



3.0 Description of Proposed Development

3.1 Introduction

- 3.1.1 This chapter outlines the main characteristics of the Proposed Development that have been assessed as part of the EIA, covering both the construction and operational phases of the development and to set the proposals in context begins with a description of the existing Site and local geographical and spatial context.

3.2 The Site and Local Context

- 3.2.1 The Proposed Development is located approximately 2.5km west of Havant, Hampshire (central grid reference SU690069) as shown on Figure 1.1. Havant is a town in the south east corner of Hampshire and has an estimated total resident population of approximately 45,800.
- 3.2.2 The total land take for the scheme is approximately 26.6 ha. The Site is bounded by Scratchface Lane and College Road forming the western boundary. South of the Site are agricultural fields with the B2177 Portsdown Hill Road and the residential dwellings of Farlington beyond. Directly north of the Site is Littlepark Wood. Portsmouth Golf Course lies directly to the west. On the north western corner of the Site lies the South Downs College.

Nearby uses and Facilities

- 3.2.3 To the north is the neighbourhood of Stakes within the town of Waterlooville which is approximately 8 miles north of Portsmouth. Stakes contains a number of community facilities including Oaklands Catholic School and Crookhorn College and a number of shops.
- 3.2.4 East of the Site is the neighbourhood of Bedhampton containing a superstore and retail shops adjacent to the east of the A3(M). West of the Site is the neighbourhood of Widley containing community services of a surgery, community centre, post office, Morelands Primary School and Purbrook Park School.

Highways and Public Access

- 3.2.5 The south, the Site is bounded by Portsdown Hill Road (B2177) which contains Wayfarer's Walk PRoW. Approximately 1km further south, the A3(M) meets the A27 Havant Bypass overlooking Langstone Harbour and Chalkdock Lake, part of the Langstone Channel.
- 3.2.6 To the east the Site is bounded by Scratchface Lane and the A3(M). College Road forms the western boundary of the Site.
- 3.2.7 A Public Right of Way (PRoW) lines the north of the Site connecting the pedestrian bridge over the A3(M) along Scratchface Lane to the South Downs College and Purbrook Way.

Designations

- 3.2.8 The Site is not covered by any ecological or landscape designations. However, a Roman Villa Scheduled Monument is located within the northern extent of the Site and the course of a Roman Road bisects the northern part of the Site. Further south lies Langstone Harbour a designated Ramsar site, Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI), along with Farlington Marshes, a designated Local Nature Reserve (LNR). An area of Ancient Woodland is located immediately to the north of the Site.

Landscape

- 3.2.9 The Site is characterised by large semi-improved grassland fields currently in agricultural use.

Surface, Groundwater and Water Resources

- 3.2.10 The nearest EA designated Main River is situated to the east of the Site, just beyond the A3(M) motorway. There is also an ordinary watercourse located to the south of the Site, which flows along part of the southern boundary.
- 3.2.11 According to the Environment Agency's flood maps, the Site lies wholly within Flood Zone 1, considered to be at low risk from fluvial and tidal flooding. Groundwater mapping published by the Environment Agency indicates that the Site is largely located within Inner Zone – subsurface activity (Zone 1c) of the Groundwater Protection Zone.
- 3.2.12 The south eastern section of the Site is characterised as Source Protection Zone for Drinking Water, number 1 - Bedhampton and Havant Springs.
- 3.2.13 British Geological Society maps indicate that the majority of the Site is underlain by the London Clay Formation with no recorded superficial deposit. A small portion of the north eastern part of the Site is indicated to be underlain by the Wittering Formation. The Site overlays a Secondary A Aquifer for bedrock.

3.3 Development Proposals

- 3.3.1 For the purposes of the ES, the development proposal section identifies both the construction and operational design features which effect the environment or contribute to the overall environmental impact of the scheme. Given the nature of the development to provide long term housing and other facilities, the effects of decommissioning have not been considered.

Schedule of Development Proposed

- 3.3.2 The proposals are for a hybrid application seeking permission for:

"A hybrid planning application comprising; full planning application for the erection of 130 dwellings with the creation of new access onto College Road, landscape, drainage, car parking and associated works; and outline planning application for up to 650 dwellings, community and nursery facility (use class D1 and D2), retail unit (use class a1), public open space, landscaping, diversion of public right of way and associated works and infrastructure".

- 3.3.3 The Site redline boundary is shown on Figure 1.2. The planning application boundary for the Site, covers a total of 26.6 ha.
- 3.3.4 The illustrative masterplan for the Proposed Development, including both phase 1 and the remaining of the Site is shown in Figure 3.5. The layout plan for Phase 1 is shown on Figure 3.6. The land use plan showing the locations of the development plots within the red line planning application boundary are shown on Figure 3.1.
- 3.3.5 The schedule of development is provided in Table 3.1 below.



Table 3.1 Land Use Areas Schedule

Development Type	Hectares
Residential	16.87
Public Open Space (Green Space, Play Areas, SAM)	7.1
Access and Infrastructure (allotments, SuDs, Retail, community building)	1.11
Total	25.08

- 3.3.6 The land use areas schedule and Figure 3.1 provides the indicative and fixed areas and zoned locations per development type for which permission is sought. Phase 1 of the Proposed Development is coming forward in full detail therefore the layout and detail for this area is fixed. The remainder of the Site is being applied for in outline, therefore this area is subject to a number of parameters. This therefore allows some flexibility in the actual finished area of residential development in this zone within the maximum total red line planning application area parameter as shown on Figure 3.1. The maximum density parameters are shown on Figure 3.2.

Residential Uses

- 3.3.7 The development will provide up to 780 residential dwellings of which the development will be split into a number of phases across the Site. The housing will be a mix of open market housing, affordable housing (shared ownership) and affordable housing (rented). Phase one (full detail) will consist of 130 residential dwellings, with the remainder of the residential properties coming forward in outline up to a maximum of 650. The tenure split for phase 1 is as follows:

Table 3.2 Phase 1 Tenure Split

Housing Tenure Type	Number	Storeys	Bedrooms
Open Market	91	2 / 2.5 / 3	2-4
Affordable – Shared Ownership	12	2	1-4
Affordable - Rented	27	2	1-4
Total	130	-	-

Density Parameters

- 3.3.8 The densities of residential development vary across each phase plot across the Site.

- 3.3.9 The indicative densities are illustrated on the Density Parameters Plan (Figure 3.2) and are set out in the table below. The Proposed Phasing Plan is shown on Figure 3.4.

Table 3.3 Density Schedule

Areas	Size m ²	Size (Ha)	Net size (ha)	Ave density (dph)	Units	Net Density (dph)
Phase 1	50485m ²	5.04ha	3.06ha	25	130	42.4
Phase 2	42207m ²	4.2ha	3.6ha	42.8	180	50
Phase 3	61510m ²	6.1ha	2.7ha	21.6	132	48.8
Phase 4	108412m ²	10.8ha	7.4ha	30.9	334	45.1
Phase 5	1100m ²	0.11ha	-	-	Retail unit	-
Overall	-	26.25	16.87ha	-	776	-

Description of other development on the site

- 3.3.10 A community and a nursery facility (use class D1 and D2), retail unit (use Class A1) will be provided as part of the outlined planning application. As per Land Use Parameter Plan illustrated in Figure 3.2, these are located adjacent to the main access point and College Road on the western part of the Site.

Transport Context and Site Access

- 3.3.11 The Site is well located with regards to the local road network and public facilities/services.
- 3.3.12 The Access and Movement Plan is illustrated in Figure 3.3.
- 3.3.13 The Site access will be provided via a new signalised junction in the north western corner of the Site. This was designed to accommodate up to 1,000 dwellings and allows sufficient visibility splays along College Road and inter visibility into the Site.
- 3.3.14 A secondary, emergency, access to the Site is provided further south of the primary access point.
- 3.3.15 A pedestrian phase will be provided to ensure a continuous and safe route is maintained along the eastern edge of College Road.
- 3.3.16 The Site would provide a shared cycle and pedestrian link around the perimeter of the Site. In addition, a shared pedestrian and cycle link would run east / west linking the footbridge over the A3 to a proposed pedestrian crossing point across College Road to the west. A shared pedestrian / cycle link would also be provided north / south through the development, linking to the bridleway and right of way access at the north.



Existing Utilities

- Drainage*
- 3.3.17 A review of the existing topographic information and sewer records has been carried out to assess the existing surface water drainage regime of the Site. Based on available information and the fact that this is a greenfield Site without existing infrastructure, it is assumed that the existing surface water run-off from field drains via overland flow to the existing ditches and ordinary watercourses along the southern boundary of the Site, following the natural valleys and low points within the Site.
- 3.3.18 Southern Water asset plans indicate the presence of an existing 375mm diameter foul sewer which traverses the northern part of the Site and then runs under the A3(M) motorway eastwards.
- Electric*
- 3.3.19 There are existing Low Voltage (LV) cables along the eastern side of College Road which cross over to the western side in the vicinity of the proposed new roundabout access. There are existing High Voltage (HV) overhead lines which cross the north eastern corner of the Site which will need to be diverted.
- Communications*
- 3.3.20 SSE plans indicate the presence of fibre optic ductwork and chambers along the eastern side of College Road, along the full western boundary of the Site.
- Gas*
- 3.3.21 Southern Gas Networks (SGN) are the Distribution Network Operators in this area and a review of their asset plans indicate that there is an existing High-Pressure gas main running through the western part of the Site.

Character Areas

- 3.3.22 The Site is located on the north side of Portsdown Hill and is broadly reflective of this description and displays many of the key characteristics, including irregular fields bounded by mixed-species hedgerows and woodland.
- 3.3.23 The south-eastern corner of the Site falls within National Character Area 126 South Coast Plain, which is described as a flat, coastal landscape with an intricately indented shoreline lying between the dip slope of the South Downs and South Hampshire Lowlands and the waters of the English Channel, Solent and part of Southampton Water.

Landscape Elements

- 3.3.24 The layout of the Proposed Development responds to the existing topography and green infrastructure to minimise the loss of habitats and important landscape features which contribute to the character of the Site and its setting. The Site contains limited internal vegetation and most of this is of limited quality and will be removed but important trees will be retained and incorporated into open space.
- 3.3.25 Open space areas and tree lined streets are integrated throughout the development. The schedule of open space provision is outlined in Table 3.4 below.

Table 3.4 Green Spaces Provision Schedule

Green Spaces Provision	Policy requirement for 780 dwellings in ha	Provided (Ha)
Amenity Greenspace	1.048	
Parks and gardens	1.4	
Natural / Semi-natural greenspace	3.14	4.68
Provision for children and young people	0.44	0.21
Open Space provision within the Scheduled Monument Area	-	2.21
Allotments and community gardens	0.35	0.58
Overall Provision	6.33	7.68

Sustainability in Location and Design

- 3.3.26 The Proposed Site provides the following opportunities for a residential development:
- Good access to motorway, bus stops, rights of way and cycle links
 - Well located to the urban area in terms of schools, supermarkets and services within Waterlooville. The scheme proposes a retail unit and community building
 - The efficient layout ensures best and most efficient use of land when taking into account the urban fringe location
 - The construction methods and materials proposed ensure the dwellings are highly efficient in terms of energy consumption aiming to be a significant reduction on the energy performance of the Building Regulations.
- 3.3.27 Additional opportunities and limitations outlined by the Havant Borough Council in the Pre-submission Local Plan are listed in Chapter 4, section 4.1.

3.4 Mitigation within the Submitted Design

Highways

- 3.4.1 The Proposed Development includes a small percentage of land uses that generally generate a high number of trips, such as public open space. By providing these on-site, the need for residents to travel off-site (and therefore onto the existing highway) is reduced. This also provides facilities for existing residents, who will also benefit from improved pedestrian/cycle access to the Site



- 3.4.2 As the Proposed Development is anticipated to generate a significant volume of pedestrian movements, the existing pedestrian infrastructure has been assessed. The Proposed Development would implement a new crossing point supported by dropped kerbs and tactile paving, as well as bus provision such as high-quality bus shelters as part of the S278 measures package. The new facility would be located approximately 220m south of the vehicular Site access, therefore reducing the walking distances between the southern section of the site and the amenities located in Crookhorn Village.
- 3.4.3 Whilst the operation of College Road will be affected through the addition of the development and its associated traffic, the impact of the development will be mitigated against by providing a new signalised junction. The design of the access arrangements to the Site itself have taken into consideration delay to motorists using the existing roads, by modelling the proposed arrangements in junction capacity software.
- 3.4.4 Given the traffic volumes associated with the Proposed Development, a number of junction improvement designs have been identified and suggested to HBC, HCC and PCC where appropriate to improve capacity, operation and safety.
- 3.4.5 The College Road/Purbrook Way junction will be improved and become signalised as part of the Berewood (West of Waterloo) development, however further mitigation works are required as part of this scheme. The additional works would likely involve the addition of a second lane on the College Road approach arm for approximately 50m. The addition of this arm would make the capacity on College Road significantly better and enable two lanes to travel eastbound onto the dual carriageway.
- 3.4.6 The Stakes Hill Road roundabout is also to become signalised as part of the Berewood/West of Waterloo development. As the roundabout is to still operate over capacity further improvements have been explored and includes expansion of the scheme and revising the timing of the cycle length from 90 seconds to 120 seconds.
- 3.4.7 The A3(M) roundabouts operate over capacity in the baseline scenarios and therefore mitigation measures have been explored to improve the capacity. These improvements are summarised below;

Junction 1: A3(M) Off-slip

- Increasing the entry width of A3(M) off-slip from 7.7m to 8.83m;
- Increasing the effective flare length of A3(M) off-slip from 8m to 24m;
- Reducing the entry width from 34m to 30m;
- Increasing the entry width of Purbrook Way (EB) from 6.3m to 8m; and
- Increasing the effective flare length of Purbrook Way (EB) from 2.5m to 19m;

Junction 2: A3(M) On-slip

- Increasing the entry width of Purbrook Way (westbound) from 7m to 8.83m;
- Increasing the effective flare length of Purbrook Way (westbound) from 10m to 13m;
- Increasing the entry width of Purbrook Way (eastbound) from 7m to 8m;
- Increasing the effective flare length of Purbrook Way (eastbound) from 0m to 18m;
- Increasing the entry width of the B&Q access from 3.7m to 5.9m; and
- Increasing the effective flare length of the B&Q access from 2m to 10m.

- 3.4.8 The Crookhorn Lane/Portsdown Hill Road junction to the south of the site is currently provided as a priority junction. Improvement works to increase the capacity and operation of this junction have been explored and include widening the two Crookhorn Lane arms and signalling the junction. Portsmouth City Council (PCC) highway officers also requested the suitability of a roundabout to be implemented however, this option has been dismissed (as discussed in more detail in the TA).

Landscape

Construction

- 3.4.9 During the construction period there will be few effective measures to mitigate the effects on landscape and visual amenity. Site hoardings could be used for safety and to screen views into the construction site, but they would only truncate existing views and there would still be a notable change. The phased construction period would minimise the scale of ongoing construction activities and this would reduce the magnitude of change in landscape character to some extent.

Operational

- 3.4.10 The layout of the Proposed Development responds to the existing topography and green infrastructure to minimise the loss of habitats and important landscape features which contribute to the character of the Site and its setting. The Site contains limited internal vegetation and most of this is of limited quality and will be removed but important trees will be retained and incorporated into open space to aid the development in assimilating into the wider landscape.
- 3.4.11 The sensitive western edge of the Site adjacent to College Road has been considered in the proposed layout. The line of development has been set back from the road to create a wide landscaped buffer which mirrors the arrangement on the west side of College Road. Proposed planting within the buffer will be clumps of native vegetation with some gaps, allowing screening of the housing from the road and occasional glimpses into the Site.
- 3.4.12 The north and eastern boundaries have also been considered by the proposed layout, allowing space for buffer planting on the edges to screen built forms in the Site from users of the PRoW and thus maintain a positive experience.
- 3.4.13 Open space areas and tree lined streets are integrated throughout the development. This, together with the topography, will reduce the scale of the development when viewed from the south or southeast. Attention has been given to the southern edge of the development area where a large area of open space will be provided, transitioning into the woodland belt.

Archaeology and Cultural Heritage

- 3.4.14 Design mitigation within the Proposed Development includes the alignment of the road to the south of the Littlewood Park Roman Villa and of the Roman Road, thereby ensuring its potential archaeological resource, its route and alignment is mitigated within the design of the scheme. Further design mitigation includes the retention of green space to the east of the scheduled monument, thus ensuring the potential for disturbance to potential additional archaeology is minimised.

Ecology

- 3.4.15 The SINC to the north of the Site will be protected through the implementation of a buffer of 15m minimum during construction.



- 3.4.16 Mature trees and boundary vegetation have been retained within the development proposals and will be protected during construction through the implementation of a buffer of 5m minimum during construction (or larger as informed by root protection zones). Boundary hedgerows (which total 2,400m) will also be reinforced with new native species planting to fill in existing gaps and increase species diversity and structure.
- 3.4.17 A sustainable drainage system will be incorporated to treat all surface water prior to discharge into an existing ditch which lies south of the Site. This will avoid any adverse effects on off-site watercourses or designated sites.
- 3.4.18 A sensitive operational lighting strategy will be incorporated to avoid disturbance of nocturnal species. This will avoid light spill of above 1 lux upon site boundaries.
- 3.4.19 A Construction Environmental Management Plan (CEMP) will be prepared covering the construction phase of the development.
- 3.4.20 A total of 78 Bird or bat boxes will be installed on site with a mix which provides for a range of species, including swift boxes.
- 3.4.21 The proposals include the provision of a Wader and Brent Goose Refuge. This will provide suitable high-tide foraging habitat for brent geese and curlew in perpetuity.
- 3.4.22 The development will include a payment per-dwelling in line with the Solent Recreation Mitigation Strategy charging schedule.

Flood Risk and Drainage

Surface Water Drainage

- 3.4.23 The surface water drainage strategy will be developed in accordance with the requirements of the NPPF and will be designed to be able to accommodate all storm events up to and including the 1 in 100-year event plus climate change within the Site. Surface water runoff will be conveyed via a 'traditional' surface water drainage system incorporating gullies and surface water sewers and will discharge at restricted rates to the respective outfalls located along the southern boundary. Attenuation will be achieved through the use of SuDS attenuation basins, swales and cellular crate storage tanks.

Foul Drainage

- 3.4.24 Southern Water Services Ltd are the local sewerage provider in this area and as such the development Site will seek to connect to the existing public sewer network. Where flows cannot be conveyed to the network by gravity, a foul water pumping station will be required. Where reinforcements are required to the local and wider foul water networks to accommodate the site, these would be funded by Southern Water downstream of the point of connection, through the New Infrastructure charge.

Noise

Construction

- 3.4.25 It is assumed that best practicable means would be followed by the contractor/s such as those detailed below.
- 3.4.26 Accepted safeguards exist to minimise the effects of construction noise, these include:

- The various EC Directives and UK Statutory Instruments that limit noise emissions from a variety of construction plant;
 - Guidance set out in BS5228-1 which covers noise control on construction sites; and,
 - The powers that exist for local authorities under Sections 60 and 61 of the Control of Pollution Act 1974 to control noise from construction application sites.
- 3.4.27 The adoption of Best Practicable Means, as defined in Section 72 of the Control of Pollution Act 1974 is usually the most effective means of controlling noise from construction sites. Such measures where appropriate may include the following:
- 3.4.28 Any compressors brought on to the Site to be silenced or sound reduced models fitted with acoustic enclosures;
- All pneumatic tools to be fitted with silencers or mufflers;
 - Care to be taken when erecting or striking scaffolds to avoid impact noise from banging steel. All operatives undertaking such activities to be instructed on the importance of handling the scaffolds to reduce noise to a minimum;
 - The majority of deliveries to be programmed to arrive during normal working hours only. Care to be taken when unloading vehicles to minimise noise. Delivery vehicles to be routed so as to minimise disturbance to local residents. Delivery vehicles to be prohibited from waiting within or in the vicinity of the Site with their engines running;
 - All plant items to be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise;
 - All plant to be sited so that the noise impact at nearby noise sensitive properties is minimised;
 - Local hoarding, screens or barriers to be erected as necessary to shield particularly noisy activities; and,
 - Problems concerning noise from construction works can often be avoided by taking a considerate and neighbourly approach to relations with the local residents. Works should only take place during given periods, e.g. during normal construction hours and not at night.
- 3.4.29 It is recommended that the above measures be included in any Construction Environmental Management Plan (CEMP) that may be issued to and agreed with the contractor(s) conducting the works.
- 3.4.30 Experience from other sites has shown that by implementing the above measures, typical noise levels from construction works can be reduced by approximately 5dB to 10dB.

Socio-Economic and Human Health

- 3.4.31 As part of the socio-economic design mitigation, the development is expected to deliver the following:
- Up to 780 residential dwellings, of which 30% are proposed to be affordable;
 - Community and nursery facilities (use class D1 and D2);
 - Retail unit (use class A1); and,
 - Formal and informal play areas.



Figure 3.1 – Land Use Plan

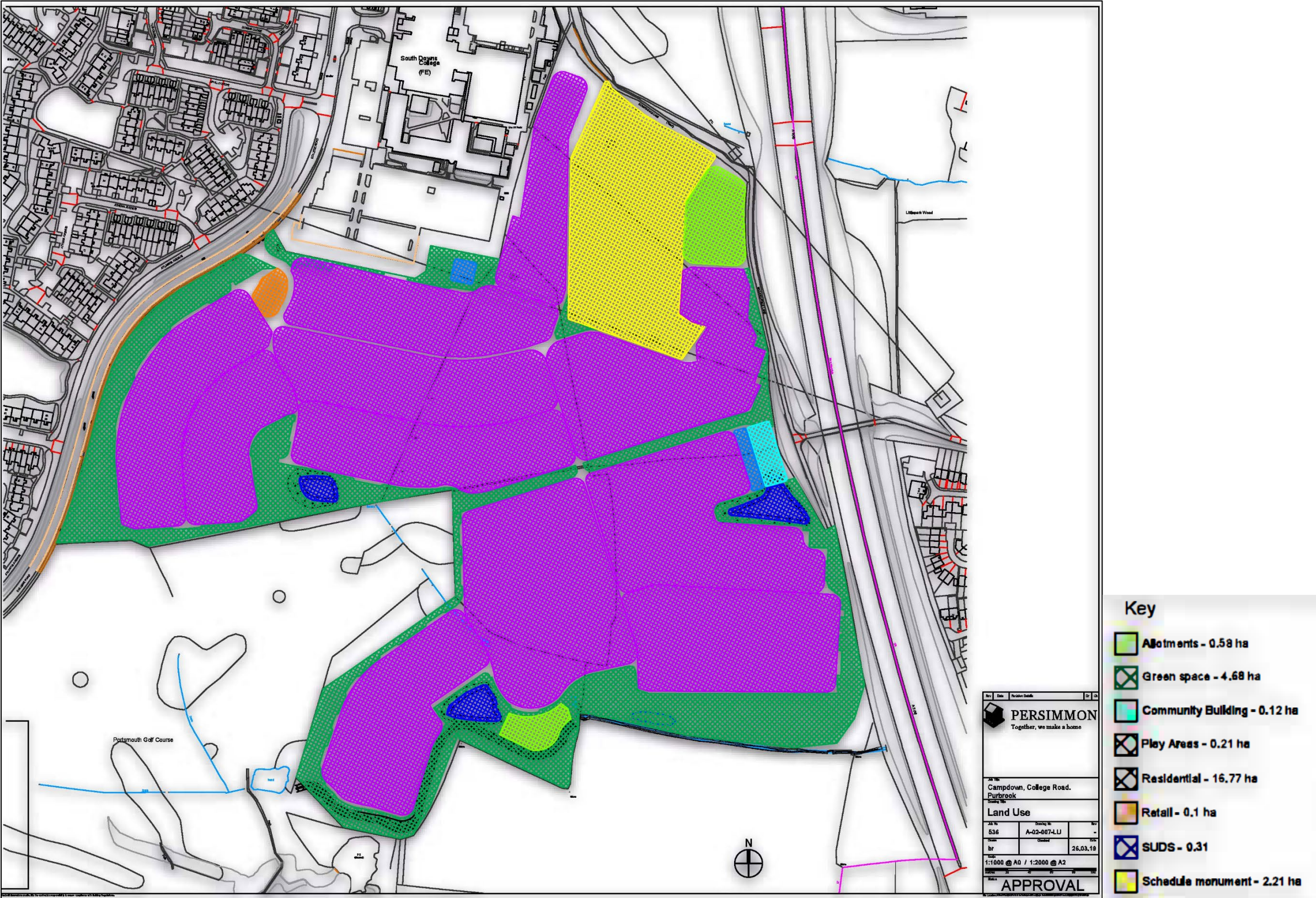




Figure 3.2 - Proposed Densities Parameter Plan

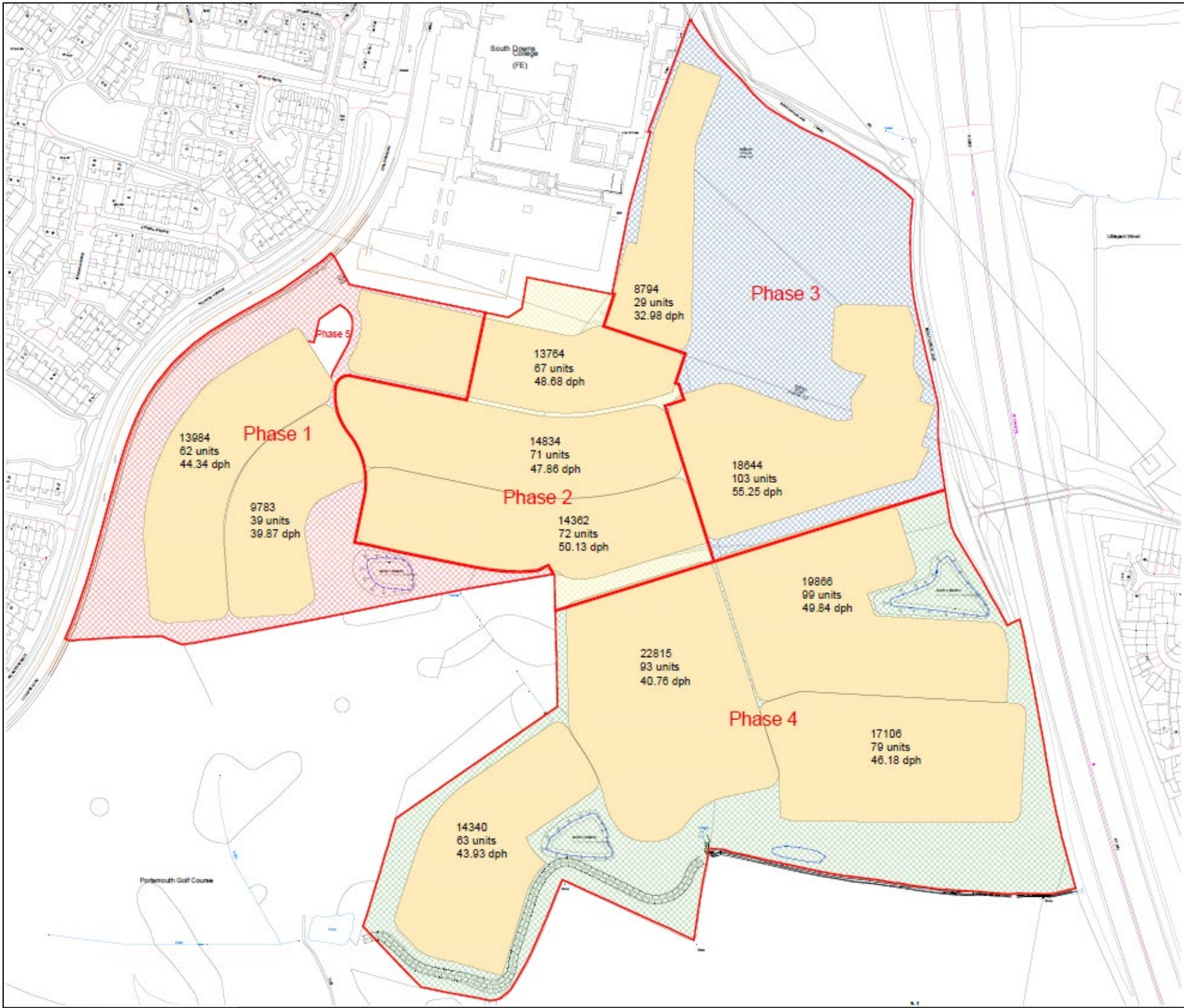




Figure 3.3 – Access Parameter Plan

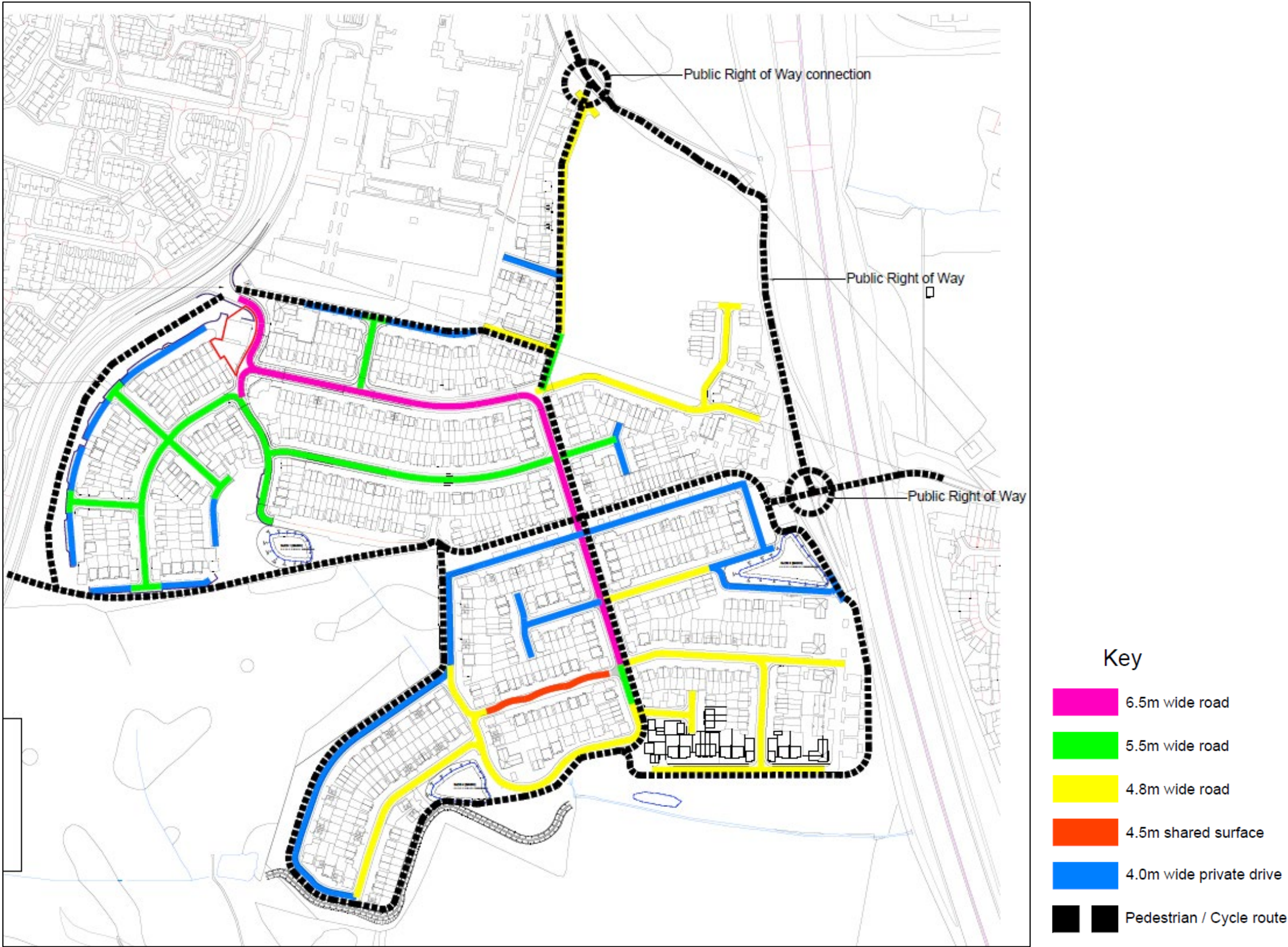




Figure 3.4 – Proposed Phasing Plan

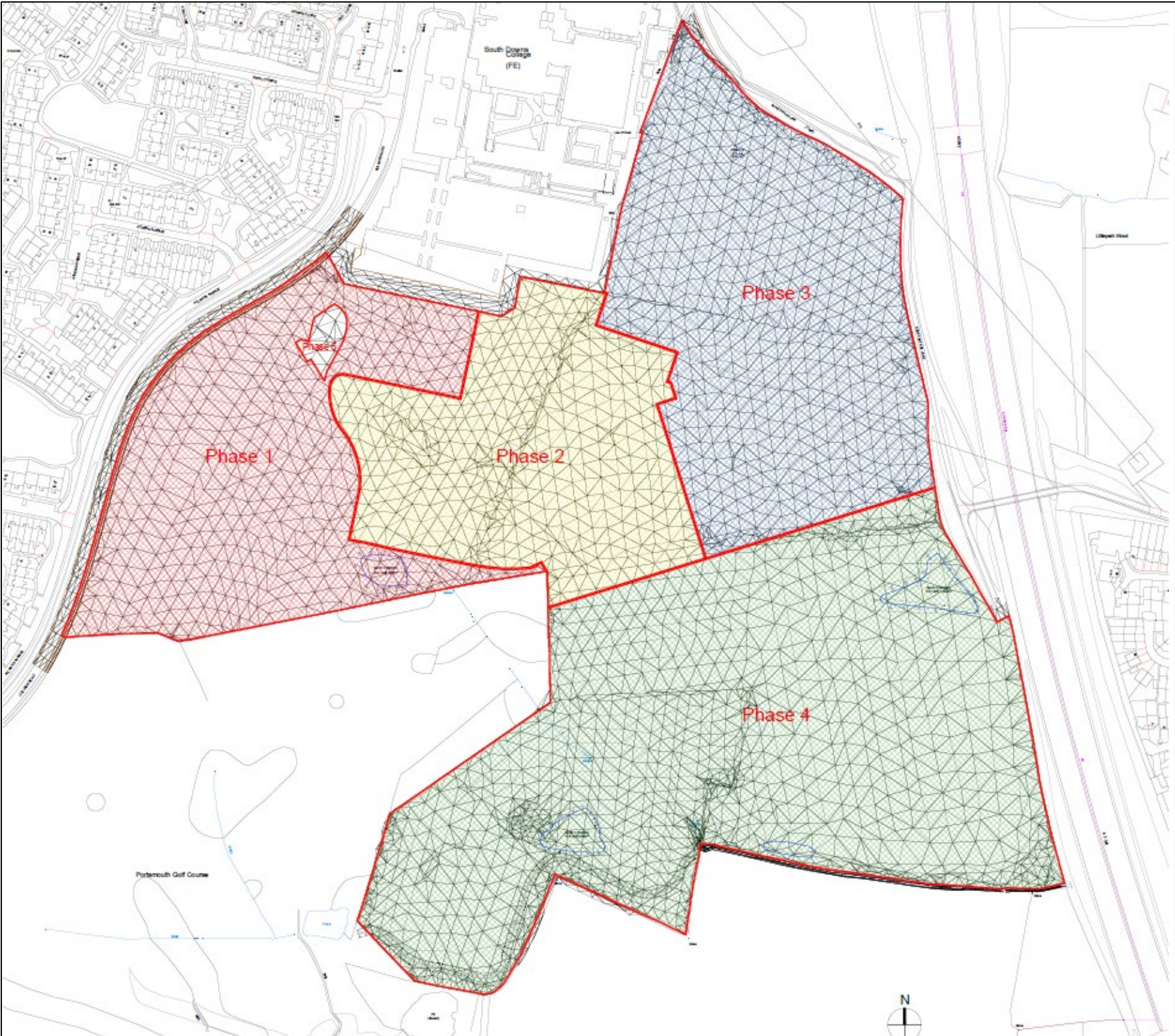




Figure 3.5 – Illustrative Masterplan





Figure 3.6 Phase 1 Layout Plan



3.5 Construction Proposals

Construction

3.5.1 Construction of the Proposed Development will involve the following stages:

- Enabling works (earthworks);
- Landscape and ground profiling;
- Installation of drainage;
- Construction of foundations;
- Construction of dwellings and non-residential development;
- Installation of services and commissioning;
- Construction of on-site highways; and,
- Construction of off-site highway improvements.

Phasing/ Timetable of Events and Indicative Programme

3.5.2 Construction activity is proposed to be undertaken over a period of approximately 9 years, subject to granting of planning permission. The indicative phasing is set out in Table 3.5 below.

Table 3.5 Construction Phasing

Phase	Dev type	Area (Ha)
1	Residential	3.05ha
	Public Open Space	1.99ha
	Overall 1	5.04ha
2	Residential	3.6ha
	Public Open Space	0.6ha
	Overall 2	4.2ha
3	Residential	2.74ha
	Public Open Space	2.21ha
	Allotments	0.58ha
	Overall 3	6.1ha
4	Residential	7.4ha

Phase	Dev type	Area (Ha)
	Public Open Space	1.5ha
	Overall 4	10.8ha
5	Retail	0.11ha
	Overall 5	0.11ha

3.5.3 No main contractor has yet been appointed and therefore fully detailed construction processes have not been developed at this stage. Where no detail currently exists regarding the construction process assumptions have been made, based on expert judgement and experience on similar projects from within the project team.

3.5.4 The selected main contractor will be required to prepare a detailed construction and procurement programme identifying key tasks and milestones to ensure that enhancement of the project is properly resourced and sequenced in accordance with the overall project duration

3.5.5 The main contractor will be encouraged to use local labour, sub-contractors and suppliers during the construction process; however, specialist work portions may have to be sourced from wherever the appropriate skill base resides.

Construction Activities

3.5.1 A number of assumptions have been made in terms of the construction processes and activities to be undertaken as part of the Proposed Development. The methods of construction are assumed to be typical masonry and timber framed buildings and it is assumed that there will be no onsite sandblasting or mobile crushing equipment.

3.5.2 Based on the ground investigations carried out to date, the foundation solution is assumed to be a mixture of shallow and deepened strip footings.

3.5.3 In order to assess the worst-case scenario as part of the ES, assumptions have been made in terms of the procedure for construction which can be broken down into the following phases:

Table 3.6 Typical Plant List

Phase Description	Activity
Groundworks and Site Establishment	Wheeled Mobile Crane
	Delivery Wagons
	Generator
	Tracked Excavators
	Hand Tools



Phase Description	Activity
	Dump Trucks
	Dozer (Towing Roller)
Construction of Proposed Development (including all ancillary works)	Dump Trucks
	Tracked Excavators
	Concrete mixer truck and pump
	Delivery Wagons
	Small cement mixer
	Wheeled mobile telescopic crane
	Lifting platform
	Telescopic handler
	Compressor for power tools
	Generator for Lighting
	Hand Tools
	Circular saw
	Road Planer
	Tipper lorry
	Asphalt paver
	Vibratory roller and plate

Predicted traffic movements during construction

3.5.4 The main deliveries and Site traffic will be related to the following:

- Daily site staff and labour;
- Movements arising from the groundworks and any demolition;
- Aggregate and concrete deliveries for early activities;
- Deliveries of building components and services equipment;

- Periodic inspections, visitors and inspectors; and,
- Disposal of waste material.

3.5.5 The applicant has calculated the likely number of construction traffic movements per day. It is estimated there would be an average of 80 two-way HGV movements per day visiting the Site during peak periods in the construction programme. In addition, it is estimated that between 50-70 construction workers vehicles would travel to the site per day however these would be outside of the AM and PM peak period.

3.5.6 The construction of the access junctions would be phased in the same way as the Proposed Development, with only the access junctions required for Phase 1 constructed during Phase 1, until the final access junction is built in accordance with the phasing plan and access plans. The principle points of access to the Site during construction would be from the same points of access proposed to serve the Proposed Development.

3.5.7 The main contractor will be required to develop a Travel Plan to ensure that staff travel to and from the Site does not result in adverse traffic impacts during the construction phases of development.

3.5.8 It is proposed that the construction traffic will be managed to minimise peak hour congestion where possible and a clear road signage strategy will be provided to minimise the impact on the existing surrounding community.

3.5.9 Further details regarding construction traffic are contained in Chapter 5 of this ES.

Construction Traffic

3.5.10 The proximity of the Site to the Strategic Road Network (SRN) is such that HGV movements associated with the Construction phase of the Proposed Development will not be required to travel through residential areas. A strategy will be devised to promote that all construction traffic follows the prescribed route from the A3(M) Junction 4, along Purbrook Way and southbound along College Road to the Site. The phasing plan is such that construction vehicles will only ever enter the Site through the one point of vehicular access onto College Road.

3.5.11 Construction traffic will be managed to minimise impact upon the network AM and PM traffic peaks, and deliveries staggered so as to avoid obstruction of the public highway. These details will form part of a Construction Traffic Management Plan (CTMP) which is to be conditioned should the scheme be given approval.

Working practices

3.5.12 Prior to the commencement of construction, an adequately developed principal contractor's 'Construction Phase Plan' will be prepared including:

- Pre-construction Health and Safety Information as required by the CDM Regulations 2015; of the proposals. This is a requirement of the EIA Regulations which in Schedule 4, Paragraph 4 require a description of the aspects of the environment likely to be significantly affected by the development (HMSO, 2017);
- Pre-construction Site Waste Management Plan and Site Waste Management Plan (SWMP); and,
- Construction Environmental Management Plan (CEMP).

3.5.13 In addition, the following document will be prepared/revised as necessary by the CDM Co-ordinator:

Construction Phase CDM Health and Safety Plan as required by the CDM Regulations 2015.

- 3.5.14 The construction works will be monitored by the Principal Contractor, who will liaise with the various environmental specialists and other advisers who will have input into the project and be present throughout the construction works, wherever required.
- 3.5.15 The base environmental effects assessment reported within this ES assumes the project will be constructed in accordance with industry standard techniques and mandatory minimum standards and assumes suitably experienced contractors will be appointed to design, construct and commission the development. A non-exhaustive list of key standard working techniques/practices taken into account in the base assessment is provided in the following sub-sections.

Construction works times

- 3.5.16 Construction activities on the Site will normally be carried out between 07.00 hours to 18.00 hours Monday to Friday and 08.00 hours to 13.00 hours on Saturdays, with no such activities on a Sunday or a Public or Bank Holiday. Any works required to take place outside of these periods will be agreed in advance with HBC.

Construction Materials

- 3.5.17 No materials will be used in the Proposed Development that by their nature or application or use contravene any British Standard or Code of Practice, or which contravenes the recommendations of Good Practice in the Selection of Construction Materials (Ove Arup and Partners, 1997).

Construction Water Supply and Use

- 3.5.18 Water usage during construction will be used for the purposes listed below and will utilise where possible, local grid connections. If this is not possible, water will be supplied by bowser.
- 3.5.19 Water is expected to be used during construction in the following activities:
- Dust suppression;
 - Cleaning of ready-mix concrete wagons;
 - High pressure cleaning (of machinery and constructed surfaces);
 - Wheel wash (expected to be required – additional mitigation to control deposition of mud on local roads);
 - Water use in welfare facilities; and,
 - Commissioning / testing of operational water supply structures and services.

Construction compound

- 3.5.20 A contractor working area will be made available, and the location will be clearly delineated on the Site and agreed with HBC to ensure that no unnecessary disturbance is caused to any sensitive areas. The erection of site hoardings, vehicular plant activity and subsequent vehicle movements would be evident during construction although minimised in comparison to the size of the site.

Safe Storage of Fuel/Oil

- 3.5.21 Particular attention will be given to the storage and use of fuels for the plant on Site. Drainage within the temporary, secure, Site compound, where construction vehicles will park and where any diesel fuel will be stored, will be directed to an oil interceptor to prevent pollution if any spillage occurs. Diesel storage and refuelling will be within a designated area or self-bunded tank in accordance with good practice.

Construction Drainage

- 3.5.22 Any potential pollution events will be managed by the principal contractor through the adoption of a Construction Environmental Management Plan, which will outline ways of reducing potential effects on drainage. This may include monitoring of identified watercourses and installation of containment features, including; bunds, ditches, booms and lagoons.

Soils, Agricultural Land and Minerals

- 3.5.23 While direct mitigation compensation for the loss of agricultural land is not practicable within the development area it is proposed to preserve the integrity of this top soil by undertaking the following additional measures. Following the removal of vegetation, the existing topsoil resources will be stripped and stored in stockpiles no more than 3m high, for future use in landscape areas, or sold for suitable reuse off Site. In order to help preserve the integrity of the top soil this operation will be done in accordance with The Construction Code of Practice for the Sustainable use of Soils on Construction Sites, which will include the production of a soil resource plan.

Construction Waste

- 3.5.24 The Proposed Development will actively seek to reduce the amount of waste sent to landfill during the construction phase through sustainable design and procurement together with the reuse or recycling of materials, wherever possible.
- 3.5.25 Waste will be managed in accordance with the Waste Hierarchy, and as such waste minimisation will be given the highest priority. The reuse and recovery of waste will be encouraged by proactively identifying opportunities for the on-site reuse of materials (for example in landscape contouring), and by appointing a waste contractor who can demonstrate high levels of recycling. Energy recovery will be the preferred option for managing residual waste from construction works and only residual waste which has no potential for energy recovery will be sent for landfill disposal. All reasonable measures will be taken to ensure that levels of residual waste sent to landfill are kept to a minimum.
- 3.5.26 It is an ambition to use resources which have been sourced locally, where these are available, and also to use sustainable means of transport (such as rail), where possible. Construction materials will be procured which have a high proportion of recycled material, where this is practicable and does not adversely affect the integrity and durability of the materials.
- 3.5.27 Modern methods of design and construction using prefabricated units will help keep waste arisings to a minimum. The frames and envelopes will be prefabricated with formwork remaining on site. All construction waste produced during the site preparation works that cannot be re-used on site will be segregated and recycled. Efficient building forms and services will be used that will minimise the volumes and numbers of on-site manufactured components required to reduce the potential for waste generation. Scaffolding, hoarding and shuttering will be disassembled and used on other phases of the project and then removed from site for use on subsequent construction projects.



- 3.5.28 Construction sites will be laid out to ensure that there is sufficient space for waste from the construction phase to be segregated into separate containers and stored prior to removal and off-site management. However, the regular removal of waste and recycling will minimise the amount of external space required for waste storage both in the construction and operational phases of the developments.
- 3.5.29 Under the Duty of Care Regulations producers of waste have a legal obligation to ensure wastes are handled responsibly and in line with relevant legislation and guidance. The strict management of waste during the construction phase of each development by site operatives Training sessions for relevant construction staff.

Construction Noise and Vibration

- 3.5.30 The main contractor will refer to the guidance provided within BS5228:2009+A1:2014 in order to minimise disruption during construction. Additionally, the principal form of noise control will comprise site working hours according to any conditions within the planning consent and avoiding unsocial working hours where possible. If there is the requirement to undertake 'noisy' work outside of the agreed hours, further consultation would be undertaken with HBC to obtain prior agreement that the proposed works would be acceptable.
- 3.5.31 The Local Authority is provided with powers under the Control of Pollution Act 1974 to control noise and vibration from construction sites including, if necessary, serving notices under the Section 60 to specify working practices.
- 3.5.32 Further details regarding the likely noise and vibration effects of the Proposed Development are contained within Chapter 6 of this ES. This includes examples of noise control measures during the construction phase that should, as a minimum, form part of the CEMP.

Construction Air Quality and Dust

- 3.5.33 Particular care will be taken regarding dust emissions so that they are kept to a practicable minimum, especially when working in the vicinity of residential or commercial properties in the vicinity of the Site. Suppression and mitigation will be required during dry conditions with the following dust reduction measures being employed:
- Sheeting of vehicles transporting materials to and from Site;
 - Limiting the speed of general vehicles within the Site;
 - Temporary surfacing to haul roads where possible within the programme;
 - Haul roads to be regularly cleaned;
 - Provision of wheel washing facilities at access points onto local roads; and,
 - Drop heights minimised and all skips enclosed where possible.
- 3.5.34 No materials arising from the demolition of existing structures on-site, the construction of the road or any material from incidental works will be burnt on the Site.
- 3.5.35 The main contractor will comply with the BRE Code of Practice to control dust from construction and demolition activities, unless agreed otherwise with the LPA. The requirements of the code will apply to all work at the Site, access roads and adjacent roads.

- 3.5.36 Further details regarding the likely air quality effects of the Proposed Development are contained within Chapter 7 of this ES. This includes examples of control measures during the construction phase that should, as a minimum, form part of the CEMP.

Construction landscape and visual impact

- 3.5.37 Construction works in the vicinity of retained trees within the Site and on adjacent land shall be carried out in accordance with recommendations in 'BS5837:2012 Trees in relation to design, demolition and construction' and approved Arboricultural Method Statement to safeguard trees and hedges. Landscape planting and topsoiling works within retained tree root protection areas shall be carried out in accordance with 'BS3998:2010 Recommendations for tree work'.
- 3.5.38 All boundaries of the Site will be secured by means of temporary fencing and / or hoarding for safety and security reasons and to reduce the visual impact of the Site during the construction period.
- 3.5.39 Working hours are intended to be standard site working hours as set out previously. There will be a requirement for temporary lighting to be provided to illuminate temporary car parking areas, site roads and the contractor's storage compound; and working areas for the late afternoons during the winter months only. The temporary lighting will be specific to the areas that require illumination during the night-time period to ensure both on site safety and security. All lighting for construction activities will be directed downwards and away from any residential areas to avoid light pollution as well as to reduce the detrimental effects on ecological receptors, any security lighting will be located in agreement with specialist ecological advice.
- 3.5.40 Further details of the landscape and visual impacts during the construction phase of the development are provided in Chapter 8 of this ES.

Construction Ecological Mitigation

- 3.5.41 The measures described below have been 'designed-in' to the development proposals to reduce the ecological impacts of the scheme or are standard construction measures.
- 3.5.42 The SINC to the north of the Site will be protected through the implementation of a buffer of 15m minimum during construction.
- 3.5.43 Mature trees and boundary vegetation have been retained within the development proposals and will be protected during construction through the implementation of a buffer of 5m minimum during construction (or larger as informed by root protection zones). Boundary hedgerows (which total 2,400m) will also be reinforced with new native species planting to fill in existing gaps and increase species diversity and structure.
- 3.5.44 A sustainable drainage system will be incorporated to treat all surface water prior to discharge into an existing ditch which lies south of the Site. This will avoid any adverse effects on off-site watercourses or designated sites.
- 3.5.45 A sensitive operational lighting strategy will be incorporated to avoid disturbance of nocturnal species. This will avoid light spill of above 1 lux upon site boundaries.
- 3.5.46 A Construction Environmental Management Plan (CEMP) will be prepared covering the construction phase of the development to mitigate against potential effects to wildlife.



Archaeology and Cultural Heritage

- 3.5.47 In order to reduce any adverse impacts upon the setting and significance of built heritage assets in the vicinity of the site during the construction phase, standard environmental controls should be put in place to manage temporary factors such as noise and dust, and construction activities should be screened from view, as far as practicable, by suitable boundary treatments to construction areas. A phased approach to construction will also limit the duration of effects within the immediate settings of heritage assets.

Health and Safety

- 3.5.48 All work will be undertaken to relevant Health and Safety legislation. The project will be supervised in accordance with the revised Construction Design and Management Regulations 2015 (CDM). Risk Assessment will be undertaken for each work package prior to activities taking place. A CDM Health and Safety File will be prepared and, after completion of the construction works, will be handed over to the applicant.

Securing Environmental Management - The Environmental Management Plan after Operation

- 3.5.49 The applicant has identified environmental management practices through the iterative EIA process. It is expected that the environmental management practices identified in this ES will be secured via a planning condition should the application be approved. An Environmental Management Plan (EMP) would be prepared from the mitigation information provided within the topic chapters which form the preliminary EMP.
- 3.5.50 The following are expected to apply to ensure that the scheme is implemented throughout construction and operation.

Construction

- 3.5.51 The contract between the applicant and the company contracted to construct the development will specify the measures to be taken to reduce or mitigate the environmental effect of the construction process, to be agreed with the regulators within a CEMP. These measures will consist of three main types:
- Conditions to be adhered to under the planning permission;
 - Any requirements of the Environmental Agency or any other regulatory organisation; and,
 - And other relevant mitigation measures identified in this ES.
- 3.5.52 The CEMP file will be prepared and, after completion of the construction works, handed over to the applicant.

Operation

- 3.5.53 The Site will be managed by Employer's Agent whose duties will include compliance with statutory environmental requirements.
- 3.5.54 Effective communication underpins the whole system of environmental management, ensuring appropriate information passes between the applicant, the contracted developer staff and the consultants and contractors whom they engage. This ensures that environmental considerations are fully integrated into the management of the development throughout construction, and during the operation phase.