



CANE HILL, COULSDON

NON-TECHNICAL SUMMARY

August 2013

Our Ref: Q30194



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# NON-TECHNICAL SUMMARY

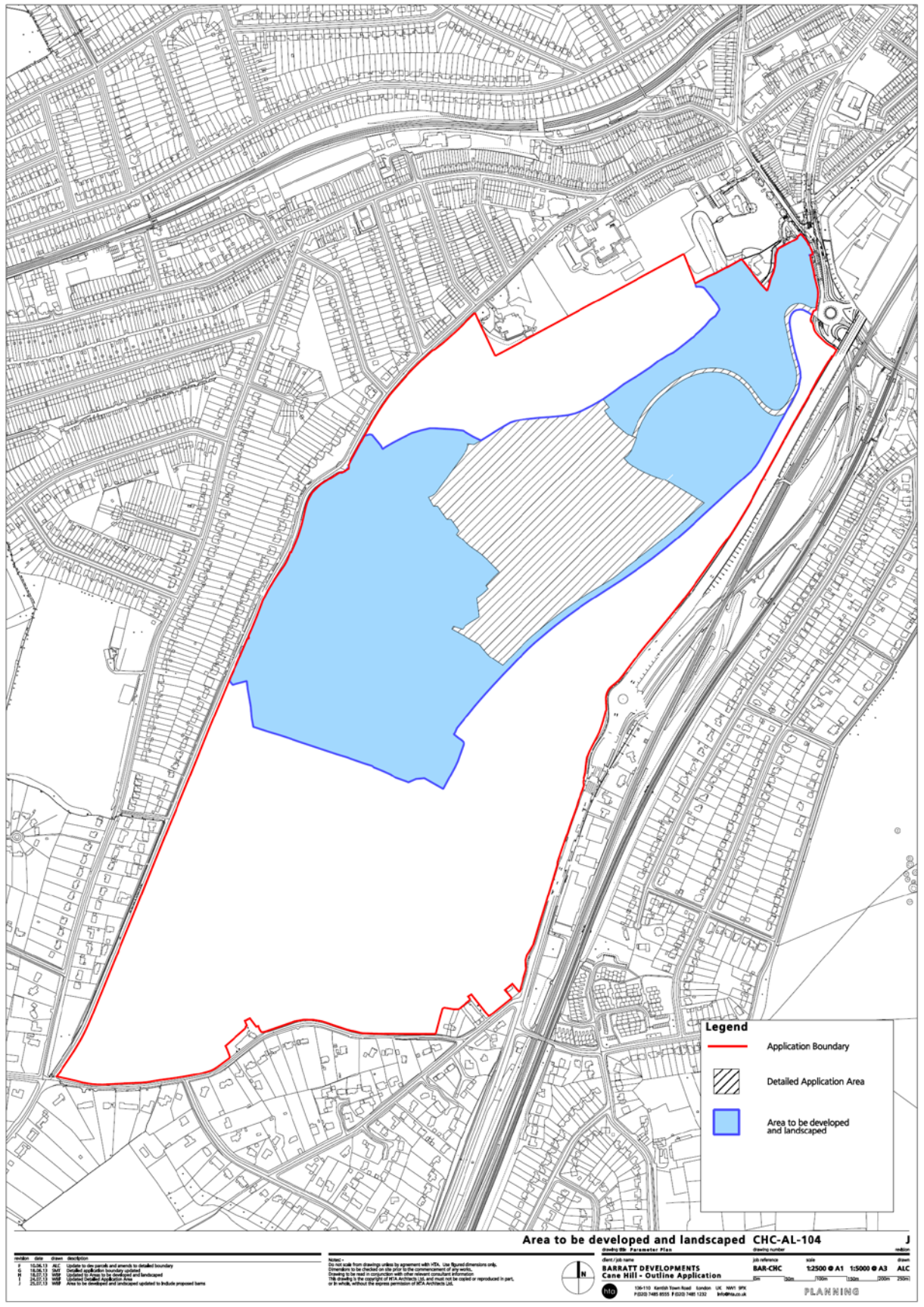
## Introduction

1. This Non-Technical Summary (NTS) summary presents the findings of an Environmental Impact Assessment (EIA) that has been undertaken on behalf of the Applicant (BDW Trading Ltd ) to accompany the hybrid planning application for the re-development of the former Cane Hill Hospital Site (referred to hereafter as ‘the Development’).
2. The full EIA report, known as an Environmental Statement (ES) assesses the effects of the proposed Development and has been submitted with a planning application. This NTS is provided as a stand-alone document. The application is also accompanied by a detailed Planning Statement which describe the proposals in the context of their surroundings and planning policy, together with a Design and Access Statement, and other stand-alone reports required for planning purposes.

## Hybrid Planning Application

3. The Planning Application is considered a ‘hybrid’ planning application, which means that some elements of the Development are applied for in full detail and some elements are applied for in outline. Figure 1 below shows the boundary of the outline and detailed components of the application.
4. The detailed planning application relates to 9.8 ha of land (including the main access road) and the outline component covers 68.9 ha.
5. The application seeks approval for the redevelopment of the Site to accommodate up to 677 residential units (net increase of 675 units) and up to a maximum of 5,660m<sup>2</sup> of office, retail, leisure and community uses. In addition, car and cycle parking provision, landscaping and public realm works, interim works, and highway works are proposed, including a new access onto Marlpit Lane/ Brighton Road Roundabout and Portnalls Road.
6. The detailed component of the application seeks full planning consent (no reserved matters). The outline component is submitted with the following matters reserved for approval at a later stage - layout, scale, access, appearance and landscaping.

**Figure 1 –Hybrid Planning Application Boundary (showing Areas Applied for in Detail and in Outline)**



7. A series of 'Parameter Plans' form part of the planning application package of documents for approval. These plans set parameters within which details of reserved matters must be prepared, submitted and approved in substantial accordance with. The plans are to be read in conjunction with other planning documents as key defining documents which provide a framework for the current and future design (under reserved matters) of the hybrid planning permission.

## The Site and Surrounding Area

8. The Site is located approximately 8 kilometres (km) south of Central London and approximately 600 metres (m) south of Coulsdon Town rail station.
9. The junction between the A23 and M25 motorway lies approximately 4.8 km to the south of the Site. The Site is bound by Lion Green Road to the north-east, Brighton Road (A23) to the east, Hollymeoak Road to the south, and Portnalls Road to the west/north-west which forms part of the Coulsdon Town Centre triangle. The triangle comprises Brighton Road, Lion Green Road and Chipstead Valley Road which is characterised by small scale 2-storey Victorian workers cottages, many of which have since been converted into retail and commercial uses
10. The application Site falls within the Green Belt, and covers an approximate area of 78.7 hectares (ha), of which 12.5 ha encompasses the remnants of the former hospital complex, on an elevated ridge overlooking the town and the North Downs.
11. The former Cane Hill Hospital buildings have since been demolished due to their dilapidated stated, however the site currently comprises a number of buildings which can be classified as follows (refer to disused land uses in Figure 2 below) :
  - Remnants of demolished former Cane Hill Hospital (former Hospital Buildings on top of Cane Hill);
  - North Lodge (opposite 24G Portnalls Road and adjacent to existing junction between former Cane Hill service road and Portnalls Road);
  - South Lodge (also known as The Postern - opposite 80 Portnalls Road);
  - Glencairn (former forensic rehabilitation unit);
  - Orchards Medium Secure Unit (MSU) (affiliated to Glencairn; the now demolished Mews; and former Tennis Court);

- The Chapel;
- Water Tower;
- Central Administration Block (the building has largely been destroyed by a fire on 13 November 2010 which destroyed most of the building with the exception of its front facade, and is therefore in an imminent state of collapse);
- The Piggeries;
- The Meadows;
- Coulsdon Area Farm and associated buildings; and
- Other ancillary buildings.

**Plate 1 – Photo of existing Site including water tower, woodland and pastoral fields.**



Undeveloped pastoral fields and woodland in the southern section of the site

Woodland blocks in the northern section of the site largely screen what remains of the hospital buildings with the exception of the water tower.

**Plate 2 – Mature belt of trees along the boundary with Portnalls Road.**



12. The Site is bound by hedgerows, and retains a significant amount of tree cover, the majority of which is protected by an area Tree Preservation Order (TPO 25 1993) (refer to Figure 3). The Site predominantly comprises lines of mature woodland planting, as shown by Plate 1 and 2, such as Postern Wood to the west of the former hospital buildings adjacent to Portnalls Road, and Dunstan's Wood to the south east.
13. A Site of Nature Conservation Interest (SINC) occurs on the Cane Hill hospital Site and comprises 27 ha of chalk grassland, scrub and secondary woodland (refer to Figure 3). Further to this two statutory sites are located within 2 km of the Site boundary, namely Farthing Downs and Happy Valley Site of Special Scientific Interest (SSSI) and Ruffett and Big Wood Local Nature Reserve (LNR) and there are several Public Rights of Way (PRoW).

## Alternatives and Design Evolution

14. The following text summarises the design evolution process and also outlines specific design options as part of and outlines how environmental considerations have influenced the overall design process.
15. The consideration of various alternative design layouts and comments received through consultation have influenced the final form of the development – now the preferred solution of the sites, and the subject of the hybrid planning application.

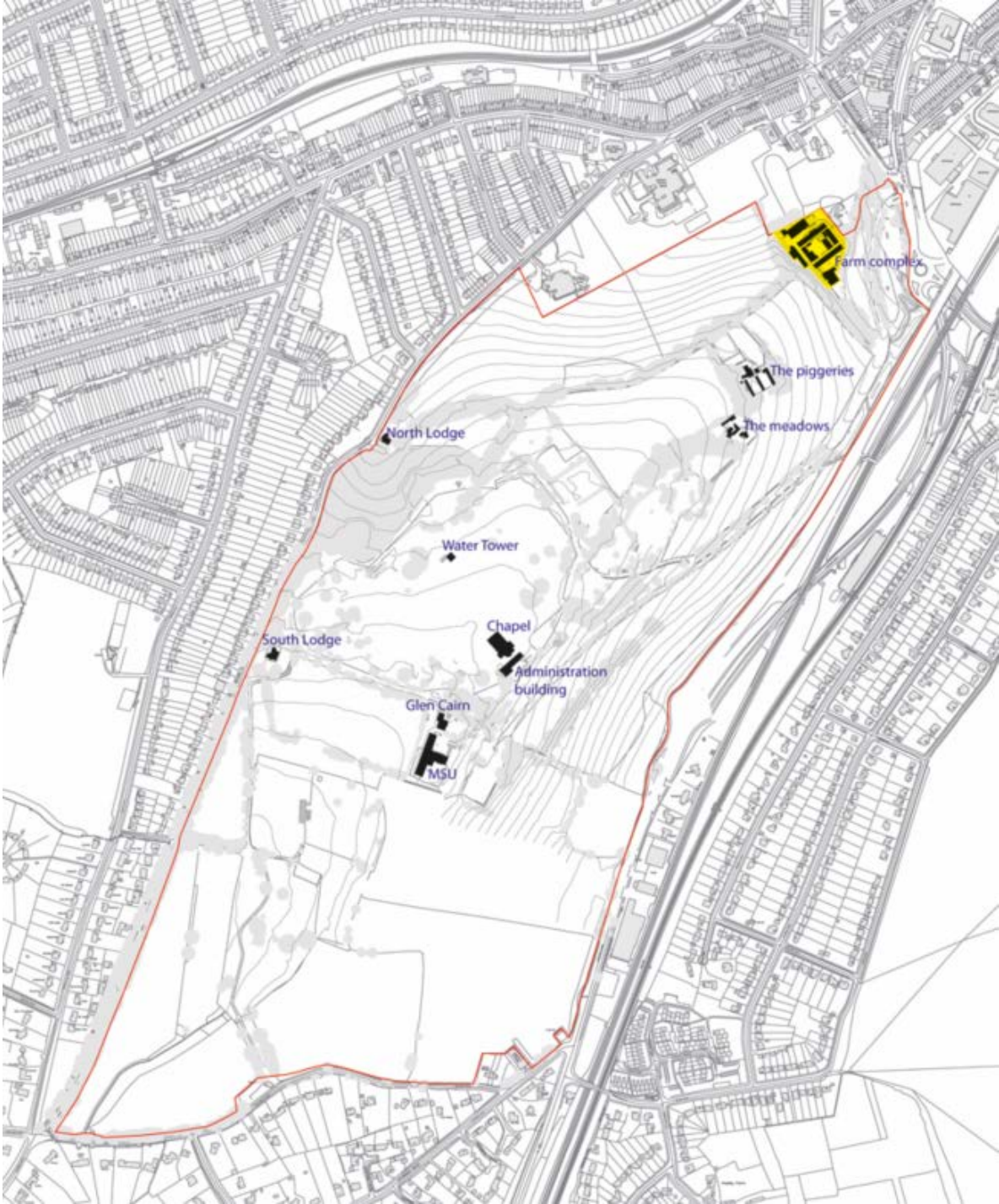
## Masterplan Design Evolution

16. The following text and figures summarise the four key stages in the evolution of the proposed Masterplan:

### *Stage 1- Initial Masterplan*

17. The initial masterplan shown in Figure 4 was developed based on the following preliminary principles:
  - Building on parts of the Site which were previously developed as part of the hospital buildings and retaining the Chapel and Water Tower within a central village green;
  - Whilst a detailed tree survey had not been undertaken at this stage, the initial masterplan aimed to retain as many trees on Site as possible; and
  - Creating a safe connection with Coulsdon Town Centre.

Figure 2 – Existing Buildings on Site



**Figure 3 - Key Development Constraints across the Site**



18. The initial masterplan was overly-reliant on the proposed main access route from Coulsdon. Detailed testing that followed confirmed that this route was not feasible.
19. Following early consultation, local residents proposed alternative access off the by-pass roundabout to the south of the Site, however Transport for London (TfL) discouraged this access option, subject to a viable alternative access onto a Borough Road. For this (and other reasons discussed later in paragraph 1.1.33), an alternative access off the by-pass roundabout to the south was therefore not taken forward as part of masterplan proposal.
20. Whilst further understanding of the topographical constraints on Site was still required, the following aspects were taken forward:
  - A strategic connection with Coulsdon Town Centre;
  - A village green would provide the setting for the retained Water Tower and Chapel; and
  - Tree belts would define the periphery of the Site.

### *Stage 2 - Initial Revisions*

21. Further investigation and understanding of the policy context, topography and tree constraints began to inform the layout of the masterplan during Stage 2 (refer to Figure 5).
22. As part of the initial revisions and additional information, an analysis of the landscape character areas on site and their sensitivity to development was undertaken to define an appropriate form of development within the Green Belt. Following this analysis, potential developable areas were identified subject to detailed testing and considered alongside site constraints; as a result the developable site area was revised and expanded.
23. The revisions also confirmed the main access route into the site which was realigned from Brighton Road (A237) roundabout to the north of the Site, however the access options through the Site were still under consideration.

### *Stage 3 - Interim Masterplan*

24. Further amendments were made to the masterplan layout which were informed by detailed investigation into the visual, topographical and tree constraints on Site (refer to Figure 6).

25. In particular, the developable area was refined following further analysis of the visual and landscape character and the development of landscape mitigation measures, such as retaining groups of trees.

**Figure 4 – Stage 1 - Initial Masterplan**



Figure 5 – Stage 2 - Initial Revisions

Existing roads through the site better integrated with the masterplan layout

New alignment of access road into the development



Developable area expanded

26. The Gateway area to the north of the Development was defined to address the challenging topography of the Site and to provide a green link from the village green on site to Coulsdon Town Centre.

#### *Stage 4- Final Masterplan*

27. Following the design review with the Commission for Architecture and Built Environment (CABE) and consultation with the Greater London Authority (GLA), further revisions were made to the masterplan layout to finalise the mix of land uses, tree removal/ retention issues and the alignment of the primary access route through the Site. The final preferred Masterplan is shown in Figure 7.
28. A key change included the removal of a small number of houses facing onto the Village Green to create a continuous strategic landscape route from Coulsdon Town Centre south through the Site to meet an existing network of footpaths and the Green Belt.
29. As part of the wider landscape strategy, existing trees were better integrated into the layout and additional landscape planting, including over 400 new trees, up to 7,000 m<sup>2</sup> of woodland planting and 280 m of new hedgerows were proposed to enhance biodiversity on Site.
30. In terms of vehicular access, a spine road was proposed through the centre of the site as part of the detailed application from the primary entrance off Brighton Road (A237) roundabout. In addition, pedestrian and cycle routes were finalised throughout the site.

#### *Sustainability*

31. The Masterplan proposals were refined to address sustainability issues. Each residential unit will have PV solar cells installed and will be orientated to benefit from high levels of natural daylight inside each property. In addition, landscape connections will create wildlife corridors.

**Figure 6 – Stage 3 - Interim Masterplan**

Retained trees better integrated into the block structure and layout so that the majority of retained trees are part of the public realm

Gateway area layout refined - connections through the gateway area to Coulsdon town improved



Water Tower setting changed to be integrated within the block layout

Landscape strategy and mitigation developed following visual impact assessment

Figure 7 – Final Masterplan



Strategic landscape route established as a continuous route through the development, linking Coulsdon town with the village green and the wider countryside beyond.

Line of development in the north eastern corner fixed and landscape mitigation proposed as part of the wider landscape strategy.

## Alternative Design and Site Layout

32. The following text summarises the evolution of a number of more specific design options and how environmental considerations have influenced the overall design process.

### Alternative Access off the By-pass Roundabout (South of the Site)

33. As mentioned previously, an alternative access to the south of the Site was considered during the design evolution process. Although this option was discouraged by TfL, it was given further consideration to investigate feasibility. This access option was later considered unfavourable in ecological terms as the route would result in the following impacts:
- Removal of scrub and grassland habitats within the Cane Hill SINC – both habitats for which the SINC was notified.
  - Loss or disturbance of a number of active badger setts, located west of the proposed access point from the A23, and increased potential for badgers fatalities by vehicles.
34. The alternative access was therefore not taken forward and a suitable alternative access option to a London Borough of Croydon (LBC) road was explored and confirmed off the Brighton Road (A237) roundabout.

## Amendments to Developable Area

35. The initial concept acknowledged that local visual receptors would be most sensitive to development within certain sections of the Site and therefore the developable area should be amended to reflect views from these sensitive receptors.
36. A number of development options were considered, and the final option excluded the green sloping fields to the north east of the developable area to ensure that the site adequately merges into the surrounding visual context of undulating greenfield and residential areas.
37. Further to this, networks of green corridors were proposed to ensure connectivity to surrounding landscapes to create biodiverse wildlife corridors and links to Coulsdon Town Centre.

## Invertebrate Habitat Reinstatement

38. The enhancement of invertebrate species on Site has been incorporated within the location, layout and design of the proposed open spaces on Site.

39. The design and layout of the Development was reviewed to identify two separate options to enhance biodiversity on Site, in particular invertebrate species.
40. The first option comprised the edge of the woodland adjacent to Brighton Road, located in proximity to the sides/ rear of proposed residential dwellings on Site.
41. A second option adjacent to Dunstan’s Wood was selected as the preferred option, as it provided a larger area of new habitat. The area will be retained and managed as three separate areas of biodiverse, flower-rich meadows, as described below.
- A 10 m-wide strip of currently improved, grazed/ cut grassland
  - An area of grassland along the woodland edges will be retained to enable a new habitat to form.
  - An area of retained wildflower meadow will be managed, in close proximity to the grassland along the edges of Dunstan’s Wood.
42. Further to this, the works will be phased so that habitat creation occurs during the initial site preparation stages to permit time for new habitats to establish and bare-ground substrate to provide an additional habitat ‘reservoir’ for invertebrates as successional changes take place.

## The Development Proposals

### Amount of Development

43. For the purposes of the Environmental Impact Assessment, the Development has been assessed to include the following elements (all areas are provided as Gross External Areas (GEA)):
44. The component of the development applied for in detail is summarised in Table 1 below:-

**Table 1: Detailed application development components**

Type	Proposed
Total Residential floorspace (GEA)	27,975 m <sup>2</sup>
Total units	187
Total private	155
Total affordable	17%
Parking Ratio (inc. garages)	2.5 spaces per unit
Access In to/From the site	Engineering works comprising a new junction access onto the A237 Brighton Road Marlpit Lane Roundabout and new spine

Type	Proposed
	road from this access into the development.

45. The outline component of the planning application seeks outline planning consent for the following elements:
- 488 new residential units (Class C3) (63,328 m<sup>2</sup> GEA) distributed between three Development Zones (referred to as the Gateway, Hillside and South Development Zones, excluding development in the detailed permission);
  - 3000 m<sup>2</sup> GEA of new commercial floorspace (office or hotel use) in the northern part of Site, in the proposed 'Gateway Building';
  - Rebuild or refurbishment of the North Lodge to provide a single residential unit;
  - Change of use of the existing Glencairn building to 1 residential unit; and
  - Refurbishment of the Medium Secure Use (MSU) building for agricultural purposes and erection of new barn on former tennis court Site.
  - Retain the Chapel building and convert this into 6 residential units or alternative non-residential uses namely retail, office, community and leisure use (650 m<sup>2</sup> GEA);
  - Retain the Water Tower to either convert into C3 residential (1 unit) or alternative non-residential uses namely retail, office, leisure /community(600 m<sup>2</sup> GEA);
  - Part refurbish, demolish and rebuild the Administration Building for either residential purposes (8 units) or alternative non-residential uses namely retail, office and community use (1,410 m<sup>2</sup> GEA), of which a maximum of 700 m<sup>2</sup> can be used for leisure use;
  - Landscaping proposals; and
  - New access onto Portnalls Road.
46. A maximum quantum of non-residential uses (retail, office, leisure and community) in the refurbishment/ rebuild option proposals is to cover a floorspace of 2,660 m<sup>2</sup> (of which 2,060 m<sup>2</sup> can be office space) and will be located within the 'South Development Zone'.
47. In summary, the hybrid planning application seeks approval for the redevelopment of the Site to accommodate up to 677 residential units (net increase of 675 units) and up to a maximum of 5,660m<sup>2</sup> of non-residential uses (retail, office, community and leisure). In addition, car and cycle parking provision, landscaping and public realm works, interim works, and highway works are

proposed, including a new access onto Marlpit Lane/ Brighton Road Roundabout and Portnalls Road. A summary of the proposed maximum and minimum parameters in terms of floorspace per type of use is provided in Table 2 below.

**Table 2: Summary of Proposed Maximum and Minimum GEA for Proposed Land Uses**

Proposed Land Use	Minimum Floorspace (GEA)	Maximum Floorspace (GEA)
Residential	93,710*	101,200
Retail	0	2,660
Office	0 (if Gateway building developed as 3,000 m <sup>2</sup> hotel and no B1 within rest of site. Otherwise, 3,000 m <sup>2</sup> would be the minimum B1 use in this building.)	5,060
Hotel	0 (if Gateway building developed as 3,000 m <sup>2</sup> of B1 use. . Otherwise, 3,000 m <sup>2</sup> would be the minimum C1 use in this building.)	3,000
Community/Leisure	0	700

Notes:

- 1 All figures are gross external areas
- 2 The floorspace figures exclude external or rooftop plant
- 3 \*The minimum residential use include the lower limit of new build residential accommodation (93,300m<sup>2</sup>), plus the residential unit in the North Lodge (190 m<sup>2</sup>) plus the residential unit resulting from the farm re-location (220m<sup>2</sup>).
- 4 The maximum residential floorspace is the total residential use (101,200 m<sup>2</sup>).
- 5 The maximum Class A1-A5 floorspace represents the total floorspace of the Water Tower, plus the Chapel, plus the Administration Building (i.e. 2,660 m<sup>2</sup>). The minimum floorspace represents no Class A1-A5 in these buildings, on the assumption that an alternative use would be delivered (i.e. Class B1,C1, D1-D2, and C3).
- 6 The maximum/minimum B1 floorspace represents the total floorspace of the Water Tower, plus the Chapel, plus the Administration Building (i.e. limited to 2,060 m<sup>2</sup>), and the 3,000 m<sup>2</sup> in the Gateway Building).

48. The outline planning permission is subject to development parameters therefore any development quantum other than the maximum and minimum parameters has to be considered illustrative at this stage. However as a result of the direction advocated in the LBC Coulsdon Masterplan, an illustrative masterplan has been developed that proposes a development quantum (for the outline component) by way of an indication as to how the development might come forward.

## Layout and Form

49. A total of 16 different house types are proposed as part of the detailed application. The tallest houses type will be above ground level. The lowest house type will be 8.5 m above ground level. In

terms of the tallest and lowest points of Development within the detailed component of the application, this varies depending on plot location within the detailed application boundary. The highest plot would be at 133.7 mAOD finished slab level and a ridge height of 145.19 mAOD, and the lowest plot at 115.5 mAOD and a ridge height of 124.99 mAOD.

- 50. The extent of the areas to be developed and landscaped as part of the outline component of the application are defined by the parameter plan shown as Figure 1.
- 51. The proposed areas of strategic landscaping which will be open to the public are shown in Figure 8. It also identifies the area of greenfield which will either remain as meadow or be used by the farming operation. It is not proposed to undertake any structured landscape works within this area.
- 52. The minimum and maximum building heights for each of the Development Zones are provided in Table 2 below.

**Table 2: Development building heights parameters (mAOD)**

Development Parcel	Minimum Height (metres AOD)	Maximum Height (metres AOD)
Gateway Development Zone (3-6 storeys)	106	112
Hillside Development Zone (2-3 storeys)	108	133
South Development Zone (2-4 storeys)	144.5	167
Refurbished Water Tower	-	161

## Public Realm and Landscape

- 53. The areas for strategic landscaping shown in Figure 8 below and will be open to the public. The plan also identifies the greenfield land which will remain as meadow or be used by the farm on Site. As such, there are no structured landscape works proposed in this area.

Figure 8 –Open Space Parameter Plan



54. The following works are proposed and would be carried out in the first appropriate season following planning consent:
- Arboricultural management of existing lime trees on the Avenue;
  - Dunstan’s Wood will be extended up the Avenue;
  - Mixed planting along Portnalls Road to include whips and evergreen shrubs along the boundary of existing woodland and hedgerows to provide winter screening the Development.
55. The landscape strategy has been developed alongside the illustrative masterplan layout, ecological surveys and the drainage strategy to ensure a fully integrated approach.
56. A new linear park is the principle feature providing a walking and cycling route that winds through the existing mature trees to connect the central village green with Coulsdon Town Centre and railway station.
57. The existing landscape of trees and grassland will be utilised to create a series of linked spaces to connect the Site to the surrounding area and the boundaries of the Site will be planted to provide coherence across the Development.
58. A number of trees will need to be removed to facilitate the Development. The outline application requires removal of 151 trees, 28 groups and 5 partial groups; this includes G107, Postern Wood where 200 tree removals are expected as part of the ground remediation works (these will be reinstated following the remediation).
59. The detailed application design requires the removal of 79 trees and 26\* groups (\*three groups will only partially be removed). The majority of these are low quality trees.
60. Landscape mitigation proposals have been identified to replace any vegetation lost through the addition of 400 new trees, 7,000 m<sup>2</sup> of woodland planting and a net increase in hedgerow length of 280 m, which will provide screening of the Development.
61. The detailed application will deliver 2.8 ha of public amenity, including the main section of the new proposed park through Dunstan’s Wood, the activity trail and play features.
62. The ‘means of treatment of land for the purposes of enhancing or protecting the amenities of the proposed development (including hard and soft landscaping, planting, screening, surface materials, etc)’ is reserved for later approval.

### *Ecological Mitigation*

63. A 10 m-wide strip of land along the western edge of the Site, adjacent to the school, will be set aside and managed as flower-rich meadow and a 1.9ha area of grassland along the eastern edge of the Development will be managed in order to return it to flower-rich, biodiverse chalk meadow. Areas around Dunstan's Wood comprising approximately 0.35ha will also be managed as meadow habitat.

### **Vehicle Access and Parking**

64. The main access route is proposed from the A237 Brighton Road Marlpit Roundabout and is submitted in detail. The proposed internal spine road which will link all phases of development is also submitted in detail (see Figure 9 below) and has been designed to provide flexibility to allow public bus services through the Site. The two other access points for the Development onto Portnalls Road are reserved for later consideration.
65. The proposed scheme incorporates 489 car parking spaces for the detailed application; 468 spaces at an average provision of 2.5 spaces per dwelling and a further 21 visitor parking spaces. Each employment use will benefit from separate car parking areas, however these will be finalised and considered within the associated reserved matters application.

### **Off-Site Highway Works**

66. The Development seeks to improve Portnalls Road through provision of traffic calming features which aim to improve pedestrian and cyclist connectivity to the Site. The final details of the comprehensive traffic-calming scheme to Portnalls Road will be the subject of a reserved matters application.

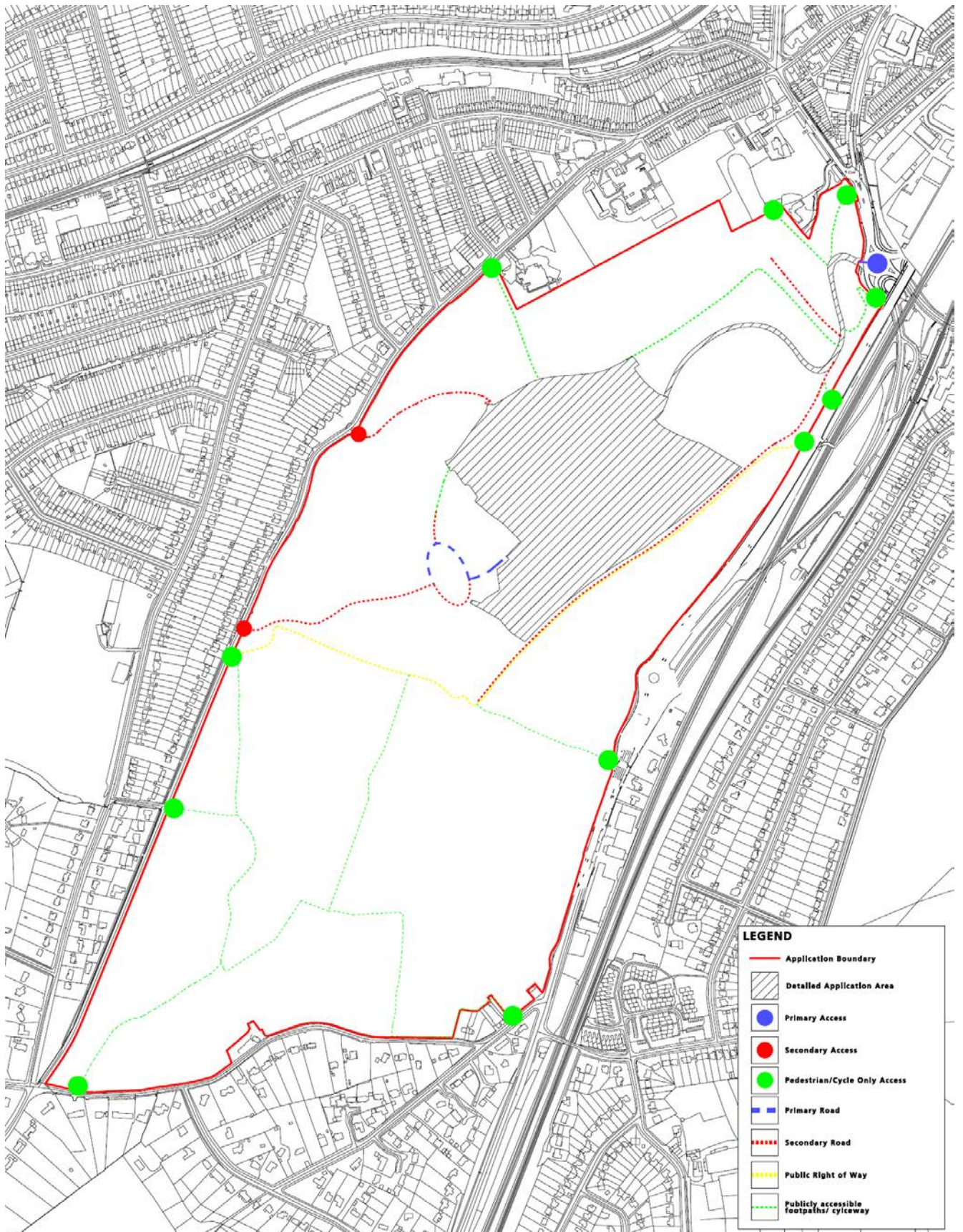
### **Cycle Accessibility and Parking**

67. New pedestrian and cycle routes through the Development will provide connection with the existing London Outer Orbital Path (LOOP) to the north of the Site.
68. All uses will incorporate appropriate cycle parking provision.

### **Pedestrian Access**

69. The Pedestrian/cycle only access routes to the Site are shown in Figure 9 below.

Figure 9 – Access Parameter Plan



70. Figure 9 above also shows the existing Public Right of Way (PROW) and proposed publically accessible footpaths/cycleways within the Site.
71. The Gateway area to north of the Site, will provide a traffic-free pedestrianised square fronting onto the proposed commercial units and the Lion Green Road regeneration area.
72. The proposed linear park that runs from the Gateway area will provide a car-free route through the Site to connect the village green to Coulsdon Town Centre.
73. A surfaced footway which follows the main spine road into the Development, will also be provided.

### Construction Phasing

74. It is currently anticipated that each phase of works related to demolition and construction/ refurbishment will include the necessary preparatory works and subsequent construction works.
75. Pre-commencement activity and initial site works are scheduled to take approximately 3 months and are anticipated to commence April 2014. Construction/ refurbishment and completion of all units is anticipated to take approximately 88 months (7 years and 3 months).
76. There will potentially be areas of overlap where works will continue from one stage after commencement of the next stage. However, this will be determined by market conditions at the time and will be limited to no more than 2 phases being constructed together at any one time. Where there is such overlap between the construction of phases.
77. A Construction Logistics Plan (CLP) and Construction Environmental Management Plan (CEMP) will be undertaken in accordance with LBC's Code of Practice<sup>1</sup> and Framework CLP Planning Requirements<sup>2</sup> guidance and will be submitted to LBC for approval at least 3 months prior to the commencement of construction.

### Environmental Impact Assessment

78. The purpose of the Environmental Impact Assessment (EIA) is to identify how people and the environment could be affected by the Development and to provide measures (often referred to as mitigation or enhancement) that will avoid, minimise or offset any negative effects. To achieve this, an Environmental Statement (ES) has been prepared, following consultation with LBC to identify topic-specific assessments to be included within the ES.

79. The ES considers the likely impact of the proposed development on its neighbours, local environment, local and regional economy, as well as the wider area. The environmental effects of the Development are predicted in relation to sensitive receptors, including human beings, built resources and natural resources. The key sensitive receptors considered in the ES are identified in Table 3 below.

**Table 3: Identified Sensitive Receptors and Constraints in the Vicinity of the Site**

Category	Sensitive Receptor/ Land Use	Nearest approximate distance from the Site boundary
Residential Properties	Residents of Portnalls Road, Lion Green Road, Brighton Road and Hollymeoak Road to the south of the Site. Residents in proximity to local roads who may be affected by Development traffic. Future on-Site residents	The closest properties at 24 to 40 Portnalls Road are located approximately 150 m to the west of the Site boundary.  On-site
Commercial Properties	Commercial users of the Site and surrounding areas, including retailers along Brighton Road, Lion Green Road and Chipstead Valley Road and also Coulsdon further north. The existing farm on Site and future on-site commercial receptors.	Located approximately 10 m from the Site boundary.  On-site
Other Non-residential Buildings	Smitham Primary School, St Aidan's Roman Catholic Primary School and a Scout Hut	St Aidan's Roman Catholic Primary School is located approximately 5 m from the north west edge of the Site. Adjacent to this building is a Scout Hut.
Workers on Site during Demolition Construction/ Refurbishment	Workers	On-site
Open Space	Nearby open spaces include Rickman Hill Recreation Ground, Farthing Downs, Chaldon Way Gardens and Coulsdon Memorial Ground.	Located approximately 200 m west of the Site.
Pedestrians and Cyclists	Network of PRow and areas of open access.	On-site and surrounding.
Vehicle Users	Vehicles users on Portnalls Road, Lion Green Road, Brighton Road, Coulsdon Lane and Hollymeoak Road to the south of the Site.	Approximately 10 m at the closest point.
Air Quality Designations	Air Quality Management Area (AQMA). Locations where members of the public may be regularly exposed to	The Site is within an AQMA.

Category	Sensitive Receptor/ Land Use	Nearest approximate distance from the Site boundary
	air pollutants such as local residents and residential properties and gardens, within the immediate vicinity of the Site. Effects of dust on site workers and members of the public.	
Ecological Resources	A SINC is located on the former Cane Hill Hospital Site and comprises 27 ha. Farthing Downs, a SSSI to the east of the Site.	The SINC is located on-site and Farthing Down, a SSSI, is located approximately 400 m east of the Site.
Heritage Assets	Directly north of the Site, is a designated Scheduled Ancient Monument (SAM) identified as Croydon, Merstham and Godstone Iron Railways (CMGIR) and to the east is the scheduled remains at Farthing Downs. The Administration Building and Chapel remain, both of which are locally listed. And recognised for their architectural and historic significance. WWII defences of historic value. The Water Tower is a locally designated landmark The Site is in part located within a non-statutory Archaeological Priority Zone in the Borough UDP.	The SAM is located directly adjacent to the northern edge of the Site as part of the Lion Green Road site, approximately 500m from the northern boundary of the Site. The Administration Building, Chapel and WWII Defences are on-site.
Landscape and Visual	The Site is in designated Green Belt. Farthing Downs is a designated AONB. The Water Tower is included in the Local View LV4 Farthing Downs to Cane Hill, as described in Policy UD11.	Farthing Downs is located approximately 400 m east of the Site. The Water Tower is on-site.
Hydrological Features	The Site overlies a Principal Aquifer and is located in Source Protection Zones 1, 2 and 3 (SPZs). There are two existing foul sewers within the Site boundary. The Site is within a low risk Flood Zone 1 (land assessed as having less than 1 in 1,000 annual probability of river or sea flooding in any year).	On-site

80. Beneficial and adverse, short and long-term (temporary and permanent), direct and indirect and cumulative impacts have been assessed. The significance of residual impacts, defined as those

impacts that remain following the implementation of mitigation measures, has been evaluated with reference to definitive standards, accepted criteria and legislation where available. Where it has not been possible to quantify impacts, qualitative assessments have been carried out, based on expert knowledge and judgement. For consistency, the following terminology has been used to express the nature of the impact.

- **Adverse:** Detrimental or negative effect to an environmental resource or receptor;
- **Negligible:** No significant effect to an environmental resource or receptor; and
- **Beneficial:** Advantageous or positive effect to an environmental resource or receptor.

81. Following the identification of impacts, significant beneficial or adverse effects have been classified on the basis of their nature and duration as follows:

- **Temporary:** Effects that persist for a limited period only (due, for example, to particular activities taking place for a short period of time);
- **Permanent:** Effects that result from an irreversible change to the baseline environment (e.g. land-take) or which will persist for the foreseeable future (e.g. noise from regular or continuous operations or activities);
- **Direct:** Effects that arise from the effect of activities that form an integral part of the scheme (e.g. direct employment and income generation);
- **Indirect:** Effects that arise from the effect of activities that do not explicitly form part of the scheme (e.g. off-site infrastructure upgrades to accommodate the development);
- **Secondary:** Effects that arise as a consequence of an initial effect of the scheme (e.g. induced employment elsewhere); and
- **Cumulative:** Effects that can arise from a combination of different effects at a specific location or the interaction of different effects over different periods of time.

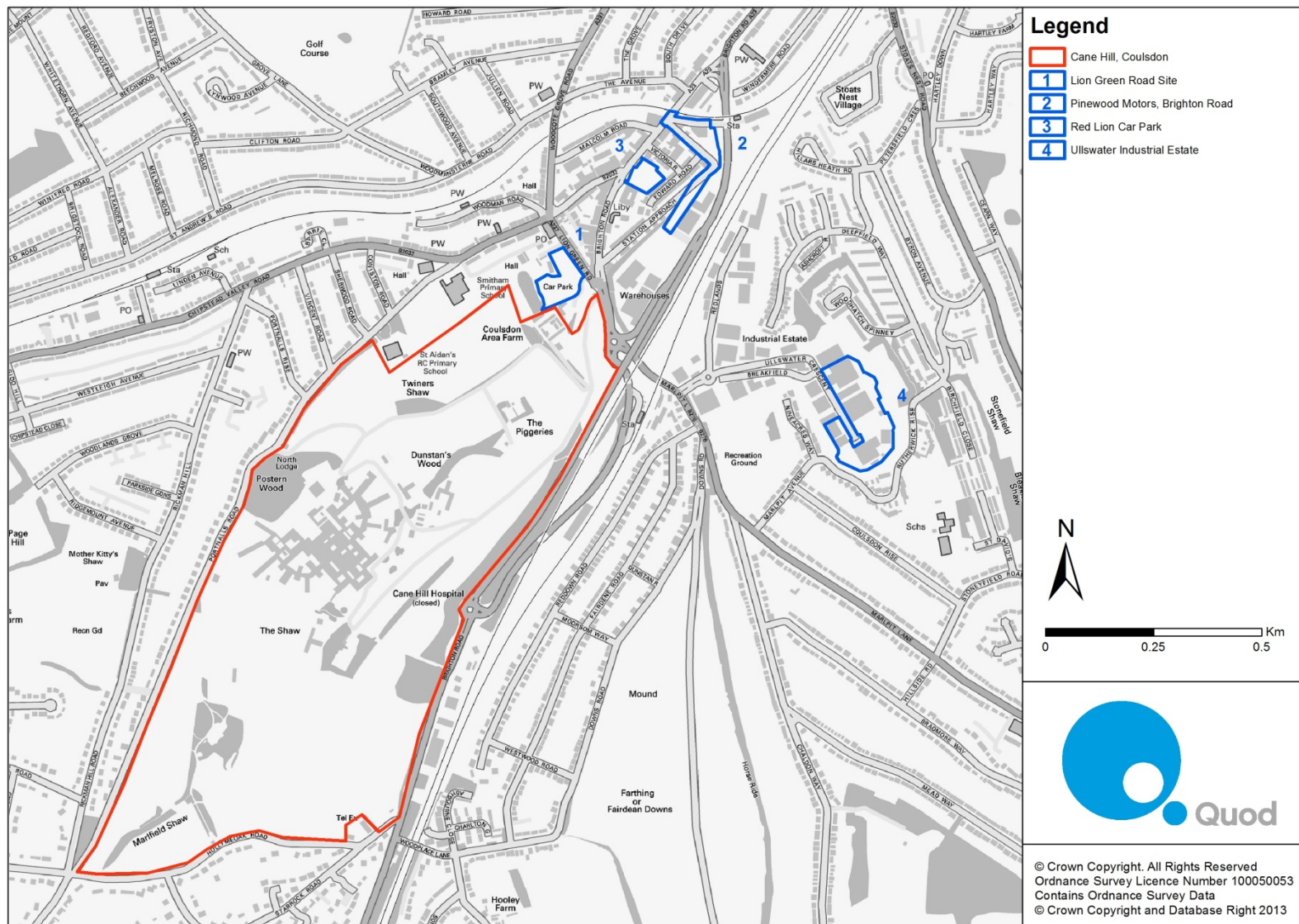
## Schemes Considered in Cumulative Assessment

82. The final list of schemes to be considered in the cumulative assessed were agreed in consultation with LBC (refer to Table 2.3 in Chapter 2 of the ES) and are shown in Table 4 below. Figure 10 shows the location of the identified committed developments

**Table 4 - Developments considered in the Cumulative Assessment**

Planning App Ref.	Address	Description of Proposals	Permission date (Status)	ID Ref. in Figure 16.1
13/02178/P	Lion Green Road, CR5 2NJ	The proposals for this site are still in the early stages, but are expected to include a foodstore (approximately 5,000 m <sup>2</sup> ) and community facilities.	Submitted 03/07/13 Pending Decision (target determination 02/10/13)	1
12/00241/P	Pinewood Motors, 127 Brighton Road, CR5 2NJ	Erection of a building ranging from two to seven storeys in height, comprising retail and commercial uses (Use Classes A1, A2, A3, B1, D1 or D2), 34 one bedroom, 50 two bedroom, 4 three bedroom flats and 6 three bedroom houses; formation of vehicular access and provision of associated parking.	12/11/12 Permission Granted subject to s106 agreement. (Not started)	2
Not yet submitted	Red Lion Car Park, Coulsdon	The proposals for this site are still in the early stages, but are anticipated to include an Aldi foodstore below an office/training centre use. The foodstore will measure approximately 1300 m <sup>2</sup> (GEA) with circa 500 m <sup>2</sup> of mixed use at first floorspace. A total of 50 surface level car parking spaces will be provided.	Not yet submitted	3
12/03634/P	Ullswater Industrial Estate	Demolition of 13,907m <sup>2</sup> B2/B8 existing floorspace to provide a single building of 7,210m <sup>2</sup> warehouse space (class B8), maintenance unit, vehicle wash and fuel island, energy centre and sprinkler tank, car and van parking and other associated works.	27/03/13 Permission Granted (Not started)	4

Figure 10 – Location of Developments Considered in Cumulative Assessment



## Consultation

83. Details of the development proposals were provided to LBC and other consultees during the consultation process, and the comments received have informed the scope and content of the ES, and the design of the Development itself. Views of statutory and non-statutory consultees serve to focus the studies and identify those issues which require further investigation.
84. The Applicant has also undertaken extensive consultation with local residents and the community through a series of public workshops. A Statement of Community Engagement (SCE) has also been undertaken to capture the views of non-statutory consultees and is submitted as a separate standalone report.
85. A formal Scoping Opinion was issued by LBC (12 February 2013). The Scoping Opinion identified that the Development could potentially have significant effects on following matters, therefore these topics were identified for assessment and form their own topic chapters of this ES.
- Transport (Chapter 7);
  - Noise (Chapter 8);
  - Air Quality (Chapter 9);
  - Socio-economic (Chapter 10);
  - Biodiversity (Chapter 11);
  - Hydrology, Flood Risk and Drainage (Chapter 12);
  - Ground Conditions (Chapter 13);
  - Landscape and Visual (Chapter 14); and
  - Historic Environment (Chapter 15).
86. Following an iterative process, the scope of the ES was refined through on-going discussion and correspondence with LBC, including a pre-application meeting with LBC on 8 November 2012 and a meeting with LBC on 22 April 2013 to further discuss the detailed scope of specific assessments.
87. The following text summaries the findings of the topic-specific assessments of the ES.

## Transport and Access

88. The Transport Assessment provides a comprehensive review and analysis of all the potential transport and movement effects of the Development.
89. The Site is well located to take advantage of existing public transport services and the demand from the Development will not have a significant effect on the operation of the existing services. The scheme has been designed to incorporate a bus route through the site to enhance connectivity with the surrounding community and local facilities in addition to providing enhanced pedestrian routes through the site. As a result, the Development will enable the wider community to have access to a large part of the site for walking and recreation.
90. Consequently, it is considered that the Development once completed, will have a minor beneficial impact on the environment for pedestrians.
91. The proposals include the provision of a primary vehicular access onto the Brighton Road/Marlpit Lane roundabout junction to the north of the site. Secondary vehicular access is proposed onto Portnalls Road by way on a simple priority junction, in addition to the re-use of the existing North Lodge access for a small cul-de-sac development of residential units.
92. The transport assessment in the ES demonstrates that the adjacent highway network can accommodate the development proposals in addition to the cumulative impact of committed developments and other material sites that may come forward (identified in discussion with LBC). The analysis demonstrates that all junctions will remain below theoretical capacity following completion of these developments.
93. It has been demonstrated that the traffic generated by the development proposals can be accommodated on the local highway network, with some minor improvements to the timing/phasing of the Lion Green Road/Chipstead Valley Road signal junction.
94. A comparison of journey times through these signals before and after implementation of the development identified a minimal impact of a 2.5 second average delay per vehicle, which is not considered to be significant.
95. The technical analysis has identified that the level of additional traffic using the surrounding highway network will be unlikely to result in any significant adverse environmental effects.

96. It is anticipated that there will only be a modest level of construction vehicle activity (approximately 20 vehicles per day), which would be restricted to the strategic highway network and primary borough roads to the north and east of the application site. As a consequence, there will be a negligible impact on the operation of the highway network during construction of the Development as a result of these construction vehicle movements.
97. Once the Development is completed, the residual effects would range from minor beneficial to negligible/ minor adverse. The negligible/ minor adverse impacts relate to severance and pedestrian delay and are localised effects with the minor beneficial effect resulting for pedestrians.

## Noise and Vibration

98. The noise and vibration assessment considers the suitability of the site for residential accommodation and considers the potential noise and vibration effects of the Development on existing noise sensitive receptors within the vicinity of the Site.
99. Noise from activities associated with the demolition and construction phases may have potential for adverse effects on noise sensitive receptors in proximity to the Site, albeit such impacts will be of minor significance and only temporary in nature. Vehicles associated with the construction phase may cause minor adverse effects in the short-term but negligible effects in the long-term. This is due to more significant noise effects during specific activities such as deliveries but the frequency of these events should be such that the general effect is negligible. During the operational phase, the impacts associated with a plant designed to fit criteria in accordance with BS4142 is assessed as negligible.
100. Vibration due to general demolition and construction activities is not considered significant and as such is considered to be of negligible significance.
101. The cumulative impact the Development with other committed developments and unapproved, but material proposals (identified in discussion with LBC), is considered to be of overall negligible significance and will only lead to a marginal increase in noise levels..
102. Once the development is completed, the effect of the development traffic on the local area would lead to a marginal increase in traffic related noise of negligible significance.
103. Extensive mitigation measures are proposed, and following implementation, any potential effects will be minimised and result in a general negligible effect.

## Air Quality

104. The air quality assessment undertaken determined the effect of the Development on the surrounding area and to assess the suitability of the development for residential accommodation.
105. The assessment was undertaken using a combination of monitored data collected by LBC and modelling to predict the effects of the Development in the future.
106. The assessment was based on the comparison with the National Air Quality Objectives.
107. The assessment of effects of the demolition, construction and refurbishment phase of the development focused mainly on dust emissions.
108. The assessment identified the residential areas within the 150 m of the development site boundary and assessed the risk of significant effects from dust emissions.
109. The assessment looked at different type of activity during the construction stage and determined the risk rating or each type of activity. The assessment concluded that works on the detailed site boundary will have a low risk while the development of the outline boundary could have a medium risk, due to the distance from this boundary to the receptor locations. As such the general risk rating for the whole site is Medium.
110. The traffic associated effects with the construction phase, operational development have been assessed, include consideration of cumulative effects with other future Developments.
111. The construction traffic was assessed and the data indicated that the combined traffic would result in pollution levels 44% below the national air quality objective, and as such would not cause adverse effects.
112. The assessment investigated the effect of the development traffic on the local area by modelling the increase in traffic flow as a result of the development. The assessment demonstrated that the increase in traffic volume would lead to a marginal increase in traffic related pollution of negligible significance.
113. The assessment includes the effect of the increase in traffic on air pollution in Hooley. This assessment showed that the development would have a negligible impact on pollutant concentrations in this area.

114. The impact of the build element of the development focused on the domestic boiler emissions from the residential properties. Due to the efficiency of the proposed boilers the total NOx emissions are considered to be very low, and the effect of the building emissions is considered of negligible significance.
115. Subject to the implementation of good practice within a site specific Construction Logistics Plan (CLP) and Construction Environmental Management Plan (CEMP), and effective implementation of the mitigation measures identified, the residual impacts are sensitive receptors are anticipated to be of negligible significance.

## Socio-economic

116. Consideration of the social and economic effects of the Development has been undertaken in the context of the existing socio-economics conditions of the local area and the wider borough.
117. The development will create 187 new dwellings in phase 1 and a maximum of 675 including 183 affordable units contributing 5% to the total borough housing target to 2021. This will create construction employment generating approximately 1,120 person years of employment.
118. The estimated population of the development has been calculated using the average household size in LBC (2011 Census). On this assumption, the population of the Development when fully occupied would be 1,730, creating demand for community facilities.
119. The Development will require just less than 1 full time GP to support the resulting population of the development. The effect the development will have on the existing healthcare facilities is negligible.
120. The increased residential population would create demand for more school places. Existing schools are operating at full capacity and the Development would have a moderate adverse effect with respect to primary school places at a local level. Following on-going correspondence with LBC, this will be mitigated through a financial contribution via CIL subject to negotiation and local planning priorities.
121. The proposed Development includes a significant level of public realm improvements across the Site. The Development includes the provision of 8.5 ha of woodland links, chalk grassland as well as local greens within the residential areas. This play and open space provided by the development is

in excess of the policy requirements of 3.1 ha. This provision of play and open space would have a minor beneficial effect at a local level.

122. The Development includes a quantum of commercial space which will be part of a subsequent application including a maximum of 2,060m<sup>2</sup> providing jobs for 130 – 350 full time employees.
123. There are a number of planning applications in the pipeline which, if permitted, would provide 94 residential units, 300m<sup>2</sup> retail, two supermarkets, health, leisure and office space. The residential units would have a minor beneficial effect at a borough level. These would have a population of 240 residents driving demand for 9 primary school places and up to 3 secondary school places. The commercial space would provide 240 full time employees
124. The provision of 94 residential units brought forward by the four other development would contribute towards local and regional housing targets and would have a minor beneficial effect on local receptors. The cumulative effect of these schemes and the Cane Hill Development taken together would be moderate beneficial on local receptors, minor beneficial for borough level receptors and negligible for regional receptors of housing provision.
125. The cumulative household spending of the current and future developments would amount to £9.3m annually with employee annual spending being £480,000 - £780,000.

## Biodiversity

126. The Site is not located within or close to any statutory or non-statutory site designated for biodiversity, other than the Cane Hill Hospital Site of Importance for Nature Conservation (SINC, Borough Grade II), which forms part of the Site.
127. The Site, including the SINC, largely comprises habitats of low nature conservation interest, predominantly improved or semi-improved grassland, with some small blocks of woodland and small patches of habitat on former built development now developing into a mosaic of bare ground, scrub and tall and short herbaceous vegetation.
128. The scope of the biodiversity assessment was determined through a combination of desk studies to identify existing biological data relating to the site and surrounding area, site visits and consultation with relevant nature conservation organisations. A desk study, extended phase 1 habitat survey and Hedgerow Regulations Assessment of the Site were carried out in 2006/7 and updated in 2013.

A botanical survey and Phase 2 surveys for badger, bats, dormouse, breeding birds, reptiles and invertebrates were also undertaken.

129. Of the potential biodiversity receptors identified, Cane Hill Hospital SINC, lowland mixed deciduous woodland, badger, bats, bullfinch, notable invertebrates and Japanese knotweed were taken forward for full assessment of effects. However, badger, bat and Japanese knotweed were not considered receptors of sufficient value that an effect on them could be significant in EIA terms, and were assessed only in relation to the potential for contravention of the legislation protecting badger and bats, and controlled species legislation relating to Japanese knotweed.
130. The assessment has identified that, with the environmental measures incorporated into the Development, no significant effects on any designated site or notable species would result from the Development.
131. In the short to medium term, a significant effect on woodland would result, but this would become non-significant upon maturation of proposed woodland planting, likely to be within 15-20 years of commencement of planting.
132. No cumulative effects from other planned developments in the area are predicted to alter the significance of effects of the Development on Biodiversity.
133. The Development is not likely to result in the contravention of protected or controlled species legislation

## Hydrology, Flood Risk and Drainage

134. Cane Hill is largely made up of steep topography. The levels within the Development area range from 81m AOD at the main entrance at Brighton Road climbing steadily to the area where the former hospital was located, that ranges from 128m AOD up to 145m AOD.
135. The Site is directly underlain by Seaford Chalk Formation which is highly permeable and is suitable for infiltration drainage to dispose of surface water run-off.
136. The Site is positioned above a Principal Aquifer which provides a high level of water storage. Taking this into account, there are two current licensed groundwater abstractions within a 2km radius of the site and, as such, are located in Source Protection Zones 1, 2 & 3 (SPZs).

137. The Site is located within a low risk Flood Zone 1. Surface water flooding from sewers and potential overland flow is not considered to be a significant risk. Groundwater flooding is unlikely to occur at this site.
138. There are two existing foul sewers that served the former hospital site and other buildings within the Site boundary. These sewers will be used to serve the Development.
139. A range of mitigation measures will be incorporated within the design of the development to reduce any potential adverse impacts on flood risk, water quality and foul water network. These include the following:
140. Surface water runoff will be managed through sustainable drainage techniques (e.g. attenuation ponds) where necessary to ensure the protection of water quality and to simulate as natural as possible the flood hydrograph for the area.
141. With the incorporation of the Construction Management Plan, construction and operational phase residual effects are considered to be reduced from moderate-minor/moderate to minor significance
142. Sustainable drainage (SuDS) techniques will also ensure the water is of a high standard prior to reaching the proposed soakaway structures.
143. With the incorporation of the Construction Management Plan, construction and operational phase residual effects are considered to moderate-minor significance.
144. The new dwellings will be constructed in accordance with the relevant sustainable policies so significant reduction in water consumption can be achieved by sustainable design.
145. The routing of utilities will be designed to minimise disruption to vegetation and habitat.
146. Following mitigation, construction and operational phase residual effects are considered to be of overall negligible significance.
147. The cumulative impact the Development will have on committed developments and other unapproved, but material proposals, is considered to be of overall negligible significance.

## Ground Conditions

148. The effects of the development in terms of the ground conditions and potential for contamination have been assessed.
149. The site is underlain by a limited thickness of topsoil/variable thickness of made ground over the Clay-with-Flints Formation, which in turn is underlain by Seaford Chalk Formation. Groundwater was not encountered during an intrusive site investigation, or in any subsequent monitoring visits.
150. The results of the risk assessment process indicated that the upper metre of soils in the area of the former hospital and its immediate surrounds, comprised unacceptable concentrations of contaminants, therefore remediation of the soil is required in these areas to ensure this will be suitable to the proposed end use.. Within the Postern Wood area, deleterious material was encountered that presents an unacceptable risk to end users of this area.
151. A spoil mound of material adjacent to the northern boundary of the former hospital area contains fragments of asbestos cement board/tile and loose asbestos fibres, which will require specialist removal as part of the remediation strategy for the site.
152. In the vicinity of the former hospital, concentrations of petroleum hydrocarbons were found below the laboratory detection limits. Elevated concentrations of hydrocarbons were recorded inside the Farm complex.
153. The risk of contaminants leaching from contaminated made ground to the underlying Principal Aquifer has been demonstrated to be very low and therefore no further remedial works are considered necessary.

## Japanese Knotweed

154. Japanese Knotweed was identified on Site during the 2008 investigation and also during the 2013 investigation.
155. It is understood that knotweed treatment/eradication has been carried out for the previous five years and that this has resulted in the remaining stands being in a deteriorated and seemingly weak condition. A continued herbicide treatment programme is intended for the 2013 and 2014 growing seasons.

156. The excavation and removal of strands of knotweed will take place within the detailed application area.
157. A variety of mitigation measures have been suggested for the area of the former hospital and its immediate surrounds, the central fields and north-eastern area, the farm and postern wood. No remedial measures are considered necessary in the South-western fields.
158. Potential adverse residual effects will be minimised through the application of the mitigation measures including adherence to the CEMP throughout the construction on Site.

## Landscape and Visual

159. The landscape and visual assessment has been undertaken in two parts:
- The effects of the proposals on the character and quality of the landscape; and
  - The visual effects on people living, working, following recreational pursuits and travelling in the areas from which the proposed development may be viewed.
160. These aspects have been considered both during the construction phase and following completion of the Development.

## Landscape

161. The introduction of the Development at Cane Hill would result in effects on the landscape, with changes to land cover such as trees, hedgerows and meadows albeit only a limited number of trees and hedgerows would be removed. The proposals to plant trees and hedgerows before any construction takes place as part of an advanced planting package would improve the landscape and would help to screen the Site from much of the surrounding area. Planting would take place at each stage of the building phases, which would further enhance the landscape.
162. Open green spaces are important features of the landscape in this area and although some would be lost to the Development, the number would be kept to a minimum and new spaces would be created that would better link the Site to Coulsdon and areas beyond.
163. The loss of trees, hedgerows and open spaces would be compensated for by a proposed tree and hedgerow planting strategy within the Scheme and also the creation of new green spaces. As a consequence of these measures, the effects on the character of the landscape outside of the Site would not be significant.

164. Once completed, the Development would replace both the brownfield core and some agricultural fields, mostly with residential development within the landscape framework of the Site. A significant amount of green space will be retained as part of the Development. The development of the Site will introduce an attractive new neighbourhood on the edge of Coulsdon would be seen as a positive enhancement of the landscape and would be in keeping with the landscape character surrounding Coulsdon.

## Visual

165. Retained and planted woodlands, linear woodland features and trees and shrubs (especially around the Site boundaries and the edges of the new development) together with the surrounding rolling land form would substantially restrict views of the Development. As a consequence, the number of individuals whose views would be substantially affected is small and includes:

- a number of residents on Rutherford Rise; and
- a small number of residents on Portnalls Road.

166. A total of 6 viewpoints were selected and agreed with LBC for the production of photomontages to illustrate what the Development may look like to the human eye if a person were standing at the viewpoint location. The 6 viewpoints are assessed in detail in Chapter 14: Landscape and Visual of the ES.

167. The photomontage image portrays the new built form and fixed landscape works at year 0 and again at year 15 as landscaping matures. For the detailed elements of the Development (i.e. the detailed application) it was agreed these would be shown within the photomontage as a fully rendered image, whereas for the outline elements of the Development, it was also agreed that red lines would show the extent and maximum height of the development parcels within the photomontage.

168. Viewpoint 5: Rutherford Rise (representative of the view experience by local residents) is included here as a representative view that shows both the detailed and outline components of the Development (at year 0 and year 15). The outline elements have been informed by the parameter plans and the detailed elements are fully rendered.

169. Figure 11 shows a photomontage of Viewpoint 5: Rutherford Rise after 15 years.

170. The receptors on Rutherford Rise during the operational phase at year 15 are considered to include beneficial landscape elements which mature over time. Residents at this viewpoint are therefore considered to experience a lowering magnitude of change that would result in an effect of moderate significance considered to be beneficial.
171. These receptors would experience a significant change in view of the Site during the construction phase, but construction effects would be temporary in nature. In the long term, as the Site landscape would start to mature, the visual effects would decrease and, in the case of Rutherford Rise, the view would become increasingly attractive over time. For the small handful of residents on Portnalls Road where a new junction is proposed, new tree and shrub planting would reduce the scale of negative effect to one that would be minor as planting matures.
172. No cumulative effects from other planned developments in the area are expected to change the significance of effects of the Development in terms of Landscape or Visual receptors.
173. It is considered that the introduction of a largely new residential community within this Site would result in few detrimental landscape and visual effects. These effects are reduced in significance by the retention of vegetation, and the introduction of a network of open spaces and green corridors, with accompanying planting, across the site. For most people, the Development will become an attractive part of their view, especially as new planting continues to mature.

**Figure 11 – Viewpoint 5: Rutherford Rise at Year 15 with retained trees and proposed fixed landscape works.**



## Historic Environment

174. The effects of the development on heritage assets and the historic environment within a study area extending 500m from the site boundary have been assessed.
175. There are no World Heritage Sites, Scheduled Monuments, Conservation Areas, Listed Buildings, Registered Parks and Gardens or Designated Battlefields within the site boundary. A single Scheduled Ancient Monument namely an embankment of the former Croydon, Merstham and Godstone Iron Railway (CMGIR) is located immediately adjacent to the site within 500 m from the site boundary.
176. Cane Hill is designated as a non-statutory Archaeological Priority Zone in the Borough Unitary Development Plan. The nature of archaeological assets within the Priority Zone is not clearly defined, but previous incidental discoveries suggest a potential for prehistoric, Romano-British, Anglo-Saxon and medieval sub-surface remains.
177. The majority of the former hospital central complex has been demolished albeit the administration building and chapel, in addition to the detached water tower, has been retained as being of heritage value. The administrative building and chapel are locally listed buildings.
178. Other surviving hospital structures of heritage interest include the Superintendent's Memorial, the former hospital farm (the Coulsdon Area Farm and farmhouse and The Piggeries) and residential lodges (North Lodge, South (or Postern) Lodge and Glencairn Lodge). Further non-designated assets of heritage include World War II civil defences associated with the South (Postern) Lodge and a large concrete bunker located within the Site (the Surrey Deep Shelter No 4) .
179. During the construction phase, direct impacts may arise on known and previously unrecorded heritage assets within the site as a result of demolition, disturbance and removal arising from intrusive works. Consequently, only heritage assets within the site boundary have the potential to be directly affected by the Development.
180. It is anticipated that construction will result in a moderate impact to the heritage significance of sub-surface archaeological heritage assets albeit the heritage significance has not yet been firmly defined for sub-surface remains, pending a programme of archaeological evaluation trial trenching to be agreed in discussion with LBC. Provided the loss of archaeological interest is mitigated appropriately, development will not have a significant effect. These mitigation measures can be

secured by means of condition of planning permission and an agreement on a written scheme of archaeological investigation

181. The Development will have a negligible direct effect on the significance of the CMGIR during construction; however detailed development proposals offer an opportunity to strengthen the relationship between the lane and the embankment.
182. In respect to the Administrative Building, Chapel and Water Tower, the magnitude of proposed changes during construction would be negligible resulting in no substantial harm to heritage significance. A detailed scheme for conversion will be submitted under reserved matters, which will set out the architectural conservation measures to be employed during restoration and conversion.
183. The Development will result in a moderate effect on Coulsdon Area (former Hospital) Farm, including The Piggeries. The magnitude of proposed changes would be negligible resulting in no substantial harm to the residential lodges and the Superintendent's Memorial. The scheme will have a negligible direct impact on the significance of the existing WWII defences.
184. Indirect construction impacts may arise as a result of change to the setting of heritage assets. It is anticipated that the development may have a very slight indirect visual impact on the Scheduled Ancient Monuments on Farthing Down, and the Scheduled remains of CMGIR embankment. The magnitude of impact on these assets has been assessed as negligible.
185. It is not anticipated that there will be any operational or post-operational impacts on any known or unknown heritage assets.
186. The potential for cumulative impacts only arises in relation the effect on the setting of Scheduled CMGIR embankment, due to the proposed development at Lion Green Road (not yet submitted). Though the scheduled heritage asset is of high significance, the magnitude of indirect effect will be a very low. Given that the surrounding area is densely developed, it is considered that the developments, even in combination, will have negligible impact on the character and context of the setting of the monument.
187. The residual effects are considered negligible during construction. There are no residual historic environment operational and post-operation impacts.

## Summary of Cumulative Impacts

188. There is potential for interaction and combined cumulative effects (intra-project effects) between noise and vibration effects and landscape and visual effects during the demolition, construction/ refurbishment and operational phase as a result of the Cane Hill Development.

## Conclusions

189. The overall architecture of the EIA Development will provide buildings and public realm of a high architectural quality and will have a positive impact on the local area and the economy.
190. The scheme will provide additional housing accommodation within LBC, employment opportunities, surrounding open space and additional pedestrian and cycle tracks through the site. The development integrates the redevelopment of the site into the surrounding residential and commercial area and provides links to Coulsdon Town Centre, creating a function for a previously disused site.

## BIBLIOGRAPHY

<sup>1</sup> London Borough of Croydon, March 2012, *Code of Practice*, London Borough of Croydon

<sup>2</sup> London Borough of Croydon, 2012, *Framework Construction Logistics Plan Requirements*, London Borough of Croydon