

Chapter 4: The Proposed Development

INTRODUCTION

- 4.1** This chapter of the ES presents a description of the Proposed Development, for which outline planning permission is sought from Gravesham Borough Council (GBC). It provides sufficient information on the Proposed Development to aid the identification and assessment of the likely environmental effects across the technical topic areas addressed in the EIA, as presented in **ES Volume 1, Chapters 6 to 15** and **ES Volume 2**.
- 4.2** The Design and Access Statement (DAS), Design Code, Parameter Plans and Planning Statement submitted in support of the planning application provide further information relating to the Proposed Development.

OVERVIEW OF THE PLANNING APPLICATION

- 4.3** The Proposed Development seeks outline planning permission for a mixed-use residential-led scheme consisting of up to 3,500 residential units as well as a hotel, a new football stadium with associated business and leisure facilities, a range of commercial, business and services uses including retail and food and beverage and community uses. In addition, the Proposed Development will provide associated public realm and hard and soft landscaping, highways works, car parking, access and servicing arrangements, infrastructure and ancillary works and associated works.
- 4.4** The planning application seeks approval of outline parameters for the Proposed Development described above with the exception of the primary means of access into and out of the site via the A226 (to the south), B2175, Grove Road, Galley Hill Road (A226), Northfleet Industrial Estate, Lower Road and Seacon Terminals (as illustrated in the Highway Access Parameter Plan) for which approval is sought in detail and which are described further below in the 'Primary Means of Access' section of this ES chapter.
- 4.5** The planning application comprises the following Control Documents (as discussed in **ES Volume 1, Chapter 2: EIA Methodology**) which in combination with this ES chapter form the basis of assessment for the EIA:
- Planning Statement – describes and sets out each of the Parameter Plans (see below) and also defines the maximum land use quantum proposed for each Use Class that could come forward across the site, as well as minimum commitments as relevant (e.g. open space);
 - Parameter Plans – define the demolition works, land use zones, built edge extent, maximum building heights, public realm, and public and highway access (including the locations of the primary means of access) of the Proposed Development, and
 - Design Code – provides a set of design rules and principles to guide the vision, character and quality of the detailed design, as discussed below.
- 4.6** The Control Documents build in a sufficient level of flexibility into the design to allow for detailed designs to come forward through future Reserved Matter Applications (RMA).

Design Code

- 4.7** The Design Code provides a design framework to ensure that the aspirations for architecture, landscape, townscape, quantity, uses and quality are met and will be used to inform the detailed design process and future RMAs for the Proposed Development. The Design Code is not prescriptive, however, provides the overarching design vision and principles. The Design Code provides guidance for future design teams involved in the preparation of RMAs for the Proposed Development and provides GBC with certainty of the commitment to high quality design. The Design Code, together with the Parameter Plans, provide a set of controls which any future detailed proposals are to follow and comply with.
- 4.8** The Design Code sets site-wide codes that are to be applied across the site to ensure a cohesive design of the Proposed Development. These include (although are not limited to) the following key principles:
- Access and movement;
 - Green infrastructure;
 - Built form principles;
 - Key building components; and
 - Key material zoning.

Illustrative Masterplan

- 4.9** The Illustrative Masterplan, as presented in the Design and Access Statement which supports the planning application, and illustrated in **Figure 4.1**, presents an illustrative design for the Proposed Development that could come forward within the parameters sought for approval (i.e. in accordance with the Control Documents).

Figure 4.1 Illustrative Masterplan



DESCRIPTION OF THE PROPOSED DEVELOPMENT

- 4.10** The Proposed Development will comprise:

- Site clearance including removal of the existing industrial uses on-site and remediation of brownfield land as relevant;
- Realignment of the A226 Galley Hill Road / Stonebridge Road;
- Up to 3,500 residential units (Use Class C3);
- A new multi-use stadium (with associated facilities) with an estimated 8,000 seats and up to 15,000m² Gross External Area (GEA) (Sui Generis Use);
- Up to 22,500m² (GEA) Use Class E(a) retail floorspace;
- Up to 9,500m² (GEA) Use Class E(b) food and beverage floorspace;
- Up to 18,000m² (GEA) Use Class E(g)(i) and E(g)(ii) office floorspace;
- Up to 5,000m² (GEA) 'other' flexible use, comprising:
- Up to 1,100m² (GEA) local services (Use Class E(c));

- Up to 1,200m² (GEA) indoor sport, recreation and fitness (Use Class E(d));
- Up to 1,500m² (GEA) medical or health services (Use Class E(e));
- Up to 1,200m² (GEA) crèche or nursery (Use Class E(f));
- Up to 4,000m² (GEA) (Use Class F2) local community use;
- Approximate 300 room hotel (Use Class C1), comprising up to 20,000m² (GEA) floorspace;
- Car and cycle parking; and
- Provision of landscaping, public realm and associated works.

General Arrangement and Layout

- 4.11** The site is an irregular shape and covers an area of 19ha. The Proposed Development comprises nineteen development plots ('Plots'), i.e. a defined extent of developable area of a particular land use type, as illustrated in **Figure 4.2** (as shown in the 'Plots Plan' Parameter Plan, Drawing Ref. NFH-UNS-MAST-DR-1004), with access and areas of public realm located throughout the site.
- 4.12** The Proposed Development has been designed as a series of interconnected neighbourhoods, with a football stadium and retail podium forming the core, tying together the neighbourhood elements of the Proposed Development.
- 4.13** A podium level is proposed across the central area of the site (beneath the stadium and retail village) in order to allow for movement and circulation through the site on foot and by bike at a raised level, whilst facilitating the movement of Heavy Goods Vehicles at ground level through the site to the existing industrial uses to the north of the site, removing conflict between pedestrians and cyclists with motor vehicles. A podium is also proposed at all other development plots, primarily for the purpose of car parking provision.
- 4.14** As discussed in **ES Volume 1, Chapter 3: Alternatives and Design Evolution**, the design of the Proposed Development layout has evolved in response to a number of factors, such as facilitating movement between the site and existing transport links (including nearby railway network to the south of the site), to allow routes through the site for pedestrians and cyclists, and to create open spaces throughout the site.

Phasing

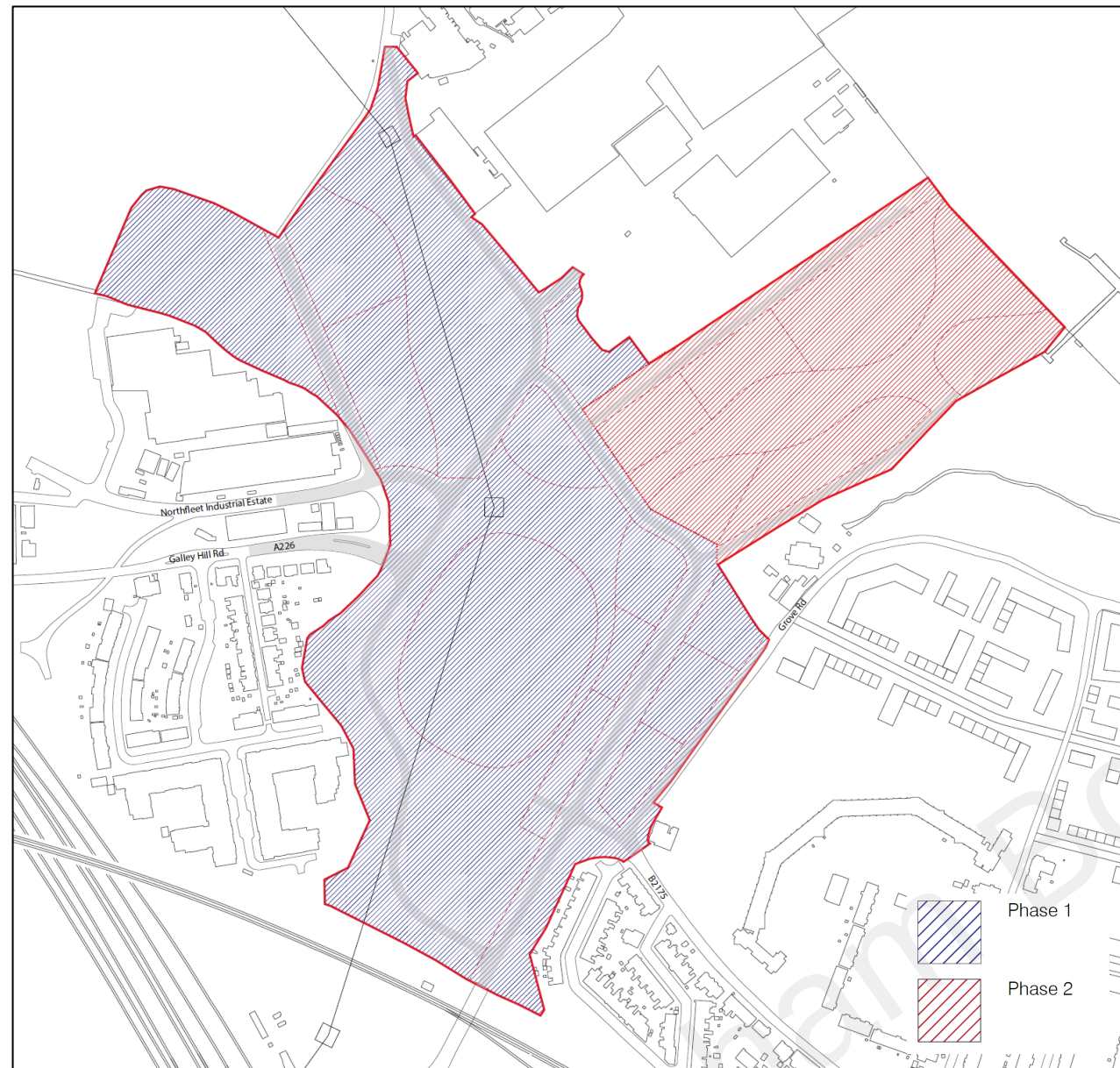
- 4.15** The Proposed Development will be delivered broadly in two main phases:
- Phase 1 to comprise Plots 1, 2, 3, 4, 5, 6, 7, 8, 15, 16, 17, 18, 19; and
 - Phase 2 to comprise Plots 9, 10, 11, 12, 13, 14.
- 4.16** The area of land which comprises Phase 1 of the Proposed Development is referred to as the 'Phase 1 site area'. The area which comprises Phase 2 of the Proposed Development is defined as the 'Phase 2 site area'.
- 4.17** During the construction of Phase 1 of the Proposed Development, the temporary relocation of Ebbsfleet United Football Club will be required (estimated to be in Year 2 of the indicative construction programme). The existing industrial uses on-site within the Phase 2 site area will remain operational whilst Phase 1 of the Proposed Development is built out.
- 4.18** **Figure 4.3** illustrates the indicative phasing of the Proposed Development with regards to the Phase 1 and Phase 2 site areas. Further details of the indicative phasing of construction, delivery and subsequent operation and occupation of the Proposed Development is provided within **ES Volume 1, Chapter 5: Demolition and Construction**.

Figure 4.2 Proposed Development Plots Plan Parameter Plan¹



¹ Parameter Plan – Plots Plan (Drawing Reference: NFH-UNS-MAST-DR-1004).

Figure 4.3 Proposed Development Indicative Phasing Plan²



Neighbourhood Character Areas

4.19 There are five Neighbourhood Character Areas proposed as part of the Proposed Development, as illustrated in **Figure 4.4**, which are defined by reference to their land uses, design and character. These areas allow for each neighbourhood to establish its own identity while retaining its overall connection to the Proposed Development identity. The public realm (discussed later in this ES chapter) ties together these neighbouring parts into one cohesive development. The five Neighbourhood Character Areas are as follows:

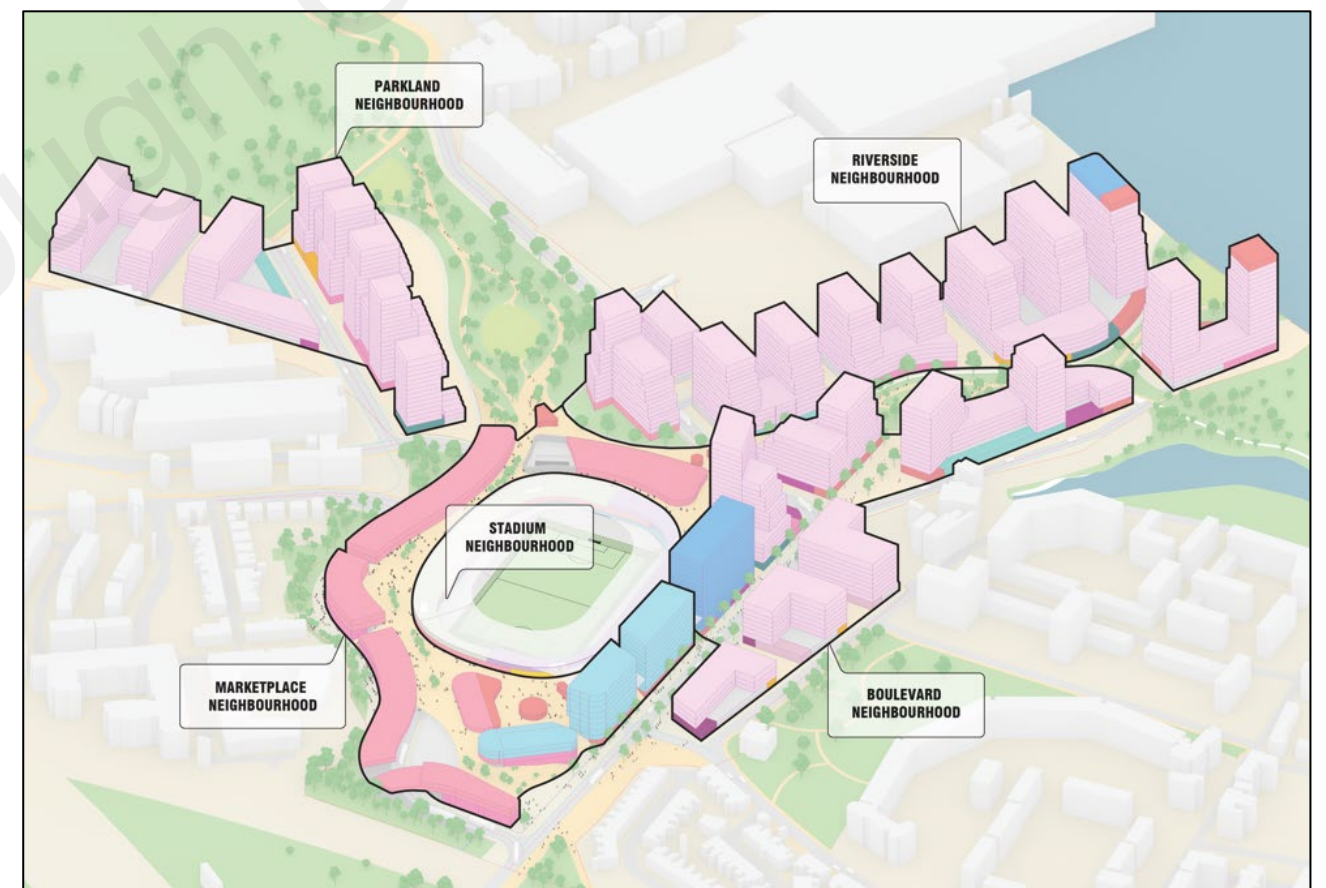
- **Marketplace Neighbourhood Character Area:** This neighbourhood marks the main arrival point of the Proposed Development and contains a meandering podium route along which two levels of flexible non-residential land uses and local community uses sit;
- **Stadium Neighbourhood Character Area:** The stadium lies at the heart of the Proposed Development, bringing the past and future of the site together in one space. This 8,000 capacity stadium contains the functions of car parking, non-residential use and the football pitch;

- **Boulevard Neighbourhood Character Area:** This neighbourhood creates a strong organisational boundary comprising non-residential land uses, a hotel and residential use;
- **Riverside Neighbourhood Character Area:** This neighbourhood creates the connection between the Proposed Development and the River Thames Harbour. The area comprises of both residential and non-residential land uses; and
- **Parkland Neighbourhood Character Area:** This neighbourhood has several ground floor uses including non-residential uses, local community uses, and residential use.

4.20 Each Neighbourhood Character Area contains a diverse mix of scale, with building height ranging from 2 floors up to the tallest blocks at up to 20 floors.

4.21 The Neighbourhood Character Areas are shown on the 'Neighbourhoods Plan' Parameter Plan, (Drawing Ref. NFH-UNS-MAST-DR-1018). Further detail regarding the character and design of Neighbourhood Character Areas is provided within the Design and Access Statement and Design Code which support the planning application. The Design Code sets out recommended and mandatory measures for each Neighbourhood Character Area, for example in relation to green infrastructure provision, which future detailed design will be required to comply with as relevant.

Figure 4.4 Proposed Development Neighbourhood Areas³



Land Use and Quantum of Development

4.22 The Planning Statement outlines the maximum amount of development that could come forward across the Proposed Development with regards to maximum areas/units of residential and non-residential land use quantum, minimum public realm/open space provision, and maximum building heights across the Proposed Development.

² Parameter Plan – Indicative Phasing (Drawing Reference: NFH-UNS-MAST-DR-1016).

³ Note, this figure depicts the Neighbourhood Character Areas in the context of the Illustrative Masterplan.

4.23 Table 4.1 sets out the maximum proposed amount of development per use class for the Proposed Development. Minimum parameters are not sought for approval by the planning application, other than for public realm and other relevant social infrastructure parameters, as set out within this ES chapter.

Table 4.1 Proposed Maximum Quantum of Development – per Land Use

Land Use		Use Class	GEA (m²) / Units ⁴
Residential		C3	3,500 units
Hotel		C1	20,000m²
Stadium and Associated Facilities		Sui Generis	15,000m²
Retail ⁵		E(a)	22,500m²
Food and Beverage / Drinking Establishments		E(b) / Sui Generis	9,500m²
Office		E(g)	18,000m²
Non-residential Flexible Use	Local services	E(c)	1,100m²
	Indoor sport, recreation and fitness	E(d)	1,200m²
	Medical or health services	E(e)	1,500m²
	Crèche or nursery	E(f)	1,200m²
Local Community Use		F2	4,000m²

Residential Land Use

4.24 The Proposed Development proposes up to 3,500 residential units across two phases. An overview of the indicative range of residential development per phase is presented in Table 4.2 below.

Table 4.2 Residential Development Per Phase

Phase	Indicative Residential Units Delivered per Phase
1	2,250 – 2,400
2	1,100 – 1,250
TOTAL	3,500

4.25 The Proposed Development is anticipated to provide 90% private housing and 10% intermediate affordable housing, although the precise quantum of affordable housing to be delivered will be confirmed at reserved matters stage.

4.26 The proposed unit mix by plot is shown in Table 4.3. The unit mix is not sought for approval and is based upon the Illustrative Masterplan which represents one possible way the scheme could be realised.

Table 4.3 Illustrative Masterplan Unit Mix

Type	Private 90%		Intermediate 10%		Total No.
	Mix (%)	No.	Mix (%)	No.	
Studio	5%	157	0%	0	157
1-Bed	50%	1,575	51%	179	1,754
2-Bed	40%	1,259	35%	123	1,382
3 Bed	5%	158	14%	49	207
Total		3,149		351	3,500

⁴ With regards to residential use.

⁵ Note, whilst the overall retail provision is expressed as a total figure, the Proposed Development has been assessed on the basis of predominantly comparison retailing, with small-scale convenience to support the local population. Unit sizes will be restricted through condition, which will deliver

Non-Residential Land Uses

4.27 A number of non-residential land uses are proposed across the site, as discussed above and set out in Table 4.1. The location and layout of these land uses is provided within the 'Land Uses' section of this ES chapter. As illustrated on the Land Use Parameter Plans (see Figure 4.9 – Figure 4.13), a number of mixed-use land plots are proposed at specific levels across the site. Due to the outline nature of the planning application, mixed uses are proposed within plots to maintain a degree of flexibility for the future detailed design of the outline components within the site wide maximum quantum (as defined in Table 4.1).

Maximum Development Parameters Scale and Massing

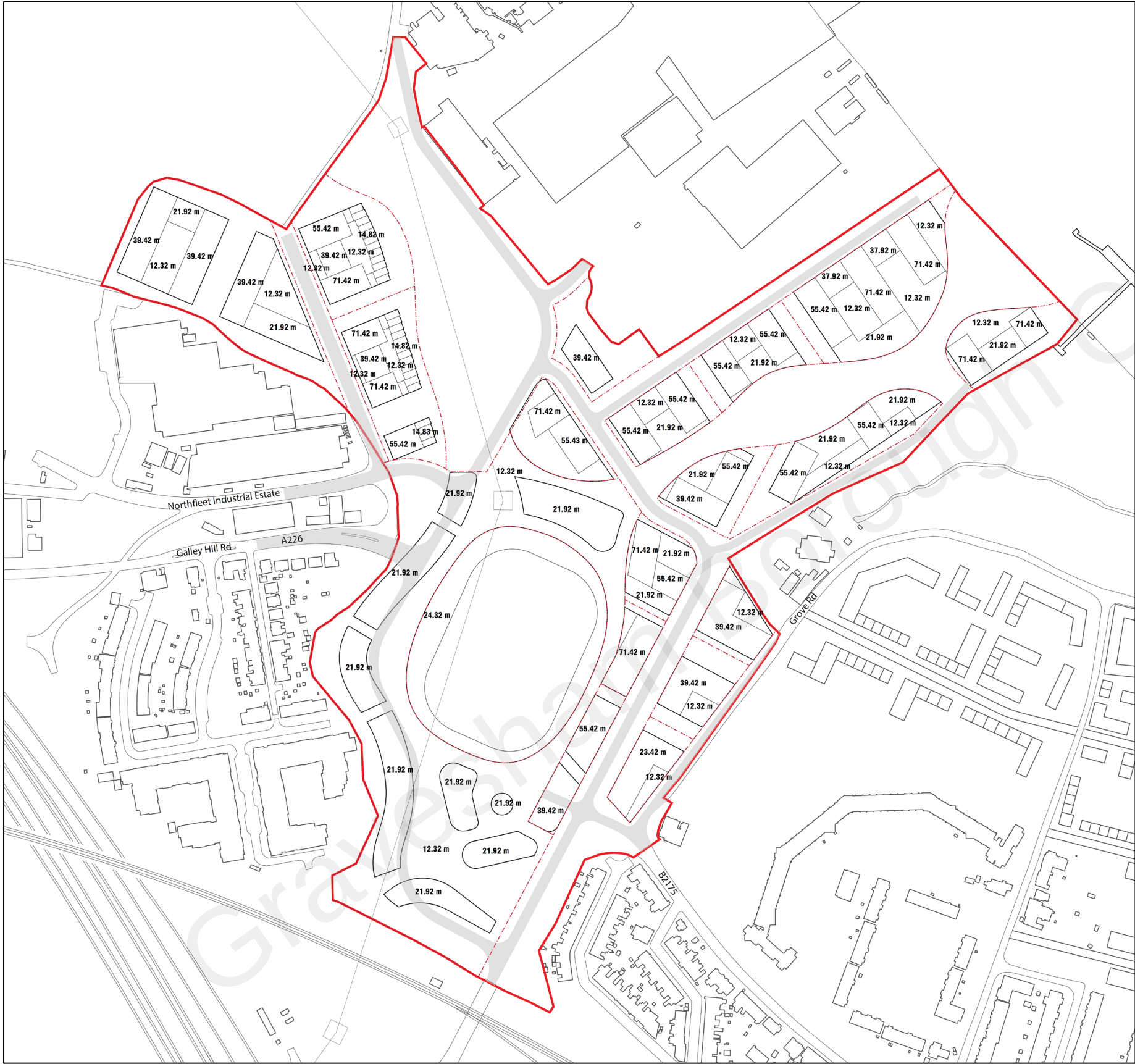
4.28 The Proposed Development comprises the construction of Plots 1 to 19 across the site. The maximum heights of the buildings above ordnance datum (see Figure 4.5), maximum building footprints (see Figure 4.7 and Figure 4.8), and land uses (see Figure 4.9 – Figure 4.13) are set out in the Parameter Plans. By defining the location and maximum extents of each plot footprint, the overall urban composition and massing is defined. The minimum extent of open space is also defined within the Parameter Plans (see Figure 4.15) as a requirement which guarantees space between buildings and areas of public realm/open space, as described in further detail in this ES chapter. This process of setting maximum plot footprints fixes the location of the larger open spaces of the public realm. The maximum building height within each plot, including plant zone, is provided in Table 4.4 and illustrated in Figure 4.5, as per the 'Maximum Building Heights' Parameter Plan (Drawing Ref. NFH-UNS-MAST-DR-1013).

Table 4.4 Maximum Building Heights

Plot	Maximum Height (metres Above Ordnance Datum)
Plot 1	24.32
Plot 2	21.92
Plot 3	55.42
Plot 4	71.42
Plot 5	71.42
Plot 6	23.42
Plot 7	39.42
Plot 8	39.42
Plot 9	55.42
Plot 10	55.42
Plot 11	71.42
Plot 12	71.42
Plot 13	55.42
Plot 14	55.42
Plot 15	39.42
Plot 16	71.42
Plot 17	71.42
Plot 18	71.42
Plot 19	39.42

a development that accords with the assessment undertaken and prohibit alternative forms of retailing such as large-scale convenience (i.e. supermarkets).

Figure 4.5 Proposed Development Maximum Building Heights Parameter Plan⁶



⁶ Parameter Plan – Maximum Building Heights (Drawing Reference: NFH-UNS-MAST-DR-1013). Note, height is in metres Above Ordnance Datum (mAOD)

4.29 The maximum parameters of the Proposed Development establish a three-dimensional (3D) building envelope within which the detailed design of the buildings that fall within Plots 1-19 will be developed through subsequent RMAs. The maximum building envelope is the shape that would emerge by applying the outer most, maximum dimensions for Plots 1-19 on the site, whilst recognising the controls outlined within the Design Code (e.g. a minimum distance of 21m between facing residential buildings). **Figure 4.6** illustrates the 3D model of the maximum parameters sought for approval.

4.30 The maximum massing is inclusive of a +1.5m roof level plant zone (as incorporated within the 'Maximum Building Heights' Parameter Plan'). Roof design will be subject to future detailed designs to come forward through RMAs.

Limits of Deviation

4.31 There is flexibility within the site layout, whereby routes, spaces and building boundaries are not completely fixed but are subject to limits of deviation. The limits of deviation with regards to building edge vary from +/- 0.5m to +/- 5m of deviation, as specified on the Parameter Plans. **Figure 4.7** and **Figure 4.8** (the Building Edge Deviation Parameter Plans) and Maximum Building Heights Parameter Plans (see **Figure 4.5**) establish the maximum developable envelope for the Proposed Development.

4.32 The Design Code sets out the locations at which projecting balconies are not permitted within the Proposed Development. Private amenity and balconies are not yet designed and will be subject to future detailed designs to come forward through RMAs.

Land Uses

4.33 The proposed land uses for the Proposed Development are described below and illustrated on the 'Land Uses Zones' Parameter Plans, as illustrated in **Figure 4.9** - **Figure 4.13**. Key design principles of the Proposed Development influenced the locations of proposed land uses across the site, as discussed in the DAS. For example, the provision of the football stadium surrounded by commercial uses (including the 'retail village') as a central feature within the site allows for easy access from local rail and road links. Furthermore, existing site constraints such as the existing overhead power lines through the site influenced the design of the open space within the site to ensure the appropriate safety and design requirements were met (as discussed further in **ES Volume 1, Chapter 3: Alternatives and Design Evolution**).

4.34 As illustrated in **Figure 4.9**, ground floor uses will vary from plot to plot, with the majority comprising parking, or a mix of parking and non-residential uses. At level 01 (see **Figure 4.10**), mixed residential/parking use is introduced across much of the site. At levels 02 and above (see **Figure 4.11**, **Figure 4.12**, and **Figure 4.13**), parking is no longer proposed, with predominantly residential land use to the north-west, north-east and east of the site, and mixed Sui Generis and commercial uses within the central area of the site.

Balconies

4.35 To allow for flexibility in the detailed design, balcony design has been considered, however has not been finalised at this stage. The detailed design of the balconies will be governed by the Design Code. As such, balconies across the Proposed Development may comprise a number of different design solutions, including projecting/external balconies, or internal 'winter gardens'.

4.36 The balcony control measures captured by the Design Code to ensure suitable wind microclimate conditions are achieved are set out within the 'Embedded Environmental Mitigation and Enhancement Measures' section of this ES chapter.

Appearance and Materials

4.37 The detailed appearance of Plots 1-19 and materials utilised will be subject to future RMAs, based on the details and controls set out in the Design Code submitted with the planning application. The appearance of buildings will respond to each relevant Neighbourhood Character Area, whereby the Design Code suggests appropriate materiality and colour palettes drawing upon historical contexts and artistic influences across the site.

4.38 Residential building materials within the Parkland, Riverside and Boulevard Neighbourhood Character Areas will respect the historical material palette of the surrounding context, with the Design Code noting the objective of providing high quality, durable and sustainable materials. The materiality of the Proposed Development, as per the Design Code, will be based upon a number of key principles, including:

- The use of different tones to identify the specific character of each area using tone and texture;
- Breaking up elevations to avoid a long linear block expression;
- Mixing and matching materials so each urban block has its own distinctive character while still reading cohesively as a part of the whole; and
- Respectful consideration of the receiving built environment and recognition of historic building fabrics.

4.39 The Market Place Neighbourhood Character Area key principles include a design palette which reflects the industrial character of the existing site by utilising materials that are reminiscent of industrial architecture in a contemporary way.

4.40 Regarding the Stadium Neighbourhood Character Area, the Design Code notes that specified materials should be durable, weather beautifully and consider long-term maintenances requirements from the outset. Sustainability should be paramount and recycled materials should be encouraged where possible.

Figure 4.6 3D Model of Maximum Massing Parameters



Figure 4.7 Proposed Development Building Edge Deviation Plan (Ground Floor and Podium)⁷

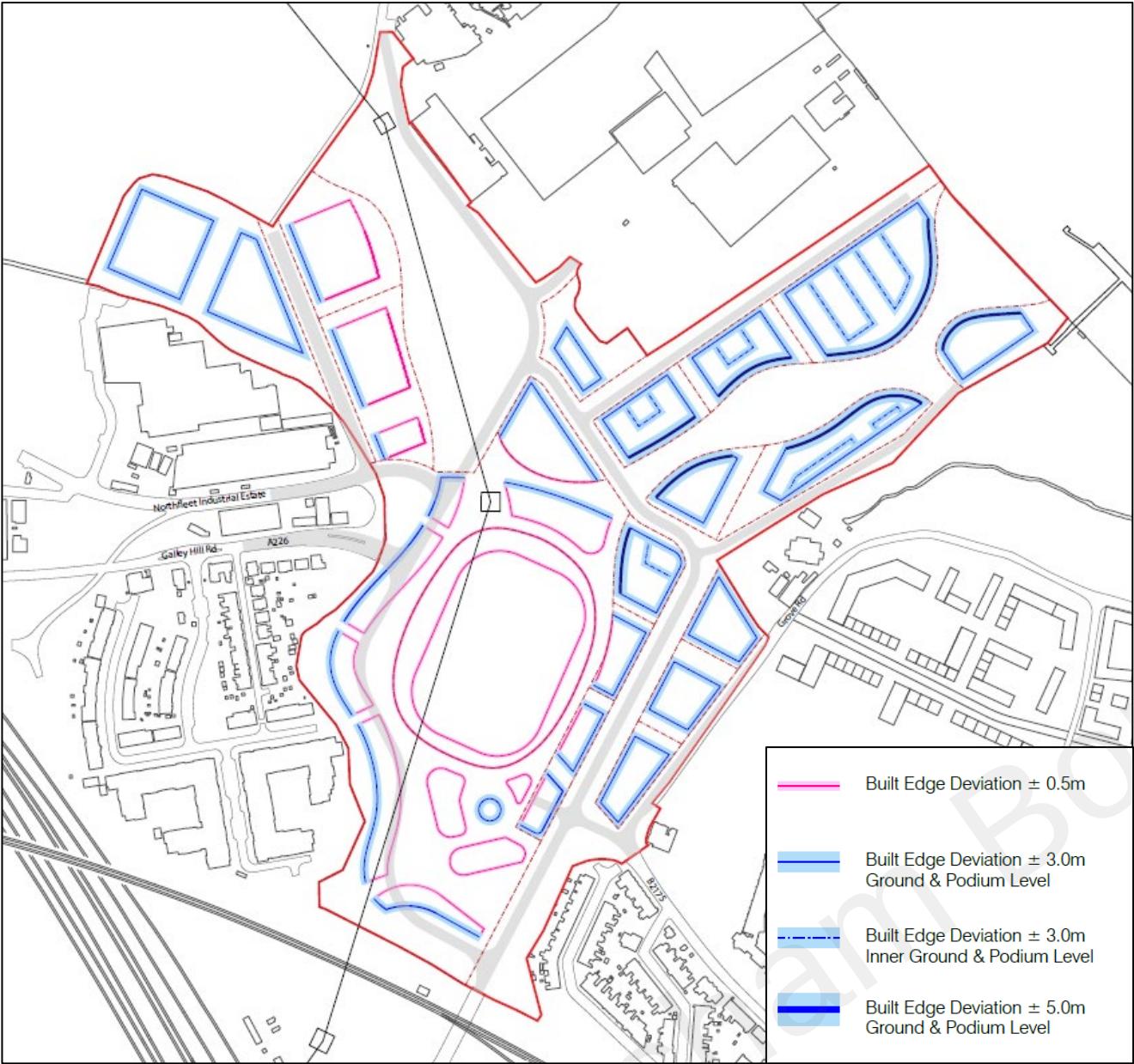


Figure 4.8 Proposed Development Building Edge Deviation Plan (Upper Floor)⁸



⁷ Parameter Plan – Built Edge Deviation Plan (ground floor and podium levels) (Drawing Reference: NFH-UNS-MAST-DR-1010)

⁸ Parameter Plan – Built Edge Deviation Plan (upper floor levels) (Drawing Reference: NFH-UNS-MAST-DR-1011)

Figure 4.9 Proposed Development Land Use Zones (Level 00)⁹

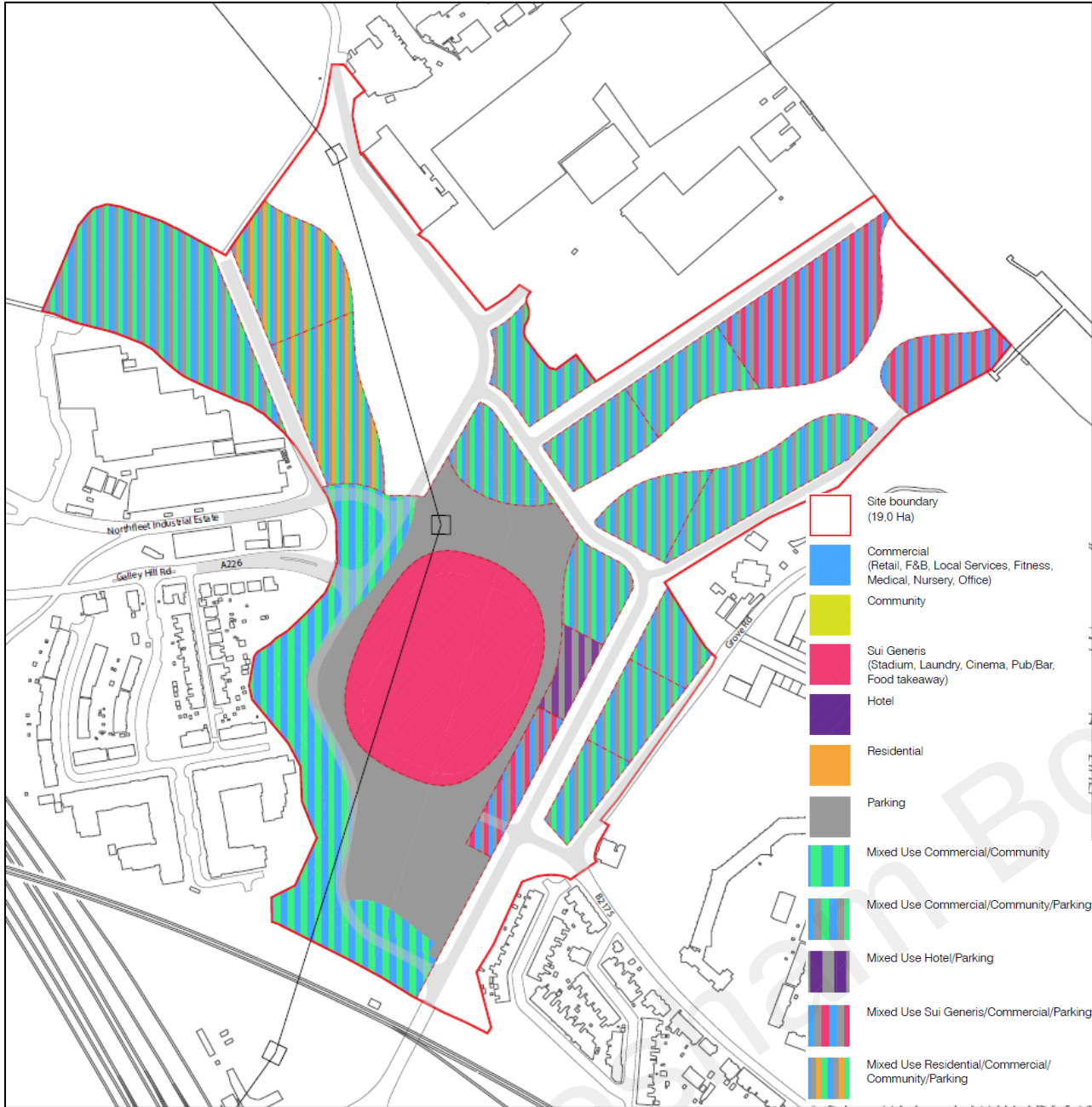
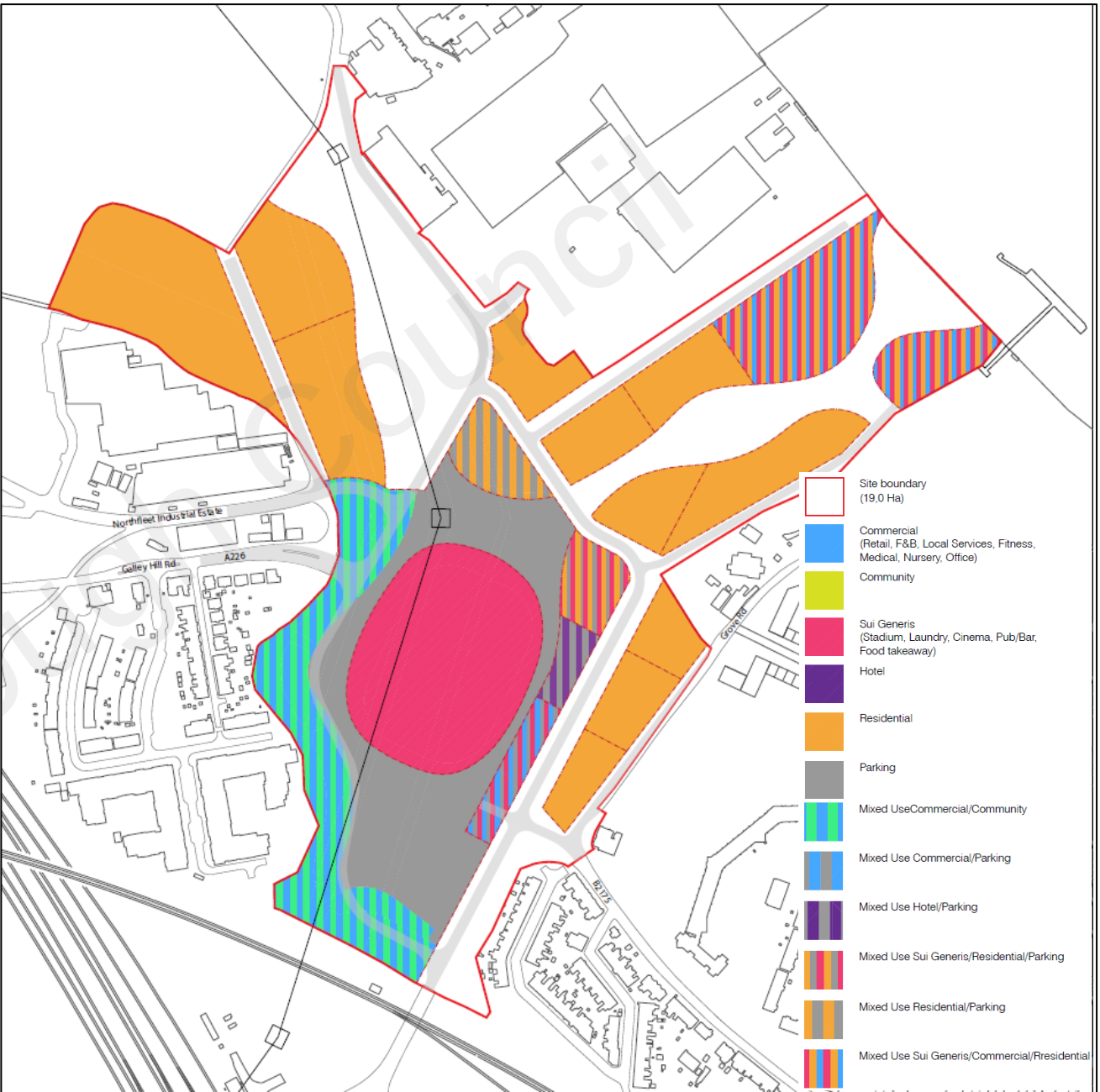


Figure 4.10 Proposed Development Land Use Zones (Level 01)¹⁰



⁹ Parameter Plan – Land Use Zones (LV00) (Drawing Reference: NFH-UNS-MAST-DR-1005)

¹⁰ Parameter Plan – Land Use Zones (LV01) (Drawing Reference: NFH-UNS-MAST-DR-1006)

Figure 4.11 Proposed Development Land Use Zones (Level 02)¹¹

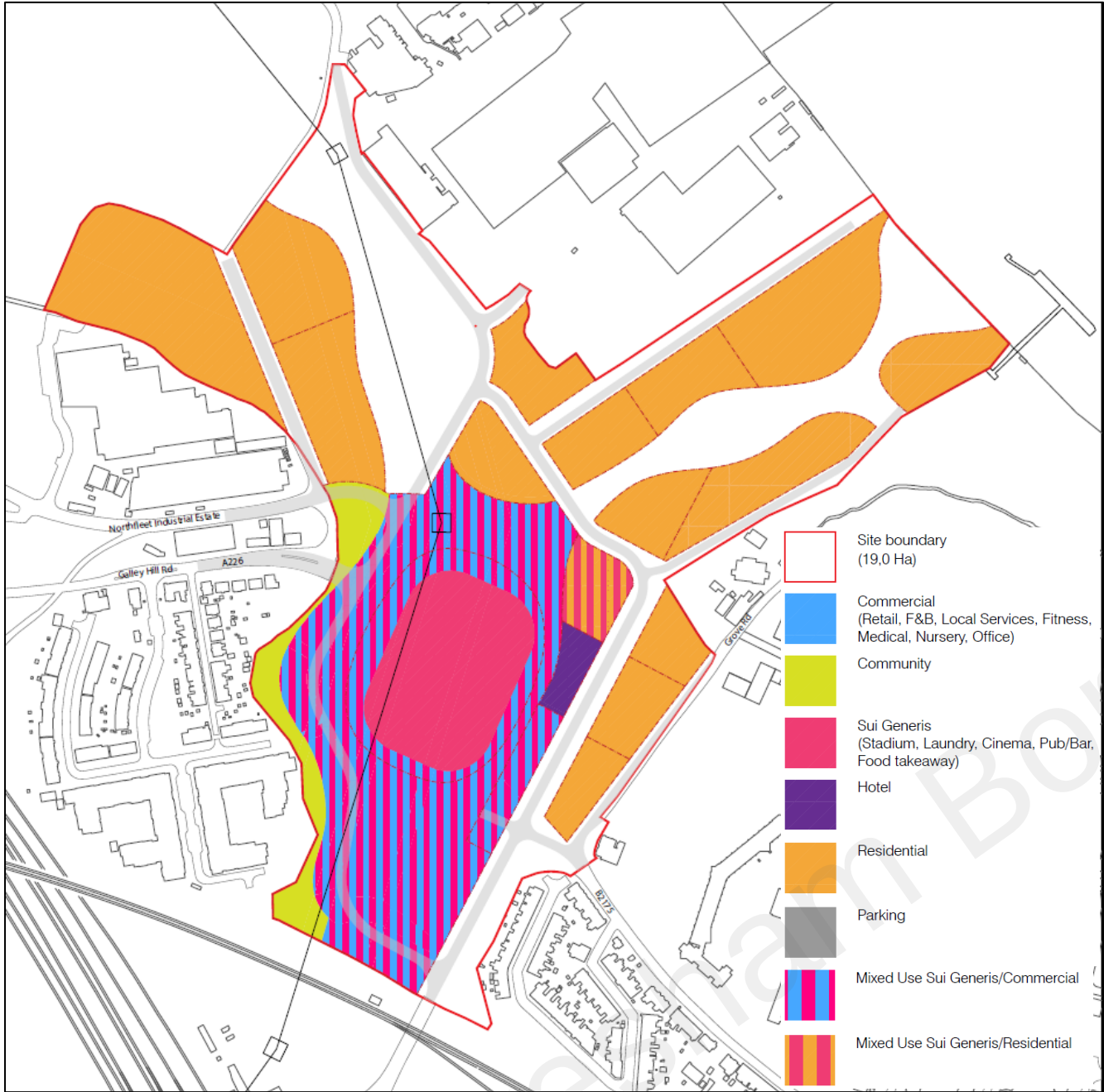
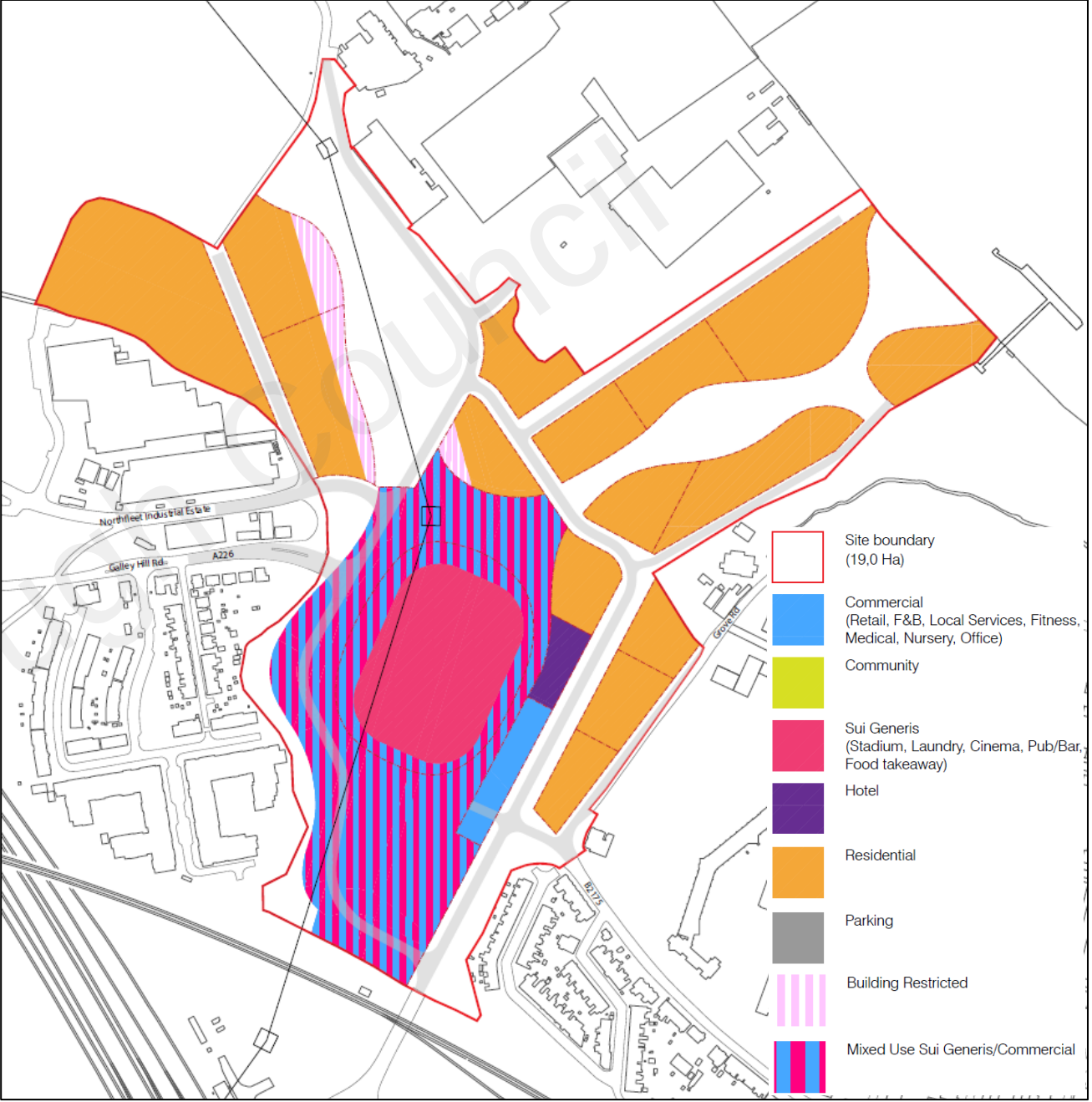


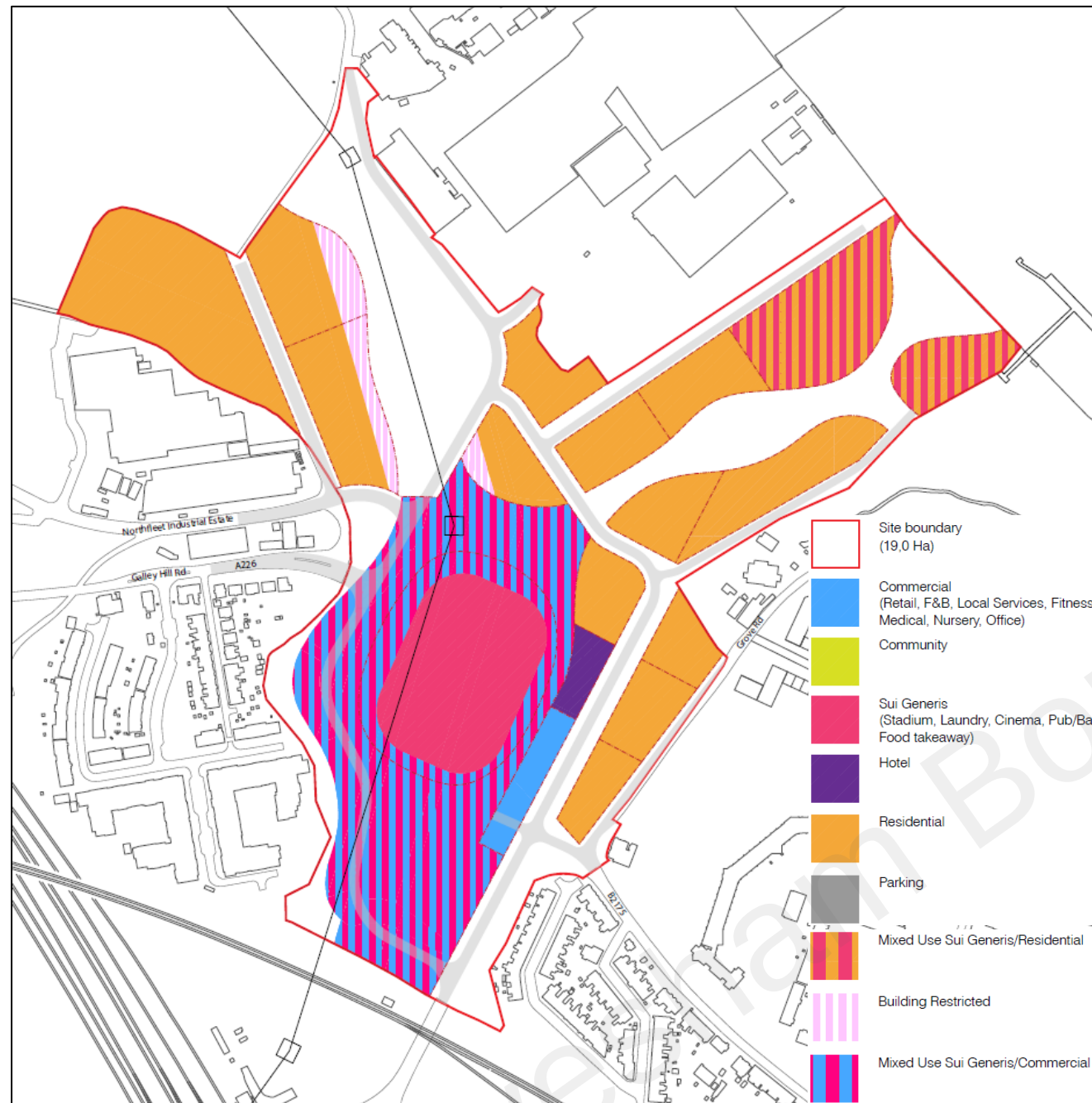
Figure 4.12 Proposed Development Land Use Zones (Level 03 and Above)¹²



¹¹ Parameter Plan – Land Use Zones (LV02) (Drawing Reference: NFH-UNS-MAST-DR-1007)

¹² Parameter Plan – Land Use Zones (LV03 and above) (Drawing Reference: NFH-UNS-MAST-DR-1008)

Figure 4.13 Proposed Development Land Use Zones (Top Floor Level)¹³



Landscaping and Public Realm

4.41 The Illustrative Masterplan includes a site-wide illustrative landscaping masterplan (as illustrated in **Figure 4.14**) for the Proposed Development which comprises areas of public open space, communal amenity space, play space and increased connectivity to the surrounding area. Specific commitments with regards to landscaping, public realm, open space, play space and minimum area requirements are set out within the Control Documents, as discussed within this section.[add reference to minimum parameters]

4.42 The illustrative public realm proposals for the site are underpinned by the following objectives:

- Over 3ha of parkland including riverside gardens, pocket parks, green streets, allotments, productive rooftops gardens and water features;
- A multi-functional amphitheatre space located in the Riverside Neighbourhood Area, providing opportunity for a river frontage dining precinct, anchored with a program of activity, including events, markets, outdoor cinema and community interactions;
- Carefully and sensitively designed landscaping to achieve a minimum 20% Biodiversity Net Gain (as discussed in **ES Volume 3, Appendix Ecology and Biodiversity – Annex 2**), maximising ecological enhancements where possible;
- Residential courtyards designed to include intensive and extensive green and brown roofs, integrating rainwater harvesting where possible, and providing space for the community to grow fruit, vegetables and herbs in both productive rooftops and ground plane planted areas;
- Buffering and screening spaces, forming glades between building services yards, meadows and sustainable urban drainage features;
- Legible spaces that are easy to navigate with logical pedestrian and vehicular routes;
- Shared surfaces will dominate so pedestrians have priority;
- The proposed podium landform will help contribute to creating spaces of human scale, with seating for informal recreation, breakout space; and
- Maximising play opportunities. The play network will help to connect people linking key active spaces to leisure and work destinations along a network of safe and clearly defined routes.

4.43 In accordance with the requirements of Gravesham's Open Space Standards Paper, calculated based upon the maximum residential yield (i.e., the m² requirement per resident for each defined open space category, as set out in **ES Volume 1, Chapter 6: Socio-Economics and Health**), the Proposed Development will deliver a minimum of 1.5ha of 'Parks and Gardens', 5.3ha of 'Amenity Green Space', and 0.5ha of 'Allotments' across the site. This minimum requirement for open space and play space is reflected in the Public Realm Parameter Plan (**Figure 4.15**), and is defined within the Planning Statement. The Illustrative Landscape Masterplan (as illustrated in **Figure 4.14**) illustrates how this could be achieved within the parameters sought for approval.

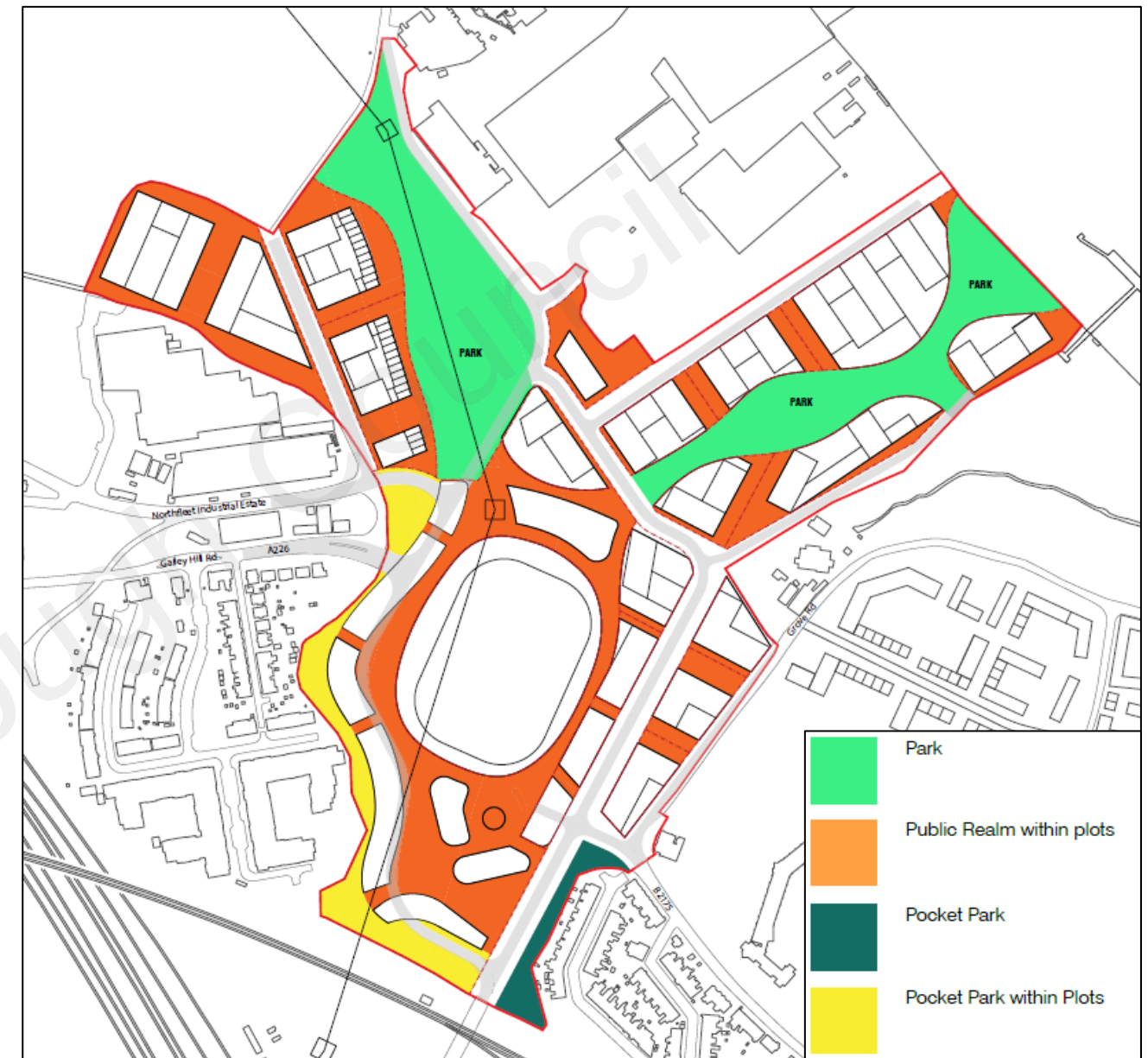
4.44 Public realm and landscape provision for the Proposed Development will be detailed as part of future RMAs. With regards to public realm design of the Proposed Development, the Design Code also defines a number of mandatory requirements and guidance, including in relation to street furniture, signage, and public art.

¹³ Parameter Plan – Land Use Zones (top floor level) (Drawing Reference: NFH-UNS-MAST-DR-1009)

Figure 4.14 Illustrative Landscape Masterplan



Figure 4.15 Proposed Development Public Realm¹⁴



¹⁴ Parameter Plan – Public Realm (Drawing Reference: NFH-UNS-MAST-DR-1012)

Play Space

- 4.45** Gravesham's emerging Development Management Policies Document is supported by an Open Space Standards Paper¹⁵ which requires a minimum of 0.03ha of play space per 1,000 population. Assuming the maximum 3,500 units delivered by the Proposed Development, calculated on the basis of 1.64 residents per unit (as per the illustrative mix, as set out in **ES Volume 1, Chapter 6: Socio-Economics and Health**), this sets a minimum requirement of 0.2ha of play space across the site. The Planning Statement commits to (as a minimum) achieving this minimum area of play space. The Illustrative Landscape Masterplan demonstrates this can be achieved, providing a total of 0.5ha of play space (some x2.5 the minimum standard requirement).
- 4.46** The Proposed Development Play Strategy, as set out within the Design Code, makes provision so all homes within the urban area are located not more than one minute's walking distance from a local area for play (LAP), five minutes' walk from a local equipped area for play (LEAP) and less than fifteen minutes' walk from a neighbourhood equipped area for play (NEAP), in line with Fields in Trust guidance¹⁶.
- 4.47** The Illustrative Landscape Masterplan maximises play opportunities within the site, whereby the play network across the site will help to connect people to places by linking residents and visitors to destinations along a network of safe and clearly defined routes. The Illustrative Masterplan delivers play space across fifteen LAP, three LEAP, and one NEAP. Indicative locations of the proposed play space, as per the Illustrative Masterplan, are shown in **Figure 4.17**.
- 4.48** Maintenance provision will be provided to a high standard to ensure the aesthetic and functional qualities of these spaces are preserved.

Rooftops

- 4.49** As set out within the DAS, three types of rooftops are likely to be adopted across the Proposed Development. Rooftops will integrate rainwater harvesting where appropriate. The indicative locations of these types of roof treatment are illustrated below in **Figure 4.16**, and include:
- Intensive roofs: create a private space for residents to socialise, including seating, rich ornamental planting and lawned areas;
 - Extensive brown roofs: situated close to Robins Creek in order to provide valuable habitat for local bird species, including black redstart. Brown roofs are inaccessible to residents; and
 - Productive roofs: aiding in the provision for required allotment space on-site.

Hard and Soft Landscaping

- 4.50** As set out in the Design Code, the Marketplace, Boulevard, Riverside and Parkland Neighbourhood Character Areas have defined mandatory requirements and guidance with regards to hard and soft landscaping characteristics to achieve site opportunities and reflect the use of a given area within the site and existing surrounding conditions. This includes requirements regarding the provision of tree planting within specific locations, utilising paving and street furniture in keeping with the required appearance and materiality of the respective Neighbourhood Character Areas, and planting typologies. The Illustrative Landscaping Masterplan demonstrates how over 600 trees can be implemented within the detailed designs of the Proposed Development.

Lighting Strategy

- 4.51** Various lighting strategies will be utilised across the site depending upon the use proposed. The Design Code notes that links through the site that may be utilised by wildlife with footpath routes (such as Swanscombe Gate and the Power Park - refer to **Figure 4.14**) should include low level lighting so as to not impact upon bat and bird species.
- 4.52** The lighting strategy will be sensitive to wildlife, surrounding residences, mudflat habitat to the north and north-east of the site, and the Swanscombe Peninsula Site of Special Scientific Interest (SSSI) to the north-west of the site, whilst enabling safe routes through and around the Proposed Development at night.

- 4.53** As further detail into the design progresses, lighting levels will be adequately designed, in accordance with the relevant Institution of Lighting Professional (ILP) Guidelines and the Bat Conservation Trust (BCT) Artificial Lighting Guidance. The detailed lighting strategy will look to minimise unnecessary light spill upon areas of soft landscaping and notable habitats (to be set out within a Landscape and Ecological Management Plan (LEMP), to be secured via an appropriately worded condition attached to any forthcoming reserved matters approval, as detailed in **ES Volume 1, Chapter 14: Ecology and Biodiversity**) as far as is reasonably practicable.

- 4.54** It should also be noted that the implementation of appropriate lighting systems as part of the detailed design will promote low energy, safe and friendly environments with appropriate lighting levels that 'deter' anti social behaviour, reduce vandalism, and promote safer neighbourhoods.

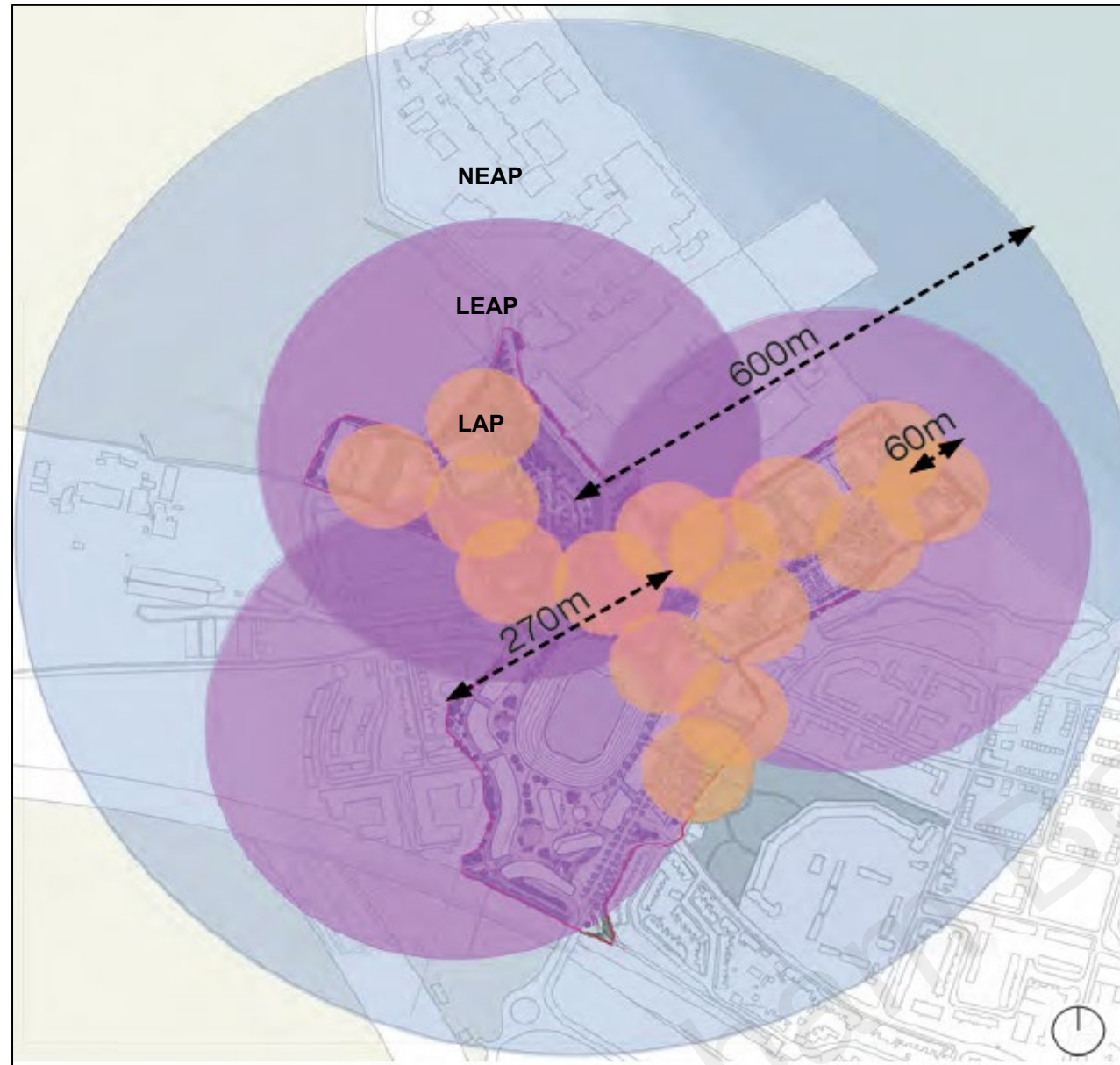
Figure 4.16 Illustrative Rooftop Treatment Plan



¹⁵ Gravesham Borough Council, 2016, Open Space Standards Paper - <https://www.gravesham.gov.uk/downloads/file/256/open-space-standards>

¹⁶ <https://www.fieldsintrust.org>

Figure 4.17 Illustrative Masterplan – Playspace Areas



Movement and Means of Access

4.55 One of the key principles for the design of the Proposed Development is to enhance connections and establish new routes across the site. The Highway Access Parameter Plan is provided in **Figure 4.18** and illustrates the primary access points to the site (for which detailed approval is sought by the planning application), and indicative pedestrian, cyclist and vehicular routes through the site. This plan illustrates the positioning of routes between building structures, the hierarchy of these routes and how movement and circulation through the site can be achieved.

Primary Means of Access

4.56 The site benefits from six vehicular site access points:

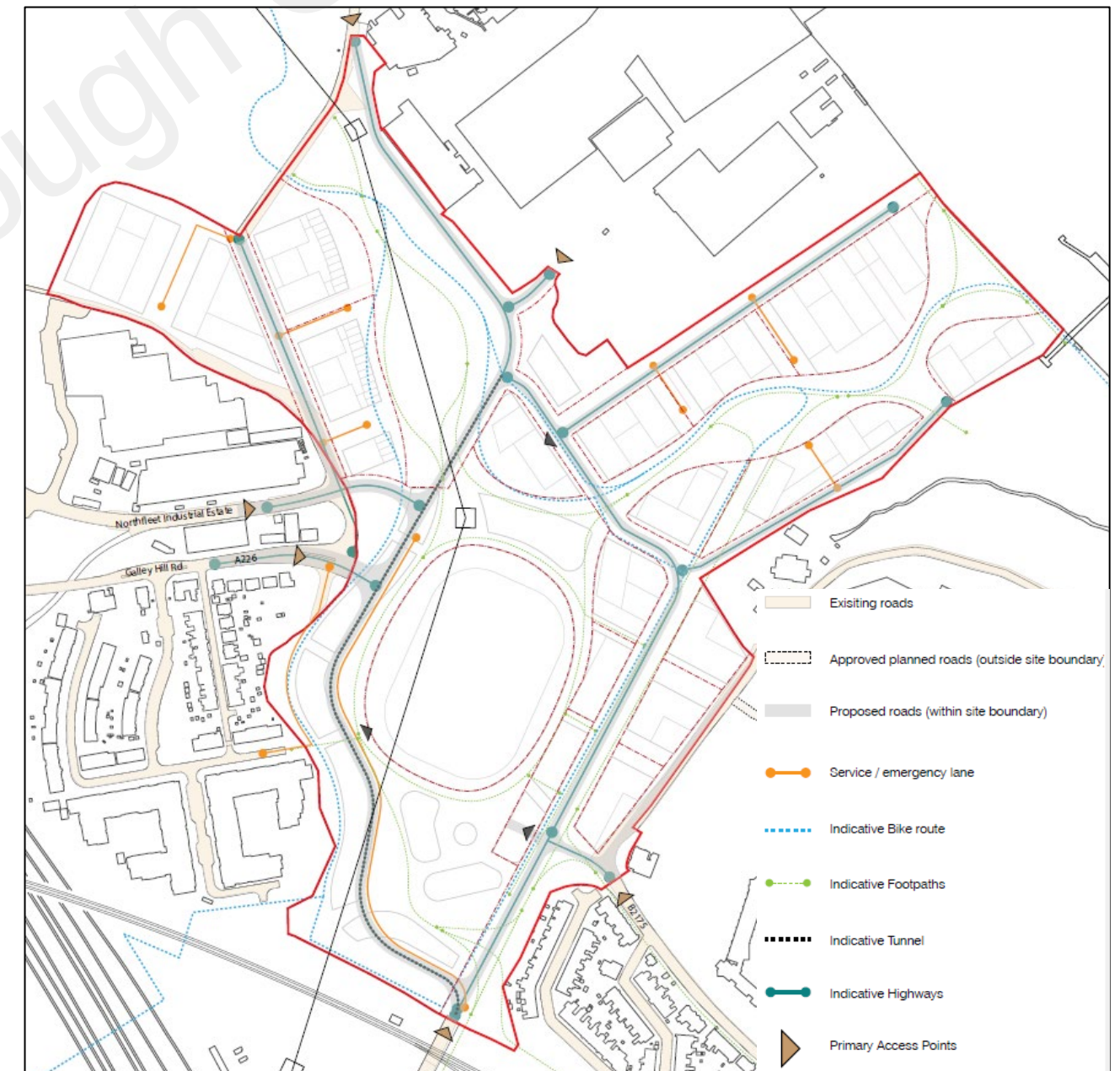
- A226 Thames Way – to the southwest the site is accessible from Thames Way (A226). This is a two-way single carriageway. This access point will be realigned to the west of its existing location as part of the planning application. Traffic will also be able to travel between this access and the B2175 access using the

existing Thames Way carriageway;

- Lower Road / Galley Hill Road Junction – To the east, this junction provides access to the proposed Seacon access road and access to the northeast corner of the site;
- B2175 (Stonebridge Road) – To the south, the site is accessible from B2175, which is a two-way single carriageway road. This access point will be used to those looking to access the site, whilst also acting as a through route between the B2175 and A226;
- Seacon Site Access – An access point to the Seacon Terminals will be located along an interior access route within the site boundary. This route travels through the site from the Galley Hill Road junction to the northeast of the site. This access point will form a priority junction with the interior road;
- Northfleet Industrial Estate Access Road – This road solely provides access to the Northfleet Industrial Estate; and
- Lower Road / Botany Road – This vehicular access point is located in the north-western corner of the site. This access will be used by vehicles accessing the Seacon Site and Britannia Refined Metals Ltd.

4.57 The vehicle access points are presented in **Figure 4.18** below.

Figure 4.18 Proposed Development Highway Access, Movement and Circulation¹⁷

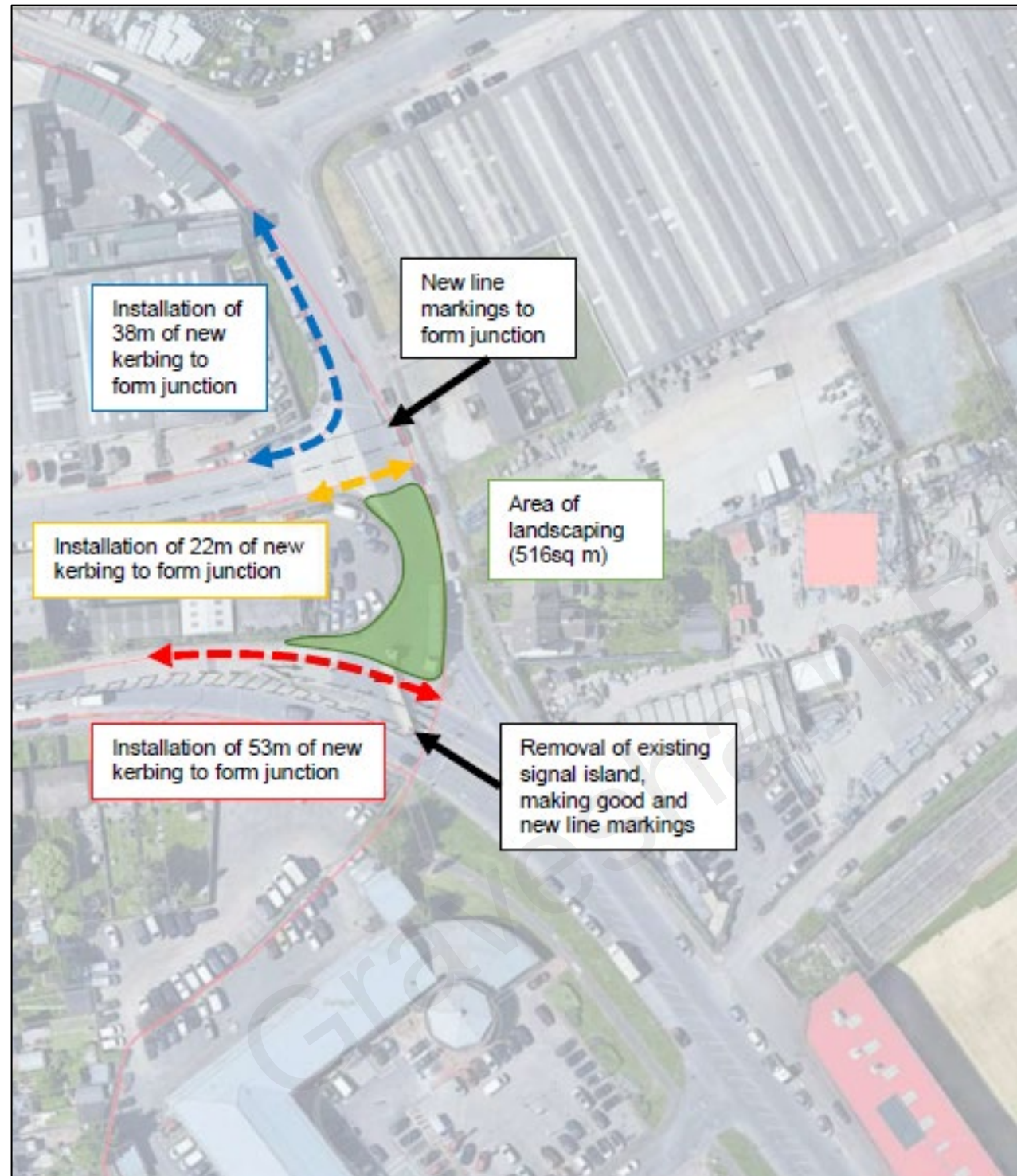


¹⁷ Parameter Plan – Highway Access (Drawing Reference: NFH-UNS-MAST-DR-1014)

Additional Highways Works

- 4.58** In order to facilitate the Proposed Development, some works outside of the site redline boundary, within Dartford Borough Council are required. The extent of these works are minimal and comprise the installation of new kerbing to form junctions, new line markings to form junction, removal of existing signal island and an area of landscaping. The total area of work is 756m² for the Northfleet Industrial Estate works to the north and 834m² for the A226 works to the south. The works within Dartford Borough Council are shown in **Figure 4.19** below.

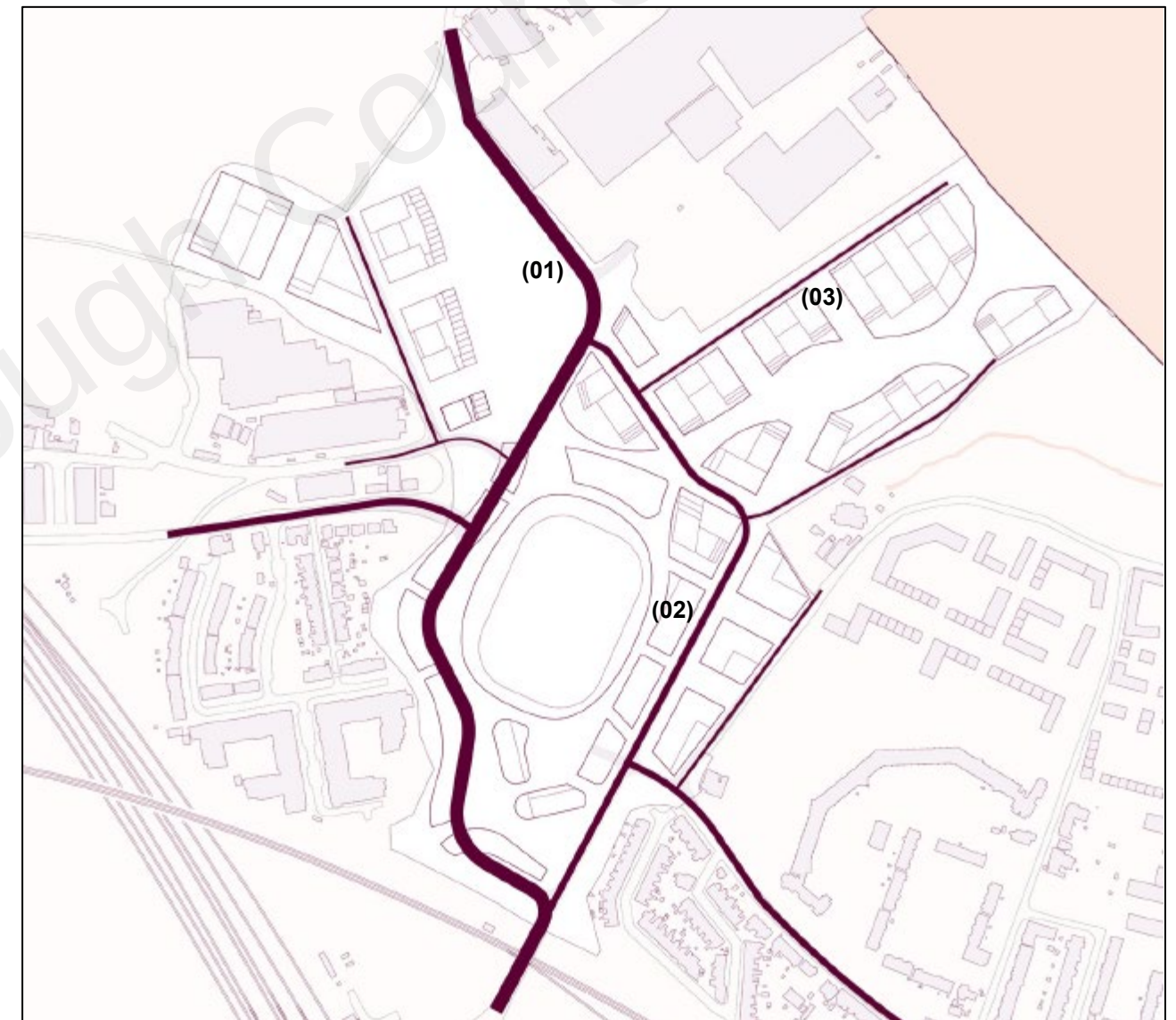
Figure 4.19 Dartford Borough Council Road Works



Street Hierarchy

- 4.59** A network of streets will provide access to, and movement through, the Proposed Development. These internal streets are indicative at this stage, and will be developed as part of future RMAs.
- 4.60** The network of streets established within the Proposed Development is composed of primary and secondary routes. The proposed primary route ('01' illustrated on **Figure 4.20**) serves the primary function of allowing Heavy Goods Vehicle movement through the site. A secondary level of streets ('02' illustrated on **Figure 4.20**) has been established to create routes for public transport (buses) through and around the Proposed Development and establish linkages throughout the site. A third level of local access routes ('03' illustrated on **Figure 4.20**) allows for residential and service access to development plots.

Figure 4.20 Proposed Development Street Hierarchy



Car Parking

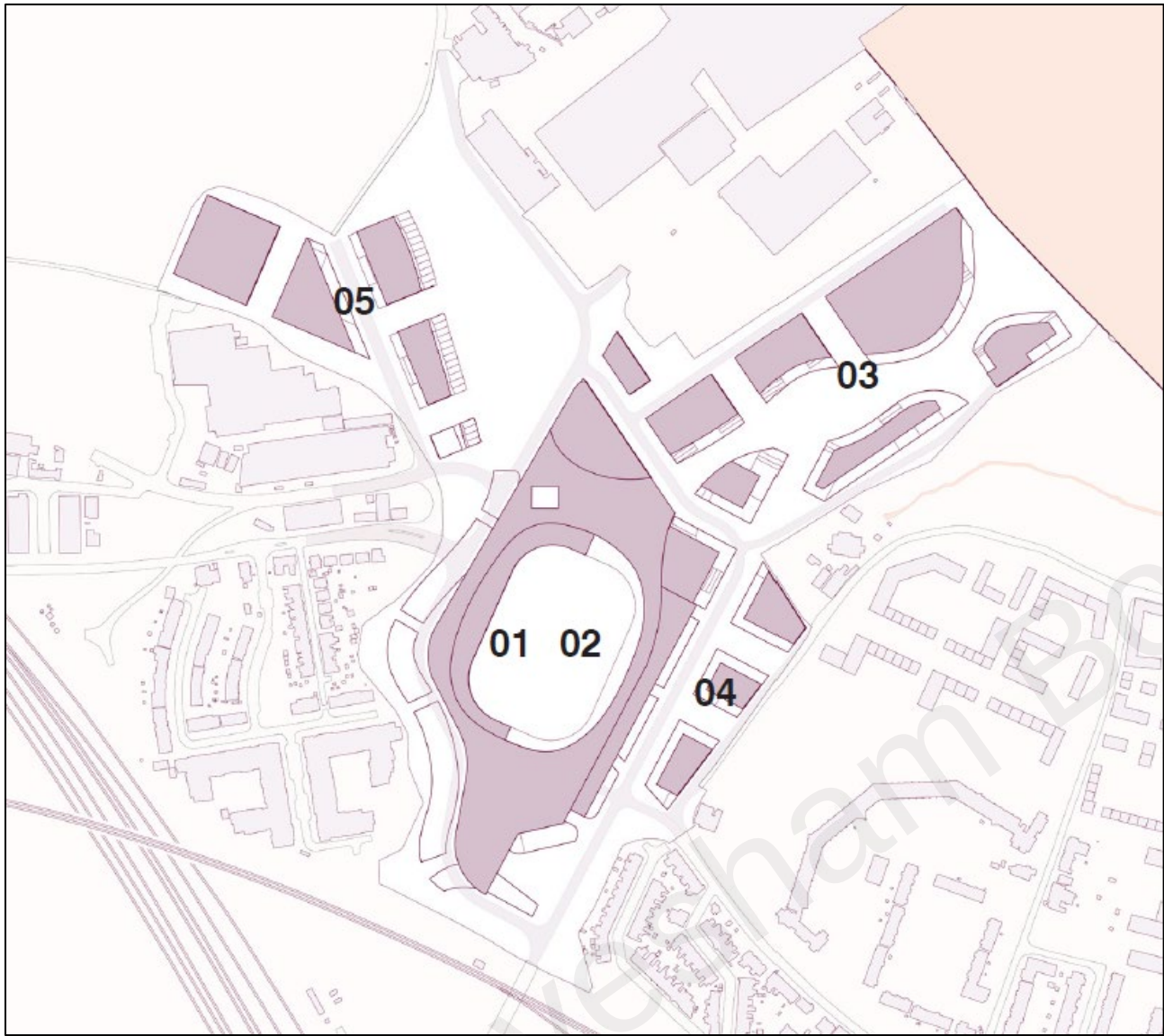
- 4.61** A maximum of 2,700 parking spaces will be provided across the site forming the ground and first floor levels of the majority of the development plots. A maximum of 1,750 spaces will be allocated to the residential component of the site. The location of the parking has been divided into the following zones, as illustrated in **Figure 4.21**:

- Marketplace parking (01);
- Stadium parking (02);

- Riverside parking (03);
- Boulevard parking (04); and
- Parkland parking (05).

4.62 For further information, see the Transport Assessment provided in **ES Volume 3, Appendix: Traffic and Transport – Annex 1**.

Figure 4.21 Proposed Development Car Parking



Pedestrian and Cycle Access

- 4.63 Pedestrian and cycling access to the site will be provided at multiple points leading to a network of internal routes (as shown on **Figure 4.18**). These footpaths and cycle routes are indicative at this stage and will be developed as part of future RMAs.
- 4.64 Cycle parking and storage cycle parking will be policy compliant as a minimum. A minimum of 3,500 cycle parking spaces will be provided for the residential element of the Proposed Development. The level of cycle parking proposed for the non-residential aspect is presented in **Table 4.5** below.

Table 4.5 Non-Residential Cycle Parking

Use Class	Subcategory	Proposed Cycle Provision
A1	Non-food retail	135
A3	Restaurants and Cafes	171
B1	Offices	129
C1	Hotel	144
D2	Stadium	32
E (c,d,e,f)	Non-residential flexible use	50
F2	Local Community Use	48
Total		709

DRAINAGE, GROUND CONDITIONS, WASTE, ENERGY AND SUSTAINABILITY

Flood Risk Assessment and Drainage Strategy

- 4.65 A Flood Risk Assessment (FRA) and Conceptual Drainage Strategy have been prepared and submitted in support of the planning application (see **ES Volume 3, Appendix: Water resources, Flood Risk, Drainage and Ground Conditions – Annex 3**).
- 4.66 The site is predominantly located in Flood Zone 3 which means there is a high probability of flooding although the land has been assessed as having a less than 1 in 100 (1%) annual probability of river or sea flooding. In addition, the site benefits from flood defences which protect the site against river flooding. The majority of the site is located in a very low surface water flood zone risk, which means that each year this area has a chance of flooding of less than 0.1%. A small portion of the site (where the current Ebbsfleet United Football Stadium is located) has a low risk of surface water flooding, meaning that each year this area has a chance of flooding of between 0.1% and 1%. Small pockets within the site have a high risk of flooding from surface water. High Risk means that these particular areas have a greater than 3.3% chance of flooding each year.
- 4.67 In line with the built edge Parameter Plans (see **Figure 4.7** and **Figure 4.8**), the buildings of the Proposed Development, including the structural support of any buildings/structures along the northern boundary, will be set back more than 16m from the River Thames defences and the Robin's Creek defences and structural supports for buildings and structures will be completely separate of any river wall supports. This provides an appropriate easement that is free from buildings to allow for access and maintenance to the existing flood defences adjoining the River Thames¹⁸ and Robin's Creek. It should be noted that, as captured within the Design Code, the Proposed Development will include the provision of an appropriate flood defence on-site which meets the Thames Estuary 2100 (TE2100) standards.
- 4.68 The River Ebbsfleet is a culverted watercourse that flows through the site along the eastern boundary. As discussed in **ES Volume 1, Chapter 3: Alternatives and Design Evolution**, the exact alignment of the culvert is currently unknown due to the lack of information and documentation, coupled with the inaccessibility of the area in question. Therefore, the Applicant has committed to a detailed culvert survey being undertaken at reserved matters stage (controlled by a suitably worded planning condition). An indicative resolution with regards to the on-site culvert has also been proposed which includes the diversion of the culvert along the road to the west of the site. The realignment details would be confirmed following a detailed survey of the culvert to understand its depth, width and conditions and this would stipulate any realignment route. This approach would provide a betterment when compared to the existing scenario as there will be opportunities to widen the culvert, increasing its capacity thereby reducing flood risk. This approach would also ensure that there is a suitable 8m easement predominantly free of built development to allow for access and maintenance. Opportunities for de-culverting and partial decelerating will also be considered following the culvert survey that will be undertaken at reserved matters stage.
- 4.69 All Finished Floor Levels of 'more vulnerable' development will be raised 600 mm above the tidal breach TE2100 flood level for each building. There will be some areas where reception areas and entrances will be

¹⁸ It should be noted that the existing river wall adjoining the River Thames is not within the site redline planning application boundary.

required to be located at ground level, below the flood level, however the sensitive areas of these land uses will be raised above the flood levels where appropriate.

Sustainable Drainage Systems

- 4.70** As set out in the Conceptual Drainage Strategy and Design Code, the detailed drainage design will adhere to the following requirements:
- Rainwater Harvesting (RWH) will be used in the residential blocks (where feasible);
 - Where green/brown roofs are provided, RoofBloxx (a type of green roof) or similar attenuation measures will be implemented;
 - Swales will be implemented within Riverside Gardens;
 - Rain Gardens will be implemented where feasible within the Riverside Character Area; and
 - Roof runoff from the Stadium will be directed to shallow tanks beneath the pitch, providing attenuation and water for irrigation.
- 4.71** All of the drainage principles and relevant SuDS devices will be detailed in future RMAs.

Operational Waste Management

- 4.72** An Outline Operational Waste Management and Recycling Management Strategy has been prepared and appended to the Environmental Statement in **ES Volume 3, Appendix - Outline Operational Waste Management and Recycling Management Strategy**. The principal aim of the strategy has been to demonstrate how sustainable methods for waste and recycling management have been considered for the operational phase of the Proposed Development. Furthermore, with regards to waste and recycling management within the Proposed Development, the strategy has the following aims:
- To contribute towards achieving current and long-term government, regional (Kent County Council (KCC)), and GBC targets for waste minimisation, recycling and re-use;
 - To comply with all applicable legal requirements for handling operational waste;
 - To achieve high standards of waste management performance, through giving due consideration to the waste generated during operation of the Proposed Development; and
 - To provide a convenient, clean, and efficient waste management strategy that enhances the operation of the Proposed Development and promotes recycling.
- 4.73** Given that outline nature of this planning application, detailed information of the Proposed Development including the internal layouts is not available, however, it is proposed that each residential Plot will have its separate bin store, which will be within 30m distance to each residential apartment of that Plot. These bin stores will provide space to hold bins for Mixed Dry Recyclables (MDR), Food and Residual waste streams on a weekly collection frequency.
- 4.74** These bin stores will be located within 10m distance to the Refuse Collection Vehicle (RCV) stopping point, allowing the council waste operatives to directly access these and transfer them to the RCV for emptying. Once emptied, the council's waste collection operatives will return these empty bins back to the bin stores.
- 4.75** For the commercial land uses, it is envisioned that bin stores will be provided either combined or separate for different land uses. These bin stores will be designed based on a weekly collection frequency. A private waste collection contractor will be commissioned to collect the waste and recycling material from these different commercial units.
- 4.76** Due to the outline nature of this planning application, not all information related to the Proposed Development is available. Therefore, the strategy has been written using the maximum quantum for the land uses, to consider the worst-case scenario. However, it is envisioned that it will be updated and detailed as the design evolves, and other waste management options such as use of automated waste collection systems, and a more frequent waste collection service specific to the commercial land uses will be further explored.
- 4.77** These provisions will result in waste produced during the operation of the Proposed Development being managed in accordance with the Waste (England and Wales) Regulations, 2011 (as amended). Additionally,

all waste infrastructure introduced to the Proposed Development will comply with guidelines published by the KCC and GBC, British Standard (BS) 5906:2005 Waste Management in Buildings Code of Practice and Part H6 of the Building Regulations (2010).

- 4.78** The total residual waste arising that the Proposed Development would generate is 31,344 m³ per annum. This represents approximately 0.2% when compared to the available landfill capacity, i.e. 15,190,479 m³ in the Kent and South London Region. The impacts of this type of waste will therefore be minimal. In addition, the management measures proposed within the strategy will also act as further mitigation to any residual effects (if any) from the Proposed Development. Considering the waste management infrastructure available capacity within the region, the impacts of the waste arising from the Proposed Development will be minimal and will not result in likely significant effects upon waste infrastructure once operational.
- 4.79** Details of approximate types and types of quantities/ volumes of waste and materials anticipated to be required/ generated as a result of the demolition and construction of the Proposed Development are provided in **ES Volume 1, Chapter 5: Demolition and Construction**.

Sustainability and Energy Statement

- 4.80** A Framework Sustainability and Energy Statement has been prepared and submitted in support of the planning application. The report outlines the preferred energy strategy for the Proposed Development, which will be detailed as part of future RMAs. The Proposed Development energy strategy will be fossil fuel-free, i.e. all electric (for heating and cooling in the first instance). There may be a need for diesel generators to support life safety systems for instance, however this will be determined during the detailed design.
- 4.81** It is anticipated that the Proposed Development will be served by either a centralised energy centre serving the whole development via a District Heat Network, or each phase will be served by its own energy centre with dedicated District Heat Network, the technologies explored include Air Source Heat Pump (ASHP) with contributions from Ground Source Heat Pumps (if viable) along with PV Panels. Each option will be explored at the next stage of design and will take into account; spatial constraints; visual amenity; technical feasibility; contribution to reducing carbon and cost-benefit to future site users.
- 4.82** The Framework Sustainability and Energy Statement also demonstrates how the Proposed Development will address relevant national and local policies for sustainable development. It sets out a high-level appraisal of sustainability opportunities and constraints for the Proposed Development.
- 4.83** The Proposed Development will seek a minimum BREEAM rating of Excellent for the non-residential elements.
- 4.84** The Proposed Development will adopt measures and target performances, as set out in the LETI Net Zero Carbon Design Guide¹⁹, where feasible and appropriate. This will include:
- Enhanced fabric u-values;
 - Thermal bridges reduced as far as practicable;
 - Enhanced air tightness;
 - Passive design measures to reduce unwanted solar gains to reduce/omit the need for cooling;
 - Natural ventilation where possible; mechanical ventilation with enhanced efficiency and heat recovery elsewhere;
 - High efficiency lighting (internal and external) throughout;
 - Fully electric technology for heating and central hot water systems;
 - Use of Central District Heating Systems (where feasible)
 - Use of PV's and Heat Pumps to maximise sustainable forms of heating and electricity generation;
 - Low/zero carbon heating throughout; and
 - Metering and controls.
- 4.85** Given the extensive roof space, the Proposed Development has the potential to generate a meaningful contribution of renewable energy from solar PV panels.

¹⁹ <https://www.leti.london/cedg>

EMBEDDED ENVIRONMENTAL MITIGATION AND ENHANCEMENT MEASURES

4.86 Embedded mitigation refers to 'measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment'²⁰. Throughout the design process environmental measures have been incorporated into the Proposed Development to mitigate potential adverse effects on the site and the surrounding area. In addition, environmental enhancements have been incorporated where practicable to further improve the existing environmental conditions in the area. These are described (but not limited to those) below. Further detail is provided within their equivalent technical report prepared as part of the ES or submitted with the planning application.

Wind Microclimate

4.87 Wind testing has been undertaken extensively as part of the evolving design of the Proposed Development to ensure appropriate comfort and safety criteria for wind conditions are met.

4.88 As detailed in **ES Volume 1, Chapter 11: Wind Microclimate**, wind conditions were assessed considering the maximum massing sought for approval by the planning application. Where potential instances of unsuitable wind conditions have been identified within the site once the Proposed Development is fully built, given the level of detail available at this stage, any unsuitable wind conditions will be resolved through the detailed design of Plots 1-19 and detailed landscaping at the RMA stage. This is ensured through the following mandatory controls set out within the Design Code:

- **Amenity Spaces**

Any dwelling spaces (e.g. a standing or sitting space) which are located within regions which are suitable for leisure walking conditions (or windier) would not be suitable for use when considering the maximum parameters assessed. These regions should be designated within the design of the amenity spaces to be transitory spaces rather than dwell spaces, to ensure suitable conditions. However, if dwelling spaces within these regions are considered at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing of appropriate mitigation measures (such as localised screening or planting) in order to ensure that the required wind conditions are achieved. As the amenity spaces in these locations may be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer, if required, should be secured through an appropriately worded planning condition; and

Any seating areas within amenity spaces which are located within regions which are suitable for standing conditions (or windier) would not be suitable for use when considering the maximum parameters assessed. Seating areas should not be included in these areas without appropriate mitigation to ensure suitable conditions. If seating areas within these regions are considered at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing of appropriate mitigation measures (such as localised screening or planting immediately adjacent to the proposed seating areas) in order to ensure that the required wind conditions are achieved. As the amenity spaces in these locations may be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer, if required, should be secured through an appropriately worded planning condition.

- **Building Entrances**

Any entrances which are located in unsuitable regions (leisure walking or windier conditions) will be recessed by at least 1.5m (or similarly protected) to ensure pockets of calms conditions immediately adjacent to the entrances. However, if non-recessed entrances are considered within these areas at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing and implementation of appropriate mitigation measures (such as localised screening or planting adjacent to the entrance location) in order to ensure that the required wind conditions are achieved. As entrances within areas with leisure walking or windier conditions may currently be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer, if required, should be secured through an appropriately worded planning condition.

- **Residents Amenity Terraces**

Solid perimeter screening (2m high) will be utilised within the detailed design at locations where significant wind effects were identified at residential amenity terraces in order to establish habitable conditions relevant to the roof terrace use. However, if less significant screening is required at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing of appropriate mitigation measures (such as localised screening or planting adjacent to seating areas) in order to ensure that the required wind conditions are achieved. As the terraces in these locations may currently be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer should be secured through an appropriately worded planning condition.

- **Balconies**

Significant wind effects ranging from minor to major adverse were identified for potential balcony locations. In order to mitigate this, the following controls with regards to the detailed design specify regions where mitigation and further testing are required if protruding balconies are proposed. With reference to Figure 11.27 of **ES Volume 1, Chapter 11: Wind Microclimate**, this includes:

- Any protruding balconies within regions noted as having sitting and standing conditions would be expected to be suitable for use with standard balustrades (e.g. 1.1m high railings, metal balustrades, solid glass balustrades or a combination);
- Any protruding balconies within regions noted as having leisure walking conditions would require measures such as solid glazed balustrades or raised height (e.g. 1.5m) porous balustrades. Further wind testing of the detailed design would confirm the suitability of protruding balconies at these locations with the inclusion of relevant measures (such as glazed or raised height balustrades). As wind conditions at protruding balconies in these locations would be unsuitable for use without the implementation of these measures, the implementation of these measures or assessment of alternatives by an experienced wind engineer should be secured through an appropriately worded planning condition; and
- Based on the current parameters tested, protruding balconies in regions noted as business walking and uncomfortable conditions would not be suitable for use. Alternative options to protruding balconies (e.g. winter gardens) should be explored at these locations within the detailed design. However, if protruding balconies are considered within these areas at the detailed design stage, further wind testing of the detailed designs will need to be undertaken, with the testing of appropriate mitigation measures (such as 2m high solid side panels or fully enclosed spaces with openable fenestrations) in order to ensure that the required wind conditions are achieved. As protruding balconies in these locations would currently be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer should be secured through an appropriately worded planning condition.

- **Bus Stops**

The final location of on-site bus stops will be determined during the detailed design of the Proposed Development. Any proposed bus stops above podium level located within regions suitable for leisure walking or windier would not be suitable for use. In order to mitigate this, bus shelters with solid side panels should be explored at these locations as necessary within the detailed design. As bus stops at podium level in these locations would be unsuitable for use without the testing and implementation of further measures, the assessment of appropriate measures by an experienced wind engineer, if required, should be secured through an appropriately worded planning condition.

- **Off-site**

If in the future access is proposed within the area to the immediate east of the site (to the north of Robin's Creek), the detailed landscaping design of the north-eastern extent of the site will need to consider additional mitigation in order to resolve a localised area of off-site wind safety risk. This location is also currently inaccessible to the public and in part comprises bare ground used by the existing on-site aggregates works (which will be displaced to allow for the Proposed Development to come forward). When considering the implementation of the illustrative landscaping, the area of wind safety risk is reduced to be extremely localised, therefore demonstrating that the implementation of additional

²⁰ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017
<https://www.legislation.gov.uk/uksi/2017/571/schedule/4/made?view=plain>

measures on the north-east corner of the site would likely resolve this issue. The assessment of appropriate measures by an experienced wind engineer should be secured through an appropriately worded planning condition if access at this location is envisaged in the future to ensure that this localised area of off-site wind safety risk is resolved within the detailed design.

4.89 With wind mitigation measures, as above, implemented within the Proposed Development, wind conditions would be expected to be appropriate for the completed Proposed Development. The wind mitigation strategy would be expected to evolve as the detailed design is developed and will be assessed through additional wind testing as relevant in support of later RMAs.

4.90 For further information, see **ES Volume 1, Chapter 11: Wind Microclimate**.

Daylight, Sunlight, Overshadowing, Solar Glare and Light Intrusion

4.91 For solar glare and light intrusion, as the detailed design of the Proposed Development is not yet available, mitigation measures will be embedded into the design of the Proposed Development. Solar Glare effects will be considered in relation to Plots 2, 3, 4 and 6 and mitigation will include:

- Orienting the facades to not reflect sunlight at a particular time or place;
- Reducing any large areas of glazing or reflective cladding;
- Introducing fins to minimise reflections from a particular section of the façade; and/or
- Blocking the view of the building in question from receptors such as through planting trees in the line of sight.

4.92 In order to minimise any potential light pollution effects from the commercial office elements upon the residential elements of the Proposed Development, potential mitigation measures could include:

- Ensuring that any external lighting, such as the stadium, does not directly illuminate the sky;
- Ensuring that any external lighting visible from any sensitive receptor is of low intensity;
- Avoiding external lighting which directly illuminates the SSSI and the Riverfront docks in particular;
- Provision of blinds for commercial offices;
- Lighting strategies that reduce the output of luminaires closer to the façades; and
- Light fittings controlled through the use of sensors which switch on and off the light according to office occupancy.

4.93 The details of any mitigation and its efficacy will be guided by ILP Guidance notes (2021) and presented and reported upon where relevant at reserved matters stage.

Traffic and Transport

4.94 As part of the design of the Proposed Development, there are a number of embedded mitigation features which will be delivered. These mitigation features will significantly enhance the walking, cycling and driving experience across the site, including:

- Realignment of the A226 Stonebridge Road;
- Reprovision of A226 Stonebridge Road / Lower Road junction;
- Removal of the A226 Stonebridge Road / Grove Road Roundabout;
- Stopping up of Lower Road north;
- Realignment of Lower Road south;
- Enhancements to footways and cycleways alongside the A226 Stonebridge Road;
- Delivery of a mobility hub on site;

- Provision of a site-wide Travel Plan; and
- Provision of a Delivery and Servicing Plan.

4.95 The proposed realignment of Galley Hill Road will provide an enhanced corridor for the A226 Stonebridge Road with upgraded surfacing and a realigned junction with Northfleet Industrial Estate and Lower Road. This realignment will manage the increases in traffic flow to minimise impacts on driver delay.

4.96 Through the improvements to footways and cycleways alongside the A226 Stonebridge Road severance will be minimised along with pedestrian delay, through the provision of multiple, well design crossing points.

4.97 The removal of the A226 Stonebridge Road / Grove Road roundabout will improve visibility and remove conflict for pedestrian and cyclists travelling north and south with fewer lanes of traffic to cross. This will mitigate the impact of increases in traffic from the site on severance, pedestrian delay, fear and intimidation and safety on the A226, Grove Road and the B2175.

4.98 The stopping up of Lower Road north will redistribute HDVs from Lower Road onto the new link road provided through the proposed site. This in turn will reduce severance, driver delay, pedestrian delay. It will improve pedestrian amenity and safety and minimise fear and intimidation for users of Lower Road.

4.99 Fundamental to mitigating and shaping the nature of travel to and from the site is the inclusion of a mobility hub within the red line boundary of the site. This will seek to lower the impacts of traffic over the long term and reduce the overall number of trips made to and from the site by vehicles. Fundamentally this will mitigate the effects of traffic on all links within this assessment.

4.100 A key part of the embedded mitigation for the continued operation of the site are the delivery of a site wide Travel Plan (TP) and a Delivery and Servicing Plan (DSP).

4.101 The TP will ensure that travel to and from the site, as well as across it is made as sustainable as possible through continued communication with site residents and visitors on the most accessible and practical modes to use. This will list alongside the mobility hub in mitigating the long-term effects of increases in traffic associated with the site operations.

4.102 The DSP will enable a proactive approach to be taken to site deliveries and servicing with a top-down approach taken when developing scurve yards and delivery areas across the site. Freight consolidation is one such mitigation strategy which will minimise the impacts of site operations on the traffic and transport networks surrounding the site.

4.103 Both the TP and DSP will be secured via an appropriate planning condition with framework details of the TP and DSP included within **ES Volume 3, Appendix: Traffic and Transport– Annex 1**.

Water Consumption

4.104 Potable water demand of the Proposed Development will be minimised through best practice water-efficient sanitary-ware equipment, leak detection and sub-metering of buildings and flats – for example, the use of specific low water consumption tap heads will be incorporated to assist lower usage.

4.105 The landscaping strategy for the Proposed Development has been designed to maximise native planting that does not require frequent watering. Where irrigation is required, on-site reserves from rainwater will be used, wherever possible.

Residential

4.106 For all new residential units, the water use will improve upon the minimum targets set out in Building Regulations Part G²¹. It is anticipated all residential units will meet less than 100 litres/ person/day.

Non-Residential

4.107 The Proposed Development will aim to deliver low water flow fittings to minimise the water use per person for all non-residential spaces by at least 30% compared to the baseline, wherever possible, in line with BREEAM guidance²².

²¹ HM Government, 2016. *The Building Regulations 2010, Document G – Sanitation, Hot Water Safety and Water Efficiency*

²² BREEAM UK, 2016. *New Construction Non-Domestic Buildings Technical Manual 2014 – Wat 01 Water Consumption*

4.108 The potential for grey water and rainwater recycling has also been considered, taking into account water saving potential and life cycle carbon impacts. Rainwater and grey-water harvesting have a high carbon footprint over their lifetime. This is due to the additional storage and duplication of pipework.

4.109 The Proposed Development focuses on demand reduction and includes the use of rainwater harvesting (as noted within the Design Code) for irrigation to mitigate against local water stress. Any irrigation system proposed will be sub-metered and will be further developed in coordination with the landscape design as the detailed design evolves.

Acoustic Design

4.110 In order for there to be no increase in ambient noise levels from the baseline measured, the acoustic system in the stadium will be designed appropriately, along with maintaining the current design intent of the stadium, i.e. enclosed except above the pitch.

4.111 Events associated with the potential development of the amphitheatre within the Riverside Neighbourhood Character, as noted within the Design and Access Statement, would be designed in line with the guidance provided in Code of Practice on Environmental noise control at concerts. The guide would limit the music noise level and number of events per year such that it would not adversely impact the noise environment.

4.112 Based on the current parameters tested, as set out in **ES Volume 1, Chapter 9: Noise and Vibration**, mitigation measures are required at external amenity spaces (balconies) at Plots 3, 4, 6-8, 12, 15-19 to ensure that suitable noise levels for private amenity spaces are achieved in line with the relevant guidelines. This may comprise the implementation of acoustic balconies within the detailed design, or consideration of winter gardens at certain locations. Alternatively, additional shared amenity within the development plot could be implemented where appropriate conditions are achieved. If external amenity spaces are considered at these areas at the detailed design stage, further consideration of the detailed designs will need to be undertaken in order to ensure that the required noise conditions are achieved. The assessment of appropriate measures, as relevant, by an experienced noise engineer should be secured through an appropriately worded planning condition.

Ecological Enhancements

Biodiversity Net Gain (BNG)

4.113 A Biodiversity Net Gain (BNG) assessment was undertaken for the Proposed Development (see **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 2**).

4.114 Based upon the Illustrative Landscape Masterplan (as illustrated in **Figure 4.14**), the Proposed Development delivers a net gain of approximately 6.03 habitat units (352%).

4.115 Habitat creation across the site, based upon the Illustrative Landscaping Masterplan, includes:

- Vegetated Gardens (including allotments, orchards, productive landscapes and pollinator plants) – 1,537m² providing 2.97 habitat units;
- Woodlands – 9500m² providing 2.61 habitat units;
- Species rich grasslands – 11,600m² providing 4.02 habitat units;
- Green roofs – 9,000m² providing 1.74 habitat units;
- Brown roofs – 5,000m² providing 2.24 habitat units;
- Street trees (lines of trees/urban trees) – No.629 providing 0.82 habitat units;
- Native species shrub planting - 4,300m² providing 0.83 habitat units;
- Ponds - 381m² providing 0.14 habitat units;
- Rain gardens – 4,200m² providing 1.51 habitat units;
- Hedgerows – 4,300m² providing 7.03 habitat units; and
- Species rich meadows – 2,000m² providing 0.74 habitat units.

4.116 The planning application commits to achieving 20% BNG across the Proposed Development. This BNG target exceeds the minimum 10% BNG as set out in the Environmental Bill 2020, and aligns with the Kent Nature Partnership's local targets. The BNG assessment (**ES Volume 3, Appendix: Ecology and Biodiversity – Annex 2**) shows how this may be achieved based upon the Illustrative Landscape Masterplan. The detailed landscaping will achieve 20% BNG, and will be subject to future RMAs. Further details relating to BNG can be found in **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 2**.

Swanscombe Peninsula Site of Special Scientific Interest

4.117 The potential effects associated with recreational pressure and the resultant impacts upon habitats and species has been extensively considered throughout the design process, as discussed in **ES Volume 1, Chapter 3: Alternatives and Design Evolution**. As a result, in order to help manage operational footfall from the site into the Swanscombe Peninsula to SSSI and reduce impacts from recreational pressure upon the SSSI where possible, the following mitigation measures have been embedded within the design, and are captured within the Design Code submitted with the planning application where relevant:

- The provision of adequate minimum on-site open space for operational amenity (as discussed in earlier in this ES chapter). The quality of the amenity and open space on-site has also been designed in coordination with relevant technical teams in order to ensure that it can be suitable for use, and therefore not require users and occupants of the Proposed Development to actively seek off-site amenity and open spaces - for example, the wind microclimate assessment (as discussed in **ES Volume 1, Chapter 11: Wind Microclimate**) has included relevant landscaping measures to ensure the Pocket Park areas a suitable for use with regards to wind comfort;
- Controlled pedestrian access and signposting displaying the sensitivity of Swanscombe Peninsula SSSI to human disturbance, for example highlighting the potential detrimental impacts of dogs off leads upon nesting birds during the relevant ecological season;
- Access should be managed to the SSSI; for example, fences should be erected at the site boundary to reduce pedestrian footfall to the north-west of the site
- No footpaths to be created between site and SSSI (only one previous footpath to remain);
- The provision of an information centre/cafe within the Power Park, next to the play areas, to encourage walks around the site as opposed to within the SSSI, and to provide information regarding notable species and habitats including relevant protection measures within the local area and the SSSI in particular; and
- Boundary of trees between SSSI and site to provide barrier rather than continuation of the SSSI into the site.

Enhancements for Faunal Species

4.118 The Project Team have liaised and collaborated regarding the measures to be implemented to enhance the ecological value of the site. Those enhancement measures to be incorporated on-site, as part of the Proposed Development comprise:

- Bird and bat boxes (integrated into the walls of buildings and on suitable trees), including features for house sparrows, starlings, swifts and house martins;
- Native and locally characteristic tree, shrub and hedge planting
- Provision brown roofs to the north-eastern extent of the site (within the Riverside Neighbourhood Character Area) to allow for suitable habitat for black redstart;
- Bug hotels and purpose made bug boxes;
- Wildlife links hibernacula and refugia suitable for smaller fauna including reptiles and amphibians; and
- The use of nectar-rich and berry producing plants to attract a wider range of insects, birds and mammals and continue to accommodate those already utilising the site.

Wildlife Sensitive Lighting Strategy

- 4.119** As part of the completed Proposed Development phase, a wildlife sensitive lighting strategy would be adopted. The lighting strategy would look to minimise unnecessary light spill upon areas of soft landscaping and artificial features as far as is reasonably practicable.

Landscape and Ecological Management Plan

- 4.120** A Landscape and Ecology Management Plan (LEMP), will be produced for the site, to be secured via condition. The LEMP would ensure that those targeted habitats conditions as set out within the BNG assessment (**ES Volume 3, Appendix: Ecology and Biodiversity – Annex 2**) would be achieved and maintained in order to safeguard the long-term ecological value of the site. The LEMP would detail the requirement to monitor the habitats created and the artificial features for roosting bats, nesting birds and invertebrates.
- 4.121** Further details are provided in **ES Volume 1, Chapter 14: Ecology and Biodiversity**.

Archaeology and Heritage

- 4.122** The Proposed Development has considered how to maintain and incorporate the local heritage of the site and area. This local heritage is to be dealt with via a planning condition that will require a “Public Art and Heritage Trail Strategy” to be submitted with each RMA. This will provide certainty over the how the interpretation of the history and archaeology of the site is to be delivered. As examples these could include (but are no means limited to) the use of materials, landscaping, public art, heritage trail, interpretation boards and online digital information (via QR codes etc).