

Land at Barnham, Eastergate and Westergate (BEW Parcel SC1) Environmental Statement

Chapter C: Site and Scheme Description

January 2022

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Contents

C1.0	Introduction	1
C2.0	Site Location and Surroundings	2
	The Application Site	2
	Surroundings	3
	Environmental Context	3
C3.0	Description of Development	6
	General Description of Works	6
	Sustainability and Climate Change	12
	Risks of Accidents and Disasters	14
C4.0	Construction Methodology	15
	Programme of Works	15
	Description of Works	18
	Hours of Work	19
	Construction Environmental Management Plan	19
C5.0	Consideration of Alternatives and Design Evolution	22
	No Development	22
	Consideration of Alternative Locations	22
	Influence of the EIA in Design Evolution	23
C6.0	Abbreviations & Definitions	25
C7.0	References	26

C1.0 Introduction

C1.1 This chapter describes the application site and its relationship to the wider area, provides a description of the proposed development of Land at Barnham, Eastergate and Westergate (BEW Parcel SC1) explains other scheme assumptions that have formed the basis of this Environmental Impact Assessment ('EIA'), and considers the design rationale underpinning the proposals.

C1.2 This chapter is divided up into the following key sections:

- 1 Site Location and Description;
- 2 Description of Development;
- 3 Construction Methodology; and
- 4 Consideration of Alternatives and Alternative Design

C1.3 The chapter should be read in conjunction with the following technical appendices provided at Volume 2 to this ES:-

- 1 **Appendix C1 – Scheme Plans (Parameter Plans and Detailed Access Drawings)**
- 2 **Appendix C2 – Framework Masterplan**
- 3 **Appendix C3 – Outline CEMP**
- 4 **Appendix C4 – Demolition Plan**
- 5 **Appendix C5 – Lighting Assessment**

C2.0 **Site Location and Surroundings**

The Application Site

- C2.1 The Application Site comprises circa 92 hectares of land and comprises a large section of land within the wider Site Allocation (270 hectares). The Site itself primarily consists of relatively flat arable land, with the exception of large greenhouses to the North and the Lidsey Rife, which runs North to South.
- C2.2 The application site is bordered by Barnham (to the East), Eastergate (to the North) and Westergate (to the West) and the railway line (to the South) in West Sussex, with the exception of the area for the A29 realignment which extends southwards to cross the Lidsey Rife and rejoin the existing A29 in two location. The application site is on the Sussex coastal plain east of Chichester, north of Bognor Regis, and north-west of Littlehampton.
- C2.3 The site is located approximately 6.5km north of Bognor Regis town centre and approximately 10km from Chichester City Centre.

Figure C2.1 Site Location Plan



- C2.4 The Site spans two Parish Council boundaries which includes Aldingbourne to the west and Barnham and Eastergate to the north east.

Surroundings

- C2.5 Barnham, Eastergate and Westergate are located in the Sussex coastal plain east of Chichester, north of Bognor Regis, and north-west of Littlehampton. The characteristics of the coastal plain define the area, namely low-lying fields, divided by planting and watercourses. Much of the open land is devoted to agriculture and horticulture, and is subject to a high groundwater table.
- C2.6 The Site's immediate borders consist primarily of dense shrubbery or gardens to the north and east, whereas the southern and western borders have narrow planted boundaries with minimal foliage running along the Lidsey Rife and railway line.
- C2.7 In its wider context, the Site is bounded by the St Philip Howard Catholic School to the east, as well as properties on Gospond Road, beyond which is Barnham Railway Station and Barnham village centre. To the north are predominantly residential properties and Barnham Road. The western border of the Site is currently formed by meadows and farmland and the southern boundary of the majority of the Site is formed by the Arundel to Chichester Coastway railway line. As stated above, the application Site also includes the proposed A29 realignment road which runs south of the railway line to rejoin the existing A29. This is generally bounded by existing farmland on both sides.
- C2.8 The surrounding built form is generally characterised by residential development, with the exception of some commercial uses to the north and a mix of retail, community and commercial uses within the village centres of Barnham, Eastergate and Aldingbourne. The villages display a variety of different characters, each tending to consist of strong building lines, garages set behind the dwellings and repetition of a set housing typology unique to the individual character area.
- C2.9 The villages in the area are surrounded by open land most of which is devoted to agriculture and horticulture.
- C2.10 The South Downs National Park lies approximately 2.5km to the north, with the Chichester Harbour Area of Outstanding Natural Beauty (AONB) approximately 10km to the south west.
- C2.11 Nearby educational establishments include St. Philip Howard Catholic High School in Barnham, Aldingbourne Primary School, Barnham Primary School, Ormiston Six Villages Academy and Eastergate CE Primary School. The villages also offer premises for community events, sports and recreation with the presence of the Six Villages Sport Centre, Eastergate Village Hall and Aldingbourne Sports and Community Centre.
- C2.12 The Site is directly bound by other land which forms part of the Site Allocation, outside this Application boundary, some of which are subject to planning applications (see Table 2.1 for further information). These include:
- CALA land parcel to the west
 - Barratt Homes land parcel to the north
 - Pye Homes land parcel to the south west
 - The Southern Consortium land south of the railway line (including additional land in third party ownership).

Environmental Context

- C2.13 The application site comprises a large area of land which mostly consists of open land and enclosed fields used predominantly for arable agriculture, which is subject to intensive management.

- C2.14 The application site contains several public footpaths which also pass through the Strategic Allocation. These paths form part of the local pedestrian network between Westergate, Eastergate and Barnham and enable the movement of pedestrians throughout the local area.
- C2.15 There are five Tree Protection Orders within the application site that cover a number of trees.
- C2.16 The Lidsey Rife comprises a dominant topographical feature in the landscaping running through the western part of the site. A series of smaller, interconnected engineered watercourses are present within the site, serving a predominant land drainage function.
- C2.17 Along the northern boundary, a watercourse referred to as the 'School Stream' flows both east and west to a point where a headwall is present. This headwall leads into a culverted section of watercourse that re-emerges just north of the railway line in the east of the site, before passing under the railway and continuing its route as an open watercourse.
- C2.18 Within the application site boundary, there are no areas considered to be served by existing positive drainage infrastructure, and as such, the entire area is subject to a natural regime of surface water runoff, evapotranspiration, and infiltration where ground conditions permit.
- C2.19 Aquifer designations within the superficial deposits covering the application site are categorised as Superficial A aquifers with a Medium-low groundwater vulnerability. The bedrock geology is designated as an Unproductive aquifer. The application site is not within a Source Protection Zone.
- C2.20 The application site is mainly in Flood Zone 1 (Low Probability) and so at low risk of flooding from fluvial and tidal sources. However, there are extents of Flood Zone 2 and 3 across the site associated with the Lidsey Rife along the western boundary within a defined floodplain corridor parallel to the watercourse. Some areas of floodplain also extends along the defined ditches with some connectivity to the Lidsey Rife mitigating the potential impact of fluvial flooding.
- C2.21 The application site is located within the South Coast Plain National Character Area, which is an area of flat, coastal landscape with an intricately indented shoreline lying between the dip slope of the South Downs and the South Hampshire Lowlands and the waters of the English Channel, Solent and part of Southampton Water. The coastline includes several major inlets which have particularly distinctive local landscapes and intertidal habitats of international environmental importance for wildfowl and waders. There are no statutory or non-statutory designated sites of nature conservation interest within or adjoining the application site. The nearest Site of Special Scientific Interest (SSSI) designated on account of its biological interest is Halnaker Chalk Pit SSSI, which is located approximately 4.3km to the north-west of the application site at its closest point. The nearest non-statutory designated site is Fontwell Park Racecourse Local Wildlife Site (LWS), situated approximately 1.2km to the north of the application site at its closest point.
- C2.22 The application site is situated on the low-lying Lower Sussex Coastal Plain, on well drained fine silty and fine silty over clayey soils of the Charity 1 Series to the north within the higher levels of the Lower Sussex Coastal Plain. These soils overlie flinty silty drift deposits. To the south and on the lower levels of the Plain, the central and southerly portions of the assessment site are situated on deep stoneless silty soils of the Park Gate Series. These soils in turn overlie aeolian silty drift deposits of brickearth, which in turn overlie Chalk of the Cretaceous.
- C2.23 The topography within the site area whilst appearing predominantly flat exhibits subtle height changes with potentially significant natural drainage channels (rifes) predominantly orientated north south being present within and proximal to the application site. Local topographic / drainage variations are likely to influence the distribution of archaeological resources present within the site area and its immediate environs.

- C2.24 The Site lies in proximity to three Conservation Areas, including: The Square Eastergate (0.7km from the north western corner of the Proposed Development Site); Church Lane Eastergate (a small part of the Linear Park just to the south of Church Lane sits within the Eastergate Church Lane Conservation Area however no built development is proposed within these areas); and Church Lane Barnham (0.7km from the south eastern corner of the proposed Development Site).
- C2.25 A small part of the application site in the north falls within the Church Lane Eastergate Conservation Area, which contains a number of listed buildings, including the Grade II* listed St George's Church and Grade II Eastergate House. St George's Church lies close to the northern boundary of the site. Eastergate Square Conservation Area is located further to the north and also contains Grade II listed buildings.
- C2.26 No listed buildings or significant heritage assets lie within the Proposed Development boundary. The main concentrations of designated Listed buildings and non-designated buildings and buildings of character lie within the three Conservation Areas.
- C2.27 There are no Air Quality Management Areas ('AQMAS') in Arun District, however, there are three in Chichester District.

C3.0 Description of Development

General Description of Works

- C3.1 The Proposed Development is being brought forward in outline with all matters reserved except for the A29 realignment. The proposed description of development is set out in Chapter A of the ES.
- C3.2 Matters of internal access arrangements, layout, scale, appearance and landscaping are reserved for future determination.

Parameter Plans

- C3.3 The form of the outline development is shown on a series of Parameter Plans. These allow the detailed design to be reserved for subsequent approval, whilst defining the key principles of the development in enough detail to allow the likely environmental effects of the development to be assessed. The parameter plans fix the various land uses, maximum quantum, maximum building heights, access and circulation routes, and areas of public open space. All matters will be reserved for subsequent approval save for the A29 realignment.
- C3.4 The Parameter Plans sit alongside the Design Principles document, which will guide the placemaking and design of future development. This is submitted for approval.
- C3.5 The assessment of the maximum built 'envelope' defined by the Parameter Plans allows a worst-case scenario to be identified and assessed within the EIA. If subsequent reserved matters applications are less than the maximum built envelope, it can be assumed that their impact would be no greater than that identified in this ES.
- C3.6 The parameter plans are provided at Appendix C1 (Volume 2 of this ES), and are as follows:

Table C3.1 Outline Parameter Plans forming basis of assessment (Appendix C1)

Title	Drawing Number	Scale	Revision
Parameter Plan 1 – Land Uses	00605B PP01	1:5000@A1	P1
Parameter Plan 2 – Building Heights	00605B PP03	1:5000@A1	P1
Parameter Plan 3 – Landscape and Green Infrastructure	00605B PP04	1:5000@A1	P1
Parameter Plan 4 – Development Areas Character Plan	00605B PP05	1:5000@A1	P1
Parameter Plan 5 – Access and Movement	00605B PP07	1:5000@A1	P1

- C3.7 In addition to this, a Framework Masterplan (Ref. 00605B BEW Framework Masterplan Document Rev P3) has been developed and endorsed by ADC to show one way in which the parameters could be applied in practice through the Reserved Matters process. This has not been the subject of assessment in the EIA but has been referenced by authors where relevant as a useful demonstration as to how mitigation measures could be applied. The Framework Masterplan is provided at Appendix C2 (Volume 2 to this ES).

High Level Development Principles

- C3.8 On 25 February 2020, the ADC Planning Policy Sub-Committee endorsed High Level Development Principles for the allocation that were prepared in collaboration with ADC officers. These were prepared to inform the preparation of the Framework Masterplan and to guide development proposals in subsequent planning applications.

- C3.9 The High Level Development Principles can be broadly summarised into the following key groups:
- Access and Movement: seek to reduce the need to travel, promote sustainable forms of transport and create walkable neighbourhoods.
 - Landscape and Green Infrastructure: incorporate key blue and green landscape features and infrastructure, including locations for play space, sports pitches and open space.
 - Community: identify key locations for supporting new homes, new school, local centre, community facilities and library.
 - Built Form: identify the development parcels and key character areas, including differentiating between urban extensions and a new community.
 - Sustainability: include measures to enhance sustainability and mitigate climate change.
 - Technology: incorporate opportunities for the integration of smart deliverable technologies that enhance public transport, homes, community and support uses and employment space.
- C3.10 The design rationale for the Proposed Development has drawn upon the results of the site analysis and appraisal of the existing and historic features of the application site and its setting alongside technical assessments. The Development Principles are considered embedded mitigation in regard to the EIA.
- C3.11 The final detailed design of built development will be discussed and agreed at reserved matters stage. The Design Principles and Parameter Plans will form the basis of these future applications.

Land Uses

- C3.12 The proposed land uses are identified on Parameter Plan 1 – Land Uses (ref. 00605B PPO1) and include:
- 1 A29 realignment, being a Strategic Road Corridor.
 - 2 Up to 1,250 residential dwellings, including affordable and self-build housing (Use class C3) as well as a care home / senior living accommodation (Use class C2/C3). These areas are proposed to include secondary and tertiary streets, footways / cycleways, incidental open spaces and attenuation ponds.
 - 3 Mixed use area including a 1,250 sqm Neighbourhood Centre which will include commercial, business and services (E), a community hall (F2) and a location of community square.
 - 4 Land for a Primary School, including nursery and SEND provision, and playing fields (F1/F2) (3.4Ha).
 - 5 An area for an additional Barnham Railway Station car park and drop off facility (approximately 200 spaces) with a pedestrian and cycle link to the station.
 - 6 Expansion areas for St Philip Howard Catholic School.
 - 7 The remaining areas area identified as open space, landscaping or infrastructure, including Lidsey Rife Linear Park informal open space, wildlife habitats wetland areas, meadow land, wet woodlands, vegetation/ planted areas, retained trees, play areas, water bodies, drainage features, footways/ cycleways, parking and occasional vehicular connections.

Residential

- C3.13 The Proposed Development comprises up to 1,250 residential units, including 60 bed care homes (Class C2/ C3) across the application site.
- C3.14 A defined housing mix has not yet been established and will be confirmed through detailed design. This is important due to the long build out period and will ensure that the housing mix meets the need for housing at the time of submission of each Reserved Matters application.
- C3.15 It is expected the future residential dwellings will comprise a range of typologies including apartments, terraced, semi-detached and detached houses. This will result in a series of differing densities and characters. A variety of accommodation types will also help to create an inclusive and well-rounded community which reflects local need, including the provision of affordable homes.
- C3.16 Opportunities for self-build housing will also be explored during the preparation of reserved matters applications.
- C3.17 A housing mix has been established as shown in Table C3.2 which sets ranges of different size of dwellings as a proportion of the overall total within the site:-

Table C3.2 Housing mix assumed for the purposes of assessment

Housing Percentage Mix	Percentage
1-2 bed	32-51%
3+ bed	49-68%

- C3.18 For the purposes of assessment, a mix has been assumed based typically on a mid point within where relevant the ranges identified in Table C3.2. Where such an assumption has been made, this is specified in the relevant technical chapter. It is considered that this approach is reasonable and proportionate to this EIA.
- C3.19 The proposed development will deliver affordable housing and further detail will be provided in a viability appraisal to be submitted prior to determination of the application.

Non-Residential Uses

- C3.20 Approximately 1,250 sqm hectares of flexible retail and community floorspace in Use Classes E/ F2/ Sui Generis is proposed, which will include a community hall and community square.
- C3.21 A Primary School and Playing Fields is also proposed. The detailed design of the school will be brought forward in collaboration and agreement with or by the education authority West Sussex County Council (WSCC).
- C3.22 The mixed use and the Primary School will be located next to one another, fronting the realigned A29 and primary road corridor with connectivity to walking, cycling and public transport.

Scale, Layout and Massing

- C3.23 The proposed maximum building heights of the development are detailed in Parameter Plan 2 – Building Heights (ref. 00605B PPO3 Rev D11). This plan sets out the maximum building heights for the residential, employment areas and the school.
- C3.24 The building heights on the application site will be no more than five storeys. It is envisaged that the vast majority of new buildings/homes would be between 2-2.5 storeys and will be consistent with the scale of existing buildings bordering the application site. Any buildings at four/five storeys are likely to be located along the main vehicular routes, at key junctions, around the

local centre and near the Primary School. Buildings at three storeys are likely to be located to the west of the application site, fronting open space.

- C3.25 The application site is split naturally by the realigned A29 which has facilitated the creation of two distinct character areas; one to the west and one to the east. Parameter Plan 5 - Neighbourhood and Character Area (ref. 00605B PPO5 Rev D12) establishes the key design principles of these two-character areas, along with neighbourhood areas for: local centre, suburban, rural and employment.

Detailed Site Access

- C3.26 The detailed element of the Proposed Development comprises the access points and junctions to the application site. Parameter Plan 4 - Access and Movement (ref. 00605B PPO7 Rev D12) identifies the principal movement and access points into and around the application site. There will be three main, and one minor, road access points into the application site. This includes the A29 strategic road corridor (submitted in detail), the East-West Link Road corridor, secondary parcel access roads and pedestrian and cycle routes. The main vehicle access points will be from Barnham Road in the north and the existing A29 to the west. The detailed access junction drawings are provided at Appendix C1.

A29 realignment (matters not reserved)

- C3.27 The A29 realignment forms a strategic road corridor through the centre of the Site and detailed highways drawings are submitted for approval. In short, the A29 realignment is expected to be a 30mph road and consist of:
- 1.2km of carriageway between Barnham Road (B2233) and the existing A29, including a bridge over the railway line; a bridge over the Lidsey Rife and an early connection to the existing A29 (referred to as the Hanbury Link). In the north, the carriageway will connect to Phase 1 of the A29 realignment delivered by WSCC.
 - A 5m zone for drainage /landscape immediately either side of the carriageway. Landscape and drainage drawings have been prepared to show the proposed arrangement. Compliance with the detailed design will be secured by condition.
 - A 4m segregated footway and cycleway adjacent to the drainage/landscape zone.
 - At grade pedestrian and cycle crossings are proposed at key junctions and intervals to allow permeability within the Site and wider allocation, including the Green Link crossing over the A29.
 - Bus stops will be provided along the route. The precise locations will be determined in consultation with Stagecoach through the planning process.
- C3.28 Earthworks will be required to implement the A29 realignment (e.g. changing site levels), however the extent of the land take necessary to incorporate these will be established at the construction design stage. Accordingly, a 5m earthworks buffer zone is shown on the drawings where the potential earthworks may be necessary for the construction of the road. To allow flexibility for other land uses to come forward as appropriate within the buffer zone the application drawings are annotated as follows:
- North of the railway line - the Land Use Parameter Plan shows where residential/non-residential uses may be appropriate within the earthworks zone. The extent of the earthworks will be agreed by condition and the highways drawings explain that the residual land will form part of the adjacent development parcels.

- South of the railway line – Where the land is not required for earthworks, temporary landscaping will be provided until such time as the adjacent land parcels within the allocation come forward under separate planning applications.

East-West Link Road and secondary road corridors (submitted in outline with all matters reserved)

- C3.29 The East-West Link Road presents the primary road corridor (secondary to the A29 realignment) and forms a vehicle connection leading from west to east.
- C3.30 To the west, the road will ultimately connect into the Cala Homes land parcel to the west which will include a westerly connection to Westergate Street (details to be submitted by a third party as part of a separate planning application). To the east, the road will connect to the proposed Barnham train station car park and will provide a drop off facility for bus services and those dropping people off for the station. The East-West Link Road will vary along its length as it passes through open space and the neighbourhood centre and will include several crossing points to enable north to south permeability.
- C3.31 The East-West Link Road and secondary road corridors are submitted in outline and the detailed design will come forward as part of reserved matters applications.
- C3.32 The Parameter Plans indicate the location of secondary road corridors which will connect the East-West Link Road to the residential parcels.

Pedestrian and cycle connections (submitted in outline with all matters reserved)

- C3.33 The Proposed Development includes a number of pedestrian and cycle connections running throughout the Site to provide connectivity within the Site allocation and more widely with the surrounding area. Key aspects of the proposed pedestrian and cycle network include:
- Segregated pedestrian and cycle paths being provided north to south alongside the realigned A29 and East-West Link Road.
 - The 'Green Link' off-road connection between Eastergate via Church Lane in the west and St Philip Howard Catholic School in the east. The Green Link will upgrade the existing Public Right of Way (PROW) to provide a segregated cycle and pedestrian path which will connect to the wider PROW network.
 - Pedestrian and cycle link from the drop off loop on the East-West Link Road to Gospond Road to improve connectivity to Barnham Station.
 - Wellness trail in the form of a circular pedestrian and cycle route around the Site that can extend south of the railway as the land parcels come forward.
 - Extension of the South Downs Cycle route by way of pedestrian and cycle routes within the Lidsey Rife Linear Park in the west of the Site.

Landscaping and Green Infrastructure

- C3.34 The Parameter Plan – Landscape and Green Infrastructure (ref. 00605_PPO4) sets the key parameters for the open space on the Site. This includes parks and gardens, amenity greenspaces, natural and semi natural space, sport pitches, allotments, playspace and sustainable drainage systems. The total amount of public open space proposed is 31.67ha. A breakdown of the types of public open space is provided in Table C3.2.

Table C3.3 Public Open Space Provision

Type	Proposed area (ha)
Parks and gardens	9.7
Amenity green space	12.02
Natural and semi-natural green space	8.81
Equipped play areas	0.66
Other outdoor provision	0.48
Total	31.67

Source: Landscape Strategy, Fabrik

C3.35 The Design Principles document also defines four landscape character areas, these comprise the following.

- **A29 Interface:** Consists of the landscaped areas adjacent to the A29 realignment (including the Hanbury Link) including earthworks necessary for the delivery of the road. The area will be characterised by regular and ordered tree planting alongside the road, sensitive grassland and meadow planting in areas where clear sight-lines are required, such as junctions. Specific principles are provided for interfaces with the school, residential and open space land uses as well as gateway locations and the ramp embankment.
- **The Railway Interface:** Comprises the green corridor alongside the railway which is proposed to form a key connection between the Lidsey Rife Linear Park in the west and green space to the east. It is proposed to provide a landscape and ecological buffer with some recreational use.
- **The Green Link:** Presents a landscape connector to and from the Lidsey Rife Linear Park and follows a route along the existing public right of way south of Barnham Road and to the west of St Philip Howards Catholic School. In terms of character it will be similar to the linear park with generous pathways linking local play areas, seasonal ponds and small greens with an informal and active landscape. It will include a green gap or buffer between Barnham and Eastergate.
- **Lidsey Rife Linear Park:** Comprises the valley of the Lidsey Rife and adjacent land to deliver a linear park with three broad landscape types, namely: a riparian corridor along the Lidsey Rife; a transitional zone of seasonal meadows, woodland and grassland; and a grassland zone incorporating amenity grassland with a species-rich flowering seed mix.

Character Areas

C3.36 The Parameter Plan – Development Areas Character Plan (ref. 00605_PP05) shows three distinct character areas within the proposed development. The form and scale of buildings and other structures proposed on the Site is an important consideration in shaping the character of new development. The analysis and understanding of the Site and its context, including topography, surrounding settlements, views from and towards the Site and the understanding of what will be delivered to create a thriving community were all important considerations in proposing the appropriate scale of development.

C3.37 The proposed development is split into two key areas, namely the ‘mini-masterplan’ to the south of Barnham Road, which presents an extension to the existing villages, and the new settlement. The latter will be physically separate from the villages and thus provides the opportunity to create a new distinct new character. Three character areas are proposed in the Parameter Plan and the Design Principles Document establishes the principles for development within each character area. These character areas are:

- Mini Masterplan Urban Extension: The area immediately to the south of Barnham Road consisting of residential development.
- New Neighbourhood: The western land parcels and north eastern corner of the new settlement.
- New Neighbourhood Core: The Neighbourhood Centre and adjacent land.

Sustainability and Climate Change

C3.38 The Applicant has identified the need to provide an effective response to climate change as a key organisational priority and an essential part of its ethos and overall responsibility to society. It has identified a list of key elements which need to be reviewed as part of its building projects to enable the delivery of sustainable buildings. This includes consideration of:

- 1 Materials and products used in buildings;
- 2 BRE environment assessment method;
- 3 Life expectancy of the new buildings – promoting a life cycle approach;
- 4 Utilisation of the local supply chain;
- 5 Efficient energy supply;
- 6 Environmental impact during construction;
- 7 Biodiversity and local growing projects;
- 8 Modern technologies; and
- 9 On-site generation of renewable energy.

C3.39 Furthermore, the design of the Proposed Development has been developed in accordance with Local Policy set out in the Arun Local Plan (2011-2031), which includes the following key policy requirements:

- Policy ECC SP requires that all major developments produce 10% of the total predicted energy requirements from renewable or low carbon generation on site (unless it can be demonstrated that this is unviable).
- Policy ECC SP2 requires that developments achieve energy efficiency measures that reflect the current standards at the time of submission.
- Policy WM DM1 requires opportunities for the re-use and recovery of materials on site to be demonstrated and off-site disposal of waste to be minimised and managed. Developments must also adhere to the 'Waste Hierarchy' and incorporate appropriate facilities to manage operational waste.
- Policy W DM3 requires proposals for major development to integrate SUDS within public open space and roads.
- Policy ENV DM5 requires development schemes to seek to achieve a net gain in biodiversity and protect existing habitats on site in the first instance.
- Policy T SP1 states that the Council will ensure that development provides safe access on to the highway network; contributes to highway improvements and promotes sustainable transport, including the use of low emission fuels, public transport improvements and the cycle, pedestrian and bridleway network.

C3.40 A number of the policy requirements are already met within the parameters of the Proposed Development, including incorporation of an extensive SUDs system that will include the creation of new attenuation basins designed to be of high biodiversity value. These measures are

set out within Chapter O Mitigation and Monitoring within the list of embedded mitigation measures.

C3.41 However, the specific energy strategy for the Proposed Development will be determined at the Reserved Matters stage, and as a starting point it is assumed that this will be in line with the building regulations enforced at that time. The Energy and Sustainability Strategy for the Proposed Development (submitted in support of the planning application) has outlined the following principles which could be adopted at the detailed design stage to achieve compliance with the energy policy requirements:

- An all-electric servicing strategy will be explored, as it is recognised that this would be a suitable approach to compliance with the emerging Future Homes. It is estimated that this will reduce the Proposed Development to net zero carbon emissions by around the mid-2030s.
- The potential for solar PV, generating zero carbon electricity.
- Consideration of best practice standards such as Passivhaus principles, as is appropriate.
- It is anticipated that the Proposed Development will achieve emissions in line with the Building Regulations Part L 2013 gas boiler baseline at Be Lean stage through passive design and energy efficiency measures alone i.e. a 0% reduction in annual regulated CO₂ emissions.
- Consideration of the use of an electric heat pump, for all homes and buildings, to meet the heating and hot water demands of the development.
- Deploying building fabric with a high thermal performance, built to rigorous standards to minimise heat loss, in order to reduce demand for energy as far as possible.
- Ensuring local infrastructure provision is sufficient to accommodate the power demands of the future uptake of Electric Vehicles and that appropriate charging infrastructure is provided to homes and other buildings.

C3.42 The Energy and Sustainability Strategy submitted with the Outline Planning Application provides a full description of all physical, social and economic measures being explored for the Proposed Development.

Consideration within the ES

C3.43 In accordance with the Scoping Opinion (paragraphs 5.52 and 5.53), Table C3.4 below provides an overview of how the issues of sustainability and climate change have been considered within the technical chapters of the ES.

Table C3.4 Consideration of climate change and sustainability within the ES of Land at BEW

Issue	Consideration of Climate Change and Sustainability
Water Environment	Embedded mitigation is provided in the form of a sustainable surface water drainage strategy incorporated throughout the masterplanning process. This strategy aims to manage surface water generated by the Proposed Development in a sustainable way. The drainage strategy has allowed for increases in rainfall intensity from the predicted future effects of climate change. Within the parameters plan, suitable space has been allowed for within the masterplan to accommodate strategic sustainable drainage features, such as ponds and basins that will accommodate the additional runoff generated by the Proposed Development.
Transport	The sustainable transport strategy is integrated into the scheme parameters in order to maximise the opportunities for walking, cycling, and public transport use amongst

Issue	Consideration of Climate Change and Sustainability
	future site users. To promote and encourage an uplift in trips by active modes, a number of measures are proposed including: - Provision of a comprehensive walking and cycling network within the application site, incorporating the existing PRow network. - Rights of way internal to the application site will incorporate footways and appropriate cycle facilities which will connect with the existing pedestrian and cycle networks off the application site. - A FTP will be in place across the site, secured as a planning condition , and will encourage increased uptake of active (and sustainable) travel modes. - Cycle parking will be provided in line with policy requirements. - The spine road through the Proposed Development will be designed to accommodate a bus service with stops provided at appropriate spacing. - A number of pedestrian and cycle crossings will be included within the highway strategy which will help to encourage sustainable travel by providing safe crossing locations.
Air Quality	The sustainable transport strategy proposals outlined above have been accounted for within the Air Quality assessment.

Risks of Accidents and Disasters

C3.44 Schedule 4 of the updated EIA Regulations 2017 (Ref 1) include a requirement to provide: -

“a description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned.”

C3.45 Table C3.5 provides an overview of how each of these issues have been considered within the ES, and other matters typical of a scheme of this nature are also briefly considered, in terms of traffic related accidents.

Table C3.5 Consideration of Risk of Accidents and Disasters within the Land at BEW ES

Risk Area	Consideration of Risks of Accidents and Disasters
Transport	Considered further in Chapter D of this ES, a range of transport improvements have been designed to reduce the risks of traffic accidents as much as possible.
Flood Risk	Considered further in Chapter K of this ES, the development has been designed with regard to the potential for extreme flood events and to ensure that the risks to future occupants is as low as possible.
Construction	During the construction period, adoption of industry best practice methods, such as ensuring that site workers wear the appropriate PPE, will ensure that any risk of construction site related accidents is minimised. These methods will be included in the Construction Environmental Management Plan, which is explained further in Section C4.0 of this ES Chapter.
Contaminated Land	Considered further in Chapter K of this ES, a range of mitigation measures have been identified to ensure that the risks to future occupants and workers from contaminated land is as low as possible

C4.0 Construction Methodology

C4.1 This section describes the key demolition and construction parameters that are identified for the purposes of assessment within this EIA. It is anticipated that a planning condition will require further details to be submitted and agreed by the contractor or contractors in due course and prior to the works (or each phase of works) taking place. These will accord with the broad principles established below and be assessed as part of the EIA.

Programme of Works

C4.2 For the purpose of this EIA assessment, it has been assumed that construction of the Proposed Development will take approximately 10 years. Enabling and infrastructure works are assumed to commence in 2022. Construction works would conclude by 2033.

C4.3 As outlined in Section C3, up to 1,250 new homes will be provided within the application site in line with the submitted Parameter Plans. The phasing used for the purposes of assessment sets out a scenario where a total of 1,250 new homes will be provided, and this scenario has been applied to the EIA¹. The phasing scenario divides the work into 3 phases plus an initial enabling works phase, as defined in Table C4.1:

Table C4.1 Phasing assumed for the purposes of assessment

Phase	Years	Residential Units	Commercial /Employment	Infrastructure / Other (Southern Consortium)	Third-party proposed developments
Enabling works/ infrastructure	2022-2023	-	-		
Phase 1	2023-2030	920	1,250 sqm local centre	A29 'Barnham connection' (south of Barnham Road to roundabout); Easterly connection to Barnham station of east-west link; Barnham station car parking Green link; 2FE primary school; and Community centre	Connection between existing A29 and A2233, including roundabout on B2233 Barnham Lane. Delivered by West Sussex County Council Construction of new homes: (a) Land promoted by Barratt Homes (north of B2233 Barnham Road, accessed from new A29) (b) Land promoted by Cala Homes (land to the west of the Applicant's Site, accessed from existing A29 Westergate Street)
Phase 2	2030-2033	330	-	Westerly connection of East-West link;	

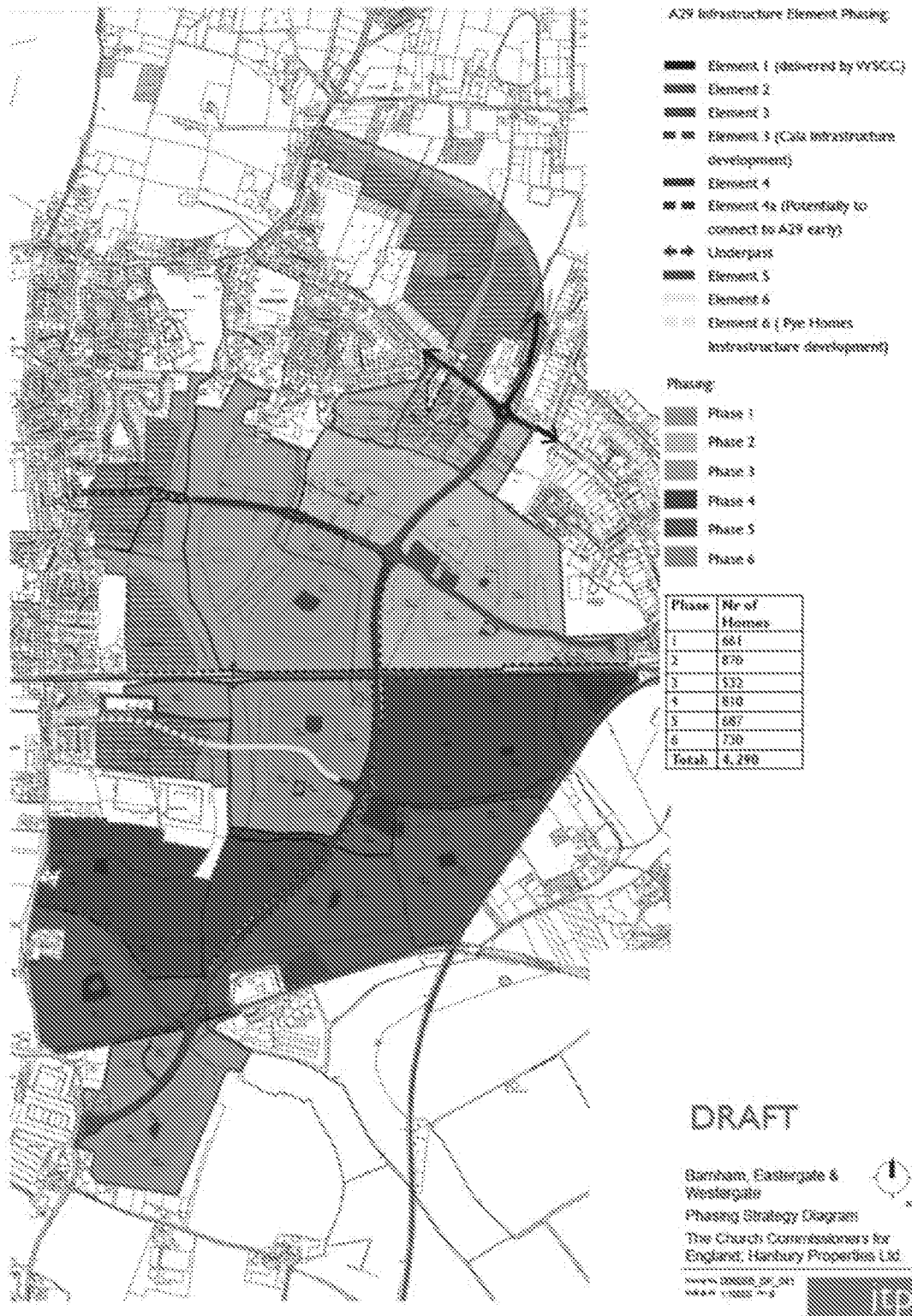
¹ Where different assumptions have been applied, this has been set out in the description of the methodology within the individual technical chapters.

Phase	Years	Residential Units	Commercial /Employment	Infrastructure / Other (Southern Consortium)	Third-party proposed developments
				Cricket pitch; and Linear Park	
Phase 3	2031-2033	-	-	Remainder of A29 south of railway line and Hanbury Spur	Remaining westernmost part of the internal east-west distributor road through Cala Homes site; delivered by Cala Homes.

C4.4 A Construction Phasing Plan has been prepared to identify how development is likely to proceed and has been assumed for the purposes of assessment. This is considered a reasonable and proportionate approach and it is considered unlikely that a different phasing would result in effects which would be significantly different.

C4.5 The Phasing Plan considers the key trigger points for delivery of the internal road north of the railway (realigned A29) and sets out the initial phasing that is likely to be employed in building out the Proposed Development. The phasing is, in part, subdivided between elements for which the Applicant will be responsible for delivering, and those which involve third-parties. This includes the new part of the A29, which will be delivered by multiple parties, including the Applicant.

Figure C4.1 Wider Phasing Plan Used for the purposes of assessment, as set out in the CEMP



Description of Works

- C4.6 The application site is expected to be built out in self-contained plots to allow partial occupation of the application site as buildings are constructed.
- C4.7 Each plot will require a soft strip to balance the earthworks as part of the enabling works. Foundations are expected to be conventional strip foundations or flat foundations for the majority of the Proposed Development. Pilling may be required to the school and commercial space. Mobile cranes are also likely to require access to the Site during construction of the school and commercial space.
- C4.8 Phase 1 of the construction works will commence at the northern end of the Site. The new part of the A29, running to a new roundabout junction with the B2233 Barnham Road, will be provided by WSCC with a temporary access on the southern side which will enable access to the northern parcel directly from the A29 (and B2233), and therefore also create an appropriate access for construction of the Applicant's Proposed Development.
- C4.9 In later phases, physical access into the Site will be possible from the existing A29 following completion of links over third-party land, but it is anticipated that all construction access into the Site will continue from the newly delivered A29 and will not use the existing local road network, save for that part of the A29 between the Site and the A27.
- C4.10 Construction vehicles are primarily expected to reach the Site from the north by using this route along the A29 from the A27, although some local suppliers (such as those in Barnham) may more appropriately arrive along the B2233. Construction traffic originating in the Bognor Regis urban area will be directed to use the A259 to the A27 and then finally arrive at the Site from the north using the A29.
- C4.11 The combined new and existing parts of the A29 will provide a short connection to the Fontwell West Roundabout on the A27 and as such to the wider Strategic Road Network. This will allow for the routing of construction vehicles to avoid the main part of Eastergate and to avoid passing through Barnham.
- C4.12 As construction progresses, the A29 will further extend through the Site allowing this external access strategy to remain in place. Following eventual completion of the full length of the new A29 link, access will also be possible from the south, however given the Site's location, the northern access is likely to remain the preferred route for all but the limited volume of construction traffic originating in Bognor Regis.
- C4.13 During the peak build out periods, in the region of 50 construction vehicles could be expected daily; these being likely to be distributed across the working day. All construction vehicles will enter and exit the site in forward gear.
- C4.14 Standard construction vehicles are expected to be used for the construction activity including tipper trucks, lower loaders and concrete wagons.
- C4.15 No parking will take place on the public highway and the car parking for all staff will be provided within the Site for each phase of the Proposed Development. Where required, traffic marshals will be used to manage construction vehicle movements entering and exiting the public highway to minimise conflicts with general traffic.
- C4.16 No construction materials will be stored on the public highway. An area for storing construction materials will be identified within each phase and within the Site boundary.
- C4.17 A Waste Management Coordinator for each phase (the Site Manager) will be tasked with overseeing the removal of waste from the Site. A recycling regime for materials and packaging will be put in place to maximise the level of waste recovery. Waste will be segregated to

maximise opportunities for recycling. The waste will be collected from the Site by licensed waste carrier.

- C4.18 Good practice measures will be adopted relating to the following: wheel washing facilities; noise, dust and vibration control; avoid causing nuisance from smoke, odours, dust and other air emissions; site security; and neighbour and community liaison.

Hours of Work

- C4.19 The anticipated construction working hours will be as follows:

- 08:00 – 17:30 Monday to Saturday
- No night working or working on Sundays, Bank or Public Holidays without prior agreement with ADC.

Construction Environmental Management Plan

- C4.20 The contractor(s) will be required to produce and agree a CEMP (incorporating any relevant environmental requirements) to address construction effects of the Proposed Development (as it comes forward) on the environment and existing surrounding communities, businesses and residents of the area. Further details of the scope of this document (or series of documents) are provided in Chapter O of this ES (Mitigation and Monitoring), and a draft outline CEMP is provided at Appendix C3 and a Demolition Plan is provided at Appendix C4 (Volume 2 to this ES).

- C4.21 The establishment of a CEMP that includes at least the following details is identified as embedded mitigation that has been taken into account in the EIA:-

- 1 Location of the works and phases, including a site plan, showing construction site boundaries, position of plant and any sensitive receptors;
- 2 A description of the work to be undertaken;
- 3 A detailed programme of the construction phases and associated activities, proposed dates and sequence of the works, details of proposed normal working hours;
- 4 Construction Vehicle Management, including defined routes for contractors avoiding sensitive roads, allocated times for deliveries spread throughout the day, loading/unloading, requirements for switching off vehicles/machines, and parking arrangements;
- 5 Construction travel plans, including proposals for shared travel, on-site car parking arrangements, haul roads and use of public transport;
- 6 Method of delivery/removal of materials and plant and commitments regarding burning of materials;
- 7 Details of proposed site accommodation and location of site compounds;
- 8 Details of provision of hard standing for vehicles at designated areas;
- 9 Details of noise mitigating measures, including:
 - a silencing measures for all on site compressors and other large potentially noisy plant;
 - b locating noisy plant away from noise sensitive buildings and using barriers where practicable;
 - c operation of static noisy plant within a shed or an enclosure lined with sound absorbent material;

- d ensuring all construction vehicles have upward pointing exhausts;
 - e fitting compressors with properly lined and sealed acoustic covers that should be kept closed whenever in use, and pneumatic tools with anti-ring devices, mufflers or silencers;
 - f fitting machines with white noise/broadband vehicle reversing alarms;
 - g details of types of prohibited machines / recommended machinery to be used ensure minimal noise and vibration disturbance;
- 10 Details of safety measures that will be taken when erecting or striking scaffold to avoid impact noise;
- 11 Description of plant maintenance that will be undertaken during the construction phases;
- 12 Details of training programmes for site workers;
- 13 Details of public information programmes during the construction phase;
- 14 Details of a Dust Management Plan;
- 15 Liaison meetings with developers of other nearby schemes or phases that have overlapping construction phases;
- 16 Details of the programme of archaeological mitigation to be carried out prior to and during construction, specifically an Archaeological Watching Brief;
- 17 Details of soil management proposals;
- 18 Details of the Ecology Management Strategy for Construction for each development phase detailing method statement for protecting habitats and species, this will include:
- a Designation of appropriately qualified Ecological Clerk of Works (ECOW) to manage the implementation
 - b Details of an Ecological Avoidance and Mitigation During Construction Plan identifying all sensitive habitats including all hedges and watercourses
 - c Techniques to prevent indirect effects on water quality in accordance with the relevant Guidance for Pollution Prevention (Ref 2)
 - d A precautionary method statement detailing the requirement to assess any potentially suitable trees for bats
 - e Protection of habitats using Heras fencing
 - f Details of a nesting bird method statement
 - g Details of works on ditches with recent signs of water vole use (i.e. to take place under ecological supervision and under class licence for displacement)
- 19 Details of construction temporary lighting, including:
- a How temporary artificial lighting around working areas within the application site will be controlled, limiting construction lighting and/or perimeter security lighting, particularly in the vicinity of existing and future residential properties;
 - b lighting control measures which will reduce the potential for light spill and glare to be experienced will be implemented;
 - c how temporary lighting will be as low as possible, hooded and directional and in use only during the hours of operation;

- d Lighting will be subject to a curfew of 2300 hours, however the site compound will be lit at all hours for security purposes - although levels of light will be reduced outside of operational hours;
 - e Control measures will be implemented including post installation checks;
- 20 Details of a temporary surface water management system (including swales and basins around any compounds) and temporary drainage solution;
 - 21 Details of site/construction haul road maintenance;
 - 22 Details of any dewatering strategy and discharging water arising from dewatering activities (i.e. should be filtered and/or pass through a stilling basin);
 - 23 Details of works requiring land drainage consents in relation to watercourse crossings required to access parts of the construction site which will need a suitable culverted crossing and localised construction activity within and close to the banks;
 - 24 Details of groundwater monitoring requirements;
 - 25 Description of emergency and contingency procedures for potential flood events;
 - 26 Details of precautions to take in the event of encountering unforeseen contamination;
 - 27 Description of further groundwater sampling and analysis required; and
 - 28 Description of Unexploded Ordnance site safety instructions.

C5.0 Consideration of Alternatives and Design Evolution

- C5.1 Schedule 4(2) of the 2017 Regulations (Ref 1) requires an identification of the reasonable alternatives that have been studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option including a comparison of the environmental effects. This section provides a review of those alternatives that have been studied.
- C5.2 In addition, and with reference to Schedule 4(3) (Ref 1) the ES also provides a brief review of the likely effects in the event that the development does not come forward (i.e. an outline of the likely evolution without implementation of the development). This is otherwise known as the 'no development' scenario. Further consideration of this scenario is also included within technical chapters D to M where relevant to the specific technical area under consideration.
- C5.3 To comply with this requirement, this section provides a review of:
- 1 Likely significant effects in the event that the development does not come forward ('the 'no development' scenario');
 - 2 Consideration of whether alternative locations would achieve the objectives of the current Proposed Development; and
 - 3 Consideration of the evolution of the design of the scheme and whether alternative forms of development would achieve the same objectives.
- C5.4 The consideration of alternatives has been assessed and is explained below.

No Development

- C5.5 In addition to the requirements of the 2017 Regulations (Ref 1), guidance in carrying out an EIA suggests that it is good practice to consider the evolution of a site in the absence of the development proposed (in other words a 'do nothing' alternative). This is also covered under the 'future baseline' requirements of the 2017 Regulations (Ref 1) as specified in Chapter A of this ES.
- C5.6 Each technical aspect chapter of this ES includes a section describing the future baseline relevant to the particular technical area. General consideration is also provided below.
- C5.7 If no development was to come forward at the application site, it is possible that the application site would remain in its current condition, which is primarily agricultural land. In the 'no development' scenario, the significant social, economic and housing benefits from the Land at BEW would not come forward at the application site and in Arun District.
- C5.8 However, the allocation of the application site within the Arun Local Plan (2011-2031) (Ref 3) considerably increases the likelihood that a similar development would be likely to be brought forward in due course on the application site. Given the importance placed in local planning policy on the delivery of new homes within Arun, no further consideration has been given to the 'no development scenario' within this ES.

Consideration of Alternative Locations

- C5.9 As confirmed within the Scoping Request to ADC (Appendix B1), no other locations have been considered by the Applicant in respect of the development given that the Land at BEW has been the only site identified for the Proposed Development and Strategic Allocation, the applicant has

not given, and will not be giving consideration as part of the EIA to other sites for the development of a similar scale.

- C5.10 No further consideration is therefore required in accordance with the 2017 EIA Regulations (as amended).

Influence of the EIA in Design Evolution

- C5.11 The current form of Proposed Development has emerged through an iterative process of design evolution between the design and EIA team. However, it is important context that the immediate starting point for the design has been the BEW Framework Masterplan which was endorsed by ADC in November 2020. This established the overall vision, development principles and infrastructure requirements that would need to be included to ensure the delivery of the Proposed Development. The work between the design and EIA teams has therefore focused on ensuring that these key principles embed important environmental mitigation where at all possible at this stage. This ES then identifies other measures that will need to be brought forward through the detailed design process.

- C5.12 The process of EIA has enabled further refinement of the overall principles set out in the Framework Masterplan, and particular elements have been embedded into the detailed highways design and the parameters for the development. These elements are described in full in Chapters D to M of this ES but a summary has been provided below:

Transport & Accessibility

- Design and location of roads has had regard to site topography and other key environmental aspects including ground conditions, archaeology, flood risk and ecology.

Landscape and Visual Impact

- Significant design iteration with a focus on building heights and landscaping has taken place.
- Other detailed embedded mitigation in respect of landscape and views is described in Chapter E of this ES.

Ecology and Nature Conservation

- The design process has been informed by ecological survey work and the landscape strategy has been designed in response to these. It has sought to retain key habitats within the scheme and ensure significant enhancement measures are provided to balance losses.

Air Quality

- Inputs have been provided to the location of different land uses and sustainable transport measures that have been incorporated into the design; albeit other measures are identified for the detailed design stage and are described in Chapter G of this ES.

Noise & Vibration

- Noise mitigation has been identified within the ES which will feed into the detailed design of the Proposed Development, particularly in relation to design of residential units in noise sensitive areas.

Archaeology and Cultural Heritage

- Consideration of the location of potential archaeological areas of greater significance, namely those of high and medium sensitivity, have been taken into account in the design of the location of development with an aim to retain any features of particular value through locating open space in these areas.
- Embedded mitigation is provided through the control of building heights and retention of key green infrastructure in relation to areas of heritage sensitivity, as shown on the Parameter Plans.

Water Environment and Drainage

- The design of the Land Uses Parameter Plan has been informed by the flood risk assessment through ensuring that an appropriate standoff from all the main watercourses was applied, in which no built development should take place. This also informed the location of the blue-green corridors designed into the application site.
- The SuDS scheme has informed the design of the Parameter Plans through incorporating suitable space to accommodate strategic sustainable drainage features, including ponds and basins that will accommodate the additional runoff generated by the Proposed Development.
- Groundwater monitoring has provided a detailed picture of flood risk issues from this source, embedding into the design suitable locations for the proposed uses, secured through the Design Principles document and the Parameters Plans.

Socio-Economic

- Assessment has guided the number of residential units, number and location of community facilities and open space and the floorspaces to be accommodated for retail, business and community uses across the application site

C5.13

The EIA has therefore played an important role in the emergence of the highways layout and the outline parameters for the Proposed Development. Further consideration of this is provided in Chapters D to M of this ES.

C6.0 Abbreviations & Definitions

- 1 ADC Arun District Council
- 2 AONB Area of Outstanding Natural Beauty
- 3 AQMA Air Quality Management Areas
- 4 CEMP Construction Environmental Management Plan
- 5 EIA Environmental Impact Assessment
- 6 ES Environmental Statement
- 7 PPE Personal Protective Equipment
- 8 PRoW Public Rights of Way
- 9 SEND Special Educational Need Development
- 10 SPA Special Protection Area
- 11 SSSI Site of Special Scientific Interest
- 12 SuDS Sustainable Urban Drainage Strategy
- 13 TPO Tree Preservation Order
- 14 WSCC West Sussex County Council

C7.0

References

- 1 The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as updated)
- 2 Guidance for Pollution Prevention
- 3 Arun Local Plan (2011-2031)