

The Princess Alexandra Hospital High-Level Relocation Study

Final Report

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Introduction

01

01 Introduction

1.1 About this study

This report presents the findings of a high level assessment of potential relocation options for Harlow's Princess Alexandra Hospital.

The current hospital is dated in parts and in need of renewal, to ensure that the Princess Alexandra Hospital (PAH) Trust can continue to provide a high level of service to the people of large parts of Essex and Hertfordshire, and to address the concerns of the Care Quality Commission which undertook an inspection in 2015 that found "significant capacity issues".

This study is undertaken in the context of significant population growth. Strategic Housing Market Assessment (SHMA) consultants ORS have estimated that, using the most recent Governmental Sub-National Population Projections (ONS, 2014-based, published May 2016) and the most recent Governmental Household Projections (CLG, 2014-based, published July 2016), between 2011-2033 approximately 54,600 new dwellings will be needed in the Housing Market Area that includes East Herts, Epping Forest, Harlow and Uttlesford District Councils. This figure incorporates 20% uplift for Market Signals, in recognition of the pressures on the housing market in the Housing Market Area.

There are several options for the renewal of PAH. One of these is relocation from the current edge-of-town-centre site to a new site. This is the focus of this report, which makes no comment on the other options.

This study has been prepared to inform the plans of various organisations, but principally:

- The PAH NHS Trust, as it agrees what is the most appropriate strategy for the long-term future of its services; and
- The four local authorities, as they plan strategically for the growth of their areas.

1.2 Project Brief

The overarching project brief is to assess the relative merits of the potential locations for a new hospital. Given the absence of suitable brownfield sites, these locations are greenfield, and have been identified by the local authorities as being either to the north or east of Harlow. Therefore, that is the broad area of search for this study.

In terms of size, our brief is to find a site of 14 hectares, with no specific dimensions to achieve this. This is viewed by the PAH NHS Trust as being large enough to accommodate a Health and Social Care Campus. As this campus could possibly include leisure/fitness activities and housing for older people, the 14 hectares might be treated as a maximum.

The other requirements for the sites are summarised in section 2.2.

1.3 Process

The preparation of this report has involved the following steps:

- Generation of draft assessment criteria;
- Meeting with PAH NHS Trust to agree the criteria and understand more about requirements, as reflected in the criteria assessed below;
- Desk-based assessment, including analysis of GIS datasets collated for the Harlow Strategic Site Assessment report (recently prepared by the same AECOM project team);
- Discussions with local highway and planning authorities;
- Meetings or tele-conferences with the promoters of the large sites to the north and east of Harlow; and
- Compilation of this report.

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Approach

02

02 Approach

2.1 Approach

Each of the possible hospital location sites was subject to individual assessment against a series of criteria, grouped by four themes:

1. Accessibility (existing and potential)
2. Site characteristics
3. Planning
4. Deliverability

Assessments using data derived from GIS mapping with qualitative judgements to support analysis specific to each area has the effect of ‘sieving’ out hospital locations where development would be less desirable in relative terms. The development suitability map derived from the GIS component of analysis is presented later in figure 3.2. Each criterion is discussed in more detail below.

Inputs from land promoters were fed into our assessment, including promoters’ assumptions for development locations and trajectories, and key infrastructure items put forward by promoters.

2.2 PAH Requirements

The PAH NHS Trust’s requirements for a new site were discussed at a meeting with the Director of Clinical Pathways and Partnerships.

The PAH Trust considered that a 14 hectares size for a new hospital site is a reasonable planning assumption at this stage, albeit the Trust is still exploring alternative approaches and ideas for future delivery and what they may look and feel like. The site assumption is based partly on the current facilities (approx. 12.37 hectares) and likely space required for new expanded facilities.

The PAH Trust would be seeking facilities and surrounding grounds that deliver a modern health and social care campus with a different feel to conventional hospitals, as built in the middle of the 20th Century. There is an expectation that there would be a core clinical services area and on-site ancillary functions (like medical education facilities, parking etc.) but set in a high quality environment and in line with best practice examples found elsewhere in the UK¹.

The PAH Trust would ideally like to be located close to complementary facilities that would yield synergistic benefits in place making terms. Co-location with leisure uses, education, research, recreation, affordable housing and older peoples housing would be ideal to help to engender

¹ For example, recent press articles have cited the recent Liverpool University Hospital as a good example of this new approach: *“In place of the current “American suburban” model of a huge building and surrounding parking, it will return to a “European” model of a cluster of buildings with public spaces in between them [...] The centre will feel like a public square”*

Accessed at: https://www.theguardian.com/cities/2016/feb/15/royal-liverpool-university-hospital-redevelopment-city-healthier-wealthier?CMP=share_btn_tw

healthy lifestyles and contribute to tackling the obesogenic environment² (environments that encourage people to eat unhealthily and not do enough exercise). Most important is the setting and feel, it has to be different to traditional hospitals therefore a pleasant outlook and landscaped areas adjacent to buildings would be desirable.

The PAH Trust would also desire not to “over medicalise” the facility, and as such it should integrate into the local landscape and provide its own publicly accessible green infrastructure and open space.

Accident and Emergency and maternity services will require good access to the hospital site, based on its large catchment for the west Essex corridor. In addition, the PAH Trust requires safe flight access and egress for emergency air ambulance. Links with public transport plans will also be required, including, where possible, natural green links from train stations to the new hospital site.

The new hospital should be a 24-hour facility; as such, late night shift workers will require safety and security to be considered which would require good lighting, clear sight lines and other security measures to prevent attacks on staff (primarily nurses at night time). On site staff accommodation is likely to be limited but part of the ambition is that housing association development could be located in close proximity to offer young nurses and doctors residential accommodation. Utilities and back up capabilities including on-site generator would also be required.

The PAH Trust’s key distinct areas for the site will include: (1) Accident and Emergency; (2) Maternity with separate entrance but it can be close to A&E (or not); and (3) Planned elective work.

It is possible that a private provider will also have a facility on site, perhaps freeing up brownfield land for housing development elsewhere.

2.3 Criteria

2.3.1 Accessibility (existing and potential)

The transport and accessibility criterion aims to identify the configuration, capacity and quality of existing transport networks and facilities. It also identifies corridors and nodes presenting opportunities for extension or enhancement based on assumed travel patterns associated with the planned growth.

The criterion covers accessibility (including on foot and by cycle), public transport routes and their potential capacity and constraints, and the location of potential growth sites in terms of their ability to be served by all modes of travel (but with an emphasis on minimising travel by car).

Previous AECOM engagement, as part of the preparation of the Harlow Strategic Sites Assessment, with Essex and Hertfordshire County Councils, Local Authority Planning teams and external Infrastructure service providers (utilities, transport and healthcare), revealed a number of key infrastructure capacity issues in and around Harlow such as:

- M11 Junction 7 congestion;
- Harlow town centre congestion;
- A414 corridor peak time congestion;
- Peak time congestion into London on M11;
- Surplus provision of primary and secondary places today, however expected to be filled in the near future and with some localised capacity issues related to primary schools in Harlow;

² Tackling Obesities: Future Choices – Obesogenic Environments – Evidence Review Government Office for Science (October 2007). Accessed at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/295681/07-735-obesogenic-environments-review.pdf

- Overall deficit in existing GP provision within West Essex CCG, and specifically within Epping Forest District;
- Princess Alexandra Hospital operating at near capacity;
- Poor level of patients per FTE GP provision in Epping Forest District; and
- M11 Junction 8 peak time congestion.

Appendix 2 illustrates current peak period traffic congestion across Harlow/West Essex which is likely to deteriorate as Local Plan growth comes forward, although major infrastructure will seek to reduce this congestion.

Whilst this report does not include a detailed assessment on existing highway traffic conditions, these findings where relevant have informed the conclusions for each assessed area of search:

Emergency response times

Data on potential emergency response times is not available, but commentary is provided. It is imperative that response times from a wide area are minimised so good links to the strategic road network are crucial.

Access by car

Distances to key infrastructure highways has been calculating by measuring the shortest distance using the road network. The two key highways identified are the M11 and the A414. The more accessible the site by a variety of modes, the better.

Access by foot and cycle

Distances have been calculated to NCR Sustrans routes, and public rights of way. The more accessible the site by a variety of modes, the better.

Access by public transport

Distances to the following important public transport nodes have been calculated as measured by the shortest route using the road network: Harlow Bus Station; Harlow Town and Harlow Mill Train Stations. In addition, distances to local bus stops have been calculated as measured on foot. The more accessible the site by a variety of modes, the better.

2.3.2 Site characteristics:

Environment including flooding and contamination

The environmental constraints criterion covered immovable physical features and protective designations. Paragraph 113 of the National Planning Policy Framework (NPPF) states that 'Local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity sites or landscape areas will be judged. Distinctions should be made between the hierarchy of international, national and locally designated sites, so that protection is commensurate with their status and gives appropriate weight to their importance and the contribution that they make to wider ecological networks.'

Environmental analysis has been spread across 4 topics:

Flooding

The extent of the flood risk areas in the study area has been reviewed with respect to whether the identified areas of search intersect with Flood Zones 2, 3a or 3b. Zone 2 is a medium probability, or between 1 in 100 and 1 in 1,000 year annual risk of fluvial flooding. Zone 3a has a high probability of fluvial flooding and Zone 3b is designated as functional floodplain. In line with the NPPF approach, land falling within Flood Zone 3 was considered as unsuitable for development and land falling within flood zone 2 was considered as suitable only where mitigation was considered a realistic option and/or development could not feasibly be redirected to land in Flood Zone 1.

Contamination

Where significant potentially contaminating processes and industry have been identified on-site, a higher risk of contamination has been assigned. Historical landfill GIS data is available on the Environment Agency website and was assessed accordingly. Where historical landfilling is noted to have been present locally, risk has been assigned respectively. Radon has also been investigated as the risks associated with its presence are greater in a hospital development context. Radon is a naturally occurring radioactive gas which originates from minute amounts of uranium that occur naturally in rocks and soils. It is almost always possible to mitigate the impacts of radon at the levels found in England through protective measures such as appropriate ventilation or installation of an active radon sump, and reference has been made to the publication 'Radon - Guidance on protective measures for new buildings' to ascertain the likely requirement for radon protection measures to be installed on new buildings.

Ecological

Statutory designations have been analysed as a primary source of data. Statutory designations include Sites of Special Scientific Interest (SSSIs), National and Local Nature Reserves (NNRs and LNRs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs), National Parks and Areas of Outstanding Natural Beauty (AONBs).

Geo-Environmental

This criterion covers a range of geological and environmental constraints to new development. In most cases, however, geo-environmental constraints are not absolute, and regulatory systems are in place to cover those that emerge. However, these constraints have potential to increase development cost and lead in time. Geo-environmental analysis has focussed on source protection zones and hydrogeological sensitivity.

The Environment Agency have defined Source Protection Zones (SPZs) for 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply in England and Wales. These zones show the risk of contamination from any activities that might cause pollution in the area (the closer the activity, the greater the risk). Mapping from the EA shows these zones. Groundwater source catchments are divided into three zones – inner zone, outer zone, and total catchment.

The hydrogeological sensitivity of the strategic sites was reviewed using the Environment Agency website. Groundwater is contained within underground strata (aquifers) of various types across the country. Groundwater provides a proportion of the base flow for many rivers and watercourses and in England and Wales it constitutes approximately 35% of water used for public supply. It is usually of high quality and often requires little treatment prior to use. However, it is vulnerable to contamination from pollutants, both from direct discharges into groundwater and indirect discharges into and onto land. Aquifer protection classifications have been defined into three categories – principle aquifers, secondary aquifers, and soil leaching classification.

The rest of the topics to fall into site characteristics include:

Utilities

Where major infrastructure including national grid overhead lines and pipelines cross the site, the site has been evaluated to determine if impacts can be mitigated.

Topography

In the brief from the PAH trust there was a strong preference indicated for sites which are not constrained by significant changes in level. Though small changes in level can be mitigated, hospitals are most suited to flat land. The topography of potential hospital siting areas have been recorded and it has been noted where it is not possible to identify a 14 hectare site area without significant level changes.

Tree cover

For each area, analysis was undertaken to identify the significance of established trees in the area. This analysis included the identification of non-statutory designations such as Tree Protection Orders and Ancient Woodland.

Landscape sensitivity/ Views / Heritage

For each strategic site, the sensitivity of the local landscape to employment and residential development was assessed with reference to the relevant local landscape character assessment. Views to and from the site were considered at a high level based on the local authority Landscape Sensitivity documents and other environmental criteria previously gathered.

Heritage factors have also been investigated as they might serve as a potential barrier to development. In a similar way to the approach for environmental designations, and in line with paragraph 126 of the NPPF, the approach seeks to avoid development in areas where it would adversely impact on a designated heritage assets. Designated heritage assets are defined by the NPPF as including scheduled monuments, listed buildings, registered parks and gardens, registered battlefields and conservation areas. Our GIS mapping also considered locally defined assets, where relevant.

2.3.3 Planning:

Green Belt

Existing Green Belt evidence was highlighted with any relevant site specific commentary on the fundamental aims and five purposes of Green Belt insofar as this was relevant to future development. East Herts, Epping Forest and Harlow District Councils each have their own separate Green Belt reviews. All three reports broadly follow the same methodology as informed by the NPPF, relevant written ministerial statements and case law. There are minor methodological differences between the three studies. For example, the size of the assessed parcels differ and thus there is some variance in scoring for Green Belt land that is adjacent and adjudged to perform better or less well against the fundamental aims of Green Belt and five purposes of Green Belt. This study does not include new Green Belt evidence. This report brings together the results from various pieces of evidence produced by the Local Planning Authorities in order to provide qualitative judgements on relative suitability (taking account of factors beyond just Green Belt).

Adjacent land uses

Areas were evaluated with respect to their adjacent land uses and the potential negative or positive impact that they may have on the development of a new hospital. Negative adjacent land uses are associated with practices that produce excessive noise, light or air pollution, including a number of industrial use classes, and specific leisure uses such as large scale sporting events. Positive adjacent land uses include those that contain educational or research functions that could generate positive agglomeration effects next to a hospital site.

2.3.4 Deliverability:

Availability of land

Land has been considered available when it has been put forward in the SHLAA/SLAA or evidence provided by a developer or land owner. This has also been clarified by conversations with the strategic site promoters.

Enabling benefits of particular locations

The analysis notes where development of a hospital in a particular location may support the provision of infrastructure with wider benefits.



Assessment

03

03 Assessment

3.1 The Areas of Search

Four high level areas of search to the north and east of Harlow were chosen based on their strategic advantages including surrounding land uses, and proximity to the town and other transport networks.

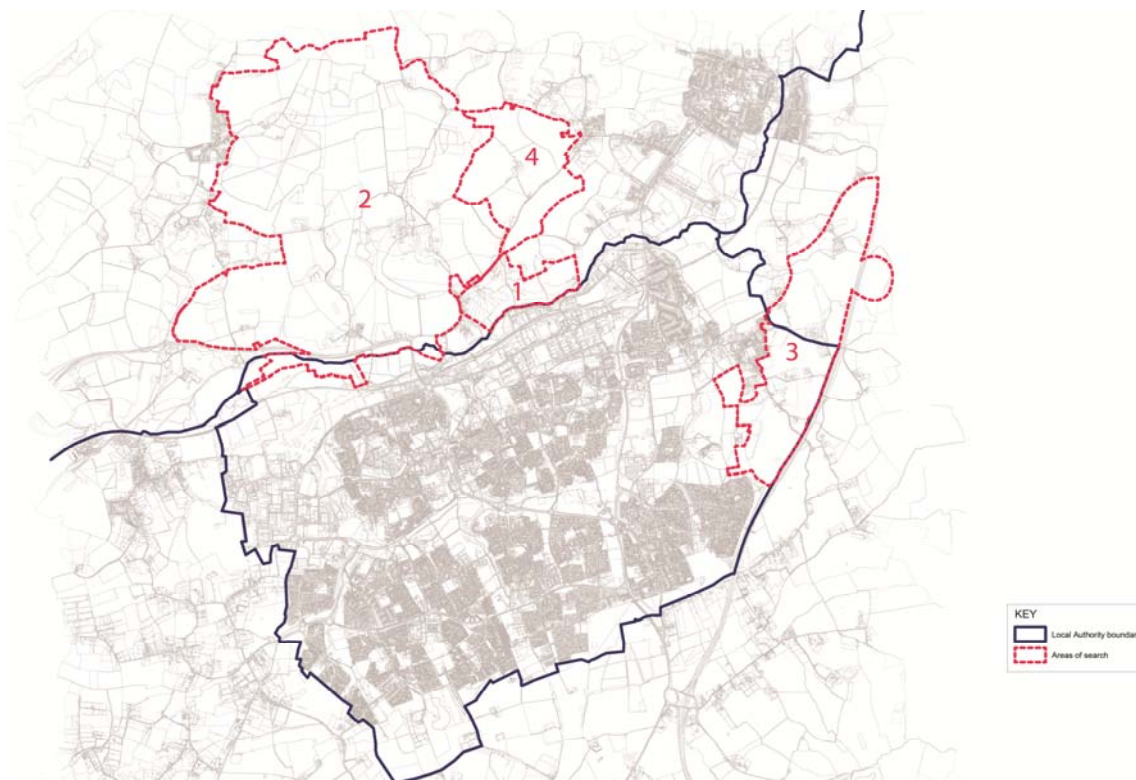
The sites have been grouped into the Search Areas from Harlow Strategic Site Search Assessment (SSA) study

- Area of Search 1 = SSA site G
- Area of Search 2 = SSA sites A, B and E
- Area of Search 3 = SSA site J
- Area of Search 4 = SSA site F

Area of search 3 is slightly different to the SSA boundaries in that it has been extended to include a small area of land to the east of the M11 where the proposed junction 7A is planned to be sited, to explore opportunities offered by proximity to the junction.

The areas are shown in figure 3.1. In common with the SSA study, our analysis of constraints and promoter proposals showed that, largely in landscape terms, the full extent of many of the sites would not expect to be developed.

Figure 3.1 Areas of Search



3.2 Assessment Proformas

AREA 1



Background Information

Site location	North of the Stort and South of Gilston
District	East Herts, with a small portion in Harlow
Number of houses promoted in site	900 dwellings (suggested by promoter)
Accessibility (existing and potential³)	
Emergency response times	High potential to achieve good response times due to proximity (although not immediate adjacency) to A414 and potential second Stort crossing.
Access by car⁴	Less than 1km to A414 More than 5km to M11
Access by foot and cycle	NCR Sustrans - 400m-800m Public right of way - near southeast corner of area along riverside
Access by public transport	Train station - less than 1km from Harlow Town Station Bus station - less than 2km Bus stops at Gilston within area

³ Some significant infrastructure improvements are planned or are being discussed. Assessment refers to EXISTING situation unless specified as potential.

⁴ All measurements are from nearest edge of site

Site characteristics:	
Environment: flooding, contamination	<p>Flooding - Much of the centre, eastern and southern parts of the area are flood zones 2 and 3. There is some possibility for building a hospital on the northwest edge of the site.</p> <p>Contamination - The eastern land is former industrial usage (extraction and landfill industries) so has potential for significant contamination.</p> <p>Ecological - The southwest part of the area intersects with part of an area for interest for nature conservation and borders a local nature reserve. There are two more Sites of Importance for Nature Conservation (SINCs) nearby (within 250m).</p> <p>Geo-environmental - The site has no geoenvironmental restrictions.</p>
Utilities	Nominal impact on development decisions
Topography	Area has moderate slopes towards its central area, with a small hill on the western edge. Notable slope down towards the Stort. Quarries within the site offer further constraints. However constraints from the quarries can generally be mitigated against.
Tree cover	No planning restrictions, though the River Stort is lined with trees which contribute to the landscape character of the area.
Landscape sensitivity/views	<p>Landscape - East Herts Landscape Character Assessment (LCA) characterises the area as having Moderate Character and Moderate Condition. East Herts LCA indicates that development in the area should be resisted if within or adjacent to the floodplain as it is the source of much of the ecological character for the area. The wetland habitats in particular require conservation considerations.</p> <p>Views to and from the area are generally restricted by vegetation and buildings. It is, however, influenced by the urban envelope with noise pollution from the railway, road and planes.</p> <p>The riverside is also classified as a High Biodiversity Area in the East Herts LCA.</p> <p>Land is adjacent to an adopted Green Wedge, and the Southern part of the site sits next to a potential new Green Finger.</p>
Planning:	
Green Belt	<p>Entirely within the Green Belt.</p> <p>In 2015 East Herts Green Belt Review, the site is rated as having "Very Low" suitability for development, and that "Land is Fundamental to the Green Belt" (Site ref. 53).</p> <p>Though the area is rated unsuitable for development in the Green Belt Review, this site would not significantly impact on the openness of the Green Belt.</p> <p>Site contains some low quality industrial land and its development would not significantly be of detriment to the environmental value of the greenbelt.</p>

Adjacent land uses	The River Stort lies to the south of the area, and beyond that, a light industrial and storage use class business estate. The west, north and eastern surrounding land uses are predominantly agricultural, with some sparse residential development. In close proximity to Gilston village.
Deliverability:	
Availability of land	Being promoted by landowner, albeit for housing, so assumed to be available. Site is not in local planning authority's 'preferred spatial option' for emerging Local Plan.
Enabling benefits of particular locations	Could help to make the case for second Stort crossing

Area 1 conclusions

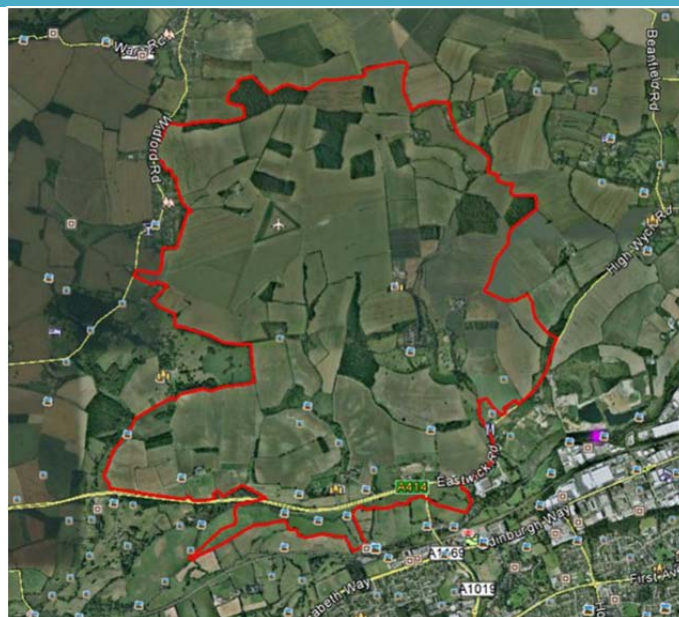
The land to the northwest of the site would be potentially appropriate for siting a new hospital.

It is free from flood risk, relatively flat, and its distance away from the Stort valley decreases its potential landscape impact. It is well connected to the A414, and potential new river crossing.

Potential downsides include the proximity to ecological and landscape designations, and scope for contamination nearby. The effects on Gilston village should also be considered, but can likely be mitigated.

There is enough land free of flood risk and other known constraints for a 14 hectare hospital development, but it is possible that the potential developable area may fall short of the required area if considerations for new transport infrastructure including a new river crossing are taken account of. Whether this is the case or not will require more detailed design work on the potential crossing.

AREA 2



Background Information

Site location	North of A414/West of Gilston
District	East Herts (small segment in Harlow)
Number of houses promoted in site	Approximately 10,000 units (over at least two plan periods)

Accessibility (existing and potential)

Emergency response times	Proximity to A414 gives the southern side of the site a high potential to good emergency response times, the northern part less so.
Access by car	<p>Southern edge of the site is immediately adjacent to A414. Less than 6km from Junction 7 of M11.</p> <p>A new road access created via a Second Stort Crossing would require third party land (namely the land North of the Stort / South of Gilston – Area of search 1). The Highways Authorities have previously indicated that a second Stort crossing would ideally connect the South Eastern area of the Gilston site with the A414 in the vicinity of the Templefields Enterprise Zone. The land not currently in the promoter's control would be required to deliver off site transport works in relation to a second Stort crossing. The third party has previously indicated willingness to make land available for development, as referenced in the SSA study. Existing access from A414 would require upgrades (in addition to the requirement for a new River Stort crossing) as development progresses to facilitate high quality pedestrian, cycle and public transport links with Harlow. The promoter had previously considered a western crossing for the Stort, however this is unlikely to be forthcoming in the next plan period.</p>
Access by foot and cycle	<p>Nearest cycle route more than 0.8km away</p> <p>Less than 0.4km to nearest PROW</p>
Access by public transport	<p>Less than 1km to Harlow Town Rail Station</p> <p>More than 1km to Harlow Mill Rail Station</p> <p>Less than 0.4km to the nearest bus stops</p>

Site

characteristics:

Environment: flooding, contamination

Flooding: Site north of the A414 within Flood Zone 1.
 Site south of the A414 within Flood Zone 2 and 3 (4.7% of the southern end of the site).
 Land south of A414 within area of High to Medium risk of fluvial flooding.
 Land north of A414 within area of Low risk of pluvial flooding.
 Site largely within Groundwater Protection Zone 2 and 3. Land north of the A414 has a low risk of flooding from reservoirs.
 Majority of the site is flood risk free, only along southern and eastern boundaries has the biggest flood risks
 Designations: Site is within 1.5km of Lee Valley Ramsar and SPA site. South-west corner of the site is less than 500m to Hunsdon Mead SSSI, which would need to be taken account of in designs.
 The site has a number of sites of conservation interest in the north, east and south of the site. The site is also adjacent to two Wildlife Sites (61/004 and 61/014)
 Contamination: No contamination on site

Utilities

Overhead line runs through the site from west to north-east.
 SUDS such as swales and holding ponds are proposed to reduce the risk of flooding.

Topography

Constraints exist but potential for mitigation. 40m change in level across site from the North to South end of site, but this is over 3-4km so not a significant incline. The greatest gradients are towards the South-west corner. Moderate slope towards the southeast of the site

Tree cover

Pockets of Deciduous Woodland Priority Habitat exist within the site. Site contains Deciduous Woodland and Ancient Woodland in the north and centre of the site.
 Site is in close proximity to Grassland Priority Habitat.
 Site contains veteran trees but at a sufficiently low density across the site that removal could be largely avoided or any possible impacts could be mitigated.
 Majority of the site though does not have Ancient Woodland covering and as such tree cover should not be a key issue. There are opportunities to enhance existing features.

Landscape sensitivity/views

Landscape: Designated as Medium Sensitivity
 East Herts LCA characterises the area as having Moderate Character and Moderate Condition.
 A small part of the south of the site is within a Special Landscape Area and adopted Green Wedge.
 Development would likely harm existing settlement character, however the area also includes large tracts of unremarkable landscape.
 Heritage: Site contains a number of listed buildings as well as Scheduled Monuments.
 Intersects an Archaeological Priority Zone.
 Briggens Park (Registered Park and Gardens) lies to the south-west of the site.
 It is likely that impacts can be avoided or mitigated on heritage assets.

Planning:	
Green Belt	<p>Around 50% of the southern part of the site is in the Green Belt. In 2015 East Herts Green Belt Review, the site is rated as having "Very Low" suitability for development, and that "Land is Fundamental to the Green Belt".</p> <p>If the southern parts of the site were to be developed, it would act as a break in the continuity of the greenbelt, and in theory, permit for the sprawl of Harlow to north away from greenbelt designated land. Development of this land would also result in coalescence of Harlow and Hunsdon, reducing the openness of the Green Belt, dependent on where on this extensive site the development would occur.</p>
Adjacent land uses	<p>River Stort and its flood plain mean that local integration would be challenging, even with an additional river crossing, although proximity to the rail station to the south would mean some gravitational pull towards the town.</p> <p>The A414 dual carriageway runs through the south of the site and in some parts borders the site. To the south lies industry, retail and a train line going through Harlow Town station. To the west is greenfield and the village of Hunsdon. To the north is greenfield and the village of Widford. To the east is greenfield and the villages of Pye Corner and High Wych. The village of Eastwick lies to the west and the village of Gilston to the east.</p>
Deliverability:	
Availability of land	Conversations with the site promoters provide confidence that land could be made available.
Enabling benefits of particular locations	<p>Parts of the site could help make the case for a second Stort crossing.</p> <p>Depending on location within the site, could result in the displacement of housing.</p>

Area 2 conclusions

Land to the west and north-west in the site would be potentially most appropriate for sitting a new hospital.

Both areas are mainly free from environmental designations except for some small clusters of Tree Protection Orders (TPOs) in the north-west. They are both free from flood risk, relatively flat, even with some gradients in the south-west corner, and contamination-free. Both sites have good public and sustainable transport links, and the site in the west also has the advantage of being immediately adjacent to the A414.

Potential downsides include the land in the west being within the Green Belt and both contain a number of sites of conservation interest in the north-west site. An overhead line runs through the west site, but this should be able to be avoided. There are a couple of listed buildings and scheduled monuments within both sites, but the impacts should be able to be mitigated or avoided on these heritage assets.

AREA 3



Background Information

Site location	Between the western edge of Harlow and the M11
District	Harlow and Epping Forest
Number of houses promoted in site	3,500 - 5,000 dwellings (Circa 1,500 on Epping side / Circa 1,820 on Harlow side) (submission indicates 3,850)

Accessibility (existing and potential)

Emergency response times	Very high potential for good emergency response times for those parts of the site adjacent to M11 junctions (current or planned)
Access by car	Site is less than 2km from A414. Site is less than 3km from J7 M11.
Access by foot and cycle	National Cycle Route crosses the site. Various PROW cross the site.
Access by public transport	Less than 5km to Harlow Town Rail Station. Less than 5km to Harlow Mill Rail Station. Less than 0.4km to the nearest bus stops.

Site characteristics:	
Environment: flooding, contamination	<p>Flooding: Site is largely within Zone 1. Part of the site is within Zone 2 and 3 due to watercourse traversing site from east to west. Some 94% of the site is in flood zone 1. Higher flood risk areas 2 and 3a, covering 6%, are located in the southern part of the site and flood risk can be mitigated through site layout. There is a low risk of flooding from surface water and groundwater. Designations: Site is not within proximity to any European or National important designations. Pincey Brook Meadows Local Wildlife site covers a small part of site to the north and would need to be retained. Site of ecological interest lies in the west of the site. Contamination: Potential contamination in centre of site (Filled Clay Pits, Gravel Pits and Ponds, Offsite Landfill Site within 250m and Farmyards). Potential adverse impact could be mitigated.</p>
Utilities	Nominal impact on development decisions
Topography	No known constraints
Tree cover	<p>Site contains a Woodland Priority Habitat. Features and species could be retained and there are opportunities to enhance existing features. Site contains Ancient Woodland but any possible impacts can be mitigated. Site contains large clusters of TPOs in the centre. Site contains veteran trees but at a sufficiently low density across the site that removal could be largely avoided or any possible impacts could be mitigated.</p>
Landscape sensitivity/views	<p>Landscape: The site lies across three Landscape Character Areas in the Epping Forest LCA - B1 has a high sensitivity to change whilst C1 and C2 has moderate sensitivity. All offer views down the valley towards the River Stort. B1 is rated as relatively tranquil due to the river setting and sense of enclosure as a result of lots of vegetation. The LCA recommends that any development should be small scale, responds to the historic settlement pattern and is of local vernacular style. It is also noted that the areas will lose their tranquillity on approach to the M11 which is a significant visual and aural disamenity to the landscape. Heritage: Contains both Grade II and Grade II* Listed Buildings in the centre and south of the site, and Grade II listed buildings to the north of the site. Scheduled Monument lies to the west of the site. Adjacent to a Conversation Area to the west. No effect likely on historic assets due to distance from site. Site less than 0.5km from an Archaeological Priority Area/Zone. Locally listed buildings sit in the site. Central part of site lies in high sensitivity to change from development. Spatial Planning: Potential new Green Wedge crosses the site in the south.</p>

Planning:

Green Belt	<p>The site is almost entirely within the Green Belt (>95%). Part of the site is rated as having 'Relatively Strong/Strong' contribution to Green Belt purposes on its western edge, 'Moderate Contribution' on eastern half in the 2015 Epping Forest Green Belt Review Stage 1, and mostly Very High contribution to Green Belt purposes in 2016 Stage 2 draft, so the suitability for development is low.</p> <p>Development (the scale of development considered in the SSA) would form a connection between the railway line to west and the M11 with the result that it would both impact views across the valley and significantly compromise the connectivity and openness of greenbelt land to the north and south of the site.</p> <p>The central parts of the site are generally inappropriate for release, whilst the southern part of the site has potential for expansion with the inclusion of Green Fingers.</p>
Adjacent land uses	<p>The M11 bounds the site to the east. Harlow urban periphery is situated at the south west of the site. Agricultural land forms the remaining land usage to the west.</p>
Deliverability:	
Availability of land	<p>When consulted, site promoters had concerns about loss of land from potential residential uses and highway capacity, and the fact that they have not been progressing their plans with a hospital in mind. Therefore, they would be most likely to provide land for a hospital on land to the north of the site that is not suitable for housing. The area east of the M11 is unknown.</p>
Enabling benefits of particular locations	<p>Could help to make the case for junction 7A.</p>

Area 3 conclusions

The southern edge of the site and land close to the proposed junction 7A would potentially be most appropriate for siting a new hospital. The area the east of the M11 should not be pursued because it would set the precedent of breaching the defensible barrier of the motorway.

They are relatively free of environmental designations and flood risk, except for Pincey Brook, which can be easily mitigated. The site has good transport links, being less than 3km away from strategic roads, adjacent to bus stops, (Public Rights of Way) PROW and cycle routes. The site is also contamination free and relatively flat.

Potential downsides include the site being within Green Belt, in common with most of the other sites. There is also a small area within a Green Wedge. There are a couple of Listed Buildings but the impacts should be able to be mitigated or avoided on these heritage assets. Depending on where within the site the hospital may be located, new housing could be displaced and the promoter may not be willing.

AREA 4



Background Information

Site location West of High Wych and East of Gilston

District East Herts

Number of houses promoted in site 3,388 dwellings

Accessibility (existing and potential)

Emergency response times Relatively low potential for good emergency response times

Access by car Site is less than 2km to A414.
Site is less than 7km to J7 M11.

Access by foot and cycle Cycle route is more than 800m away.
PROW is more than 800m away.

Access by public transport Site less than 5km to Harlow Town Rail Station.
Site less than 5km to Harlow Mill Rail Station.
Bus stop within site on High Wych Road.

Site characteristics:

Environment: flooding, contamination

Flooding: Flood Zone 2 and 3 in very small parts of the site along a stream running south to north.
There is no risk from Surface Water and Groundwater flooding.
Designations: Site is within 1.5km to 7.5km of Lee Valley Ramsar and SPA site. Effects of allocating site for proposed use do not undermine conservation objectives (alone or in combination with other allocations).
Site is not near any nationally important designations.
Contains a Site for Importance for Nature Conservation in the south-west of the site and Wildlife Site 27/002.
Contamination: No contamination on site.

Utilities Nominal impact on development decisions

Topography	No known significant constraints - a small dip through the centre of the site.
Tree cover	A pocket of Woodland Lowland Fens Wetland Priority Habitat. Site adjacent to the east of Ancient Woodlands but any possible impacts can be mitigated. No TPOs.
Landscape sensitivity/views	<p>Landscape: East Herts LCA characterises the area as having Moderate Character and Moderate Condition. East Herts LCA indicates that built development and land use change in the corresponding landscape area (#81) has not created significant landscape impact. However, the area of this particular site raises concern as it would inevitably have an effect on the landscape character.</p> <p>Heritage: Site is within close proximity to a number of Grade II listed buildings in High Wych (<50m). Proposed site is adjacent to a Conversation Area. Proposed site is adjacent to an Archaeological event.</p>
Planning:	
Green Belt	<p>Entirely within Green Belt.</p> <p>In the 2015 East Herts Green Belt Review, the site is rated as having "Very Low" suitability for development, and that "Land is Fundamental to the Green Belt". Release of the site would remove a large chunk of metropolitan Green Belt on its northern frontier which may be problematic if no reallocation occurs. Development of this land would act as a mild disruptor to the openness of green belt land to the North and greenfield to west and south as the southern tip of site borders industrial quarry land. Development of this site would stand to act as a very large extension to the village of High Wych.</p>
Adjacent land uses	Predominantly agricultural land. To the northeast lies a golf course and the small settlement of High Wych.
Deliverability:	
Availability of land	<p>Promoted in the SHLAA so assumed to be available, although the promoter has not been consulted.</p> <p>Site is not in local planning authority's 'preferred spatial option' for emerging Local Plan.</p>
Enabling benefits of particular locations	Could contribute to case for second Stort crossing

Area 4 conclusions

The west of the site could be appropriate for the new hospital.

There is limited flood risk on this site and limited designations except for nature conservation sites in the south-west of the site. There is no contamination and the site is fairly flat.

The potential downsides include the site containing Ancient Woodland. However any potential impacts can be mitigated. The site is also characterised as a moderate character of landscape and is entirely within Green Belt. There could also be potential impacts of nearby heritage assets. The site is also relatively distant from existing and potential highway and accessibility infrastructure.

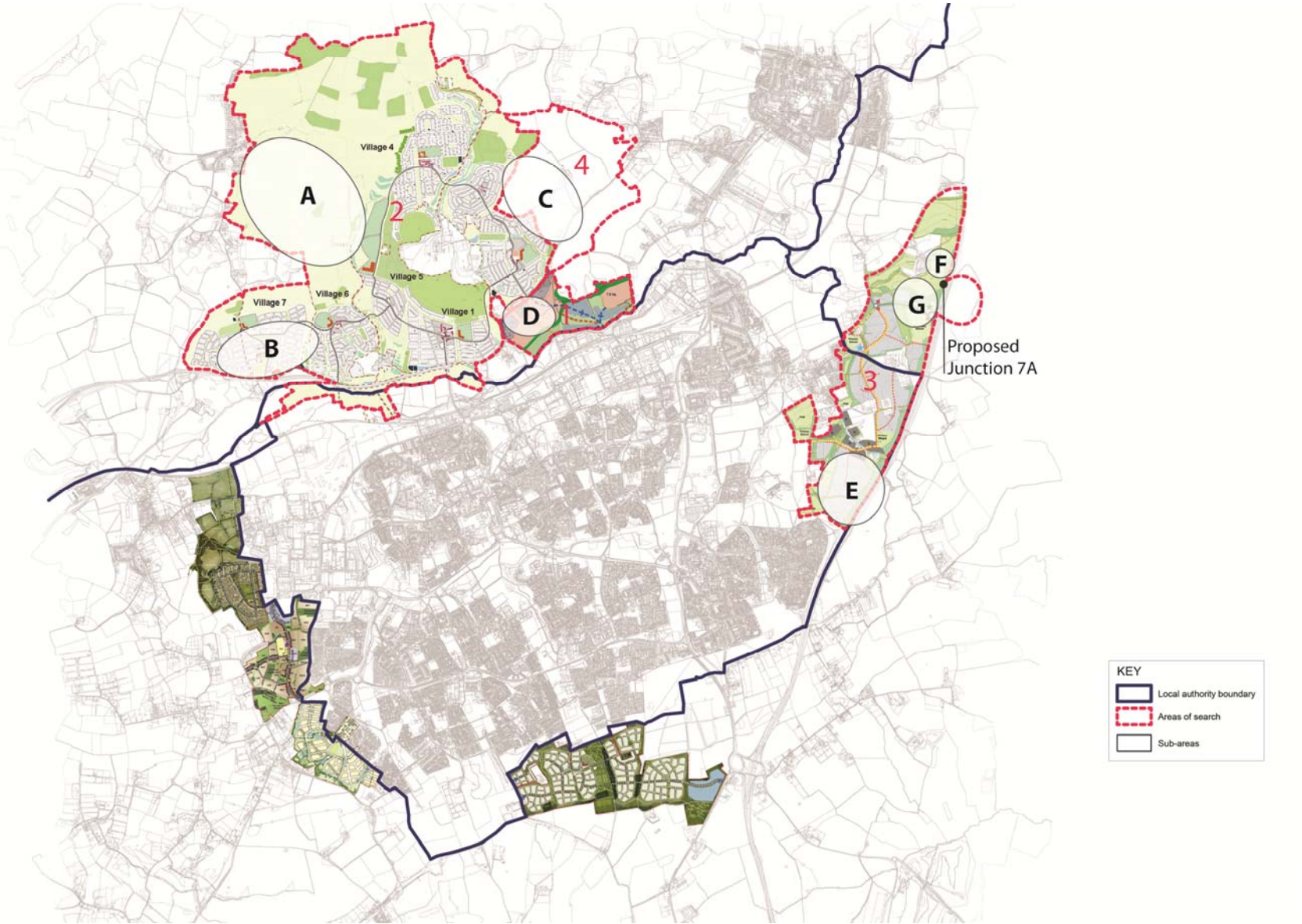
The western edge of the site was rated as being potentially suitable in the SSA study, so long as the sites to the west are also developed. However, it does not form part of the local planning authority's 'preferred spatial option' for emerging Local Plan.

3.3 Sub-areas with Potential

From the analysis above, seven sub-areas with the potential to house the hospital, subject to further investigation, are identified. These are the sub-areas with the fewest constraints and the most potential, as explained in section 3.4 below. Subject to the further analysis, each sub-area is large enough to site a 14 hectare hospital complex.

The seven recommend sub-areas are shown in figure 3.2 below.

Figure 3.2 Locations of the seven sub-areas with potential on a base showing composite of site promoters' indicative masterplans



3.4 Sub-Area Analysis

This section reviews the sub-areas and assigns an amber or green rating to each one. Amber represents medium potential for the location of the new hospital, and green represents good potential for the location of the new hospital.

Sub-area A

Sub-area A is large enough to provide the space for the new hospital and is understood to be available for development without necessarily reducing housing numbers. It does not have any flood risk and contains no environmental designations or contamination. The majority of the sub-area, compared to the other potential sites for the hospital, is not within the Green Belt. There are only a couple of small heritage assets within the site, whereby impacts should be able to be mitigated.

However it is given an **amber** rating because it is removed from the existing town of Harlow and does not have any strategic roads next to it, despite the promise of a new road access to be created through the wider Gilston area. In addition there are no Public Rights of Ways or National Cycle routes which emphasise the lack of connections to Harlow.

Sub-area B

Sub-area B has good transport connections with it being adjacent to the A414, adjacent to a number of bus stops and in relatively close proximity to Harlow Town train station. There is no contamination on site, the area is flood risk free and there are no environmental designations on site, except for a SSSI directly to the south of the site. There are a couple of listed buildings within the site but impacts should be able to be mitigated.

However it is given an **amber** rating because the sub-area lies in an area promoted for housing so might not be available to site the new hospital. In addition, the site is removed from Harlow settlement and its infrastructure.

Sub-area C

Sub-area C was promoted in the SHLAA so is assumed to be in principle available for the siting of the new hospital, especially since it is not in the local planning authority's 'preferred spatial option' for the emerging Local Plan. It sits in a wider site that was (on this western edge) considered as being potentially suitable for development in the SSA study. It contains no heritage assets, no contamination and no environmental designations. It does not form part of the Gilston masterplan so would not result in loss of housing potential.

On the negative side, the sub-area is limited by transport as it only has bus stops adjacent to it, and no strategic roads or PROWs. A dedicated access from the A414 would be required. For these reasons, the sub-area is given an **amber** rating.

Sub-area D

Sub-area D is given a rating of **green**. The site is promoted in the SHLAA so is assumed available for development. The site has good transport links being adjacent to bus stops and in close proximity to the A414 and Harlow Town train station.

It does contain listed buildings alongside the edge of the site but as these are clustered in one area, they should be able to be avoided. The site is also in close proximity to Flood Zone 2 and 3 due to being adjacent to Fiddlers' Brook. Mitigation is vital for the flood risk to make the site viable for development.

Further investigation is needed to confirm that a hospital development here could be compatible with a potential second Stort crossing.

Sub-area E

Sub-area E contains a couple of listed buildings on site but are on its northern boundary so should be easily avoided. The site is surrounded on the northern and southern boundaries by Green Wedges and Green Fingers, but this still leaves enough room for a hospital development. The site has very good transport links with being adjacent to the M11 and PROWs, and in close proximity to bus stops and National Cycle Routes. There are no environmental designations, contamination or flood risk on the site.

However it was given an amber rating because the sub-area lies in an area promoted for housing so might not be available to site the new hospital. In addition, is relatively remote from transport links, even with Junction 7a on the M11 in place. It is assigned an **amber** rating for these reasons.

Sub-area F

Sub-area F has been given a rating of **green**, provided that junction 7A is built. There are no heritage assets, contamination or environmental designations within it, although it is close to sensitive landscapes so development would require careful design. It has very good transport connections with it being adjacent to the M11 and the proposed new motorway junction, and in close proximity to cycle routes, PROWs and Harlow Mill train station. It is not on land that the promoter envisages being used for housing.

The Pincey Brook does run through the site which could create some flood risk issues. Careful mitigation would need to be implemented to reduce flood risk on any development.

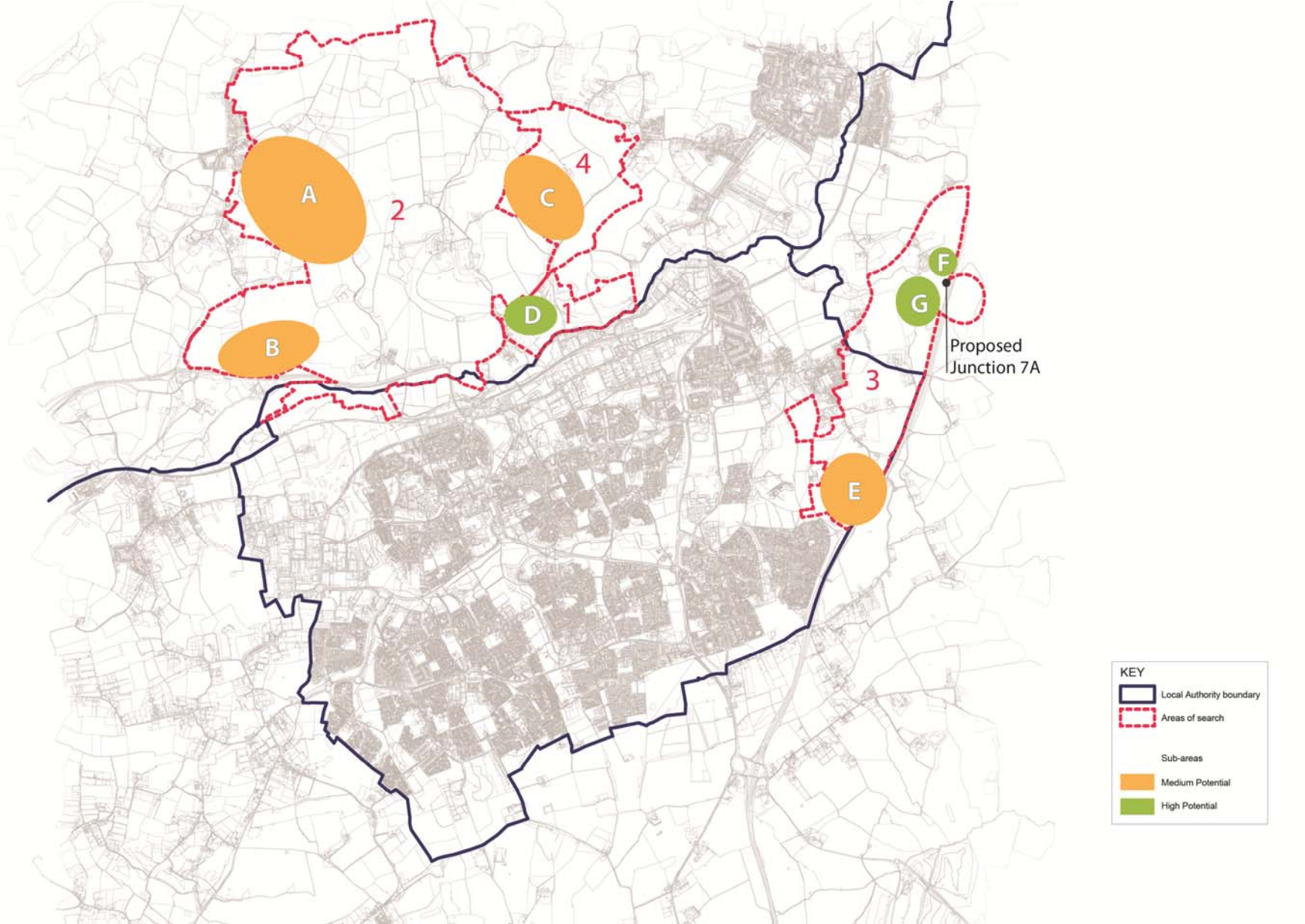
Sub-area G

Sub-area G has been given a rating of **green**, provided that junction 7A and suitable access onto Gilden Way are provided. The site does not contain any heritage assets or contamination. The site has very good transport links being next to the M11 and to a National Cycle Route. It is also fairly close to Harlow Mill train station.

The site does contain some TPOs and is adjacent to an area of land containing the Pincey Brook in Flood Zone 3. Careful mitigation would need to be implemented to reduce flood risk on any development.

The ratings by site are shown in figure 3.3 below.

Figure 3.3 Locations with ratings of the seven sub-areas with potential on a base showing composite of site promoters' indicative masterplans



Three thin, dark grey lines intersect to form a large triangle on the left side of the page. One line is horizontal, another is vertical, and the third is diagonal. The triangle is formed by the intersection of these lines.

Housing Capacity on the Existing Sites

04

4.2 St. Margaret's, Epping

It is also possible that the St Margaret's Hospital site in Epping will no longer be needed, particularly if a new hospital is built at Harlow.

We understand that the site is 5.64 hectares. This is an urban site, part of which has already been disposed of for housing development (adjacent to the remaining 5.64 hectares). A reasonable density assumption for the site would be 30 to 40 dwellings per hectare – giving a yield of 169 to 225 homes on the whole site.

Three thin, dark grey lines intersecting on a white background. One line runs diagonally from the top-left towards the bottom-right. Another line runs diagonally from the top-right towards the bottom-left. A third line runs diagonally from the middle-left towards the top-right.

Conclusion

05

5.1 Assessment Findings

The analysis of the areas of search to the north and east of Harlow identified seven possible sites (or sub-areas) that appear to meet the criteria to accommodate a 14 hectare hospital and health campus and would justify further investigation – 4 to the north and 3 to the east.

Further consideration of these seven sites reveals that the three of them have highest potential because:

- They are either highly accessible or have the potential to be so with improvements to transport infrastructure that are already being discussed as part of emerging Local Plans and infrastructure funding bids to Government;
- They have fewer statutory designations and/or environmental constraints that would limit their potential for development (in comparison to the other sites assessed);
- We have reason to believe that the site promoters may be willing to, in principle and subject to further discussion, make land available for a hospital development;
- They would not necessarily result in the loss of potential housing sites (see section 5.2 below); and
- They could help to enable infrastructure improvements by adding to the business case.

The sites with most potential are D (north of the River Stort, south of Gilston), and F and G, which are adjacent to the planned site for junction 7A of the M11. All are dependent on new transport infrastructure, which would be required to enable housing growth on the scale being planned for over the next 15 years.

Whilst this report makes these firm recommendations on what the current level of analysis suggests are the most suitable sites, before settling on a single preferred option, we recommend that more detailed discussions are held between the PAH NHS Trust, the landowners/promoters, the local planning authorities and the County Councils. This report provides a basis for those discussions and narrows the field to provide a focus for them.

5.2 Impact of Housing Numbers within Strategic Sites

The following section considers the masterplans put forward by promoters, and calculates an indicative loss of capacity that the relocation of Princess Alexandra Hospital would have on each identified site. Consultation with the promoters in the AECOM Harlow Strategic Sites Assessment study has been used to determine average dwelling densities for each hospital site location. An indicative loss of capacity has then been calculated on the assumption that the hospital will impact on 14ha of housing at the specified density, unless there is information derived from the submitted promoters' masterplans that rationalises a lower impact on potential housing land.

Table 5.1 provides a summary of potential forgone housing development as a result of hospital development on each site:

Table 5.1 Potential loss of housing capacity

Sub-area	Average density (dwellings per ha)	Note on forgone housing land	Indicative forgone housing capacity (dwellings)
A	30	Sub-area intersects with land almost entirely put forward for housing, therefore a 14ha loss of housing land is assumed	420
B	30	Sub-area intersects with land almost entirely put forward for housing, therefore a 14ha loss of housing land is assumed	420
C	Not identified	No promoter masterplan is submitted for this land and it is not expected to be included as a Local Plan strategic site.	0
D	30 – 37.5	The promoter has submitted a simple framework masterplan that only outlines broad areas for development within the area. Site D fully intersects with one of the identified housing areas so 14ha loss of housing land is assumed. A density of 34 is used in calculation as an average of the given range. However, the site is not expected to be included as a Local Plan strategic site, hence the dual indicative forgone housing figure.	0/476
E	35	Sub-area intersects with land almost entirely put forward for housing, therefore a 14ha loss of housing land is assumed.	490
F	35	Sub-area does not intersect with any land identified for housing development in the promoter masterplan, therefore zero loss of housing land is assumed.	0
G	35	Sub-area does not intersect with any land identified for housing development in the promoter masterplan, therefore zero loss of housing land is assumed.	0

Appendix 1 – Maps and Tables from Essex County Council Princess Alexandra Hospital Relocation Analysis 2014, completed by Jacobs

The following diagrams provide a broad indication of estimated PAH catchment areas, within estimated journey times using 2011 Census population data and possible hospital relocation within either the Gilston Park or the East Harlow sites. It should be noted that no future population growth has been included, but committed and proposed highway improvements, including the J7 scheme and the proposed M11 J7a, have been assumed to be in place in the future year analysis.

In broad terms, locating the hospital on the East Harlow site maximises current population capture but would put further pressure on the new M11 J7a and B183 Gilden Way corridor. Gilston, being a little more remote from Harlow, would have a lower current population capture.

Figure A1.1 – Map showing effects of hospital relocation west of Harlow

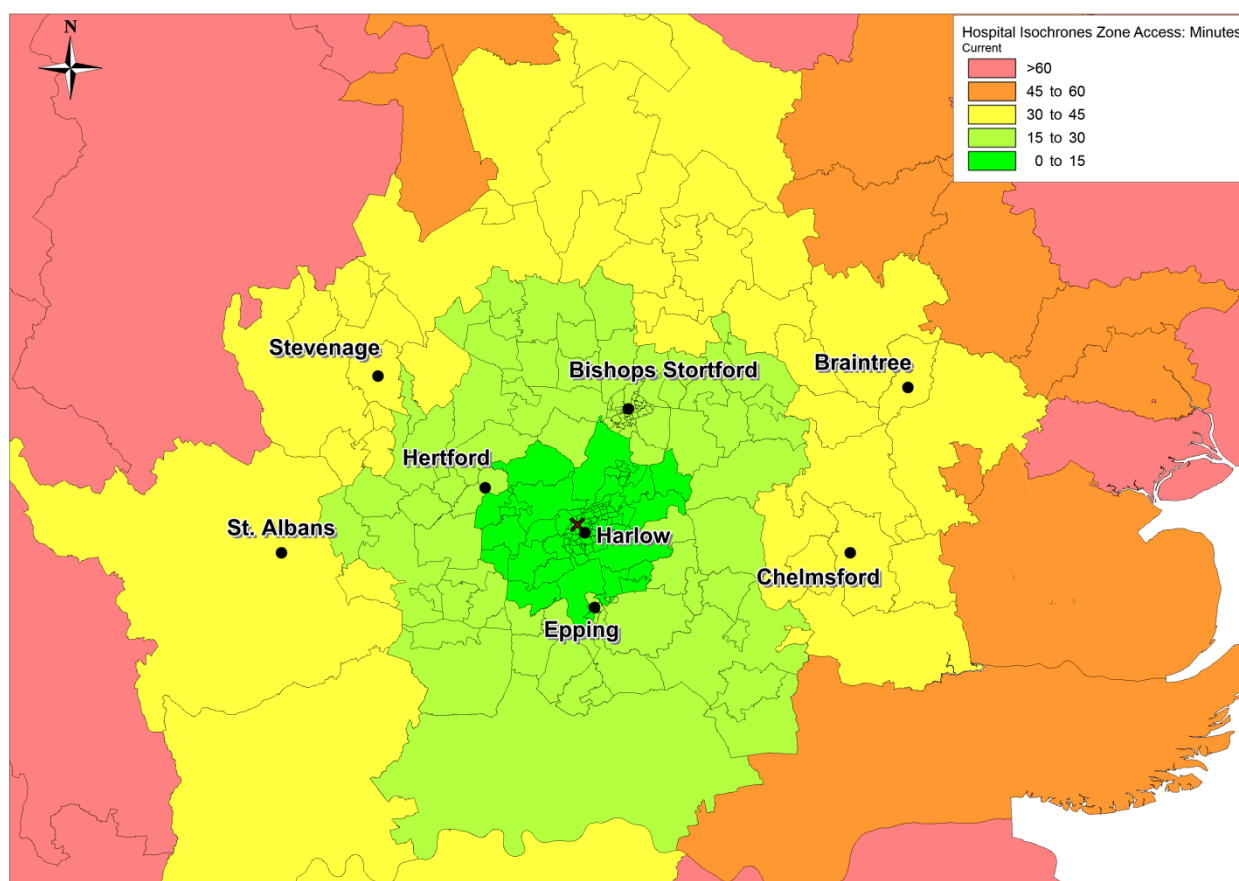


Figure A1.2- Map showing effects of hospital relocation north-east of Harlow

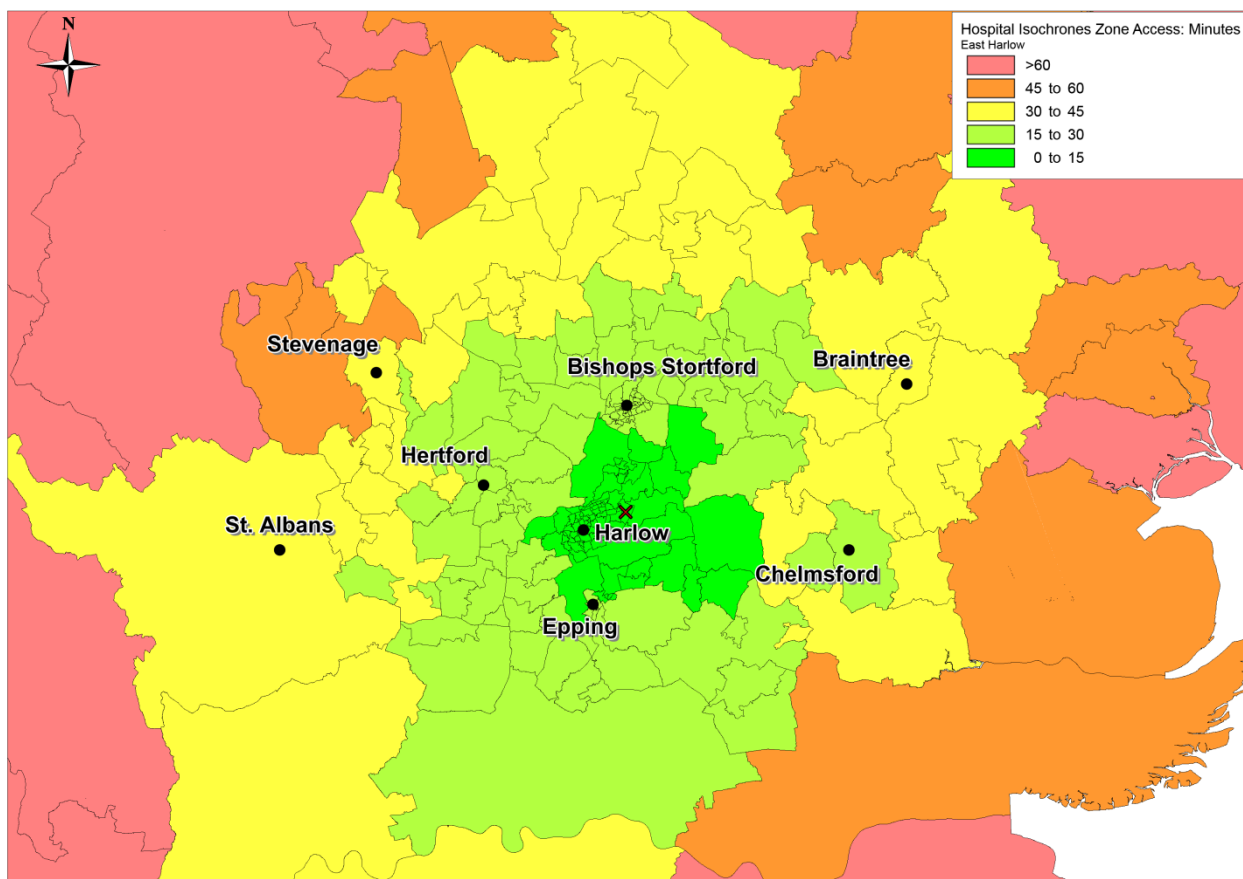


Figure A1.3 – Map showing effects of hospital relocation north-west of Harlow

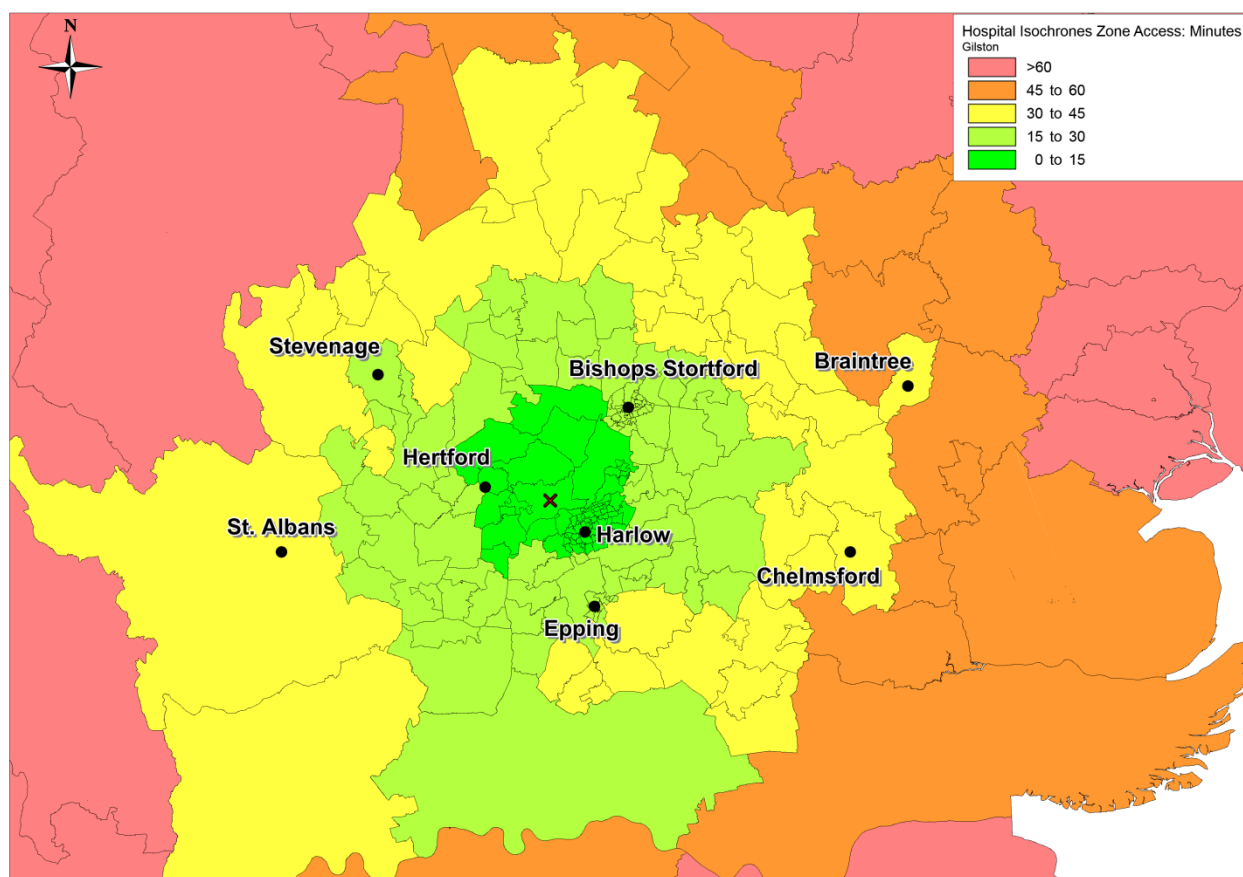


Table A1.1 – Estimated journey times

	0 to 15 Mins	15 to 30 Mins	30 to 45 Mins	45 to 60 Mins	Total
AM Base Current	150	3,350	6,600	1,200	11,300
AM Base East Harlow	125	3,400	6,625	1,150	11,300
AM Base Gilston	150	3,300	3,325	4,175	10,950
AM 2021 Current	150	3,275	7,400	475	11,300
AM 2021 East Harlow	125	3,475	7,250	600	11,450
AM 2021 Gilston	175	3,325	3,300	4,800	11,600
AM 2036 Current	125	2,950	7,000	1,050	11,125
AM 2036 East Harlow	100	3,250	6,750	1,350	11,450
AM 2036 Gilston	150	775	5,875	4,125	10,925

Appendix 2 – Highway Congestion Plans from Essex County Council, completed by Essex Astuntechnology

Figure A2.1 – Map showing morning peak traffic

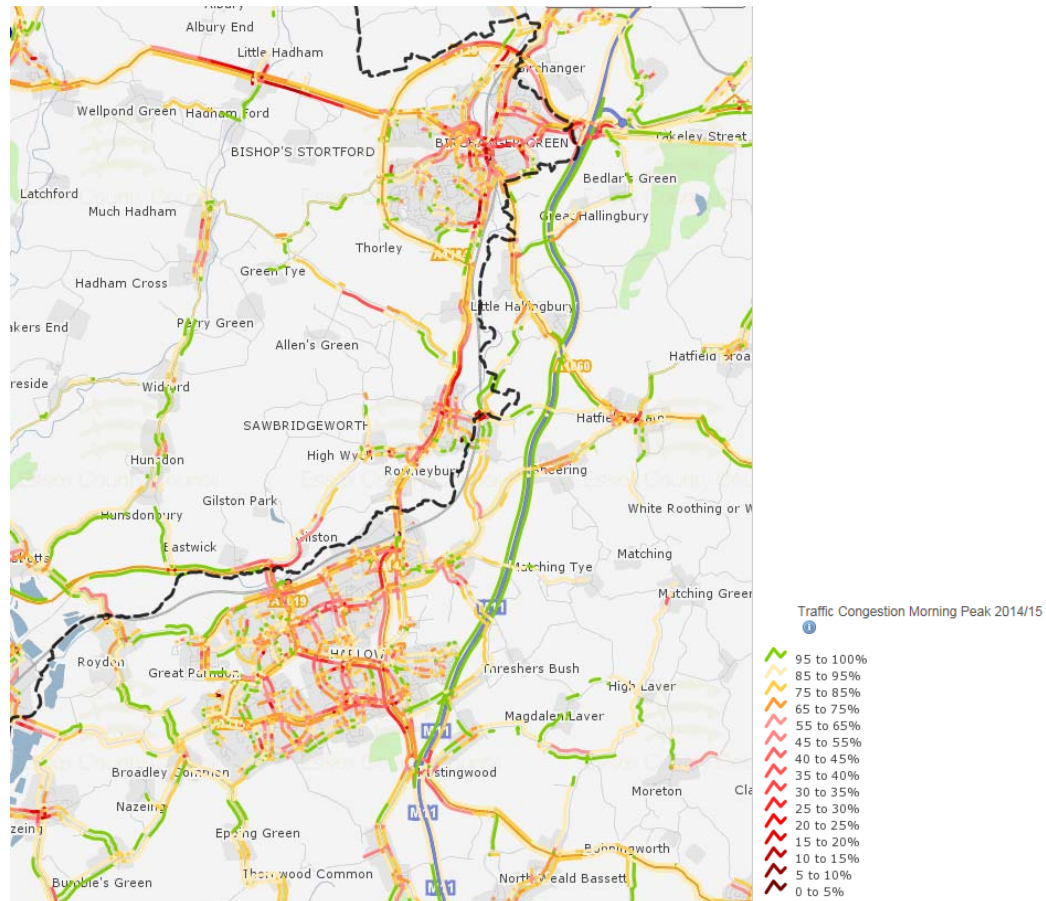
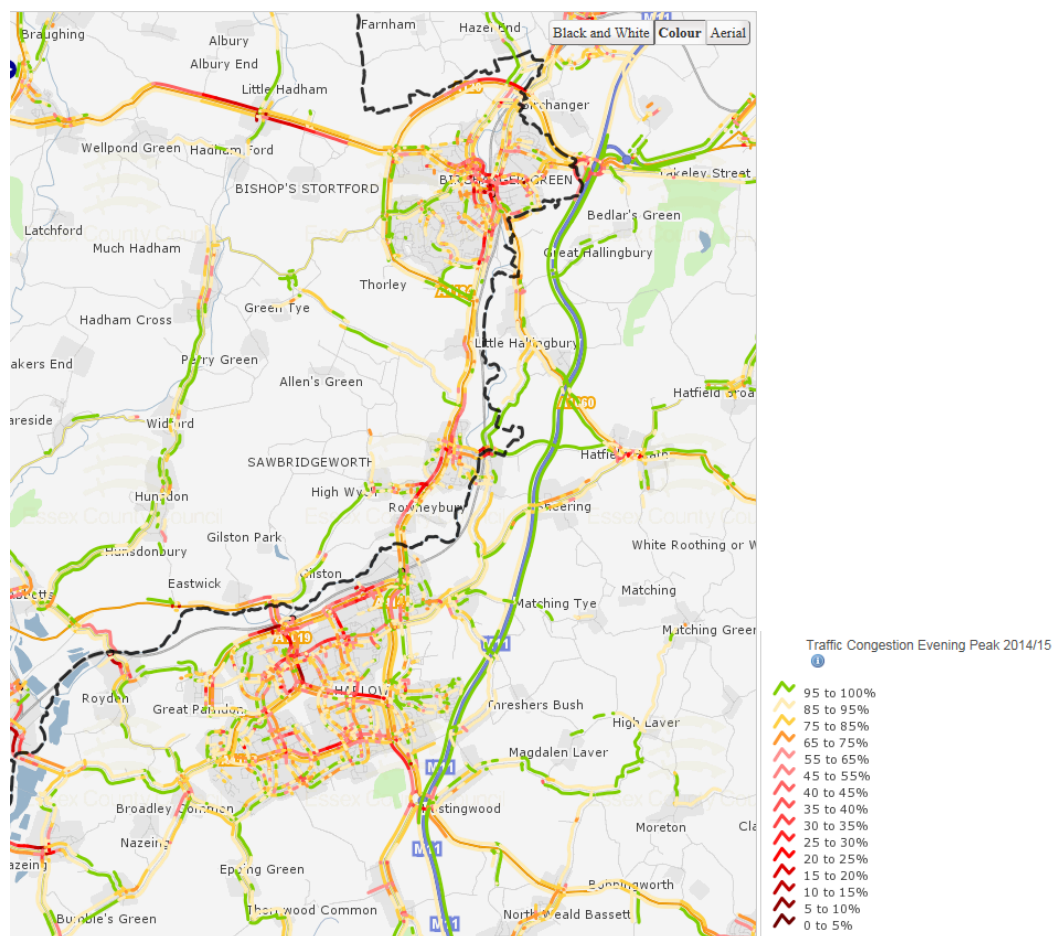


Figure A2.2– Map showing evening peak traffic



Appendix 3 – GIS Baseline Plans from SSA Study

Figure A3.1– Composite constraints analysis

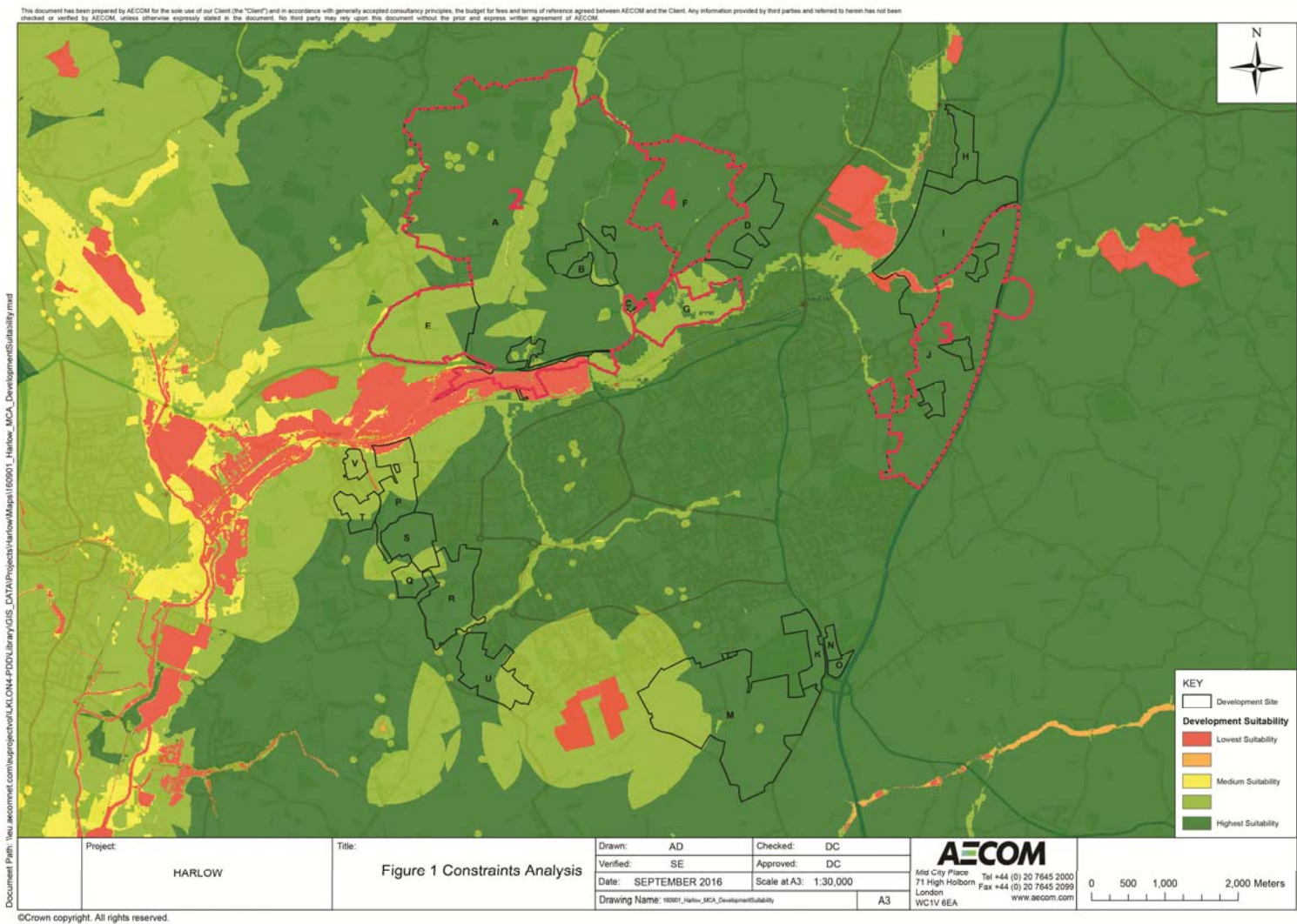


Figure A3.2– Environmental context

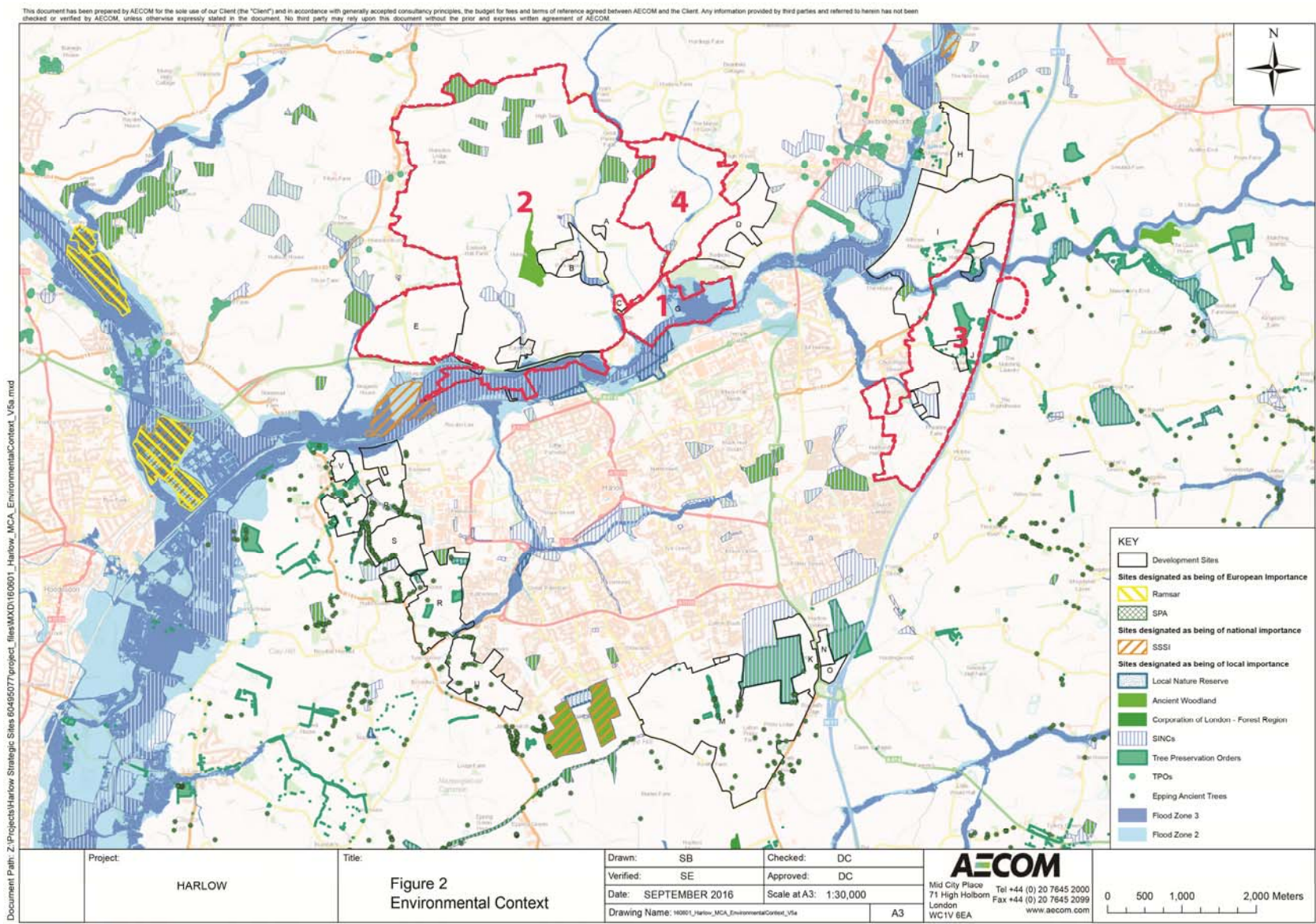


Figure A3.3– Geo-environmental context

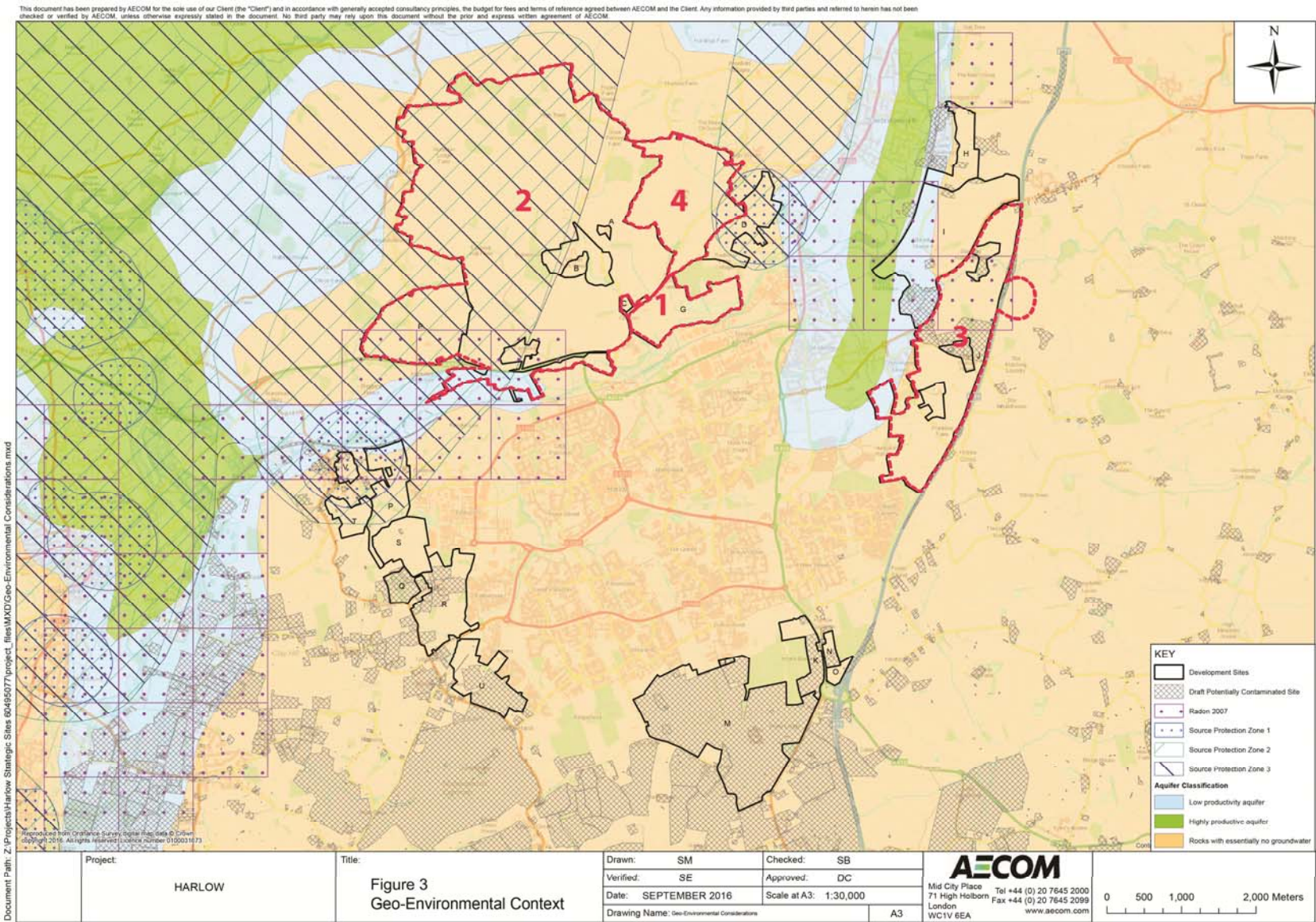


Figure A3.4– Heritage context

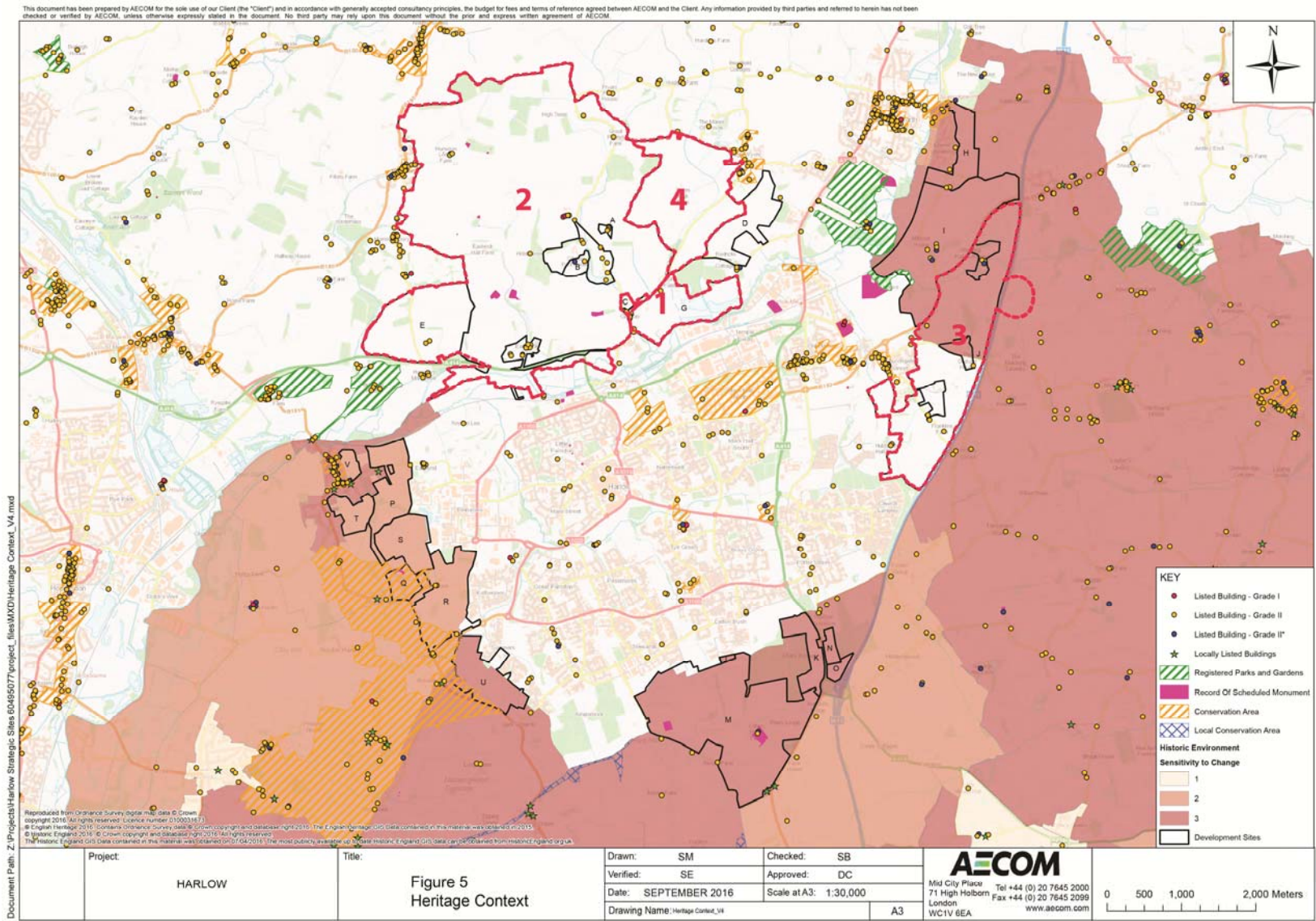


Figure A3.5– Infrastructure constraints

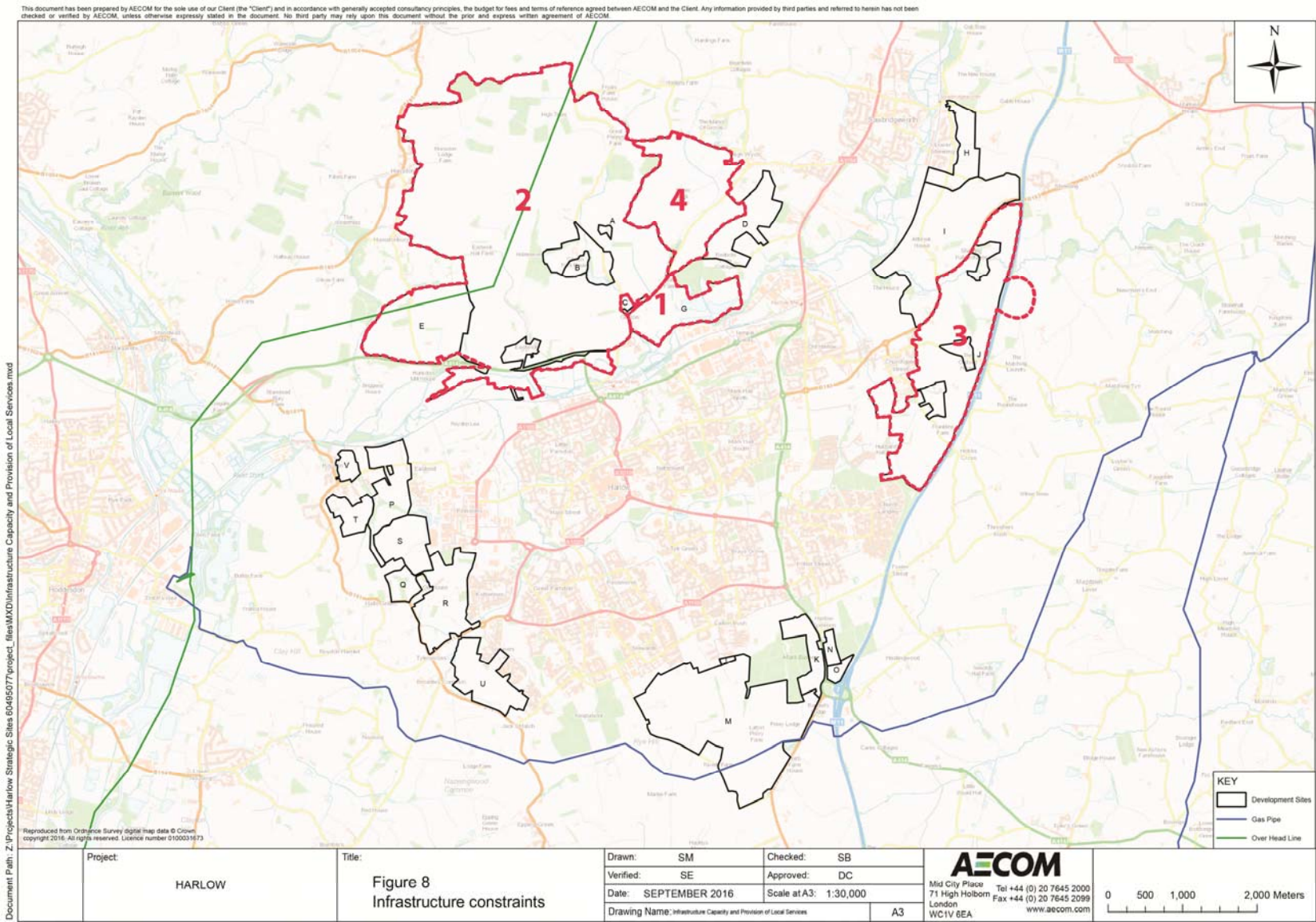


Figure A3.6– Landscape and Green Belt constraints

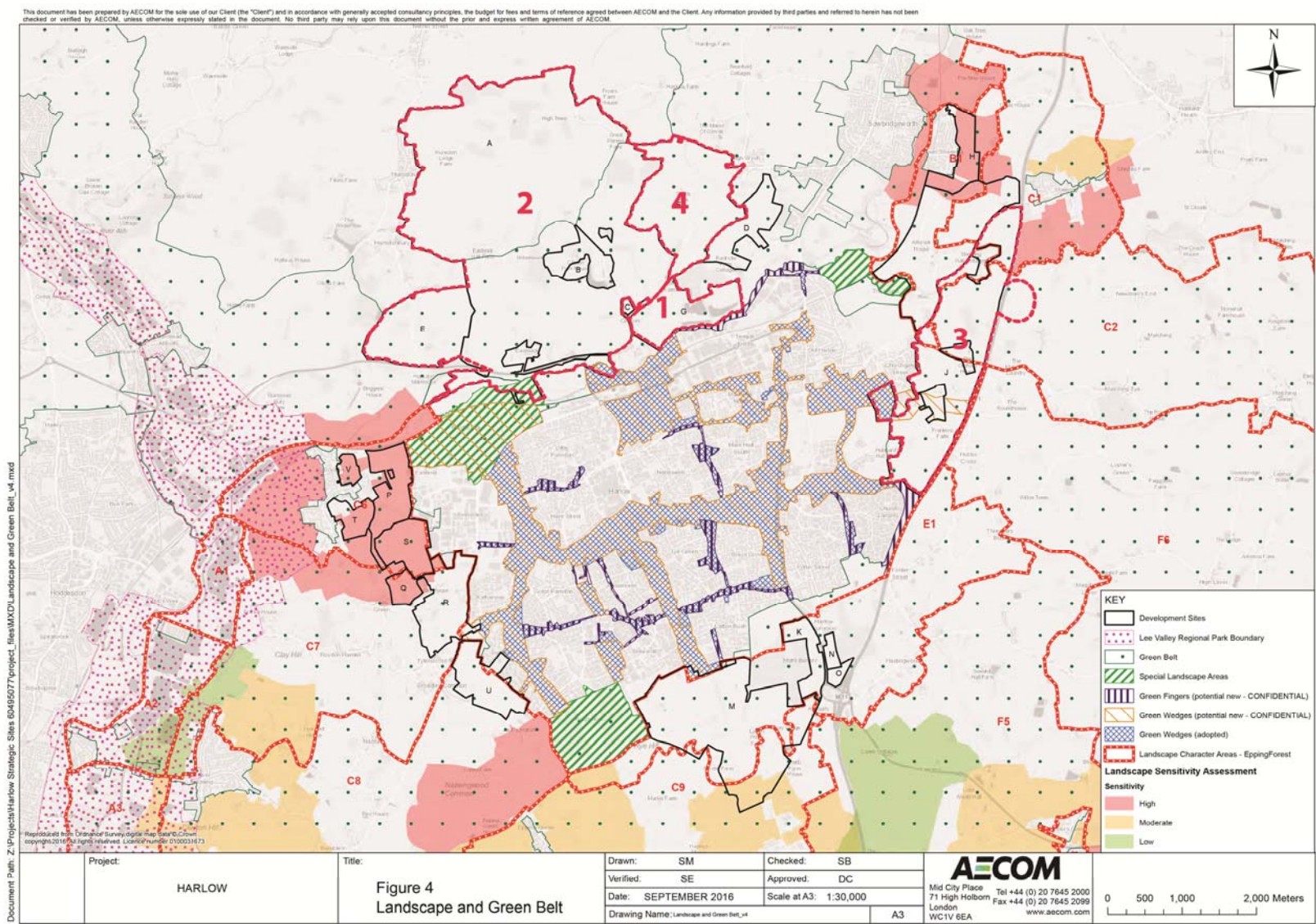


Figure A3.7– Regeneration potential

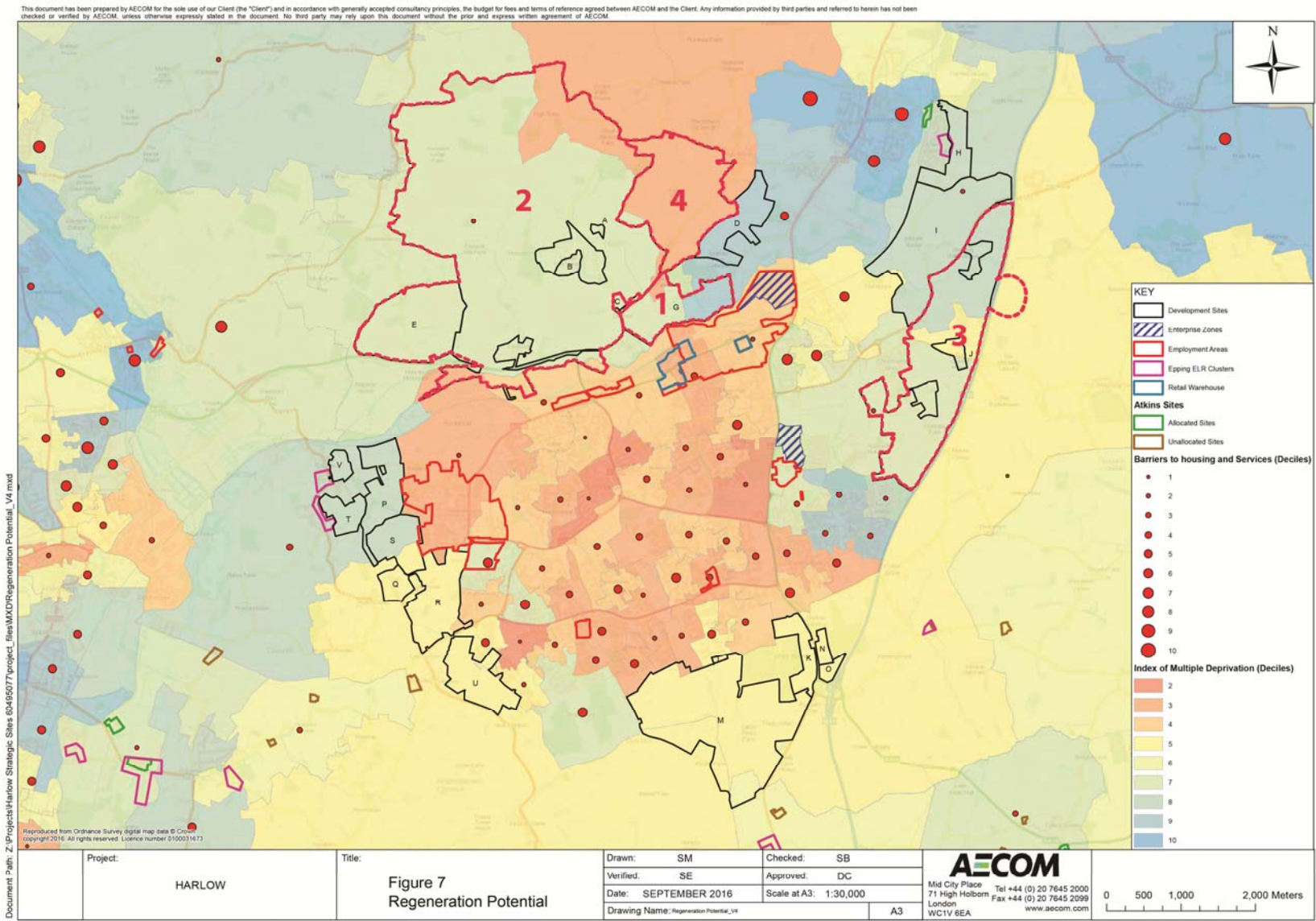
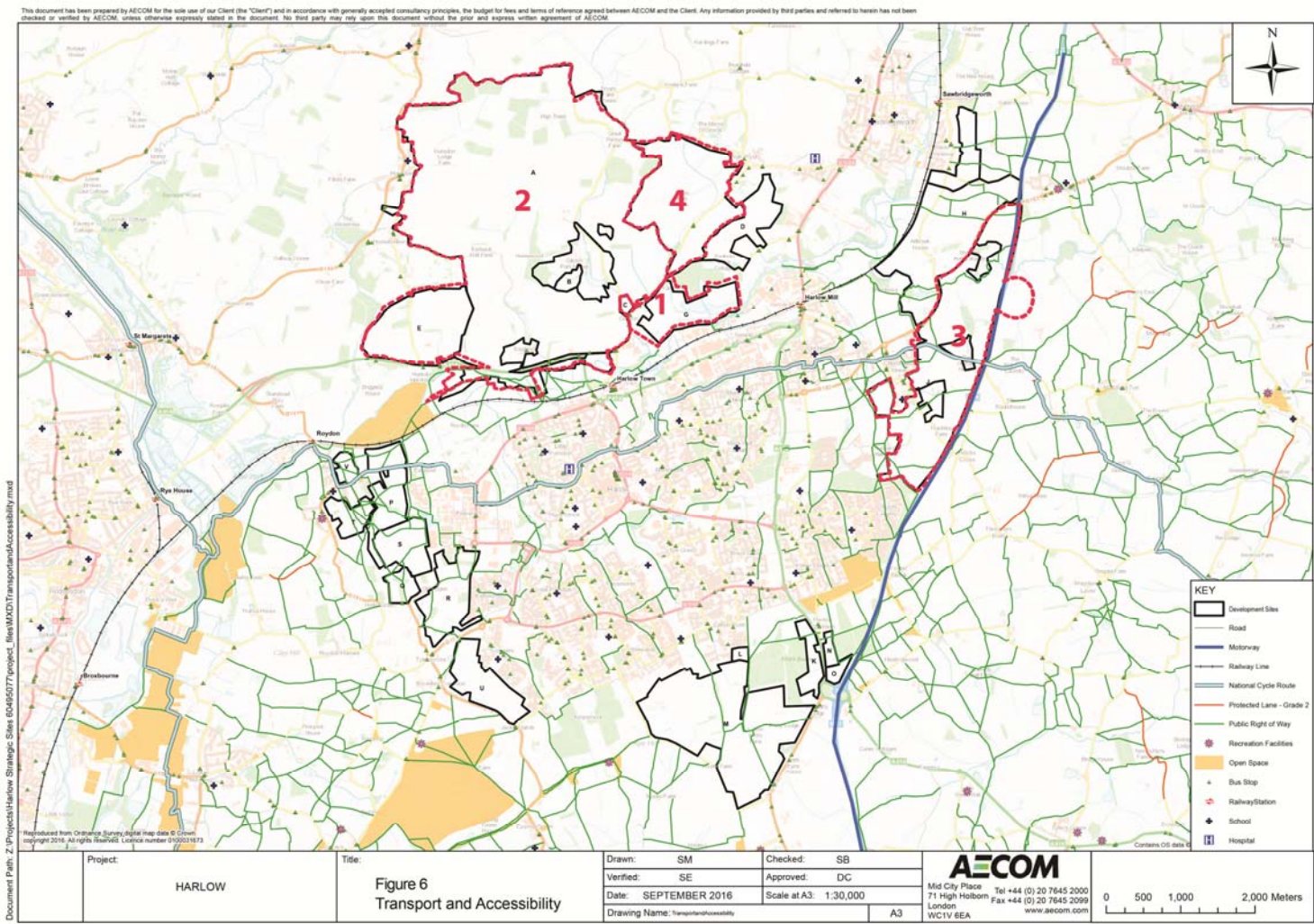


Figure A3.8– Transport and accessibility



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