6.2 Economics

6.2.1 The Proposed Development responds to national, regional, and local policy and strategy documents related to economic development. Relevant documents include: the National Planning Policy Framework; the UK's Industrial Strategy: Building a Britain fit for the future; the Heath of the South West Local Industrial Strategy; the Sedgemoor Local Plan; the Bridgwater Vision; the Sedgemoor Economic Development Strategy; and the Sedgemoor Core Strategy.

6.2.2 The methodology used to assess the likely significant economic effects considers both primary impacts, which are effects that can be directly attributed to the Proposed Development such as employment created during the construction and operational phases; and secondary impacts, which are effects that are indirectly generated from the Proposed Development such as increase spend in the local economy.

6.2.3 The primary impacts are measured by estimating the number of net jobs created and the Gross Value Added associated with this employment. The secondary impacts are measured by estimating the amount of additional consumer spending generated by the new workers and residents.

6.2.4 The economic conditions of the local area show that the unemployment rate is slightly above that in the South West and UK; the rates of high level qualification attainment are below that of the South West and UK; the median weekly wages lag behind the wider South West and national average; and employment is distributed across the main industrial sectors in broadly similar fashion to the South West and UK workforces.

6.2.5 Embedded mitigation includes a Framework Demolition and Construction Environmental Management Plan to ensure compliance with legislation and set out management measures to minimise adverse impacts. In the context of economics, this will apply to maintaining access to areas of employment and residences. Additionally, temporary workforce accommodation for up to 200 workers will be provided during the construction phase, and up to 750 residential units will be created for staff in the operational phase.

6.2.6 Further mitigation measures are proposed to maximise the employment opportunities for local people. These include: A Clean and Inclusive Growth Strategy; A Framework Local Labour Agreement; the Gravity Skills Charter; and the Gravity Business Charter. Through the implementation of these agreements, more high value jobs will be accessible to local people.

6.2.7 The residual impacts of the Proposed Development are:

Construction Phase

- **Net Construction Employment:** The Proposed Development is estimated to support 3,920 net additional temporary construction jobs. This is concluded to result in a temporary substantial beneficial impact;

- **Net Construction Gross Value Added:** the net construction jobs are estimated to generate £257.6 million in Gross Value Added. This is concluded to result in a temporary substantial beneficial impact;

Operational Phase

- **Net manufacturing employment**: The Proposed Development is estimated to support 1,950 net additional manufacturing jobs. This is concluded to result in a permanent substantial beneficial impact;

- **Net professional, scientific & technical employment**: The Proposed Development is estimated to support 6 net additional professional, scientific & technical jobs. This is concluded to result in a permanent negligible beneficial impact;

- **Net services sector employment**: The Proposed Development is estimated to support 170 net additional services jobs. This is concluded to result in a permanent minor beneficial impact;

- **Housing market**: The Proposed Development will include up to 750 homes which would be available to employees at the Site, i.e. not open market housing. This is concluded to result in a Permanent Moderate Beneficial Impact.

6.2.8 The assessment therefore concludes that Proposed Development is likely to result in significant impacts (within the context of EIA Regulations) in relation to: Net construction employment; Net construction Gross Value Added; Net manufacturing employment; and Housing Market. In all cases, the predicted likely significant impacts would be beneficial in nature.

6.3 Health, Wellbeing and Social Impacts

6.3.1 An assessment has been undertaken with regard to the likely significant effects of the Proposed Development on the health, wellbeing and social impacts on residential communities and other health-sensitive groups (referred to as 'receptors'). The assessment considers national and local policy and is based on the Healthy Urban Development Unit (HUDU) planning checklist which sets out key themes, including; Housing, Transport, the Environment and Neighbourhood dynamics, which can have a positive or negative effect on the health and wellbeing of the population. These are referred to as the 'wider determinants of health'.

6.3.2 The assessment used a variety of sources to provide details of current health and wellbeing issues including local health profiles, Somerset Joint Strategic Needs Assessment and Somerset Improving Lives strategy. The review of data indicated that Sedgemoor generally performs better than the national average in terms of overall levels of deprivation, however there is inequality within this. Health indicators where Sedgemoor performed significantly worse than the England average include suicide rate, emergency hospital admissions for Intentional self-harm, hip fractures in people aged 65 and over, estimated dementia diagnosis, admission episodes for alcohol specific conditions, smoking, and percentage of adults classified as overweight or obese. The Site is located within the parishes / wards of Puriton and Woolavington, and ward of Knoll. There are higher levels of income deprivation, child poverty and older people in deprivation within the parish of Puriton and Woolavington than the ward of Knoll.

Demolition and Construction

6.3.3 Demolition and Construction related health risks relate to the potential for reduced environmental amenity; such as through noise disturbances, increased traffic delays and higher levels of dust and poor air quality. These local environmental issues have the potential to disrupt or impact health and wellbeing of the population, resulting in increased stress-related illnesses and cardiovascular diseases. However due to the temporary nature of construction activities, these changes to the local environment are not considered to be significant with regard to human health. A Framework Demolition and Construction

Environmental Management Plan (FDCEMP), will set out measures to manage construction works, including measures to reduce transport related impacts. Furthermore, it is anticipated that there will be a moderate beneficial effect in relation to the creation of training and education opportunities during this phase, and a major beneficial effect in relation to new construction jobs. No residual significant adverse demolition and construction effects are anticipated.

6.3.4 The 37 Club will remain operational until a replacement is in place.

Operation

6.3.5 Beneficial effects are anticipated as a result of the Proposed Development through promotion of active travel. The Proposed Development will provide a range of measures to facilitate and encourage walking and cycling, including new footway and cycleways throughout the Site, and enhanced connectivity to the surrounding area, resulting in major beneficial (significant) effects on walking and cycling, connectivity and minimising car use.

6.3.6 The Proposed Development may have an overall impact on several environmental aspects; however no significant residual adverse effects are anticipated including in relation to air quality, noise, contaminated land and flood risk. Relevant mitigation measures in relation to the above topics have been identified to see that potential adverse effects are reduced to an acceptable level. Moderate beneficial (significant) effects are anticipated in relation to access to nature and provision of play space, open space and physical recreation given the provision of large areas of informal and formal open space throughout the Proposed Development and play facilities for children.

6.3.7 A range of new social infrastructure will be provided for the future workforce of the Proposed Development to use, including leisure and sport facilities, restaurants, cafes and shops. The Proposed Development will provide moderate beneficial (significant) effects regarding provision of social infrastructure, as well as access to education and training opportunities. The Proposed Development will provide major beneficial (significant) effects with regards to the creation of new employment opportunities.

6.4 Transport and Access

6.4.1 The methodology used in the chapter has been developed to fulfil the requirements of the EIA Regulations informed by guidance set out within the following:

- "Guidelines for the Environmental Assessment of Road Traffic" (Guidance Note Number 1) published by the Institute of Environmental Assessment (now the Institute of Environmental Management and Assessment (IEMA)) in 1993;
- Volume 11 of the Design Manual for Roads and Bridges (DMRB) – Environmental Assessment (Highways England – now known as National Highways (NH)); and
- Planning Practice Guidance (PPG) documents 'Environmental Impact Assessment' and 'Travel Plans, Transport Assessments and Statements in Decision-Taking' first published by the Ministry for Housing, Communities and Local Government (MHCLG) in 2014 as a live online resource.

6.4.2 The chapter has been prepared in the context of a detailed assessment undertaken and reported on within the Transport Assessment (TA) which is submitted in support of the LDO. While the TA has been used as source material, it predominately identifies the compliance of the Proposed Development with national and local transport policy and establishes that a safe and acceptable access will be provided. The TA quantifies the transport and highways impact of the Proposed Development, but the environmental impact of the road traffic it will generate requires an assessment against different criteria; therefore, the assessment has been

undertaken against the criteria set out in the “Guidelines for the Environmental Assessment of Road Traffic” referred to above.

6.4.3 The TA, prepared alongside this chapter, has been prepared in accordance with a scope of work that has been discussed extensively and agreed in consultation with SDC, SCC and NH. The TA scoping process commenced in November 2020 and has continued through to the submission of the LDO. The scoping process has involved the preparation of a series of technical notes and reports, and the holding of regular LDO Transport Sub Group meetings (as a subsidiary group of the Gravity Delivery Group).

6.4.4 A review of further national and local policy documents relevant to transport has confirmed a requirement for the Proposed Development to be supported by a TA and Framework Travel Plan and for it to be supported by a transport strategy which seeks to: minimise the need to travel; prioritise access by walking, cycling, micro mobility and public transport; provide safe and suitable access for all users; and manage residual traffic impacts.

6.4.5 The assessment undertaken considers the likely effects the Proposed Development would have on the environment within proximity of the Site at peak construction phase assumed in 2024, and in 2032 when the development approved by the LDO is likely to have been delivered. In doing so, the effects have been compared against a baseline scenario including part implementation of the extant 2017 Planning Consent (i.e., the Gravity Link Road, ecological enhancements and completion of Site remediation).

6.4.6 The assessment considers that environmental effects relating to traffic and transport are likely where traffic flows are predicted to increase by more than 30% (or the number of HGVs will increase by more than 30% - Rule 1), or other specifically sensitive areas where traffic flows will increase by more than 10% as a result of the Proposed Development (Rule 2).

6.4.7 The main receptors of note identified within the adopted study area (on Link 5) included:

- Woolavington Village Primary School, Woolavington Road (‘high’ sensitivity)
- Woolavington Branch Surgery, Woolavington Road (‘medium’ sensitivity)

6.4.8 A bespoke scenario testing spreadsheet tool was developed to enable multiple scenarios for Gravity to be evaluated at a high level in order to help define the most effective ‘mitigate at source’ measures. A single Core Gravity Scenario test reflecting the desirable outcome scenario has been used within this assessment to produce assigned traffic flows across the network for impact assessments.

6.4.9 The Core Gravity Scenario includes the planned sustainable transport strategy and mode share strategy built around a 3-shift working pattern in an AM facility (informed by the operation of similar UK sites).

6.4.10 The transport strategy and transport mitigation measures include the following which were factored into the assessment:

- a package of incentives to encourage cycling and enhanced infrastructure including the A38 corridor scheme and A39 route to Bridgwater Station.
- incentives for employees / residents to use public transport / and or cost on the employee for parking on site.
- Enhanced main A38 corridor bus services and bespoke, dedicated, Demand Response Transit (DRT) minibus / e-bus services for employees geared to align with shift patterns, funded by the Locality Investment Plan and overseen or commissioned by the transport authority or occupier.

- Incentivised car share system.
- Associated on-site trips.
- Comprehensive package of transport planning measures and monitoring.

6.4.11 It is predicted that peak construction traffic flows will be lower than the fully operational development flows. The construction effects will be limited in time to the construction period and the majority of HGV movements limited to the Gravity Link Road, the A39 Puriton Hill, M5 Junction 23 and mainline; all links with no sensitive receptors present. The construction effects will also be managed through embedded mitigation proposals and specifically the Framework CEMP submitted with this ES.

6.4.12 In terms of the operational phase of Gravity, it is predicted that after taking into consideration embedded mitigation for the scheme, the operational effects of the Proposed Development were below the thresholds identified above, and therefore no further environmental assessment has been undertaken in accordance with the IEMA 'Guidelines for the Environmental Assessment of Road Traffic' (Guidance Note No. 1) document and Volume 11 of the DMRB.

6.4.13 The operational transport effects of the proposals will continue to be actively monitored and managed through the implementation of a site wide FTP and Monitor and Manage Plan and in accordance with the wider approach described within the Embedded Mitigation section earlier in this Chapter.

6.5 Noise and Vibration

Introduction

6.5.1 A noise and vibration assessment has been undertaken to determine the likely significant effects from, and upon, the Proposed Development.

6.5.2 Consultation was undertaken with the SDC Environmental Health Department to agree the assessment methodologies through the EIA scoping process.

6.5.3 An unattended environmental sound survey was undertaken between 15 July 2021 and 23 July 2021 in order to determine the existing sound climate across the Site and at locations considered representative of the nearest noise sensitive receptors.

6.5.4 An acoustic model based on up to date traffic data has been created to complement the baseline studies and to predict the likely road traffic noise impact arising from the operation of the Development. It forms the basis of the assessment.

Demolition and Construction

6.5.5 A qualitative assessment has been undertaken of the likely noise and vibration impacts associated with the demolition and construction phase of the Proposed Development. Noise thresholds for the construction activities have been proposed at the nearest existing receptors in accordance with British Standard 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites and Guidelines on Noise Control for Construction Sites.

6.5.6 It is considered that, with mitigation in place as detailed in the FDCEMP, the residual effects are likely to be up to minor adverse, which is not significant. However, further assessment of construction noise and vibration mitigation may be required as appropriate when detailed method statements and construction programme are available.

6.5.7 Construction traffic has been assessed by considering the change in ambient noise levels at existing receptors as a result of changes in traffic flows during the construction phase. The change in noise levels at existing noise sensitive receptors as a result of construction traffic is likely to be negligible at all noise sensitive receptors, which is not significant.

Operation

6.5.8 The potential noise impact on the residential areas of the Proposed Development has been assessed. Mitigation measures are unlikely to be required for the majority of external private amenity areas. However, private external amenity areas close to the existing and proposed noise sources in the area are likely to require mitigation measures to be considered during the detailed design of the scheme. This is likely to be a minor impact and not significant.

6.5.9 Based on the calculated external noise levels it is expected that appropriate internal noise levels can be achieved with the use of acoustic double glazing and acoustic trickle ventilation at properties directly adjacent to roads. Away from roads, it is expected that appropriate internal noise levels can be achieved with the use of standard double glazing and trickle ventilation, which is likely to be a minor impact and not significant.

6.5.10 With appropriate mitigation the overall impact on internal noise levels in the proposed dwellings is negligible and not significant.

6.5.11 The change in noise levels as a result of traffic generated by the Proposed Development has been assessed. The results of the assessment show that the changes in noise levels due to the changes in road traffic are likely to be negligible at all noise sensitive receptors, which is not significant.

6.5.12 The potential noise impact of the proposed rail infrastructure has been assessed. The results of the assessment show that the impact is likely to be negligible at all noise sensitive receptors.

6.5.13 It is considered that, with embedded mitigation in place, the impact of plant noise would be negligible and not significant.

6.6 Air Quality

6.6.1 The air quality effects associated with the construction and operation of the Proposed Development have been assessed.

6.6.2 The construction works have the potential to create dust. A qualitative assessment has been undertaken to determine the likely air quality impacts associated with the demolition and construction phase of the Proposed Development. During construction, a package of mitigation measures will be put in place to minimise the risk of elevated particulate matter concentrations and dust nuisance in the surrounding area. With mitigation in place the construction impacts are judged as being not significant. The change in construction traffic is below the relevant thresholds for significant effects and are therefore judged as being not significant.

6.6.3 Baseline and future pollutant concentrations have been predicted at sensitive receptor locations using an atmospheric dispersion model and based on up to date traffic data. There are predicted exceedances of the annual mean nitrogen dioxide objective in 2018 at one receptor location (R6) adjacent to the M5. Concentrations of nitrogen dioxide at all other receptors are predicted to be below the objective. Concentrations of particulate matter are predicted to be below the relevant objectives in 2018 and 2032.

6.6.4 Pollutant concentrations have been predicted without and with the development in place. The impacts predicted at all individual receptor locations are described as negligible and the

overall air quality effects of emissions generated by the development are not significant. No additional mitigation is required to reduce the direct effects of the development on local air quality.

6.6.5 It is considered that, with embedded mitigation in place, the impact of the Proposed Development on air quality would be negligible and not significant.

6.7 Biodiversity

6.7.1 The ecological assessment is based on results from field surveys undertaken by Ecology Solutions Ltd most recently in 2020/21, and with reference made to historic survey data dating back to 2007. Surveys were undertaken to ascertain the general ecological value of the Site and to identify the main habitats and associated plant species. Specific protected species surveys have been undertaken for Badgers, Bats, reptiles, birds, Water Vole, GCN and invertebrates. Further information has been obtained through consultation with the recognised bodies involved in nature conservation in the local area.

6.7.2 The current state of the environment at the Site consists of a mix of bare ground, hardstanding, grasslands, rhynes and ponds, wetlands and woodland. However, the assessment is based on a 2032 baseline that includes the implementation of the 2017 Consent.

6.7.3 The ecological features identified through both field surveys and desk-top studies has been interpreted within the context of recognised methodologies and also within the planning policy context, both on a national and local level.

6.7.4 The potential ecological impacts of the Proposed Development are largely focused on the Site and its immediate surroundings. However, given the Site's location within proximity of a number of designated statutory, and non-statutory sites, consideration has also been given to the potential impacts and opportunities that arise at a landscape scale.

6.7.5 Following the employment of mitigation measures as set out in the ES Chapter, there are predicted to be no significant adverse impacts on any statutory and non-statutory sites either alone or in combination with any other plans or projects. Furthermore, the bolstering of retained habitats alongside the introduction of new areas of landscaping will create improved connectivity links with surrounding habitats.

6.7.6 In order to facilitate the Proposed Development, it is expected that habitats, in the main with relatively low ecological value, are to be lost. However, some areas of greater value, within the context of the Site will also be lost, namely species rich grassland. By way of mitigation, several new areas of ecologically sensitive landscaping will be introduced. New grasslands will be created with the seed banks of existing grasslands. Furthermore, habitats of relatively higher ecological value within the context of the Site (including the rhynes and reed bed) will be retained and subjected to bespoke enhancement regimes. This will mitigate for loss of any habitats.

6.7.7 The habitat boundaries are known to support a limited amount of bat activity. Surveys undertaken during 2020 identified several species using the Site including rarer species such as Lesser and Greater Horseshoe bats and Barbastelle. Common Pipistrelle, Lesser Horseshoe and Brown Long-eared bats are known to roost within buildings. Due to the central parts of the Site consisting of low suitability habitat for bats, activity is generally restricted to the periphery of the Site. Opportunities for foraging / commuting bats will be safeguarded and enhanced where possible, post-development. However, lighting impacts are considered to affect commuting corridors in some areas for more sensitive bat species. By way of enhancement, bat roosting boxes are to be installed across suitably retained habitat within the Site as part of a package enhancement measures.

6.7.8 In order to safeguard nesting bird species, any clearance of suitable vegetation will only occur outside of the nesting season, or immediately following checks from a suitable qualified ecologist. Furthermore, the implementation of an ecologically valuable planting scheme (to include berry bearing trees), as well as the incorporation of nest boxes of various designs, will enhance opportunities for nesting birds post development in the long run.

6.7.9 Great Crested Newts are known to be present within several ponds on the Site, although their dispersal is limited due to previous trapping and translocation efforts. As part of further district level licencing, it is proposed that offsite habitats of strategic value will be created to facilitate the loss of habitats present onsite.

6.7.10 A similar approach will be taken with respect to Water Vole onsite, with an offsite receptor site secured to receive the population.

6.7.11 Badgers are present within the Site and will be retained within areas set away from the Proposed Development. An artificial sett will be created for the resident population and suitable foraging and commuting habitat will be retained and enhanced in close proximity to the sett.

6.7.12 As part of providing a greater matrix of habitats to support enhanced biodiversity across the Site, areas suitable for invertebrate habitat will be created. This will include pockets of bare ground and flower rich habitat that are optimal for invertebrates.

6.7.13 The retention and creation of ecologically valuable habitats as part of the proposals and the implementation of long-term enhancements will ensure significant benefits to biodiversity in the long-term.

6.7.14 In addition to onsite mitigation and ecological betterment of retained and newly created habitats, the ecology strategy has a focus on off-site deliverables. These off-site measures are in part necessary to facilitate required mitigation in respect of ensuring the favourable conservation status of protected species (e.g., Great Crested Newts and Water Vole), but equally they are necessary to compensate for losses of habitats of greater ecological value (e.g., areas of more diverse grassland / Local Wildlife Sites) and also to ensure that the proposals meet the national policy requirements relating to providing net gains for biodiversity.

6.7.15 As such, no adverse impacts have the potential to arise and indeed the proposals would contribute positively to biodiversity and nature conservation objectives in the local area, as is clearly required by relevant legislation and planning policy.

6.8 Water Environment

6.8.1 An assessment has been undertaken to determine the likely significant effects of the Proposed Development on the water environment and has been carried out in accordance with national and local planning policy including NPPF and the Sedgemoor District Local Plan, and industry best practice and guidelines.

6.8.2 The ES chapter was prepared in parallel with the Flood Risk Assessment and Surface Water Drainage Strategy which have been submitted to support the LDO. While these reports have been used as source material, they predominantly identify that the LDO is compliant with national and local policy and establish that suitable flood risk management strategies will be provided.

6.8.3 The potential impacts that were assessed included the potential flood risk posed by all sources (fluvial, tidal, surface and groundwater) during demolition, construction and operation; and increased pollution risk to the environment.

6.8.4 The study area for the water environment effects is the area within 500m of the Site encompassing surface water features, groundwater features and abstractions which have hydraulic connectivity to the Site.

6.8.5 The Site has the following characteristics:

- Underlain by Langport Member, Blue Lias Formation and Charmouth Mudstone Formation bedrock, which are classified as a Secondary (A) Aquifer with limited permeability;
- Not located within a designated Source Protection Zone for the protection of groundwater resources;
- An updated assessment has been completed regarding the existing tidal flood risk onsite using updated climate change allowances; and
- A surface water drainage strategy, based on the use of Sustainable Drainage Systems, has been developed with stakeholder and policy requirements and mimics the existing surface water regime.

6.8.6 Mitigation during the construction phase is included in the FDCEMP, with best practice construction techniques to mitigate the potential impacts of physical (e.g. sediments) and chemical (e.g. hydrocarbons) contamination on water environment receptors.

6.8.7 The use of surface water drainage strategy will cumulatively mitigate the potential impacts associated with increased surface water run-off, water quality and groundwater recharge during the construction and operational phases.

6.8.8 Overall, there will be no cumulative effects within the local area (outside of the Site) and the catchment of the Huntspill River.

6.8.9 In conclusion, the assessment demonstrates that, following mitigation, the residual adverse impacts are negligible or at worst, minor adverse.

6.9 Landscape and Visual

6.9.1 The Landscape and Visual Impact Assessment (LVIA) chapter considers the landscape and visual effects that are likely to arise from the Proposed Development. The following paragraphs provide a summary of the findings.

Key policies

6.9.2 Much of the Site has historically been occupied by the industrial built form of the former ROF, and the Site is recognised within the local planning background documents, recorded as ‘Puriton Energy Park’ and within the Bridgwater Vision 2009.

6.9.3 The 2017 Planning Consent accepts the principle of large scale buildings on the Site, supported by local planning policy, which places emphasis on careful consideration of local landscape character, the setting of the Mendips and Quantocks Areas of Outstanding Natural Beauty, visual amenity and green infrastructure networks within the local landscape, and on the Site itself.

Methodology

6.9.4 The chapter examines the following as separate, although linked, considerations:

- Landscape effects; derived from changes in the physical landscape, which may give rise to changes in its character and how this is experienced. This may, in turn, affect the perceived value ascribed to the landscape.

- Visual effects; related to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects on visual amenity value of the views from surrounding uses.

6.9.5 The broad study area for landscape effects is 5 km, with a more detailed study of local landscape character concentrated within 2 km of the Site. The study area for visual effects extends across the area from which the Site can been seen, in this case, views of the Site are available, albeit distantly, from the Mendip Hills and Quantock Hills, located approximately 15 km and 17 km away respectively

Baseline conditions

6.9.6 At the time of writing the majority of demolition and remediation works have been completed, on the Site, and the Gravity Link Road to the A39 is largely complete according to the 2017 Planning Consent. Areas of the Site outside of the former ROF are predominantly green field. To reflect the evolving conditions on the Site, the assessment refers to a baseline in 2032 which considers the Site as it will be at that time, with the 2017 Planning Consent in place and large scale built form across the central areas, and vegetation establishing within the layout, including along the Gravity Link Road.

Mitigation

6.9.7 Mitigation measures, which have been 'in built' into the design, include locating the tallest built form in the central part of the Site with the stepping down of building heights to the south, in reference to the scale of the Woolavington Road; the retention of existing vegetation around much of the periphery of the Proposed Development, and the structural tree and woodland planting proposed to help integrate built form into its surroundings; a green edge to Woolavington Road, and open space to enhance the perception of a distinct edge to the separate villages and provide opportunities for biodiversity; a network of pedestrian and cycle routes, careful design of the lighting strategy and a Design Guide colour strategy to help assimilate the buildings into their landscape setting.

Likely effects

6.9.8 The LVIA considers the worst case scenario for likely effects based on the parameters established in the suite of parameter plans, and the parameters for the Proposed Development include some very large-scale buildings, with stacks rising above the buildings. As a result there is the potential to give rise to substantial adverse effects on landscape character and the views of some people living and working nearby and passing through the area.

6.9.9 The chapter records that during construction, there would be substantial adverse effects on:

- Local landscape character, as areas within the Site would undergo an 'intensive change over a limited area' for the duration of the works, and there would be substantial adverse effects on the setting of nearby local landscape character areas due to the influence of views towards the construction works; and

- Visual amenity as the construction of the Proposed Development would potentially be visible to all visual receptors. For those receptors within the immediate locality these would be substantial, however, with distance the effects would diminish.

6.9.10 On completion of the construction works, buildings and green infrastructure would be in place, although vegetation would be limited in size at this stage, there would be substantial adverse effects on:

- Local landscape character, as areas within the Site would undergo an 'intensive change over a limited area', and there would be substantial adverse effects on the setting of nearby local landscape character areas due to the influence of views towards the large scale buildings; and

- Visual amenity as the Proposed Development would potentially be visible to all visual receptors. For those receptors within the immediate locality these would be substantial, however, with distance the effects would diminish.

6.9.11 It should be noted that while both the construction works and the operational development would theoretically be visible from the more distant viewpoints within the Quantocks and Mendips Area of Outstanding Natural Beauty, and Brent Knoll, they would be difficult to pick out with the naked eye.

6.9.12 The residual effects are considered to be 15 years from completion of the construction works, this allows time for proposed vegetation to mature, and achieve its design intentions. In this case, due to the large scale of the buildings, although this maturation would soften views and assimilate the development in its setting, providing an attractive environment for those living and working within the Proposed Development, levels of effects would remain as for Year 1.

6.9.13 In summary, as would be anticipated for a development of this scale, substantial adverse landscape and visual effects are anticipated as a result of the Proposed Development.

6.9.14 There would be significant adverse effects on landscape character within the Site itself, its immediate surroundings within the Levels and Moors to the north, Puriton and Woolavington and the landscape along the northern flank of the Polden Hills.

6.9.15 There would be significant adverse visual effects experienced by motorists on the M5 motorway, and Batch Road, the residents of Puriton and Woolavington, those travelling between the two villages along Woolavington Road, motorists and walkers along the Causeway, motorists and residents at East Huntspill and walkers and riders on the Polden Ridge.

6.9.16 Although the Proposed Development would be just visible from the Mendips and Quantocks AONBs, no significant adverse effects are anticipated due to the distance involved and the existing context of the low-lying Somerset landscape which lies within their setting.

Conclusion

6.9.17 The Proposed Development would provide an attractive Smart Campus and Community, with associated sports, recreation and amenity facilities, and improved links to the surrounding areas offering numerous benefits to the local community.

6.9.18 The adverse landscape and visual effects, which unavoidably result from the introduction of a development of this scale, have been set out within this chapter, and should be considered in the context of the Site, much of which has historically been populated by industrial buildings, and recently obtained planning permission in 2017 for large scale buildings. It should be noted that whilst the 2017 Planning Consent was granted for the Huntspill Energy Park, the safeguarded land uses were also considered and assessed cumulatively in the Environmental Statement. The safeguarded land uses included some very large-scale industrial elements and stacks up to 105 metres high, and although these elements did not seek planning permission at that time, they illustrate the intention that large scale elements could be considered.

6.9.19 The mitigation proposed, as set out in the parameter plans and Design Guide facilitate a high quality of design as the project moves forward.

6.9.20 The Design Guide provides both mandatory principles for mitigation (secured through the Compliance Form), and guidance to create a sense of place, specific to Gravity and to its location. It establishes the key spatial qualities and characteristics to support the development of a cohesive and aspirational place, whilst creating flexibility and creative opportunities for future potential occupiers.

6.10 Climate Change

6.10.1 The Chapter has assessed the likely significant effects of the Proposed Development on climate change, and the likely significant effects of climate change on the Proposed Development, with due regard to IEMA guidance (IEMA 2017). This guidance identifies that all GHG emissions will contribute to climate change and thus might be considered significant.

Greenhouse Gas Emissions Assessment

6.10.2 The Greenhouse Gas (GHG) emissions assessment provided a qualitative description of the anticipated GHG emissions arising during the construction and operational phases of the Proposed Development. During construction, significant local effects were identified in relation to combustion of fossil fuels during construction activities (Minor Adverse), land clearance and enabling works (Minor adverse), and consumption of electricity for office / welfare facilities and lighting (Minor Adverse). During the operational phase, Significant effects were identified in relation to transport emissions of the Proposed Development (Minor Adverse), carbon sequestration (Minor Beneficial) and electricity purchased from the national grid (Moderate Adverse).

6.10.3 Embedded mitigation measures to reduce GHG emissions associated with the Proposed Development includes the implementation of a FDCEMP, sustainable transport proposals and an extensive green infrastructure network. Further mitigation measures to reduce GHG emissions include energy efficiency design principles, consideration of low and/or zero carbon technology and EV charging infrastructure which are secured within the Design Guide. It is also acknowledged that the Proposed Development is an enabler of low carbon industries which could result in wider carbon reductions beyond the Site's GHG emissions.

6.10.4 All effects identified in the GHG emissions assessment are considered Significant on a local scale however the Proposed Development addresses these emissions with mitigation in line with local policy. In the context of Government policies and national strategies that will lead to national GHG reductions, it is considered that GHGs resulting from the Proposed Development will be Not Significant on a national scale.

Climate Change Risk Assessment

6.10.5 UK Climate Predictions in 2018 were used to establish evolving baseline climate conditions up to 2099. It is expected that the Proposed Development may experience warmer, drier summers and milder, wetter winters, along with an increase in frequency and intensity of extreme weather events such as droughts or heatwaves. This has the potential to adversely affect receptors within the Proposed Development, including future users of the Site, buildings and infrastructure, and ecology.

6.10.6 The climate resilience assessment identified key environmental receptors to climate change and determined their sensitivity to the projected climate change impacts. During the operational phase, infrastructure such as buildings and roads, and ecology, landscaping and planting were determined to be moderately vulnerable, and future users of the Site including residents, employees and students, were determined to be moderately to highly vulnerable to

climate change. The effects of climate change on the Proposed Development are determined to be Not Significant (Minor-Negligible).

6.10.7 Embedded mitigation to address climate change includes the development of a surface water management strategy to address flood risk, and the retention and creation of habitats, green infrastructure and open space. Further mitigation includes the implementation of a FDCEMP, an Ecological Mitigation and Management Strategy and consideration of water efficiency measures.

6.11 Cultural Heritage

6.11.1 The assessment has been carried out in accordance with national and local planning policy including the NPPF and the Sedgemoor District Local Plan, and industry best practice and guidelines. The methodology for the impact assessment follows the principles and guidelines set out within the Design Manual for Roads and Bridges.

6.11.2 The baseline was informed by two technical appendices (a desk-based assessment and a geophysical survey). Previous archaeological work carried out within the Site in support of the 2017 Planning Consent found archaeological remains consistent with activity from the Bronze Age, Iron Age and Romano-British period.

6.11.3 The baseline information also indicated that prior to the establishment of the ROF, the Site was located within the agricultural hinterland of the settlements of Puriton and Woolavington with some preserved evidence of medieval and post-medieval agricultural practices visible within the Site along Woolavington Road.

6.11.4 Due to the known archaeological resource within the Site and the surrounding area relating to prehistoric and Romano-British remains, there is a high potential of encountering additional archaeological remains within the Site, but outside the ROF Fence.

6.11.5 The settings assessment considered the potential effects of the Proposed Development on the heritage significance of heritage assets outside of the Site boundary through a change in their setting. All assets other than the Grade I Listed Church of St Michael and the Angels, Puriton, the Grade II listed Manor Farmhouse, Puriton and the Scheduled Monument Brent Knoll and associated field system were scoped out as significant effects were not likely.

6.11.6 Without mitigation, the Proposed Development has the potential to adversely affect the heritage significance of the historic environment in two ways:

- By damaging and/or removing buried archaeological remains relating to the past use of the Site; and
- By changing the setting of a heritage asset where that setting makes a contribution to its heritage significance, to such an extent that the asset loses heritage significance (or the ability to appreciate and understand that significance is diminished).

6.11.7 Through the 2017 Planning Consent, the loss of the ROF buildings through demolition and impacts to any potential below ground archaeological remains were assessed and mitigation for their loss undertaken in the form of historic building recording and archaeological excavation respectively. As a result, this chapter has assessed the potential for disturbing potential archaeological remains within the additional land included within the Proposed Development.

6.11.8 Additionally, the Environmental Statement for the 2017 Planning Consent also determined no effects on any designated heritage assets through a change in their setting. Therefore, this assessment determined that any effects on designated heritage assets could only come through new elements of the Proposed Development.

6.11.9 Using this methodology, the assessment identified the potential for direct impacts on buried archaeological remains (i.e., loss of the archaeological resource) located within the Site which, taking a conservative approach, would lead to effects in the order of Negligible to Substantial Adverse, which, for Moderate to Substantial Adverse Effects are significant in EIA terms. Following the application of an appropriate scheme of archaeological mitigation (scope to be agreed), the residual effect of these direct impacts would be reduced to Minor Adverse Effect or to a Negligible or No Effect (not significant).

6.11.10 A residual minor adverse effect was identified on the Grade II listed Manor Farmhouse, Puriton, which is Not Significant, while no effects were identified on the Grade I listed Church of St Michael and the Angels or Brent Knoll Scheduled Monument. No Mitigation is proposed or considered necessary in respect of the Church and Hillfort. Whilst no specific mitigation is proposed for the Farmhouse, aside from that already covered as part of the Embedded Mitigation, sensitive design of the development in the south-west part of the Site, in line with the Design Code, will serve to soften (if not remove) the impact of development upon the heritage significance of that asset.

6.11.11 In conclusion, the Proposed Development will not have any significant adverse direct or indirect effects in respect of the heritage significance of any designated or non-designated heritage assets within or beyond the Site.

6.12 Impact Interactions

Introduction

6.12.1 Significant environmental effects can result from incremental changes caused by the interactions between effects resulting from a development.

6.12.2 The direct and indirect effects of the Proposed Development have been assessed within the relevant topic chapters of the ES prepared by suitable technical specialists. Environmental effects are assessed relative to the topic under consideration. This approach can lead to the interaction of effects being reported in separate chapters but the collective effect on the same environmental resource(s) not being considered.

6.12.3 The need to consider cumulative effects in planning and decision making is set out in the National Planning Policy Framework (NPPF) 2021. Paragraph 210(f) states that planning policies should:

"set out criteria or requirements to ensure that permitted and proposed operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality".

6.12.4 There is no single standard for the assessment of cumulative impacts and impact interactions however PINS *Note 17: Cumulative Effects Assessment* provides general guidance which has informed aspects of this assessment.

6.12.5 In response, this chapter, prepared by Stantec, draws upon the principal findings of each topic chapter of the ES to enable assessment of the potential for impact interactions. This chapter reports on the intra effects, that is, how the effects of the Proposed Development interact.

6.12.6 An assessment of inter effects, how the development might interact with other development in the study area, is embedded in the technical assessments in **Chapters 7 – 16.** Existing and approved developments in the surrounding area are included in the 2032 baseline, as set out at **Section 5.7.7**.

Methodology

6.12.7 The assessment methodology involves the identification of impact interactions associated with both the demolition/construction and operational phases of the Proposed Development upon one or more environmental resources. This assessment of impact interactions is undertaken using a qualitative appraisal process. Receptors have been grouped into 'Natural Resources' and 'Human Beings and Society' categories.

6.12.8 A summary of mitigation measures is provided in **Chapter 18** which has been used to help identify where there is a likelihood for potential significant adverse impact interactions to occur.

Construction Effects

6.12.9 As set out in **Chapter 4**, careful management of the demolition and construction works, including the implementation of a Demolition and Construction Environmental Management Plan (DCEMP), will minimise the adverse effects of demolition and construction. As a result, the majority of the demolition and construction effects identified in **Chapters 7 – 16** are not significant. The following sections discuss, in more detail, impact interactions and effects associated with the demolition and construction phase.

Natural Resources

6.12.10 No likely significant residual effects upon surface water bodies or with respect to groundwater, flood risk or drainage are anticipated on Site or in the surrounding area due to the implementation of the mitigation measures that are set out in the Framework DCEMP.

6.12.11 With the implementation of the DCEMP, and use of best practice techniques, effects on Natural Resources related to ground conditions are considered to be negligible.

6.12.12 Residual effects relating to biodiversity on designated sites, habitats and fauna range from negligible to moderate beneficial, which includes effects associated with noise, lighting and air quality which have been reported in other Chapters. Mitigation for these Site features, including protection for trees and controls on lighting during demolition and construction, will be managed through the DCEMP. Mitigation for specific species includes the creation of new setts onsite for badger where required, relocation of the current onsite water vole population to a suitable offsite location (under a Natural England license) and a Great Crested Newt District Level Licence to protect the population of this species.

6.12.13 Appropriate mitigation has been identified to be implemented during demolition and construction such that residual effects are not significant and largely negligible to the identified receptors, therefore there will be **no residual significant adverse impact interactions** during this phase.

Human Beings and Society

6.12.14 The Health, Social and Wellbeing Chapter has identified and assessed impact interactions as it has drawn from other Chapters and concludes that the demolition and construction phase of the Proposed Development will not result in significant adverse effects with regard to human health.

6.12.15 During construction, minor adverse local effects have been identified in relation to combustion of fossil fuels during construction activities, land clearance and enabling works and consumption of electricity for office / welfare facilities and lighting. Embedded mitigation measures to reduce GHG emissions associated with the Proposed Development includes the implementation of a DCEMP, sustainable transport proposals and an extensive green infrastructure network.

6.12.16 All effects identified in the GHG emissions assessment are considered Significant on a local scale however the Proposed Development addresses these emissions with mitigation in accordance with local policy.

6.12.17 The predominant interactive effects on Human Beings and Society are likely to be impacts on the amenity of residents in proximity to the Site and on construction workers. Demolition and construction related health risks relate to the potential for reduced environmental amenity; such as through noise disturbances, increased traffic delays and higher levels of dust and poor air quality. These local environmental issues have the potential to disrupt or impact health and wellbeing of the local population, resulting in increased stress-related illnesses and cardiovascular diseases. However, noting the temporary (albeit long-term) nature of construction activities, these changes to the local environment are not considered to be significant with regard to human health.

6.12.18 With regards to the amenity of local residents and construction workers, it is noted that no significant adverse residual demolition and construction impacts relating to Transport and Access, Noise and Vibration or Air Quality have been identified.

6.12.19 The construction of the Proposed Development would generate traffic that would affect the local road network primarily through HGV movements bringing materials in/out of the Site and construction workforce journeys to/from work on Site. The effects will be limited to the construction period and with the majority of HGV movements limited to the Gravity Link Road, the A39 Puriton Hill, M5 Junction 23 and mainline. The construction traffic effects will be managed through the DCEMP, including appropriate plans for the management of construction traffic. The already implemented Gravity Link Road will help to mitigate the residual effects relating to construction traffic.

6.12.20 During construction, there would be adverse effects on visual amenity as the construction of the Proposed Development would potentially be visible to all visual receptors. For those receptors within the immediate locality these would be substantial, however, with distance the effects would diminish.

6.12.21 This disruption to the local community around the Site will, at least in part, be offset by employment opportunities and the boost to the local economy during the demolition and construction period. The anticipated 3,920 net temporary construction jobs supported by the Proposed Development are anticipated to generate an estimated £257.6 million in net GVA over the course of the construction phase to completion in 2032.

6.12.22 In addition, to help mitigate the disruption to the local community, the Gravity Link Road has already been completed to ensure traffic avoids the use of the local roads. The proposal includes a strategic landscaping plan to help establish a buffer between the communities and the main site. The DCEMP includes management of working hours and avoidance of the noisiest activities at night time and makes provision for a Community Liaison/Communications Officer to keep the local community up to date and respond to queries and concerns promptly.

6.12.23 Overall, **no significant adverse impact interactions** have been identified during demolition and construction.

6.13 Operational Effects

Natural Resources

6.13.1 The successful implementation of the proposed mitigation measures should result in no residual effects with respect to hydrology, flood risk or drainage.

6.13.2 The Proposed Development has been designed to include a range of measures to benefit biodiversity and wildlife, with residual effects relating to biodiversity on designated sites, habitats and fauna ranging from negligible to moderate beneficial. The strategic landscaping proposals include benefits to biodiversity.

6.13.3 With regards to ground conditions, effects on surface water, built environment, biodiversity and wildlife are considered to be negligible.

6.13.4 Given that residual effects to ground conditions, hydrology and biodiversity have been identified as being negligible or beneficial, it is not anticipated that impact interactions on these receptors will result in significant adverse effects.

6.13.5 **No significant adverse impact interactions** have been identified for Natural Resources during the operational phase of the Proposed Development.

Human Beings and Society

6.13.6 The Health, Social and Wellbeing Chapter has identified and assessed impact interactions as it has drawn from other Chapters and concludes that the operational phase of the Proposed Development will not result in significant adverse effects with regard to human health.

6.13.7 During the operational phase, a significant adverse effect was identified in relation to electricity purchased from the national grid (Moderate Adverse), with other effects identified being transport emissions of the Proposed Development (Minor Adverse) and carbon sequestration (Minor Beneficial). Further mitigation measures to reduce GHG emissions include energy efficiency design principles, consideration of low and/or zero carbon technology and EV charging infrastructure which are secured within the Design Guide. All effects identified in the GHG emissions assessment are considered Significant on a local scale however the Proposed Development addresses these emissions with mitigation in accordance with local policy.

6.13.8 As would be anticipated for a development of this scale, adverse landscape and visual effects are anticipated as a result of the Proposed Development. On completion of the construction works, buildings and green infrastructure would be in place, although vegetation would initially be limited in size resulting in substantial adverse effects on visual amenity as the Proposed Development would potentially be visible to all visual receptors. For those receptors within immediate locality these would be substantial, however, with distance the effects would diminish. Over time the vegetation would mature but the level of adverse effects would remain the same.

6.13.9 The general approach to access and movement for operation of the Proposed Development includes reducing the need to travel, reducing travel distances, improving access and choice and innovative micro mobility measures. On this basis, the operational effects of the Proposed Development are not likely to be significant.

6.13.10 No significant residual adverse effects are anticipated including in relation to air quality, noise, contaminated land and flood risk, all aspects that could affect human health and well-being.

6.13.11 Beneficial effects are anticipated as a result of the Proposed Development through promotion of active travel. The Proposed Development will provide a range of measures to facilitate and encourage walking and cycling, including new footway and cycleways throughout the Site, and enhanced connectivity to the surrounding area, resulting in major beneficial (significant) effects on walking and cycling, connectivity and minimising car use.

6.13.12 The approximately 6,100 gross permanent manufacturing employment opportunities generated by the Proposed Development are estimated to support approximately 1,950 net additional manufacturing jobs during the operational phase. This is concluded as resulting in a Permanent Substantial Beneficial impact. Professional, scientific, technical and service sector jobs are also anticipated to be generated during the operation phase, concluded as resulting in a Permanent Negligible to Minor Beneficial impact.

6.13.13 The LDO will allow for up to 750 homes in the Proposed Development which would be available to employees at the Site, i.e. not open market housing. This equates to a 12% increase on top of the ten-year housing figure of housing to be delivered over the same period up to 2032 as set out by the Local Plan. This is concluded to result in a Permanent Moderate Beneficial Impact.

6.13.14 The Proposed Development would provide a Smart Campus and Community, with associated sports, recreation and amenity facilities, and improved links to the surrounding areas offering numerous benefits to the local community. The 37 Club will be re-provided within the Site in a manner designed to be more economically sustainable and valuable to the local community.

6.13.15 Although screening may reduce the visual presence of the Proposed Development within the rural landscape, no measures or design choices will mitigate against the loss of the historic fields which contribute to the setting of the Grade II listed Manor Farmhouse in Puriton. With mitigation through design considerations, the residual effect on this heritage asset will remain a Minor Adverse Effect, which is not significant.

6.13.16 Overall, **no significant adverse impact interactions** have been identified during operation of the Proposed Development.

Appendix A Site Location Plan

Appendix B Parameter Plans

Appendix C Concept Plan