

# Southampton to London Pipeline Project

## Volume 6

Environmental Statement (Volume B)  
Chapter 9: Historic Environment

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## 9 Historic Environment

### 9.1 Introduction

9.1.1 As identified in paragraph 5.8.2 of the Overarching National Policy Statement for Energy (EN-1) the historic environment:

*includes all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, landscaped and planted or managed flora. Those elements of the historic environment that hold value to this and future generations because of their historic, archaeological, architectural or artistic interest are called “heritage assets”. A heritage asset may be any building, monument, site, place, area or landscape, or any combination of these.*

9.1.2 Paragraph 5.8.3 in EN-1 defines designated heritage assets as ‘a World Heritage Site; Scheduled Monument; Protected Wreck Site; Protected Military Remains, Listed Building; Registered Park and Garden; Registered Battlefield; Conservation Area; and Registered Historic Landscape (Wales only)’.

9.1.3 All heritage assets including buried remains have a setting, which is defined as the surroundings in which a heritage asset is experienced. The extent of the setting of a heritage asset is not fixed and may change as the heritage asset and its surroundings evolve (Ministry of Housing, Communities, & Local Government, 2019, p.71). The value of a heritage asset can be affected by impacts on the setting.

9.1.4 The historic environment baseline is outlined fully in Appendix 9.1 Historic Environment Desk-based Survey and shown in Figure 9.1 Archaeological Remains, Figure 9.2 Historic Buildings, and Figure 9.3 Historic Landscapes. The results of the geophysical survey are presented in Appendix 9.2 Geophysical Survey. The complete gazetteer of heritage assets is included as Appendix 9.3 Historic Environment Gazetteer. The complete assessment of potential effects on the historic environment is included as Appendix 9.4 Potential Effects on the Historic Environment. Appendix 9.5 presents the Archaeological Mitigation Strategy (AMS).

#### Legislative and Policy Background

9.1.5 Chapter 2 Regulatory and Policy Context sets out the overarching policy relevant to the project including the EN-1. EN-1 contains the following paragraphs relating to historic environment which have been considered within this chapter:

- Paragraph 5.8.8 states that ‘As part of the ES [Environmental Statement] the applicant should provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. As a minimum the applicant should have consulted the relevant Historic Environment Record and



*assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact.'*

- Paragraph 5.8.9 states that '*where a development site includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, representative visualisations may be necessary to explain the impact.*'
- Paragraph 5.8.10 states that '*the applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents.*'

9.1.6 In addition, Appendix 2.1 Environmental Legislation and Policy includes legislation and national policy relevant to the historic environment. Appendix 2.2 Regional and Local Planning Policy provides a review of local policy considerations relevant historic environment.

## **9.2 Approach and Methods**

9.2.1 For the purposes of this assessment, the historic environment has been considered under the following three subtopics:

- archaeological remains: the material remains of human activity from the earliest periods of human evolution to the present. These may be buried traces of human activities, sites visible above ground, or moveable artefacts;
- historic buildings: architectural, designed or other structures with a significant historical value. These may include structures that have no aesthetic appeal or structures not usually thought of as buildings, such as milestones or bridges; and
- historic landscapes: the current landscape, whose character is the result of the action and interaction of natural and / or human factors. The historic landscape has been divided into Historic Landscape Types (HLT) to facilitate assessment. HLT are historic landscape parcels with a common character such as land use or field pattern. Following Design Manual for Roads and Bridges (DMRB) (Highways Agency et al., 2007, p.A7/6) hedgerows, including those which are considered to be historically important under the Hedgerows Regulations 1997, are regarded as landscape elements within HLT and not as independent heritage assets.

9.2.2 EN-1 paragraphs 5.8.8 to 5.8.10 outline how, as part of the Environmental Statement (ES) '*the applicant should provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance*'. The DMRB HA 208/07 Cultural Heritage (Highways Agency et al., 2007) sets out a methodology for assessing value of heritage assets and the significance of effects of a proposed development. This methodology was developed with Historic England and has been successfully used on linear pipeline projects to assess value of heritage assets and the significance of effect. This use of this approach within this ES chapter has been agreed during engagement with the relevant statutory consultees as detailed below.



### Scope of Assessment

- 9.2.3 This chapter assesses potential impacts to:
- archaeological remains and their settings during construction and operation;
  - historic buildings (including Conservation Areas) and their setting during construction and operation; and
  - historic landscapes (which incorporates historic landscape elements such as hedgerows) and their settings during construction.
- 9.2.4 The scope of the historic environment assessment has been informed by the Scoping Opinion provided by the Planning Inspectorate (2018) on behalf of the Secretary of State, following the submission of the Scoping Report (Esso, 2018). The scope has also been informed through engagement with relevant consultees.
- 9.2.5 Table 9.1 summarises the scope of the assessment for historic environment. This table includes the references (for example ID 4.6.1) to the relevant paragraph response from the Planning Inspectorate in the Scoping Opinion. The boxes shaded in grey are the matters that have been scoped out of the assessment following the feedback from the Planning Inspectorate.

**Table 9.1: Matters Scoped In and Out of Assessment (Grey Shading Indicates Matters Scoped Out Following Feedback from the Planning Inspectorate)**

| Receptor               | Matter / Potential Effect   | Conclusion in the SR (July 2018)               | Comments from the Planning Inspectorate in the Scoping Opinion (September 2018)   |
|------------------------|---|--|---|
| Archaeological Remains | Potential for the removal of known and unknown archaeological remains during construction. Within 300m of Order Limits. | Scoped in for locations within 300m of the OL. | (ID 4.3.7) The Scoping Report includes contradictory information in that it proposes to scope in physical impacts during construction to archaeological remains and historic landscapes over 300m from the Proposed Development. However, it also only refers to these assets as being scoped in where they within 300m of the Order Limits. The Inspectorate considers that physical impacts to these assets should be considered in the ES, over the geographical extent at which impacts could occur. Scoped in. |
|                        | Setting of designated assets. Between 300m and 1km from Order Limits.   | Scoped out.                                    | (ID 4.3.2) The Inspectorate does not agree that the Scoping Report provides detailed information to scope these matters out. The ES must include an assessment of likely significant effects on the setting of archaeological remains during construction, taking into account the Zone of Theoretical Visibility (ZTV) established for the Proposed Development. Scoped in.  |
|                        | During operation. Within 1km of Order Limits  | Scoped out.                                    | (ID 4.3.1) The Inspectorate considers that, depending on circumstances, effects on setting could occur during operation. The ES should include an assessment of the above ground elements (marker posts, a new pigging station, transformer rectifier cabinets, fenced encloses surrounding valves) with respect to impacts on setting. Scoped in.  |



| Receptor            | Matter / Potential Effect  | Conclusion in the SR (July 2018) | Comments from the Planning Inspectorate in the Scoping Opinion (September 2018)   |
|---------------------|--|----------------------------------|---|
| Historic Buildings  | Physical impact on assets. Within 1km of Order Limits.   | Scoped out.                      | (ID 4.3.3) Figure 9.1 in the Scoping Report shows a number of non-designated assets within the proposed Order Limits. Not all of these features have been assigned an asset number and accompanying description and therefore, it has not been possible to verify if any of these are historic buildings. This is a matter which should be clarified in the ES. Subject to the clarification above and depending on the outcomes of further desk based assessment, the Inspectorate agrees to scope this matter out of the ES. Scoped in.   |
|                     | Physical impacts and impacts to setting - Conservation Areas during construction and operation                       | Scoped out                       | (ID 4.3.5) The Inspectorate considers that insufficient detail has been provided about the how the characteristics of the construction and operational phases have been taken into account. The Scoping Report also makes reference to impacts on setting from the presence of marker posts during the operational phase but does not mention how the other above ground structures of the Proposed Development have been taken into account. The ES should assess the likely significant effects on Conservation Areas during both construction and operation of the Proposed Development. Scoped in.  |
|                     | Potential for an effect on the setting of historic buildings through visual and noise intrusion during construction. | Scoped out.                      | (ID 4.3.4) A ZTV has not yet been established and it is not clear how this has been incorporated into the assessment of the individual assets described. The assessment refers to temporary impacts during construction, however no detailed information is provided and it is not evident how the information on construction phasing has informed this position. The assessment also makes reference to impacts on settings from the presence of marker posts during the operational phase but does not mention how the other above ground structures have been taken into account. The ES should include an assessment of the likely significant effects on the setting of historic buildings, for all stages of the development. Scoped in. |
|                     | Setting of designated assets. Between 300m and 1km from Order Limits.  | Scoped out.                      |   |
|                     | During operation. Within 1km of Order Limits   | Scoped out.                      |   |
| Historic landscapes | Potential for the removal of key historic landscape elements during construction. Within 300m of Order Limits.       | Scoped in.                       | Scoped in.  |
|                     | Setting of designated assets. Between 300m and 1km from Order Limits   | Scoped out.                      | (ID 4.3.6) The Inspectorate considers that any impacts to setting would be unlikely to result in significant effects. The Inspectorate agrees that this matter can be scoped out of the ES. Scoped out.   |





| Receptor | Matter / Potential Effect                        | Conclusion in the SR (July 2018) | Comments from the Planning Inspectorate in the Scoping Opinion (September 2018)  |
|----------|--|----------------------------------|--|
|          | During operation.<br>Within 1km of Order Limits. | Scoped out.                      | (ID 4.3.6) The Inspectorate agrees that there are unlikely to be significant effects and that this matter can be scoped out of the ES. <b>Scoped out</b> |

9.2.6 In addition to the points noted in Table 9.1 the Planning Inspectorate also raised the following comments to consider within the assessment, listed below along with information on how they have been addressed:

- (ID 4.3.8) The ES should clearly explain the methodology and apply guidance consistently unless where stated and justified. Reference is made to Chapter 6 for the matrix of significance of effects. This does not include receptors of 'unknown' value which are identified in Table 9.4. Specific methodology applicable to the aspect chapter should be included in the ES. See Section 9.2, specifically 'Impact Significance', for explanation of methodology and guidance used in the ES.
- (ID 4.3.9) The Inspectorate notes the intent to assess impacts to receptors within 300m of the Proposed Development. There is no explanation as to why this is an appropriate study area. The Inspectorate advises that the study area for the assessment of both physical impacts and for setting should be based on the extent of the impacts. See Section 9.2, specifically 'Study Area', for explanation of the study area used in the ES.
- (ID 4.3.10) It is noted that assets of a low or negligible value and undesignated buildings are not numbered, and Conservation Areas are not labelled. The ES should clearly identify each asset and provide the information to understand the specific effects that apply to each. All cultural heritage assets have been labelled on ES Figures 9.2.1 – 9.2.3 with asset numbers which correspond to Historic Environment Gazetteer (Appendix 9.3) and Potential Effects on the Historic Environment (Appendix 9.4).
- (ID 4.3.11) The Inspectorate considers that the ES should address impacts to drainage and groundwater movement where these may result in significant impacts to heritage assets. Cross reference should be made to the relevant assessments Historic England has provided advice on this matter in their response in Appendix 2, which the Applicant should take into account. Potential impacts on cultural heritage assets from changes in groundwater have been assessed; further details can be found in Potential Effects on the Historic Environment (Appendix 9.4) and in Sections 9.5, 9.6, and 9.7 below.
- (ID 4.3.12) The Inspectorate considers that removal of archaeological deposits, and the longer term effects of vegetation removal in the landscape and the loss of landscape features could also result in effects on setting. The ES should consider these impacts where significant effects are likely to occur. Historic England has provided advice on this matter in their response in Appendix 2, which the Applicant should take into account. Potential impacts on the setting of cultural heritage assets has been considered; further details can be found in Potential Effects on the Historic Environment (Appendix 9.4) and in Sections 9.5, 9.6, and 9.7 below.





- (ID 4.3.13) The Scoping Report implies that trial trenching may be ruled out of the methodology. The Inspectorate advises that it is extremely likely that trial trenching will be required in order to produce a robust assessment. Hampshire County Council has provided some advice in their consultation response with respect to the use of trial trenching and geophysical survey which the Applicant should take into account. The Applicant should aim to agree the extent of geophysical surveys with the relevant authorities. The extent of geophysical survey was agreed with the relevant authorities. Trial trenching is recognised as a requirement to design further archaeological work and a general approach set out in the AMS (Appendix 9.5). See Section 9.2, specifically 'Engagement Relevant to the Assessment' for further details.
- (ID 4.3.14) The way in which Table 9.6 of the Scoping Report categorises receptors and their location relative to the Order Limits is not consistent with the preceding text. The Table omits mention of undesignated assets and does not always specify which development phase applies. This undermines confidence in the accuracy of the summary information. The Inspectorate considers that a summary table, which accurately corresponds to the text regarding matters taken into the assessment is useful and should be included in the ES. Summary tables have been included in Chapter 9 Historic Environment that match and support the text.

### **Study Area**

- 9.2.7 For this assessment the study area was defined as the Order Limits and an area extending 500m in all directions from them. The size of the study area was informed by guidance provided by the DMRB (Highways Agency et al., 2007) and by professional judgement based on similar schemes. It has been extended from the 300m study area used in the Scoping Report in response to comments made in the Scoping Opinion (ID 4.3.9) and by Surrey County Council.
- 9.2.8 The size of this study area is considered appropriate to encompass the potential extent of any impact and it allows heritage assets within the Order Limits to be identified and placed in their wider geographical and chronological context to facilitate a robust assessment of the value of heritage assets. The larger study area also allows for unknown archaeological remains to be adequately assessed through obtaining a fuller understanding of the archaeological resource within the general area. (Scoping Opinion ID 4.3.9).
- 9.2.9 The study area is also considered appropriate to capture any impacts to the setting of non-designated heritage assets which have the potential to result in significant effects. Designated heritage assets outside of the study area but within 1km of the Order Limits have also been included in the baseline so that effects to the setting can be assessed. Given the mostly temporary and low-level nature of the potential impacts on the setting of heritage assets, 1km is considered to be appropriate for the nature of the project. (Scoping Opinion ID 4.3.9).
- 9.2.10 All designated and non-designated heritage assets and the study area used for assessment are shown on Figure 9.1 Archaeological Remains, Figure 9.2 Historic Buildings, and Figure 9.3 Historic Landscapes.



## **Baseline Conditions**

### Desk-based Assessment

- 9.2.11 The following sources of data were used to establish the historic environment baseline:
- National Heritage List for England for information on nationally designated heritage assets including World Heritage Sites, Listed Buildings, Registered Battlefields, Registered Parks and Gardens and Scheduled Monuments (Historic England, 2018);
  - Historic Environment Records comprising:
    - Hampshire Historic Environment Record for information on known heritage assets in Hampshire (including those areas within the South Downs National Park Authority (SDNPA) which are situated within Hampshire);
    - Winchester City Council Historic Environment Record for information on known heritage assets in Winchester (including those areas within the SDNPA which are situated within the Winchester City Council boundary);
    - Surrey County Council Historic Environment Record for information on known heritage assets in Surrey; and
    - Greater London Historic Environment Record for information on known heritage assets in the London Borough of Hounslow.
  - Visits to Archive and Record Offices for access to reports, mapping, and photographic records comprising:
    - Surrey History Centre (visited 23/08/2018);
    - Hampshire Archives and Local Studies Centre (visited 24/08/2018); and
    - Historic England Library and Archive (visited 25/09/2018).
  - Hampshire County Council Integrated Character Assessment (Hampshire County Council, 2018), Hampshire Historic Landscape Assessment (Lambrick & Bramhill, 1999), and Surrey Landscape Character Assessment for additional background on historic landscapes (Surrey County Council, 2018b);
  - Natural England National Character Assessments for additional information regarding National Character Areas within the project comprising:
    - National Character Area Profile: 120. Wealden Greensand (Natural England, 2013);
    - National Character Area Profile: 128. South Hampshire Lowlands (Natural England, 2014a);
    - National Character Area Profile: 129. Thames Basin Heaths (Natural England, 2014b);
    - National Character Area Profile: 130. Hampshire Downs (Natural England, 2014c);
    - National Character Area Profile: 115. Thames Valley (Natural England 2015a); and



- National Character Area Profile: 125. South Downs (Natural England, 2015b).
- District and Borough Councils and local community groups for information on locally listed heritage assets and Conservation Areas, including Conservation Area appraisals where available;
- Regional Research Frameworks (Barber, 2013; Bird, 2006; Hey & Hind, 2014; Nixon et al., 2003; Weekes, 2012);
- Historic England guidance papers;
- Online LiDAR (Houseprices, 2018);
- Online Ordnance Survey Mapping (National Library of Scotland, 2018); and
- Online archaeological excavation reports.

#### Site Walkover and Surveys

9.2.12 Targeted walkover surveys were undertaken between July and September 2018 comprising:

- land north of Upper Farringdon and east of Chawton;
- land in and to the north east of Chobham Common;
- Public Rights of Way north of Stonehill Road to the southwest of Stonehill;
- Chertsey Meads;
- land to the east and south of the Belmore Lane and Salt Lane junction;
- land around Preshaw Wood off Love Lane;
- Public Rights of Way off Crondall Lane to the south of Crondall;
- land northwest of Ewshot and south of Church Crookham;
- Farnborough Hill School and Conservation Area;
- land southeast of Bramdean to the south of Brockwood Bottom;
- land east of Bramdean; and
- land west and north of West Tisted.

#### Geophysical Survey

9.2.13 An archaeological geophysical survey was undertaken across 102 Geophysical Survey Areas between Boorley Green and West London Terminal storage facility in Hounslow. The extent of the geophysical surveys was agreed with the relevant statutory consultees during engagement. The survey was conducted in November 2018 and covered approximately 126 hectares within the Study Area. The results of the geophysical survey have been incorporated into this baseline and are provided in Appendix 9.2.

#### Engagement Relevant to the Assessment

9.2.14 Historic England and the Local Authority Archaeologists from Hampshire and Surrey County Council and Winchester City Council support the methodology and study



area used within the Historic Environment Desk-based Survey (Appendix 9.1) to establish the baseline. They also agreed to a targeted geophysical survey (Scoping Opinion ID 4.3.13).

- 9.2.15 The statutory consultees named above acknowledge that trial trenching will be required to design further archaeological work and that the general approach is set out in the AMS (Appendix 9.5). It was agreed during engagement with the relevant statutory consultees that trial trenching was not required prior to the submission of this ES. (Scoping Opinion ID 4.3.13).

### **Limitations of Assessment**

- 9.2.16 Intrusive archaeological evaluation has not been used to inform this assessment but is planned prior to installation (see Appendix 9.5 Archaeological Mitigation Strategy). This approach has been agreed in meetings held with Historic England and the Local Authority Archaeologists from Hampshire and Surrey County Council and Winchester City Council. Areas with high potential for in situ archaeological remains have been identified through desk-based sources (presented in Appendix 9.1) and archaeological geophysical survey (presented in Appendix 9.2). The ES provides a robust assessment of potential effects without the additional data provided by intrusive archaeological evaluations.

### **Impact Significance**

- 9.2.17 As explained in Chapter 6 Overview of Assessment Process, the significance of effect is determined using a three-step process:
- 1) Identify value/sensitivity of a receptor.
  - 2) Determine magnitude of potential impact.
  - 3) Assign impact significance.
- 9.2.18 Tables 9.2 and 9.3 set out the criteria used to assess value/sensitivity and magnitude, which are based on the criteria provided by the HA 208/07 (Highways Agency et al., 2007). Impact significance was then determined taking both these assessments into account, using the matrix approach provided in Section 6.3 of Chapter 6. 'Magnitude of impact' within DMRB is equivalent to the 'magnitude of change' used in the significance of effect matrix in Chapter 6. The 'small', 'medium', and 'large' magnitudes of change are equivalent to 'minor', 'moderate' and 'major' magnitudes of impacts within DMRB respectively. Impacts reported in this ES are adverse unless otherwise stated and are considered to result in 'likely significant effects' in the context of the EIA Regulations when of moderate significance or above.
- 9.2.19 The matrix in Chapter 6 does not include the 'unknown' or 'very high' values which are included in DMRB. No cultural heritage assets have been assessed to be of 'very high' value. Only one heritage asset has been assessed as having an 'unknown' value (HLT107), however no change to this heritage asset is predicted to occur during construction or operation of the project. The matrix in Chapter 6 also does not include a magnitude of change of 'no change'; any heritage asset that has been assessed as receiving no impact from the project has been assessed as



having a magnitude of change of 'no change' and a 'negligible' significance of effect (Scoping Opinion ID 4.3.8).

9.2.20 The value of the majority of archaeological remains is primarily derived from the evidence that their physical remains contribute to the ability to understand past human activity ('archaeological interest' in the terminology used in EN-1 (DECC, 2011)). This contribution has been assessed based on the capacity of archaeological remains to provide evidence to support national or regional research objectives. Where other interests (such as historic, architectural or artistic interest (ibid.)) or setting contribute significantly to the value of archaeological remains these are identified in Appendix 9.3 Historic Environment Gazetteer.

Value/Sensitivity

**Table 9.2: Value/Sensitivity Criteria for Historic Environment (Based on Highways Agency et al., 2007)**

| Sensitivity/Value             | Criteria  |
|-------------------------------|---|
| <b>Archaeological Remains</b> |   |
| Very High                     | <ul style="list-style-type: none"> <li>World Heritage Sites (including nominated sites).</li> <li>Assets of acknowledged international importance.</li> <li>Assets that can contribute significantly to acknowledged international research objectives.</li> </ul>  |
| High                          | <ul style="list-style-type: none"> <li>Scheduled Monuments (including proposed sites).</li> <li>Undesignated assets of schedulable quality and importance.</li> <li>Assets that can contribute significantly to acknowledged national research objectives.</li> </ul>   |
| Medium                        | <ul style="list-style-type: none"> <li>Designated or undesignated assets that contribute to regional research objectives.</li> </ul>  |
| Low                           | <ul style="list-style-type: none"> <li>Designated and undesignated assets of local importance.</li> <li>Assets compromised by poor preservation and/or poor survival of contextual associations.</li> <li>Assets of limited value, but with potential to contribute to local research objectives.</li> </ul>  |
| Negligible                    | <ul style="list-style-type: none"> <li>Assets with very little or no surviving archaeological interest.</li> </ul>  |
| Unknown                       | <ul style="list-style-type: none"> <li>The value of the site has not been ascertained.</li> </ul>   |
| <b>Historic Buildings</b>     |   |
| Very High                     | <ul style="list-style-type: none"> <li>Structures inscribed as being of universal importance as World Heritage Sites.</li> <li>Other buildings of recognised international importance.</li> </ul>   |
| High                          | <ul style="list-style-type: none"> <li>Scheduled Monuments with standing remains.</li> <li>Grade I and Grade II* Listed Buildings.</li> <li>Other Listed Buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the listing grade.</li> <li>Conservation Areas containing very important buildings.</li> <li>Undesignated structures of clear national importance.</li> </ul> |
| Medium                        | <ul style="list-style-type: none"> <li>Grade II Listed Buildings.</li> <li>Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations.</li> <li>Conservation Areas containing buildings that contribute significantly to their historic character.</li> </ul>   |



| Sensitivity/Value   | Criteria   |
|---------------------|--|
|                     | <ul style="list-style-type: none"> <li>Historic Townscape or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures).</li> </ul>   |
| Low                 | <ul style="list-style-type: none"> <li>'Locally listed' buildings.</li> <li>Historic (unlisted) buildings of modest quality in their fabric or historical association.</li> <li>Historic townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures).</li> </ul>                                      |
| Negligible          | <ul style="list-style-type: none"> <li>Buildings of no architectural or historical note; buildings of an intrusive character.</li> </ul>   |
| Unknown             | <ul style="list-style-type: none"> <li>Buildings with some hidden (i.e. inaccessible) potential for historic significance.</li> </ul>  |
| Historic Landscapes |  |
| Very High           | <ul style="list-style-type: none"> <li>World Heritage Sites inscribed for their historic landscape qualities.</li> <li>Historic landscapes of international value, whether designated or not.</li> <li>Extremely well preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s).</li> </ul>  |
| High                | <ul style="list-style-type: none"> <li>Designated historic landscapes of outstanding interest.</li> <li>Undesignated landscapes of outstanding interest.</li> <li>Undesignated landscapes of high quality and importance, and of demonstrable national value.</li> <li>Well preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s).</li> </ul> |
| Medium              | <ul style="list-style-type: none"> <li>Designated special historic landscapes.</li> <li>Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value.</li> <li>Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s).</li> </ul>  |
| Low                 | <ul style="list-style-type: none"> <li>Robust undesignated historic landscapes.</li> <li>Historic landscapes with importance to local interest groups.</li> <li>Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations.</li> </ul>  |
| Negligible          | <ul style="list-style-type: none"> <li>Landscapes with little or no significant historic interest.</li> </ul>  |
| Unknown             | <ul style="list-style-type: none"> <li>Landscapes with some hidden (i.e. inaccessible) potential for historic significance.</li> </ul>   |

### Impact Magnitude

**Table 9.3: Magnitude of Change Criteria for Historic Environment (Based on Highways Agency et al., 2007)**

| Magnitude              | Description   |
|------------------------|---|
| Archaeological Remains |   |
| Large                  | <ul style="list-style-type: none"> <li>Change to most or all key archaeological materials, such that the resource is totally altered.</li> <li>Comprehensive changes to setting.</li> </ul>                                 |
| Medium                 | <ul style="list-style-type: none"> <li>Changes to many key archaeological materials, such that the resource is clearly modified.</li> <li>Considerable changes to setting that affect the character of the asset</li> </ul> |
| Small                  | <ul style="list-style-type: none"> <li>Changes to key archaeological materials, such that the asset is slightly altered.</li> <li>Slight changes to setting.</li> </ul>   |
| Negligible             | <ul style="list-style-type: none"> <li>Very minor changes to archaeological materials or setting.</li> </ul>  |





| Magnitude                  | Description  |
|----------------------------|--|
| No Change                  | <ul style="list-style-type: none"> <li>No change.</li> </ul>   |
| <b>Historic Buildings</b>  |  |
| Large                      | <ul style="list-style-type: none"> <li>Change to key historic building elements, such that the resource is totally altered.</li> <li>Comprehensive changes to the setting.</li> </ul>  |
| Medium                     | <ul style="list-style-type: none"> <li>Change to many key historic building elements, such that the resource is significantly modified.</li> <li>Changes to the setting of an historic building, such that it is significantly modified.</li> </ul>  |
| Small                      | <ul style="list-style-type: none"> <li>Change to key historic building elements, such that the asset is slightly different.</li> <li>Change to setting of an historic building, such that it is noticeably changed.</li> </ul>   |
| Negligible                 | <ul style="list-style-type: none"> <li>Slight changes to an historic building's elements or setting that hardly affect it.</li> </ul>  |
| No Change                  | <ul style="list-style-type: none"> <li>No change to fabric or setting.</li> </ul>  |
| <b>Historic Landscapes</b> |  |
| Large                      | <ul style="list-style-type: none"> <li>Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit.</li> </ul>                                |
| Medium                     | <ul style="list-style-type: none"> <li>Changes to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, noticeable differences in noise or sound quality, considerable changes to use or access; resulting in moderate changes to historic landscape character.</li> </ul> |
| Small                      | <ul style="list-style-type: none"> <li>Changes to few key historic landscape elements, parcels or components, slight visual changes to few key aspects of historic landscape, limited changes to noise levels or sound quality; slight changes to use or access; resulting in limited changes to historic landscape character.</li> </ul>      |
| Negligible                 | <ul style="list-style-type: none"> <li>Very minor changes to key historic landscape elements, parcels or components, virtually unchanged visual effects, very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character.</li> </ul>              |
| No Change                  | <ul style="list-style-type: none"> <li>No change to elements, parcels or components; no visual or audible changes; no changes arising from amenity or community factors.</li> </ul>  |

## 9.3 Baseline Conditions

- 9.3.1 This section provides a summary of the baseline conditions within the 500m study area and within 1km of the Order Limits (for designated heritage assets). The full list of heritage assets, including those recorded during archaeological geophysical survey, and the assessment of the historical importance of hedgerows which extend to within the Order Limits can be found in Appendix 9.3 Historic Environment Gazetteer. Further discussion of the baseline conditions and the assessment of value can be found within Appendix 9.1 Historic Environment Desk-based Survey. All heritage assets are shown on Figure 9.1 Archaeological Remains, Figure 9.2 Historic Buildings and Figure 9.3 Historic Landscapes.
- 9.3.2 All archaeological remains and historic buildings have been provided with an asset number preceded by 'Asset' ranging from Asset 1 to Asset 2019. All Historic Landscape Types (HLT) have been provided with an asset number preceded by 'HLT' ranging from HLT01 to HLT112. Wherever possible these numbers have been retained from earlier assessments and, due to design changes, these numbers are no longer wholly sequential.



- 9.3.3 Historically Important Hedgerows have maintained the crossing identification numbers utilised across disciplines within this ES. This number is preceded by ‘HCX’ and ranges from HCX 01 to HCX 270.
- 9.3.4 From the sources identified in Section 9.2, a total of 1,383 heritage assets were identified within the 500m study area of which 1,123 are non-designated or locally listed and 260 are designated. A further 378 designated heritage assets were identified beyond the study area but within 1km of the Order Limits. A total of 1,761 heritage assets have therefore been included in the historic environment baseline.
- 9.3.5 A summary of the value of all heritage assets in the historic environment baseline is presented in Table 9.4. No heritage assets were assessed to be of ‘very high’ value.

**Table 9.4: Summary of the Value of all Heritage Assets in the Historic Environment Baseline**

| Sub-Topic                      | Value    | Unknown    | Negligible                                  | Low   | Medium  | High                                  | Total        |
|--------------------------------|----------|------------|---|---|---|---------------------------------------|--------------|
| Archaeological Remains         | 0        |            | 387   | 330   | 167   | 23 (including 22 Scheduled Monuments) | <b>907</b>   |
| Historic Buildings             | 0        | 1          | 140 (including 69 locally listed buildings) | 580 (including 559 Grade II listed buildings and 20 Conservation Areas) | 31 (comprising 6 Grade I listed buildings, 24 Grade II* listed buildings, and one Grade II listed building) |                                       | <b>752</b>   |
| Historic Landscape Types (HLT) | 1        | 16         | 54 (including one locally listed park)      | 25  | Six (comprising one Grade II* Registered Park and Garden and five Grade II Registered Parks and Gardens)    |                                       | <b>102</b>   |
| <b>Total</b>                   | <b>1</b> | <b>404</b> | <b>524</b>                                  | <b>772</b>  | <b>60</b>   |                                       | <b>1,761</b> |

### Archaeological Remains

- 9.3.6 A total of 907 archaeological remains were considered as part of the baseline. Of these:
- 23 (including 22 Scheduled Monuments) have been assessed to be of high value;
  - 167 have been assessed to be of medium value;
  - 330 have been assessed to be of low value; and
  - 387 have been assessed to be of negligible value.
- 9.3.7 No archaeological remains within the baseline have been assessed to be of ‘very high’ or ‘unknown’ value.
- 9.3.8 All archaeological remains are shown on Figure 9.1.



9.3.9 A summary of the value of all archaeological remains and their location relative to the Order Limits is presented in Table 9.5.

**Table 9.5: Summary of the Value of All Archaeological Remains within the Historic Environment Baseline and their Location Relative to the Order Limits**

| Value  | Unknown  | Negligible | Low        | Medium     | High                                      | Total      |
|--|----------|------------|------------|------------|---|------------|
| Location   |          |            |            |            |   |            |
| Within or partially within the Order Limits            | 0        | 21         | 67         | 22         | 0   | <b>110</b> |
| Outside of the Order Limits and within 500m Study Area | 0        | 366        | 263        | 145        | 13 (12 of which are Scheduled Monuments)  | <b>787</b> |
| Outside of the 500m Study Area and Within 1km          | n/a      | n/a        | n/a        | n/a        | 10 (all of which are Scheduled Monuments) | <b>10</b>  |
| <b>Total</b>   | <b>0</b> | <b>387</b> | <b>330</b> | <b>167</b> | <b>23</b>                                 | <b>907</b> |

9.3.10 The 23 archaeological remains of high value comprise 22 Scheduled Monuments and one instance of non-designated archaeological remains which is associated with a Scheduled Monument. These comprise nine Prehistoric sites (Assets 792, 793, 882, 885, and 891 which are bowl barrow sites and Assets 858, 1107, 1109 and 1690 which are enclosures), five Roman sites (Assets 329, 337, 1106 and 1108 which are occupation sites and Asset 1504 which is an enclosure), two Early medieval sites (Asset 962 Chertsey Abbey and Asset 1093 which is a cemetery), four medieval sites (Asset 1141 Lomer Deserted Medieval Settlement, Asset 546 and 577 which are castle sites, and Asset 1019 which is an enclosure), one Post medieval site (Asset 1036 Chertsey Bridge), and two sites of unknown date (Asset 461 and Asset 895, both enclosure sites).

9.3.11 The 167 archaeological remains of medium value comprise those which have the potential to contribute to regional research framework questions. This includes archaeological remains such as Prehistoric barrow monuments and enclosures, extensive single- or multi-period field systems, and occupation sites such as Roman villas, deserted medieval villages, and medieval and early Post-medieval farmsteads.

9.3.12 The 330 archaeological remains of low value comprise those which are compromised by poor preservation, have poor survival of contextual associations, and/or are of limited value for answering regional research framework questions. This includes archaeological remains such as discrete/isolated features, for example, pits and ditches, fragmentary field systems, more modern archaeological features such as pillboxes, and poorly evidenced potential archaeological remains, such as postulated Roman roads and potential World War II (WWII) aircraft crash locations.

9.3.13 The 387 archaeological remains of negligible value comprise those with little or no surviving archaeological interest. This may be due to prior removal (such as surface finds which have been recovered and archaeological features which have been previously excavated or removed through construction activity) or as relatively



modern and highly common archaeological remains, such as Post-medieval and later quarry pits or landfill sites.

#### Potential for Unknown Archaeological Remains

- 9.3.14 There is the potential for unknown archaeological remains to be present across the length of the project (as outlined in Appendix 9.1).
- 9.3.15 General areas with a more distinct potential for unknown archaeological remains to exist in situ comprise:
- areas of the Order Limits that deviate from the existing pipelines (there is likely to be an area around the existing pipeline where the ground has been disturbed and any archaeological remains in this area would therefore have been removed);
  - rural, open landscapes which have not been subject to major development such as roads; and
  - areas which have not been subject to mineral extraction or quarrying.
- 9.3.16 As outlined in Appendix 9.1, areas of noted potential for unknown archaeological remains comprise the following:
- a very high potential for Neolithic and Bronze Age archaeological remains within the vicinity of Laleham;
  - a very high potential for Roman archaeological remains within the vicinity of Alton;
  - a high potential for Mesolithic archaeological remains within the sand and gravel terraces and alluvial deposits associated with all river valleys within the study area;
  - a high potential for Head deposits within valleys to contain Mesolithic and Neolithic archaeological remains;
  - a high potential for late Prehistoric archaeological remains within the chalk downland and Surrey heathland;
  - a high potential for late Prehistoric archaeological remains within the vicinity of Chertsey Meads;
  - a high potential for Roman archaeological remains across the chalk downlands;
  - a moderate potential for Palaeolithic archaeological remains within the sand and gravel terraces of the Hamble river valley;
  - a moderate potential for Head deposits within valleys to contain Palaeolithic archaeological remains;
  - a moderate potential for Palaeolithic, Mesolithic and Neolithic archaeological remains within Clay-With-Flint sediments;
  - a moderate potential for the superficial geology of the Thames and its tributaries to contain Palaeolithic and Mesolithic archaeological remains; and
  - a moderate potential for medieval archaeological remains on the Surrey heathlands and towards London.

## Historic Buildings

- 9.3.17 A total of 752 historic buildings were considered as part of the baseline. Of these:
- 31 (comprising six Grade I listed buildings, 24 Grade II\* listed buildings, and one Grade II listed building) have been assessed to be of high value;
  - 580 (comprising 559 Grade II listed buildings, 20 Conservation Areas, and one non-designated historic building) have been assessed to be of medium value;
  - 140 (including 69 locally listed buildings) have been assessed to be of low value; and
  - one historic building been assessed to be of negligible value.
- 9.3.18 No historic buildings within the baseline have been assessed to be of ‘very high’ or ‘unknown’ value.
- 9.3.19 All historic buildings are shown on Sheets 1-26 of Figure 9.2.
- 9.3.20 A summary of the value of all archaeological remains and their location relative to the Order Limits is presented in Table 9.6.

**Table 9.6: Summary of the Value of All Historic Buildings within the Historic Environment Baseline and their Location Relative to the Order Limits**

| Value  | Unknown  | Negligible | Low   | Medium   | High   | Total      |
|--|----------|------------|---|--|--|------------|
| Location   |          |            |   |  |  |            |
| Within or partially within the Order Limits            | 0        | 0          | 0   | 4 (comprising three Conservation Areas and the non-designated Basingstoke Canal) | 0  | <b>4</b>   |
| Outside of the Order Limits and within 500m Study Area | 0        | 1          | 140 (including 69 locally listed buildings) | 228 (comprising six Conservation Areas and 222 Grade II Listed Buildings)        | 14 (comprising three Grade I Listed Buildings, ten Grade II* Listed Buildings, and one Grade II Listed Building) | <b>383</b> |
| Outside of the 500m Study Area and Within 1km          | n/a      | n/a        | n/a   | 348 (comprising 11 Conservation Areas and 337 Grade II Listed Buildings)         | 17 (comprising three Grade I Listed Buildings and 14 Grade II* Listed Buildings)                                 | <b>365</b> |
| <b>Total</b>   | <b>0</b> | <b>1</b>   | <b>140</b>                                  | <b>580</b>   | <b>31</b>  | <b>752</b> |

- 9.3.21 The 31 historic buildings of high value comprise nine medieval and Post-medieval churches (four Grade I listed and five Grade II\* listed), seven residential properties with medieval elements (all Grade II\* listed), 10 Post-medieval residential properties (all Grade II\* listed), the main building to Farnborough Hill Convent (Asset 676; Grade I listed), a former water mill and mill house (Asset 61; Grade II\* listed), Jane Austen’s former house (Asset 261; Grade I listed), and the Chertsey Bridge which



is listed twice, once as Grade II in the Runnymede district and once as Grade II\* in the Spelthorne district.

9.3.22 The 580 historic buildings of medium value comprise:

- 20 Conservation Areas;
- 346 Grade II listed residential buildings such as farmhouses, cottages, houses, vicarages, lodges, and villas;
- 38 Grade II listed commercial or public buildings such as schools, village halls, public houses, post offices and shops;
- 68 Grade II listed agricultural buildings such as barns, dovecotes, stables and granaries;
- 58 Grade II listed buildings related to religious ritual and funerary practices such as tombs, headstones, lychgates, churches and chapels;
- four Grade II listed transport-related historic buildings comprising a toll house, a coach house, a railway station building and a bridge;
- five Grade II listed buildings associated with the Tweseldown Racecourse;
- eight Grade II listed war memorials;
- seven Grade II listed buildings related to industry including maltings, mills, and a forge;
- five Grade II listed boundary walls and gates;
- seven Grade II listed garden features such as walls, railings, gates, and archways;
- 13 miscellaneous Grade II listed structures such as, for example, milestones, city post boxes, a bell tower and a former telegraph house; and
- one non-designated historic building comprising the Basingstoke Canal.

9.3.23 The 140 non-designated and locally listed buildings of low value which are primarily residential properties, boundary structures, war memorials, and public and commercial structures dating to the Post-medieval and Modern periods. These historic buildings are often highly altered and may be notable more for their group value rather than as individual heritage assets.

9.3.24 The one historic building which is of negligible value comprises a cottage which was demolished and re-built in 2002 (Asset 1120).

### **Historic Landscapes**

9.3.25 A total of 102 Historic Landscape Types (HLT) were considered as part of the baseline. Of these:

- six HLT (comprising one Grade II\* Registered Park and Garden and five Grade II Registered Parks and Gardens) have been assessed to be of high value;
- 25 HLT have been assessed to be of medium value;
- 54 HLT (including one locally listed park) have been assessed to be of low value;

- 16 HLT have been assessed to be of negligible value; and
- one HLT has been assessed to be of unknown value.

9.3.26 No HLT within the baseline have been assessed to be of 'very high' value.

9.3.27 All hedgerows which extend to within the Order Limits and which may be impacted by the project have been assessed regarding their historical importance under the Hedgerows Regulations 1997. A hedgerow is considered to be historically important if it has existed for 30 years or more and satisfies at least one of the 'Archaeology and history' criteria listed in Schedule 1 Part II of the Hedgerows Regulations 1997. These hedgerows are regarded as landscape elements in accordance with DMRB (Highways Agency et al., 2007). A total of 157 historically Important Hedgerows have been identified as historic landscape elements within their respective HLT. The assessment of all hedgerows and their historical importance is presented in Section 1.3 of Appendix 9.2 Historic Environment Gazetteer.

9.3.28 All HLT and historically Important Hedgerows are shown on Figure 9.3.

9.3.29 A summary of the value of all HLT and their location relative to the Order Limits is presented in Table 9.7.

**Table 9.7: Summary of the Value of All HLT within the Historic Environment Baseline and their Location Relative to the Order Limits**

| Value  | Unknown  | Negligible | Low  | Medium    | High   | Total      |
|--|----------|------------|--|-----------|--|------------|
| Location   |          |            |  |           |  |            |
| Within or partially within the Order Limits            | 0        | 10         | 34<br>(including one locally listed park and garden) | 15        | 0  | <b>59</b>  |
| Outside of the Order Limits and within 500m Study Area | 1        | 6          | 20   | 10        | 3 (comprising Grade II Registered Park and Gardens)  | <b>40</b>  |
| Outside of the 500m Study Area and Within 1km          | n/a      | n/a        | n/a  | n/a       | 3 (comprising one Grade II* Registered Park and Garden and two Grade II Registered Park and Gardens) | <b>3</b>   |
| <b>Total</b>   | <b>1</b> | <b>16</b>  | <b>54</b>  | <b>25</b> | <b>6</b>   | <b>102</b> |

9.3.30 The six HLT which have been assessed to be of high value comprise the Grade II\* Registered St Ann's Court (HLT109) and the Grade II Registered Woburn Farm (HLT105), Bramdean House HLT (HLT84), Frimley Park (HLT94), Bagshot Park (HLT95), and Chawton House HLT (HLT87).

9.3.31 One historically Important Hedgerow forms a landscape element of HLT87.



- 9.3.32 There are 25 HLT which have been assessed to be of medium value. These comprise:
- Chobham Common (HLT98);
  - St Michael's Abbey HLT (HLT92);
  - Small Irregular Assarts Intermixed With Woodland (HLT06);
  - Other Commons And Greens (HLT08);
  - Preshaw House HLT (HLT108);
  - Variable Size, Semi-Regular Fields With Straight Boundaries (Parliamentary Enclosure Type) (HLT15);
  - Small Rectilinear Fields With Wavy Boundaries (HLT19);
  - Unenclosed Heath And Scrub (HLT21);
  - Other Pre-1810 Woodland (HLT29);
  - Pre-1810 Heathland / Enclosed Woodland (HLT30);
  - 19<sup>th</sup> Century And Later Parkland (HLT31);
  - Village Or Hamlet (Pre-1811 Extent) (HLT58);
  - Valley Floor Woodlands (HLT63);
  - Water Meadows Or Common Meadows (HLT64);
  - Alder Carr (Wet Woods Next To Rivers And Wetlands) (HLT67);
  - Assarted Pre-1811 Woodland (HLT68);
  - Assarted Pre-1810 Wood Pasture (HLT71);
  - Arboreta (HLT73);
  - Town Pre-1811 Extent (HLT75);
  - Belmore House Park (HLT83);
  - Woodcote Manor Park (HLT85);
  - Brockwood Park (HLT86);
  - Defence Area 34 Ewshot (HLT89);
  - Farnborough Hill School HLT (HLT93); and
  - Scattered settlement with paddocks pre-1811 extent (HLT109).
- 9.3.33 Historically Important Hedgerows form elements of HLT03, HLT04, HLT06, HLT16, HLT17, HLT19, HLT58, HLT64, and HLT106.
- 9.3.34 The 54 HLT of low value comprise 19<sup>th</sup> century to modern HLT including post-enclosure field systems (such as HLT12), 19<sup>th</sup> century settlement and settlement related areas (such as HLT51, HLT52, and HLT53), recreational facilities (such as HLT41, HLT43 and HLT44), military land (HLT26), and parkland (such as HLT33, HLT91, and HLT106).





- 9.3.35 The 16 HLT of negligible value comprise modern HLT which are common nationally.
- 9.3.36 The single HLT of unknown value is Wintershill Hall HLT (HLT107) which is a private garden, where it has not been possible to ascertain if the historic landscape elements are still present.

## 9.4 Design and Good Practice Measures

- 9.4.1 All commitments are listed within the Register of Environmental Actions and Commitments (REAC), which is included within Chapter 16 Environmental Management and Mitigation. Commitments include embedded design measures, good practice measures and mitigation required to reduce a significant effect.
- 9.4.2 Chapter 4 Design Evolution provides a summary of the environmental considerations that have influenced the design through this process, with iterative updates and improvements to reach the fixed design submitted for development consent. The embedded design measures have been built into the designs, for example through the amendment to the Order Limits to avoid a sensitive feature. Examples relevant to this chapter include how the project has been developed to avoid known high value heritage assets such as Scheduled Monuments, Conservation Areas, Listed Buildings and Registered Parks and Gardens where practicable.
- 9.4.3 This chapter contains a number of project commitments to reduce impacts on the environment. These are indicated by a reference number like this (G20). Good practice measures are set out in the REAC and secured through Development Consent Order (DCO) requirements such as the Code of Construction Practice (CoCP). The good practice measures that are most relevant to the historic environment are listed in Table 9.8. These are applicable to all areas unless stated otherwise.

**Table 9.8: Good Practice Measures Within the REAC**

| Ref | Commitment Description  |
|-----|---|
| G67 | Measures presented within the Archaeological Mitigation Strategy (AMS) would be taken to protect or preserve in situ or by record, any significant archaeological remains that may be found.  |
| G68 | An archaeological contractor would carry out archaeological trial trenching, prior to the start of construction in areas set out in the AMS. This would examine a representative sample of the areas of potential or known archaeological remains within the Order Limits. The trenching would be scoped as necessary to quantify, characterise and date any archaeological remains found and allow for appropriate mitigation.<br><br>The information gained by the archaeological trial trenching would be used to refine the programme of archaeological mitigation and determine the appropriate mitigation for any archaeological remains found. The level of mitigation would be agreed with the local authority archaeologists as advisors to the relevant planning authorities in accordance with the principles set out in the AMS and NPS-EN1. The archaeological mitigation would comprise either a full or sample excavation, stripping, mapping and sampling prior to construction, or an archaeological watching brief during construction. |
| G70 | Where there is known archaeology that is not being removed and recorded, appropriate protection measures would be implemented. This could include signage and fencing, and reduction of topsoil stripping where practicable.  |



- 9.4.4 Implementation of measures presented in the AMS (Appendix 9.5) is a good practice measure which is included within the REAC and will be secured through Development Consent Order requirements such as the CoCP. The REAC also includes measures for noise, access to sites, reduced width working in sensitive areas, the reinstatement of vegetation, and control of ground water levels. These measures will serve to reduce impacts to Historic Buildings, Archaeological Remains, and Historic Landscapes.
- 9.4.5 The following assessment section includes an assessment of the potential impacts in absence of the AMS and other good practice measures. This is due to the need to set out the potential effects on the historic environment and to still allow for evolution of the fine details of the AMS during the implementation of the strategy. This is different to the approach taken in other chapters which assumes good practice measures are in place before the assessment is undertaken.

## **9.5 Potential Impacts (Without Mitigation)**

- 9.5.1 All potential effects on the historic environment are outlined in full in Appendix 9.4 and the following text will focus predominantly on potential effects which, in the absence of good practice measures, are likely to be significant (i.e. those of moderate significance or above in the absence of good practice measures including the AMS). This is a different approach taken in other chapters where good practice measures are assumed in place before assessment. This is to provide a comprehensive assessment, as requested within the Scoping Opinion.

### **Construction**

- 9.5.2 The construction works are temporary (see Chapter 3 Project Description for predicted duration) and the potential impacts to heritage assets during construction can be divided into physical impacts and impacts to setting.
- 9.5.3 Potential physical impacts on heritage assets which may occur during construction comprise:
- partial or complete removal of archaeological remains, historic components within Conservation Areas, or historic landscape elements (such as hedgerows) within the Order Limits through groundworks associated with construction such as excavation of the pipeline trench, topsoil stripping, creating trenchless crossings, and the creation of site compounds, logistics hubs and access roads;
  - damage to archaeological remains within the Order Limits through their compression during construction, through the movement of machinery or within laydown or spoil storage areas; and
  - damage to archaeological remains or to the foundations of historic buildings within the study area through changes to groundwater levels caused by engineering activities associated with the project (Scoping Opinion ID 4.3.11).
- 9.5.4 Potential setting impacts on heritage assets which may occur during construction comprise:
- the physical removal of, damage to, or severance of associated archaeological remains which form the setting of a heritage asset;



- the alteration to the setting of archaeological remains, historic buildings, or HLT through the removal of vegetation or associated above-ground elements during construction; and
- temporary noise and visual intrusion on the setting of archaeological remains, historic buildings, or HLT during construction activities such as pipeline installation, the placement of site compounds, logistics hubs, and from increased construction traffic. (Scoping Opinion ID 4.3.12).

9.5.5 Table 9.9 summarises the potential significance of effect on all historic assets considered within the baseline during construction.

**Table 9.9: Summary of the Potential Significance of Effect on Heritage Assets During Construction**

| Sub-Topic              | Significance of Effect | Negligible   | Minor Adverse | Moderate Adverse | Major Adverse | Total        |
|------------------------|------------------------|--------------|---------------|------------------|---------------|--------------|
| Archaeological Remains |                        | 804          | 66            | 36               | 1             | <b>907</b>   |
| Historic Buildings     |                        | 681          | 68            | 3                | 0             | <b>752</b>   |
| HLT                    |                        | 30           | 71            | 1                | 0             | <b>102</b>   |
| <b>Total</b>           |                        | <b>1,515</b> | <b>205</b>    | <b>40</b>        | <b>1</b>      | <b>1,761</b> |

### Archaeological Remains

- 9.5.6 Construction of the project is predicted to have a potential adverse impact on 163 of the 907 archaeological remains assessed as part of the baseline. 745 archaeological remains have been assessed as receiving no impact. All potential impacts on the historic environment and the resultant significance of effect are presented in Appendix 9.4.
- 9.5.7 In the absence of the AMS, there is the potential for a major significance of effect on one instance of archaeological remains and a moderate significance of effect on 36 archaeological remains. Effects that are moderate and major in significance are considered to be significant effects in EIA terms. These are described below.
- 9.5.8 In the absence of the AMS, there is the potential for a minor effect on 66 archaeological remains and for a negligible effect on 804 archaeological remains. These are not significant effects.
- 9.5.9 In the absence of the AMS, a major significance of effect is predicted for a possible Roman villa site at Stephen's Castle Down (Asset 94). This heritage asset has been assessed to be of medium value and is both within the boundary of a construction compound and near to the drive/receiving pit for an auger bore trenchless crossing. As the heritage asset may be completely or partial removed, the magnitude of these potential permanent impacts has been assessed to be large and the significance of these effects to be major.
- 9.5.10 In the absence of the AMS, a moderate significance of effect is predicted for 32 archaeological remains assessed to be of medium or low value which have the



potential to be partially or completely removed during construction. These archaeological remains comprise:

- Remnants Of A Medieval Or Later Field System South Of Durley Street (Asset 83; low value);
- Guidepost, Stephen's Castle Down (Asset 92; low value);
- Pyestock/Basingstoke Canal (Asset 648; low value);
- Enclosure And Ring Ditch Cropmarks, Chertsey (Asset 957; medium value);
- Sub-Rectangular Enclosure Or Drainage Ditch Cropmarks, Chertsey (Asset 1029; medium value);
- Sub-Circular Enclosure And Ring Ditch Cropmarks, Chertsey (Asset 1049; medium value);
- Linear And Ring Ditch Cropmarks, Laleham (Asset 1502; medium value);
- NMP Field System 6 (Asset 1580; medium value);
- NMP Field System 10 (Asset 1592; medium value);
- NMP Enclosure 9 (Asset 1618; medium value);
- NMP Field System 14 (Asset 1631; low value);
- NMP Barrow 2 (Asset 1639; medium value);
- Geophysical Survey Archaeological Feature 2 (Asset 1979; medium value);
- Geophysical Survey Archaeological Feature 3 (Asset 1980; medium value);
- Geophysical Survey Archaeological Feature 5 (Asset 1982; low value);
- Geophysical Survey Archaeological Feature 6 (Asset 1983; medium value);
- Geophysical Survey Archaeological Feature 7 (Asset 1984; low value);
- Geophysical Survey Archaeological Feature 8 (Asset 1985; low value);
- Geophysical Survey Archaeological Feature 9 (Asset 1986; low value);
- Geophysical Survey Archaeological Feature 14 (Asset 1991; low value);
- Geophysical Survey Archaeological Feature 15 (Asset 1992; medium value);
- Geophysical Survey Archaeological Feature 16 (Asset 1993; low value);
- Geophysical Survey Archaeological Feature 18 (Asset 1995; low value);
- Geophysical Survey Archaeological Feature 21 (Asset 1998; low value);
- Geophysical Survey Archaeological Feature 22 (Asset 1999; low value);
- Geophysical Survey Archaeological Feature 23 (Asset 2000; medium value);
- Geophysical Survey Archaeological Feature 24 (Asset 2001; low value);
- Geophysical Survey Archaeological Feature 25 (Asset 2002; medium value);
- Geophysical Survey Archaeological Feature 26 (Asset 2003; medium value);
- Geophysical Survey Archaeological Feature 27 (Asset 2004; low value);



- Geophysical Survey Archaeological Feature 28 (Asset 2005; low value); and
- Geophysical Survey Archaeological Feature 29 (Asset 2006; low value).

- 9.5.11 The magnitude of these potential permanent impacts has been assessed to be medium or large and the significance of these effects to be moderate.
- 9.5.12 Temporary changes to groundwater may occur near auger bored trenchless crossings due to the excavation of drive pits and receiving pits (see Appendix 8.2 Detailed Trenchless and Targeted Open Cut Assessment). In the absence of the AMS, there is the potential for archaeological remains at Steep Acre Farm (Asset 828; medium value) to be affected by the reduction of groundwater. There is no firm indication that in situ archaeological remains are present at this location and, if present, whether they would include features which would be affected by dewatering. There is also the potential for archaeological remains, if present, to extend to within the Order Limits and to therefore be partially removed or damaged during construction. As a worst-case scenario, the magnitude of the potential permanent impacts has been assessed to be medium and the significance of these effects to be moderate. No other known archaeological remains are situated within the predicted radius of impact for reduced groundwater (Scoping Opinion ID 4.3.11).
- 9.5.13 In the absence of the AMS, a moderate significance of effect is also predicted for WWII Aircraft Crash Site, Near Westbrook Grange (Asset 308), WWII Aircraft Crash: Deepcut (Asset 770), and WWII Aircraft Crash: Chobham (Asset 826) all of which are assessed to be of low value. The exact location of these sites is not known for certain, however the locations provided by the Historic Environment Records are within 100m of the Order Limits. The potential for archaeological remains associated with these sites to fall within the Order Limits cannot therefore be ruled out. If archaeological remains were to be present within the Order Limits, they may be completely or partially removed. The magnitude of these potential permanent impacts has been assessed to be large and the significance of these effects to be moderate. If archaeological remains are encountered, these would automatically be designated as a Protected Place under the Protection of Military Remains Act 1986, and a licence would be required from the Secretary of State before any further disturbance of the remains could be undertaken.
- 9.5.14 Due to the temporary nature of the works and the limited nature of above ground features (as outlined in Chapter 3 Project Description, the potential for a significant effect on the setting of archaeological assets relies on the following criteria:
- that the archaeological remains are situated within a wider setting of other archaeological remains which: a) are clearly associated and have the ability to enhance our understanding of that heritage asset; and b) have the potential for large impacts through removal of the associated archaeological remains and/or the severance of connectivity between the two archaeological remains;
  - that a heritage asset of medium or high value is situated in relation to the Order Limits in such a way that considerable temporary changes to setting that would affect the character and value of the asset may result; and
  - that an archaeological heritage asset of medium or high value would be affected by permanent changes to setting that would affect the character and value of the asset.





- 9.5.15 There are no archaeological remains which have been assessed as having the potential for a significant effect due to impacts on their setting.

*Unknown Archaeological Remains*

- 9.5.16 In conjunction with the above potential impacts on known archaeological remains, there is the potential for impacts to unknown archaeological remains which may result in significant effects in the absence of the AMS, dependent on the nature of the unknown archaeological remains.
- 9.5.17 Areas with a high or moderate potential for unknown archaeological remains are summarised in Section 9.3; however, there is the potential for unknown archaeological remains to be present across the length of the project (as outlined in Appendix 9.1 Historic Environment Desk-based Survey).
- 9.5.18 Temporary changes to groundwater may occur near auger bored trenchless crossings due to the excavation of drive pits and receiving pits. There is the potential for changes to groundwater to damage or destroy unknown archaeological remains. The radius of influence of the potential dewatering for each trenchless crossing prior to mitigation is outlined in Appendix 8.2 Detailed Trenchless and Targeted Open Cut Assessment (Scoping Opinion ID 4.3.11).

Historic Buildings

- 9.5.19 Construction of the project is predicted to have a potential adverse impact on 144 of the 752 historic buildings assessed as part of the baseline. 608 historic buildings have been assessed as receiving no impact.
- 9.5.20 No effects on historic buildings have been assessed to be of major significance. There is the potential for a moderate significance of effect on four historic buildings. Effects that are moderate and major in significance are considered to be significant effects in EIA terms. These are described below.
- 9.5.21 There is the potential for a minor significance of effect on 67 historic buildings and a negligible significance of effect on 683 historic buildings. These are not significant effects.
- 9.5.22 There are four historic buildings located at least partially within the Order Limits which have been assessed to be of medium value and which have the potential for both physical and setting impacts during construction:
- Basingstoke Canal (Asset 646);
  - Basingstoke Canal Conservation Area (Asset 1325);
  - Farnborough Hill, Hampshire County Council Conservation Area (Asset 1343); and
  - Farnborough Hill, Rushmoor Borough Council Conservation Area (Asset 1344).
- 9.5.23 The project crosses below the Basingstoke Canal (Asset 646) and the Basingstoke Canal Conservation Area (Asset 1325) as a trenchless crossing near to a major roundabout junction. In the absence of good practice measures, the magnitude of



impact on Assets 646 and 1325 has been assessed to be small and the significance of these effects to be minor (and therefore not significant effects in EIA terms).

- 9.5.24 Assets 1343 and 1344 both relate to Conservation Areas at Farnborough Hill. There is the potential for a small amount of vegetation clearance which would not affect the views within these Conservation Areas and for temporary noise and visual intrusion within the boundaries of these Conservation Areas. In the absence of good practice measures, the magnitude of impact on Assets 1343 and 1344 has been assessed to be medium and the significance of these effects to be moderate.
- 9.5.25 Changes to groundwater may occur near auger bored trenchless crossings due to the excavation of drive pits and receiving pits (see Appendix 8.2 Detailed Trenchless and Targeted Open Cut Assessment). There is the potential for the Grade II Listed Building at Steep Acre Farm (Asset 829; medium value) to be affected by dewatering. Specifically, this has the potential to permanently impact the foundations and therefore the fabric of this historic building. There is also the potential for alterations to the setting of this heritage asset through removal of vegetation and noise and visual intrusion during construction. Overall, in the absence of good practice measures, the magnitude of impact on Asset 829 has been assessed to be medium and the significance of these effects to be moderate (Scoping Opinion ID 4.3.11).
- 9.5.26 As outlined above and in Chapter 3, the construction works are temporary and no comprehensive permanent changes to the setting of historic buildings are anticipated during construction. The potential for a significant effect on the setting of historic buildings therefore relies on the following criteria:
- that a historic building of medium or high value is situated in relation to the Order Limits in such a way that the short term impacts would change the setting such that it is significantly modified, and would affect the value of the historic building;
  - that a historic building of medium value has the potential for permanent changes to setting such that it is significantly modified; and
  - that a historic building of high value has the potential for permanent changes to setting such that it is noticeably changed.
- 9.5.27 In the absence of good practice measures, there are two historic buildings assessed as having the potential for a significant effect due to impacts on setting, comprising the Main Building to Farnborough Hill Convent (Asset 676; Grade I listed) and Froyle Place (Known As Gasston House) (Asset 391; Grade II\* listed). Both historic buildings have been assessed to be of high value.
- 9.5.28 The Main Building to Farnborough Hill Convent (Asset 676) is situated on high ground with the school grounds sloping down to where the Order Limits are located. There is also a temporary construction compound in a field to the north of this heritage asset and a drive pit/receiving compound to the southwest of this heritage asset for an auger bored trenchless crossing. The temporary construction of the project would therefore be fully visible and audible from this historic building. The setting of this historic building also includes historic landscape elements within the school grounds, removal of these would have the potential for a permanent adverse effect on the setting; however, the Order Limits have been designed to avoid the





majority of the trees on the grounds and their roots, and any removal of vegetation would be limited and largely in an area which is out of view from Asset 676. Overall, primarily in consideration of the potential for temporary noise and visual intrusion on the setting of the historic building, the magnitude of impact has been assessed to be medium and the significance of effect to be moderate.

- 9.5.29 Froyle Place (Known As Gasston House) (Asset 391) is situated within a new housing development but retains its views towards the grounds of Treloar College (HLT32) to the south. The project is situated approximately 250m to the south of Asset 391 and through HLT32, which once comprised Froyle Park and which forms the setting of Asset 391. There is the potential for construction to be visible and audible from this location and for minimal permanent removal of vegetation which would not affect the views or relationship between Asset 391 and HLT32. Overall, in the absence of good practice measures, the magnitude of impact has been assessed to be medium and the significance of effect to be moderate.

#### Historic Landscapes

- 9.5.30 Construction of the project is predicted to have a potential adverse impact on 90 of the 102 HLT assessed as part of the baseline. 12 HLT have been assessed as receiving no impact. This includes potential impacts on historically Important Hedgerows as they are considered part of the HLT as landscape elements and not as individual assets.
- 9.5.31 No effects on HLT have been assessed to be of major significance. There is the potential for a moderate significance of effect on one HLT. Effects that are moderate in significance are considered to be significant effects in EIA terms. This is described below.
- 9.5.32 There is the potential for a minor significance of effect on 71 HLT and a negligible significance of effect on 30 HLT. These are not significant effects.
- 9.5.33 In the absence of good practice measures, one HLT has been assessed as having the potential for significant effects due to construction. Chobham Common (HLT98) is an important area of ancient heathland and all vegetation within its grounds contributes to the historic landscape character. There is approximately 775m of the project within Chobham Common which is crossed by three sections of trenchless crossing which would reduce the impact to vegetation overall. It is recognised that heathland management involves the removal and regeneration of vegetation, and therefore the removal of portions of heathland vegetation is not an inherently adverse impact to the overall maintenance of this HLT. There is also the potential for temporary noise and visual impact in what is normally a tranquil environment and, as the works would likely restrict the common usage of the area, changes to use or access. Overall, in the absence of good practice measures, the magnitude of impact has been assessed to be medium and the significance of effect to be moderate.

#### **Operation**

- 9.5.34 In consideration of the sub-surface nature of the project, operational impacts are considered to result from the limited permanent above ground features of the project



(see Chapter 3 Project Description). The following have been identified as potential impacts for all heritage assets during operation:

- there is the potential for visual intrusion on the setting of heritage assets during operation due to new above ground permanent infrastructure comprising the pigging station near Boorley Green, valve compounds, Pressure Transducer, Cathodic Protection (CP) transformer rectifier cabinets and test posts, and pipeline markers.

- 9.5.35 No physical impacts would occur during operation.
- 9.5.36 Operational impacts to the setting of historic landscapes have been scoped out and have not been assessed further (see Table 9.1).
- 9.5.37 No noise impact on the setting of heritage assets is predicted during operation. The only operational activity with potential to give rise to noise effects is the usage of pumping equipment at Alton Pumping Station that would be replaced as part of the project. However, it has been assessed that the addition of a single replacement pump would not give rise to significant adverse noise effects (see Appendix 13.3 Noise and Vibration).
- 9.5.38 No visual impact on the setting of heritage assets is predicted during operation from the installation of a replacement pump at Alton Pumping Station or the modification of the existing pigging station at the Esso West London Terminal storage facility. Due to the minor nature of the changes being proposed to existing facilities, no change to the baseline setting of heritage assets is anticipated.
- 9.5.39 The valves are primarily below ground level with limited above ground visible elements (see Chapter 3 Project Description). The pigging station at Boorley Green, the Pressure Transducer and the 14 valve locations have been assessed for potential visual impact on heritage assets. Of these, eight have been assessed to have no impact on heritage assets, and six have been assessed as having a negligible or small impact resulting in no significant effects (see Appendix 9.4).
- 9.5.40 The relatively small size of the pipeline markers, CP transformer rectifier cabinets and CP test posts (see Chapter 3 Project Description for design specifications) indicates a low potential for visual impact. No significant effects resulting from operational impacts of these above ground permanent infrastructure elements are predicted (see Appendix 9.4).
- 9.5.41 Overall, no significant effects on archaeological remains or historic buildings during operation have been identified (see Appendix 9.4). No impact has been identified on 732 historic buildings and all 907 archaeological remains.

## **9.6 Mitigation**

### **Construction Mitigation**

- 9.6.1 Good practice measures are set out in the REAC and secured through DCO requirements such as the CoCP.



- 9.6.2 The AMS has been submitted to and agreed by the local authority archaeologists. It has identified areas where a programme of archaeological work (trial trenching, mitigation, strip, map and sample excavation and watching brief) would be required. Measures presented within the AMS would be taken to protect or preserve in situ or by record, any significant archaeological remains that may be found (G67).
- 9.6.3 An archaeological contractor would carry out archaeological trial trenching, prior to the start of construction in areas set out in the AMS. This would examine a representative sample of the areas of potential or known archaeological remains within the Order Limits. The trenching would be scoped as necessary to quantify, characterise and date any archaeological remains found and allow for appropriate mitigation (G68).
- 9.6.4 The information gained by the archaeological trial trenching would be used to refine the programme of archaeological mitigation and determine the appropriate mitigation for any archaeological remains found. The level of mitigation would be agreed with the local authority archaeologists as advisors to the relevant planning authorities in accordance with the principles set out in the AMS and EN-1. The archaeological mitigation would comprise either a full or sample excavation, stripping, mapping and sampling prior to construction, or an archaeological watching brief during construction (G68).
- 9.6.5 Where there is known archaeology that is not being removed and recorded, appropriate protection measures would be implemented. This could include signage and fencing, and reduction or of topsoil stripping where practicable (G70).
- 9.6.6 The REAC also includes measures for noise, access to sites, reduced width working in sensitive areas, the reinstatement of vegetation, and control of groundwater levels. These measures will serve to reduce impacts to Historic Buildings, known and unknown Archaeological Remains, and Historic Landscapes.
- 9.6.7 Mitigation would be required to reduce the potential significant effects caused by changes to groundwater levels in relation to the archaeological remains and Grade II Listed Building at Steep Acre Farm (Assets 828 and 829). Temporary sheet piling or similar for control of groundwater would be put in place at the following trenchless crossings: TC 014, TC 015, TC 020, TC 023, TC 031, TC 032, TC 036, TC 037, TC 040 and TC 042, unless the contractor undertakes a detailed assessment which demonstrates that no building or infrastructure is at risk of differential settlement (W13) (Scoping Opinion ID 4.3.11).
- 9.6.8 With these measures in place no further mitigation would be required.

### **Operational Mitigation**

- 9.6.9 No operational mitigation in relation to the historic environment is proposed.

## **9.7 Residual Impacts (with Mitigation)**

- 9.7.1 After the implementation of the AMS and other good practice measures in conjunction with the above additional mitigation, no residual impacts resulting in



significant effects on any archaeological remains, historic buildings, or HLT during construction or operation are predicted.

### **Construction**

- 9.7.2 After the implementation of good practice measures and mitigation set out in the REAC, no significant changes to groundwater are predicted to occur. The potential residual magnitude of impact for the archaeology and historic building at Steep Acre Farm (Assets 828 and 829) has been assessed to be negligible and small respectively and the significance of these effects to be negligible and minor respectively.
- 9.7.3 After the implementation of good practice measures and mitigation set out in the REAC, there is the potential for some residual temporary noise and visual intrusion on the setting of cultural heritage assets during construction which would not affect their value (as outlined in Appendix 9.4).
- 9.7.4 After the implementation of the AMS and other good practice measures in conjunction with additional mitigation for the control of groundwater, no residual significant effects on any archaeological remains, historic buildings, or HLT during construction are predicted.

### **Operation**

- 9.7.5 No significant effects during operation have been predicted and therefore no residual significant effects are predicted.

## **9.8 References**

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