

B1.4 Stages 2 and 6.2 Assessment

B1.4.1 Detailed Methodology for Stages 2 and 6.2 Assessment

In accordance with paragraph 4.15 of the SSM all residential and employment proceeding from Stage 1 were subject to a detailed quantitative and qualitative RAG assessment. Residential sites proceeding from Stage 6.1B and employment sites proceeding from Stage 6.1A to Stage 6.2 were also subject to this assessment, in line with paragraph 4.62 of the SSM. Traveller sites (as referred to in paragraphs 43 and 79 of the TSSM) were also subject to this assessment. Table 1 summarises, by year, the tranches of sites for which this detailed methodology applies:

Table 1 Sites assessed using the detailed methodology in 2016 and 2017

Primary Use	2016	2017
Residential	Stage 2 – Tranche 1 Sites	Stage 6.2 – Tranche 2 Sites
Employment	Stage 2 – Tranche 1 Sites	Stage 6.2 – Tranche 2 Sites
Traveller	Stage 4 – Tranche 1 and 2 Sites	Stage 8.4 – Tranche 3 Sites, and Tranche 1 and 2 Sites which were not previously assessed at Stage 4 because they were located outside the Settlement Buffer Zones.

This appendix sets out each criteria and confirms the approach to scoring. In summary, the criteria comprised:

Ref	Criterion
1	Impact on Environmental and Heritage Designations and Biodiversity
1.1	Impact on Internationally Protected Sites
1.2	Impact on Nationally Protected sites
1.3a	Impact on Ancient Woodland
1.3b	Impact on Ancient and Veteran Trees outside of Ancient Woodland
1.4	Epping Forest Buffer Land
1.5	Impact on BAP Priority Species or habitats
1.6	Impact on Local Wildlife Sites
1.7	Flood Risk
1.8a	Impact on Scheduled Ancient Monument / Listed Building / Conservation Area / Historic Park or Garden
1.8b	Impact on Archaeology
1.9	Impact of Air Quality
2	Value to Green Belt
2.1	Level of Harm to the Green Belt
3	Accessibility by public transport and to services

Ref	Criterion
4	Efficient Use of Land
4.1	Brownfield and Greenfield Land
4.2	Impact on Agricultural Land
4.3	Capacity to Improve Access to Open Space
5	Landscape and Townscape Impact
5.1	Landscape Sensitivity
5.2	Settlement Character Sensitivity
6	Physical Site Constraints and Site Conditions
6.1	Topography Constraints
6.2a	Distance to Oil and Gas Pipelines
6.2b	Distance to Power Lines
6.3	Impact on Tree Preservation Orders
6.4	Access to Site
6.5	Contamination Constraints
6.6	Traffic Impacts

Unless otherwise stated, all sites assessed in 2016 and 2017 were assessed using the same methodological approach. However, as set out in the following sub-sections, a small number of minor amendments were made to the approach for selected criteria between 2016 and 2017.

Many of the criteria were assessed quantitatively using GIS tools. However, some criteria include qualitative assessment where a professional judgement was required. Where such judgements were necessary a combination of Epping Forest District Council, AECOM and Arup specialists have been employed. Where qualitative criteria are used a narrative on the planning judgements has been provided including the need for any mitigation measures. Where mitigation measures were not considered possible justification was provided.

In accordance with paragraphs 4.17 and 4.66 of the SSM, Quality Assurance processes were incorporated into the Stage 2 and 6.2 assessment process. These comprised:

- undertaking an initial sample of sites to review the approach and identify any potential issues;
- members of the assessment team being allocated different criteria and being responsible for reviewing all sites against these criteria to maximise consistency of assessment; and
- undertaking regular spot checks of the assessment to ensure consistency of approach.

It should be noted that unless stated in the following sub-sections:

- All sites were assessed against each criteria.

- That the assessment is based on GIS data collected by the Council and other evidence base documents prepared in support of the emerging Local Plan. Where relevant, the evidence base documents used in the assessment are identified.
- Where available, the assessments took into account any additional information held by the Council on individual sites, submitted through the Call for Sites process or through representations to the Draft Local Plan. Where this was not available, professional judgement was employed to judge likely impacts and consider aspects including the layout or density of development. It should be noted that, where additional information was not available, this did not prejudice the assessment of the site.

1: Impact on Environmental and Heritage Designations and Biodiversity

1.1 Impact on Internationally Protected Sites

(+)	0	(-)	(--)
Necessary for the management of the internationally protected sites.	Effects of allocating the site for the proposed use do not undermine conservation objectives (alone or in combination with other sites).	Effects of allocating the site for the proposed use are not likely to be significant alone but should be checked for in-combination effects.	Effects of allocating the site for the proposed use likely to be significant.

This assessment was undertaken by AECOM ecology specialists.

The quantitative GIS assessment filtered out sites which fell outside of a defined 2km buffer around internationally protected sites, scoring them '0'. A 2km buffer was chosen to ensure consistency with the approach for assessing sites set out in the Essex County Council Biodiversity Validation Checklist (2015).

The qualitative assessment considered those sites which fell within the 2km buffer. The assessment considered the potential for adverse impacts upon the internationally designated sites, taking into account distance from the designations, proposed land use and the proposed scale of development. All sites (irrespective of primary use) located within 500m of Epping Forest Special Area of Conservation (SAC) or Lee Valley Special Protection Area (SPA)/Ramsar site were assessed in more detail to identify the severity of potential impacts.

Sites located within 400m of the SAC or SPA/Ramsar were adjudged to pose the highest risk of the introduction of non-native species, fly-tipping, incidental arson and other impacts associated with proximity to designated sites and it was deemed that the allocation of these sites would likely lead to significant effects.

For all other sites, the following principles were applied:

- Very large residential sites located within 1km of the SAC or SPA/Ramsar were judged as generating significant recreational pressure themselves and thus likely to have a significant effect;
- It was judged that all housing/traveller sites located within 2km of the SAC or SPA/Ramsar had the potential to generate significant ‘in combination’ effects, on the basis that the core recreational catchment for these designated areas is currently understood to be approximately 2km;
- For all employment sites located between 500m and 2km away from the SAC or SPA/Ramsar it was assumed that development would not undermine conservation objectives (either alone or in combination) due to an absence of impact pathways (other than the strategic air quality pathway).

In 2016, sites were assessed before the completion of the Draft Local Plan Habitat Regulations Assessment Screening (AECOM, November 2016). As a precaution, identical assessment methods and distances/criteria were therefore applied to sites in close proximity to the Lee Valley SPA/Ramsar site and Epping Forest SAC. However, the HRA Screening of the Draft Local Plan confirmed that the Lee Valley SPA/Ramsar site was less vulnerable to recreational pressure in particular than had been assumed during the SSM assessment. Thus, sites assessed in 2017 were subject to an updated approach which reflects the better understanding of the lower vulnerabilities of the Lee Valley SPA/Ramsar. In practice, this meant that sites located between 400m and 2km from the Lee Valley SPA/Ramsar, (which scored (-) in 2016 due to the potential for ‘in combination’ recreational effects), scored 0 in 2017.

1.2 Impact on Nationally Protected sites

0	(-)	(--)
Based on the Impact Risk Zones there is no requirement to consult Natural England because the proposed development is unlikely to pose a risk to SSSI's.	Site falls within an Impact Risk Zone and due to the nature and scale of the development proposed it is likely to be possible to mitigate the effects of the proposed development.	Site falls within an Impact Risk Zone and due to the nature and scale of the development proposed it is unlikely to be possible to mitigate the effects of the proposed development.

This assessment was undertaken jointly by Council ecology specialists and Arup.

As there are no National Nature Reserves located within the District, this assessment focused solely on the potential impact of sites upon other national level ecology designations.

The Natural England Impact Risk Zones (IRZs) were utilised to allow for a rapid initial assessment of the potential risks posed by development sites. They define zones around each designation which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

The quantitative GIS assessment filtered out sites which fell outside of the Sites of Special Scientific Interest (SSSI) IRZs, scoring them 0.

The qualitative assessment investigated the remaining sites for the potential impact on SSSIs, or the IRZs associated with them. The details of each IRZ were reviewed independently and a worst case approach was taken where multiple IRZs and the respective thresholds of development affected a site, with the strictest threshold being applied to the assessment. The number of houses or floorspace of development proposal was then compared to this threshold to determine if a breach of thresholds occurred, thus initiating a future requirement to consult Natural England if development proceeds.

Where a site was located in an IRZ, but did not exceed the threshold for consultation with Natural England, it was assumed that no consultation would be required. For sites where there were consultation requirements, in cases where the proposed development exceeded the consultation threshold for that IRZ, professional judgement was employed to determine whether impacts could be mitigated.

1.3a Impact on Ancient Woodland

0	(-)	(--)
Site is not located within or adjacent to Ancient Woodland.	Site is adjacent to or contains Ancient Woodland but possible effects can be mitigated.	Site is adjacent to or contains Ancient Woodland. The proposals would likely result in direct loss or harm to Ancient Woodland or cannot be mitigated.

This assessment was undertaken by the Arup and cross-checked by the Council's ecology specialist.

The quantitative GIS assessment filtered out sites that did not intersect with areas of Ancient Woodland or fall within a defined 250m buffer of Ancient Woodland, scoring them '0'. The 250m buffer was selected to ensure consistency with the approach for assessing sites set out in the Essex County Council Biodiversity Validation Checklist (2015).

Other sites were assessed qualitatively following the Forestry Commission and Natural England Ancient Woodland and Veteran Trees: Assessment Guide (2015) to potential impacts in relation to planning decisions and Standing Advice from the Forestry Commission (2015). This encompassed an assessment of effective mitigation requirements.

The Standing Advice from the Forestry Commission states that a minimum 15m buffer should be applied around Ancient Woodland in order to minimise direct and indirect effects. Therefore, sites located on the peripheries of the identified buffer zones were judged unlikely to affect Ancient Woodlands due to the separation distance.

For sites that were adjacent, in close proximity to, or overlapping a very small portion of Ancient Woodland, it was judged that mitigation would be required in

order to limit effects. Where sites overlapped a larger area of Ancient Woodland, it was generally judged unlikely that it would be possible to mitigate impacts.

1.3b Impact on Ancient and Veteran Trees outside of Ancient Woodland

0	(-)	(--)
No Ancient or Veteran trees are located within the site.	Site contains Ancient and/or Veteran trees but at a sufficiently low density across the site that removal could be largely avoided or possible impacts could be mitigated.	Site contains a higher density of Ancient and/or Veteran trees, or are configured in such a way that direct loss or harm is likely.

This assessment was undertaken by Arup and cross-checked by the Council's ecology specialist.

Ancient Trees are defined by the Ancient Tree Forum as those "which have reached a great age in comparison with others of the same species". The exact age at which a tree would be classified as ancient varies depending on the species of tree and other factors, including the type of site where it is growing. Veteran Trees can be any age but show ancient characteristics.

The quantitative GIS assessment filtered out sites that did not contain Ancient and/or Veteran Trees, scoring them '0'. Sites which contain Ancient and/or Veteran Trees were qualitative assessed where consideration was given to the following matters:

- Distribution and density of Ancient and/or Veteran Trees across the site.
- Constraints to access.
- Root protection areas.
- Buffer zones around the site and consideration of fragmentation damage if removal is necessary.

From this, a judgement was made on whether Ancient and Veteran Trees are a minor or major constraint to development; and whether the impact could be mitigated or not.

1.4 Epping Forest Buffer Land

(+)	0	(-)	(--)
Site may assist in extending Epping Forest Buffer Land.	Site is unlikely to impact on Epping Forest Buffer Land.	The effects of the site on Epping Forest Buffer Land can be mitigated.	Site is likely to result in harm to Epping Forest Buffer Land which cannot be mitigated.

This assessment was undertaken by Arup specialists.

Epping Forest Buffer Land is a local constraint in the areas around Epping Forest. They are areas of land around the fringes of the Forest, owned by the City of

London Corporation and managed by the Conservators. Buffer Land is protected from development to ensure a natural buffer is maintained around the Forest edge.

The quantitative GIS assessment filtered out sites that fell outside of a 250m buffer of the Epping Forest Buffer Lands, scoring them '0'. A 250m buffer was selected based on professional judgement, taking into account the potential impacts of development upon the purposes of the Buffer Land. A qualitative assessment was then applied to sites falling within the buffer.

The qualitative assessment considered the extent to which the site may compromise the purposes of the Buffer Land. This was initially established in the Buffer Lands Action Plan approved by Epping Forest and Open Spaces Committee in 1998, the policy of which states:

“A principal purpose of Epping Forest buffer land is to protect the rural environment of the Forest upon which its natural aspect and biological integrity to a large degree depend by providing a natural barrier to the advance of built development towards the Forest’s boundaries. This natural barrier also provides important wildlife support areas for the Forest and links it to the wider countryside.”

It was shortened and summarised slightly differently a year later in response to a Parliamentary Select Committee:

“The purpose of the Buffer land is to safeguard the rural environment of the Forest and thereby its natural aspect or feel and to provide to the Forest wildlife support and complementary wildlife habitats, thus facilitating the protection of the Forest’s flora and fauna.”

The assessment broadly adopted the following principles:

- As a rule of thumb, it was judged that sites not directly adjacent to Buffer Land would have no impact on the Buffer Land and its purposes;
- Sites directly adjacent were assessed in further detail to understand:
 - Whether any part of the site directly encroached into the Buffer Land and the extent to which this would constrain development;
 - The proposed site layout/density of development (where applicable) and the extent to which this may impact on the edge/fringe of the Buffer Land or whether the proposal would harm connectivity between the Forest, Buffer Land and wider countryside;
 - The extent to which there may be an opportunities to extend the Buffer Land through layout or design.

1.5 Impact on BAP priority species or Habitats

(+)	0	(-)	(--)
Features and species in the site are retained and there are opportunities to enhance existing features.	Site has no effect as features and species could be retained or due to distance of BAP priority habitats from site.	Features and species in the site may not be retained in their entirety but effects can be mitigated.	Features and species in the site unlikely to be retained and effects cannot be mitigated.

This assessment was undertaken by the Arup and cross-checked by the Council's ecology specialist.

The quantitative assessment filtered out any sites which do not intersect with identified BAP Priority Habitats or fall within a 250m buffer of such habitats, scoring them 0. Other sites were assessed qualitatively. The 250m buffer was selected to ensure consistency with the approach for assessing sites set out in the Essex County Council Biodiversity Validation Checklist (2015).

The qualitative assessment followed steps 2 and 3 from the six identified in the Essex Biodiversity Validation Checklist (2015):

- *Step 2 Protected Species and Priority Habitats Checklist – Is there a 'reasonable likelihood' that the development will affect (either directly or indirectly) a site or habitat in column 1 prior to applying mitigation? If 'yes', then a Biodiversity Statement and Mitigation Plan is required.*
- *Step 3 Protected and Priority Species – Is there a 'reasonable likelihood' that the development will affect a species prior to applying mitigation?' If 'yes', then a Biodiversity Statement and Mitigation Plan is required.*

For each site, potential effects on BAP habitats and species were identified and noted as either direct or indirect effects. Direct effects relate to the physical loss of BAP habitat through land take. However, indirect effects may occur from the construction and operation of sites that are in proximity to a BAP habitat or species that are recorded within the vicinity of the site.

For those sites where an impact was identified, a narrative was then provided to describe the type of species present and whether it was of value or a potential constraint to development (invasive species).

Where possible, individual habitats which may be affected by the proposed sites were stated within the qualitative text provided. However, due to character limits, this was not always possible where there were a number of habitats and / or species relevant to a site. However, this was not considered detrimental to the process, as all BAP habitats are weighted equally. Therefore explicit reference to individual habitats within the assessment is provided for information purposes only.

1.6 Impact on Local Wildlife Sites

(+)	0	(-)	(--)
Features and species in the site are retained and there are opportunities to enhance existing features.	Site has no effect as features and species could be retained or due to distance of local wildlife sites from site.	Features and species in the site may not be retained in their entirety but effects can be mitigated.	Features and species in the site unlikely to be retained and effects cannot be mitigated.

This assessment was undertaken by the Arup and cross-checked by the Council's ecology specialist.

The quantitative assessment filtered out any sites which do not intersect with identified Local Wildlife Sites or fall within a 250m buffer of such sites, scoring them 0. Other sites will be assessed qualitatively. The 250m buffer was selected to ensure consistency with the approach for assessing sites set out in the Essex County Council Biodiversity Validation Checklist (2015). The assessment followed steps 2 and 3 out of the six in the Checklist:

- *Step 2 Protected Species and Priority Habitats Checklist – Is there a 'reasonable likelihood' that the development will affect (either directly or indirectly) a site or habitat in column 1 prior to applying mitigation? If 'yes', then a Biodiversity Statement and Mitigation Plan is required.*
- *Step 3 Protected and Priority Species – Is there a 'reasonable likelihood' that the development will affect a species prior to applying mitigation? If 'yes', then a Biodiversity Statement and Mitigation Plan is required.*

For each site, potential effects on Local Wildlife Sites were identified and noted as either direct or indirect effects. Direct effects relate to the physical loss of part, or all of the Local Wildlife Site through physical land take. However, indirect effects may occur from the construction and operation of sites that are in proximity to Local Wildlife Site, as both habitats and species may be affected.

1.7 Flood Risk

	(++)	(+)	0	(-)	(--)
Housing	Site within Flood Zone 1	Site within Flood Zone 2 and exception test not required		Site within Flood Zone 3a where exception test required	Site within Flood Zone 3b and not likely to be suitable for development
Traveller	Site within Flood Zone 1	Site within Flood Zone 2 and exception test not required			Site within Flood Zone 3a or Flood Zone 3b and not likely to be suitable for development
Employment	Site within Flood Zone 1	Site within Flood Zone 2 and exception test not required	Site within Flood Zone 3a and exception test not likely to be required		Site within Flood Zone 3b and not likely to be suitable for development

This assessment was undertaken by Arup specialists.

The quantitative GIS assessment filtered out sites which fell entirely within one flood zone. Sites which fell into more than one zone were assessed qualitatively to determine the extent to which the higher risk flood zones (Zones 3a, 3b and 2) would constrain development, taking into account:

- The spatial extent of flood zones versus site area (in terms of overall proportions, configuration etc.) and the extent to which this would constrain some/all of the site for development;
- Whether the proposed site layout/development density (where applicable) aligned with the mapped flood constraints;
- Whether the proposed development could be re-orientated to mitigate against the flood risk.

1.8a. Impact on Scheduled Ancient Monument / Listed Building / Conservation Area / Historic Park or Garden

(++)	(+)	0	(-)	(--)
Opportunity for the site to enhance the significance of the heritage asset / further reveal its significance / enhance the setting.	Site is not likely to affect heritage assets due to their distance from the site.	Site is located within the setting of a heritage asset and effects can be mitigated.	Site is located within a Conservation Area or adjacent to a Listed Building or other heritage asset and effects can be mitigated.	Site would likely result in the loss of a heritage asset or result in a significant impact that cannot be mitigated.

This assessment was undertaken by the Council's heritage officer.

The quantitative GIS assessment filtered out sites that did not fall within defined buffers of historic assets, scoring them (+).

Different buffers were developed for each type of asset. Limited precedent was available to inform this process, but in developing the buffers best practice examples including the Design Manual for Roads and Bridges (2007) and site selection methodologies developed by other local authorities, were drawn upon where possible. An element of professional judgement was also applied to determine the perceived sensitivity of assets and their settings to development. The buffers used are as follows:

- 1 km of Scheduled Ancient Monuments;
- 1 km of Conservation Areas;
- 1 km of Registered Parks and Gardens;
- 1 km of Grade I listed buildings;
- 500m of Grade II* listed buildings.

Sites which do not contain Grade II listed buildings or Locally Listed Buildings (and also not subject to any other buffers) were also filtered out quantitatively and scored (+) at this stage. It was judged that, in general, the setting of these assets would be smaller and less sensitive to change and thus no buffer was applied.

Sites falling within the defined buffers or containing Grade II listed buildings or Locally Listed Buildings were then assessed qualitatively. In developing the approach to this assessment, reference was made to Historic England's suggested 'best practice' methodology for assessing the sites contained within Historic England Advice Note 3: *The Historic Environment and Site Allocations in Local Plans* (2015). The qualitative assessment encompassed Steps 1 to 3, as set out below, which were used to allocate a score as per the aforementioned criteria:

STEP 1 Understand what contribution the site (in its current form) makes to the significance of the heritage asset(s) including:

- *Understanding the significance of the heritage assets, in a proportionate manner, including the contribution made by its setting considering its physical surroundings, the experience of the asset and its associations (e.g. cultural or intellectual)*
- *Understanding the relationship of the site to the heritage asset, which is not solely determined by distance or inter-visibility (for example, the impact of noise, dust or vibration)*
- *Recognising that additional assessment may be required due to the nature of the heritage assets and the lack of existing information*
- *For a number of assets, it may be that a site makes very little or no contribution to significance.*

STEP 2 Identify what impact the allocation might have on that significance, considering:

- *Location and siting of development e.g. proximity, extent, position, topography, relationship, understanding, key views*
- *Form and appearance of development e.g. prominence, scale and massing, materials, movement*
- *Other effects of development e.g. noise, odour, vibration, lighting, changes to general character, access and use, landscape, context, permanence, cumulative impact, ownership, viability and communal use*
- *Secondary effects e.g. increased traffic movement through historic town centres as a result of new development*

STEP 3 Consider maximising enhancements and avoiding harm through:

Maximising Enhancement

- *Public access and interpretation*
- *Increasing understanding through research and recording*
- *Repair/regeneration of heritage assets*
- *Removal from Heritage at Risk Register*
- *Better revealing of significance of assets e.g. through introduction of new viewpoints and access routes, use of appropriate materials, public realm improvements, shop front design*

Avoiding Harm

- *Identifying reasonable alternative sites*
- *Amendments to site boundary, quantum of development and types of development*
- *Relocating development within the site*

- *Identifying design requirements including open space, landscaping, protection of key views, density, layout and heights of buildings*
- *Addressing infrastructure issues such as traffic management*

The assessment undertaken was entirely desk-based and based on the professional judgement of the Council's heritage officer. It did not take into account any additional information previously submitted by developers or promoters through the Call for Sites process.

1.8b Impact on Archaeology

(+)	0	(-)
There is a low likelihood that further archaeological assets would be discovered on the site.	There is a medium likelihood that further archaeological assets may be discovered on the site, but potential is unknown as a result of previous lack of investigation	Existing evidence and/or a lack of previous disturbance indicates a high likelihood for the discovery of high quality archaeological assets on the site

The quantitative GIS assessment allocated a score to each site based on whether it was touching a land parcel identified as having a low, medium or high archaeological potential. These parcels were categorised through the draft Historic Characterisation Study (2016).

Where a site touched two or more areas of different archaeological potential, the score was awarded based on the area with the highest potential (reflecting the potential for archaeological assets on at least part of the site)¹.

1.9 Impact of Air Quality

0	(-)	(--)
Site lies outside of areas identified as being at risk of poor air quality.	Site lies within an area which has been identified as being at risk of poor air quality, but it is likely that the risk could be mitigated or reduced.	Site lies within an area which has been identified as being at risk of poor air quality, and it is unlikely that the risk could be mitigated.

This assessment was undertaken by Arup air quality specialists.

The quantitative GIS assessment filtered out sites that did not fall within prescribed buffer zones for identified roads and emitters, scoring these 0.

The qualitative assessment considered the potential risks associated with siting development in locations with poor air quality and whether it would be possible to mitigate these effects. Larger emitters in the District, known as Part A Processes, were considered, as well as motorways and A-roads. Buffer zones were developed

¹ Excluding instances where less than 1% was touching the area with the highest potential, whereby the score was awarded based on the next lowest sensitivity. This was to account for minor anomalies in the spatial extent of sites.

for the identified emitters in line with the Design Manual for Roads and Bridges (2007) and based on professional judgement as follows:

- 200m for motorways and A-road dual carriageways;
- 50m for all other A-roads;
- 50m for the Part A Process emitters.

Sites were assessed qualitatively, considering the distance to main roads or junctions or the nature of identified emitters. Consideration was given to whether it would be possible to mitigate effects by reducing impacts to an acceptable level. In such cases, a more detailed air quality assessment would be recommended. For sites in very close proximity to major roads or junctions, a judgement was made on whether mitigation would be possible.²

2. Value to Green Belt

2.1 Level of Harm to the Green Belt

(++)	(+)	0	(-)	(--)
Site provides opportunities to assist in the active use of Green Belt without any loss	Site is not located in the Green Belt	Site is within Green Belt, but the level of harm caused by release of the land for development would be none	Site is within Green Belt, where the level of harm caused by release of the land for development would be very low, low or medium.	Site is within Green Belt, where the level of harm caused by release of the land for development would be high or very high.

This assessment was undertaken by Arup specialists.

The quantitative GIS assessment filtered out sites which fell entirely within one Green Belt parcel, assessed through the Stage 2 Green Belt Review (2016). The level of potential harm to the Green Belt attributed to these parcels was assigned in line with the Framework of Assessing Harm, set out in the Stage 2 Green Belt Review Methodology (2016):

Stage 2 assessment of parcels	Potential harm caused by release of parcel
Makes a STRONG contribution to one or more Green Belt purposes	Very high
Makes a RELATIVELY STRONG contribution to one or more Green Belt purposes	High

² For example, at a traveller site close to a major motorway mechanical ventilation there is unlikely to be an option for mitigation.

Stage 2 assessment of parcels	Potential harm caused by release of parcel
Makes a MODERATE contribution to one or more Green Belt purposes. No strong or relatively strong contribution to any purpose	Medium
Makes a RELATIVELY WEAK contribution to one or more Green Belt purposes. No strong, relatively strong or moderate contribution to any purpose	Low
Makes a WEAK contribution to one or more Green Belt purposes. No strong, relatively strong, moderate or relatively weak contribution to any purpose	Very low
Makes NO contribution to any Green Belt purposes.	None

The assessment also filtered out sites which were located outside of the Green Belt at this stage, scoring them (+).

The qualitative assessment applied to sites which fell into more than one parcel with a different classification of potential harm. The assessment considered, for these sites, the extent to which development may harm the Green Belt. The assessment initially considered the spatial extent of different parcels versus the site area (in terms of overall proportions spatial extent etc.). For example, where a substantial proportion of a site fell within one parcel, the potential level of harm was assigned based on the overall classification for this parcel. However, in some cases sites clearly overlapped parcel boundaries identified as part of the draft Stage 2 Green Belt Assessment and therefore a judgement was made as to the anticipated harm. This judgement weighed up the following considerations:

- The role of the Green Belt parcels in meeting the NPPF purposes, as identified in the Draft Stage 2 Green Belt Assessment, and a justified assessment of the applicability of this to the site (for example, while a wider parcel may meet a purpose strongly, the identified site may make a lesser contribution). Where this is the case this was documented;
- The relationship of the sites to the two (or more) Green Belt parcels which it overlaps in terms of function or character;
- The presence of any buffer features which may separate the site, visually and/or physically, from the wider parcel(s);
- The overall importance of the site in terms of its wider context, for example in terms of scale.

These factors were considered based on a desk-based assessment utilising existing information from the draft Stage 2 Green Belt Assessment and other sources such as aerial photography (where applicable).

Some sites overlapped with areas of land which were not assessed as part of the draft Stage 2 Green Belt Assessment. This included small areas which were beyond the defined broad locations for further assessment, identified at the end of the Stage 1 Green Belt Assessment, as well as areas which were 'filtered' and not

assessed as a result of particular constraints. A judgement of anticipated harm to the Green Belt was made, weighing up:

- The assessment of the land against the Green Belt purposes during the Stage 1 Green Belt Assessment and a justified assessment of the applicability of this to the site (for example, while a wider parcel may meet a purpose strongly, the identified site may make a lesser contribution); and
- The physical and functional relationship of this land to adjoining land which assessed as part of the draft Stage 2 Green Belt Assessment, and the potential transferability of the assessment outcomes to this wider area.

Where additional information was available on sites, opportunities to assist in the active use of the Green Belt were explored where there would be no loss of Green Belt land, including proposals for recreation uses, publicly accessible open space and green infrastructure.

3. Accessibility by public transport and to services

All sites were assessed quantitatively using GIS analysis.

Essex County Council's appointed transport consultant Ringway Jacobs were commissioned by the Council to develop and implement a sustainable accessibility ranking for residential development sites over 25 units, identified through the Strategic Land Availability Assessment (SLAA) (Nathaniel Lichfield and Partners, March 2016). A series of weighted indicators were developed, each representing a different measure of sustainable accessibility in line with those set out in Department for Transport (DfT) WebTAG guidance. Full details of the methodology for this work are set out in Technical Note 7 of the Local Plan Highway Impact Assessment (Ringway Jacobs and ECC, 2016).

The site selection assessment drew upon this process, though it should be noted that the precise methodology has not been adopted for site selection given the disproportionate weighting that 25 accessibility indicators would place upon transport considerations. A more limited sub-set have been selected and a similar methodology followed to ensure parity of results, where possible. The following factors should be noted:

- With respect to how distances from sites to different assets have been calculated, consistency was sought where possible. Ringway Jacobs measured distances manually using measurement tools in GIS, making use of a 1:25,000 OS basemap. Distances were measured 'as the crow flies' from the centre of the sites to the nearest highway, and then followed the street pattern to calculate the network distance manually to the asset in question (generally point data, schools, GPs etc., aside from town centres, which is discussed further below). The site selection assessment utilised a 1:25,000 OS network, derived from the same raster maps used by Ringway Jacobs, and undertook network analysis in GIS. This calculates distances based on a network of streets (as opposed to 'as the crow flies').
- For criteria 3.1 the assessment considered the distance from sites to the nearest railway or London Underground stations (both within and outside the

District). In line with Ringway Jacobs, railway stations on the Epping and Ongar Railway were omitted from the assessment.

- For criteria 3.2 the assessment considered the distance from sites to the nearest bus stops with an hourly service frequency (or greater). The dataset utilised was in line with that used by Ringway Jacobs (excluding some urban bus stops in the very south of the District which are located on London bus routes not supplied in the Ringway Jacobs dataset)³. This data was for the District only and did not include data for neighbouring local authority areas.
- For local amenities, criteria 3.4, Ringway Jacobs used professional judgement to identify the edge of major town centres - the point at which there was a clear transition from residential to commercial land uses. In order for this to be modelled in GIS, the site selection assessment utilised the same method but plotted specific areas as shapefiles for use in the GIS model. This was sense checked by Ringway Jacobs to ensure consistency in approach. A different range of settlements were utilised, recognising that local service centres are likely to meet the convenience needs of smaller sites and also to ensure consistency with the Council's Settlement Hierarchy Technical Paper (2015). The centres used by Ringway Jacobs were Chipping Ongar, Epping, Loughton (Broadway and High Road) and Waltham Abbey. In contrast, service centres were identified for all Towns, Large Villages and Small Villages in the site selection assessment, as defined by the Settlement Hierarchy Technical Paper. Small Villages where no obvious service centres could be identified from Streetview/Google maps were excluded from the assessment (Chigwell Row, Fyfield, Matching, Stapleford Abbots and Thornwood). The spatial extent of centres was confirmed with Council officers.
- Datasets for schools (infant and primary/secondary) and GPs, criteria 3.5-3.7, were taken from the data provided by Ringway Jacobs. For schools, this only includes state provided education which is accessible for all, located within the District⁴.
- For criteria 3.8, the strategic road network and distance thresholds were identified in line with the Employment Land Review (2010).

³ Bus stop data supplied by Jacobs Ringway and data on routes and frequency of buses derived from Essex County Council *Cartogold* and Google Maps. All data correct as of 2014.

⁴ Schools and GPs data supplied by Jacobs Ringway and correct as of 2014.

		Land Use	(++)	(+)	0	(-)	(--)
3.1	Distance to the nearest rail/tube station	All		Site is less than 1000m from the nearest rail or tube station	Site is between 1000m and 4000m from the nearest rail or tube station	Site is more than 4000m from the nearest rail or tube station	
3.2	Walking distance to nearest bus stop (with at least peak hourly day service)	All		Site is within 400m of a bus stop.	Site between 400m and 1000m of a bus stop.	Site more than a 1000m from a bus stop.	
3.3	Access to employment	Housing and Traveller		Site is within 1600m of an employment site/ location.	Site is more than 1600m and less than 2400m from an employment site/ location.	Site is more than 2400m from an employment site/ location.	
3.4	Distance to local amenities	All		Site is less than 1000m from nearest town, large village or small village.	Site is between 1000m and 4000m from nearest town, large village or small village.	Site is more than 4000m from the nearest town, large village or small village.	
3.5	Distance to nearest infant/ primary school	Housing and Traveller		Site is less than 1000m from the nearest infant/ primary school.	Site is between 1000m and 4000m from the nearest infant/ primary school.	Site is more than 4000m from the nearest infant/ primary school.	
3.6	Distance to nearest secondary school	Housing and Traveller		Site is less than 1000m from the nearest secondary school.	Site is between 1000m and 4000m from the nearest secondary school.	Site is more than 4000m from the nearest secondary school.	
3.7	Distance to nearest GP surgery	Housing and Traveller		Site is less than 1000m from the nearest GP surgery.	Site is between 1000m and 4000m from the nearest GP surgery.	Site is more than 4000m from the nearest GP surgery.	
3.8	Access to Strategic Road Network	Employment	The site is immediately adjacent to the Strategic Road Network.	The site is within 1km of the Strategic Road Network.	The site is 1-3km from the Strategic Road Network.	The site is 3-10km from the Strategic Road Network.	The site is more than 10km from the Strategic Road Network

4. Efficient Use of Land

4.1 Brownfield and Greenfield Land

(++)	(+)	0	(-)	(--)
Majority of the site is previously developed land within or adjacent to a settlement	Majority of the site is greenfield land within a settlement	Majority of the site is previously developed land that is neither within nor adjacent to a settlement	Majority of the site is greenfield land adjacent to a settlement	Majority of the site is greenfield land that is neither within nor adjacent to a settlement

This assessment refined the analysis undertaken as part of the Council's SLAA, identifying whether a site was greenfield or brownfield land and whether it is located inside or outside of a settlement (using Green Belt boundaries as a proxy for settlement boundaries). Where a site was a 'split site', consisting of 50% brownfield/greenfield, (unless otherwise stated qualitative assessment text) this was recorded in the narrative but for the purposes of scoring it was assumed that the majority of the site was greenfield.

Where a site had not been assessed through the SLAA, (some sites assessed in 2016 and all sites assessed in 2017), a qualitative, desk-based assessment of land-use coverage was undertaken using aerial photography. Land uses were judged as brownfield based on the definition set out in Annex 2 of the NPPF (2012). Where a site straddled Green Belt land and a settlement, the larger proportion of land was used for the purposes of scoring whether the site was located within or adjacent to a settlement.

4.2 Impact on Agricultural Land

0	(-)	(--)
Development of the site would not result in the loss of agricultural land.	Development of the site would result in the loss of poorer quality agricultural land (grades 4-5).	Development of the site would involve the loss of best and most versatile agricultural land (grades 1-3).

All sites were assessed quantitatively using GIS analysis. The quality of agricultural land is identified spatially in Natural England's Regional Agricultural Land Classification Maps. These were originally produced at a strategic level (at a scale of one inch to one mile) between 1967 and 1974, and updated following amendments to the classification system in 1988. Since these changes, more detailed maps have been prepared on a piecemeal basis; at present, these do not cover Epping Forest District.

To account for discrepancies between the classification of agricultural land and the current built extent of settlements in Epping Forest District, it was assumed that sites falling outside of the Green Belt do not encompass agricultural land (because of the tightly-drawn Green Belt boundaries throughout the District).

The quantitative GIS assessment filtered out these sites automatically, scoring them 0. Other sites were scored based on the highest grade of agricultural land found in the site.

4.3 Capacity to Improve Access to Open Space

(+)	0	(-)	(--)
Development could provide an opportunity to improve links to adjacent existing public open space or provide access to open space which is currently private.	Development unlikely to involve the loss of public open space.	Development may involve the loss of public open space but with opportunities for on-site off-setting or mitigation.	Development may involve the loss of public open space with no opportunities for on-site off-setting or mitigation.

The quantitative GIS assessment filtered out sites which were not within, scoring them 0. Spatial data on open spaces was derived from the Council's Open Space, Sport and Recreation Assessment (2012).

Other sites were assessed qualitatively, adopting the following broad principles

- For sites identified as overlapping existing open spaces, the assessment considered the extent to which open space might be lost as a result of proposed development. This took into account the scale of the overlap as well as its location in relation to the wider site. If it was judged likely that open space would be lost, the ability to mitigate this or the potential for on-site provision was considered.
- For all other sites, a qualitative assessment was undertaken considering potential opportunities to improve access to existing adjacent open spaces or provide new areas open space which might be of benefit to the wider community.

5 Landscape and Townscape Impact

5.1 Landscape Sensitivity

0	(-)	(--)
Site falls within an area of low landscape sensitivity - characteristics of the landscape are able to accommodate development without significant character change.	Site falls within an area of medium landscape sensitivity - characteristics of the landscape are resilient to change and able to absorb development without significant character change.	Site falls within an area of high landscape sensitivity - characteristics of the landscape are vulnerable to change and unable to absorb development without significant character change.

This assessment was undertaken by the Council's landscape officer.

This quantitative GIS assessment allocated a score to each site based on whether it was within an area identified as having a low, medium or high landscape

sensitivity, based on the findings of the Council's Settlement Edge Landscape Sensitivity (SELS) assessment (2012).

Sites which straddled different areas, fell within settlements or were not assessed through the SELS study were assessed qualitatively. The approach to qualitative assessment differed depending on the location of the site as follows:

- Sites within settlements: It was assumed that most sites would not have an impact on landscape character. To assess the potential impact, consideration was given to: distance from settlement boundary, presence/ absence of potential views in from wider countryside and the nature of the proposed development, particularly height, and including internal screening, (existing or proposed).
- Sites which straddle more than on zone within the SELS: The extent to which the different SELS area covered the sites was reviewed. This took into account the extent to which the impact could be mitigated/harm reduced in the higher sensitivity area.
- Sites not covered by SELS: The impact of sites on landscape character and visual sensitivity was considered, drawing on broader guidance referenced through the SELS, including the Landscape Character Assessment (2009).

5.2 Settlement Character Sensitivity

(+)	0	(-)	(--)
Development may improve settlement character through redevelopment of a run-down site or improvement in townscape.	Development is unlikely to have an effect on settlement character.	Development could detract from the existing settlement character.	Development is likely to substantially harm the existing settlement character.

This assessment was undertaken by Arup specialists.

This criteria was assessed qualitatively based on the information contained within the draft Settlement Appraisals, Settlement Edge Landscape Sensitivity Study and draft Historic Characterisation Report (2016), as well as a range of other desk-top data sources (including satellite imagery, Google Street View and address point data). For each site, the following factors were considered:

- Whether the site represented an opportunity for regeneration and/or to improve the settlement character;
- Whether the site proposals (where available) were judged as compatible with the surrounding area – this is predominantly in terms of land use, built form (or lack of), density, quantum of development, views etc.;
- How sensitive the location is to change and whether the proposed development respects/recognises that;

- Whether any adverse effects from the proposed development could be mitigated and if so in broad terms what would that be⁵.

The assessment also considered a range of other factors as appropriate, where relevant to settlement character, including heritage assets, open space, green infrastructure and ecology.

6 Physical Site Constraints and Site Conditions

6.1 Topography Constraints

0	(-)	(--)
No topography constraints are identified in the site.	Topographical constraints exist in the site but potential for mitigation.	Topographical constraints in the site may preclude development.

All sites were assessed quantitatively using GIS analysis. A topographical model was constructed using 50m contour data. Sites were analysed using GIS to determine the mean gradient and categorised based on the following broad principles:

- Sites with a mean gradient of 1:39 or less steep were judged to have no topographical constraints;
- For sites with a mean gradient of between 1:39 and 1:20, it was judged that topographical constraints could be mitigated;
- For sites with a mean gradient of more than 1:20 or steeper it was judged that topographical profile may constrain development.

6.2a Distance to Oil and Gas Pipelines

0	(-)	(--)
Gas or oil pipelines do not pose any constraint to the site.	Gas or oil pipelines may constrain part of the site but there is potential for mitigation.	Gas or oil pipelines pose a major constraint to development. They will be difficult to overcome and affect a large part of the site.

This assessment was undertaken by Arup specialists.

The quantitative assessment filtered out sites which do not intersect with the HSE Inner or Middle Zone, or the BPA oil pipeline, scoring them 0.

Other sites were assessed qualitatively to determine how protected gas/oil pipelines would constrain the development of the site, focusing on three factors:

- The location of the pipeline and/or Inner/Middle Zone in relation to the site;
- The proposed development type and scale in relation to the criteria set out in the current HSE Land Use Planning Methodology for high pressure gas

⁵ For example, through sympathetic design.

pipelines. This details what type of development would/would not be recommended for development in close proximity to pipelines; and

- Potential to incorporate areas free of built form or less sensitive development (as detailed in the current HSE Land Use Planning Methodology) in locations affected by the pipeline and/or Inner/Middle Zone. Such mitigation may be possible through the detailed layout of the site, for example.
- For oil pipelines, where land use planning guidance is not available, a qualitative assessment was undertaken to assess potential impact on the operation and maintenance of the pipelines, and safety concerns arising from development (including construction) in proximity to the pipeline.

6.2b Distance to Power Lines

0	(-)	(--)
Power lines do not pose a constraint to the site.	Power lines may constrain part of the site but there is potential for mitigation.	Power lines pose a major constraint to development. They will be difficult to overcome and affect a large part of the site

This assessment was undertaken by Arup specialists.

The assessment refined the analysis undertaken as part of the Council's SLAA, identifying how surface power lines would constrain development. Sites not assessed as part of the SLAA were assessed using spatial data for power lines provided by National Grid. The quantitative GIS filtered out all sites that do not touch power lines, scoring them 0. Sites intersected by a power line were subject to further qualitative assessment based on the guidance produced by National Grid on safe distances and design of developments directly adjacent to high voltage power lines (Development near overhead lines (2008) and Electricity Transmission Overhead Lines – Guidance (2009)). Drawing on this guidance, the following factors were considered:

- Potential to incorporate amenity areas free of built development along an overhead line route (for example, car parking for employment, landscaping in residential areas etc.).
- Potential for mitigation to reduce amenity impacts (particularly for housing sites), for example, noise and visual impacts.

6.3 Impact on Tree Preservation Orders

0	(-)	(--)
The intensity of site development would not be constrained by the presence of protected trees either on or adjacent to the site.	The intensity of site development would be constrained by the presence of protected trees either on or adjacent to the site.	The site has severely limited feasibility for development as a result of the extensive presence of protected trees, either on or adjacent to the site.

This assessment was undertaken by the Council's landscape officer.

The quantitative GIS assessment filtered out sites which do not contain any TPO'd trees, scoring them 0. Other sites were assessed qualitatively, taking into account the extent and location of tree-cover across the site and the potential impact of the proposed development on trees including whether the design of development could sensitively accommodate trees.

6.4 Access to Site

(+)	0	(-)	(--)
Suitable access to site already exists.	Access to the site can be created within landholding adjacent to the highway.	Potential for access to the site to be created through third party land and agreement in place, or existing access would require upgrade.	There is no means of access to the site and no likely prospect of achieving access.

In 2016, this assessment was undertaken by Arup specialists. This assessment refined the analysis undertaken as part of the Council's SLAA, and where appropriate replicated the assessment undertaken for those not considered through the SLAA. For these sites, a qualitative desk-based assessment was undertaken using Ordnance Survey and OpenStreetMap basemaps to identify existing access points, as well as surrounding highways and the potential to create access to the network where these did not exist. Professional judgement was employed to determine the feasibility of creating new access, particularly focusing on sites that were remote from the existing highways network.

For sites assessed in 2017, Council officers undertook a series of site visits to identify access points. The methodology followed for the assessment was aligned with that used by Nathaniel Lichfield Partners to inform the SLAA ensure consistency between sites assessed in 2016 and 2017. Each site was visited by a site team of Council officers who then used their professional judgement to assign a score. The conclusions reached from site visits were then refined and checked through a desk-based assessment and final scores confirmed.

6.5 Contamination Constraints

0	(-)	(--)
No contamination issues identified on site to date.	Potential contamination on site, which could be mitigated.	Potential severe contamination on site, where assurances would have to be sought from the developer that remediation would not harm site viability.

This assessment was undertaken by the Council's contamination officer.

The assessment refined the analysis undertaken as part of the Council's SLAA. In the SLAA, a RAG assessment of on-site contamination was undertaken by the Council's contamination officer with sites categorised as: 'green', those with no contamination; 'yellow', sites were those with minor contamination which could be mitigated; or 'red' sites where development potential could be severely

impacted by contamination and where assurances would have to be sought from the developer that remediation would not harm site viability.

For sites not assessed through the SLAA, an equivalent assessment was sought from the Council's contamination officer following the same methodology.

6.6 Traffic Impact

0	(-)	(--)
Area around the site expected to be uncongested at peak time.	Low level congestion expected at peak times within the vicinity of site.	Moderate peak time congestion expected within the vicinity of the site.

This assessment was undertaken by Essex County Council's appointed highways consultant Ringway Jacobs.

The assessment considers all employment sites, but only it considers residential sites with a capacity of over 25 units; this is on the basis that sites with capacities below these thresholds are unlikely to individually generate a significant impact on the road network. Since traveller sites were not assessed for more than 15 pitches they were not subject to this assessment.

The assessment for this criteria utilises an output from the Ringway Jacob sustainable accessibility assessments, specifically the scale of peak hour congestion expected in vicinity of site criteria. This assessment considers proximity to congestion plots derived from journey time data, which display the percentage of the free-flow traffic speed achieved on the main roads in Essex in the peak hours. For sites assessed in 2016, the source of the journey time data was 2014/15 TrafficMaster. For sites assessed in 2017, the source of the journey time data was 2015/2016 TrafficMaster.