

M25 junction 28 improvement scheme TR010029

6.1 Environmental Statement Chapter 11: Cultural heritage

APFP Regulation 5(2)(a)
Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009



Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

M25 junction 28 scheme Development Consent Order 202[x]

6.1 ENVIRONMENTAL STATEMENT CHAPTER 11: CULTURAL HERITAGE

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Executive summary

The cultural heritage assessment of the Scheme has considered impacts on heritage assets that may occur during the construction and operation of the Scheme. This includes direct physical impacts, as well as indirect impacts to heritage assets and their settings.

During the construction phase, slight adverse effects are predicted on five heritage assets. These are the result of the removal of materials from three areas of archaeological significance and changes in the setting of two heritage assets. None of the effects are significant.

The operation of the Scheme would not result in any adverse effects.

Impacts to the known and as-yet unknown archaeological remains will be mitigated through measures to be set out in the Construction Environmental Management Plan (CEMP), which is secured by requirement 4 of the Development Consent Order (DCO), including an archaeological programme of works, and design measures to reduce the visual and noise intrusions into the settings of heritage assets. The CEMP must be substantially in accordance with the Outline CEMP (application document TR010029/APP/7.2). The implementation of the CEMP commitments would reduce the impacts to heritage assets and lessen the significance of the effect, so that no residual significant effects are anticipated.

11. Cultural heritage

11.1 Introduction

11.1.1 This chapter identifies the cultural heritage study area and presents the known historic environment resource therein. It identifies the potential impacts on cultural heritage assets (designated and non-designated) associated with the Scheme during construction and operation and discusses mitigation measures that could be applied to mitigate any potentially significant adverse effects. An assessment of environmental effects, including residual effects, is presented in this chapter.

11.2 Competent expert evidence

- 11.2.1 This cultural heritage assessment has been undertaken by the following individuals who have used their knowledge and professional judgement to undertake this assessment:
- A Senior Heritage Consultant (BA, MA), Member of the Chartered Institute for Archaeology, with 25 years of experience in archaeology and archaeological consultancy.
 - A Senior Heritage Consultant (BA, MA), Associate member of the Chartered Institute for Archaeology, with nine years of experience in archaeology and archaeological consultancy.
 - A Heritage Consultant (BA, MA, MPhil), Member of the Chartered Institute for Archaeology, with 21 years of experience in archaeology and archaeological consultancy.

11.3 Legislative and policy framework

11.3.1 The legislative and policy framework for this assessment has been outlined in Table 11.1.

Table 11.1: Legislation, regulatory and policy framework

| Legislation / regulation | Summary of requirements |
|--|---|
| National | |
| Ancient Monuments and Archaeological Areas Act (1979) ¹ | The Act provides protection to scheduled monuments or ancient monuments which can comprise ‘any other monument which in the opinion of the Secretary of State is of public interest by reason of the historic, architectural, traditional, artistic or archaeological interest attaching to it’. Monuments are defined in Section 61 as: <ul style="list-style-type: none"> ‘(a) any building, structure or work, whether above or below the surface of the land, and any cave or excavation; (b) any site comprising the remains of any such building, structure or work or of any cave or excavation; and (c) any site comprising, or comprising the remains of, any vehicle, vessel, aircraft or other movable structure or part thereof which neither constitutes nor forms part of any work which is a monument within paragraph (a) above; |

¹ http://www.legislation.gov.uk/ukpga/1979/46/pdfs/ukpga_19790046_en.pdf

| Legislation / regulation | Summary of requirements |
|--|---|
| | <p>and any machinery attached to a monument shall be regarded as part of the monument if it could not be detached without being dismantled.’</p> <p>The Act requires any works within a scheduled monument to receive Scheduled Monument Consent. The Act also gives powers to the Secretary of State to designate ‘Areas of Archaeological Importance’.</p> |
| <p>Planning (Listed Buildings and Conservation Areas) Act (1990)²</p> | <p>Provides protection to Listed Buildings and conservation areas of ‘special architectural or historic interest’. Section 66 of the Act states that ‘In considering whether to grant permission or permission in principle for development which affects a listed building or its setting, [decision makers] shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses’.</p> <p>Section 72 of the Act also addresses conservation areas, which decision makers must pay special attention to the desirability of preserving or enhancing the[ir] character or appearance.</p> |
| <p>National Policy Statement for National Networks (NPS NN)³</p> | <p>Under the 2008 Planning Act, covering Nationally Significant Infrastructure Projects, policy with regard to assessment of the historic environment effects of nationally significant transport infrastructure is laid out in the NPS NN.</p> <p>Historic Environment Policy is laid out in paragraphs 5.120 to 5.142 of the NPS NN. The key aspects which should be addressed are as follows:</p> <ul style="list-style-type: none"> • the significance, setting and viability of the heritage assets likely to be affected by the proposed development should be considered. • when considering the impact of a proposed development on the significance of a designated heritage asset great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. • harm or loss affecting any designated heritage asset should require clear and convincing justification - substantial harm to or loss of a grade II Listed building or grade II Registered Park or Garden should be exceptional; substantial harm to or loss of designated assets of the highest significance should be wholly exceptional. <p>NPS NN embodies an underlying principle of balancing harm and benefit which places greater weight on the conservation of more important assets. Where less than substantial harm would occur, there is a need to ensure that harm is justified and minimised and that the wider public benefits of the proposals are appropriately articulated. The stronger the harm, the greater the justification must be in terms of public benefits.</p> <p>When identifying whether harm has previously affected the significance of a heritage asset, deliberate harm should be disregarded during the decision-making process. Both paragraph 5.138 of the NPS NN, as well as paragraph 014 (Reference ID: 18a-014-20140306) of the National Planning Policy Guidance (NPPG), note that evidence of deliberate neglect of, or damage to, a heritage asset which has been done to try to make permission easier to gain, cannot be used to justify further substantial harm caused by the Scheme.</p> |

² <http://www.legislation.gov.uk/ukpga/1990/9/contents>

³ <https://www.gov.uk/government/publications/national-policy-statement-for-national-networks>

| Legislation / regulation | Summary of requirements |
|--|---|
| <p>National Planning Policy Framework (NPPF)⁴</p> | <p>The NPPF (2019) specifies that heritage assets ‘should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations’ (Paragraph 184).</p> <p>The following paragraphs are of particular relevance to this chapter:</p> <ul style="list-style-type: none"> • Paragraph 189: Applicants for planning permission should ‘describe the significance of any heritage assets affected, including and contribution made by their setting. The level of detail should be proportionate to the assets’ importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant Historic Environment Record (HER) should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.’ • Paragraph 192: ‘In determining planning applications, local planning authorities should take account of: <ol style="list-style-type: none"> a. The desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation; b. The positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality, and c. The desirability of new development making a positive contribution to local character and distinctiveness.’ • Paragraph 193: ‘When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset’s conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance’ • Paragraph 194: Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting) Substantial harm to or loss of: <ol style="list-style-type: none"> a. grade II listed buildings or grade II registered park or garden should be exceptional b. assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.’ <p>Footnote 63: ‘non-designated heritage assets of archaeological interest, which are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets’</p> • Paragraph 195: ‘Where a proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset, local planning authorities should refuse consent, unless it can be demonstrated that the substantial harm or loss is necessary to achieve substantial harm or total loss is necessary to |

⁴

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

| Legislation / regulation | Summary of requirements |
|---|---|
| | <p>achieve substantial public benefits that outweigh that harm or loss, or all of the following apply:</p> <ol style="list-style-type: none"> a. the nature of the heritage asset prevents all reasonable uses of the site; and b. no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation; and c. conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible; and d. the harm or loss is outweighed by the benefit of bringing the site back into use.’ <ul style="list-style-type: none"> • Paragraph 196: ‘Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate, securing its optimum viable use.’ • Paragraph 197: ‘The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that effect directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.’ • Paragraph 198: ‘Local planning authorities should not permit the loss of the whole or part of a heritage asset without taking all reasonable steps to ensure the new development will proceed after the loss has occurred.’ <p>Paragraph 199: ‘Local planning authorities should require developers to record and advance understanding of the significance of any heritages to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible.</p> |
| <p>National Planning Policy Guidance (NPPG)⁵</p> | <p>The DCLG published NPPG online in 2014, to expand upon the NPPF. ‘18a: Conserving and Enhancing the Historic Environment’ was published in April 2014. The Guidance notes that ‘conservation is an active process of maintenance and managing change. It requires a flexible and thoughtful approach to get the best out of assets as diverse as Listed Buildings to as yet undiscovered, undesignated buried remains of archaeological interest’.</p> <p>The NPPF and the NPPG identify two categories of non-designated sites of archaeological interest:</p> <ul style="list-style-type: none"> • ‘Those that are demonstrably of equivalent significance to Scheduled Monuments and are therefore considered subject to the same policies as those for designated heritage assets’ (NPPG citing National Planning Policy ‘Framework Paragraph 139), and • ‘Other non-designated heritage assets of archaeological interest. By comparison this is a much larger category of lesser heritage significance, although still subject to the conservation objective. On occasion, the understanding of a site may change following assessment and evaluation prior to a planning decision and move it from this category to the first’ (NPPG). <p>The NPPG also clarifies how to assess if there is substantial harm: ‘Whether a proposal causes substantial harm will be a judgment for the decision taker, having regard to the circumstances of the case and the policy in the National Planning Policy Framework. In general</p> |

⁵ <https://www.gov.uk/guidance/conserving-and-enhancing-the-historic-environment>

| Legislation / regulation | Summary of requirements |
|--------------------------|---|
| | <p>terms, substantial harm is a high test, so it may not arise in many cases... an important consideration would be whether the adverse impact seriously affects a key element of [an asset's] significance'.</p> <p>It also states: 'While the impact of total destruction is obvious, partial destruction is likely to have a considerable impact but, depending on the circumstances, it may still be less than substantial harm or conceivable not harmful at all, for example, when removing later inappropriate additions to historic buildings which harm their significance. Similarly, works that are moderate or minor in scale are likely to cause less than substantial harm or no harm at all. However, even minor works have the potential to cause substantial harm'.</p> <p>Where proposals result in less than substantial harm to a heritage asset, the level of harm must be weighed against the public benefits derived from the Scheme. The NPPG notes that public benefits 'could be anything that delivers economic, social, or environmental progress' as defined in the NPPF and that they 'should be of a nature or scale to be of benefit to the public at large and should not just be a private benefit. However, benefits do not always have to be visible or accessible to the public in order to be genuine public benefits'.</p> |
| Regional | |
| <p>The London Plan</p> | <p>Policy 7.8 (Heritage assets and archaeology) refers to London's heritage assets and historic environment, including listed buildings, registered historic parks and gardens and other natural and historic landscapes, conservation areas, World Heritage Sites, registered battlefields, scheduled monuments, archaeological remains and memorials should be identified, so that the desirability of sustaining and enhancing their significance and of utilising their positive role in place shaping can be taken into account.</p> <p>Any development affecting heritage assets should:</p> <ul style="list-style-type: none"> • Incorporate measures that identify, record, interpret, protect and, where appropriate, present the site's archaeology as well as conserve their significance by being sympathetic to their form, scale, materials and architectural details; • Identify, value, conserve, restore, re-use and incorporate heritage assets, where appropriate; and • Conserve their significance, by being sympathetic to their form, scale, materials and architectural detail. <p>New development should make provision for the protection of archaeological resources, landscapes and significant memorials. The physical assets should, where possible, be made available to the public on-site. Where the archaeological asset or memorial cannot be preserved or managed on-site, provision must be made for the investigation, understanding, recording, dissemination and archiving of that asset.</p> <p>Paragraph 7.31 requires development to acknowledge the 'significant contribution' which heritage assets, such as conservation areas make to local character, and should be protected from 'inappropriate development that is not sympathetic in terms of scale, materials, details and form'. Furthermore, the Plan states that development 'that affects the setting of heritage assets should be of the highest quality of architecture and design'. Paragraph 7.31A continues, stating that where 'a development proposal will lead to less than substantial harm to the significance of a designated asset, this harm should be weighed against the public benefits of the proposal'.</p> |

| Legislation / regulation | Summary of requirements |
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| <p>The Draft London Plan (2019)⁶</p> | <p>Policy HC1 notes that:</p> <ol style="list-style-type: none"> a. Boroughs should, in consultation with Historic England and other relevant statutory organisations, develop evidence that demonstrates a clear understanding of London’s historic environment. This evidence should be used for identifying, understanding, conserving, and enhancing the historic environment and heritage assets, and improving access to the heritage assets, landscapes and archaeology within their area. b. Development Plans and strategies should demonstrate a clear understanding of the historic environment and the heritage values of sites or areas and their relationship with their surroundings. This knowledge should be used to inform the effective integration of London’s heritage in regenerative change by: <ol style="list-style-type: none"> 1. setting out a clear vision that recognises and embeds the role of heritage in place-making 2. utilising the heritage significance of a site or area in the planning and design process 3. integrating the conservation and enhancement of heritage assets and their settings with innovative and creative contextual architectural responses that contribute to their significance and sense of place 4. delivering positive benefits that sustain and enhance the historic environment, as well as contributing to the economic viability, accessibility and environmental quality of a place, and to social wellbeing. c. Development proposals affecting heritage assets, and their settings, should conserve their significance, by being sympathetic to the assets’ significance and appreciation within their surroundings. The cumulative impacts of incremental change from development on heritage assets and their settings, should also be actively managed. Development proposals should seek to avoid harm and identify enhancement opportunities by integrating heritage considerations early on in the design process. d. Development proposals should identify assets of archaeological significance and use this information to avoid harm or minimise it through design and appropriate mitigation. Where applicable, development should make provision for the protection of significant archaeological assets and landscapes. The protection of undesignated heritage assets of archaeological interest equivalent to a scheduled monument should be given equivalent weight to designated heritage assets. e. Where heritage assets have been identified as being At Risk, boroughs should identify specific opportunities for them to contribute to regeneration and place-making, and they should set out strategies for their repair and re-use. |
| Local | |
| <p>London Borough of Havering Core Strategy and Development Control Policies Development Plan 2008⁷ and the proposed submission version of the London</p> | <p>Policy DC67 which concerns buildings of heritage interest, states that permission will only be granted where the development does not either involve the demolition of a listed building or adversely affect a listed building.</p> <p>Policy DC70 concerns Archaeology and Ancient Monuments. The Council will ensure that the archaeological significance of sites is taken into account when making planning decisions and will take</p> |

⁶ <https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/draft-new-london-plan/>

⁷ <https://www3.havering.gov.uk/Documents/Planning/LDF/Core-Strategy-Development-Control.pdf>

| Legislation / regulation | Summary of requirements |
|--|---|
| <p>Borough of Havering's Local Plan (2017)⁸</p> | <p>appropriate measures to safeguard that interest. Planning permission will only be granted where satisfactory provision is made in appropriate cases for preservation and recording of archaeological remains in situ or through excavation. Where nationally important archaeological remains exist there will be a presumption in favour of their physical preservation. Particular care will need to be taken when dealing with applications in archaeological 'hotspots' where there is a greater likelihood of finding remains.</p> <p>Policy DC71 concurs in regard to land, with the character of historic parks and common land being protected and enhanced, with particular consideration to the protection of views.</p> <p>Policy CP18 outlines the need for 'all new development affecting sites, buildings, townscapes and landscapes of special architectural, historical or archaeological importance' to 'preserve or enhance their character or appearance'.</p> <p>The proposed submission version of the London Borough of Havering's Local Plan (2017) Policy 28 notes that the Borough will support Proposals affecting the significance of a heritage asset with archaeological interest, including the contribution to significance made by its setting, where:</p> <ol style="list-style-type: none"> a. The proposals are supported by an appropriate assessment of the asset's significance; b. Any harm is minimised, clearly justified and necessary to achieve public benefits that are substantial enough to outweigh loss or harm to the asset's significance; and c. The significance of any asset or part of an asset to be lost is recorded and made publicly accessible. |
| <p>London Borough of Havering Supplementary Planning Document (2011)⁹</p> | <p>The London Borough of Havering adopted a Heritage Supplementary Planning Document in 2011. This provides relevant guidance to scheme promoters to ensure appropriate identification, protection, enhancement and management of Havering's heritage assets.</p> |
| <p>Brentwood Replacement Local Plan (2005)¹⁰</p> | <p>In terms of heritage, the Replacement Local Plan (paragraph 9.49) outlines the requirement to conserve and protect the historic environment in order for future generations to benefit from the 'maintenance of these elements from our past'. Furthermore, paragraph 9.50 states that 'new development and transport proposals can have a significant impact on the historic environment and need to be to be controlled to avoid or minimise any detrimental impacts'.</p> <p>Policy C8 referring to ancient landscapes and special landscape areas outlines the need for a landscape character assessment to be prepared for the Brentwood Borough Council administrative area. This assessment identifies the 'particular character of different localities within the countryside'. Policy C9 ancient landscapes and historic parks and gardens regard states that the Council will 'seek to conserve, enhance and manage ancient landscapes and designated parks and gardens of special historic interest'. 'Development which would damage the character or appearance of an ancient landscape, or of a park or garden of special historic interest or its setting will not be permitted'.</p> <p>Policy C14 refers to the development affecting conservation areas, which outlines the need to preserve or enhance their character or</p> |

⁸ https://www.havering.gov.uk/download/downloads/id/1567/proposed_submission_for_the_local_plan.pdf

⁹ https://www.havering.gov.uk/download/downloads/id/1575/heritage_2011.pdf

¹⁰ <https://www.brentwood.gov.uk/index.php?cid=49>

| Legislation / regulation | Summary of requirements |
|---|---|
| | <p>appearance of these areas. Specifically, the policy states that proposals will be permitted whereby:</p> <ul style="list-style-type: none"> • The townscape character of the area is preserved or enhanced • The materials to be used are sympathetic to the surrounding buildings and appropriate to the area • The mass of the building is in scale and harmony with the adjoining buildings and the area as a whole • The design of the building is such that the proportions of the parts relate satisfactorily to each other and to adjoining buildings • The proposal does not affect any buildings, open spaces, trees, views or other aspects which contribute to the special character of the area • Where demolition is proposed, the structure to be demolished makes no material contribution to the character or appearance of the area, and there are satisfactory proposals for the re-use of the site including any replacement building or other structure • Where a change of use is proposed, the new use will not require any changes in the appearance or setting of the building other than those which will preserve • Enhance its contribution towards the character or appearance of the area; and • Where an alteration is proposed, it is appropriate and sympathetic in design, scale, materials and colour to the rest of the building. <p>Policy C16 reaffirms the need to conserve character and setting, in the context of a development being located in the 'vicinity of a listed building'. Proposals will not be permitted whereby the proposals would be 'likely to detract from its character or setting'.</p> <p>Policy C18 outlines the stance that where 'important archaeological sites and monuments' and their setting are affected by a proposed development, there will be a 'presumption in favour of their preservation in situ'. Archaeological field assessments will need to be carried out before an application can be determined in situations where there are grounds for believing that the proposed development would affect 'important archaeological sites and monuments'.</p> |
| <p>Brentwood Draft Local Plan (January 2016)¹¹</p> | <p>Policy 5.1, relating to spatial strategy, outlines the requirement for local character to be protected and enhanced, as well as for potential impact on heritage assets to be minimised.</p> <p>General development policy 6.3, in terms of heritage, refers to the need to consider the 'impact of development on the significance of a designated heritage asset'. Therefore, 'greater weight should be given to the asset's conservation and enhancement'.</p> <p>Policy 9.1 confirms the Council's commitment to preserve the borough's heritage assets. Proposals should have regard for 'protecting, conserving and, where appropriate, enhancing heritage assets', as well as the 'potential impact of development on non-designated heritage assets including archaeology'.</p> <p>Policy 9.5, relating to listed buildings, states that development in the vicinity of a listed building will only be permitted where the development is 'sympathetic to its character and setting'.</p> <p>In terms of Conservation Areas, Policy 9.6 states that development will only be permitted where it is proportional in design to the wider area. Similarly, where an alteration is proposed, it should be 'appropriate and sympathetic in design, scale, materials and colour' to the existing design of the setting. Any proposal should also include</p> |

¹¹ <https://www.brentwood.gov.uk/pdf/08022016165904u.pdf>

| Legislation / regulation | Summary of requirements |
|--------------------------|---|
| | <p>a historic and architectural evaluation within the Design and Access Statement.</p> <p>Policy 9.7 states that planning permission will not be given for development which would adversely affect a Scheduled Monument, or other locally or nationally important sites and monuments, or their setting. For development affecting areas of known or suspected archaeological importance, provision should be made for the preservation of important archaeological remains. The policy expresses a preference for preservation in situ unless it can be shown that archaeological mitigation through recording, assessment, analysis report and deposition of archive is more appropriate.</p> <p>Policy 10.6, relating to high quality design principles, states that new development will be expected to 'complement and enhance the character of its context through sensitive siting, layout and high quality design'. Furthermore, proposals should 'conserve, sustain and enhance designated and non-designated 'heritage assets' (as defined in the national policy and guidance) including buildings, features, archaeology, conservation areas and their settings'. Where archaeological potential is identified, this 'should include an appropriate desk-based assessment and, where necessary, a field evaluation'.</p> |

11.4 Study area

11.4.1 A 500 m study area surrounding the DCO boundary has been applied for the purpose of this Scheme and can be seen on Figure 11.1 and Figure 11.2 in the Chapter 11 figures document (application document TR010029/APP/6.2). This distance was established by professional judgement and relevant guidance (Design Manual for Roads and Bridges (DMRB), Volume 11, HA 208/07, Annex 5.4), and has been accepted as appropriate by both Essex County Historic Environment Team and the Greater London Archaeological Advisory Service.

11.5 Assessment methodology

11.5.1 The assessment criteria and the impact of the proposed scheme on cultural heritage is determined through the identification of the value of the heritage asset and assessing the scale of impact the Scheme would have on the significance of the asset. This is in line with the guidance provided in the DMRB which can be found in Volume 11, HA 208/07, Annex 5.

11.5.2 Following such guidelines, this provides a score ranging from very high, high, medium, to low or negligible in terms of heritage value. Table 11.2: sets out the criteria for assessing the value of heritage assets, as identified in the DMRB Volume 11, Section 3, Part 2 HA 208/07 Cultural Heritage.

Table 11.2: Factors in the determination of value of heritage assets

| Value | Description | Example |
|-----------|---|---|
| Very high | Internationally important or significant heritage assets. | World Heritage Sites, or buildings recognised as being of international importance. |
| High | Nationally important heritage assets generally recognised through designation as being of exceptional interest and value. | Grade I and II* Listed Buildings, Grade I and II* Registered Parks and Gardens, Scheduled Monuments, Protected Wreck Sites, Registered Historic Battlefields, Conservation Areas with notable |

| Value | Description | Example |
|------------|---|---|
| | | concentrations of heritage assets and undesignated assets of national or international importance. |
| Medium | Nationally or regionally important heritage assets recognised as being of special interest, generally designated. | Grade II Listed Buildings, Grade II Registered Parks and Gardens, Conservation Areas and undesignated assets of regional or national importance, including archaeological remains, which relate to regional research objectives or can provide important information relating to particular historic events or trends that are of importance to the region. |
| Low | Assets that are of interest at a local level primarily for the contribution to the local historic environment. | Undesignated heritage assets such as locally listed buildings, undesignated archaeological sites, undesignated historic parks and gardens etc. Can also include degraded designated assets that no longer warrant designation. |
| Negligible | Elements of the historic environment which are of insufficient significance to merit consideration in planning decisions and hence be classed as heritage assets. | Undesignated features with very limited or no historic interest. Can also include highly degraded designated assets that no longer warrant designation. |
| Unknown | The importance of an asset has not been ascertained. | |

11.5.3 The assessment criteria and the likely impact of the proposed development on each individual heritage asset will be determined through the identification of value of the heritage asset and assessing the scale of impact the proposed development would have on the significance of the asset. This is in line with the mechanism reflected in the DMRB, Volume 11, HA 208/07, Annex 5.

11.5.4 Table 11.3 identifies the criteria for establishing the magnitude of impacts on heritage assets.

Table 11.3: Factors in assessing the magnitude of impact

| Magnitude of impact | Description of nature of change |
|---------------------|--|
| Major adverse | Substantial harm to, or loss of an asset's significance as a result of changes to its physical form or setting. For example, this would include demolition, removal of physical attributes critical to an asset, loss of all archaeological interest or the transformation of an asset's setting in a way that fundamentally compromises its ability to be understood or appreciated. The scale of change would be such that it could result in a designated asset being undesignated or having its level of designation lowered. |

| Magnitude of impact | Description of nature of change |
|---------------------|---|
| Moderate adverse | Less than substantial harm to an asset's significance as a result of changes to its physical form or setting. For example, this could include: physical alterations that remove or alter some elements of significance, but do not substantially alter the overall significance of the asset; notable alterations to the setting of an asset that affect our appreciation of it and its significance; or the unrecorded loss of archaeological interest. |
| Minor adverse | Limited harm to an asset's significance as a result of changes to its physical form or setting. For example, this could include: physical changes that alter some elements of significance but do not noticeably alter the overall significance of the asset; and small-scale alterations to the setting of an asset that hardly affect its significance. |
| Negligible | Very minor changes to setting or form of the asset. |
| No change/neutral | No appreciable change to an asset's significance. |
| Minor beneficial | Limited improvement of an asset's significance as a result of changes to its physical form or setting. For example, this could include: physical changes that reveal or conserve some elements of significance but do not noticeably alter the overall significance of the asset; or small-scale alterations to the setting of an asset that improve our ability to appreciate it. |
| Moderate beneficial | Notable enhancement of an asset's significance as a result of changes to its physical form or setting. For example, this could include: physical alterations that conserve or restore elements of significance; notable alterations to the setting of an asset that improve our appreciation of it and its significance; or changes in use that help safeguard an asset. |
| Major beneficial | Substantial enhancement of an asset's significance as a result of changes to its physical form or setting. For example, this could include: major changes that conserve or restore elements of high significance; alterations to the setting of an asset that very substantially improve our appreciation of it and its significance; or changes in use that safeguard an asset, e.g. by taking it off the At Risk Register. |

11.5.5 Table 11.4 shows how the significance of effect is determined. This combines the value of the heritage asset and the scale of change (impact) to provide the measure of effect.

Table 11.4: Determination of the significance of effect

| Sensitivity of receptor | Magnitude of impact | | | | |
|-------------------------|---------------------|---------------------|--------------------|-------------------|-----------|
| | Major | Moderate | Minor | Negligible | No change |
| Very high | Very large | Large or very large | Moderate or large | Slight | Neutral |
| High | Large or very large | Moderate or large | Slight or moderate | Slight | Neutral |
| Medium | Moderate or large | Moderate | Slight | Neutral or slight | Neutral |

| Sensitivity of receptor | Magnitude of impact | | | | |
|-------------------------|---------------------|-------------------|-------------------|-------------------|-----------|
| | Major | Moderate | Minor | Negligible | No change |
| Low | Slight or moderate | Slight | Neutral or slight | Neutral or slight | Neutral |
| Negligible | Slight | Neutral or slight | Neutral or slight | Neutral | Neutral |

11.6 Assumptions and limitations

11.6.1 This section identifies the assumptions made in and limitations to the assessment of the impacts to the historic environment. The limitations to this assessment include:

- No archaeological survey has been conducted across the Scheme. Ground conditions have prevented geophysical surveys from being completed during the preliminary design stages. The vegetation cover across the majority of the site was such that it prevented geophysical transects from being properly completed during survey. As such, vegetation clearance would have been required to conduct the surveys, but taking these steps were considered unacceptable to the landowners at the time.
- There is potential for as-yet unknown archaeological remains within the DCO boundary and these may be affected by construction and operation of the Scheme. These remains may range from low to high value, and impacts ranging from none to major adverse may occur. Further archaeological investigations and evaluations will be detailed in the Archaeological Management and Mitigation Strategy (AMMS), part of the Outline CEMP (application document TR010029/APP/7.2), and constitute a requirement of the DCO.
- No intrusive archaeological investigations have been conducted on known archaeological remains to further characterise and assess their significance. As such, the identification of the value of these remains has been derived from the information provided by the Greater London Historic Environment Record (GLHER) and Essex Historic Environment Record (EHER) and the professional judgement of the archaeologists preparing this assessment.

11.7 Baseline conditions

11.7.1 The historical and archaeological baseline is presented below. This includes a review of the historic and archaeological background of the study area, with references to known heritage assets. The following heritage assets have been examined as part of this assessment:

- World Heritage Sites
- Scheduled Monuments
- Listed Buildings
- Registered Parks and Gardens
- Conservation Areas
- Registered battlefields

- Buildings and structures of historic interest (not listed)
- Known archaeological sites and areas of archaeological potential

Designated heritage assets

- 11.7.2 There are no World Heritage Sites, Scheduled Monuments or registered battlefields within the site or study area. Figure 11.1 and Figure 11.2 show the locations of designated and non-designated heritage assets located within the study area. The study area contains 11 designated heritage assets. These comprise:
- One Grade II Registered Park and Garden
 - Two Grade II* Listed Buildings
 - Six Grade II Listed Buildings
 - Two Conservation Areas
- 11.7.3 The Grade II Weald Park (1000747) Registered Park and Garden (RPG) is present within the north eastern boundary of the study area. It is a late 17th and early 18th century park and woodland sited on an earlier 12th century medieval deer park.
- 11.7.4 The two Grade II* Listed Buildings (The Golden Fleece Inn [1197231] and Moat House [1279743]) are both located along the London Road outside of Brentwood and operate as modern businesses. The Golden Fleece Inn has its origins in the 15th century, with significant additions and alterations through the 20th century. Moat House dates to the early 16th century, with extensive alterations from the 19th and 20th centuries. The eponymous moat is now dry and only exists in fragments.
- 11.7.5 The six Grade II Listed Buildings include:
- Tylers Hall Farm House (1079905)
 - A timber-framed range of outbuildings (1183938)
 - Stony Hills Farm (1297215)
 - Nos 17, 19 and 21 Brook Street (1205707)
 - The Bull Inn (12972259)
 - The Nag's Head Inn (1197190)
- 11.7.6 The South Weald Conservation Area (DEX22821) is located on the southern edge of the RPG, and the Weald Park Conservation Area (DEX22829) shares its boundaries with the RPG.
- 11.7.7 Three areas within the study area have local designations due to having archaeological potential. Archaeological priority zones (APZ) are areas where a potential for significant archaeological remains has been identified, usually based on the geology and topography of an area. Two APZs have been identified within the study area: DLO33196 which has potential for important prehistoric deposits, which may survive beneath alluvial deposits associated with Weald Brook and DLO33198, with the potential for prehistoric archaeology within deposits of sand and gravel. An archaeological priority area (APA), where there is potential for archaeological remains associated with a known asset, is also located within the study area (DLO33238). This APA represents the potential for archaeological

remains associated with the Roman Road between London and Colchester. The location and extent of these areas are shown on Figure 11.1.

Non-designated heritage assets

- 11.7.8 Information on the non-designated heritage assets comes from data supplied by the EHER and GLHER. Sixteen non-designated heritage assets have been identified within the study area. These include the London to Colchester Roman Road, the presumed sites of a medieval manor house and hospital, post-medieval domestic and agricultural buildings, and the former Maylands Aerodrome site.
- 11.7.9 A full gazetteer of designated and non-designated heritage assets within the study area is provided in Table 11.1 and 11.2 of Appendix 11.1 (application document TR010029/APP/6.3).

Topographical and geological conditions

- 11.7.10 The study area occupies a gently undulating ground profile, with topography sloping downhill, from approximately 50 above ordnance datum (AOD) in the east, to c. 45 AOD in the west, with a decrease in elevation to approximately 30 m AOD at Weald Brook.
- 11.7.11 The bedrock geology within the study area is dominated by the London clay formation which is sedimentary bedrock formed approximately 48 to 56 million years ago in the Palaeogene period in a local environment which would have previously been dominated by deep seas.
- 11.7.12 Superficial deposits comprise alluvium along the Weald Brook and Ingrebourne River, with clay, silt, sand and gravel head deposits record adjacent to both these water courses and the A12. These superficial deposits formed up to three million years ago in the Quaternary period in a local environment previously dominated by subaerial slopes. Sand and gravel glaciofluvial deposits, and Diamicton of the Lowestoft Formation have also been identified along the western edge of the study area at Harold Hill.

Historic and archaeological background

- 11.7.13 In order to understand the archaeological potential of the study area, an archaeological desk-based assessment (DBA) was produced by AOC Archaeology, acting as sub-contractor to Atkins, in November 2017 and has been used to inform this assessment. It is included in Appendix 11.2. Additional data from the EHER and GLHER, as well as consultation with archaeological advisors to both jurisdictions, has been undertaken since the DBA was produced and to ensure the archaeological potential of all areas affected by the proposed works comprised within the Scheme (as it developed and additional works components were added) were taken into account. Whereas no supplementary report has been published to reflect this, it is included in the assessment below, which represents a complete assessment based on the combined evidence.

Prehistoric evidence (-AD 43)

- 11.7.14 There are no known prehistoric remains within the DCO boundary. However, GLHER designates part of the land within the DCO boundary as an archaeology priority zone (APZ), which extends along the Weald Brook (DLO33196). This has been designated due to the underlying geological alluvial deposits having the

potential to overlie prehistoric deposits. Alluvial deposits can be particularly conducive to the preservation of paleoenvironmental features which can be useful for dating purposes. Further archaeological priority zones of gravel head deposits (DLO33197) and gravel sand deposits (DLO33198) are similarly designated for the potential for prehistoric deposits to be buried beneath gravel deposits. These areas are located approximately 280 m to the west of the southern extent of the DCO boundary and approximately 150 m to the north of the western extent of the DCO boundary respectively.

- 11.7.15 Fieldwalking along the route of the Epping – Horndon Gas Pipeline (MEX1036570) recovered artefacts such as pottery and flint of possible prehistoric date. The survey crossed the DCO boundary to the east of M25 junction 28 and west of Vicarage Close. The EHER, however, records that most of these artefacts were recovered as findspots for single artefacts and were not given EHER numbers and so the provenance of these findspots is not known. This suggests that the locus of prehistoric activity was outside of the area where the pipeline intersects with the study area.
- 11.7.16 Current evidence indicates a lack of known heritage assets of prehistoric date within the study area, but the GLHER's designation of an APZ along Ingrebourne River and Weald Brook (DLO33196) indicates geological conditions which may be conducive the survival of such remains. On this basis there is considered to be medium potential for prehistoric remains within the APZ (DLO33196) in the west of the Scheme but low potential for such remains throughout the rest of the Scheme.

Roman evidence (AD 43 – AD 410)

- 11.7.17 The Roman Road from London to Colchester (MLO106812; MEX2262) has been designated by GLHER as an archaeological priority area (DLO33238) and is located within the Scheme. The road follows the course of the A12 to the west of M25 junction 28 and then along Brook Street A1023 to the west of the junction. The GLHER notes the potential for road side settlement and human burials associated with the road.
- 11.7.18 The only definitely Roman asset recorded in the study area is a findspot of a Roman finger ring (MEX2346) recovered at Hillside Walk, Brentwood approximately 254 m southeast of the DCO boundary.
- 11.7.19 Place-name evidence suggest that Tylehrste, at Tylers Common Upminster (MLO23390), may indicate the presence of a Roman building in the area. The GLHER notes that Tylehrste is generally translated as 'wood with earth for making tiles'. The name Tylehrste is recorded in a document from AD 1062, and as the earliest date of tile manufacture following the Roman period is the 14th century, suggests that the area is either a previously unknown Saxon tile works or refers to the presence of residual Roman tiles. Tylehrste is located within the study area, approximately 455 m to the west of the southern extent of the DCO boundary.
- 11.7.20 Aside from the find of the ring, no Roman archaeology has been recorded within the study area. However, as the Roman road from London to Colchester (DLO33238; MLO106812; MEX2262) passes through the study area the potential for Roman remains cannot be discounted. On this basis, there is considered to be medium to high potential for Roman remains within the Roman road APA (DLO33238) in the west of the Scheme but low potential for Roman remains throughout the rest of the Scheme.

Early medieval (AD 410 – AD 1066)

- 11.7.21 There are no early medieval heritage assets recorded within the study area. The settlement of Tylehyrst (MLO12476), also discussed above, is mentioned in a document dated AD 1062 and therefore was likely established by the early medieval period. The location of the settlement is now called Tylers Farm and is located approximately 455 m west of the southern extent of the DCO boundary. Jackson's Wood (MEX1036734), approximately 107 m to the southeast of the southern extent of the study area, is a coppice surrounded by a wood bank, which is double ditched in places. It has been suggested that it was originally associated with Tylehyrst (Hay, 1995).
- 11.7.22 Cotswold Archaeology undertook a DBA in 2014 for Maylands Golf Course (ELO14836). The assessment identified the remains of an early medieval woodland at Cock Wood approximately 30 m west of the DCO boundary at its northern extent.
- 11.7.23 Given the limited evidence for early medieval remains in the study area and the general paucity of remains of these dates generally, there is considered to be low potential for early medieval archaeological remains to survive within the DCO boundary.

Medieval evidence (1066-AD 1500)

- 11.7.24 The Golden Fleece Inn (1197231) and Moat House (129743) are both Grade II* Listed Buildings within the study area which have their origins in the medieval period but have been considerably altered and are not thought to retain extensive features of the period. The Golden Fleece Inn at Brook Street, approximately 280 m south of the eastern extent of the DCO boundary, originally dates to the 14th century and was originally a house but is now used as a public house following substantial alterations and additions in the 16th, 18th, 19th and 20th centuries. In 1986 a portion of wall plaster was removed and the timbers were recorded (MEX40795; EEX40796) which revealed that the 14th century western cross wing had originally formed the eastern wing of a 14th century hall which is no longer extant (Milton 1988: 263).
- 11.7.25 The current Moat House (129743), which lies approximately 348 m to the south of the eastern extent of the DCO boundary, is primarily of post-medieval date with the earliest phases dating to the early 16th century but with later additions. The house was previously surrounded by a moat which is now dry and fragmentary. The house, at the time the moat itself was in use, was thought to have been the residence of Henry Roper, Gentleman Pursuivant to Queen Katherine of Aragon and thus was likely established in the medieval period.
- 11.7.26 The EHER records the settlement of South Weald (MEX1032780) as a number of parcels of land located between the modern settlement of South Weald, in the south, and Coxtie Green in the north. The modern settlement is designated as a conservation area (DEX22821). Weald Park (1000747) which also lies in this area is a Grade II registered park and garden and conservation area (DEX22829). The medieval settlement of South Weald included a Manor House, Vicarage, Church House and Parish Church. It appears to have consisted of a small village focused on the church complex and surrounded by small farms, including the manorial holding at Calcott. In 1086 the manors of Calcott and South Weald covered an area of 2.5 hides and it is suggested that the rest of the parish was forested. In the early 1270s the assizes of bread and ale, the return

of writs, free warren and right of gallows was held by Waltham Abbey, though Calcott had its own jurisdiction. The original vicarage (MEX1032782) was built after 1275 and included 12 acres of glebe land. The vicarage was rebuilt before 1640 and again in 1718. A new vicarage was built on another site in 1825.

- 11.7.27 Weald Park (1000747), while primarily designated as a late 17th century/early 18th century park and woodland, has its origins as a deer park which was formed in the 12th century when South Weald was under the jurisdiction of Waltham Abbey. Following the Dissolution, the estate was sold to Sir Brian Tuke.
- 11.7.28 The very eastern extent of Dagnam Park (MLO104464) extends within the study area at a distance of approximately 394 m from the northern extent of the DCO boundary. Hatters Wood in the west of the park, and beyond the study area, has existed since at least 1293. At this time, the manor of Dagenhams and Cockerels are recorded as being held by John of Weald.
- 11.7.29 A medieval hospital at Near Shenfield Road (MEX2254) was located approximately 250 m south of the eastern extent of the Scheme, on the corner of Brook Street and Spital Lane. It was first recorded in 1201 and appears to have been a leper hospital and later a free chapel dedicated to St John the Baptist.
- 11.7.30 Medieval settlement is known within the study area to the east, north-east, north-west and south-west of the Scheme. As such there is considered to be medium potential for archaeological remains of medieval date to survive within the DCO boundary. However, it should be noted that the concentrations of settlement during this period as identified by both HERs lie beyond the DCO boundary. As such it is likely that any medieval remains which do survive will be located beyond the major settlements and are thus most likely to be related to agricultural or woodland management of the area.

Post-medieval evidence (AD 1500 – AD 1900)

- 11.7.31 The only post-medieval assets recorded within the DCO boundary on the HERs are ditches encountered during excavations undertaken for the M25-Tank 1741 and Strip Widening (MEX1049359). Five ditches were encountered and the largest was noted to correspond to a large curving north to south boundary shown on the first edition ordnance survey (OS) map.
- 11.7.32 Maps predating the ordnance survey show the place names of the sites described above, such as Weald or South Weald, Brook Street, Dagenham and Brentwood. However, the maps are at such a scale that they do not provide much detail in terms of land use for the Scheme itself.
- 11.7.33 The 1881 six inch to a mile scale OS map was surveyed in 1866. Land within the DCO boundary is primarily shown as open with a few copses of trees and containing the Roman Road. The Eastern Railway line and a few minor roads are also shown running though the DCO boundary.
- 11.7.34 In the vicinity of junction 28 itself, the map records buildings at The Grove to the northwest of the junction. A house still stands at this location and may be the same as the one shown on the 1881 OS map. It is not recorded on the GLHER and a site visit in March 2019 noted that, aside from its potential age, there was nothing to suggest it is of particular historic interest. It is not considered a heritage asset.
- 11.7.35 Post-medieval assets in the study area include a number of Listed Buildings. These include Tylers Hall Farm House (1079905) and a timber-framed range of

outbuildings associated with it (1183938), located to the south-west of the study area, both of which are Grade II Listed and date to the later 18th century. Stony Hills Farm (1297215) is a Grade II mid-17th to 20th century timber framed farmhouse located within the south-eastern extent of the study area.

- 11.7.36 Listed Buildings on or just off of Brook Street, within the eastern leg of the study area, include Nos 17, 19 and 21 Brook Street (1205707), the Bull Inn (12972259), and the Nag's Head Inn (1197190) Numbers 17, 19 and 21 Brook Street were originally constructed as a house but have since been split into three cottages; it dates to the early 16th century. The Bull Inn is a public house which dates to approximately 1600.
- 11.7.37 Weald Park (1000747) is partially located within the study area and lies approximately 120 m to the east of the northern extent of the DCO boundary. It originated as a medieval deer park and following the Dissolution, the estate and park passed through several owners. In the late 17th century it came into the ownership of Erasmus Smith. Smith and his successors made several improvements to the hall and grounds and a 1738 plan records a series of formal walled gardens around the hall, a Belvedere tower and an extensive formal park land. In the 1750s the estate was sold to the Towers and they extended the park to the north and deformalized the water and walled gardens. In the mid-20th century Weald Park became a country park. The gardens and pleasure grounds survive to the east of the site of Weald Hall, demolished in 1951, as earthworks. The park land is located to the north of the site of the hall.
- 11.7.38 Dagnam Park (MLO104464) also lies partially within the study area. It has origins within the medieval period, developed throughout the post-medieval period and passed to London County Council in the mid-20th century. Also, within the study area is Tylers Common (MLO1045644), the last substantial area of common ground in Havering, located to the south of the DCO boundary.
- 11.7.39 Non-designated buildings of post-medieval date in the study area include buildings shown on maps of 1618 at Greenway Harold Park (MLO15564) and Settle Road (MLO14553) in Romford. Other non-designated assets of post-medieval date include a findspot comprising three sherds of pottery including a red earthenware flattened rim sherd, a red earthenware rim sherd from a large dish and a red earthenware base sherd. These were all discovered near Front Park during the Epping-Horndon Gas Pipeline Survey (MEX1035531) and are thought to be 17th century in date. A Victorian silt trap (MEX40800) has been recorded at London Road in Brook Street. All other post-medieval assets (MEX1036733; MEX 1036735; MEX1036737; MEX1036739; MEX1036759) are areas of woodland recorded by a Report on Essex County Council Woodlands in 1995.
- 11.7.40 Given the above, it is judged that there may be medium potential for remains of post-medieval date to survive with the DCO boundary.

Modern evidence (post 1900)

- 11.7.41 Maylands Aerodrome (MLO109189) was established in 1929 for display and leisure flights and offered early charter flights to destinations in southeast England, as well as from "London" to Paris. As the base for Hillman's Airways, also ran airmail services to Scotland and Northern Ireland. Following the destruction of all the aircraft by an incendiary bomb in 1940, the airfield ceased functioning.

- 11.7.42 Modern assets in the study area primarily relate to the sites of Second World War remains and woodlands recorded during the 1995 survey. A boundary post is recorded at Nags Head Lane (MEX105292) opposite the entrance to a sewage works.
- 11.7.43 Second World War remains include an Alan Williams Turret (destroyed) at Brook House (MEX1035529), a spigot mortar emplacement (destroyed) at Brook Street (MEX1035530) and a road barrier (destroyed) adjacent to the Golden Fleece Inn, Brook Street (MEX1035531). Modern woodlands are located at Island Wood (MEX1036731), Bridge Wood (MEX1036732), Jer mains Wood (MEX1036735) and Pipeline Wood (MEX1036738). Jer mains Wood and Pipeline Wood share a boundary with the DCO boundary.

Historic landscape

- 11.7.44 One Ancient Woodland is recorded as a heritage asset by the GLHER. Duck Wood (MLO109095) is an Ancient Woodland that was once part of the Forest of Waltham. Located 250 m north northwest of the DCO boundary at its nearest point, it is separated from the Scheme by the Maylands Golf Club. Although it was mostly cleared in the 16th century, pockets of woodland remain, including those with ecological evidence of pre-16th century antiquity. Features associated with the medieval and early post-medieval management of the woodland may still exist as archaeological remains.

Setting

- 11.7.45 The setting of heritage assets can contribute to their significance and warrant consideration in the assessment of scheme impacts. However, not all heritage assets will have settings that contribute to their significance and impacts will not occur equally across all assets. The settings of archaeological remains would not be impacted by the Scheme where no direct impact to the remains would occur. The majority of the built heritage assets are located within built-up areas of Brentwood; a certain level of modern noise and visual impacts is part of their current settings. The settings of more rural assets, such as the post-medieval park at Dagnam (MLO 104464) is more sensitive to change, as the experiences of solitude and nature contribute to its significance as a historic park.

11.8 Potential impacts

- 11.8.1 As per the DMRB methodology, potential impacts on the cultural heritage resource are defined as changes to the resource caused by the mitigated Scheme. The type of impacts that can occur include:
- Direct physical impacts, such as truncation or removal of a heritage asset.
 - Settings impacts which include changes to visual appreciation of assets such as alteration of lines of sights, air and noise pollution.
- 11.8.2 This section provides an assessment of the potential impacts of the Scheme on the historic environment, without mitigation and these are reported separately for each of the construction and operational phases. Measures to avoid, minimise, mitigate and off-set these impacts are discussed in Section 11.9, and the significant and residual effects are outlined in Section 11.10.
- 11.8.3 While the assets discussed in Section 11.7 above represent an overview of the historic environment within the study area, only a small portion of them are

subject to potential impacts from the construction and/or operation of the Scheme. Most of the listed buildings are within built-up areas, with constrained settings that would not be affected by the Scheme. Many of the archaeological assets exist as subsurface remains that are unlikely to extend into the footprint of the Scheme and would therefore not be subject to impacts. Other archaeological remains mentioned above have been removed during the construction of the M25 and no longer qualify as heritage assets, though they do contribute to our understanding of the overall historic environment of the study area.

Construction

- 11.8.4 During construction, direct physical impacts could occur as a result of earthmoving operations, creation of site compounds, road formation/construction; and construction of proposed overbridges and other structures. Setting impacts may occur due to the introduction of construction machinery, compounds and vegetation removal with the potential to disrupt the prominence and influence of built heritage within the landscape.
- 11.8.5 The direct physical impacts would be permanent; however, impacts to setting during construction would be temporary, short-term and reversible. The known heritage assets with the potential to be impacted by the Scheme are outlined in Table 11.5.
- 11.8.6 Direct impacts are expected at the Former Maylands Aerodrome Site (MLO109189), where loop road construction and flood compensation ponds have the potential to remove any remains associated with the asset. Maps from the 1930s show two hangars on the site, one on the eastern-most boundary and another in the north-west corner¹². These were destroyed when an incendiary bomb hit the airfield in February 1940, with the subsequent fire destroying the buildings and all nine aircraft on-site. Maylands was not a military airfield, operating instead as a base for a private flying club and offering airmail services, pleasure flights, and flying displays. As such, the structures were not likely to be of substantial construction and very little archaeological remains may exist. As such, the construction of the Scheme is thought to have only minor impacts to the significance of the Maylands Aerodrome, resulting in a slight adverse effect, which is not significant.
- 11.8.7 In addition to the potential impacts to known heritage assets listed above, there will be impacts within identified APA and APZ, areas with policy protection within the Greater London area. The London to Colchester Roman Road APA (DLO33238) would incur direct permanent impacts that may remove archaeological remains. Whilst the impacts would be moderate adverse on the local remains, the impact to the overall APA would be minor adverse and not significant due to the very limited scale of the impact when compared to the overall scale of the asset. Similarly, construction of the Scheme may remove important archaeological remains associated with APZ (DLO33196). However, the impact to the overall value of the APZ as an asset would be minor and not significant.
- 11.8.8 The setting of one designated asset, the Grade II listed Stony Hills Farm (1297215) may be temporarily impacted by bridge construction on Warley Road and subsequent gantry removal and re-installation. The farm building is significant for its age and construction, and sits within an active, modern farm

¹² <http://www.ukairfieldguide.net/airfields/Maylands>, accessed 26 Jun. 19

complex. The Scheme would introduce slight temporary changes to this farmstead setting, resulting in slight adverse effects, which are not considered significant.

- 11.8.9 The setting of post-medieval Park at Dagnam (MLO104464) may also be temporarily affected by construction activities through increases in noise and possible visual intrusion. The historic significance of the Park is related to its associations with Sir Richard Neave (first baronet of Dagnam Park) and Humphrey Repton. It holds further significance as an amenity resource for the local community. Impacts from the construction of the Scheme would be temporary and transient, resulting in slight adverse effects, which are not significant.
- 11.8.10 Given the known heritage baseline contains areas designated in local policy for their high archaeological potential, it is likely that as-yet unknown archaeological remains would be present within the DCO boundary and could be directly impacted by construction activities. Based on the existing HER data, including the results of excavations associated with the construction of the M25, such remains are likely to be of local importance and, therefore, low value. As such, there is a low likelihood of encountering archaeological remains of sufficient significance to warrant preservation *in situ*. Further archaeological investigations are recommended to be conducted during detailed design and enabling works to aid in early identification of such remains.
- 11.8.11 An appropriate and proportionate archaeological programme of works is recommended as part of the Register of Environmental Actions and Commitments (REAC) to further identify and characterise the archaeological potential of the Scheme and to target impacted areas for preservation by record to offset the loss of any significant remains.

Operation

- 11.8.12 Construction of the Scheme is considered to result in the removal of all subsurface archaeological remains, removing the potential for operational impacts.
- 11.8.13 The nearest parts of the Scheme to the Grade II RPG and both Conservation Areas have minimal work proposed; land take is limited north of the M25 and disturbance would be minimal. As such, any limited visual impact of the Scheme on the Grade II RPG and conservation areas would be within the context of an existing motorway and would not alter the significance of the asset from the current baseline.
- 11.8.14 A similar operational experience is expected at MLO104464 (the post-medieval park at Dagnam) and NHLE 1297215 (Stony Hills Farm), where the incorporation of the Scheme into the pre-existing motorway network would not alter the significance of these assets from the current baseline.

11.9 Design, mitigation and enhancement measures

- 11.9.1 The planning policies and guidance, as set out in section 11.3, require a mitigation response to potential impacts upon the historic environment in order to avoid, minimise or offset such impacts as appropriate. Further archaeological investigations to identify, evaluate and mitigate or offset impacts to the historic environment are specified in the Archaeological Management and Mitigation Strategy (AMMS), part of the Outline CEMP (application document

TR010029/APP/7.2) and the REAC (application document TR010029/APP/7.3), compliance with which is a requirement of the DCO. The AMMS also describes measures to reduce or avoid impacts of construction activities on the settings of heritage assets.

11.9.2 Recommended post-consent and potential mitigation measures are as follows:

- During detailed design, measures will be undertaken to avoid impacting significant heritage assets where feasible.
- An appropriate and proportionate programme of archaeological investigation should be undertaken in areas affected by the Scheme where there is considered to be potential for significant archaeological remains to survive. The scope and extent of such investigations should be developed in consultation with the Greater London Archaeological Advisor and/or the Essex County Council Archaeologist (as appropriate) and subject to an Archaeological Management and Mitigation Strategy (AMMS) for their approval. This work will comprise geophysical survey and a geoarchaeological deposit model in the first instance and may further include evaluation trenching, and area excavation.
- Where archaeological sites are identified through non-intrusive and intrusive investigations, further work should be agreed in consultation with Greater London Archaeological Advisor Service (GLAAS) and Essex County Council (ECC) to develop appropriate mitigation measures to offset the impact the Scheme might have on these assets.
- Where as-yet unknown archaeological remains are uncovered and determined to be of national significance, advice will be sought from GLAAS and/or ECC regarding the potential and suitability for preservation *in situ* as mitigation.
- Where previously unknown archaeological remains are uncovered during construction, advice will be sought from GLAAS and/or ECC regarding their significance and treatment.

11.9.3 Though preservation by record does not completely mitigate the impacts of construction on archaeological remains, such measures have the potential to lessen the significance of the impact and subsequent effect.

11.10 Assessment of effects

11.10.1 The significant resultant effects on identified heritage assets as a result of the construction and operational phases of the Scheme are considered below. These are also summarised in Table 11.5.

Significant effects

Construction

11.10.2 There are five heritage assets within the study area that would be affected by the Scheme in some way. All are slight adverse effects and are not considered significant in terms of DMRB methodology.

Operation

11.10.3 There are two heritage assets that would experience impacts from the operation of the Scheme. The settings of the following assets would be impacted by the

noise and visual intrusion of the Scheme, with the potential to cause limited disruption to how the setting contributes to the significance of the asset:

- Stony Hills Farm (1297215) Grade II listed building
- Post-medieval park at Dagnam (MLO104464)

11.10.4 The operation of the Scheme is expected to have only slight changes to settings of these assets, not impacting on their significance. As such, there would be a neutral effect as a result of the operation of the Scheme, which is not considered significant.

Residual effects

11.10.5 Residual effects have been defined as those environmental effects predicted to remain after the implementation of mitigation. This includes a combination of those effects from construction and operation. Significant residual effects are those that have an irreversible effect and that would not have been completely mitigated by the Scheme and the proposed mitigation.

11.10.6 Considering the standard mitigation proposed as outlined in section 11.9, no significant effects are anticipated as a result of the construction or operation of the Scheme. As such, no significant residual effects are predicted (see Table 11.5 for further details).

Table 11.5: Impacts and effects on heritage assets

| Site reference number | Site name | Value | Impacted by/ nature of impact | Impact | Construction effect | Operation effect | Residual effect |
|-----------------------|---|--------|---|---------------|---------------------------------|------------------|---------------------------------|
| DLO33238 | London to Colchester Roman Road (APA) | Medium | Partial truncation due to realignment of new A12 eastbound exit slip road. | Minor adverse | Slight adverse, not significant | Neutral | Slight adverse, not significant |
| DLO33196 | Alluvial Deposits (Geology) (APZ) | Medium | Truncation/loss of asset due to realignment of new A12 eastbound exit slip road. | Minor adverse | Slight adverse, not significant | Neutral | Slight adverse, not significant |
| MLO109189 | Former Maylands Aerodrome Site | Low | Removal of part or all of the asset during construction | Minor adverse | Slight adverse, not significant | Neutral | Neutral, not significant |
| MLO104464 | Post-medieval park at Dagnam | Low | Temporary setting impacts during construction of the junction and compound access. Changes to setting during operation mitigated by noise mitigation and landscape design | Minor adverse | Slight adverse, not significant | Neutral | Neutral, not significant |
| 1297215 | Stony Hills Farm (Grade II listed building) | Medium | Temporary setting impacts due to visual intrusion. Changes to setting during operation mitigated by noise mitigation and landscape design | Minor adverse | Slight adverse, not significant | Neutral | Neutral, not significant |

11.11 Cumulative effects

11.11.1 The cumulative effects are those that result from the additive impacts of both the Scheme's components, and past, present or future developments within the surrounding area. These effects are considered both during the construction and operation stages. Further details of the developments are described in the Assessment of Cumulative Effects chapter (Chapter 15). The following developments have been identified within the study area and are considered as part of the cumulative assessment as having the potential to impact heritage assets also impacted by the Scheme:

- Gardens of Peace (formerly known as Land at Oak Farm) (application no. P1742.14): change of use of land to burial grounds including removal of existing agricultural buildings and erection of two pavilion buildings for associated usage, hard and soft landscaping, new access to A12 and internal roads and paths, parking, and workshop area for storage of associated equipment, tools and materials.
- Caravan Park, Putwell Bridge (application no. 4.12): addition of gypsy and traveller site at Caravan Park, Putwell Bridge.
- Land for small, medium and large wind development sites: areas identified by the London Borough of Havering as suitable for wind energy development.

11.11.2 The Gardens of Peace (formerly known as Land at Oak Farm development) has the potential to impact DLO33238, the London to Colchester Roman Road, as well as DLO33196, alluvial deposits. Both of these are large assets, extending well beyond the DCO boundary as well as beyond the area identified as part of the P1742.14 application. When assessed in combination with the Scheme, no significant cumulative effects are anticipated in relation to either DLO33238 or DLO33196 due to the limited size and nature of the impacts compared to overall assets.

11.11.3 The proposed development at Caravan Park, Putwell Bridge includes allocation of two traveller sites to the location. It is not expected that the allocation will impact any heritage assets and therefore no cumulative effects are anticipated.

11.11.4 Land allocations for small, medium and large wind energy development sites within the study area have the potential to impact MLO104464, the Post-Medieval Park at Dagnam. The Scheme would have a slight adverse effect on the setting of the asset during construction, and a neutral effect during operation. Wind energy developments have the potential to have large impacts on setting and could result in significant adverse effects. As the Scheme has a neutral residual effect on the setting of MLO104464, it is not considered to add to any effects the wind energy developments may have. As such, no cumulative effect is anticipated.

11.12 NPS NN compliance

11.12.1 Paragraphs 5.126 and 5.127 of the NPS NN state the following:

- 5.1.26 'Where the development is subject to EIA the applicant should undertake an assessment of any likely significant heritage impacts of the proposed project as part of the EIA and describe these in the Environmental Statement.

- 5.1.27 ‘The applicant should describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the asset’s importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant Historic Environment should have been consulted and the heritage assets assessed using appropriate expertise. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, the applicant should include an appropriate desk-based assessment and, where necessary, field evaluation.’

11.12.2 The assessments outlined in this chapter, along with the previous assessments completed for the Preliminary Environmental Impact Report (PEIR) and the information provided by the Archaeological DBA (Appendix 11.2) combine to provide the evidence base necessary for the decision maker to assess the impacts of the Scheme on the historic environment. These documents have addressed the significance of heritage assets potentially impacted by the Scheme, along with an assessment of likely impacts and the significance of effect for the purposes of EIA, including consideration of the significance and impacts to the settings of heritage assets. This satisfies the requirements of the NPS NN.

11.13 Monitoring

11.13.1 Monitoring activities may include review of landscaping and noise mitigation design to address the Scheme’s impact on built heritage and historic landscape assets. The Outline CEMP (application document TR010029/APP/7.2) outlines these measures. Impacts to archaeological remains are dependent on additional survey and evaluation activities. Archaeological watching briefs will be recommended through the AMMS in the Outline CEMP to identify where monitoring would be required.

11.14 Summary

11.14.1 This chapter has shown that there is potential for slight adverse effects on both designated and non-designated heritage assets within the study area. The effects will be slight adverse during construction and slight adverse to neutral during operation and residually. None of the effects are considered significant. The AMMS, part of the CEMP, which will be the subject of a DCO requirement, will provide measures to address impacts to archaeological remains.

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