



# Gatwick Airport Northern Runway Project

## Environmental Statement Chapter 7: Historic Environment

### Book 5

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## 7 Historic Environment

### 7.1. Introduction

- 7.1.1 This chapter of the Environmental Statement (ES) presents the findings of the Environmental Impact Assessment (EIA) concerning the potential effects of the proposal to make best use of Gatwick's existing runways and infrastructure (referred to within this report as 'the Project') on the historic environment.
- 7.1.2 This ES chapter considers the potential effects of the Project on historic environment resources (heritage assets), including historic buildings and areas, historic landscape character and buried archaeological remains. Such effects could be in the form of a direct physical impact leading to loss of, or damage to, the heritage asset, or harm to the significance of the asset resulting from change within its setting.
- 7.1.3 In particular, this ES chapter:
- sets out the existing and future environmental baseline conditions, established from desk studies, surveys and consultation to date;
  - presents the potential environmental effects on all aspects of the historic environment arising from the Project, based on the information gathered and the analysis and assessments undertaken to date;
  - identifies any assumptions and limitations encountered in compiling the environmental information; and
  - highlights any necessary monitoring and/or mitigation measures that could prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.
- 7.1.4 Further details regarding relevant legislation, policy and guidance, and the assessed historic environmental resources, are presented within **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3). A summary of the stakeholder responses to consultation (and how they have been addressed) regarding the scope of the assessment, the Preliminary Environmental Information Report (PEIR) provided as part of the Autumn 2021 consultation and the updated Preliminary Environmental Information (PEI) provided as part of the Summer 2022 consultation in relation to the highway improvement changes is provided in **ES Appendix 7.3.1: Summary of Stakeholder Scoping Responses - Historic Environment** (Doc Ref. 5.3) and **ES Appendix 7.3.2: Summary of Stakeholder PEIR and Updated PEI Responses – Historic Environment** (Doc Ref. 5.3).
- 7.1.5 This chapter is supported by the following figures and appendices:
- **Figure 7.6.1 Non-designated heritage assets within 1 km of the Project site boundary** (Doc Ref. 5.2);
  - **Figure 7.6.2 Designated heritage assets within 3 km of the Project site boundary** (Doc Ref. 5.2);
  - **Figure 7.6.3 Designated heritage assets within 3 km of the Project site boundary and within the ZTV** (Doc Ref. 5.2);
  - **Figure 7.6.4 Designated heritage assets at Charlwood in relation to the ZTV** (Doc Ref. 5.2);
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- **Figure 7.6.6: Predicted 2032 >1 dB noise change footprints - noise sensitive designated heritage assets** (Doc Ref. 5.2);
- **Appendix 7.3.1: Summary of Stakeholder Scoping Responses - Historic Environment** (Doc Ref. 5.3);
- **Appendix 7.3.2: Summary of Stakeholder PEIR and Updated PEI Responses – Historic Environment** (Doc Ref. 5.3);
- **Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3);
- **Appendix 7.6.2: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme** (Doc Ref. 5.3);
- **Appendix 7.6.3: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme (Phase 2: Longbridge Roundabout and Reigate Field)** (Doc Ref. 5.3);
- **Appendix 7.6.4: Geotechnical Data Reviewed for Mapping of Archaeological Potential** (Doc Ref. 5.3);
- **Appendix 7.8.1: Written Scheme of Investigation for post-consent archaeological investigations – Surrey** (Doc Ref. 5.3); and
- **Appendix 7.8.2: Written Scheme of Investigation for post-consent archaeological investigations and historic building recording – West Sussex** (Doc Ref. 5.3).

7.1.6 The PEIR chapter identified Next Steps and these have been addressed in this chapter as follows:

- *A programme of further archaeological investigation will be undertaken ahead of production of the final ES chapter. This will include intrusive works such as trial trenching and/or test-pitting, as well as further non-intrusive works (eg further geophysical survey) as appropriate. A two-phase programme of archaeological trial trenching has been undertaken at selected locations within the Project site boundary. The extent and methodologies for this work were agreed in advance with the appropriate archaeological advisors to the local planning authorities. Following consultation with the appropriate stakeholders, no further non-intrusive works were considered necessary.*
- *The results of any further archaeological investigations will be considered within the ES. The reports on the results of the two-phase programme of archaeological trial trenching are reproduced as **ES Appendix 7.6.2: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme** (Doc Ref. 5.3), and **ES Appendix 7.6.3: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme (Phase 2: Longbridge Roundabout and Reigate Field)** (Doc Ref. 5.3). These results have been considered within the assessment of impacts and effects presented in Section 7.9 of this chapter.*
- *Examination will also be made of the results of any relevant Ground Investigation (GI) surveys. An appraisal of the results of GI work within the Project site boundary is presented within **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3), with details of the data used for this presented within **ES Appendix 7.6.4: Geotechnical Data Reviewed for Mapping of Archaeological Potential** (Doc Ref. 5.3). The results of this appraisal have been considered within the assessment of impacts and effects presented in Section 7.9 of this chapter.*

## 7.2. Legislation and Policy

### Legislation

7.2.1 The principal legislation relevant to this assessment comprises the Ancient Monuments and Archaeological Areas Act 1979, along with the Planning (Listed Buildings and Conservation Areas) Act 1990 and the Town and Country Planning Act 1990.

7.2.2 Further details of the relevant legislation are provided in Section 2 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3). The legislation referred to in this chapter and **ES Appendix 7.6.1** has been taken into account where applicable to the assessment.

### Planning Policy Context

#### National Policy Statements

7.2.3 The Airports National Policy Statement (NPS) (Department for Transport, 2018), although primarily provided in relation to a new runway at Heathrow Airport, remains a relevant consideration for other applications for airport infrastructure in London and the south east of England.

7.2.4 The NPS for National Networks<sup>1</sup> (Department for Transport, 2014) sets out the need for development of road, rail and strategic rail freight interchange projects on the national networks and the policy against which decisions on major road and rail projects will be made. This has been taken into account in relation to the highway improvements proposed as part of the Project.

7.2.5 Table 7.2.1 provides a summary of the relevant requirements of these NPSs and how these are addressed within the ES.

**Table 7.2.1: Summary of NPS Information Relevant to this Chapter**

Summary of NPS requirement	How and where considered in the ES
<b>Airports NPS</b>	
As part of the 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 asset's importance, and no more than is sufficient to understand the potential impact of the proposal on the significance of the asset (paragraph 5.193).	The description of the significance of the assets affected by the Project, and the contribution of their setting to that significance, is presented within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and summarised within Section 7.6 of this chapter.

<sup>1</sup> The Department for Transport published a revised draft National Policy Statement for National Networks ("NPSNN") for consultation on 14 March 2023. The draft NPSNN confirms in paragraph 1.16 that the existing NPSNN remains the relevant government policy and has full force and effect in relation to any applicable applications for development consent accepted for examination before designation of the updated NPSNN. The draft NPSNN further notes in paragraph 1.17 that the emerging draft NPSNN is capable of being an important and relevant consideration in the Secretary of State's decision making process. As such, the Applicant will continue to monitor the progress of the NPSNN review process and incorporate any updates to the Project's application documentation where considered appropriate in due course.

Summary of NPS requirement	How and where considered in the ES
<p>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, a field evaluation (paragraph 5.193).</p>	<p>The appropriate desk-based assessment and a summary of the results of field evaluations are presented within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and summarised within Section 7.6 of this chapter.</p>
<p>The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage asset can be adequately understood from the application and supporting documents (paragraph 5.193).</p>	<p>The impact of the Project on the significance of heritage assets is described in Section 7.9 of this chapter.</p>
<p>Detailed studies will be required on those heritage assets affected by noise, light and indirect impacts based on the guidance provided in The Setting of Heritage Assets and the Aviation Noise Metric (paragraph 5.194).</p>	<p>Impacts have been considered in accordance with the cited guidance documents. The guidance used is described in Section 7.4 of this chapter. The assessment is provided in Section 7.9 of this chapter.</p>
<p>Where proposed development will affect the setting of a heritage asset, accurate representative visualisations may be necessary to assess the impact (paragraph 5.194).</p>	<p>No situations have been identified in which a visualisation has been considered necessary for the assessment of likely impacts and effects resulting from changes within the settings of heritage assets. Where appropriate, visualisations prepared for the Landscape and Visual Assessment of the Project have been reviewed as part of the assessment presented in Section 7.9 of this chapter. Views towards the Project from and across heritage assets already incorporate structures associated with an operational international airport. Although the Project would result in an increase in the number of such structures, there are no instances where this would represent a change within the setting of a heritage asset of such a scale that the magnitude of impact in respect of that asset would be any greater than minor adverse.</p>
<p>The applicant is encouraged, where opportunities exist, to prepare proposals which can make a positive contribution to the historic environment, and to consider how their scheme takes account of the significance of heritage assets affected. This can include, where possible:</p>	<p>The significance of heritage assets that would be affected by the Project have been identified and opportunities for enhancing the significance of these heritage assets have been considered. Where such opportunities are possible, these are described in Section 7.8 of this chapter. No heritage assets currently at risk would be affected by the Project, nor would any heritage assets</p>

Summary of NPS requirement	How and where considered in the ES
<ul style="list-style-type: none"> <li>▪ Enhancing, through a range of measures such as sensitive design, the significance of heritage assets or setting affected;</li> <li>▪ Considering measures that address those heritage assets that are at risk, or which may become at risk, as a result of the scheme; and</li> <li>▪ Considering how visual or noise impacts can affect heritage assets, and whether there may be opportunities to enhance access to or interpretation, understanding and appreciation of the heritage assets affected by the scheme.</li> </ul> <p>Careful consideration in preparing the scheme will be required on whether the impacts on the historic environment will be direct or indirect, temporary or permanent (paragraph 195).</p>	<p>become at risk as a result of the Project. The assessment presented in Section 7.9 of this chapter identifies impacts and effects in terms of their nature (direct/indirect) and duration.</p>
<p>The applicant should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance and better reveal their significance (paragraph 5.208).</p>	<p>Opportunities for enhancing the significance of heritage assets have been considered. Where such opportunities are possible, these are described in Section 7.8 of this chapter.</p>
<p><b>National Networks NPS</b></p>	
<p>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 Environmental Impact Assessment and describe these in the environmental statement (paragraph 5.126).</p>	<p>An assessment of any likely significant heritage impacts of the Project is described in Section 7.9 of this chapter.</p>
<p>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 (paragraph 5.127).</p>	<p>The description of the significance of the assets affected by the Project, and the contribution of their setting to that significance, is presented within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and summarised within Section 7.6 of this chapter.</p>
<p>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, a field evaluation (paragraph 5.127).</p>	<p>The desk-based assessment and a summary of the results of field evaluations are presented within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and summarised within Section 7.6 of this chapter.</p>
<p>Applicants should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage</p>	<p>Opportunities for enhancing the significance of heritage assets have been considered. Where</p>



Summary of NPS requirement	How and where considered in the ES
assets, to enhance or better reveal their significance (paragraph 5.137).	such opportunities are possible, these are described in Section 7.8 of this chapter.

### National Planning Policy Framework

- 7.2.6 The National Planning Policy Framework (NPPF) (2021) sets out the planning policies for England. Policies regarding the historic environment are set out in Chapter 16 of the NPPF and further details of these policies are provided in Section 2 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3). All policies relevant to the Project have been taken into account in carrying out the assessment and forming conclusions.
- 7.2.7 The NPPF provides the following definitions which are relevant to this chapter (Annex 2: Glossary).
- **Heritage asset:** A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing).
  - **Designated heritage asset:** A World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated under the relevant legislation.
  - **Setting of a heritage asset:** The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral.
  - **Significance (for heritage policy):** The value of a heritage asset to this and future generations because of its heritage interest. The interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting. For World Heritage Sites, the cultural value described within each site's Statement of Outstanding Universal Value forms part of its significance.

### National Planning Practice Guidance

- 7.2.8 The National Planning Practice Guidance (NPPG) (2021) supports the NPPF and provides guidance across a range of topic areas. The NPPG provides advice on specific issues such as *'What is 'significance' and 'What is the setting of a heritage asset and how should it be taken into account?'*. Further details of this guidance are provided in Section 2 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3).

### Local Planning Policy

- 7.2.9 Gatwick Airport lies within the administrative area of Crawley Borough Council and adjacent to the boundaries of Mole Valley District Council to the north west, Reigate and Banstead Borough Council to the north east and Horsham District Council to the south west. The administrative area of Tandridge District Council is located approximately 1.9 km to the east of Gatwick Airport, while Mid Sussex District Council lies approximately 2 km to the south east. Gatwick Airport is located in the county of West Sussex and immediately adjacent to the bordering county of Surrey.

7.2.10 The relevant local planning policies applicable to the historic environment based on the extent of the study areas for this assessment are summarised in Table 7.2.2 with further details provided in Section 2 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3). All policies relevant to the Project have been taken into account in carrying out the assessment and forming conclusions.

**Table 7.2.2: Local Planning Policy**

Administrative Area	Plan	Policy
<b>Adopted Policy</b>		
Crawley	Crawley 2030: Crawley Borough Council Local Plan 2015-2030	Policy CH12: Heritage Assets
		Policy CH13: Conservation Areas
		Policy CH15: Listed Buildings and Structures
		Policy CH16: Locally Listed Buildings
		Policy CH17: Historic Parks and Gardens
Reigate and Banstead	Reigate and Banstead Development Management Plan (adopted 2019)	Policy NHE9: Heritage Assets
	Reigate and Banstead Local Plan: Core Strategy 2014	Policy CS4: Valued Townscapes and the Historic Environment
Mole Valley	Mole Valley Core Strategy (adopted 2009)	Policy CS 14: Townscape, Urban Design and the Historic Environment
	Mole Valley Local Plan 2000 – ‘saved’ policies (adopted 2012)	Policy ENV23: Respect for Setting
		Policy ENV39: Development in Conservation Areas
		Policy ENV47: Historic Parks and Gardens
		Policy ENV49: Areas of High Archaeological Potential
		Policy ENV50: Unidentified Archaeological Sites
Policy ENV51: Archaeological Discoveries during Development		
Tandridge	Tandridge Local Plan Part 2: Detailed Policies 2014-2029 (adopted 2014)	Policy DP20: Heritage Assets
Mid Sussex	Mid Sussex District Plan 2014-2031 (adopted 2018)	Policy DP34: Listed Buildings and Other Heritage Assets
		Policy DP35: Conservation Areas
		Policy DP36: Historic Parks and Gardens

Administrative Area	Plan	Policy
Horsham	Horsham District Planning Framework (adopted 2015)	Policy 34: Cultural and Heritage Assets
<b>Emerging Policy</b>		
Crawley	Draft Crawley Borough Council Local Plan 2021-2037 (Regulation 19 consultation draft January 2021)	Policy HA1: Heritage Assets
		Policy HA2: Conservation Areas
		Policy HA3: Areas of Special Local Character
		Policy HA4: Listed Buildings and Structures
		Policy HA5: Locally Listed Buildings
		Policy HA6: Historic Parks and Gardens
		Policy HA7: Heritage Assets of Archaeological Interest
Mole Valley	Future Mole Valley 2020-2037 (Proposed Submission Version 2021)	Policy EN6: Heritage Assets
Tandridge	Our Local Plan: 2033 (Regulation 22 submission draft January 2019) – Tandridge District	Policy TLP43: Historic Environment
Horsham	Draft Horsham District Local Plan 2019-2036 (Regulation 18 consultation draft February – March 2020)	Policy 35: Heritage Assets and Managing change in the Historic Environment

### 7.3. Consultation and Engagement

- 7.3.1 In September 2019, GAL submitted a Scoping Report (GAL, 2019) to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects and, where necessary, to determine suitable mitigation measures for the construction and operational periods of the Project. It also described those topics or sub-topics which are proposed to be scoped out of the EIA process and provided justification as to why the Project would not have the potential to give rise to significant environmental effects in these areas. The **Scoping Report** is provided in Appendix 6.2.1 (Doc Ref. 5.3).
- 7.3.2 Following consultation with the appropriate statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a Scoping Opinion on 11 October 2019 (Planning Inspectorate, 2019). The **Scoping Opinion** is provided in Appendix 6.2.2 (Doc Ref. 5.3).

- 7.3.3 Key issues raised during the scoping process specific to the historic environment are listed in Table 7.3.1, together with details of how these issues have been taken into account within the ES. The table shows the responses from the Planning Inspectorate; responses from other stakeholders are presented in **ES Appendix 7.3.1: Summary of Stakeholder Responses for Historic Environment** (Doc Ref. 5.3).

**Table 7.3.1: Summary of Scoping Responses from the Planning Inspectorate**

Details	How/where taken into account in ES
<b>Planning Inspectorate</b>	
<p>The Scoping Report does not clearly define which ‘urbanised areas’ are proposed to be scoped out of the ES. The Inspectorate notes that both Horley and Crawley lie within the 3 km study area proposed for heritage assets. Further, this 3 km study area seems to conflict with the 5 km study area proposed in the landscape assessment without justification as to why these are different. The Inspectorate considers that there may be impacts to the settings of heritage assets from the Proposed Development including those from increases in airborne noise. The Inspectorate does not agree to scope such matters out and expects that the ES should include an assessment of likely significant effects on such receptors particularly where airborne noise would affect the setting. (PINS ID 4.1.1)</p>	<p>Further information on assets scoped out of the assessment is provided in paragraphs 5.3.19 to 5.3.21 of <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3). Section 7.9 of this chapter provides an assessment of impacts and effects on all assets for which such assessment is considered necessary.</p> <p>The 3 km study area for the assessment of effects on designated heritage assets as a result of changes within their settings differs from the 5 km study area in the landscape assessment as the topics use different methodologies to assess impacts and effects. For historic environment the focus is on understanding how changes within the setting of a heritage asset could affect the significance of the asset. Given the baseline situation of an operational international airport which already forms part of the setting of heritage assets in the area, it is considered unlikely that changes arising from the Project (other than those associated with air noise) could result in significant effects with regard to heritage assets located more than 3 km from the Project site boundary.</p> <p>The study area for the assessment of effects resulting from changes in air noise is based on the predicted noise change footprint rather than a predefined distance from the Project site boundary. This is described within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and is based on guidance cited in the Airports NPS (Department for Transport, 2018).</p>
<p>The ES should also assess potential effects associated with the provision of noise insulation or</p>	<p>Noise effects are discussed in <b>ES Chapter 14: Noise and Vibration</b> (Doc Ref. 5.1), with the</p>

Details	How/where taken into account in ES
<p>ventilation measures within heritage assets throughout the study area and where this would be required. The Applicant should make effort to agree the relevant receptors for the assessment with relevant consultation bodies. (PINS ID 4.1.1)</p>	<p>details of the proposed noise insulation schemes discussed in Section 14.8 of that chapter and the proposed Noise Insulation Scheme Zones identified in <b>ES Figure 14.8.01</b> (Doc Ref. 5.2). The schemes are available to property owners and/or occupiers but are not compulsory.</p> <p>Where noise insulation or ventilation measures are proposed for a historic building, the local authority's Conservation Officer would be consulted, and applications would be submitted for any consents that may be required.</p>
<p>The assessment in the ES should have regard to relevant guidance documents including: Sussex Archaeological Standards (2019), and non-statutory local archaeological standards used in providing development management advice by East Sussex County Council and West Sussex County Council. (PINS ID 4.1.3)</p>	<p>The Sussex Archaeological Standards document is described and discussed within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3).</p>
<p>The Inspectorate recommends that the data used to inform the detailed Historic Environment Desk Based Assessment (DBA) should include full summaries of the findings of the two archaeological investigations by the Applicant for the New Pollution Lagoon (Fig. 7.5.1) and Flood Alleviation Reservoir, including the Late Iron Age cremation cemetery, (to the south of Crawley Sewage Works). The Historic Environment DBA should also include an appraisal of the geoarchaeological potential of the site in relation to the Proposed Development. (PINS ID 4.1.4)</p>	<p>Detailed summaries of the results of the programmes of archaeological work at these two sites are presented within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3), where they are referred respectively to as the Pollution Control Lagoon and the Flood Storage (Control) Reservoir schemes.</p> <p>The potential for deposits of geoarchaeological and palaeoenvironmental interest to be present within these areas is also discussed in <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3).</p>
<p>The Scoping Report proposes a 1 km study area for the archaeological element of the desk-based assessment but does not explain why this is relevant having regard to the extent of the impacts from the Proposed Development. The Inspectorate is concerned this may not be sufficient to address the full extent of impacts likely to result in significant effects. The Inspectorate recommends that the study area is established relevant to the extent of the impacts and that effort is made to agree the approach with relevant consultation bodies. (PINS ID 4.1.5)</p>	<p>The defined study area for non-designated heritage assets (including archaeological sites) extends for 1 km from the Project site boundary. This provides adequate context for understanding the known and potential archaeological resource within the Project site. The discussion of archaeological potential presented in <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) covers a much wider area of south east England. The defined study area was identified in discussions with relevant consultation bodies (through the Land Based Local Authority Topic</p>

Details	How/where taken into account in ES
	Working Group and directly with Historic England) and was presented within the PEIR. No consultation responses were received regarding the extent of the defined study area.
<p>The Scoping Report proposes that the study area for designated heritage assets will be 3 km, but that some heritage assets outside of a 3 km study area may need to be considered including those with designed views towards the airport, or those which have a particular iconic status. The Applicant should also consider the inclusion of non-designated heritage assets in the assessment. (PINS ID 4.1.6)</p>	<p>The assessment of effects on the significance of designated heritage assets resulting from changes within their settings is based on a study area which extends for 3 km from the Project site boundary. The Zone of Theoretical Visibility (ZTV) established for the Project is also taken into account when assessing visual changes within settings of heritage assets. The ZTV has been established for the Landscape, Townscape and Visual Assessment undertaken with regard to the Project. Through the Scoping Report, advice was sought as to whether any specific heritage assets beyond the 3 km study area should also be assessed – no such assets were identified within the consultation responses appended to the <b>Scoping Opinion</b> (ES Appendix 6.2.2 (Doc Ref. 5.3)), nor have any such assets been identified in any consultation with relevant bodies including the consultation on the PEIR. The assessment includes non-designated heritage assets including locally listed buildings.</p>
<p>The Inspectorate acknowledges the commitment made in the Scoping Report to identifying relevant heritage assets with relevant consultation bodies and recommends that this be agreed at an early stage in the assessment. The Applicant should cross refer to the finalised ZTV of the Proposed Development to assist with the identification of relevant assets. (PINS ID 4.1.6)</p>	<p>See row above. The ZTV established for the Project has been taken into account when assessing visual changes within settings of heritage assets.</p>
<p>The locations of all heritage assets considered in the assessment should be shown on appropriate figures with cross referencing by number or label to the relevant data in the text or tables. Data sources should be stated. (PINS ID 4.1.6)</p>	<p>Figures are provided within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and within this chapter which show the locations of all assessed heritage assets. Data sources are identified within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3).</p>
<p>The Applicant should make effort to agree the study area with relevant consultation bodies having regard to the findings of other relevant aspects and</p>	<p>The study area for the assessment of effects resulting from changes in air noise derives from the methodology set out in in a report produced for</p>

Details	How/where taken into account in ES
<p>matters, eg the noise assessment and the study area used for the assessment of tranquillity effects in the Landscape, Townscape and Visual Resources assessment. (PINS ID 4.1.7)</p> <p>In this regard, the Inspectorate notes that tranquillity mapping produced by the Campaign to Protect Rural England (CPRE) as referred to by the Applicant at paragraph 7.1.22 is not a predictive tool and its publication dates back to 2007. The extent to which this mapping informs the baseline assessment alongside other methodological guidance should be made clear. (PINS ID 4.1.7)</p>	<p>English Heritage and prescribed in the Airports NPS. This is described within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and has been prepared in conjunction with the noise and the landscape assessments. The use of this methodology has been discussed with Historic England and it is agreed that the methodology is suitable and that it has been applied appropriately. The CPRE tranquillity mapping has not been used in the assessment of effects on the significance of heritage assets resulting from changes in air noise.</p>
<p>The assessment of impacts to built heritage and historic areas during the construction phase should also include the assessment of potential significant effects resulting from vibration. (PINS ID 4.1.8)</p>	<p>Vibration from construction activities would be minimised through best practices such as plant suppression. The assessment presented within Section 7.9 of this chapter has not identified any effects arising from the impact of vibration on built heritage assets or historic areas.</p>
<p>The assessment of construction, demolition and operational impacts should include settlement level /conservation area impacts at Charlwood due to its concentration of assets and its proximity to the airport, in particular to the repositioned northern runway. Impacts to the conservation area of Horley should also be considered. (PINS ID 4.1.8)</p>	<p>Assessment of the impacts and effects on the Charlwood Conservation Area and on individual designated heritage assets within Charlwood, and on the Church Road Conservation Area at Horley, are considered within Sections 7.6 and 7.9 of this chapter.</p>
<p>Effects on the settings of heritage assets should be assessed in accordance with The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (Historic England, 2017). (PINS ID 4.1.8)</p>	<p>Historic Environment Good Practice Advice in Planning Note 3 is one of the methodological sources drawn on in the assessment presented in Section 7.9 of this chapter, and the assessment has been undertaken in accordance with this guidance. For each designated heritage asset that could be affected by the Project, its significance has been appraised including the contribution made by its setting to that significance. This is in accordance with the guidance.</p>
<p>Effects from road traffic associated with the Proposed Development on heritage assets should also be included in the assessment. (PINS ID 4.1.8)</p>	<p>Effects resulting from road traffic changes have been included within the assessment presented in Section 7.9 of this chapter.</p>
<p>The Scoping Report summarises the areas which may require archaeological investigation. The Inspectorate does not regard the summary in the text at 7.1.31 as definitive and expects that the</p>	<p>A programme of geophysical survey has been undertaken in order to further inform the understanding of archaeological potential at selected locations within the Project site. This was</p>

Details	How/where taken into account in ES
<p>Applicant will make efforts to agree the detailed scope and extent of the proposed investigations with relevant consultation bodies. The Inspectorate notes that in Chapter 5: Project Description, a number of instances are cited where the Proposed Development may extend significantly below ground level (5.2.18, 5.2.20, 5.2.22, 5.2.28, 5.2.62) and draws attention that even where land is previously disturbed, archaeological investigation may be required if the proposed excavation is below ground levels previously disturbed. Deeper deposits of potential geoarchaeological and palaeoenvironmental significance (eg late glacial channel deposits, alluvial deposits) may also survive below areas of previous heavy ground disturbance.</p> <p>The Applicant should make effort to agree the approach to assessing impacts on archaeological deposits with relevant consultation bodies. (PINS ID 4.1.9)</p>	<p>agreed in advance with the appropriate archaeological advisors to the local planning authorities. Further stages of investigation in the form of trial trenching have also been undertaken at selected locations within the Project site. This work was agreed in advance with the appropriate archaeological advisors to the local planning authorities, as would any subsequent investigations carried out ahead of or during construction.</p> <p>The collation of baseline information, including data obtained through geophysical survey and trial trenching, has enabled the predictive modelling of zones of archaeological potential within the Project site. This is presented within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and it acknowledges the archaeological potential of areas that have been previously disturbed.</p> <p>The assessment presented in Section 7.9 of this chapter recognises that deposits of potential geoarchaeological and palaeoenvironmental interest may survive in areas previously disturbed and advises that investigation of such locations may be undertaken ahead of the commencement of development activities in that location. The methodologies for such investigation are described within <b>ES Appendix 7.8.2: Written Scheme of Investigation for post-consent archaeological investigations and historic building recording – West Sussex</b> (Doc Ref. 5.3).</p>
<p>The Applicant's intention is that a Written Scheme of Investigation will be agreed in advance with relevant consultation bodies. Where archaeological mitigation measures are proposed to be undertaken following the grant of the DCO, such measures should be appropriately secured. The Applicant should also make effort to agree the approach to the reporting of results and/or publication in relevant journal/s, with relevant consultation bodies. (PINS ID 4.1.10)</p>	<p>Two Written Schemes of Investigation regarding further archaeological work within the Project site are included as part of the DCO submission – <b>ES Appendix 7.8.1: Written Scheme of Investigation for post-consent archaeological investigations – Surrey</b> (Doc Ref. 5.3) and <b>ES Appendix 7.8.2: Written Scheme of Investigation for post-consent archaeological investigations and historic building recording – West Sussex</b> (Doc Ref. 5.3). These have been submitted to the appropriate archaeological advisors to the local planning authorities and include details of the</p>



Details	How/where taken into account in ES
	publication of the results of any archaeological investigations undertaken in connection with the Project. The programmes of archaeological work will be secured through an appropriately worded Requirement within the DCO.
The Inspectorate considers that the Applicant's approach to mitigation should emphasise the need to preserve heritage assets <i>in-situ</i> , where possible and appropriate. (PINS ID 4.1.10)	The <i>in-situ</i> preservation of heritage assets will be achieved through detailed design wherever this is possible and appropriate.

7.3.4 The PEIR was issued to inform the statutory consultation carried out on the Project in autumn 2021. It presented the preliminary findings of the EIA process for the Project at that time. The consultation responses specific to the historic environment and the way in which they have been addressed in this ES chapter are set out in Table 7.3.2 and in **ES Appendix 7.3.2: Summary of Stakeholder PEIR and Updated PEI Responses – Historic Environment** (Doc Ref. 5.3). Further detail about the consultation process for the Project and the way the consultation responses have been addressed is provided in the separate **Consultation Report** (Doc Ref. 6.1).

**Table 7.3.2: Summary of Consultation (in response to the PEIR)**

Consultee	Key Themes	How taken into account in ES
Historic England	<ul style="list-style-type: none"> <li>▪ There is the potential for harm, probably amounting to less than substantial harm, to a number of designated heritage assets.</li> <li>▪ The interim conclusion that the revised noise regime would have negligible or minimal effects on some heritage assets (and may benefit others) may require further testing.</li> </ul>	The results of the assessment are set out in Section 7.9 of this chapter. The assessment of the impact of air noise on heritage assets has been undertaken in accordance with the appropriate guidance as advised in the Airports NPS and is presented within Section 7.9 of this chapter.

Consultee	Key Themes	How taken into account in ES
Local Authorities	<ul style="list-style-type: none"> <li>Further work is necessary in relation to the identified heritage assets, to fully demonstrate the impact of the works on their setting as currently there is a lack of evidence provided.</li> <li>An assessment of available borehole and geotechnical information is required in order to confirm the extent of archaeological truncation that has occurred.</li> <li>The noise envelope used to examine impacts on designated heritage assets resulting from changes in air noise is narrowly drawn because it is based on relatively high noise thresholds.</li> </ul>	<p>The results of the assessment are set out in Section 7.9 of this chapter. Available borehole and geotechnical information, and other relevant information, has been reviewed as part of an examination of potential archaeological truncation within the airport; the results are presented within <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and <b>ES Appendix 7.6.4: Geotechnical Data Reviewed for Mapping of Archaeological Potential</b> (Doc Ref. 5.3).</p> <p>The assessment of the impact of air noise on heritage assets has been undertaken in accordance with the appropriate guidance as advised in the Airports NPS. The methodology for the assessment of effects resulting from increased air noise is described within Section 5.4 of <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3).</p>

7.3.5 In June 2022 an additional consultation was undertaken to update stakeholders and the local community on the ongoing work and refinement to the Project proposals, which included a targeted, statutory consultation on the design changes to the proposed highway improvement changes. As these changes to the Project could lead to new or materially different significant environmental effects compared to those reported in the PEIR, an updated PEI was issued as part of this additional consultation. The consultation responses specific to the historic environment and the way in which they have been addressed in this ES chapter are set out in Table 7.3.3 and **ES Appendix 7.3.2: Summary of Stakeholder PEIR and Updated PEI Responses – Historic Environment** (Doc Ref. 5.3). Further detail about the consultation process for the Project and the way the consultation responses have been taken into account is provided in the separate **Consultation Report** (Doc Ref. 6.1).

**Table 7.3.3: Summary of Consultation (in response to the updated PEI)**

Consultee	Key Themes	How taken into account in ES
Historic England	<ul style="list-style-type: none"> <li>The introduction of a flyover at South Terminal Roundabout may result in more visual and aural intrusion into the setting of nearby heritage assets than</li> </ul>	<p>The assessment of impacts on above ground heritage assets as a result of changes within their setting is presented</p>

Consultee	Key Themes	How taken into account in ES
	would be the case with the earlier scheme.	within Section 7.9 of this chapter. The significance of effect in respect of all heritage assets resulting from the construction and use of a flyover at the South Terminal Roundabout is no greater than that assessed at the PEIR.
Local Authorities	<ul style="list-style-type: none"> <li>With regards to changes to the settings of heritage assets within the study area, the consultation has not clearly demonstrated or evidenced that (a) no additional heritage assets would be subject to harm and (b) no additional harm to any receptors (ie, that the significance of effect is demonstrably no greater than that assessed at PEIR stage).</li> </ul>	The assessment of impacts on above ground heritage assets as a result of changes within their setting is presented within Section 7.9 of this chapter. No additional heritage assets would be subject to any degree of harm beyond those assessed in the PEIR. The significance of effect in respect of all heritage assets is no greater than that assessed in the PEIR with one exception. The changes within the setting of the Church Road (Horley) Conservation Area as a result of the construction and operation of the Longbridge Roundabout highways improvements would potentially result in an effect of up to moderate adverse significance, reducing over time as newly planted vegetation reaches maturity. In the PEIR this significance of effect was assessed as being minor adverse.

7.3.6 Outside of the above-described public consultations, the Applicant also continued to engage with key stakeholders. Key issues raised during consultation and engagement with interested parties specific to the historic environment are listed in Table 7.3.4, together with details of how these issues have been addressed within the ES. Further detail about this aspect of the consultation process for the Project are provided in the separate **Consultation Report** (Doc Ref. 6.1).

**Table 7.3.4: Summary of Consultation**

Consultee	Date	Details	How/where taken into account in ES
Historic England	14 June 2019	Meeting to inform Historic England of the Project. Historic England were advised of the approach to assessment of impacts	Assessment methodology and the scope of the assessment is set out in Section 7.4 of this ES chapter.

Consultee	Date	Details	How/where taken into account in ES
		and effects on the historic environment, including the proposed study areas.	
Land Based Local Authority Topic Group	20 August 2019	The Topic Group was appraised of the approach to assessment of impacts and effects on the historic environment, including the proposed study areas.	Assessment methodology and the scope of the assessment is set out in Section 7.4 of this ES chapter.
Land Based Local Authority Topic Group	3 February 2020	The Topic Group was provided with updated information regarding the collation and presentation of historic environment baseline data, also progress on the application of the assessment methodologies.	The historic environment baseline data are presented in <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and in Section 7.4 of this ES chapter.
Historic England	26 February 2021	Meeting to advise Historic England of the approach to impacts on designated heritage assets arising from changes in air noise.	The assessment methodology for this issue is set out in <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3) and in Section 7.4 of this ES chapter.
Historic England	30 July 2021	Meeting to advise Historic England of the outcomes of the collation and presentation of historic environment baseline data, with specific reference to the study areas including those established for the assessment of impacts on designated heritage assets arising from changes in air noise.	The historic environment baseline data are presented in <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3), along with an explanation of the study areas that have been used for the assessment of impacts on heritage assets.
Land Based Local Authority Topic Group	5 August 2021	The Topic Group was advised of the outcomes of the collation and presentation of historic environment baseline data, with specific reference to the study areas including those established for the assessment of impacts on designated heritage assets arising from changes in air noise.	The historic environment baseline data are presented in <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3), along with an explanation of the study areas that have been used for the assessment of impacts on heritage assets.
Land Based Local Authority Topic Group	10 May 2022	The Topic Group was advised of the PEIR consultation comments in respect of the historic environment, along with the initial responses from the Project	The detailed responses to PEIR consultation comments in respect of the historic environment are presented in <b>ES Appendix 7.3.1:</b>

Consultee	Date	Details	How/where taken into account in ES
		team. The results of the second phase of trial trenching were also presented.	<b>Summary of Stakeholder Responses – Historic Environment</b> (Doc Ref. 5.3).
Historic England	20 October 2022	Meeting to advise Historic England of progress on fieldwork and assessment towards production of the ES. Issues discussed included the changes to the highways etc at Longbridge Roundabout, changes to the setting of the Grade II* listed Charlwood Park Farmhouse, impacts resulting from traffic noise in the vicinity of the Scheduled Monument known as Thunderfield Castle, and the use of the 2014 Aviation Noise Metric to assess the impact of air noise change with regard to designated historic assets. The results of the phased programme of trial trenching were also discussed.	The results of the assessment are set out in Section 7.9 of this chapter.
Land Based Local Authority Topic Group	31 October 2022	The Topic Group was advised of progress on assessment towards production of the ES. Issues raised included the changes to the highways etc at Longbridge Roundabout, changes to the setting of the Grade II* listed Charlwood Park Farmhouse, also the likely revisions to the figure showing the Predictive Modelling of Zones of Archaeological Potential.	The results of the assessment are set out in Section 7.9 of this ES chapter. The Predictive Modelling of Zones of Archaeological Potential is presented as <b>ES Figure 7.6.5</b> (Doc Ref. 5.2).

## 7.4. Assessment Methodology

### Relevant Guidance

- 7.4.1 In addition to the NPPG, which is summarised in Section 7.2 above and in Section 2 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3), a number of other guidance documents are relevant to this chapter.
- 7.4.2 The Design Manual for Roads and Bridges (DMRB) (Highways England et al., 2020a) provides detailed guidance on EIA with regard to the historic environment. The methodology described below for the assessment of impacts and effects on heritage assets is derived from the preceding and current iterations of the DMRB methodology.

- 7.4.3 *Historic Environment Good Practice Advice in Planning 2: Managing Significance in Decision-Taking in the Historic Environment* was published by Historic England in March 2015. It provides detailed guidance on how the significance of heritage assets can be determined, and how decision-takers should assess proposals for developments which would affect this significance.
- 7.4.4 The second edition of *Historic Environment Good Practice Advice in Planning 3: The Setting of Heritage Assets* was published by Historic England in December 2017. It provides detailed guidance on understanding the concept of setting and how it may contribute the significance of heritage assets.
- 7.4.5 Further advice on assessing the significance of heritage assets was published by Historic England in *Advice Note 12 Statements of Heritage Significance: Analysing Significance in Heritage Assets* (Historic England, 2019). This explains how significance should be assessed as part of a staged approach to decision-making
- 7.4.6 Specifically, with regard to the issue of air noise when considering changes within the setting of heritage assets, guidance is provided within an English Heritage research report (*Aviation Noise Metric – Research on the Potential Noise impacts on the Historic Environment by Proposals for Airport Expansion in England*, Temple Group and Cotswold Archaeology, 2014) and also the Civil Aviation Authority document *Airspace Design: Guidance on the regulatory process for changing airspace design including community engagement requirements* (CAP 1616) (Civil Aviation Authority, 2021). Further details of this guidance document are provided in Section 5.4 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3).
- 7.4.7 Other guidance documents that have been considered in the assessment process include:
- Principles of Cultural Heritage Impact Assessment in the UK (Institute of Environmental Management and Assessment (IEMA), Institute of Historic Building Conservation (IHBC) and Chartered Institute for Archaeologists (CIfA), 2021);
  - Standard and guidance for historic environment desk-based assessment (CIfA, 2014a);
  - Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment (CIfA, 2014b);
  - Standard and guidance for archaeological geophysical survey (CIfA, 2014c);
  - Standard and guidance for archaeological field evaluation (CIfA, 2014d);
  - Standard and guidance for the collection, documentation, conservation and research of archaeological materials (CIfA, 2014e);
  - Standard and guidance for the collection, compilation, transfer and deposition of archaeological archives (CIfA, 2014f); and
  - Sussex Archaeological Standards (Chichester District Council *et al.*, 2019).

### Scope of the Assessment

- 7.4.8 The scope of this ES has been developed in consultation with relevant statutory and non-statutory consultees as detailed in Tables 7.3.1 to 7.3.4 and also informed by the consultation on the PEIR in 2021 and updated PEI relating to the highway improvement changes in 2022 (see **ES Appendix 7.3.1: Summary of Stakeholder Scoping Responses - Historic Environment** (Doc Ref. 5.3) and **ES Appendix 7.3.2: Summary of Stakeholder PEIR and Updated PEI Responses – Historic Environment** (Doc Ref. 5.3)). It comprises the assessment of the likely significant effects on all elements of the historic environment, including buried archaeological remains, historic buildings and historic areas.

7.4.9 Taking into account the scoping and consultation process, Table 7.4.1 summarises the issues considered as part of this assessment.

**Table 7.4.1: Issues Considered within the Assessment**

Activity	Potential Effects
<b>Construction Period (including Demolition): Buried Archaeology</b>	
Construction and demolition activities (generally)	Loss of, or damage to, heritage assets as a result of construction activity (eg physical removal or disturbance of archaeological remains, where these are still present).
Construction of updated highway junctions	Loss of, or damage to, heritage assets as a result of construction of upgraded highway junctions (eg physical removal, disturbance, damage of potential archaeological remains).
Use of construction compounds and creation of mitigation areas beyond existing airport boundary	Loss of, or damage to, heritage assets as a result of instigation and use of construction compounds and creation of environmental mitigation/enhancement areas beyond the existing airport boundary. This includes works associated with drainage, such as excavation for new ponds or ground reduction for flood alleviation. Works to prepare the proposed construction compounds may result in loss of or damage to heritage assets. However, the site of the proposed main contractor compound is already developed (predominantly for surface parking), whilst the site of the proposed airfield satellite compound has been subject to previous archaeological examination as part of the Gatwick North West Zone development.
<b>Construction Period (including Demolition): Built Heritage and Historic Areas</b>	
Construction and demolition activities	Effects resulting from changes within the settings of designated and non-designated heritage assets as a result of demolition and construction activity (including light and noise), construction of upgraded highway junctions and use of construction compounds. Effects resulting from demolition of non-designated buildings with identified heritage values.
<b>Construction Period (including Demolition): Historic Landscape</b>	
Construction and demolition activities	Effects on the wider historic landscape as a result of construction activity, including construction of upgraded highway junctions, establishment and use of construction compounds and creation of mitigation/enhancement areas.
<b>Operational Period: Built Heritage and Historic Areas</b>	
Use of airport, including upgraded highway junctions	Effects resulting from changes within the settings of designated and non-designated heritage assets as a result of operational activity (including light and noise). This includes consideration of potential air noise impacts that may occur as a result of increased flight numbers and/or changes in distribution of volumes of aircraft along established flight paths, as well as ground noise and road traffic noise.

Activity	Potential Effects
<b>Operational Period: Historic Landscape</b>	
Use of airport, including upgraded highway junctions	Effects on the wider historic landscape.

**Table 7.4.2: Issues Scoped Out of the Assessment**

Issue	Justification
Operational impacts on buried archaeological remains	Impacts on buried archaeological remains would potentially occur during construction. All such remains will be examined to the appropriate level ahead of construction and that little or nothing of archaeological interest would remain in situ to be affected by operational activities as required by Schedule 2 of the <b>Draft DCO</b> (Doc Ref. 2.1).
Impacts on designated heritage assets within the more urbanised areas of Horley and Crawley resulting from changes within their Settings	The settings of such assets predominantly comprise the urban environment within which they are located. This aspect of their setting will not be affected by the Project and therefore there is no potential for a significant effect. Such assets are identified within Section 5.3 of <b>ES Appendix 7.6.1: Historic Environment Baseline Report</b> (Doc Ref. 5.3).

### Study Areas

- 7.4.10 With regard to buried archaeological remains, the defined study area is a zone extending for 1 km in all directions from the Project site boundary. This is considered to be sufficient to allow the known archaeological remains within the Project site boundary to be placed into context, and for the potential for further (as yet unknown) archaeological remains to be present within the Project site boundary to be assessed. Consideration of the archaeological potential also draws on the current knowledge of this topic over a wider area of the Weald.
- 7.4.11 There are two defined study areas for the examination of changes within the settings of heritage assets (including historic buildings and areas) that may result in harm to the significance of such assets. One is a zone extending for 3 km in all directions from the Project site boundary. Within this zone, heritage assets were examined against the ZTV established for the Project, and also information provided through site visits to examine the current settings of heritage assets. Consultation with relevant statutory bodies through the Scoping Report specifically examined whether or not there were any 'iconic' heritage assets outside the defined 3 km zone that should also be included within this part of the assessment – none were identified at that stage nor at any subsequent consultation including the formal consultations on the PEIR and the updated PEI.
- 7.4.12 A second study area has been established in order to examine the impact of air noise and changes in flight routes which could result in harm to the significance of heritage assets as a result of changes within their settings. This study area has been established with regard to predicted noise change footprints, using a methodology proposed in a report prepared for English



Heritage (Temple Group and Cotswold Archaeology, 2014) and referenced in the Airports NPS (Department for Transport, 2018). The methodology is set out in paragraphs 5.4.4 – 5.4.12 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3).

- 7.4.13 In summary, the methodology for the establishment of predicted noise change footprints requires the combination of two separate datasets. The first of these is the contour which shows the areas where there will be a predicted change of 1 decibel (dB) or more in the average summer daytime ( $L_{eq\ 16\ hr}$ ) noise levels. The second dataset requires the provision of the contour which shows the areas where there will be a 25% change in the daytime N60 contour. This represents the areas where there will be a predicted 25% change in the number of daytime flights for which the maximum outdoor noise level ( $L_{max}$ ) is likely to exceed 60dB on an average summer day.
- 7.4.14 Consequently the ‘negative noise change footprint’ is the area where the predicted average summertime  $L_{eq\ 16\ hr}$  noise level change will increase by 1dB or more and where there will be a predicted 25% increase in the number of daytime flights for which the maximum outdoor noise level is likely to exceed 60dB. Conversely, the ‘positive noise change footprint’ is the area where the predicted average summertime  $L_{eq\ 16\ hr}$  noise level change will decrease by 1dB or more and where there will be a predicted 25% decrease in the number of daytime flights for which the maximum outdoor noise level is likely to exceed 60dB.
- 7.4.15 **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1) describes the noise modelling that has been done to predict and assess the changes in noise expected from the Project. The noise metrics used for this are as required by the Civil Aviation Authority’s (CAA) CAP1616 guidance (Civil Aviation Authority, 2021). N60 Day has not been modelled and is not required under CAA guidance. Therefore, in order to follow the guidance provided in the Temple Group report (Temple Group and Cotswold Archaeology, 2014), the negative and positive noise change footprints have been established by using the 1dB change in  $L_{eq\ 16\ hr}$  only. This ensures a conservative assessment since had the N60 Day 25% change also been considered it would have resulted in a smaller noise change footprint.
- 7.4.16 Within the defined negative and positive noise change footprints it is then possible to identify ‘noise-sensitive’ designated heritage assets and to undertake individual assessments of potential impacts on the significance of such assets resulting from the change in air noise. For designated heritage assets within the negative noise change footprint the impacts would result in adverse effects, whilst for assets within the positive noise change footprint the impacts would result in beneficial effects. Four categories of ‘noise-sensitive’ heritage assets are defined within the guidance provided in the Temple Group report (Temple Group and Cotswold Archaeology, 2014); these are identified in paragraph 5.4.15 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3).

## Methodology for Baseline Studies

### Desk Study

- 7.4.17 Baseline data have been acquired from a number of sources, including the Historic Environment Records (HERs) for West Sussex and Surrey (these data were acquired in 2019). Where the reports on previous archaeological investigations have not yet reached the HERs, contact has been made with organisations involved in those investigations and relevant information has been made available wherever possible.

- 7.4.18 The National Heritage List for England (NHLE) has been examined with regard to designated heritage assets, with additional material coming from the Historic England Archive. Information regarding Conservation Areas and locally listed buildings has been sourced from the appropriate local authorities.
- 7.4.19 Examination has been made of a range of historic maps in order to inform an understanding of the development of the landscape within and adjacent to the Project site boundary. The results of previous studies commissioned by Gatwick Airport Limited in relation to the previous second runway scheme have been examined, including a LiDAR assessment, an aerial photograph assessment and a detailed walkover survey.
- 7.4.20 Further details regarding all aspects of the baseline studies are presented in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3).

### **Site-Specific Surveys**

- 7.4.21 Archaeological geophysical surveys have been carried out at locations within the Project site boundary. These locations were predominantly areas of land outside the operational airport, mostly land in current agricultural use. The survey areas included land required as temporary construction land, as well as permanent land take for new development (see Figure 6.3.8 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). The surveys were undertaken in August, September and October 2019. It is considered that baseline conditions will not have changed significantly since 2019 and therefore the survey results are still valid.
- 7.4.22 The geophysical surveys comprised magnetometer survey (using fluxgate gradiometers) with the resulting data being presented in greyscale format as well as in interpretation plots that identify anomalies of potential archaeological interest. The results of the geophysical surveys are described in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3), which also includes copies of the interpretation plots (Figures 6.3.9 – 6.3.13).
- 7.4.23 Two phases of archaeological trial trenching have been undertaken at locations within the Project site boundary, mostly (but not entirely) at the same locations as the geophysical surveys. The results of the trial trenching are summarised in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3) and are presented in detail in **ES Appendix 7.6.2: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme** (Doc Ref. 5.3) and **ES Appendix 7.6.3: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme (Phase 2: Longbridge Roundabout and Reigate Field)** (Doc Ref. 5.3).
- 7.4.24 Additional walkover surveys and site visits have been undertaken to examine specific locations, including the examination of the current settings of numerous heritage assets. The locations of the walkover surveys and the observations noted are set out in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3).
- 7.4.25 Several visits have been undertaken to areas around Gatwick Airport to understand how the existing settings of heritage assets may be affected by aircraft noise and also in relation to other noise sources, eg from road traffic. This has allowed a general understanding to be gained regarding the noise environment of heritage assets so as to inform the assessment. These visits were undertaken in 2019, ie before the Covid-19 pandemic, so the results are representative of the pre-pandemic levels of aircraft activity which is the worst case scenario.

## Assessment Criteria and Assignment of Significance

7.4.26 The significance of an effect is determined based on the sensitivity or value of a receptor and the magnitude of an impact. This section describes the criteria applied in this chapter to characterise the sensitivity of receptors and magnitude of potential impacts. The terms used to define sensitivity/value (of receptors) and magnitude (of impact) are based on, and have been adapted from, those used in the preceding and current iterations of the DMRB methodology (Highways England *et al.*, 2020b), which is described in further detail in **ES Chapter 6: Approach to Environmental Assessment** (Doc Ref. 5.1). They also take account of guidance published by the International Council on Monuments and Sites (ICOMOS, 2011).

### Receptor Sensitivity/Value

7.4.27 Table 7.4.3 presents the definitions of sensitivity or value which are applied to heritage assets. The table combines buried archaeological remains; historic buildings; and historic landscapes.

**Table 7.4.3: Sensitivity/Value Criteria**

Sensitivity / Value	Definition
Very High	<p>Heritage assets of international importance.</p> <p>World Heritage Sites and the individual attributes that convey their Outstanding Universal Value. Areas associated with intangible historic activities and areas with associations with particular innovations, scientific developments, movements or individuals of global importance.</p> <p>Assets that can contribute significantly to acknowledged international research objectives.</p>
High	<p>Heritage assets of national importance. Scheduled Monuments, Listed Buildings (Grade I, II*), Registered Historic Parks and Gardens (Grade I, II*), Registered Battlefields, Protected Wrecks, Protected Military Remains.</p> <p>Other listed buildings that can be shown to have exceptional qualities in their fabric or historical association not adequately reflected in the listing grade.</p> <p>Unscheduled sites and monuments of schedulable quality and/or importance including those discovered through the course of evaluation or mitigation.</p> <p>Archaeological assets that can contribute significantly to acknowledged national research objectives.</p> <p>Conservation Areas containing very important buildings. Undesignated structures of clear national importance.</p> <p>Designated and undesignated historic landscapes of outstanding interest, or high quality and importance and of demonstrable national value.</p> <p>Well-preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factors.</p> <p>Palaeogeographic features with a demonstrable high potential to include artefactual and/or palaeoenvironmental material, possibly as part of a prehistoric site or landscape.</p> <p>Undesignated sites of wrecked ships and aircraft that are demonstrably of equivalent archaeological importance to those already designated.</p>

<b>Sensitivity / Value</b>	<b>Definition</b>
<b>Medium</b>	<p>Heritage assets of regional importance. Conservation Areas, Grade II Listed Buildings and Registered Historic Parks and Gardens.</p> <p>Undesignated archaeological assets that can contribute to regional research objectives.</p> <p>Historic townscapes and landscapes with reasonable coherence, time-depth and other critical factor(s).</p> <p>Unlisted assets that can be shown to have exceptional qualities or historic association.</p> <p>Designated special historic landscapes.</p> <p>Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value.</p> <p>Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factors.</p> <p>Prehistoric deposits with moderate potential to contribute to an understanding of the palaeoenvironment.</p> <p>Undesignated wrecks of ships or aircraft that have moderate potential based on a formal assessment of their importance in terms of build, use, loss, survival and investigation.</p>
<b>Low</b>	<p>Heritage assets with importance to local interest groups or that contribute to local research objectives.</p> <p>Locally Listed Buildings and Sites of Importance within a district level.</p> <p>Robust undesignated assets compromised by poor preservation and/or poor contextual associations.</p> <p>Robust undesignated historic landscapes.</p> <p>Historic landscapes with importance to local interest groups.</p> <p>Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations.</p> <p>Prehistoric deposits with low potential to contribute to an understanding of the palaeoenvironment.</p> <p>Undesignated wrecks of ships or aircraft that have low potential based on a formal assessment of their importance in terms of build, use, loss, survival and investigation.</p>
<b>Negligible</b>	<p>Assets with little or no archaeological or historical interest due to poor preservation or survival. Buildings of little or no architectural or historic note; buildings of an intrusive character.</p> <p>Landscapes with little or no significant historical interest.</p>
<b>Unknown</b>	<p>The importance of the heritage asset cannot be ascertained from available evidence.</p>

### **Magnitude of Impact**

- 7.4.28 The magnitude of an impact is assessed without reference to the sensitivity or value of the heritage asset. In terms of the judgement of the magnitude of impact, this is based on the principle that preservation of the significance of the asset is preferred, and that total loss of significance (including loss resulting from substantial change within the setting) of the asset is least preferred.

7.4.29 With regard to buried archaeological remains, it is not always possible to assess the physical impact in terms of percentage loss, and therefore it can be important in such cases to try to assess the capacity of the heritage asset to retain its character and significance following any impact. Impacts resulting from changes within the setting of buried archaeological remains may also be difficult to assess as they do not involve physical loss of the resource.

7.4.30 Table 7.4.4 presents the criteria used to assess the magnitude of impact on heritage assets

**Table 7.4.4: Impact Magnitude Criteria**

Magnitude of Impact	Definition
High	Change to most or all key elements of the heritage asset, or changes within the setting of the asset, such that the significance of the asset is lost or substantially harmed (Adverse).
	Change to most or all key elements of the heritage asset, or changes within the setting of the asset, such that the significance of the asset is substantially enhanced (Beneficial).
Medium	Change to elements of the heritage asset, or changes within the setting of the asset, such that the significance of the asset is clearly harmed (Adverse).
	Change to elements of the heritage asset, or changes within the setting of the asset, such that the significance of the asset is clearly enhanced (Beneficial).
Low	Change to elements of the heritage asset, or changes within the setting of the asset, such that the significance of the asset is slightly harmed (Adverse).
	Change to elements of the heritage asset, or changes within the setting of the asset, such that the significance of the asset is slightly enhanced (Beneficial).
Negligible	Change to elements of the heritage asset, or changes within the setting of the asset, such that the significance of the asset is barely affected (Adverse).
	Change to elements of the heritage asset, or changes within the setting of the asset, such that the significance of the asset is barely affected (Beneficial).
No Change	No changes to elements of the heritage asset, or within the setting of the asset.

#### **Significance of Effect**

7.4.31 The significance of the effect upon the historic environment has been determined by taking into account the sensitivity or value of the receptor and the magnitude of the impact. The method employed for this assessment is presented in Table 7.4.5. Where a range of significance levels are presented, the final assessment for each effect is based upon expert judgement.

7.4.32 In all cases, the evaluation of receptor sensitivity or value, impact magnitude and significance of effect has been informed by professional judgement and is underpinned by narrative to explain the conclusions reached.

7.4.33 For the purpose of this assessment, any effects with a significance level of minor or less are not considered to be significant in terms of the EIA Regulations. Effects should be considered to be adverse unless explicitly stated otherwise.

**Table 7.4.5: Assessment Matrix**

Sensitivity	Magnitude of Impact				
	No Change	Negligible	Low	Medium	High
Negligible	No change	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	No change	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	No change	Negligible or Minor	Minor	Moderate	Moderate or Major
High	No change	Minor	Minor or Moderate	Moderate or Major	Major or Substantial
Very High	No change	Minor	Moderate or Major	Major or Substantial	Substantial

7.4.34 A description of the significance levels is provided in the bullets below.

- Substantial: Only adverse effects are normally assigned this level of significance. These effects are associated with heritage assets of international, national or regional importance that are likely to suffer a most damaging impact and loss of significance.
- Major: These beneficial or adverse effects are considered to be very important considerations.
- Moderate: These beneficial or adverse effects may be important factors. The cumulative effects of such factors may lead to an increase in the overall effect on a particular heritage asset or group of assets.
- Minor: These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical factors but may be important in enhancing the subsequent design of the Project.
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

## 7.5. Assumptions and Limitations of the Assessment

7.5.1 All readily available data required for the assessment have been acquired, collated and critically examined within **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3). Section 1.3 of that appendix describes the assumptions and limitations associated with the baseline data sources.

7.5.2 One key limitation is with regard to the presence/absence, extent, nature and significance of buried archaeological remains within the Project site boundary. A number of non-intrusive

methodologies have been utilised in order to gain as much information as reasonably possible, including geophysical and walkover surveys, assessment of LiDAR data and aerial photographs, and consideration of the locations and findings of previous archaeological investigations. An appraisal of potential archaeological truncation within the airport has been undertaken through the review of available borehole and geotechnical information; the results of this are described within paragraphs 6.3.370 – 6.3.396 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3) and the data reviewed are presented within **ES Appendix 7.6.4: Geotechnical Data Reviewed for Mapping of Archaeological Potential** (Doc Ref. 5.3).

- 7.5.3 The review of the baseline information allowed identification of where previous activities are likely to have removed or truncated buried archaeological remains. A phased programme of geophysical survey and trial trenching was then undertaken to confirm the archaeological potential of land within the Project site boundary. All investigations were carried out in line with the guidance document *Sussex Archaeological Standards* (Chichester District Council et al., 2019), and in accordance with written methodologies agreed in advance with the appropriate archaeological advisors to the local planning authorities. The results of the geophysical survey and trial trenching are summarised in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3), and the detailed reports on the results of the trial trenching are presented as **ES Appendix 7.6.2: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme** (Doc Ref. 5.3) and **ES Appendix 7.6.3: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme (Phase 2: Longbridge Roundabout and Reigate Field)** (Doc Ref. 5.3).
- 7.5.4 Having had regard to the results of the geophysical survey and trial trenching, and in combination with the other sources of information described above, other than for buried archaeological remains no assumptions or limitations have been identified in the preparation of this chapter that would prevent an assessment being made of the potential effects. For the buried archaeological remains, a worst-case assessment has been made, assuming that buried archaeological remains (including, in some locations, remains of high sensitivity or value) are present.
- 7.5.5 For the effects of aircraft noise on the historic environment, the assessment has been based on estimates of how the aircraft fleet will transition over time, based on assumptions around airlines' fleet procurement programmes and business models.
- 7.5.6 The noise modelling of all future cases, ie 2029, 2032, 2038 and 2047, is based on forecasts of air traffic movements and fleets expected to operate based on the best information available at this stage. At the current time, as the aviation industry has been affected by the Covid pandemic, there is some uncertainty as to how airlines will invest in new, quieter aircraft in the future. To address this uncertainty two future fleets have been considered in the aircraft noise modelling – a 'central case' fleet and a 'slower transition' fleet. The 'central case' fleet represents the transition envisaged from current generation to next generation, quieter aircraft and represents what is considered today to be the most likely rate of fleet transition. The 'slower transition' fleet case represents a delayed transition leading to higher noise levels in the future, in both the future baseline and Project cases. Section 14.5 in **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1) and **ES Appendix 14.9.5: Air Noise Envelope Background** (Doc Ref. 5.3) provide further details.

## 7.6. Baseline Environment

### Current Baseline Conditions

- 7.6.1 A detailed description of the historic environment baseline is presented within **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3), which should be read in conjunction with this chapter.
- 7.6.2 The current airport was developed within a historic landscape comprising dispersed farmsteads with small, irregular fields bounded by hedges that were often heavily wooded. Land use has historically fluctuated between arable and pastoral according to the available farming methods and the needs of society. Newly cleared land was usually set to arable, but depopulation often resulted in a reversion to pasture or rough grazing. Livestock were mainly cattle, although certain areas specialized in sheep farming. Locally, woodland provided timber and firewood for use in the ironworking industry, which was widespread in the medieval period and reached a peak during the 17th and 18th centuries.
- 7.6.3 The London and Brighton Railway opened in 1841 and was subsequently incorporated into the London, Brighton and South Coast Railway. This cut through the historic landscape on a north/south alignment and a station was provided at Horley. To the west of the railway, the former Gatwick Farm was replaced by a large house known as “Gatwick” or “Gatwick Manor”. Land to the south east of Gatwick Manor was purchased in 1890 by the Gatwick Race Course Company, which opened a race course in 1891 along with a new station on the adjacent railway. A grandstand was located at the south eastern end of the racecourse and was linked to the railway station by three covered walkways.
- 7.6.4 An airfield was licensed at Gatwick in 1930, although a plane had been based there from November 1928. The runway was adjacent to the racecourse and a licence for commercial flights was acquired in 1933. In 1935 a new railway station was opened further to the south and the following year the world’s first circular passenger terminal was opened, linked to the new station by a subway approximately 130 yards in length. The terminal and part of the subway are still present but are outside the current operational airport – the former is a Grade II\* listed building known as The Beehive.
- 7.6.5 During World War Two the airfield was requisitioned by the Air Ministry and used by the RAF, with further requisitioning that included part of the racecourse. After the war the airfield was retained under requisition and operated for civilian use. The country house known as Gatwick was demolished in 1950, and in the same decade Gatwick Airport was substantially expanded to become the newest airport for London; it was further enlarged in 1962.
- 7.6.6 The land within the Project site boundary is predominantly occupied by the operational airport within which very little remains of the preceding historic landscape.
- 7.6.7 One Conservation Area is partially within the Project site boundary. This is the Church Road Conservation Area on the south western edge of Horley (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 406). The eastern part of the Conservation Area comprises a number of historic buildings including the Grade I listed Church of St Bartholomew (Site 16) and the adjacent Grade II listed Ye Olde Six Bells public house (Site 370). To the west of the churchyard the Conservation Area takes in open land on either side of the River Mole, and it is this open land which falls partially within the Project site boundary.



- 7.6.8 Within 1 km of the Project site boundary there are a considerable number of designated heritage assets. These include two Scheduled Monuments: an area of former medieval settlement at Tinsley Green to the south east of the airport (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 9); and a medieval moated manor house site known as Thunderfield Castle to the north east (Site 7).
- 7.6.9 Three Grade I listed churches are located within 1 km of the Project site boundary. The Church of St Bartholomew at Church Road, Horley (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 16) has already been mentioned (see paragraph 7.6.7 above) and is of 14th century date, restored in 1881 and with a south aisle added in 1901. The Church of St Nicholas is in the western part of the village of Charlwood, west of the airport (Site 14). This church is of Norman date and has surviving elements from the 13th, 14th and 15th centuries. The third one is the Church of St Bartholomew at Burstow (Site 13), east of the airport (and east of the M23 motorway). This example is of 12th century date, enlarged and remodelled in the 15th century and restored in 1884-95.
- 7.6.10 There are eight Grade II\* listed buildings within 1 km of the Project site boundary. These include five to the south of the airport: Charlwood House (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 23) which is a timber-framed house of early 17th century date now used as a nursery school; Gatwick Manor Inn on the east side of the A23 road which is another 15th century timber-framed house, now used as a hotel; the Church of St Michael and All Angels (Site 24) was built in 1867 as the parish church for Lowfield Heath, it is by the architect William Burgess in an early 13th century French Gothic style and is currently used by a Seventh Day Adventist congregation; Rowley Farmhouse (Site 22) has elements that date to the late 16th century and is located on a prominent position at the top of a small gravel hill; and The Beehive (Site 35) is the former airport passenger terminal built in 1934-36 and mentioned above, it is now outside the operational airport but is well-maintained and used as a business centre.
- 7.6.11 On the north western edge of the airport is the Grade II\* listed Charlwood Park Farmhouse (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 27). It is a timber-framed hall house of 15th century date, with later additions and amendments. In the 19th century it was the home farm for the Charlwood Park estate; the main house and the park were located further to the east and have been completely lost to the expanding airport. The former farmhouse is located just outside the current airport perimeter fence and is in use as a nursery school. A garden extends around the western, northern and eastern sides of the former farmhouse, beyond which is modern surface car parking for the airport. To the south is an area of landscape planting adjacent to the realigned River Mole, with the Sussex Border Path running alongside the river and passing to the south and east of the farmhouse. There is some noise from planes taking off and landing, but this is not particularly obtrusive.
- 7.6.12 The other two Grade II\* listed buildings are within the village of Charlwood, to the west of the airport. The Providence Chapel on Chapel Road (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 36) was erected in 1816 as a Non-conformist chapel. However, it was initially built in 1797 as the Guard Room of a military camp in Horsham used for training of troops to fight in the French Revolutionary War. The Manor House on Norwood Hill Road at Charlwood (Site 33) is a large hall house of 15th or 16th century date.
- 7.6.13 In addition to the remaining part of the Church Road (Horley) Conservation Area, there are three further Conservation Areas wholly or partially within 1 km of the Project site boundary. These are at Burstow to the east of the airport (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 400), at Charlwood to

the west of the airport (Site 397) and at Massets Road, Horley to the north of the airport (Site 398).

- 7.6.14 There are approximately 135 Grade II listed buildings or structures within 3 km of the Project site boundary (**ES Figure 7.6.2** (Doc Ref. 5.2)). Many of these are located within the historic village of Charlwood to the west of the airport and within Horley to the north, whereas others are dispersed farmsteads and cottages in a more rural setting. Examination of the ZTV for the Project has established that many of the Grade II listed buildings would have no intervisibility with any built element of the Project (see **ES Figure 7.6.3** (Doc Ref. 5.2) and **ES Figure 7.6.4** (Doc Ref. 5.2), also **ES Chapter 8: Landscape, Townscape and Visual Resources** (Doc Ref. 5.1)). For those listed buildings where the ZTV indicates some potential for intervisibility, a programme of site visits has been undertaken to further review this potential and to establish the current setting of the buildings.
- 7.6.15 Wing House (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 134) and Edgeworth House (Site 133) are just outside the Project site boundary but are nearly enclosed by it. They are separately listed at Grade II but are conjoined. Edgeworth House may be slightly earlier in date (15th or early 16th century), with Wing House being mid-16th century. The two buildings formerly represented separate elements of a property known as Edgeworth that was accessed via a driveway leading east to the B2036 Balcombe Road. This relationship no longer exists, and the two listed buildings are located within an area of surface car parks and modern buildings associated with the operational use of the airport, including the adjacent Marriot Hotel of which the historic buildings now form a part.
- 7.6.16 **ES Figure 7.6.1** (Doc Ref. 5.2) shows the locations of locally listed buildings within 1 km of the Project site boundary. The locally listed buildings are within Reigate and Banstead Borough, Crawley Borough and Tandridge District as these local authorities maintain a local list of historic buildings.
- 7.6.17 A number of the locally listed buildings are located within the urban areas of Horley and due to their location, the built elements of the Project would not represent a change within the settings of these assets.
- 7.6.18 One locally listed building is situated on the north western edge of the Project site boundary (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 429). This is Gatwick Manor Lodge on the south side of Povey Cross Road, and it represents the only surviving structure associated with the former country house of Gatwick which replaced the earlier Gatwick Farm.
- 7.6.19 Elsewhere there are small numbers of locally listed buildings to the north east, east, and south east of the Project site boundary. These are identified within **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3).
- 7.6.20 As explained above, the defined study area for the examination of potential effects on designated heritage assets extends to a distance of 3 km from the Project site boundary. Designated heritage assets within 1-3 km of the Project site boundary, and within the ZTV established for the Project, include two Scheduled Monuments, three Grade II\* listed buildings, one Conservation Area and a number of Grade II listed buildings (**ES Figure 7.6.3** (Doc Ref. 5.2)).
- 7.6.21 Archaeological fieldwork has been undertaken at several locations within the Project site boundary. A comprehensive programme of archaeological investigation in the north western part

of the airport (known as the Gatwick North West Zone) over the period 1998–2001 resulted in the identification of the remains of settlement activity dating from the Late Bronze Age. The area examined is shown on Figure 6.3.1 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3).

- 7.6.22 Another notable programme of archaeological work was undertaken in 2012-13 ahead of and during construction of the Flood Storage (Control) Reservoir and the Pollution Control Lagoon to the south east of the airport (and east of the railway) (see Figure 6.3.3 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). Numerous palaeochannels of the Gatwick Stream were identified here, along with evidence for activity in the Upper Palaeolithic, Mesolithic, Iron Age, Roman and medieval periods.
- 7.6.23 Archaeological discoveries within and around the Project site boundary have enabled the local planning authorities to identify areas of enhanced archaeological interest. This does not afford any specific protection to the identified area, but it draws the attention of planners and developers to the need for archaeological issues to be properly considered within the planning system. In West Sussex the areas of enhanced archaeological interest are known as Archaeological Notification Areas (ANAs) and are classed as Red or Amber according to their perceived importance. In Surrey the areas of enhanced archaeological interest are known as Areas of High Archaeological Potential (AHAPs) and also County Sites of Archaeological Interest (CSAIs). The locations of all ANAs, AHAPs and CSAIs within 1 km of the Project site boundary are indicated on **ES Figure 7.6.1** (Doc Ref. 5.2).
- 7.6.24 Within the Project site boundary are four Red ANAs and one AHAP. A small part of a Red ANA in the vicinity of the Grade II\* listed Charlwood Park Farmhouse is just within the Project site boundary. This ANA (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 487) has been principally identified on the basis that the Late Bronze Age settlement examined to the east of here (within the Gatwick North West Zone) could extend further west.
- 7.6.25 A second Red ANA has been identified to the east of the railway, in an area predominantly used now as surface car parking but also taking in the Pollution Control Lagoon (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 485). This relates to antiquarian evidence for a Roman settlement in the area of the former Horley Land Farm. The third Red ANA partially within the Project site boundary is to the south of Site 485 (Site 484) and has been principally identified with regard to a group of Iron Age cremation burials identified during the archaeological work associated with construction works adjacent to the Flood Storage (Control) Reservoir. A fourth Red ANA is located in the south western corner of the Project site boundary (Site 480). This is the site of the former Park Farm (or Park House Farm) which was indicated on a map of 1768 and survived into the early part of the 20th century.
- 7.6.26 The Surrey AHAP is only partially within the Project site boundary. This is on the north side of the airport, just to the west of the railway (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 498). It relates to the antiquarian discovery of prehistoric flintwork, Late Iron Age cremation burials, and Roman pottery and coins. This land is now used as a staff car park (Car Park B).
- 7.6.27 There are several additional Red and Amber ANAs within 1 km of the Project site boundary. These include a Red ANA immediately south of the airport which is associated with a former windmill and miller's cottage at Lowfield Heath (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 481) and a second one just to the west which is associated with the possible moated site of the Grade II\* listed Charlwood House (Site 479). A smaller Red ANA to the east of the Lowfield Heath Windmill

ANA is based around the Grade II\* listed Church of St Michael and All Angels (Site 489) whilst to the south is another Red ANA; this one has been identified with regard to the medieval moated site of Gatwick Manor Inn (Site 482).

- 7.6.28 To the west of the airport is a large Red ANA which is an area of possible mine pits (for iron ore) and other landscape features (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 486). An even larger Red ANA to the south, and mostly more than 1 km from the Project site boundary, covers the area of a medieval moated site at Ifield Court as well as remains associated with ironworking (Site 478).
- 7.6.29 A large Red ANA at Tinsley Green to the south east of the airport (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 483) is associated with the remains of medieval settlement and ironworking, whilst a nearby smaller Red ANA relates to an area of medieval earthworks at Toovies Farm (Site 490). An amber ANA has been identified around the Grade II\* listed building (and former airport passenger terminal) known as The Beehive (Site 488).
- 7.6.30 There are two (Surrey) AHAPs at Charlwood, to the west of the airport. One of these relates to the historic core of the village (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 493) whilst the second is associated with the adjacent and formerly separate settlement core of Charlwood Green (Site 494).
- 7.6.31 To the north of the airport is a group of AHAPs on the south west side of Horley. These include a possible moated enclosure (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 492), the church and churchyard (Site 497), another (possibly) moated medieval manor at Court Lodge Farm (Site 496) and a moated site at Ringley Oak Cottage (Site 499).
- 7.6.32 East of the airport there are two AHAPs at Burstow. The larger eastern one (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 501) includes the church and several other historic buildings, whilst a smaller western AHAP (Site 502) is associated with a medieval mound and homestead. To the north and on the western side of the M23 motorway, the area around the Scheduled Monument of Thunderfield Castle has been identified as a CSAI (Site 495).
- 7.6.33 The programmes of archaeological geophysical survey and trial trenching undertaken for the Project identified the presence of buried archaeological remains at several locations within the Project site boundary.
- 7.6.34 In the eastern side of Museum Field was an urned cremation burial of Late Iron Age or Roman date, which was left in the ground so that further, more detailed examination can be undertaken at this location in due course (**ES Appendix 7.6.2: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme** (Doc Ref. 5.3); Figure 4, Trench 129). This burial may be associated with a nearby sub-rectangular enclosure which has a livestock drove or funnel along its northern side. Other undated linear features are also present in this field.
- 7.6.35 The land to the north of Museum Field was found to contain a number of undated hearth pits along with a marl pit and a meandering palaeochannel associated with Man's Brook (**ES Appendix 7.6.2: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme** (Doc Ref. 5.3); Figure 4, Areas C1-C3). Features and deposits identified within a field to the east of Brook Farm suggest the presence of activity associated with ironworking in the 13th and 14th centuries AD (**ES Appendix 7.6.2:**

**Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme** (Doc Ref. 5.3); Figure 4, Area H1).

- 7.6.36 Some additional evidence of Late Iron Age activity was found in an area east of the airport adjacent to land where previous archaeological work had uncovered extensive remains of this date (**ES Appendix 7.6.2: Archaeological Evaluation Report: Land Associated with the Gatwick Airport Northern Runway Scheme** (Doc Ref. 5.3); Figure 2, Trench 16).
- 7.6.37 The detailed examination of known archaeological sites within and adjacent to the Project site boundary that is presented within **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3) has enabled the production of a figure which indicates Zones of Archaeological Potential (within the Project site boundary). This is included here as **ES Figure 7.6.5** (Doc Ref. 5.2) and it shows zones of high and medium potential in several locations, all of which are outside of, or peripheral to, the operational airport.
- 7.6.38 A programme of Historic Landscape Characterisation (HLC) has been undertaken for Sussex and also for Surrey (see Figures 4.1.5 and 4.1.6 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). Overall, the HLC shows that the historic character of the remaining undeveloped land within the Project site boundary is typical of the Sussex Weald, with assarts (areas of forest cleared for agriculture) coalescing to form informal fieldscapes and then some areas being formally inclosed. These former assarts can be identified by sinuous field boundaries and wide hedges, and their probable association with medieval farms. The dispersed settlements are gradually encroached upon by ribbon development along the transport routes whilst some ancient woodland has survived along with more recent plantations.
- 7.6.39 Section 5.4 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3) explains the methodology used to produce the baseline for the assessment of impacts and effects on heritage assets arising from changes in air noise. The methodology is derived from a research report produced on behalf of English Heritage (Temple Group and Cotswold Archaeology, 2014).
- 7.6.40 The methodology utilised for this element of the assessment requires the establishment of predicted increased and reduced noise change areas, followed by the identification of noise-sensitive heritage assets within these areas.
- 7.6.41 Application of the methodology resulted in the identification of three noise-sensitive designated heritage assets within the area where noise is predicted to increase and two noise-sensitive designated heritage assets within which noise is expected to reduce. The locations of these noise-sensitive designated heritage assets and the areas of predicted noise change are indicated on **ES Figure 7.6.6** (Doc Ref. 5.2).
- 7.6.42 The three noise-sensitive designated heritage assets within the area where noise is expected to increase comprise: the Grade II listed Church of St John the Baptist (Site 872, NHLE 1378150); the Grade II listed Quaker Meeting House with attached cottage at Capel (Site 873, NHLE 1028737); and the relocated Grade II listed Lowfield Heath Windmill south west of Charlwood (Site 332, NHLE 1298883). The two noise-sensitive designated heritage assets within the area where noise is expected to reduce comprise the Grade II\* listed Church of St Michael and All Angels at Lowfield Heath (Site 24, NHLE 1187081) and the adjacent Grade II listed Lowfield Heath War Memorial (Site 389, NHLE 1452793) which is located just within the north west corner of the churchyard.

### Future Baseline Conditions

- 7.6.43 Future changes to the historic environment baseline could include additions to the list of designated heritage assets, eg. additional designations of Scheduled Monuments, listed buildings etc. or amendments to the descriptions of the assets and/or the area covered by the designation.
- 7.6.44 Other changes could occur as a result of further information regarding archaeological sites, possibly through programmes of intrusive or non-intrusive fieldwork.
- 7.6.45 No changes in statutory legislation on historic environment issues are currently anticipated, although this may change at any time. Additional guidance may be issued by national statutory advisors or others, including guidance on the assessment process.
- 7.6.46 No significant change to the historic environment baseline in this area is anticipated to occur as a result of climate change. Drier weather in the summer months may lead to the discovery of as yet unknown archaeological sites that become visible as cropmarks or parchmarks. However, this could also lead to some drying out of deposits (within palaeochannels) which are currently waterlogged or damp and this may result in some loss of significance of these deposits in terms of palaeoenvironmental potential. Increased rainfall and heat may also result in damage to historic buildings, eg. through the undermining of foundations. However, none of the issues described above are likely to lead to a significant change in any part of the historic environment baseline.
- 7.6.47 A number of proposed or consented developments at Gatwick Airport would proceed in the short-term in the absence of the Project (as explained in **ES Chapter 4: Existing Site and Operation** (Doc Ref. 5.1)). These include:
- western extension to Pier 6;
  - alternations to Taxiway Quebec;
  - reconfiguration of aircraft stands;
  - additional rapid exit taxiway from the main runway;
  - resurfacing of the main and northern runways and taxiways in accordance with the usual maintenance schedule;
  - replacement of the Instrument Landing System (ILS) equipment;
  - electric vehicle charging forecourt at the South Terminal (west of the Marriot Hotel);
  - South Terminal Hilton hotel multi-storey car park (820 vehicles);
  - North Terminal multi-storey car park 7 (3,250 vehicles);
  - use of robotics technology within existing South Terminal long-stay parking areas to increase capacity, resulting in an additional 2,500 spaces;
  - highway improvements to North Terminal and South Terminal roundabouts, signalisation and signage; and
  - improvements to Gatwick Railway Station.
- 7.6.48 For further details, see **ES Chapter 4: Existing Site and Operation** (Doc Ref. 5.1). These developments are unlikely to result in any change to the future baseline situation with regard to the historic environment.
- 7.6.49 The potential future changes to the historic environment baseline as identified above could occur within any of the assessment phases set out below in Section 7.9 of this chapter.

## 7.7. Key Aspects of the Project

7.7.1 The assessment has been based on the description within **ES Chapter 5: Project Description** (Doc Ref. 5.1).

7.7.2 Table 7.7.1 below identifies the maximum design scenarios where relevant to this assessment. Where options exist, the maximum design scenario selected is the one having the potential to result in the greatest effect on an identified receptor or receptor group. Effects of greater adverse significance are not predicted to arise should any other option identified in **ES Chapter 5: Project Description** (Doc Ref. 5.1) be taken forward.

7.7.3 With regard to the dates used here for each phase, where the potential impacts are physical (such as loss of or damage to archaeological or palaeoenvironmental remains) the activity is included within the period in which the activity commences. This is because the impacts would occur at the start of the activity. Conversely, where the potential impacts are non-physical (change within the setting of a heritage asset), the activity is included within the period in which the activity concludes or the impacts reach a peak level after which they start to reduce.

**Table 7.7.1: Maximum Design Scenarios**

Potential Impact	Maximum Design Scenario	Justification
<b>Initial Construction Phase: 2024-2029</b>		
Loss of, or damage to, buried archaeological or palaeoenvironmental remains	Flood compensation area: Museum Field lowering (2.6 metres deep)	Greatest depth of excavation
	Flood storage area: Car Park X (2 metres deep)	
	Water storage tank: Car Park Y (10 metres deep)	
	Water Treatment Works, up to 3 metres deep covering an area of approximately 0.56 hectares	
	Main contractor construction compound MA1 (up to 4 hectares)	
	Car Park Z contractor compound (up to 1.8 hectares)	
	Airfield satellite contractor compound (up to 3.5 hectares)	
	Longbridge roundabout contractor compound (up to 0.3 hectares)	
	South Terminal roundabout contractor compound (up to 3 hectares)	
Car Park Y contractor compound (up to 1.8 hectares)		
Car Park B contractor compound (up to 0.47 hectares)		

Potential Impact	Maximum Design Scenario	Justification
Harm to the significance of a heritage asset as a result of change within its setting	Relocated grounds maintenance facility up to 8 metres high within a compound measuring approximately 0.123 hectares	Greatest visual change
	Relocated fire training ground, rig height up to 25 metres high within an area of up to 1.2 hectares	
	Relocated airfield surface transport facility up to 15 metres high within a compound measuring approximately 0.144 hectares	
	Noise mitigation feature up to 10 metres high	
	South Terminal IDL extension up to 27 metres high covering an area of approximately 0.38 hectares	
	North Terminal IDL northern extension up to 32.5 metres high covering an area of approximately 0.33 hectares, southern extension up to 27.5 metres high covering an area of approximately 0.42 hectares	
	South Terminal hotel on the car rental site up to 16.3 metres high	
	South Terminal hotel (at existing Car Park H) up to 27 metres high	
	South Terminal hotel (adjacent to and north of multi-storey Car Park 3) up to 27 metres high	
	Multi-storey Car Park J up to 27 metres high covering an area of approximately 1 hectare	
Car Park X decking up to 11 metres high		
<b>2030-2032</b>		
Harm to the significance of a heritage asset as a result of change within its setting	Car Park Y contractor compound (up to 1.8 hectares including infrastructure up to 6 metres high)	Greatest visual change
	Car Park B contractor compound (up to 0.47 hectares including infrastructure up to 6 metres high)	
	South Terminal roundabout contractor compound (up to 3 hectares including infrastructure up to 25 metres high)	
	CARE facility building up to 22 metres high covering an area of approximately 1.75 hectares, flue up to 48 m high	



Potential Impact	Maximum Design Scenario	Justification
	Longbridge roundabout contractor compound (up to 0.3 hectares including infrastructure up to 6 metres high)	
	Replacement motor transport maintenance facilities up to 15 metres high covering an area of 1.56 hectares	
	Satellite Airport Fire Service provision up to 15 metres high within a compound measuring approximately 0.8 hectares	
	North Terminal baggage reclaim extension up to 7 m high covering an area of approximately 0.065 hectares	
	North Terminal baggage hall extension up to 12.5 metres high covering an area of 0.65 hectares	
	South Terminal new office building up to 27 m high covering an area of approximately 0.1 hectares	
	North Terminal Long Stay decked car park up to 11 metres high covering an area of approximately 7.9 hectares	
	Water Treatment Works, up to 8 metres high covering an area of approximately 0.56 hectares	
<b>2033-2038</b>		
Loss of, or damage to, buried archaeological or palaeoenvironmental remains	New hangar, potential for excavation to a depth of 10 metres	Greatest depth of excavation
	New hangar up to 32 metres high and covering an area of approximately 1.24 hectares	
	Multi-storey Car Park Y up to 27 metres high covering an area of 0.5 hectares	
	Multi-storey Car Park H up to 27 metres high covering an area of approximately 0.5 hectares	
	Surface Access South Terminal improvements, M23 Spur/Airport Way raised 8 metres over existing South Terminal roundabout with new flyover 130 m long, Balcombe Road overbridge raised 2.2 metres	

Potential Impact	Maximum Design Scenario	Justification
	Surface Access North Terminal improvements, new elevated link from Airport Way up to 8 metres high	
	New Pier 7 up to 18 metres high covering an area of up to 10.1 hectares	
	Main contractor construction compound MA1 (up to 4 hectares, including infrastructure up to 25 metres high)	
	Car Park Z contractor compound (up to 1.8 hectares including infrastructure up to 6 metres High)	
	Airfield satellite contractor compound (up to 3.5 hectares including infrastructure up to 25 metres high)	
<b>2047</b>		
Harm to the significance of a heritage asset as a result of change within its setting	Parameters assumed to be as above	Greatest visual change

## 7.8. Mitigation and Enhancement Measures Adopted as Part of the Project

7.8.1 A number of measures have been designed into the Project to reduce the potential for impacts on the historic environment. These are listed below in Table 7.8.1.

7.8.2 In respect of construction, standard good practice measures regarding noise, dust, lighting etc would be adopted and implemented through the Code of Construction Practice (CoCP). Further details of environmental management during construction are provided in **ES Chapter 5: Project Description** (Doc Ref. 5.1) and the CoCP provided at **ES Appendix 5.3.2** (Doc Ref. 5.3).

**Table 7.8.1: Mitigation and Enhancement Measures**

Measures Adopted as Part of the Project	Justification	How secured
<b>Mitigation</b>		
A vegetation retention strategy for all elements of the Project that coincide with, or lie immediately adjacent to, existing significant vegetation including hedgerows, woodland and trees that may be affected during the construction phase or during maintenance activities.	To eliminate or reduce any potential harm to the significance of a heritage asset as a	<b>CoCP in ES Appendix 5.3.2</b> (Doc Ref. 5.3) and <b>ES Appendix 8.8.1: Outline Landscape and Ecology</b>

	result of change within its setting.	<b>Management Plan</b> (Doc. Ref. 5.3); Schedule 2 Requirement in the <b>Draft DCO</b> (Doc Ref. 2.1)
Proposed woodland and tree planting.		<b>CoCP in ES Appendix 5.3.2</b> (Doc Ref. 5.3) and <b>ES Appendix 8.8.1: Outline Landscape and Ecology Management Plan</b> (Doc. Ref. 5.3); Schedule 2 Requirement in the <b>Draft DCO</b> (Doc Ref. 2.1)
Proposed earth shaping, embankments, cuttings or bunds.		<b>ES Chapter 5: Project Design</b> (Doc Ref. 5.1); Schedule 2 Requirement in the <b>Draft DCO</b> (Doc Ref. 2.1)
Proposed fences, walls or barriers.ES Chapter 7		<b>ES Chapter 5: Project Design</b> (Doc Ref. 5.1); Schedule 2 Requirement in the <b>Draft DCO</b> (Doc Ref. 2.1)
Measures designed to control noise (as described in Section 14.8 of <b>ES Chapter 14: Noise and Vibration</b> (Doc Ref. 5.1)).		<b>ES Chapter 14: Noise and Vibration</b> (Doc Ref. 5.1); Schedule 2 Requirement in the <b>Draft DCO</b> (Doc Ref. 2.1)
<b>Enhancement</b>		
The proposed design for the environmental mitigation land at Longbridge Roundabout has considered the potential for enhancement of the Church Road (Horley) Conservation Area. This includes the extension of public access to land within and adjacent to the Conservation Area, also the provision of information boards describing the historical	To enable a greater ability to appreciate and understand the significance of a heritage asset as a result of change to the	<b>ES Appendix 8.8.1: Outline Landscape and Ecology Management Plan</b> (Doc. Ref. 5.3); Schedule 2

features of the area which will be erected on the west side of the River Mole.	asset and/or within its setting.	Requirement in the <b>Draft DCO</b> (Doc Ref. 2.1)
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### Offsetting

- 7.8.3 Where programmes of archaeological investigation (including dissemination of results and the placement of acquired materials in suitable archives) are undertaken post-consent (ahead of and during construction), this is not considered to be mitigation as it does not avoid or reduce the magnitude of impact or the significance of effect. Rather it is considered that the programmes of archaeological investigation are a means of ‘offsetting’ or ‘remedying’ those impacts and effects (see Thomas, 2019). The same logic applies to the recording of historic buildings ahead of demolition.
- 7.8.4 Written Schemes of Investigation (WSIs) for these programmes of further archaeological investigation and historic building recording have been prepared and have been submitted to the archaeological advisors to the local planning authorities. The WSIs are presented here as appendices to this chapter of the ES:
- **ES Appendix 7.8.1: Written Scheme of Investigation for post-consent archaeological investigations – Surrey** (Doc Ref. 5.3); and
  - **Es Appendix 7.8.2: Written Scheme of Investigation for post-consent archaeological investigations and historic building recording – West Sussex** (Doc Ref 5.3).

### 7.9. Assessment of Effects

- 7.9.1 With regard to the assessment periods used here, where the potential impacts are physical (such as loss of or damage to archaeological or palaeoenvironmental remains) the activity is included within the assessment period in which the activity commences. This is because the impacts would occur at the start of the activity. Conversely, where the potential impacts are non-physical (change within the setting of a heritage asset), the activity is included within the assessment period in which the activity concludes. If any instances are identified where changes within the setting of a heritage asset would be substantially different (and more harmful to the significance of that asset) during construction than during the subsequent phases, details are provided below. The indicative sequencing of the Project is described in **ES Chapter 5: Project Design** (Doc Ref. 5.1).
- 7.9.2 In each case the assessment takes account of mitigation that has been incorporated into the Project design, ie the stated effects are those that would occur with the designed-in mitigation in place.
- 7.9.3 Information regarding the construction lighting is presented within Section 6.5 of the CoCP (**ES Appendix 5.3.2** (Doc Ref. 5.3)). This includes a description of the measures that would be taken to mitigate light obstruction during construction. Where it is considered that construction lighting could result in adverse impacts on any heritage asset, this is discussed below with regard to the construction of specific elements of the Project as appropriate.

### Initial Construction Period: 2024-2029

- 7.9.4 This section describes the effects on the historic environment that would arise as a result of construction activities only during the initial construction period prior to the opening of the altered northern runway. Key effects are summarised in table format in the summary section at the end of the chapter (see Table 7.13.1).
- 7.9.5 Construction activities have the potential to impact directly on buried archaeological remains. Such impacts could occur during site clearance, groundworks or other construction activities that require ground disturbance.

### Contractor Compounds

- 7.9.6 A number of locations within the Project site boundary have been identified as areas where contractor compounds are likely to be established. These are described in **ES Chapter 5: Project Design** (Doc Ref. 5.1) and shown on **ES Figure 5.2.1f: Construction Compounds** (Doc Ref. 5.2).

#### Main Contractor Compound

- 7.9.7 The main contractor compound would be in the south eastern part of the operational airport. It is within an identified zone of low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)); the current nature of the area is concrete hardstanding used for parking, but formerly there were substantial hangars and other buildings here and the hardstanding was designed for the movement of planes. As a consequence, any archaeological remains that may have been present here are likely to have been heavily impacted and would now be in a highly degraded state. The magnitude of impact of establishing the contractor compound on buried archaeological remains would be negligible and the area is of negligible sensitivity or value. The consequent significance of effect would be **negligible**, which is not significant in terms of the EIA Regulations.

#### Car Park Z Contractor Compound

- 7.9.8 This contractor compound would also be in the south eastern part of the operational airport. It is within an identified zone of low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)); the current nature of the area is concrete hardstanding used for parking, but formerly there were substantial hangars and other buildings here and the hardstanding was designed for the movement of planes. As a consequence, any archaeological remains that may have been present here are likely to have been heavily impacted and would now be in a highly degraded state. The magnitude of impact of establishing the contractor compound on buried archaeological remains would be negligible and the area is of negligible sensitivity or value. The consequent significance of effect would be **negligible**, which is not significant in terms of the EIA Regulations.

#### Airfield Satellite Contractor Compound

- 7.9.9 The land proposed for the airfield satellite compound has been previously subject to archaeological investigation (as part of the Gatwick North West Zone), which established an absence of buried archaeological remains, and the eastern half of this area has recently been used as a contractor compound during construction of the Boeing hangar. The magnitude of impact of establishing the contractor compound on buried archaeological remains would be negligible and the area is of negligible sensitivity or value. The consequent significance of effect would be **negligible**, which is not significant in terms of the EIA Regulations.

#### Surface Access Satellite Contractor Compound, South Terminal

- 7.9.10 The land proposed for this contractor compound is located to the north of the South Terminal roundabout at the junction of the M23 motorway spur and the A23 road, east of the Brighton-London mainline railway. This land has not been previously developed.
- 7.9.11 Geophysical survey and trial trenching carried out for the Project found that the land here does not contain any features or deposits of archaeological importance (see Figure 6.3.11b in **Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). As a consequence this is now within an identified zone of low archaeological potential (Figure 7.6.5). The magnitude of impact of establishing the contractor compound on buried archaeological remains would be negligible and the area is of negligible sensitivity or value. The consequent significance of effect would be **negligible**, which is not significant in terms of the EIA Regulations.

#### Car Park Y Contractor Compound

- 7.9.12 This contractor compound would be established within land currently used as a surface car park adjacent to the Premier Inn which is north west of the North Terminal roundabout on the A23 Airport Way. It is within an identified zone of low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)) on the basis of previous development activity leading to the establishment of the current surface car park. As a consequence, any archaeological remains that may have been present here are likely to have been heavily impacted and would now be in a highly degraded state. The magnitude of impact of establishing the contractor compound on buried archaeological remains would be negligible and the area is of negligible sensitivity or value. The consequent significance of effect would be **negligible**, which is not significant in terms of the EIA Regulations.

#### Longbridge Roundabout Contractor Compound

- 7.9.13 The land proposed for this contractor compound is located to the north of Longbridge roundabout, between the A23 Brighton Road and the A217, bounded to the east by the River Mole. This land has not been previously developed and the eastern part of the land required for the compound falls within the Church Road (Horley) Conservation Area. Just to the north is a Surrey CSAI which represents a small moated site, possibly the remains of a medieval manor house. An area around this CSAI has been designated as an ANA. This ANA, and the CSAI, are just outside the Project site boundary.
- 7.9.14 A programme of trial trenching carried out for the Project found that the land here does not contain any features or deposits of archaeological importance (see Figure 6.3.12 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3.)). As a consequence this is now within an identified zone of low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)). The magnitude of impact of establishing the contractor compound on buried archaeological remains would be negligible and the area is of negligible sensitivity or value. The consequent significance of effect would be **negligible**, which is not significant in terms of the EIA Regulations.

#### Flood Compensation Area - Museum Field

- 7.9.15 The Project design includes several locations where changes to the existing surface water drainage strategy are proposed (see **ES Chapter 5: Project Description** (Doc Ref. 5.1)). One such area is located in the western part of the Project site on land known as Museum Field. The ground level within this field would be reduced by up to 2.6 metres and the drainage configured

such that water could flow into here from the River Mole and then later drain back to the river under gravity.

- 7.9.16 Geophysical survey carried out here with regard to the Project identified several anomalies of potential archaeological interest (see Figure 6.3.10a in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). These included a possible sub-rectangular enclosure at the eastern edge of the field and extending beyond the survey area. The linear feature forming the west side of the enclosure was well-defined, and in the northern part it was mirrored by a parallel feature. This may represent a livestock drove or funnel along the northern side of the enclosure. Another possible enclosure was suggested by a shorter linear anomaly to the south west.
- 7.9.17 The subsequent programme of archaeological trial trenches included examination of this location (see Figure 6.3.10b in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). The presence of the potential enclosures in the eastern part of Museum Field was confirmed, although no date could be established. Just to the north of the possible livestock drove, the trial trenching found an urned cremation burial of probable Late Iron Age or Roman date. No features of archaeological interest were present within the western or northern parts of Museum Field; this is reflected in the identified zones of high and low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)).
- 7.9.18 If the features represent enclosures of prehistoric or Roman date (as suggested by their form and by the date of the nearby urned cremation burial), then these are likely to be of low to medium sensitivity or value. Ground reduction to create a flood compensation area would result in a high magnitude of impact on archaeological remains and would be permanent. The consequent significance of effect would be up to **major adverse**, which is significant in terms of the EIA Regulations. An appropriate programme of archaeological investigation would be undertaken ahead of construction in order to further define and offset the effect.
- 7.9.19 The lowering of land within Museum Field to create a flood compensation area would not affect the significance of any heritage asset as a result of change within its setting. This is due to the nature of the works and the distance from any assets. The magnitude of impact and significance of effect would therefore be **no change**.
- 7.9.20 The establishment of the flood compensation area at Museum Field would result in a change to the character of the historic landscape in this area. This is recorded in the Sussex Historic Landscape Characterisation (HLC) as Character Type 'Assarts' (see Figure 4.1.5 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). This Type is relatively common in Sussex, but less common in the vicinity of Gatwick due to the amount of development in the area (including the airport). The flood compensation area would occupy part of a larger block of this Type which extends north. The historic landscape character is considered to be of low sensitivity or value, and the establishment of the flood compensation area would represent a negligible magnitude of impact as the field boundaries would remain intact. The consequent significance of effect has been assessed as **negligible**, which is not significant in EIA terms.

#### **Flood Compensation Area – Car Park X**

- 7.9.21 The implementation of the flood compensation area at Car Park X would require reductions in ground levels by up to 2 metres below the existing surface level. Previous disturbance associated with the construction of Car Park X is likely to have removed any buried archaeological remains

that may have been present here and this is regarded as an area of low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)). However, there is some potential at the western end of Car Park X for the presence of palaeochannels associated with former routes of the River Mole, and deposits of geoarchaeological and/or palaeoenvironmental interest may survive. If present, such deposits are likely to be of low sensitivity or value. The ground reduction could result in a high magnitude of impact and would be permanent. The consequent significance of effect would be up to **moderate adverse**, which is significant in terms of the EIA Regulations. An appropriate programme of investigation would be undertaken during construction in order to further define and offset the effect.

- 7.9.22 The lowering of land within Car Park X would not affect the significance of any heritage asset as a result of change within its setting. This is due to the nature of the works and the distance from any assets. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Water Storage Area - Car Park Y**

- 7.9.23 A water storage facility would be established on land currently used as a surface car park (Car Park Y) which is adjacent to the Gatwick Premier Inn and which has been present for more than 20 years. This would require excavation up to a maximum depth of 10 metres. Previous disturbance associated with the construction of the hardstanding for Car Park Y is likely to have removed any buried archaeological remains that may have been present here and this is regarded as an area of low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)). It is therefore unlikely that the establishment of this storage facility would impact on buried archaeological remains, nor would it affect the significance of any heritage asset as a result of change within its setting. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Removal of Pond A and creation of new section of River Mole valley**

- 7.9.24 The area required for the relocation of Pond A and the River Mole diversion overlaps slightly with the land proposed for the airfield satellite compound. This land has been previously subject to archaeological investigation (as part of the Gatwick North West Zone), which established an absence of buried archaeological remains. However, there is an identified higher level of potential for the presence of palaeochannels associated with the former alignment of the River Mole, as these could be at a level lower than that which was investigated by the previous archaeological work here (**ES Figure 7.6.5** (Doc Ref. 5.2)). If palaeochannels are present, they would be of up to medium sensitivity or value. The impact of relocating Pond A and constructing the River Mole diversion (including the secondary channel) would result in an impact magnitude of up to low, as the works would not require much excavation, and the consequent significance of effect would be **minor adverse**. This is not significant in terms of the EIA Regulations.
- 7.9.25 The relocation of Pond A and the construction and use of the River Mole Diversion (including the secondary channel) would not affect the significance of any heritage asset as a result of change within its setting. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Water Treatment Works**

- 7.9.26 A small water treatment works is proposed at a location immediately south east of the existing Crawley Sewage Treatment Works operated by Thames Water. This would require some excavation, up to a maximum depth of 3 metres. Previous archaeological work in the vicinity



associated with the construction of the Pollution Control Lagoon and the Flood Storage (Control) Reservoir found evidence for activity of later prehistoric date (see **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3) for further details). Geophysical surveys and trial trenching undertaken for the Project found some further evidence, but no work has been undertaken at the precise location of the proposed water treatment works (see Figure 6.3.13 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)).

- 7.9.27 If archaeological remains of later prehistoric date are present at the proposed location of the water treatment works, then these are likely to be of low to medium sensitivity or value. Construction works may result in a high magnitude of impact on archaeological remains and would be permanent. The consequent significance of effect would be up to **major adverse**, which is significant in terms of the EIA Regulations. An appropriate programme of archaeological investigation would be undertaken ahead of construction in order to further define and offset the effect.

#### **Noise bund and wall**

- 7.9.28 A bund is currently present at the western end of the airfield which attenuates ground noise (from taxiing aircraft). This will be re-provided as a new bund and wall (**ES Figure 5.2.1g** (Doc Ref. 5.2)). The western section of bund and wall will be up to 8 metres high, with the eastern section up to 10 m high.
- 7.9.29 Much of the land in this area has been impacted by the construction of the existing noise bund and other modern airport development activities, although some small areas may remain relatively undisturbed. Consequently, this land is within identified zones of low or medium archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)). If archaeological remains are present, they would be very limited in spatial extent and of low sensitivity or value. The impact of constructing the new noise bund and wall would result in an impact magnitude of up to high, and the consequent significance of effect has been assessed as **minor adverse**. This is not significant in terms of the EIA Regulations.
- 7.9.30 The construction and use of the noise bund and wall would not affect the significance of any heritage asset as a result of change within its setting. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Spoil Placement - Pentagon Field**

- 7.9.31 The spoil strategy for the Project envisages the placement of approximately 100,000 cubic metres of spoil at Pentagon Field, raising the ground here by up to 4.4 metres above existing levels. Placement of the spoil requires removal of topsoil but no further excavation. Following the placement and consolidation of the spoil, the land will be restored to improve ecological habitat and biodiversity. A 15 metre wide belt of trees will be planted along the eastern edge of the field, adjacent to Balcombe Road, and there would be further planting along the northern edge and within the field to the south (**ES Appendix 8.8.1: Outline Landscape and Environmental Management Plan** (Doc Ref. 5.3)).
- 7.9.32 Geophysical survey and trial trenching carried out at Pentagon Field with regard to the Project did not identify any features or deposits of archaeological interest (**ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)), despite this land being located immediately east of a designated ANA. The magnitude of impact of the spoil placement on buried archaeological

remains would be negligible and the area is of negligible sensitivity or value. The consequent significance of effect would be **negligible**, which is not significant in terms of the EIA Regulations.

7.9.33 The placement of spoil and subsequent landscaping work at Pentagon Field would not affect the significance of any heritage asset as a result of change within its setting. The magnitude of impact and significance of effect would therefore be no change.

7.9.34 The placement of spoil and subsequent landscaping work at Pentagon Field would not result in any change to the character of the historic landscape in this area, which is recorded in the Sussex Historic Landscape Characterisation (HLC) as Character Type 'Assarts' (see Figure 4.1.5 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). The magnitude of impact and significance of effect would therefore be **no change**.

#### **Works on the Northern Runway, Taxiways, Aircraft Stands, Virgin Hangar Pavement Works, Relocation of Rendezvous Point North, Pumping Stations 2a and 7a**

7.9.35 All of these works are within the operational airport and in areas that are likely to have been disturbed as a result of previous airfield-related works such as the establishment of existing runways and taxiways and the installation of buried services. As a consequence, any archaeological remains that may have been present here are likely to have been heavily impacted and would now be in a highly degraded state. All of this land is within an identified zone of low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)). The magnitude of impact of these works on buried archaeological remains would be negligible and the area is of negligible sensitivity or value. The consequent significance of effect would be **negligible**, which is not significant in terms of the EIA Regulations.

7.9.36 These works would not affect the significance of any heritage asset as a result of change within its setting. The magnitude of impact and significance of effect would therefore be no change.

#### **Relocation of Fire Training Ground**

7.9.37 The fire training ground is within the western end of the operational airport. It would need to be relocated very slightly to the north and reorganised, but would still remain within land that has been previously disturbed as a result of the establishment of the present fire training ground. As a consequence, any archaeological remains that may have been present here are likely to have been heavily impacted and would now be in a highly degraded state. All of this land is within an identified zone of low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)). The magnitude of impact of the relocation of the fire training ground on buried archaeological remains would be negligible and the area is of negligible sensitivity or value. The consequent significance of effect would be **negligible**, which is not significant in terms of the EIA Regulations.

7.9.38 The relocation of the fire training ground would not affect the significance of any heritage asset as a result of change within its setting. This is due to the nature of the works and the distance from any assets. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Decked Car Park X**

7.9.39 The proposed decked section in the eastern part of Car Park X would be up to 11 metres high. However, this decked car park would not be visible in views from or across the Grade II\* listed Charlwood House to the south (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 23). This is due to the mature vegetation along each side of Charlwood Road in this area, particularly on the south side

adjacent to the listed building. The effectiveness of this vegetation screening is shown in a visualisation prepared for the Landscape and Visual Assessment of the Project and presented as **ES Figure 8.9.101** (Doc Ref. 5.2) and **ES Figure 8.9.104** (Doc Ref. 5.2) (Viewpoint 26).

7.9.40 The sensitivity or value of this Grade II\* listed building is high. The impact of the construction and operation of the decked car park on the significance of this asset would be no change and the consequent significance of effect would be **no change**. The same assessment applies to a number of Grade II listed buildings located to the south of Charlwood House (**ES Figure 7.6.2** (Doc Ref. 5.2), Sites 388, 156, 296 and 334), except that for these assets their sensitivity or value is medium rather than high.

7.9.41 The construction of the decked section in the eastern part of Car Park X would not impact on buried archaeological remains, as this issue would have already been addressed through the programme of works associated with the excavations here to establish the flood compensation area (see above paragraph 7.9.21).

#### **Multi-Storey Car Park J**

7.9.42 This element of the Project would be up to 27 metres high, however it would be consistent with the current massing of the airport infrastructure. The construction and operation of the multi-storey Car Park J would not affect the significance of any heritage asset as a result of change within its setting. The location is almost wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be no change.

#### **South Terminal IDL Extension and Forecourt**

7.9.43 This element of the Project would be up to 27 metres high, however it would be consistent with the current massing of the airport infrastructure. The construction and operation of the South Terminal IDL extension and changes to the forecourt would not affect the significance of any heritage asset as a result of change within its setting. The location is almost wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.

#### **North Terminal IDL Extension and Forecourt**

7.9.44 This element of the Project would be up to 27.5 metres high. The construction and operation of the extension to the North Terminal and changes to the forecourt would not affect the significance of any heritage asset as a result of change within its setting. The location is almost wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Airfield Surface Transport and Grounds Maintenance Facility**

7.9.45 This element of the Project would be up to 15 metres high. The construction and operation of the Airfield Surface Transport and Grounds Maintenance Facility would not affect the significance of any heritage asset as a result of change within its setting. The location is wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.

### **New South Terminal hotel at the car rental facility**

- 7.9.46 This element of the Project would be up to 16.3 metres high, however it would be consistent with the current massing of the airport infrastructure. The construction and operation of the new hotel at the car rental facility would not affect the significance of any heritage asset as a result of change within its setting. The location is almost wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.

### **South Terminal Hotel at Car Park H**

- 7.9.47 This element of the Project would be up to 27 metres high, however it would be consistent with the current massing of the airport infrastructure. It may be visible in views from or across the two Grade II listed buildings to the east which now form part of the Courtyard Marriot Hotel (Edgeworth House and Wing House; **ES Figure 7.6.2** (Doc Ref. 5.2), Sites 133 and 134), although the main part of the existing hotel lies directly between the listed buildings and this element of the Project. These assets are of medium sensitivity or value. The setting of these designated heritage assets already includes modern buildings (such as the main Courtyard Marriot Hotel building) as well as large areas of surface car parking. The impact of the construction and operation of the hotel on the significance of these two listed buildings would be no change. The consequent significance of effect would be **no change**.
- 7.9.48 The location is wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect on buried archaeology would therefore be **no change**.

### **South Terminal Hotel adjacent to Multi-Story Car Park 3**

- 7.9.49 This element of the Project would be up to 27 metres high, however it would be consistent with the current massing of the airport infrastructure. The construction and operation of the new hotel adjacent to multi-storey car park 3 would not affect the significance of any heritage asset as a result of change within its setting. The location is almost wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect on buried archaeology would therefore be **no change**.

### **Demolition**

- 7.9.50 A limited programme of demolition is required as part of the Project; buildings proposed for demolition are identified in **ES Chapter 5: Project Description** (Doc Ref. 5.1) and are indicated on **ES Figure 5.2.1h** (Doc Ref. 5.2). The only one of these which is considered to have any level of heritage value is the former air traffic control tower located at the northern end of Control Tower Road within the operational airport. This was built as part of the 1956-58 expansion of Gatwick Airport and was in use until a replacement tower was opened in 1984.
- 7.9.51 The former air traffic control tower is not a designated heritage asset, or a locally listed building. However, it is of some interest and a low sensitivity or value should be applied. The demolition would result in a high magnitude of impact (permanent) and the consequent significance of effect has been assessed as **minor adverse**, which is not significant in EIA terms. This effect would be offset through a programme of building recording to an appropriate level which would be undertaken ahead of demolition.

### **Environmental Mitigation Land – Museum Field**

- 7.9.52 Several parcels of land have been identified within the Project site boundary where environmental mitigation is proposed. This includes Museum Field and the land to the north as far as Charlwood Road (**ES Figure 5.2.1g** (Doc Ref. 5.2)).
- 7.9.53 Most of the proposed environmental mitigation land at Museum Field has been subject to archaeological geophysical survey and trial trenching in connection with the Project (see Figures 6.3.10a and 6.3.10b in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). This work has identified the presence of archaeological features in several locations. In addition to the possible enclosures and cremation burial described above with regard to the flood compensation area at Museum Field (above, paragraph 7.9.17), features included several undated hearth pits and an area of medieval ironworking activity.
- 7.9.54 This area of environmental mitigation land falls within zones of medium or high archaeological potential, also with some potential for palaeochannels in the vicinity of Man's Brook (**ES Figure 7.6.5** (Doc Ref. 5.2)). Any archaeological remains here would be of up to medium sensitivity or value (based on current understanding). The impact of the proposed environmental mitigation could be of up to high magnitude and the consequent significance of effect would be up to **major adverse**, which is significant in terms of the EIA Regulations. The detailed design of the environmental mitigation will take account of the presence of buried archaeological remains, such that the magnitude of impact should be reduced to negligible. The consequent significance of effect would be up to **minor adverse** (high sensitivity remains), which is not significant in terms of the EIA Regulations. If the appropriate mitigation through design is not possible, a programme of further archaeological investigation would be undertaken in order to offset the adverse effect.
- 7.9.55 The establishment of the environmental mitigation land at Museum Field and the land to the north as far as Charlwood Road would not affect the significance of any heritage asset as a result of change within its setting.
- 7.9.56 The establishment of the environmental mitigation land at Museum Field and the land to the north as far as Charlwood Road would result in a change to the character of the historic landscape in this area. This is recorded in the Sussex Historic Landscape Characterisation (HLC) as Character Type 'Assarts' (see Figure 4.1.4 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). This Type is relatively common in Sussex, but less common in the vicinity of Gatwick due to the amount of development in the area (including the airport). The environmental mitigation land comprises most of a single block of this Type. The historic landscape character is considered to be of low sensitivity or value, and the establishment of the environmental mitigation land would represent a negligible magnitude of impact as the field boundaries would remain intact. The consequent significance of effect has been assessed as **negligible**, which is not significant in EIA terms.

### **Air Noise**

- 7.9.57 No air noise would be generated by the Project during this assessment period as the realigned northern runway would not be operational.

### **Construction Noise**

- 7.9.58 **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1) addresses the issue of construction noise. Initial modelling has been undertaken and the results are presented in **ES Appendix 14.9.1**

**Construction Noise Modelling** (Doc Ref. 5.3). However, it is important to note that this assessment is worst case, based on a series of cautious assumptions, in order to provide an indication of the potential scale of adverse effects at this stage. Construction would be undertaken in accordance with the CoCP (**ES Appendix 5.3.2** (Doc Ref. 5.3)) which sets out the key management measures for controlling construction noise.

- 7.9.59 As described above in paragraphs 7.6.39 – 7.6.40, Section 5.4 of **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3) explains the methodology used to produce the baseline for the assessment of impacts and effects on heritage assets arising from changes in air noise. The methodology is derived from a research report produced on behalf of English Heritage (Temple Group and Cotswold Archaeology, 2014) and includes the identification of four categories of ‘noise-sensitive’ heritage assets. Although this methodology has been specifically developed for examination of impacts and effects arising from changes in air noise, the same four categories of ‘noise-sensitive’ heritage assets would equally apply to any other source of noise such as construction noise.
- 7.9.60 Predicted construction noise has been modelled for 12 receptor groups, with the locations of each group identified on **ES Figure 14.4.2** (Doc Ref. 5.2). ‘Noise-sensitive’ heritage assets in the form of places of worship are present within receptor groups 1 (Outer Charlwood), 2 (Charlwood), 6 (Horley) and 9 (Lowfield Heath), whilst a windmill located within receptor group 1 (Outer Charlwood) is also classed as a ‘noise-sensitive’ heritage asset.
- 7.9.61 The ‘noise-sensitive’ heritage assets within receptor groups 1 (Outer Charlwood) and 2 (Charlwood) would not experience adverse effects as a result of construction noise. There is potential for adverse effects with regard to the Grade I listed Church of St Bartholomew at Horley (receptor group 6) and the Grade II\* listed Church of St Michael and All Saints at Lowfield Heath (receptor group 9). Both of these are heritage assets of high sensitivity or value and the magnitude of impact has been assessed as low, with the consequent significance of effect being assessed as **minor adverse**, which is not significant in EIA terms.

### **Ground Noise**

- 7.9.62 No ground noise would be generated by the Project during this assessment period as the realigned northern runway would not be operational.

### **Road Traffic Noise**

- 7.9.63 **Chapter 14: Noise and Vibration** addresses the issue of road traffic noise. Modelling of construction traffic noise during peak airfield and peak highways work has been undertaken and this is reported on in Section 14.9 of **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1), with further details in **ES Appendix 14.9.4: Road Traffic Noise Modelling** (Doc Ref. 5.3).
- 7.9.64 For both peak airfield construction scenario and peak highways construction scenario, no significant traffic noise effects were identified during daytime or night-time. Consequently, no heritage assets would experience impacts as a result of changes in road traffic noise.

### **Further Mitigation**

- 7.9.65 No further mitigation is proposed. Additional archaeological investigation will be undertaken at selected locations within Museum Field and possibly within the surrounding land required for environmental mitigation, also potentially some investigations at Car Park X ahead of bulk

excavation for water storage at this location. For each area the need for, and/or nature of, any additional archaeological investigation will depend on the detailed design of the works at that location. In all cases this would be part of the process of 'offsetting' harm rather than avoiding or reducing impacts.

### **Future Monitoring**

- 7.9.66 No future monitoring is proposed with regard to any effects on the historic environment during construction.

## **2030-2032 Ongoing construction works and first years of operation of the Northern Runway**

### **Central Area Recycling Enclosure (CARE) Facility**

- 7.9.67 The existing CARE facility would need to be replaced as part of the Project. The relocated CARE facility would process all airport waste and would include buildings up to 22 metres high and a flue up to 48 metres high. This would be within the operational airport at a location formerly used as a surface car park. The archaeological potential for this location is considered to be low as a result of the previous works required to establish the surface car park (**ES Figure 7.6.5** (Doc Ref. 5.2)), and any archaeological remains here would be of negligible sensitivity or value. The impact of the construction of the proposed CARE facility could be of up to high magnitude and the consequent significance of effect would be **minor adverse**, which is not significant in terms of the EIA Regulations.
- 7.9.68 Examination has been undertaken of the potential visibility of the flue at the proposed CARE facility in views from and across designated heritage assets, in particular the Grade II\* listed Charlwood Park Farmhouse (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 27) and the listed buildings and Conservation Area at Charlwood.
- 7.9.69 The Grade II\* listed Charlwood Park Farmhouse is located just outside the Project site boundary, close to the perimeter of the operational airport, and is currently used as a nursery for children aged 1-5. A well-vegetated garden area extends around the western, northern and eastern sides of the former farmhouse, beyond which is modern surface car parking for the airport. To the south is an area of landscape planting adjacent to the realigned River Mole, with the Sussex Border Path running alongside the river and passing to the south and east of the farmhouse. Further to the east is the perimeter bund of the airport, beyond which is further long-term parking. The bund is well-vegetated and provides visual screening of the airport as well as ground noise attenuation. The current setting of the Grade II\* listed Charlwood Park Farmhouse makes a limited contribution to its significance, with detracting elements including the surface car park areas to the immediate west, north and east as well as the noise and air quality impacts from the operational airport.
- 7.9.70 A visualisation prepared for the Landscape and Visual Assessment of the Project and presented as **ES Figure 8.9.109** (Viewpoint 28) (Doc Ref. 5.2) shows the extent of visibility of the flue at the proposed CARE facility in views from a location to the north of Povey Cross. The Grade II\* listed Charlwood Park Farmhouse is not visible in this image, but it is located within the trees at the very right-hand edge of the image. Another visualisation (**ES Figure 8.9.17**, Viewpoint 5 winter (Doc Ref. 5.2)) shows the view looking south-west across the realigned River Mole towards the airport perimeter bund. The Grade II\* listed Charlwood Park Farmhouse is located to the right of

the image, which shows how the flue at the proposed CARE facility is hidden behind the existing belt of vegetation on the perimeter bund. No locations have been found from which views towards the Grade II\* listed Charlwood Park Farmhouse would include the flue at the proposed CARE facility, nor would the flue be visible in views from the listed building (including views from the first floor).

7.9.71 A visualisation prepared for the Landscape and Visual Assessment of the Project and presented as **ES Figure 8.9.89** (Viewpoint 29) (Doc Ref. 5.2) shows the extent of visibility of the flue at the proposed CARE facility in views from the north east of Charlwood. This indicates the size of the flue is views from this distance. No locations have been found within the Conservation Area at Charlwood or adjacent to any listed buildings at Charlwood from which the flue at the proposed CARE facility would be visible. **ES Figure 7.6.4** (Doc Ref. 5.2) shows how the listed buildings at Charlwood are actually outside the ZTV as a result of vegetation and/or built development.

7.9.72 The construction and operation of the proposed CARE facility would not affect the significance of any heritage asset as a result of change within its setting. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Satellite Airport Fire Service Facility**

7.9.73 This element of the Project would be up to 15 metres high. The construction and operation of the Satellite Airport Fire Service Facility would not affect the significance of any heritage asset as a result of change within its setting. The location is likely to be within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Replacement Motor Transport Facility**

7.9.74 This element of the Project would be up to 15 metres high. The construction and operation of the Replacement Motor Transport Facility would not affect the significance of any heritage asset as a result of change within its setting. The location is wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.

#### **North Terminal Baggage Hall Extension**

7.9.75 This element of the Project would be up to 12.5 metres high. The construction and operation of the North Terminal baggage hall extension would not affect the significance of any heritage asset as a result of change within its setting. The location is almost wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.

#### **North Terminal Baggage Reclaim Extension**

7.9.76 This element of the Project would be up to 7 metres high. The construction and operation of the North Terminal baggage reclaim extension would not affect the significance of any heritage asset as a result of change within its setting. The location is almost wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.



### **South Terminal new office building at Car Park H**

- 7.9.77 This element of the Project would be up to 27 metres high. It may be visible in views from or across the two Grade II listed buildings to the east which now form part of the Courtyard Marriot Hotel (Edgeworth House and Wing House; **ES Figure 7.6.2** (Doc Ref. 5.2), Sites 133 and 134), although the main part of the existing hotel lies directly between the listed buildings and this element of the Project. These assets are of medium sensitivity or value. The setting of these designated heritage assets already includes modern buildings (such as the main Courtyard Marriot Hotel building) as well as large areas of surface car parking. The impact of the construction and operation of the new office building at Car Park H on the significance of these two listed buildings would be no change. The consequent significance of effect would be **no change**.
- 7.9.78 The construction and operation of the new office building at Car Park H would not affect the significance of any heritage asset as a result of change within its setting. The location is almost wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect on buried archaeology would therefore be **no change**.

### **Multi-Storey Car Park H**

- 7.9.79 This element of the Project would be up to 27 metres high, however it would be consistent with the current massing of the airport infrastructure. It may be visible in views from or across the two Grade II listed buildings to the east which now form part of the Courtyard Marriot Hotel (Edgeworth House and Wing House; **ES Figure 7.6.2** (Doc Ref. 5.2), Sites 133 and 134), although the main part of the existing hotel lies directly between the listed buildings and this element of the Project. These assets are of medium sensitivity or value. The setting of these designated heritage assets already includes modern buildings (such as the main Courtyard Marriot Hotel building) as well as large areas of surface car parking. The impact of the construction and operation of the multi-storey car park on the significance of these two listed buildings would be no change. The consequent significance of effect would be **no change**.

### **Decked Car Park North Terminal Long Stay**

- 7.9.80 The new decked car park at North Terminal Long Stay would be up to 11 metres high. The location is within 150 metres of the Grade II\* listed Charlwood Park Farmhouse (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 27), now operating as a nursery school (Bear and Bunny). The building is of high sensitivity or value. The current setting of the former farmhouse makes a limited contribution to its significance, with detracting elements including the surface car park areas to the west, north and east as well as the noise and visual impacts from the operational airport.
- 7.9.81 No part of the decked car park would be visible in views from and across Charlwood Park Farmhouse, therefore the magnitude of impact would be no change. The significance of effect on the significance of this Grade II\* listed building would be **no change**.
- 7.9.82 The location is wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect on buried archaeology would therefore be **no change**.

### **Water Treatment Works**

- 7.9.83 A small water treatment works is proposed at a location immediately south east of the existing Crawley Sewage Treatment Works operated by Thames Water. Structures here would be up to 8 metres high. The construction and operation of the water treatment works would not affect the significance of any heritage asset as a result of change within its setting.

### **Surface Access: South Terminal Roundabout Improvements**

- 7.9.84 The principal element of these improvements comprises the construction of a flyover to carry the M23 Spur/A23 Airport Way over the existing roundabout. This structure would be approximately 130 metres long and up to 8 metres above existing ground level. The M23 Spur would be raised by around 2.2 m as it passes over the B2036 Balcombe Road and this overbridge would need to be replaced or strengthened. The road would also be widened to accommodate new slip roads providing access to and from a new roundabout arm linking into the land to the north. A noise barrier approximately 600 metres in length and up to 1 metre high would be constructed along the elevated section of highway.
- 7.9.85 The construction and operation of the South Terminal Roundabout Improvements would not affect the significance of any heritage asset as a result of change within its setting. The location of the improvements is almost wholly within previously developed land and there would be no impact on buried archaeological remains. Some land required for the improvements to the north of the South Terminal Roundabout and the M23 Spur/A27 Airport Way has not been previously developed, but archaeological geophysical surveys and trial trenching undertaken for the Project have established that no significant buried archaeological remains are present here (Figure 6.3.11b in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). The magnitude of impact and significance of effect would therefore be **no change**.

### **Surface Access: North Terminal Roundabout Improvements**

- 7.9.86 The principal element of these improvements comprises the construction of an elevated flyover to carry the A23 Airport Way over the existing roundabout. This structure would be approximately 45 metres long and up to 8 metres above existing ground level. The works at the North Terminal Junction would include the provision of one noise barrier. This would be approximately 800 metres in length and up to 1 metre in height and would be located along the elevated section of highway carrying the westbound link from Airport Way to the A23 London Road.
- 7.9.87 The construction and operation of the North Terminal Roundabout Improvements would not affect the significance of any heritage asset as a result of change within its setting. The location of the improvements is almost wholly within previously developed land and there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.

### **Longbridge Roundabout Contractor Compound**

- 7.9.88 The establishment and use of the contractor compound to the north of the Longbridge roundabout would represent a change within the setting of the Church Road (Horley) Conservation Area in respect of that part of the compound which is outside the Conservation Area. This western part of the Conservation Area includes land either side of the River Mole that is predominantly open, and indeed the western boundary of the Conservation Area is not actually represented on the ground by any physical feature. This openness is a key element in this part of the Conservation Area and

extends to its setting, which makes a strong contribution to its significance. However, the establishment and use of the contractor compound would not affect the eastern part of the Conservation Area which contains the historic settlement core including several of listed buildings. Section 6.5 of the CoCP (**ES Appendix 5.3.2** (Doc Ref. 5.3)) explains that there will be consideration of how to avoid light spill across land within the Conservation Area and east of the River Mole during the establishment and use of the contractor compound. The Conservation Area is of medium sensitivity or value and the establishment and use of the contractor compound would represent a low magnitude of impact that would be fully reversible. The consequent significance of effect would be **minor adverse**, which is not significant in EIA terms.

7.9.89 The establishment and use of the contractor compound to the north of the Longbridge roundabout would not affect the significance of any other heritage asset as a result of change within its setting. This is due to the nature of the works and the distance from the assets, also the presence of belts of mature trees between the proposed compound location and the listed buildings in the eastern part of the Conservation Area. The magnitude of impact and significance of effect would therefore be **no change**.

7.9.90 The establishment and use of the contractor compound to the north of the Longbridge roundabout would result in a change to the character of the historic landscape in this area. This is recorded in the Surrey Historic Landscape Characterisation (HLC) as Character Subtype 'Large regular fields with straight boundaries (parliamentary enclosure type)' (see Figure 4.1.5 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). This Subtype is relatively common in Surrey, but less common in the vicinity of Gatwick due to the amount of development in the area (including the airport). The contractor compound would occupy a small part of a larger block of this Subtype which extends to the north and north west. The historic landscape character is considered to be of low sensitivity or value, and the establishment and use of the contractor compound would represent a low magnitude of impact. The consequent significance of effect has been assessed as negligible, which is not significant in EIA terms.

### **Longbridge Roundabout Improvements**

7.9.91 The works here involve the establishment of a slightly larger diameter roundabout to allow full width running lanes through the junction. There would also be additional pedestrian crossing facilities and improved capacity on exit and entry lanes, along with any necessary highway drainage works to accommodate surface water run-off. These drainage works include the establishment of an attenuation pond on the western side of the River Mole, with a culverted outfall into the river.

7.9.92 The proposed location of the attenuation pond on the western side of the River Mole has been subject to archaeological investigation in the form of a trial trench (Figure 6.3.12 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)), and the proposed alignment of the culvert leading to the outfall was similarly examined. No features or deposits of archaeological interest were identified. The potential for archaeological remains to be present within this land to the west of the River Mole has been identified as low (**ES Figure 7.6.5** (Doc Ref. 5.2)). If present, archaeological remains are likely to be of negligible sensitivity of value. The magnitude of impact could be up to high and would be permanent. The consequent significance of effect could be up to **minor adverse**, which is not significant in EIA terms.

7.9.93 The highways improvements at Longbridge Roundabout will require the removal of some of the mature vegetation at the south-eastern edge of the Church Road (Horley) Conservation Area, as

well as vegetation within Longbridge Roundabout and within the north-western edge of Riverside Park. The removal of vegetation could open up views from the Conservation Area towards the airport in which structural elements currently screened from view become visible.

- 7.9.94 A visualisation prepared for the Landscape and Visual Assessment of the Project (**ES Chapter 8: Landscape, Townscape and Visual Resources** (Doc Ref. 5.1)) and presented as **ES Figure 8.9.79** (Viewpoint 21) (Doc Ref 5.2) shows the extent of visibility looking towards the airport from within the land east of the River Mole (this is known as Church Meadow, and is wholly within the Church Road (Horley) Conservation Area. The Texaco fuel station on the other side of the A23 Brighton Road is partially visible, as is the upper part of the Travelodge, which is immediately north of the airport, on the other side of Longbridge Roundabout. The lower image on this figure shows that one Project element (the proposed multi-storey Car Park Y) would be visible directly behind the Texaco fuel station in this view, with all other elements screened by the vegetation. However, the visualisation is a summer view, whilst the loss of some of the vegetation for the highways improvements could result in an increased view of existing as well as proposed elements.
- 7.9.95 Section 6.5 of the CoCP (**ES Appendix 5.3.2** (Doc Ref. 5.3)) explains that there will be consideration of how to avoid or minimise light spill across sensitive areas during construction. The Operational Lighting Framework (**ES Appendix 5.2.2** (Doc Ref. 5.3)) explains that there would be consideration of the proximity of the Conservation Area during the detailed design of the permanent lighting required for the highways improvements at Longbridge Roundabout.
- 7.9.96 The Church Road (Horley) Conservation Area is a heritage asset of medium sensitivity or value, and the magnitude of impact could be up to medium. In this event, the consequent significance of effect could be up to **moderate adverse**, which is significant in terms of the EIA Regulations. This would not be a permanent effect as the Project includes proposals for the planting of a thicker vegetation screen around this edge of the Conservation Area which would, over time, reduce and potentially eliminate the visibility of existing and proposed elements.
- 7.9.97 The construction and operation of the Longbridge Roundabout Improvements would not affect the significance of any other heritage asset as a result of change within its setting.

#### **Car Park Y Contractor Compound**

- 7.9.98 The establishment and use of the contractor compound at Car Park Y would not affect the significance of any heritage asset as a result of change within its setting. This is due to the nature of the works and the distance from any assets. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Surface Access Satellite Contractor Compound, South Terminal**

- 7.9.99 The establishment and use of the contractor compound to the north of the South Terminal roundabout would not affect the significance of any heritage asset as a result of change within its setting due to the nature of the works and the distance from the assets. The magnitude of impact and significance of effect would therefore be **no change**.
- 7.9.100 The establishment and use of the contractor compound to the north of the South Terminal roundabout would result in a change to the character of the historic landscape in this area. This is recorded in the Surrey Historic Landscape Characterisation (HLC) as Character Subtype 'Large regular fields with straight boundaries (parliamentary enclosure type)' (see Figure 4.1.5 in **ES**

**Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). This Subtype is relatively common in Surrey, but less common in the vicinity of Gatwick due to the amount of development in the area (including the airport). The contractor compound would occupy a small part of a larger block of this Subtype which extends north towards Horley. The historic landscape character is considered to be of low sensitivity or value, and the establishment and use of the contractor compound would represent a low magnitude of impact. The consequent significance of effect has been assessed as **negligible**, which is not significant in EIA terms.

#### **Car Park B Contractor Compound**

- 7.9.101 This contractor compound would be established within land currently used as a surface car park immediately west of the Brighton-London mainline railway and extending to both north and south of the A23 Airport Way.
- 7.9.102 The current surface car park area to the north of the A23 Airport Way (Car Park B) is an Area of High Archaeological Potential identified on the basis of antiquarian finds including prehistoric flintwork, Late Iron Age cremation burials, and Roman pottery and coins. These discoveries are likely to relate to the construction of the railway (which opened in 1841). This land within Car Park B north of the A23 Airport Way was subsequently heavily impacted during the construction of the bridge carrying the A23 Airport Way over the Brighton-London mainline railway, and further impacted by the establishment of the hardstanding and drainage for the car park and the construction of a small electrical substation. However, the possibility that some evidence of archaeological activity associated with the antiquarian finds of later prehistoric and Roman material may extend onto the area for the proposed contractor compound cannot be ruled out, and this remains as an identified area of high archaeological potential (Figure 7.6.5).
- 7.9.103 The land within that part of Car Park B to the south of the A23 Airport Way has also been impacted by modern development, principally the establishment of the hardstanding and drainage for the car park. This area has been identified as being of low archaeological potential (**ES Figure 7.6.5**, Doc Ref. 5.2)).
- 7.9.104 If present, archaeological remains similar to those recorded by the antiquarians (and probably relating to the construction of the railway) are likely to be of up to medium sensitivity or value. Depending on the nature of the works required for establishment of the contractor compound, the magnitude of impact could be up to high and could be permanent. In this event, the consequent significance of effect could be up to **major adverse**, which is significant in terms of the EIA Regulations.
- 7.9.105 A programme of archaeological investigation would be undertaken ahead of the establishment of the compound, with measures put in place to protect any buried archaeological remains such that the magnitude of impact would be reduced to negligible. The consequent significance of effect could be up to **minor adverse** (high sensitivity remains) or **negligible** (medium sensitivity remains), which is not significant in terms of the EIA Regulations. If the appropriate mitigation is not possible, a programme of further archaeological investigation would be undertaken in order to offset the adverse effect.
- 7.9.106 The establishment and use of the contractor compound at Car Park B would not affect the significance of any heritage asset as a result of change within its setting due to the nature of the works and the distance from the assets. The magnitude of impact and significance of effect would therefore be **no change**.

### **Environmental Mitigation Land – Longbridge Roundabout**

- 7.9.107 The environmental mitigation land here includes the field on the west side of the River Mole and immediately south east of Gatwick Dairy Farm, and the land on the east side of the River Mole which is also known as Church Meadow. The latter area is wholly within the Church Road (Horley) Conservation Area, as is the eastern part of the other field. There is currently public access within the whole of Church Meadow, with access points through the churchyard or directly from the footpath adjacent to the A23 Brighton Road, but no similar access exists with regard to the field on the west side of the river.
- 7.9.108 The environmental mitigation would comprise planting of trees and shrubs and placement of benches or other suitable features, along with a new footbridge over the river. Full public access would exist for the land on the west side of the river and the footbridge would provide an additional connection.
- 7.9.109 The land on the west side of the River Mole within the Project site boundary has been subject to archaeological evaluation by way of trial trenching (Figure 6.3.12 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). Despite the adjacent Surrey CSAI and ANA (based around a small moated site) no features or deposits of archaeological interest were identified. Archaeological remains may be present within Church Meadow and could be up to medium sensitivity or value. The magnitude of impact of establishing the environmental mitigation on buried archaeological remains would be negligible and the consequent significance of effect has been assessed as **negligible**, which is not significant in terms of the EIA Regulations.
- 7.9.110 The establishment and use of the environmental mitigation area at Longbridge Roundabout would slightly enhance the significance of the Church Road (Horley) Conservation Area. This would be a result of increased public access and the creation (on the west side of the river) of an area for informal recreational use, also through the provision of information boards on the west side of the River Mole here that will describe the historical features of the area. Additional planting along the south-eastern edge of the Conservation Area would also help over time in screening out views of buildings and other elements associated with the airport. The Conservation Area is of medium sensitivity or value and the magnitude of impact of the establishment and use of the environmental mitigation area would be up to low beneficial. The significance of effect is likely to be **minor beneficial**.
- 7.9.111 The establishment and use of the environmental mitigation area at Longbridge Roundabout would not affect the significance of any other heritage asset as a result of change within its setting.
- 7.9.112 The establishment and use of the environmental mitigation area at Longbridge Roundabout would result in a change to the character of the historic landscape in this area. This is recorded in the Surrey Historic Landscape Characterisation (HLC) as Character Subtype ‘Large regular fields with straight boundaries (parliamentary enclosure type)’ (see Figure 4.1.5 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). This Subtype is relatively common in Surrey, but less common in the vicinity of Gatwick due to the amount of development in the area (including the airport). The environmental mitigation area would occupy a small part of a larger block of this Subtype which extends to the north and north west. The historic landscape character is considered to be of low sensitivity or value, and the establishment and use of the environmental mitigation area would represent a low magnitude of impact. The consequent significance of effect has been assessed as **negligible**, which is not significant in EIA terms.

### Environmental Mitigation Land – Car Park B

- 7.9.113 The environmental mitigation area here includes land to both north and south of the A23 Airport Way. The environmental mitigation would comprise planting of trees and shrubs along with the establishment of new access routes.
- 7.9.114 The land north of the road is a designated Area of High Archaeological Potential (**ES Figure 7.6.1** (Doc Ref. 5.2), Site 498) relating to the antiquarian discovery of prehistoric flintwork, Late Iron Age cremation burials, and Roman pottery and coins. It is not known if any archaeological remains are present here given the extent of development work in the later part of the 20th century, but the potential for such remains to be present cannot be ruled out. If present, archaeological remains are likely to be of up to high sensitivity or value. Depending on the nature of the works required here, the magnitude of impact could be up to high and could be permanent. In this event, the consequent significance of effect could be up to **major adverse**, which is significant in terms of the EIA Regulations.
- 7.9.115 It may be possible for appropriate mitigation in the form of protective measures to be incorporated into the methodology for the establishment of the environmental mitigation, such that the magnitude of impact would be reduced to negligible. The consequent significance of effect could be up to **minor adverse** (high sensitivity remains) or **negligible** (medium sensitivity remains), which is not significant in terms of the EIA Regulations. If the appropriate mitigation is not possible, a programme of archaeological investigation would be undertaken in order to offset the adverse effect (unless this has already been undertaken in as part of the works required to establish the contractor compound at the same location).
- 7.9.116 The establishment and use of the environmental mitigation area at Car Park B would not affect the significance of any heritage asset as a result of change within its setting. The magnitude of impact and significance of effect would therefore be **no change**.

### Air Noise

- 7.9.117 As described above (paragraph 7.6.42), there are three noise-sensitive designated heritage assets within the predicted negative noise change footprint (the area where noise is expected to increase) and two noise-sensitive designated heritage assets within the predicted positive noise change footprint (the area where noise is expected to reduce).
- 7.9.118 **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1) addresses the issue of air noise and Table 4.3.1 in **ES Appendix 14.9.2: Air Noise Modelling** (Doc Ref. 5.3) presents noise information with regard to noise-sensitive buildings. For the Church of St John the Baptist at Capel (**ES Figure 7.6.6** (Doc Ref. 5.2) NHLE 1378150) the  $L_{eq\ 16\ hr}$  day noise level (in 2019) is 53.4dB. The predicted  $L_{eq\ 16\ hr}$  day noise level in 2032 without the Project (ie the Do Nothing scenario) is 51.4dB, indicating a reduction in air noise due to changes in aircraft fleet mix. The predicted  $L_{eq\ 16\ hr}$  day noise level in 2032 with the Project is 52.7dB, representing a decrease of 0.7dB when measured against the current situation and an increase of 1.3dB when measured against the 2032 baseline without the Project. This predicted increase of 1.3dB in the  $L_{eq\ 16\ hr}$  day noise level would not affect the significance of the Grade II listed Church of St John the Baptist at Capel, particularly given that, contextually, the air noise would be less than compared to the present situation. The significance of effect would be **no change**.

- 7.9.119 Specific results have not been reported with regard to the Grade II listed Quaker Meeting House with attached cottage at Capel (**ES Figure 7.6.6** (Doc Ref. 5.2), NHLE 1028737), however it lies within the 51-54dB  $L_{eq\ 16\ hr}$  contour range and it is assumed that noise levels (current and predicted) will be very similar to those for the nearby Church of St John the Baptist 300 metres to the north. Consequently, the assessment is the same for the Church of St. John the Baptist and hence changes in air noise would not affect the significance of the Grade II listed Quaker Meeting House with attached cottage at Capel. The significance of effect would be **no change**.
- 7.9.120 For the relocated Grade II listed Lowfield Heath Windmill south west of Charlwood (**ES Figure 7.6.6** (Doc Ref. 5.2), NHLE 1298883), Table 4.3.1 in **ES Appendix 14.9.2: Air Noise Modelling** (Doc Ref. 5.3) shows that the  $L_{eq\ 16\ hr}$  day noise level (in 2019) is 57.9dB. The predicted  $L_{eq\ 16\ hr}$  day noise level in 2032 without the Project (ie the Do Nothing scenario) is 55.7dB, indicating the reduction in air noise due to changes in aircraft fleet mix. The predicted  $L_{eq\ 16\ hr}$  day noise level in 2032 with the Project is 57.7dB, representing a decrease of 0.2dB when measured against the current situation and an increase of 2.0dB when measured against the 2032 baseline without the Project. This predicted increase of 2.0dB in the  $L_{eq\ 16\ hr}$  day noise level in 2032, over the otherwise baseline noise levels that would have been present in 2032, would be rated as 'low' and not a significant change in terms of the likely effects on people (as explained in Section 14.4 of **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1)) and would not affect the significance of the Grade II listed Lowfield Heath Windmill. Contextually, the air noise would be less than compared to the present situation. The significance of effect would be **no change**.
- 7.9.121 For the Grade II\* listed Church of St Michael and All Angels at Lowfield Heath (**ES Figure 7.6.6** (Doc Ref. 5.2), NHLE 1187081), Table 4.3.1 in **ES Appendix 14.9.2: Air Noise Modelling** (Doc Ref. 5.3) shows that the  $L_{eq\ 16\ hr}$  day noise level (in 2019) is 65.6dB. The predicted  $L_{eq\ 16\ hr}$  day noise level in 2032 without the Project (ie the Do Nothing scenario) is 63.7dB, indicating the reduction in air noise due to changes in aircraft fleet mix. The predicted  $L_{eq\ 16\ hr}$  day noise level in 2032 with the Project is 62.5dB, representing a decrease of 3.1dB when measured against the current situation and a decrease of 1.2dB when measured against the 2032 baseline without the Project. This predicted decrease of 3.1dB in the  $L_{eq\ 16\ hr}$  day noise level compared to the current situation is welcomed but would not affect the significance of effect on the Grade II\* listed Church of St Michael and All Angels at Lowfield Heath, as the noise environment here is dominated by traffic noise and also noise from the surrounding industrial units. The significance of effect would be **no change**.
- 7.9.122 No measurements have been produced with regard to the Grade II listed Lowfield Heath War Memorial (**ES Figure 7.6.6** (Doc Ref. 5.2), NHLE 1452793), but it is assumed that noise levels (current and predicted) will be very similar to those for the adjacent Church of St Michael and All Angels. Consequently, the changes in air noise would not affect the significance of the Grade II listed Lowfield Heath War Memorial. The significance of effect would be **no change**.

#### Slow fleet transition case

- 7.9.123 The air noise impacts and effects reported above are based on the 'central case', which is considered to be the most likely rate of fleet transition to quieter new generation aircraft. However, there is uncertainty around this, particularly at the current time due to the effect of the global pandemic and the financial impact on the airlines. Consequently, air noise modelling has also been undertaken for a 'slower transition fleet' case in which the rate of transition is delayed by about five years.



- 7.9.124 The results of this modelling are presented in **ES Appendix 14.9.2: Air Noise Modelling** (Doc Ref. 5.3). The noise changes due to the Project would be very similar to those for the 'central case', therefore the impacts and effects with regard to designated heritage assets would be the same as reported above.

### Construction Noise

- 7.9.125 Detailed assessment of the 2032 impacts and effects of construction noise on heritage assets is not necessary because the outcomes in all cases would be the same as, or less than, the 2024-2029 impacts and effects reported above at paragraph 7.9.61.

### Ground Noise

- 7.9.126 Predicted changes in ground noise resulting from the operation of the Project are presented in **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1). Ground noise includes taxiing aircraft but not reverse thrust as this is part of the air noise assessment. Noise monitoring has been undertaken at twelve selected locations in the vicinity of the airport which are considered to be the nearest noise sensitive receptors - these are referred to as the baseline noise monitoring sites and their locations are indicated on **ES Figure 14.4.1** (Doc Ref. 5.2). These are set into groups as indicated on **ES Figure 14.4.2** (Doc Ref. 5.2).
- 7.9.127 Baseline noise monitoring Location 4 in receptor group 3 is the Grade II\* listed Charlwood Park Farmhouse (the current Bear and Bunny Nursery – Site 27), whilst baseline noise monitoring Location 11 in receptor group 10 is the Grade II\* listed Rowley Farmhouse (Site 22). Baseline noise monitoring Locations 1 and 2 in receptor groups 1 and 2 are close to the edge of the Charlwood Conservation Area (Site 397) and the listed buildings at Charlwood, whilst baseline noise monitoring Location 10 in receptor group 9 is close to the Grade II\* listed Charlwood House (Site 23) and several Grade II listed buildings.
- 7.9.128 Table 14.9.13 in **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1) presents the predicted 2032 ground noise level changes (with designed-in mitigation) when compared against the predicted 2032 ground noise levels without the Project (the Do-Nothing scenario) at the twelve selected locations. The table shows the changes separately for night (23.00 – 07.00) and daytime (07.00 – 23.00) and for two modes of runway operation - 26 and 08. These modes relate to the directional use of the runways (a description of this is provided in **Chapter 4: Existing Site and Operation** (Doc Ref. 5.1)). The noise levels are expressed in dB as  $L_{Aeq, 16 \text{ hour}}$  (daytime) and  $L_{Aeq, 8 \text{ hour}}$  (night-time).
- 7.9.129 It should be noted that in **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1) the receptors are the people within the building or area, whereas in the assessment provided below the receptor in each case is the historic building or area. There is no evidence that noise could directly affect the physical fabric of a historic building or area; impacts therefore arise from changes within the setting of the historic building or area that affects people's ability to understand and appreciate the significance of the historic building or area. Indirect physical impacts could occur if the current use of a historic building becomes unviable – an empty building will deteriorate much more quickly than one that is occupied and in use.
- 7.9.130 The predicted increase in daytime ground noise  $L_{Aeq, 16 \text{ hours}}$  dB (2032 Project with mitigation versus 2032 baseline) at the Grade II\* listed Charlwood Park Farmhouse is 1-6dB (across both modes). Although this is not a 'noise sensitive' asset (using the categories defined for air noise

impacts in the defined methodology), modelling was undertaken by the Project team to see if some noise attenuation could be provided that would eliminate or reduce this predicted ground noise increase. The modelling examined the effects of the placement of physical noise barriers of varying size and shape within the land immediately east of the garden that surrounds the listed building. Testing of the models found that it would not be possible to eliminate or reduce the predicted ground noise increase at the Grade II\* listed Charlwood Park Farmhouse using the placement of noise barriers.

- 7.9.131 The increase in ground noise does not represent a direct physical threat to the fabric of this Grade II\* listed building. However, change within the setting of a listed building can lead to physical impacts if the current use of the building becomes unviable – an empty building will deteriorate much more quickly than one that is occupied and in use. The Project team has discussed the future use of the Grade II\* listed Charlwood Park Farmhouse with the current operators of the Bear and Bunny nursery school. The operators have no concerns regarding the potential increase in ground noise or indeed air noise, and do not see these as factors that would influence any future decision regarding their use of the building. The magnitude of impact on this designated heritage asset has been assessed as no change, with the consequent significance of effect being **no change**.
- 7.9.132 At the Grade II\* listed Rowley Farmhouse and also in the vicinity of the Grade II\* listed Charlwood House and the nearby Grade II listed buildings the predicted increase in daytime ground noise is 1-2dB. The magnitude of impact on each of these heritage assets has been assessed as no change, with the consequent significance of effect in each case being **no change**.
- 7.9.133 The predicted increase in daytime ground noise  $L_{Aeq, 16 \text{ hours}}$  dB (2032 Project with mitigation versus 2032 baseline) at baseline noise monitoring Locations 1 and 2 is 1-4dB, and these locations are considered to be representative of the Charlwood Conservation Area. There are three heritage assets of high sensitivity or value at Charlwood, comprising the Grade I listed Church of St Nicholas (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 14), along with The Manor House (Site 33) and the Providence Chapel (Site 36), both of which are listed at Grade II\*. Both the listed Church of St Nicholas (Site 14) and the Providence Chapel (Site 36) are classed as noise-sensitive heritage assets using the criteria established for the assessment of impacts arising from air noise change (Temple Group and Cotswold Archaeology, 2014). The magnitude of impact on each of the three heritage assets of high sensitivity or value at Charlwood has been assessed as negligible and long-term. The consequent significance of effect in respect of these three heritage assets would be **minor adverse**, which is not significant in terms of the EIA regulations.
- 7.9.134 The Charlwood Conservation Area is a heritage asset of medium sensitivity or value, as are the 33 Grade II listed buildings within and adjacent to the Conservation Area (and within the defined study area – see **ES Figure 7.6.2** (Doc Ref. 5.2)). As described above, the magnitude of impact on each of these heritage assets has been assessed as negligible and long-term, with the consequent significance of effect in each case being assessed as **negligible adverse**. This is not significant in terms of the EIA Regulations.

### Road Traffic Noise

- 7.9.135 The results of the road traffic noise modelling for 2032 are presented in **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1). This modelling has focused on the changes around the North and South Terminal Roundabouts, but also reports changes on the wider network.

- 7.9.136 The results of the modelling of 2032 traffic noise are shown on **ES Figure 14.9.35** (Doc Ref. 5.2), which shows the predicted traffic noise with the Project (and the designed-in noise mitigation) versus the predicted 2032 baseline without the Project (ie the Do-Nothing scenario).
- 7.9.137 The Grade I listed Church of St Bartholomew located on Church Road, Horley (**ES Figure 7.6.2** (Doc Ref. 5.2), Site 16) would experience a negligible reduction in road traffic noise (less than 0-1dB, and this applies to the other listed buildings in the vicinity of the church. A small part of the western side of Church Road (Horley) Conservation Area at Horley (Site 406) would experience a negligible increase in road traffic noise (less than 1dB), whilst the greater part of this conservation area would experience a reduction in road traffic noise of between 0-1dB. The nearby Massetts Road Conservation Area (Site 398) would similarly experience a negligible reduction in road traffic noise (less than 1dB).
- 7.9.138 The Grade II listed Edgeworth House and Wing House in the eastern side of the airport and now part of the Courtyard by Marriot Hotel (**ES Figure 7.6.2** (Doc Ref. 5.2), Sites 133 and 134) would experience a negligible increase in road traffic noise (less than 1dB). Several other Grade II listed buildings located to the north east of the airport would also experience a negligible increase in road traffic noise (less than 1dB), including The Orchard Cottage (Site 80), Fishers Cottage and The Barn (Site 320), Inholms Farm House (Site 75) and Yew Tree Cottage (Site 76).
- 7.9.139 These predicted changes in road traffic noise are all rated as negligible in the assessment of noise effects in the area as reported in Chapter 14 and would not result in any harmful effect on the significance of any heritage asset. The magnitude of impact and significance of effect would therefore be **no change**.

#### **Further Mitigation**

- 7.9.140 As noted above at paragraphs 7.9.115 and 7.9.116 it may be possible for appropriate mitigation in the form of protective measures to be incorporated into the methodology for the establishment of the construction compound at Car Park B or for the environmental mitigation works at the same location. No additional further mitigation is proposed with regard to any effects on the historic environment during this period of the Project.

#### **Significance of Effect**

- 7.9.141 The consequent significance of effect in respect of the establishment of the construction compound and/or the environmental mitigation at Car Park B, assuming that the appropriate mitigation is possible, could be up to **minor adverse** (high sensitivity remains) or **negligible** (medium sensitivity remains), which are not significant in terms of the EIA Regulations. If the appropriate mitigation is not possible, a programme of further archaeological investigation would be undertaken in order to further define and offset the adverse effect, which would remain **major adverse**, which is significant in EIA terms.

#### **Future Monitoring**

- 7.9.142 No future monitoring is proposed with regard to any effects on the historic environment during this period of the Project.

## 2033-2038

### Main Contractor Compound

- 7.9.143 The main contractor compound would be in the south eastern part of the operational airport. The establishment and use of the main contractor compound would not affect the significance of any heritage asset as a result of change within its setting due to the nature from the works and the distance to the assets. The magnitude of impact and significance of effect would therefore be **no change**.

### Car Park Z Contractor Compound

- 7.9.144 The establishment and use of the contractor compound at car park Z would not affect the significance of any heritage asset as a result of change within its setting due to the nature of the works and the distance from the assets. The magnitude of impact and significance of effect would therefore be **no change**.

### Airfield Satellite Contractor Compound

- 7.9.145 The establishment and use of the airfield satellite contractor compound would not affect the significance of any heritage asset as a result of change within its setting due to the nature of the works and the distance from the assets. The magnitude of impact and significance of effect would therefore be **no change**.

### New Hangar

- 7.9.146 This element of the Project would be up to 32 metres high and could require excavation to a depth of 10 metres. The location is almost wholly within previously developed land which has been subject to previous detailed archaeological investigation in 2002 (see Figure 6.3.1 in **ES Appendix 7.6.1: Historic Environment Baseline Report** (Doc Ref. 5.3)). There would be no impact on buried archaeological remains and the magnitude of impact and significance of effect would therefore be **no change**.
- 7.9.147 The construction and operation of the new hangar would not affect the significance of any heritage asset as a result of change within its setting.

### Pier 7

- 7.9.148 This element of the Project would be up to 18 metres high. The construction and operation of the new Pier 7 would not affect the significance of any heritage asset as a result of change within its setting. The location is almost wholly within previously developed land which has been subject to previous archaeological investigation; there would be no impact on buried archaeological remains. The magnitude of impact and significance of effect would therefore be **no change**.

### Multi-storey Car Park Y

- 7.9.149 This element of the Project would be up to 27 metres high. The construction and operation of multi-storey Car Park Y would not affect the significance of any heritage asset as a result of change within its setting. Previous Project activities associated with the construction of the Car Park Y underground water treatment and runoff storage facility would have removed any buried archaeological remains that may have been present here and this is regarded as an area of low archaeological potential (**ES Figure 7.6.5** (Doc Ref. 5.2)). The magnitude of impact and significance of effect would therefore be **no change**.

### Air Noise

- 7.9.150 **ES Figure 14.9.37** (Doc Ref. 5.2) shows the predicted  $L_{eq\ 16\ hr\ day}$  air noise contour areas for 2038. In all cases, noise contours are very similar to those predicted for 2032 (**ES Figure 14.6.12** (Doc Ref. 5.2)). Detailed assessment of the 2033-2038 impacts and effects of air noise on heritage assets is not necessary because the outcomes in all cases would be the same as for the 2032 impacts and effects reported above (see paragraphs 7.9.117 to 7.9.124). This is the same when the 'slower transition fleet' scenario is considered.

### Ground Noise

- 7.9.151 **ES Appendix 14.9.3: Ground Noise Modelling** (Doc Ref. 5.3) shows the predicted ground noise levels for 2038 with regard to the twelve monitoring locations. These ground noise levels are lower than those predicted for 2032 due to a larger proportion of next generation aircraft in the fleet. Detailed assessment of the 2038 impacts and effects of ground noise on heritage assets is not necessary because the outcomes in all cases would be the same as, or less than, the 2032 impacts and effects reported above (see paragraphs 7.9.126 to 7.9.134).

### Road Traffic Noise

- 7.9.152 Road traffic noise has been modelled for 2032 (**ES Figure 14.9.33** (Doc Ref. 5.2)) and again for 2047. Predicted road traffic noise levels in 2047 are slightly lower than the levels predicted for 2032 (see Table 14.9.19 in **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1)). No modelling has been done for the period 2033-2038 but qualitative assessment indicates that changes in road noise would be less than 1 dB. Impacts and effects with regard to heritage assets would therefore remain as described above for the period 2030-2032 (see paragraphs 7.9.135 to 7.9.139).

### Further Mitigation

- 7.9.153 No further mitigation is proposed.

### Future Monitoring

- 7.9.154 No future monitoring is proposed with regard to any effects on the historic environment during this period of the Project.

## Design Year: 2038

### Air Noise

- 7.9.155 **ES Figure 14.9.37** (Doc Ref. 5.2) shows the predicted  $L_{eq\ 16\ hr\ day}$  air noise contour areas for 2038. In all cases, noise contours are very similar to those predicted for 2032 (**ES Figure 14.9.1** (Doc Ref. 5.2)). Detailed assessment of the 2033-2038 impacts and effects of air noise on heritage assets is not necessary because the outcomes in all cases would be the same as for the 2032 impacts and effects reported above (see paragraphs 7.9.117 to 7.9.124). This is the same when the 'slower transition fleet' scenario is considered.

### Ground Noise

- 7.9.156 **ES Appendix 14.9.3: Ground Noise Modelling** (Doc Ref. 5.3) gives predicted levels of ground noise in 2038 which are lower than or similar to those predicted for 2032. Detailed assessment of the 2038 impacts and effects of ground noise on heritage assets is not necessary because the

outcomes in all cases would be the same or less as for the 2032 impacts and effects reported above (see paragraphs 7.9.126 to 7.9.134).

#### **Road Traffic Noise**

- 7.9.157 Road traffic noise has been modelled for 2032 (**ES Figure 14.9.33** (Doc Ref. 5.2)) and again for 2047. Predicted road traffic noise levels in 2047 are slightly lower than the levels predicted for 2032 (Table 14.9.19 in **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1)). No modelling has been done for the 2038 design year but qualitative assessment indicates that changes in road noise would be less than 1 dB. Impacts and effects with regard to heritage assets would therefore remain as described above for the period 2030-2032 (see paragraphs 7.9.135 to 7.9.139).

#### **Further Mitigation**

- 7.9.158 No further mitigation is proposed.

#### **Future Monitoring**

- 7.9.159 No future monitoring is proposed with regard to any effects on the historic environment during this period of the Project.

### **2047**

#### **Air Noise**

- 7.9.160 Section 4 of **ES Appendix 14.9.2: Air Noise Modelling** (Doc Ref. 5.3) contains details of air noise level contours predicted in 2047. This demonstrates that air noise levels in 2047 would be lower than in 2032. This is because fleet transition to quieter new generation aircraft would continue beyond 2038, offsetting the projected increase in air traffic. Detailed assessment of the 2047 impacts and effects of air noise on heritage assets is not necessary because the outcomes in all cases would be the same as or less than the 2030-2032 impacts and effects reported above (see paragraphs 7.9.117 to 7.9.124). This is the same when the 'slower transition fleet' scenario is considered.

#### **Ground Noise**

- 7.9.161 **ES Appendix 14.9.3: Ground Noise Modelling** (Doc Ref. 5.3) shows predicted levels of ground noise in 2047 which are lower than or similar to those predicted for 2030-2032. Detailed assessment of the 2047 impacts and effects of ground noise on heritage assets is not necessary because the outcomes in all cases would be the same as or less than the 2030-2032 impacts and effects reported above (see paragraphs 7.9.126 to 7.9.134).

#### **Road Traffic Noise**

- 7.9.162 Road traffic noise levels in 2047 will be slightly lower than the levels predicted for 2032. Impacts and effects with regard to heritage assets would therefore remain as described above for the period 2030-2032, (see paragraphs 7.9.135 to 7.9.139).

#### **Further Mitigation**

- 7.9.163 No further mitigation is proposed.

### Future Monitoring

- 7.9.164 No future monitoring is proposed with regard to any effects on the historic environment during this period of the Project.

## 7.10. Potential Changes to the Assessment as a Result of Climate Change

- 7.10.1 As set out above in the Future Baseline section (Section 7.6) there are unlikely to be any significant changes to the historic environment baseline as a result of climate change. Therefore, the assessment of effects set out above is unlikely to be affected by climate change.

## 7.11. Cumulative Effects

### Zone of Influence

- 7.11.1 The zone of influence (Zol) for the historic environment has been identified based on the spatial extent of likely effects. The Zol for the assessment of potential effects on designated heritage assets as a result of visual change within their setting is an area extending 3 km from the Project site boundary. The Zol for the assessment of potential effects on noise-sensitive designated heritage assets as a result of change in air noise is an area within which there would be an average summer daytime change of +/- 1dB.

### Screening of Other Developments and Plans

- 7.11.2 The Cumulative Effect Assessment (CEA) takes into account the impact associated with the Project together with other developments and plans. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise undertaken as part of the 'CEA short list' of developments (see **ES Appendix 20.4.1: Cumulative Effects Assessment Long and Short List** (Doc Ref. 5.3)). Each development on the CEA long list has been considered on a case by case basis for scoping in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.
- 7.11.3 In undertaking the CEA for the Project, it is important to bear in mind that the likelihood of other developments and plans being constructed varies depending on how far along the planning process they are. For example, relevant developments and plans that are already under construction are likely to contribute to a cumulative impact with the Project (providing impact or spatial pathways exist), whereas developments and plans not yet approved or not yet submitted are less certain to contribute to such an impact, as some may not achieve approval or may not ultimately be built due to other factors. For this reason, all relevant development and plans considered cumulatively alongside the Project have been allocated into 'Tiers', reflecting their current stage within the planning and development process. Appropriate weight is therefore expected to be given to each Tier in the decision-making process when considering the potential cumulative impact associated with the Project (eg it may be considered that greater weight can be placed on the Tier 1 assessment relative to Tier 2). Further details of the screening process for the inclusion of other developments and plans in the short list and a description of the Tiers are provided in **ES Chapter 20: Cumulative Effects and Inter-relationships** (Doc Re. 5.1). Due to uncertainty around the third runway at London Heathrow Airport (Heathrow R3), this development has not been included in the main cumulative effects assessment. However, as Heathrow R3

remains Government policy, it has been considered separately and a qualitative assessment is provided in **ES Chapter 20: Cumulative Effects and Inter-relationships** (Doc Re. 5.1).

- 7.11.4 The short-listed developments identified in **ES Appendix 20.4.1: Cumulative Effects Assessment Long and Short List** (Doc Ref. 5.3) have been reviewed and it is considered that none of these developments would result in cumulative effects when considered alongside the Project in a historic environment context.

### Cumulative Effects Assessment

#### Initial Construction Period: 2024-2029

- 7.11.5 No cumulative effects have been identified.

#### 2030-2032

- 7.11.6 No cumulative effects have been identified.

#### 2033-2038

- 7.11.7 No cumulative effects have been identified.

#### Design Year: 2038

- 7.11.8 No cumulative effects have been identified.

#### 2047

- 7.11.9 No cumulative effects have been identified.

## 7.12. Inter-Related Effects

- 7.12.1 This chapter of the ES assesses the effects on historic environment resources including historic buildings and areas, historic landscape character and buried archaeological remains. There is an inter-relationship with other environmental topics including landscape, ecology, traffic, noise (air and ground noise) and water. Whilst this chapter assesses effects on historic landscape, effects on landscape character and visual amenity are considered in **ES Chapter 8: Landscape, Townscape and Visual Resources** (Doc Ref. 5.1).
- 7.12.2 This chapter assesses the effects of traffic and noise (ground and air noise) on the significance of heritage assets, however the environmental effects of traffic and noise are considered in **ES Chapter 12: Traffic and Transport** (Doc Ref. 5.1) and **ES Chapter 14: Noise and Vibration** (Doc Ref. 5.1) respectively.
- 7.12.3 This chapter assesses the effects of environmental mitigation on heritage assets and buried archaeological remains, however the design of ecological, landscape and flood risk mitigation is considered in **ES Chapter 8: Landscape, Townscape and Visual Resources** (Doc Ref. 5.1), **ES Chapter 9: Ecology and Nature Conservation** (Doc Ref 5.1), and **ES Chapter 11: Water Environment** (Doc Ref. 5.1).
- 7.12.4 Further information on inter-related effects is provided in **ES Chapter 20: Cumulative Effects and Inter-relationships** (Doc Ref. 5.1).



## 7.13. Summary

### Initial Construction Period 2024-2029

- 7.13.1 During this period of the Project the majority of contractor compounds would be established. Where the proposed compounds are located on previously developed land (eg the main contractor compound), the significance of effect on buried archaeological remains would be **negligible** as the archaeological remains are likely to have already been lost or badly damaged by earlier development. Where compounds are proposed on land that has not been previously developed, archaeological investigations undertaken for the Project have established that there is little or no potential for buried archaeological remains to exist. The significance of effect on buried archaeological remains at these proposed compounds would be **negligible**.
- 7.13.2 The works required to establish contractor compounds would not significantly affect any deposits of geoarchaeological interest as such deposits would be located at a greater depth below current ground level.
- 7.13.3 Also, during this period of the Project, the flood compensation measures would be implemented at Museum Field and at Car Park X. These works would involve the lowering of the ground levels. The significance of the effect on buried archaeological remains at Museum Field would be up to **major adverse**, while an up to **moderate adverse** effect is predicted with regard to potential palaeochannels at Car Park X. The effect would be offset by a programme of further archaeological investigation.
- 7.13.4 The relocation of Pond A and the diversion of the River Mole could impact on possible palaeochannels leading to an effect of up to **minor adverse** significance.
- 7.13.5 The excavations required for the construction of a small water treatment works could impact on buried archaeological remains with the consequent significance of the effect being up to **major adverse**. This effect would be offset by a programme of archaeological investigation.
- 7.13.6 The groundworks required for the construction of a noise bund and wall at the western end of the airfield could impact on buried archaeological remains with the consequent significance of the effect being **minor adverse**.
- 7.13.7 The placement of spoil at Pentagon Field could lead to impacts on buried archaeological remains resulting in a **negligible** significance of effect.
- 7.13.8 Other works within the operational airfield, including works on the northern runway, taxiways and aircraft stands, and the relocation of the Fire Training Ground could lead to impacts on buried archaeological remains resulting in a **negligible** significance of effect.
- 7.13.9 The demolition of the former air traffic control tower would represent a minor adverse effect that would be offset by recording of the building prior to its demolition.
- 7.13.10 Environmental mitigation is proposed at Museum Field and land to the north as far as Charlwood Road where planting of trees and hedgerows would be undertaken. A programme of archaeological investigation undertaken for the Project has identified features and deposits of archaeological and palaeoenvironmental interest at several locations. The impact on buried archaeological remains as a result of the environmental mitigation could result in a significance of effect up to **major adverse**.

- 7.13.11 Appropriate mitigation measures may be incorporated into the establishment of the environmental mitigation at Museum Field and land to the north as far as Charlwood Road to avoid or reduce damage to the buried archaeological remains. With these measures in place, the significance of effect would be up to **minor adverse**. Where it is not possible to apply any mitigation measures, the effects would be offset by a programme of further archaeological investigation. There would also be a **negligible** effect on the character of the historic landscape at Museum Field and land to the north as far as Charlwood Road.
- 7.13.12 There would be construction noise impacts at the Grade I listed Church of St Bartholomew (Horley) and the Grade II\* listed Church of St Michael and All Angels (Lowfield Heath). In both cases this would result in effects of **minor adverse** significance.

### 2030-2032

- 7.13.13 The construction of the CARE facility could lead to an effect of **minor adverse** significance as a result of impacts on buried archaeological remains, although no such remains are known to be present at this location which has been previously developed as a surface car park.
- 7.13.14 The establishment and use of the contractor compound north of Longbridge Roundabout would lead to an effect of **minor adverse** significance as a result of the change within the setting of the Church Road (Horley) Conservation Area. There would also be a **negligible** effect on the character of the historic landscape as a result of the establishment and use of this contractor compound.
- 7.13.15 Highways improvements at Longbridge Roundabout could impact on buried archaeological remains which may result in an effect of up to **minor adverse** significance. The highways improvements at Longbridge Roundabout would result in a change within the setting of the Church Road (Horley) Conservation Area that could lead to an effect of **moderate adverse** significance, although this would reduce over time as a result of planting proposals.
- 7.13.16 The establishment and use of the contractor compound to the north of the South Terminal roundabout would result in a **negligible** effect on the character of the historic landscape at this location.
- 7.13.17 The establishment and use of the contractor compound at Car Park B could impact on buried archaeological remains which may result in an effect of up to **major adverse** significance. Appropriate mitigation measures may be incorporated into the establishment of the contractor compound to avoid or reduce damage to the buried archaeological remains. With these measures in place, the significance of effect would be up to **minor adverse**. Where it is not possible to apply any mitigation measures, the effects would be offset by a programme of further archaeological investigation but the significance of effect would remain **major adverse**.
- 7.13.18 Environmental mitigation is proposed at land north of Longbridge Roundabout including planting of trees, the provision of a new footbridge over the River Mole and also the provision of information boards. The impact of establishing this environmental mitigation on buried archaeological remains is likely to result in an effect of **negligible** significance. The impact on the Church Road (Horley) Conservation Area is likely to result in an effect of **minor beneficial** significance; there would also be an effect of **negligible** significance resulting from the change to the character of the historic landscape at this location.

- 7.13.19 Additional environmental mitigation is proposed at Car Park B, following the use of this land as a contractor compound. The establishment of the environmental mitigation could impact on buried archaeological remains which may result in an effect of up to **major adverse** significance (unless these remains have been previously addressed in connection with the establishment of the contractor compound here). Appropriate mitigation measures may be incorporated into the design of the environmental mitigation to avoid or reduce damage to the buried archaeological remains. With these measures in place, the significance of effect would be up to **minor adverse**. Where it is not possible to apply any mitigation measures, the effects would be offset by a programme of further archaeological investigation, but the significance of effect would remain **major adverse**.
- 7.13.20 There would be **minor adverse** effects on the significance of the Grade I listed Church of St Nicholas (Charlwood), also the Grade II\* listed The Manor House (Charlwood) and the Grade II\* listed Providence Chapel (Charlwood), and **negligible adverse** effects on the significance of the Conservation Area and several Grade II listed buildings at Charlwood as a result of an increase in ground noise.
- 7.13.21 There would be construction noise impacts at the Grade I listed Church of St Bartholomew (Horley) and the Grade II\* listed Church of St Michael and All Angels (Lowfield Heath). In both cases this would result in effects of **minor adverse** significance.

### 2033-2038

- 7.13.22 No increase in the impacts and effects reported above for 2030-32 are considered likely during this period of the Project.

### Design Year 2038

- 7.13.23 No increase in the impacts and effects reported above for 2030-32 are considered likely during the operational period of the Project.

### 2047

- 7.13.24 No further effects are considered likely during the operational period of the Project.

### NPPF

- 7.13.25 Although the NPPF can be a relevant consideration within the decision-making process for nationally significant infrastructure projects (National Networks NPS (Department of Transport, 2014)), paragraph 1.18), it is important to not make a direct correlation between EIA and NPPF processes in assessing impacts arising from a development.
- 7.13.26 The role of EIA is to identify likely significant effects, which can arise from Low, Medium or High impacts, and depend on the value/importance of a heritage asset. The NPPF looks at harm to, or loss of, the heritage significance of an asset, asking (in the case of designated heritage assets) if the harm is substantial, or less than substantial, and sets up tests depending on the value/importance of the asset. The same tests are identified within paragraphs 5.201 – 5.2.5 of the Airports NPS (Department for Transport, 2018). There is no direct correlation between the results and terminology of the NPPF process and those of the EIA process, and no current published guidance on this issue.

- 7.13.27 All of the impacts on designated heritage assets identified with regard to the Project represent less than substantial harm to the significance of those assets. None of the identified impacts would represent substantial harm as this is a particularly high test as explained in the NPPG (2021).

**Table 7.13.1: Summary of Effects**

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
<b>Construction Period 2024-2029 (Construction Effects up to first opening of Northern Runway)</b>							
Buried archaeological remains (main contractor compound)	Negligible	Potential loss of or damage to remains from establishment of compound	Permanent	Negligible	Negligible	Not significant	
Buried archaeological remains (Car Park Z contractor compound)	Negligible	Potential loss of or damage to remains from establishment of compound	Permanent	Negligible	Negligible	Not significant	
Buried archaeological remains (airfield satellite contractor compound)	Negligible	Potential loss of or damage to remains from establishment of compound	Permanent	Negligible	Negligible	Not significant	
Buried archaeological remains (surface access satellite)	Negligible	Potential loss of or damage to remains from establishment of compound	Permanent	Negligible	Negligible	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
contractor compound, South Terminal)							
Buried archaeological remains (Car Park Y contractor compound)	Negligible	Potential loss of or damage to remains from establishment of compound	Permanent	Negligible	Negligible	Not significant	
Buried archaeological remains (Longbridge Roundabout contractor compound)	Negligible	Potential loss of or damage to remains from establishment of compound	Permanent	Negligible	Negligible	Not significant	
Buried archaeological remains (Museum Field flood compensation area)	Up to Medium	Complete loss or substantial damage resulting from reduction in ground level	Permanent	Up to High	Up to Major Adverse	Significant	Effect to be offset through programme of archaeological investigation.
Setting of heritage	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
assets (Museum Field flood compensation area)							
Historic landscape character (Museum Field flood compensation area)	Low	Change to historic landscape character	Permanent	Negligible	Negligible	Not significant	
Deposits of geoarchaeological interest (flood compensation area– Car Park X)	Low	Complete loss or substantial damage resulting from ground reduction	Permanent	Up to High	Up to Moderate Adverse	Significant	Date, nature and extent of any buried geoarchaeological remains not yet ascertained. Effect to be offset through programme of investigation.
Setting of heritage assets	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
(flood compensation area – Car Park X)							
Buried archaeological remains (water storage area – Car Park Y)	N/A	Complete loss or substantial damage resulting from ground reduction.	N/A	No change	No change	Not significant	
Setting of heritage assets (water storage area – Car Park Y)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Deposits of geoarchaeological interest (removal of Pond A and creation of new section of River Mole valley)	Up to Medium	Complete loss or substantial damage resulting from construction of River Mole Diversion	Permanent	Up to Low	Minor Adverse	Not significant	
Setting of heritage assets	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	



Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
(removal of Pond A and creation of new section of River Mole valley)							
Buried archaeological remains (new water treatment works)	Up to Medium	Complete loss or damage resulting from excavation and construction	Permanent	Up to High	Up to Major Adverse	Significant	Effect to be offset through programme of archaeological investigation
Buried archaeological remains (noise bund and wall)	Low	Complete loss or damage resulting from construction	Permanent	Up to High	Up to Minor Adverse	Not significant	
Setting of heritage assets (noise bund and wall)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Buried archaeological remains (Pentagon Field)	Negligible	Loss of or damage resulting from placement of spoil	Permanent	Negligible	Negligible	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Setting of heritage assets (Pentagon Field)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Historic landscape character (Pentagon Field)	Low	Change to historic landscape character	Permanent	No change	No change	Not significant	
Buried archaeological remains (effects due to works to northern runway, new and realigned taxiways, new aircraft stands, reconfiguration of existing aircraft stands, Virgin Hangar pavement works, relocation of Rendezvous Point North,	Negligible	Loss of or damage resulting from construction works	Permanent	Negligible	Negligible	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Pumping Stations 2a and 7a)							
Setting of heritage assets (effects due to works to northern runway, new and realigned taxiways, new aircraft stands, reconfiguration of existing aircraft stands, Virgin Hangar pavement works, relocation of Rendezvous Point North, Pumping Stations 2a and 7a).	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Buried archaeological remains	Negligible	Loss of or damage resulting from relocation	Permanent	Negligible	Negligible	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
(relocation of fire training ground)							
Setting of heritage assets (relocation of fire training ground)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Buried archaeological remains (decked Car Park X)	N/A	Loss of or damage resulting from construction works	N/A	No change	No change	Not significant	
Setting of heritage assets (decked Car Park X)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Buried archaeological remains (multi-storey Car Park J)	Negligible	Loss of or damage resulting from construction works	N/A	No change	No change	Not significant	
Setting of heritage assets (multi-storey Car Park J)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Buried archaeological remains (South Terminal IDL Extension and Forecourt, North Terminal IDL Extension and Forecourt, Airfield Surface Transport and Grounds Maintenance Facility, new South Terminal hotel at the car rental facility, new South Terminal hotel at Car Park H, new South Terminal hotel adjacent to Multi-Storey Car Park 3)	Negligible	Loss of or damage resulting from construction works	Permanent	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Setting of heritage assets (South Terminal IDL Extension and Forecourt, North Terminal IDL Extension and Forecourt, Airfield Surface Transport and Grounds Maintenance Facility, new South Terminal hotel at the car rental facility, new South Terminal hotel at Car Park H, new South Terminal hotel adjacent to Multi-Storey Car Park 3)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Buried archaeological and geoarchaeological remains (environmental mitigation land at Museum Field extending north as far as Charlwood Road)	Up to Medium	Planting, scrapes, replacement habitats etc	Permanent	High	Up to Major Adverse	Significant	Appropriate mitigation may be implemented during detailed design and this would reduce the magnitude of impact and significance of effect. If this is not possible then the effect could be offset through a programme of archaeological investigation.
Setting of heritage assets (environmental mitigation land at Museum Field extending north)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
as far as Charlwood Road)							
Historic landscape character (environmental mitigation land at Museum Field extending north as far as Charlwood Road)	Low	Change to historic landscape character	Permanent	Negligible	Negligible	Not significant	
Grade I listed Church of St Bartholomew (Horley)	High	Effect on significance of heritage asset (construction noise)	Short term	Low	Minor Adverse	Not significant	Mitigated through CoCP
Grade II* listed Church of St Michael and All Angels (Lowfield Heath)	High	Effect on significance of heritage asset (construction noise)	Short term	Low	Minor Adverse	Not significant	Mitigated through CoCP
Road traffic noise	N/A	Effect on significance of heritage asset (road traffic noise)	N/A	No change	No change	Not significant	



Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Ground noise	N/A	Effect on significance of heritage asset (ground noise)	N/A	No change	No change	Not significant	
<b>2030-2032 (Construction and Operational Effects)</b>							
Buried archaeological remains (CARE facility)	Negligible	Loss of or damage resulting from construction works	Permanent	High	Up to Minor Adverse	Not significant	
Setting of heritage assets (CARE facility)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Buried archaeological remains (Satellite Airport Fire Service Facility, Replacement Motor Transport Facility, North Terminal baggage hall extension, North Terminal)	Negligible	Loss of or damage resulting from construction works	Permanent	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
baggage reclaim extension, South Terminal new office building at Car Park H, Multi-Storey Car Park H, Decked Car Park North Terminal Long Stay)							
Setting of heritage assets (Satellite Airport Fire Service Facility, Replacement Motor Transport Facility, North Terminal baggage hall extension, North Terminal baggage reclaim extension, South	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Terminal new office building at Car Park H, Multi-Storey Car Park H, Decked car park North Terminal Long Stay)							
Setting of heritage assets (water treatment works)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Buried archaeological remains (Surface Access – South Terminal Roundabout improvements)	Negligible	Loss of or damage resulting from construction works	Permanent	No change	No change	Not significant	
Setting of heritage assets (Surface Access – South Terminal	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Roundabout improvements)							
Buried archaeological remains (Surface Access – North Terminal Roundabout improvements)	Negligible	Loss of or damage resulting from construction works	Permanent	No change	No change	Not significant	
Setting of heritage assets (Surface Access – North Terminal Roundabout improvements)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Setting of Church Road (Horley) Conservation Area (Longbridge Roundabout contractor compound)	Medium	Effect on significance of heritage asset	Long term	Low	Minor adverse	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Setting of other heritage assets (Longbridge Roundabout contractor compound)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Historic landscape character (Longbridge Roundabout contractor compound)	Low	Change to historic landscape character	Long term	Low	Negligible	Not significant	
Buried archaeological remains (Longbridge Roundabout Highway Improvements)	Negligible	Loss of or damage resulting from construction works	Permanent	Up to high	Up to Minor Adverse	Not significant	
Church Road (Horley) Conservation	Medium	Effect on significance of heritage asset	Long term	Up to medium	Up to Moderate Adverse	Significant	Effect would reduce over time

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Area (Longbridge Roundabout Highway Improvements)							as new planting reaches maturity
Setting of other heritage assets (Longbridge Roundabout Highway Improvements)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Setting of heritage assets (Car Park Y contractor compound)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Setting of heritage assets (surface access works contractor compound, South Terminal)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Historic landscape	Low	Change to historic landscape character	Long term	Low	Negligible	Not significant	Impact is fully reversible.

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
character (surface access works contractor compound, South Terminal)							
Buried archaeological remains (Car Park B contractor compound)	Up to Medium	Potential loss of or damage to remains from establishment of compound	Permanent	Up to High	Up to Major Adverse	Significant	Remains potentially present in area of compound to north of A23 Airport Way, although the land here has been impacted by previous activities. Appropriate mitigation may be Implemented ahead of the works to establish the compound, and

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
							this would reduce the magnitude of impact. If this is not possible then the effect could be offset through a programme of archaeological investigation.
Setting of heritage assets (Car Park B contractor compound)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Buried archaeological remains (environmental mitigation land at Longbridge Roundabout)	Up to medium	Planting, scrapes, replacement habitats etc	Permanent	Negligible	Negligible	Not significant	



Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Church Road (Horley) Conservation Area (environmental mitigation land at Longbridge Roundabout)	Medium	Effect on significance of heritage asset	Permanent	Up to low beneficial	Minor Beneficial	Not significant	Effect would increase over time as new planting reaches maturity
Setting of other heritage assets (environmental mitigation land at Longbridge Roundabout)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Historic landscape character (environmental mitigation land at Longbridge Roundabout)	Low	Change to historic landscape character	Permanent	Low	Negligible	Not significant	
Buried archaeological	Up to High	Planting, scrapes, replacement habitats etc	Permanent	Up to High	Up to Major Adverse	Significant	Remains potentially

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
remains (environmental mitigation land at Car Park B							present in area of compound to north of A23 Airport Way, although the land here has been impacted by previous activities. Appropriate mitigation may be implemented ahead of the works to establish the environmental mitigation (if not previously undertaken with regard to the contractor compound at this location), and

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
							this would reduce the magnitude of impact. If this is not possible then the effect could be offset through a programme of archaeological investigation.
Setting of heritage assets (environmental mitigation land at Car Park B)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Air noise effects resulting from changes within the settings of heritage assets	Up to High	Change within setting – air noise	Permanent	No change	No change	Not significant	
Grade I listed Church of St	High	Change within setting – construction noise	Short-term	Low	Minor Adverse	Not significant	Mitigated through CoCP

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Bartholomew (Horley)							
Grade II* listed Church of St Michael and All Angels (Lowfield Heath)	High	Change within setting – construction noise	Short-term	Low	Minor Adverse	Not significant	Mitigated through CoCP
Grade I listed Church of St Nicholas, Charlwood (ground noise)	High	Change within setting – ground noise	Long-term	Negligible	Minor Adverse	Not significant	
Grade II* listed The Manor House, Charlwood (ground noise)	High	Change within setting – ground noise	Long-term	Negligible	Minor Adverse	Not significant	
Grade II* listed Providence Chapel, Charlwood (ground noise)	High	Change within setting – ground noise	Long-term	Negligible	Minor Adverse	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
Other listed buildings and Conservation Area at Charlwood (ground noise)	Medium	Change within setting – ground noise	Long-term	Negligible	Negligible Adverse	Not significant	
Road traffic noise	Up to High	Change within setting – road traffic noise	Permanent	No change	No change	Not significant	
<b>2033-2038 (Construction and Operational Effects)</b>							
Setting of heritage assets (main contractor compound)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Setting of heritage assets (Car Park Z contractor compound)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Setting of heritage assets (airfield satellite	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
contractor compound)							
Buried archaeological remains (new hangar, Pier 7, Multi-Storey Car Park Y)	Negligible	Loss of or damage resulting from construction works	Permanent	No change	No change	Not significant	
Setting of heritage assets (new hangar, Pier 7, Multi-Storey Car Park Y)	N/A	Effect on significance of heritage asset	N/A	No change	No change	Not significant	
Setting of heritage assets (air noise)	Up to High	Change within setting – air noise	Permanent	No change	No change	Not significant	
Grade I listed Church of St Nicholas, Charlwood (ground noise)	High	Change within setting – ground noise	Long-term	Negligible	Minor Adverse	Not significant	
Grade II* listed The Manor	High	Change within setting – ground noise	Long-term	Negligible	Minor Adverse	Not significant	

Receptor	Receptor Sensitivity	Description of Impact	Short / medium / long term / permanent	Magnitude of Impact	Significance of Effect	Significant / not significant	Notes
House, Charlwood (ground noise)							
Grade II* listed Providence Chapel, Charlwood (ground noise)	High	Change within setting – ground noise	Long-term	Negligible	Minor Adverse	Not significant	
Other listed buildings and Conservation Area at Charlwood (ground noise)	Medium	Change within setting – ground noise	Long-term	Negligible	Negligible Adverse	Not significant	
Road traffic noise	Up to High	Change within setting – road traffic noise	Permanent	No change	No change	Not significant	
<b>Design Year: 2038</b>							
No further effects beyond those assessed through 2033-2038							
<b>Long Term Forecast Year: 2047</b>							
No further effects beyond those assessed through 2033-2038							

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## 7.15. Glossary

**Table 7.15.1: Glossary of Terms**

Term	Description
AHAP	Areas of High Archaeological Potential
ANA	Archaeological Notification Area
CARE	Central Area Recycling Enclosure
CEA	Cumulative Effects Assessment
CoCP	Code of Construction Practice
CPRE	Campaign for the Protection of Rural England
CSAI	County Site of Archaeological Importance
dB	Decibel
DBA	Desk Based Assessment
DCO	Development Consent Order
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
ES	Environmental Statement
GI	Ground Investigation
HER	Historic Environment Records
HLC	Historic Landscape Characterisation
ILS	Instrument Landing System
LiDAR	Light Detecting and Ranging
NHLE	National Heritage List for England
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
NPS	National Policy Statement
PEIR	Preliminary Environmental Information Report
ZoI	Zone of Influence
ZTV	Zone of Theoretical Visibility