South East Strategic Reservoir Option

Preliminary Environmental Information Report

Chapter 8 - Historic environment

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8 Historic environment

8.1 Introduction

8.1.1 This chapter of the Preliminary Environmental Information (PEI) Report provides the preliminary assessment of likely significant effects on the Historic environment aspect from the construction and operation of the proposed SESRO Project (the Project, as detailed in Chapter 2: Project description).

8.1.2 Within this chapter, aspect-specific sections are included on:

- Legislation, policy and guidance (Section 8.2)
- Consultation, engagement and scoping (Section 8.3)
- Assessment methodology (Section 8.4)
- Study area (Section 8.5)
- Baseline conditions (Section 8.6)
- Project parameters, assumptions and limitations (Section 8.7)
- Embedded design mitigation and standard good practice (Section 8.8)
- Preliminary assessment of likely significant effects (Section 8.9)
- Next steps (Section 8.10)

8.1.3 This chapter assesses the potential construction and operation effects of the Project on the historic environment, including: Scheduled Monuments, listed buildings, registered parks and gardens, conservation areas and non-designated heritage assets (including buried archaeological remains). All historic environment effects, including those caused by the outputs of other assessments, are captured in this chapter.

8.1.4 This chapter should be read in conjunction with Chapter 2: Project description and other chapters of key relevance, namely:

- Chapter 9: Landscape and visual, for cross reference to landscape viewpoints and visualisations, where these encompass the setting and views of above ground heritage assets.
- Chapter 14: Noise and vibration, due to the potential for temporary or permanent increases in noise and vibration to either physically disturb heritage assets, or change their setting in a way that would affect their heritage value.
- Chapter 5: Water environment, due to changes in the water environment which have the potential to affect buried archaeological remains, including palaeoenvironmental deposits.

8.1.5 This chapter is supported by the following figures and appendices:

- Figure 8.1: Study area for historic environment
- Figure 8.2: Designated heritage assets within the study area
- Figure 8.3: Historic environment features and findspots within the study area
- Figure 8.4: Designated heritage assets and reservoir zone of theoretical visibility (ZTV) (screening/DSM)
- Figure 8.5: Historic environment receptors
- Appendix 8.1: Archaeological and historical baseline

- Appendix 8.2: Designated assets and non-designated built heritage assets – statements of significance
- Appendix 8.3: Gazetteer of heritage assets
- Appendix 8.4: Preliminary assessment of effects for historic environment

8.1.6 This PEI Report does not constitute a draft Environmental Statement (ES). Assessments reported within this PEI Report chapter are considered a reasonable 'worst case' as a precautionary approach has been taken where design, construction or baseline information is being developed. Nevertheless, the preliminary assessment is considered sufficiently robust to enable consultees to understand the likely significant environmental effects of the Project, based on current design information and understanding of the baseline environment. Gaps in information identified within the PEI Report will be considered and addressed as part of the assessment during the production of the ES, as noted in Section 8.10: Next steps.

8.1.7 Where initial likely significant effects are identified at this stage, these may ultimately be determined as not significant in the ES once data gaps are addressed and the design and mitigation are further developed. The ES will be submitted with the Development Consent Order (DCO) application and will provide the final assessment of likely significant effects; this will be informed by the ongoing Environmental Impact Assessment (EIA) process and ongoing consultation and engagement.

8.2 Legislation, policy and guidance

8.2.1 Table 8.1 lists the legislation, policy and guidance relevant to the Historic environment assessment for the Project and specifies where in the PEI Report information is provided in relation to these. A full policy compliance assessment will be presented within the Planning Statement as part of the DCO application.

8.2.2 National Policy Statements (NPS) form the principal policy for development progressing through the Planning Act 2008 process. The NPS for Water Resources Infrastructure (NPSWRI) is the primary NPS for the Project. In addition, the Secretary of State must also have regard to any other matters which they think are both important and relevant to the decision and this could include regional and local planning policies.

8.2.3 The Project is located mainly within the Vale of White Horse District, with the exception of the far eastern extent on the eastern bank of the River Thames, which falls within the South Oxfordshire District. The Project is wholly within the county of Oxfordshire. The regional and local planning policies most relevant to the assessment within this chapter are included in Table 8.1.

Table 8.1 Relevant legislation, policy and guidance for Historic environment

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Legislation		
Regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010. The regulations set out matters to which the Secretary of State must have regard when deciding applications for development consent. It states that, when deciding an application which affects a listed building, conservation area or a Scheduled Monument (or its setting), the decision maker must have regard to the desirability of preserving the asset or its setting or any features of special architectural or historic interest which it possesses.	The regulations apply to the Historic environment assessment as the Project is being progressed via a development consent order application and will have effects on a range of heritage assets.	Effects on listed buildings, conservation areas, Scheduled Monuments and the setting of heritage assets are assessed in Section 8.9: Preliminary assessment of likely significant effects.
The Ancient Monuments and Archaeological Areas Act 1979 (HMSO, 1979). Requires Scheduled Monument Consent (SMC) for any works of demolition, repair, and alteration that might affect a designated Scheduled Monument. Although, under the DCO regime a separate application for SMC is not required.	The Act details the protection of scheduled sites and the need for Scheduled Monument consent (SMC) prior to carrying out any works to a Scheduled Monument that would result in its demolition, destruction or damage. This applies to the Historic environment assessment as the Project poses potential significant effects upon Scheduled Monuments. Development affecting the setting of a Scheduled Monument is dealt with under the DCO regime and does not require Scheduled Monument consent. Although a separate application for SMC is not required under the DCO regime the act provides a framework for understanding the regulation of operations and activities that can be undertaken within scheduled monuments.	Physical disturbance and indirect (setting) effects on Scheduled Monuments are considered in Section 8.9: Preliminary assessment of likely significant effects.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Hedgerows Regulations (1997). Under these regulations, a hedgerow is 'important' if it, or the hedgerow of which it is a stretch has existed for 30 years or more; and satisfies a set list of criteria. This includes but is not limited to hedgerows marking the boundary of historic parishes, a Scheduled Monument or a pre-1600 AD estate or manor.	The area within the draft Order limits may contain mature hedgerows which qualify as 'important' under the regulations and therefore those which should be identified as sensitive receptors.	Construction effects on important hedgerows are scoped into the Ecological Impact Assessment (EcIA), which is set out in the Terrestrial ecology preliminary assessment in Chapter 7: Terrestrial ecology of the PEI Report, including those considered 'important' for historic reasons. As the regulations refer to removal only, such assets do not require standalone settings assessment (i.e. operation effects). The contribution of hedgerows to historic landscape will be considered in the historic environment chapter of the ES following completion of site walkover appraisal. Hedgerows which may be considered 'important' under the regulations for their historical features will be identified and assessed in the ES assessment, with cross-reference with the Ecological Impact Assessment (EcIA) where required.
Policy		
National Policy Statement for Water Resources Infrastructure (NPSWRI) (2023). The NPSWRI is the primary basis for examination by the Examining Authority and is used by the Secretary of State to consider development consent applications for nationally significant water resource infrastructure projects. Section 4.8 of the policy refers to the historic environment and its requirements are broadly similar to those in the National Planning Policy Framework (NPPF) (see below).	Section 4.8 is relevant as it sets out policy in relation to harm to heritage assets and how those assets should be assessed.	The PEI Report sets out the baseline of heritage assets which would potentially be affected by the Project (Section 8.6: Baseline conditions and Appendix 8.2: Designated assets and non-designated built heritage assets – Statements of significance). An assessment of the likely significant effects and proposed mitigation measures is provided in Section 8.9: Preliminary assessment of likely significant effects.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Paragraph 4.8.3 states that those elements of the historic environment identified as having a degree of significance meriting consideration in planning decisions because of their historic interest are called 'heritage assets', which may be buildings, monuments, sites, places, areas or landscapes, or a combination of these. The heritage interest derives from a combination of historic, archaeological, architectural or artistic and can also be derived from its setting. **Paragraph 4.8.5** explains that some non-designated archaeological remains might be of equivalent value to nationally significant Scheduled Monuments. **Paragraphs 4.8.7 – 4.8.10** set out the need to assess a project's capacity to change the historic environment through Environmental Impact Assessment (EIA), reaching conclusions on asset value (including contribution of setting), identifying significant effects and managing change through design. 4.8.8 states that 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. 4.8.9 encourages the applicant (where possible) to prepare proposals which can provide enhancements to heritage assets through sensitive design. **Paragraphs 4.8.11. – 4.8.14** set out the approach to mitigation. **Paragraphs 4.8.15. – 4.8.29** focus on the Secretary of State's decision-making on a DCO application		

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
and the conservation of heritage assets, irrespective of the levels of harm ascribed in assessment, as well as the way in which asset preservation is weighed against the public benefits of the project in question. 4.8.19 states that when when considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State will give great weight to the asset's conservation. The more important the asset, the greater the weight should be.		
Paragraph 4.8.7. Where the development is subject to EIA the applicant should undertake an assessment of any likely significant heritage impacts, including cumulative impacts, as part of the Environmental Statement.	The Project is subject to EIA and therefore an assessment of effect on heritage.	The PEI Report considers likely significant effects on heritage assets in Section 8.9: Preliminary assessment of likely significant effects.
Paragraph 4.8.12. Where the loss of the whole or part of a heritage asset's significance is justified, the Secretary of State will require the applicant to record and advance understanding of the significance of the heritage asset before it is lost (wholly or in part). The extent of the requirement should be proportionate to the asset's importance and significance and the impact. The applicant should be required to publish this evidence and to deposit copies of the reports with the relevant historic environmental Record. They should also be required to deposit the archive generated in a local museum or other public repository willing to receive it.	Potential significant effects identified through the Historic environment assessment will require mitigation to be implemented.	Embedded design mitigation and standard good practice being applied are noted in Section 8.8: Embedded design mitigation and standard good practice. Potential additional mitigation is identified in Section 8.10: Next steps.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Other national policy		
The NPPF (Ministry of Housing, Communities and Local Government (MHCLG), 2025). This sets out the Government's planning policies for England. Section 16 (Paragraphs 202 to 214) refers to conserving and enhancing the historic environment. Paragraph 202 defines designated and non-designated assets, and the concepts of substantial harm and less than substantial harm are explained in paragraphs 212 and 213. Paragraph 213 states that substantial harm to designated heritage assets should be wholly exceptional.	The PEI Report provides an assessment of baseline conditions and effects, as required by the NPPF. While the NPPF does not set specific policies for NSIPs, its policies may be of relevance to decision making. The requirements of NPPF are embodied in the NPSWRI.	The PEI Report contains a summary of baseline conditions (Section 8.6: Baseline conditions), with further baseline detail appended. The PEI Report considers likely significant effects on heritage in Section 8.9: Preliminary assessment of likely significant effects.
Regional and local policy		
Vale of the White Horse District Council 'The Vale Local Plan 2031' (2019). This sets out the spatial strategy and strategic policies for the district to deliver sustainable development, including the local policy framework for development potentially leading to impacts to Heritage Assets. Core Policies 36, 37, 38 and 39 relate to the historic environment. These policies seek to protect and enhance the historic environment through high design and environmental standards that will be resilient to climate change. The core policies largely reflect legislation and national policy with regard to the protection of the historic environment.	The PEI Report provides an assessment of baseline conditions and effects. Potential significant effects identified through the Historic environment assessment will require mitigation to be implemented.	The PEI Report considers likely significant effects on heritage in Section 8.9: Preliminary assessment of likely significant effects. Embedded design mitigation and standard good practice being applied are noted in Section 8.8: Embedded design mitigation and standard good practice. Potential additional mitigation is identified in Section 8.10: Next steps.
South Oxfordshire District Council 'Adopted Local Plan 2035' (2020).	The core policies provide a framework and guidance for the approach to development	The PEI Report considers likely significant effects on heritage in Section 8.9:

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
This sets out the future for development in South Oxfordshire up to 2035. Policies ENV6, ENV7, ENV8, ENV9 and ENV10 are the core adopted polices relating to the historic environment. The core policies largely reflect legislation and national policy with regard to the protection of the historic environment.	within the local district authority and contains policies relevant to the historic environment. The PEI Report provides an assessment of baseline conditions and effects as required by ENV6. Potential significant effects identified through the Historic environment assessment will require mitigation to be implemented, as outlined in ENV9 which states that where harm is justified this should be minimised by a programme of archaeological investigation, including excavation, recording and analysis (paragraph 8).	Preliminary assessment of likely significant effects. Embedded design mitigation and standard good practice being applied are noted in Section 8.8: Embedded design mitigation and standard good practice. Potential additional mitigation is identified in Section 8.10: Next steps.
Guidance		
Historic England Good Practice Advice 2 (GPA2) - Managing Significance in Decision-taking (March 2015). GPA2 emphasises the importance of having knowledge and understanding of the significance of heritage assets likely to be affected by the Project and that the 'first step for all applicants is to understand the significance of any affected heritage asset and, if relevant, the contribution of its setting to its significance' (paragraph 4). Early knowledge of this information is also useful to a local planning authority in pre-application engagement with an applicant and ultimately in decision making (paragraph 7).	The guidance has helped to set the framework for the extent of data collection required to inform an understanding of the heritage assets in and around the draft Order limits.	The PEI contains a summary of baseline conditions (Section 8.6: Baseline conditions), with further baseline detail appended.
Historic England Good Practice Advice 3 (GPA3)- The Setting of Heritage Assets (2nd Edition) (December 2017).	GPA3 has informed the basis of the assessment of effects to heritage assets brought about by changes to their settings.	The contribution of setting to baseline significance is considered within Section 8.6: Baseline conditions and Appendix 8.2: Designated assets and non-designated built

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
GPA3 provides advice on the setting of heritage assets. Setting is as defined in the NPPF and comprises the surroundings in which a heritage asset is experienced. Elements of a setting can make positive or negative contributions to the significance of an asset and affect the ways in which it is experienced. Historic England state that setting does not have a boundary and what comprises an asset's setting may change as the asset and its surrounding evolve. Setting can be extensive and particularly in urban areas or extensive landscapes can overlap with other assets. The contribution of setting to the significance of an asset is often expressed by reference to views and the GPA in paragraph 11 identifies those views such as those that were designed or those that were intended, that contribute to understanding the significance of assets.		heritage assets – Statements of significance and the assessment of effects (including those deriving through changes to setting) is presented in Section 8.9: Preliminary assessment of likely significant effects.
Historic England Advice Note 12 Statements of Heritage Significance (October 2019). The Advice Note outlines a recommended approach to assessing the significance of heritage assets in line with the requirements of the NPPF. It includes a suggested reporting structure for a '*Statement of Heritage Significance'*, as well as guidance on creating a statement that is proportionate to the asset's significance and the potential degree of impact of a Proposed Development. The Advice Note also offers an interpretation of the forms of heritage interest that an asset can possess, based on the terms provided in the NPPF	The Advice Note informs the historic environment baseline assessment, particularly with regard to establishing the significance of heritage assets and the attributes which contribute to that significance.	This approach is adopted in this assessment. Appendix 8.2: Designated assets and non-designated built heritage assets – Statements of significance includes an assessment of the baseline significance of assets within the Order Limits and wider vicinity. Appendix 8.1: Archaeological and historical baseline contains an assessment of previously unrecorded archaeological remains that are likely to be present, based on their archaeological, architectural, artistic and historic features.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
Glossary (MHCLG, 2025); namely archaeological, architectural and artistic, and historic.		
Chartered Institute for Archaeologists (CIfA), standard and guidance for Historic environment desk-based assessment (CIfA, 2020). This sets out the minimum standard for Historic environment Desk Based Assessment.	The heritage baseline and appendices have been produced with reference to these standards and guidance.	The results of desk based assessment are contained throughout this chapter and supported by Appendix 8.1: Archaeological and historical baseline, Appendix 8.2: Designated assets and non-designated built heritage assets – statements of significance and Appendix 8.3: Gazetteer of heritage assets.
Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic environment (English Heritage, 2008). This document sets out the approach to making decisions and offering guidance about all aspects of England's historic environment.	This guidance sets the framework for decision making on all aspects of England's historic environment and specifically defines values for understanding significance of heritage assets and how change is managed.	General guidance for understanding value and significance of heritage assets is considered throughout this chapter and its appendices.
National Planning Practice Guidance (NPPG) (2019) Explains the processes and tools that can be used through the planning system in England.	This guidance includes advice on enhancing and conserving the historic environment and reinforces the approach for identifying significance and assessing harm as required in the NPPF and the NPSWRI.	In line with NPPF, the general guidance is considered within this chapter in how heritage assets are identified and in the approach for mitigating harm.
Design Manual for Roads and Bridges (DMRB) LA 106 Cultural Heritage Assessment (National Highways 2020) Sets out the requirements for assessing and reporting the effects on cultural heritage as part of environmental assessment.	DMRB includes guidance on assessment methods and asset valuation criteria and informs the matrices and criteria for EIA assessment.	The general approach for understanding value and significance of heritage assets is adopted, along with the assessment methodology for determining significant effects.
IEMA Principles of Cultural Heritage Impact Assessment (2021).	The guidance supplements existing guidance to set principles that promote good practice in cultural heritage	General guidance has informed this chapter, specifically with regard to assessing baseline significance and evaluating change.

Legislation, policy or guidance description	Relevance to assessment	Where in the PEI Report is information provided to address this
The document provides a set of principles that promote good practice in cultural heritage impact assessment.	assessment. The document outlines the main principles for carrying out Cultural Heritage Impact Assessment (CHIA) and specifically emphasises the importance of understanding the consequences of change to cultural significance so that an informed decision about the sustainable management can be made.	
Oxfordshire County Council (2024), General guidance documents for archaeological assessment and fieldwork, comprising: - Oxfordshire County Council: Archaeological desk-based assessment guidance document (2024); - Oxfordshire County Council : Archaeological evaluation guidance document (2024); and - Oxfordshire County Council : Archaeological geophysical survey guidance document (2024).	General guidance documents which set out Oxfordshire County Council's standards and requirements for archaeological assessment and approaches to archaeological evaluation survey.	The results of desk based assessment are contained throughout this chapter and supported by Appendix 8.1: Archaeological and historical baseline. Ongoing archaeological fieldwork is being carried out in agreement with the archaeological advisor for Oxfordshire County Council under the terms of an agreed Written Scheme of Investigation (WSI), which adopts the approaches set out in Oxfordshire County Council guidance.

8.3 Consultation, engagement and scoping

8.3.1 Feedback from consultation and engagement is used to define the assessment approach and to ensure that appropriate baseline information is used. Feedback is also used to drive the design of the Project to avoid, prevent and reduce any likely significant environmental effects. In particular, feedback from key stakeholders has informed the Project's proposed mitigation measures. Specific mitigation measures relevant to the Historic environment assessment are summarised in Section 8.8: Embedded design mitigation and standard good practice of this chapter. Engagement is ongoing and will continue to inform the EIA and design process.

Scoping Opinion

8.3.2 The EIA Scoping Report (Thames Water, 2024) was issued to the Planning Inspectorate (PINS) on 28 August 2024. PINS provided its EIA Scoping Opinion (The Planning Inspectorate, 2024) on 8 October 2024, which included feedback from consultation bodies that it formally consulted.

8.3.3 Table 8.2 captures the key Scoping Opinion comments received from PINS and other key comments received from consultation bodies relevant to the Historic environment assessment, along with the Applicant's response to these at this stage of the assessment. Key activities to inform the final assessment that will be undertaken between the PEI Report and ES are covered in Section 8.10: Next steps. The full consultee comments on the EIA Scoping Report and responses to these will be provided in the ES.

Table 8.2 Key Scoping feedback for Historic environment

Stakeholder	Scoping comment	Applicant response
PINS	3.5.1 Non-designated archaeology – operation The Scoping Report proposes to scope out this matter on the basis that no adverse effects are identified. No evidence has been provided to support this and the extent of impacts during operation are currently unknown. Due to the lack of information provided, the Inspectorate does not agree to scope this matter out. The ES should assess impacts on the non-designated archaeology during operation of the Proposed Development unless robust justification is provided to demonstrate that significant effects are unlikely to occur. Agreement on this matter should be sought	<u>Non-designated archaeology (outside of draft Order limits)</u> For non-designated archaeological assets outside of the draft Order limits, such remains are buried and therefore 'invisible' and would not be quantified by the Project investigation works. As such, it is not considered proportionate or feasible to assess any operational effects on this resource, including both long-term fluvial changes or effects through changes to setting. <u>Non-designated archaeology (within draft Order limits)</u> For the majority of non-designated archaeological remains within the draft Order limits there would be no further disturbance following the completion of the construction phase and no additional direct/physical disturbance.

Stakeholder	Scoping comment	Applicant response
	with the relevant statutory consultation bodies.	However, operational effects on non-designated archaeological remains within the draft Order limits will be considered in reference to long-term changes in hydrological regime, though such effects would only be relevant for those assets not physically affected (i.e. removed or truncated) by prior construction activities. It is also confirmed that the scope includes potential effects on non-designated palaeoenvironmental resources through long-term changes in hydrological regime during operation, as set out in Table 10-6 of the Scoping Report.
PINS	3.5.2 Scheduled Monuments – operation The Scoping Report proposes to scope out this matter on the basis that no adverse effects are identified. No evidence has been provided to support this and the extent of impacts during operation are currently unknown. Furthermore, paragraph 10.7.2 states that during operation, there may be changes to hydrological regimes which may affect buried remains. The Inspectorate does not agree to scope this matter out at this stage. The ES should assess impacts on the Scheduled Monuments during operation of the Proposed Development unless robust justification is provided to demonstrate that significant effects are unlikely to occur. Agreement on this matter should be sought with the relevant statutory consultation bodies.	It is noted that Historic England has agreed in its Scoping response (letter dated 23 September 2024) that operational effects on Scheduled Monuments can be scoped out. This is understood to include long-term changes to setting and changes to fluvial regimes. For a complete settings assessment, the PEI Report and ES assessment will include consideration of operation effects on Scheduled Monuments, with respect to changes to setting. The full groundwater model is not available at PEI Report stage. Though significant effects are considered unlikely (see summary of preliminary assessment in paragraph 8.9.19), changes to hydrological regimes leading to degradation of scheduled remains will be considered where the groundwater model allows such an assessment to be carried out. The full groundwater model will be produced to support the ES, and the hydrogeological impact assessment will be cross-referenced where relevant.
PINS	3.5.3 Historically ‘important’ hedgerows – operation The Scoping Report proposes to scope out this matter on the basis that no adverse effects are identified. No evidence has been provided to support this and the extent of impacts during operation	Construction effects on important hedgerows are scoped into the Ecological Impact Assessment (EcIA), which is set out in the Terrestrial ecology preliminary assessment in Chapter 7: Terrestrial ecology of the PEI Report, including those considered ‘important’ for historic reasons. As the Hedgerow Regulations refer to removal only, such assets do not require

Stakeholder	Scoping comment	Applicant response
	are currently unknown. Due to the lack of information provided, the Inspectorate does not agree to scope this matter out. The ES should assess impacts on the historically important hedgerows during operation of the Proposed Development unless robust justification is provided to demonstrate that significant effects are unlikely to occur. Agreement on this matter should be sought with the relevant statutory consultation bodies.	standalone settings assessment (i.e. operation effects). The contribution of hedgerows to historic landscape will be considered in the historic environment chapter of the ES.
PINS	3.5.4 Study area The Scoping Report states that historic environment data has been acquired for an area which includes a 2km buffer from the scoping boundary. However, the ZTV mapping provided at Figure 8.4 identifies potential visibility beyond these extents. The ES should establish the study area with reference to the extent of the likely impacts and informed by fieldwork and the ZTV. The Applicant should agree this study area with relevant consultation bodies where possible. Any receptors outside of this study area but within the ZTV of the Proposed Development should also be included within the assessment.	In addition to the Zone of Theoretical Visibility (ZTV), professional judgement has been applied when scoping heritage assets potentially affected through changes to setting. In line with NPS proportionality (paragraph 4.8.8) on levels of harm, those assets of the highest significance (i.e. designated assets) are considered beyond the 2 kilometre (km) study area, where these coincide with the ZTV and are likely to experience an environmental effect. Engagement and agreement will be sought with the relevant stakeholders regarding the final list of heritage asset receptors to be assessed with respect to setting. This will be undertaken following the completion on-site setting appraisals, production of heritage photography and with cross-reference to the Landscape and visual assessment (ZTV and viewpoint photography), which will all form part of the baseline information in the ES.
PINS	3.5.5 The Scoping Report states that intra-development effects may arise from the historic environment visual impacts and groundwater impacts. The assessment should cross reference with relevant groundwater impact modelling and assessment to ensure that assets impacted by the changes to ground conditions will be protected throughout the operational period.	The potential for intra project effects is noted and has been considered in Chapter 20: Cumulative effects assessment. The assessment has considered potential effects derived from changes in hydrological conditions. The full groundwater model will be produced to support the ES, and the hydrogeological impact assessment.

Stakeholder	Scoping comment	Applicant response
Historic England response to Scoping report (Letter dated 23 September 2024)	Historic England suggested that it would be more appropriate to consider the impact upon designated assets that fall within the ZTV identified in Scoping (Figure 9.4), rather than a radial 2km study area.	Designated assets have been considered beyond the 2km study area, where these coincide with the ZTV.
Historic England response to Scoping report (Letter dated 23 September 2024)	Historic England is content that operational phase effects on Scheduled Monuments can be scoped out.	Noted.
Oxfordshire County Council response to Scoping report (Letter dated 25 September 2024)	Comments received in relation to the historic environment were: -Adverse impacts on heritage assets should be avoided where the significance of the asset requires this in accordance with national and local policy, - The ES should not imply that the ability to record archaeological features is a factor in determining whether such a loss is acceptable, - Proposals to mitigate the loss of heritage assets such as interpretation boards and public talks should be addressed in the ES, - Programme of archaeological investigation will need to be undertaken ahead of the determination of any application for this Project (including geophysical survey and trenching). - Stated that the preliminary archaeological deposit model provides information on the areas of geoarchaeological potential, rather than general archaeological potential.	Effects have been assessed in line with national and local policy. The potential for archaeological assets that would be subject to the policies for designated sites is noted. The ongoing programme of archaeological investigation will determine whether such features are present. A programme of public engagement/dissemination of the results of any fieldwork will be captured in the Detailed Archaeological Mitigation Strategy, following completion of the on-site investigations. It is noted and agreed that the preliminary geoarchaeological deposit model provides information on geoarchaeological potential, rather than general archaeological potential (for all periods).
Vale of White Horse District Council response to Scoping report (Letter dated 25	There is concern the 2km scoping area has been drawn based on distance rather than local conditions, in particular topography which would afford some wider extension to areas of higher	Designated assets have been considered beyond the 2km study area, where these coincide with the ZTV. The ZTV has considered the likely visual relationship between the Project and Nuneham Courtenay registered park and garden are

Stakeholder	Scoping comment	Applicant response
September 2024)	ground over this particularly flat part of the district. The Vale also consider that Nuneham Courtenay registered park and garden (RPG) and conservation area (CA) are scoped into the study. The topography of the RPG and CA, whilst outside the 2km scoping area buffer is such that the area falls within the ZTV and is likely to have a current visual relationship with the Project. The Vale is also concerned that assets could be scoped out between this scoping process and the submission of a final ES which have not been agreed or appropriately assessed given a lack of methodology for this process.	included within the scope of the PEI report and will be fully assessed in the ES. The ZTV, the results of heritage survey/viewpoint photography and professional judgement will inform which assets are proposed to be scoped out of further assessment in the ES. Consultees will have the opportunity to comment on the receptors selected for assessment in the PEI Report, and the sensitivity categorisation assigned to these, as part of the statutory consultation.

Non-statutory public consultation

8.3.4 Non-statutory public consultation on the emerging proposals for the Project was undertaken with stakeholders and local communities in Summer 2024. Formal responses to this non-statutory consultation feedback have been provided within the 'Statement of Response' (Thames Water, 2025). Any feedback relevant to the Historic environment assessment has been taken into account.

Ongoing engagement

8.3.5 This section summarises the ongoing technical engagement for the Historic environment aspect with key stakeholders since EIA scoping. This includes meetings, written correspondence and a Technical Liaison Group (TLG) attended by Historic England and Oxfordshire County Council.

8.3.6 Table 8.3 provides a summary of the ongoing technical engagement for the Historic environment aspect, including the issues raised and outcomes for the assessment.

Table 8.3 Key ongoing engagement for Historic environment

Stakeholder	Topics	Outcome
Oxfordshire County Council	Archaeological evaluation (geophysics and trial trenching) – weekly meetings on site with the Local Planning Authority (LPA) Archaeological Advisor.	The scope of the ongoing archaeological investigations (including geophysical surveys) was agreed with the LPA Archaeological Advisor in line with agreed Written Scheme of Investigation (WSI). Following commencement of the programme of work general weekly onsite meetings have been

Stakeholder	Topics	Outcome
		carried out to assess the results of ongoing archaeological trial trenching, which include broad discussion of the findings in addition to agreement of any changes to scope (i.e. trench placement and programme).
Technical Liaison Group Meetings attended by Oxfordshire County Council and Historic England.	General project updates on Project design, latest findings of surveys and reporting procedures.	Broad Project discussion on the emerging Project design and progress updates on Geophysical Survey and Trial Trenching. Potential future plans and considerations were discussed, including opportunities for integration of heritage within the Project design along with community engagement.

8.4 Assessment methodology

8.4.1 This section outlines the methodology followed to assess the likely significant effects of the Project in relation to the Historic environment aspect including:

- Effects scoped into the assessment
- Study area
- Criteria for determining likely significant effects
- Assessment of cumulative effects

8.4.2 The overarching approach to the assessment methodology is set out in Chapter 4: Approach to environmental assessment. This has informed the approach used in this Historic environment assessment.

8.4.3 Any further data collection or site surveys, studies, modelling, or additional assessments that are still to be undertaken to inform the ES are set out in Section 8.10: Next steps.

8.4.4 The assessment methodology followed for the Historic environment is based on Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment (National Highways, 2020) and LA106 Cultural heritage assessment (National Highways, 2020), which are in accordance with the scoping report and opinion received.

Scope of the assessment

8.4.5 The scope of the assessment has been informed by the EIA Scoping process, including the EIA Scoping Report (Thames Water, 2024) and Scoping Opinion (The Planning Inspectorate, 2024), combined with subsequent changes to the Project design and an enhanced understanding of the baseline environment.

8.4.6 Matters that have been scoped out of the Historic environment assessment are documented in Appendix 4.1: Effects scoped out of the EIA, along with justification for this scoping approach. In summary, matters scoped out are:

- Operational effects on non-designated buried archaeological remains in relation to changes to setting.
- Operational effects on non-designated above ground heritage assets beyond 1km of the draft Order limits (as noted in paragraph 8.4.12 below).

8.4.7 Effects that are scoped in for the Historic environment assessment relevant to the construction phase are:

- Partial or total removal and damage of non-designated heritage assets, including above ground structures, archaeological and palaeoenvironmental remains, within the Project footprint.
- Permanent damage to archaeological deposits by construction activities, which might include compaction, vibration or effects to palaeoenvironmental deposits and non-designated heritage assets occurring as a result of changes in hydrological regime.
- Potential effects to Scheduled Monuments from vibration arising from construction activity.
- Temporary effects arising from changes to the setting of heritage assets, including non-designated heritage assets, and designated heritage assets (i.e. Scheduled Monuments, listed buildings, registered parks and gardens).
- Partial or total removal of historic landscape features such as hedgerows considered 'important' under the Hedgerow Regulations. Note that whilst this effect remains scoped into the assessment, it has not been considered for the PEI Report assessment as surveys are ongoing to determine whether important hedgerows are present. Ongoing site surveys and baseline assessment will inform the assessment presented in the ES.

8.4.8 Effects that are scoped in to the Historic environment assessment relevant to the operation phase are:

- Effects that arise as a result of changes to the settings of designated (including scheduled monuments, listed buildings and registered parks and gardens) and non-designated heritage assets (including buried archaeological remains and historic landscape) within the Project footprint and wider study area.
- Effects from long-term changes in hydrological regime to non-designated palaeoenvironmental resources.

Study area

Designated heritage assets

8.4.9 The study area considered in the assessment comprises a buffer that extends 2km from the draft Order limits (for the PEI Report). This buffer has been selected on the basis of professional judgement and experience, based upon the scale of the Project and the potential for this to change the settings of designated assets at distance. This approach has been agreed with Oxfordshire County Council.

8.4.10 All designated assets within this study area have been considered by the assessment. In addition, where designated assets, such as registered parks and gardens (RPG), straddle the limit of the study area, any designated heritage assets associated within these that could experience effects have also been included in the assessment.

8.4.11 A Zone of Theoretical Visibility (ZTV) has been developed for the Project, and is shown in Figure 8.4: Designated heritage assets and reservoir zone of theoretical visibility (ZTV) (screening/DSM) (see Chapter 9: Landscape and visual and Appendix 9.6 for details on how the ZTV was defined). A ZTV is used as a tool in heritage settings assessments to identify where a proposed development might be seen from. This helps determine which heritage assets could be visually affected and therefore the scope of assets considered for assessment, guiding site visits and informing the impact assessment. Those assets of the highest significance (i.e. designated assets) are considered beyond the 2 km study area, where these coincide with the ZTV and are likely to experience an environmental effect.

Non-designated heritage assets

8.4.12 The assessment considers non-designated heritage assets within 1km of the draft Order limits (for the PEI Report). This study area is based upon professional judgement that non-designated assets are less likely to experience significant adverse effects as a result of changes to their settings beyond this distance. This is a change from the methodology used in the Scoping Report where a 2km buffer was used. This change was made in light of Data received from the Historic Environment Record (HER) indicates that the majority of records concern either buried archaeological remains or records of find spots of artefacts that are no longer present. Consultees will have the opportunity to comment on the receptors selected for assessment in the PEI Report, and the sensitivity categorisation assigned to these as part of the statutory consultation. This study area also enables heritage assets within the draft Order limits (for the PEI Report) to be evaluated and considered within a wider archaeological context of the surrounding area.

Methodology

Baseline

Data collection

8.4.13 Baseline data collection has been undertaken to obtain information for the study areas. This section provides the approach to collecting baseline data.

8.4.14 The following data sources have been accessed to inform the baseline with respect to the historic environment:

- Designated heritage assets data from Historic England from the wider 2km study area and ZTV
- HER data from Oxfordshire County Council within a 1km study area
- British Geological Survey (BGS) for geological data in the local region
- Interpretation of project acquired geophysical survey data (2024) from the draft Order Limits
- Interpretation and mapping from Aerial Photographs, satellite imagery and Light Detection and Ranging (LiDAR) data, prepared by Air Photo services
- Historic Ordnance Survey mapping for information on past land use within the draft Order limits, assets of heritage interest, and the identification of activities that may have compromised archaeological survival
- Additional information from archives, such as earlier historic maps, tithe apportionments and local history.

8.4.15 In addition to these data sources, the Historic environment assessment also draws on environmental baseline data collated for other aspects, specifically, baseline data presented in Chapter 9: Landscape and visual (ZTV), Chapter 10: Geology and soils (underlying geological conditions) and Chapter 14: Noise and vibration (receptors that could experience changes to noise and vibration that are considered significant).

Site walkover / setting appraisal

8.4.16 The collection of information to inform the historic environment baseline for the assessment has also included a series of walkover surveys to determine the topography and existing land use of the area within the draft Order limits, and to provide further information on areas of possible past ground disturbance and general historic environment potential.

8.4.17 The walkovers carried out to date have focused on selected designated heritage assets beyond the draft Order limits, based on their location within the ZTV and professional judgement, to consider potential effects on their setting, and for the purpose of taking heritage viewpoint photography. At the time of writing site walkover surveys have comprised:

- Targeted heritage walkovers carried out on 18 March and 3 July 2025 for the purpose of appraising the baseline setting of Scheduled Monuments on the Ridgeway and the length of the scheduled Grim's ditch (National Heritage List Entry no. 1006305), 3.5km to the south of the Project, to inform the initial viewpoint selection.
- Further heritage surveys conducted on the 8 and 9 July 2025, focused on appraising the baseline setting of Scheduled Monuments and conservation areas within the study area.
- Further site surveys conducted 13-15 August 2025 and between 3-19 September 2025 focusing on the setting baseline appraisal for listed buildings and conservations area within the wider study area.

Archaeological field evaluation

8.4.18 Ongoing extensive archaeological surveys are being undertaken within the draft Order limits, in the form of prospection geophysical survey (magnetometry) and archaeological trial trench evaluation. The aim of the evaluation is to clarify the presence, nature, date and extent of any archaeological remains that might be present within the areas of likely disturbance, where current survival of existing archaeology is expected to be high.

Future baseline

8.4.19 The assessment has considered the likely evolution of the baseline without the implementation of the Project. The future baseline for the Historic environment assessment includes any other relevant developments expected to be operational or under construction prior to or during the construction and operation of the Project.

8.4.20 The methodology used to prepare the list of other developments that have informed the future baseline of Historic environment assessment is outlined in Chapter 20: Cumulative effects.

Criteria for the assessment of significance

8.4.21 The methodology for assessing effects is based on the principle that the environmental effects of the Project on a receptor, should be determined by identifying the receptor's sensitivity (for historic environment this is often referred to as (heritage significance) 'value' in line with industry terminology), assessing the magnitude of impact the Project would have on the receptor, and then combining these two elements to identify the significance of effect (using professional judgement where necessary).

8.4.22 Due to the assessment assumptions and limitations set out under paragraph 8.7.3, it has not been possible to confidently assign the magnitude of certain impacts and therefore categorise the significance of these for this preliminary assessment of likely significant effects on the historic environment. Where the likely magnitude of impact is better understood (e.g. for the potential impacts associated with construction activities on buried remains), this is reported along with the category of likely significance of effect (this is also provided in Appendix 8.4: Preliminary assessment of effects for Historic environment). At this preliminary stage, due to noted limitations, reporting of magnitude of impacts and therefore the category of significant effects on above ground heritage assets potentially affected through changes to setting has not been done. Instead, the sensitivity of receptor and professional judgement has been used to determine whether effects are likely to be significant or not, and where appropriate adopting a precautionary determination that effects are likely to be significant, where design, construction or baseline information that informs the assessment is still being developed.

Assessment of sensitivity

8.4.23 Table 8.4 provides detail on the criteria for establishing the sensitivity of receptors that have been used in this assessment.

8.4.24 To be consistent with other EIA aspects, heritage significance (value) is referred to as 'sensitivity' throughout this chapter. As such, where the term 'sensitivity' is used this specifically refers to the heritage significance (value) of the sensitive receptor, as defined in the National Policy Statement (NPS) for water infrastructure and the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government (MHCLG), revised 2023).

8.4.25 Each asset is evaluated against the range of criteria on a case-by-case basis and using professional judgement. Supporting guidance methodology is provided in the Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment (National Highways, 2020) along with Historic England's Conservation Principles (2008) and Advice Note 12 'Statements of Heritage Significance' (2019).

Table 8.4 Criteria for establishing the sensitivity of receptors

Sensitivity of receptor	Typical descriptors
Very high	**Archaeological remains:** World Heritage Sites (including nominated sites). Assets of acknowledged international importance. Assets that can contribute significantly to acknowledged international research objectives **Historic buildings:** Structures recognised as of universal importance as World Heritage Sites. Other buildings of recognised international importance **Historic landscapes:** World Heritage Sites recognised for their historic landscape qualities. Historic landscapes of international value, whether designated or not. Extremely well-preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s)

Sensitivity of receptor	Typical descriptors
High	**Archaeological remains:** Scheduled Monuments (including proposed sites). Undesignated assets of schedulable quality and importance. Assets that can contribute significantly to acknowledged national research objectives **Historic buildings:** Scheduled Monuments with standing remains. Grade I, Grade II* and Grade II listed buildings. Conservation areas containing very important buildings. Undesignated structures of clear national importance **Historic landscapes:** Designated historic landscapes of outstanding interest. Undesignated landscapes of outstanding interest. Undesignated landscapes of high quality and importance and of demonstrable national value. Well preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s)
Moderate	**Archaeological remains:** Non-designated assets that contribute to regional research objectives **Historic buildings:** Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations. Conservation areas containing buildings which contribute significantly to their historic character. Listed structures such as historic milestones which are not in their original location might warrant this value **Historic landscapes:** Designated special historic landscapes. Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value. Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s)
Low	**Archaeological remains:** Non-designated assets of local importance. Assets compromised by poor preservation and/or poor survival of contextual associations. Assets of limited value, but with potential to contribute to local research objectives **Historic buildings:** 'Locally listed' buildings. Historic (unlisted) buildings of modest quality in their fabric or historical association **Historic landscapes:** Robust undesignated historic landscapes. Historic landscapes with importance to local interest groups, and with value that is limited by poor preservation and/or poor survival of contextual associations
Negligible	**Archaeological remains:** Assets with very little or no surviving archaeological importance. **Historic buildings:** Buildings of no architectural or historical note; buildings of an intrusive character. **Historic landscapes:** Landscapes with little or no significant historical interest

Magnitude of impact

8.4.26 The approach used to assess magnitude of impact on historic environment receptors considers the nature and magnitude of impact upon the receptor. The magnitude of impacts on archaeological remains has been determined based on professional judgment and experience with reference to defined criteria from guidance (DMRB). Table 8.5 provides further detail on the criteria for assessing the magnitude of impact that have been applied for impacts on buried archaeology. As noted in paragraph 8.4.22, due to uncertainties the preliminary assessment of effects for this aspect has not categorised the magnitude of impacts on above ground heritage assets caused by the Project.

8.4.27 For the assessment that is reported in the ES, the criteria for assessing magnitude of impact in Table 8.5 will be applied for all receptors, including above ground heritage assets.

8.4.28 Whilst not relied upon for the preliminary assessment, in forming a professional judgement of whether an effect will be significant or not, an indicative consideration of the criteria in Table 8.5 has been made in determining the significance of effects on above ground heritage assets, although the magnitude of impact is not reported.

Table 8.5 Criteria for assessing the magnitude of impact

Magnitude of impact	Description and nature of change
Large	Loss of heritage asset and/or quality and integrity of heritage asset; severe damage to key characteristics, features or elements. Large scale or major improvement of heritage asset quality; extensive restoration; major improvement of attribute quality
Medium	Loss of heritage asset, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements. Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Small	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements. Very minor benefit to or positive addition of one or more characteristics, features or elements.
No change	No loss or alteration of characteristics, features or elements; no observable impact in either direction.

Significance of effect

8.4.29 Table 8.6 shows how the combination of sensitivity of receptor and magnitude of impact has been used as a guide to categorise the significance of effect on buried archaeology (effects that are moderate or major are deemed to be significant). The resultant effects may be either adverse, beneficial or neutral, depending on the nature of the impact.

8.4.30 As noted in paragraph 8.4.22, the preliminary assessment for this aspect has not categorised the significance of each effect (i.e. whether it is major, moderate, minor, neutral or none) on above ground heritage assets. Instead, the sensitivity of receptor and professional judgement and experience (with indicative consideration of the criteria in Table 8.5) has been used to determine if each likely effect on these assets is anticipated to be 'significant' or 'not significant'.

8.4.31 For the assessment that is reported in the ES, categories of significance will be applied to all effects, based on the combination of magnitude of impact and sensitivity of receptor as shown in Table 8.6. Note that Table 8.6 aligns with the overarching significance categories applied across the SESRO EIA noted in Chapter 4: Approach to the environmental assessment.

8.4.32 Whilst not relied upon for the preliminary assessment, in forming a professional judgement of whether an effect on above ground heritage assets will be significant or not, an indicative consideration of the significance matrix in Table 8.6 has been made in determining if likely effects on these assets are anticipated to be 'significant' or 'not significant'.

Table 8.6 Significance matrix

Receptor Sensitivity (value)	Magnitude of impact				
	No change	Negligible	Small	Medium	Large
Negligible	None	Neutral	Neutral	Minor	Minor
Low	None	Neutral	Minor	Minor	Moderate (significant)
Moderate	None	Minor	Minor	Moderate (significant)	Moderate (significant)
High	None	Minor	Moderate (significant)	Moderate (significant)	Major (significant)
Very High	None	Minor	Moderate (significant)	Major (significant)	Major (significant)

8.4.33 For this preliminary assessment, the assessment of effects has assumed that 'embedded design mitigation' and 'standard good practice mitigation' relevant to the Historic environment assessment is in place (these measures are presented in Section 8.8: Embedded design mitigation and standard good practice). Nevertheless, as noted in Section 8.9: Preliminary assessment of likely significant effects, the preliminary assessment assumes that additional mitigation that may reduce any identified likely significant adverse effects is not applied, as the viability, nature, and extent of these are not confirmed at this stage in the EIA process. As a result, consideration of residual effects (those that remain after the implementation of all mitigation, including additional mitigation) has not been completed for this preliminary assessment; this will be undertaken in the ES. Additional mitigation that is being explored is presented in Section 8.10: Next steps.

Assessing harm

8.4.34 There is no direct correlation between the language used in the NPS, NPPF and PPG (i.e. substantial or less than substantial harm) and standard EIA methodology. The term 'less than substantial harm' covers a broad spectrum of environmental effects, and professional judgement has been used to determine whether the significance of an effect is moderate or major, and therefore 'significant' in EIA terminology, or minor or negligible, and 'not significant'.

8.4.35 Paragraphs 4.8.23 and 4.8.24 of NPSWRI refer to applying the test of substantial harm to designated heritage assets. It is stated elsewhere that non-designated heritage assets of 'equivalent significance to Scheduled Monuments' be considered subject to the policies for designated heritage assets (NPSWRI 2025, paragraph 4.8.5).

8.4.36 For non-designated heritage assets of lesser significance NPPF notes that a 'balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset' (NPSWRI paragraph 4.8.25).

8.4.37 Although there is no direct correlation of environmental effects to terms used in the NPS/NPPF, in broad terms an adverse effect of negligible to moderate significance to a designated asset or a non-designated asset of equivalent sensitivity would normally be considered as 'less than substantial harm', while a major adverse effect would normally be considered 'substantial harm'. The degree of harm to assets that meet the NPS criteria will be described in the ES, informed by the results of the assessment and professional judgement.

8.4.38 The NPS policy does not apply tests of substantial harm and less than substantial harm to non-designated assets that do not meet the designation criteria. However, this does not mean that non-designated heritage assets of low-high sensitivity cannot be subject to substantial harm (i.e. total loss of significance by physical removal) prior to mitigation measures being implemented. For any non-designated heritage assets physically affected by the Project a standard mitigation scenario of preservation by record would normally be implemented to reduce any harm, thereby reducing the overall residual effect.

Assessment of cumulative effects

8.4.39 The cumulative effects assessment approach for both inter- and intra-project cumulative effects is set out in Chapter 20: Cumulative effects. The outcomes of the inter-project cumulative effects assessment are reported in Chapter 20: Cumulative effects. The intra-project cumulative effects assessment is summarised within Chapter 20: Cumulative effects, and within Chapter 20 signposts are provided to the location of the intra-project cumulative effects assessment (where it has been possible to provide at this stage).

8.5 Study area

8.5.1 The study areas are defined according to the sensitivity of the receiving environment and the potential effects of the Project. The methodology used to define the study areas are outlined in Section 8.4: Assessment methodology above. The study area(s) for the Historic environment aspect are shown in PEI Report Figure 8.1: Study area for historic environment . The selection of assets to be scoped in for settings appraisal is also informed by the use of a ZTV, which is shown in Figure 8.4: Designated heritage assets and reservoir zone of theoretical visibility (ZTV) (screening/DSM).

8.5.2 The study areas have changed since the EIA scoping stage as a result of changes to the design and the associated draft Order limits (see paragraph 8.4.12). See Chapter 2: Project description for details of the Project parameters and assumptions for the PEI Report.

8.5.3 The study areas considered for the Historic environment assessment baseline takes into consideration all Designated heritage assets within the 2km buffer area from the draft Order limits, and all Non-designated built heritage assets within the 1km buffer area from the draft Order limits.

8.6 Baseline conditions

8.6.1 To assess the significance of effects arising from the Project in relation to the historic environment, it is necessary to identify and understand the baseline environment within the study areas. This provides a reference state against which any potential effects on the historic environment can be assessed. The data sources used at this stage of the assessment are listed in paragraph 8.4.14 and Appendix 8.1: Archaeological and historical baseline).

8.6.2 This section outlines the existing and expected future baseline conditions of the historic environment in the study areas.

Existing baseline

8.6.3 This assessment has considered the known receptors within the study areas. Known baseline features for the historic environment are shown in Figure 8.2: Designated heritage assets within the study area, and Figure 8.3: Historic environment features and findspots within the study area. This section should also be read in conjunction with the following appendices:

- Appendix 8.1: Archaeological and historical baseline
- Appendix 8.2: Designated assets and non-designated above ground heritage assets – statements of significance
- Appendix 8.3: Gazetteer of heritage assets
- Appendix 8.4 Preliminary assessment of effects for historic environment

Archaeological assets

Designations

8.6.4 Four Scheduled Monuments lie within the current draft Order limits, these comprise:

- Site SE of Noah's Ark Inn, Frilford (NHLE 1006303)
- Ock Bridge, Abingdon (NHLE 1002926)
- Sutton Wick Settlement Site (NHLE 1003671) in Caldecott, Abingdon
- Dovecote at Culham Manor, 110 metres (m) south-west of St Paul's Church (NHLE 1019391)

8.6.5 There are 10 additional Scheduled Monuments within the 2km study area. All these assets are listed in Appendix 8.3: Gazetteer of heritage assets and Scheduled monuments within the draft Order limits are labelled on Figure 8.5: Historic environment receptors.

Non-designated assets

8.6.6 There are 970 archaeological features and findspots recorded on HER within the 1km study area for non-designated assets. A total of 231 archaeological features and findspots are recorded within the draft Order limits.

8.6.7 The non-designated heritage assets include concentrations of archaeological anomalies, previous archaeological findspots and documentary references. The majority comprise anomalies detected through geophysical survey, aerial photograph interpretation and mapping (AIM) conducted during the 1990s and 2000s for previous iterations of the Project, as well as most recent geophysical survey undertaken in 2024.

Geophysical survey (2024-25)

8.6.8 Geophysical survey, undertaken in 2024 and early 2025 has identified a rich agricultural and settlement landscape from the Bronze Age to the post-medieval period across the areas surveyed. The full results of these works have not been reported and were not available at the time of preliminary assessment for the PEI Report. The survey confirmed the presence of known archaeology and added further detail to the understanding of this. New archaeological sites have been identified. In the north of the surveyed area, these included a potential large Romano-British farmstead with associated buildings and field systems, and two further potential Iron Age – Romano-British settlement areas and associated enclosures and field systems. These identified remains will need to be confirmed through trial trenching within the draft Order limits (currently ongoing).

8.6.9 In the south-east the survey identified potential late Iron Age to Romano-British field boundaries and enclosures, while in the south-west of the site a former watercourse was detected. Along the route of this watercourse several previously unknown sites were identified which may have utilised the watercourse for agricultural or industrial purposes, including a complex series of enclosures forming a potential Iron Age to Roman settlement site.

8.6.10 Several further enclosures were detected in the south-west of the surveyed area, including a previously unknown potential Iron Age banjo enclosure and a potential Bronze Age – Romano-British enclosure.

8.6.11 Coordinated management of the landscape on a large scale is seen in the large embankments detected across the surveyed area. These may have been a system of banks created to either delineate fields, to manage floodwater and drainage, or both.

8.6.12 Further evidence of the agricultural use of this landscape into the medieval to post-medieval period was identified in the extensive remains of former ploughing and field boundaries.

Trial Trench Evaluation

8.6.13 Trial Trenching within the draft Order limits for EIA scoping commenced in December 2024 and is currently ongoing. The full results of these works have not been reported and were not available at the time of preliminary assessment for the PEI Report.

8.6.14 In summary, the trenching is targeting land parcels which have previously been investigated by geophysical survey. The results to date largely confirm the potential for archaeology as shown by HER records and the geophysical survey results and include multi-period agricultural activity across the area, including extensive Romano-British settlement within the northern part of the area within the draft Order limits and dispersed agricultural settlement throughout the area, in the form of ditched enclosures and a system of banks dating from the late prehistoric through to the Roman period.

Aerial photographs interpretation and mapping (AIM)

8.6.15 The Aerial Interpretation and Mapping Study undertaken as part of the Project in 2024, identified 42 individual sites or areas which contain evidence for buried cut features which show as marks in growing crops and overlying eroded Medieval agricultural remains, indicating broad archaeological potential.

8.6.16 Prehistoric and Roman period sites are recorded throughout the northern, central southern and eastern sectors of the draft Order limits. These include ring ditches, which demonstrate the presence of eroded likely Bronze Age funerary mounds, ditched enclosures, pits, field boundaries and trackways, indicating foci of Bronze Age agriculture, and Iron Age to Roman settlement and agricultural sites. A potential Roman Villa site was also identified in the north part of the draft Order limits near Garford.

8.6.17 Land within and around the draft Order limits was extensively ploughed in the Medieval period. Traces of heavily eroded ridge and furrow ploughing and residual headlands are visible as cropmarks. Only small traces of topographic remains of ridge and furrow are indicated with most of the Medieval strip fields, which are eroded flat by modern ploughing. There are no visible traces of Medieval settlement within the draft Order limits recorded via airborne and satellite remote sensing data. However, earlier features and sites may be concealed below areas of ridge and furrow.

8.6.18 A World War II bombing range was identified during the Thames Valley National Mapping Programme survey from 1940s aerial photographs, but this is now removed and is not evident on data sources captured since the 1950s.

Built heritage assets

Designations

8.6.19 There are seven listed buildings located within the draft Order limits, all Grade II listed. These comprise three Milestones along the A338 running north-east to south-west from Frilford to Grove (NHLE 1368561, 1198690, 1199482), three bridges including the 'Noah's Ark Bridge and Flaking Walls (NHLE 1048353)', the 'Bridge Approximately 50m south-east of Marcham Mill (NHLE 1048362)', and the 'Ock Bridge at Abingdon (NHLE 1048827)', and a 'Water Standpipe at Drayton (NHLE 1253340)'. These have all been assessed and included within Appendix 8.3: Gazetteer of heritage assets. There are a further 813 listed buildings within the 2km study area, including 54 Grade II* listed, and 17 Grade I listed buildings.

8.6.20 There are three conservation areas which partially overlap with the draft Order limits. These are East Hanney, located in the west, Culham and Steventon located in the east.

8.6.21 There are a further 13 conservation areas within the 2km study area, comprising Marcham, Abingdon, Sutton Courtenay, Drayton, Milton, Harwell, East Hendred, West Hendred, Ardington and East Lockinge, Goosey, Grove, Denchworth and West Hanney.

Non-designated assets

8.6.22 There are 35 non-designated historic buildings recorded on the Oxfordshire Historic Environment Record (OHER), two of which lie within the draft Order limits (see Figure 8.5: Historic environment receptors). These are the 'Second World War Pillbox at Culham

(15753)' and the 'Second World War Vehicle Depot (30162)' at Steventon. The former route of the early 19th century Wiltshire and Berkshire canal is also located within the draft Order limits, which may have associated surviving above ground infrastructure (see Figure 8.5: Historic environment receptors).

Historic landscape assets

Designations

8.6.23 There are no registered parks and gardens (RPG) within the draft Order limits. However, there are two Grade II RPGs within the 2km study area. These are the Sutton Courtenay Manor 313m to the east of the draft Order limits (NHLE 1001107) and Albert Park in Abingdon 220m to the north-east of the draft Order limits (NHLE 1001403).

Non-designated assets

8.6.24 There are no non-designated gardens or designed landscapes within the draft Order limits.

8.6.25 Historic Landscape Characterisation (HLC) has been produced for Oxfordshire providing an analysis of the way in which the current landscape has evolved historically. These HLCs are broad areas of characterisation rather than historic assets in their own right. The HLCs have been excluded from preliminary assessment given their nature as characterisation areas rather than heritage assets. They are, however, informative as they reflect the evolution of the historic landscape. Within this assessment, the historic landscape is regarded as being one asset comprising many diverse elements.

Future baseline

8.6.26 As set out in Chapter 4: Approach to the environmental assessment, the preliminary assessment of effects considers the likely evolution of the baseline without the implementation of the Project. Where climate change may alter future historic environment baseline conditions and therefore LSEs, this is discussed as part of the In-combination Climate Change Impact (ICCI) assessment which brings together all climate related impacts on aspect assessments, and is presented in Appendix 18.3.

8.6.27 For historic environment assets within the draft Order limits (below and above ground) and the historic landscape character of the area, the future baseline is expected to be the same as the present. Such remains are a static resource, which have reached equilibrium with their environment and do not change (i.e. decay or grow) unless their environment changes as a result of human or natural intervention.

8.6.28 No substantial changes to the existing historic environment baseline are anticipated in the future. Designated heritage assets are protected through planning policies, and significant changes are unlikely to occur. Non-designated heritage assets are more likely to be subject to changes, as they may be altered or removed by development. New non-designated assets are likely to be identified as a result of archaeological mitigation works associated with future developments.

8.6.29 The other developments which will form part of the future baseline identified in Chapter 20: Cumulative effects have been reviewed, and do not materially alter the future baseline assessed for this aspect.

8.6.30 In terms of the setting of heritage assets within the surrounding area, this may change due to the presence of future developments, although such proposals (other than the Project and the committed developments identified) are not currently known. These could potentially have a detrimental or positive effect on setting, and could result in the intervening presence of buildings and or/mature vegetation.

Historic environment receptors considered in the preliminary assessment

8.6.31 Table 8.7 shows the historic environment receptors in the study area that have been considered in the preliminary assessment for the PEI Report. In some cases, individual receptors have been grouped where anticipated effects and mitigation are likely to be very similar. The sensitivity of each receptor is defined in the table with commentary justifying the sensitivity category assigned. The table also identifies the area ID and effect ID(s) relevant to each receptor. The effect IDs are unique identifiers of each effect assessed (discussed further in Appendix 8.4: Preliminary assessment of effects for historic environment), whilst the area ID relates to the spatial extent of the receptor assessed. Figure 8.5: Historic environment receptors shows the locations of receptors that have been spatially defined for the preliminary assessment for the PEI Report, with relevant Area IDs noted as labels on the map or in the legend (the receptor 'heritage assets potentially affected by temporary construction effects' has not been spatially mapped on Figure 8.5: Historic environment receptors). Further data gathering to inform the ES will inform any revisions to the defined spatial extents of receptors.

Table 8.7 Receptors assessed in the preliminary assessment

Receptor Name	Sensitivity	Sensitivity Commentary	Effect-ID(s)	Area-ID
Scheduled Monuments within the 2km study area and wider ZTV potentially affected through changes to setting	High	The sensitivity of Designated heritage assets has been defined at this stage based on the guidance criteria defined in Table 8.4, which is primarily based on level of designation.	HEN-16	EIA-289
Scheduled Monuments within the draft Order limits	High	The sensitivity of Designated heritage assets has been defined at this stage based on the guidance criteria defined in Table 8.4, which is primarily based on level of designation.	HEN-10, HEN-21	EIA-39
Registered Parks & Gardens within the 2km study area and those within the ZTV	High	The sensitivity of Designated heritage assets has been defined at this stage based on the guidance criteria defined in Table 8.4, which is primarily based on level of designation.	HEN-13	EIA-61
Grade II* listed buildings within the 2km study area (outside of conservation areas)	High	The sensitivity of Designated heritage assets has been defined at this stage based on the guidance criteria defined in Table 8.4, which is primarily based on level of designation.	HEN-11	EIA-290
Grade II listed buildings within the 2km study area (outside of conservation areas)	High	The sensitivity of Designated heritage assets has been defined at this stage based on the guidance criteria defined in Table 8.4, which is primarily based on level of designation.	HEN-15	EIA-59
Grade II listed buildings within the draft Order limits	High	The sensitivity of Designated heritage assets has been defined at this stage based on the guidance criteria defined in Table 8.4, which is primarily based on level of designation.	HEN-9, HEN-23	EIA-51
Conservation areas (and listed buildings within) inside the 2km study area	High	The sensitivity criteria for Designated heritage assets has been defined at this stage based on the criteria referred in Table 8.4, which is primarily based on level of designation. The sensitivity will be lower in conservation areas where there are no Grade II* and Grade I listed buildings.	HEN-12	EIA-60
Heritage Assets potentially affected by temporary construction effects	High	Designated assets includes all nationally designated listed buildings, Scheduled Monuments and parks and gardens in addition to conservation areas. The sensitivity of Designated	HEN-19	EIA-6

Receptor Name	Sensitivity	Sensitivity Commentary	Effect-ID(s)	Area-ID
		heritage assets has been defined at this stage based on the guidance criteria defined in Table 8.4.		
Non-designated Steventon World War II (WWII) Depot	Low	Group sensitivity value assigned as Low for the surviving non-designated mid 20th century Steventon Vehicle Depot, as it holds local importance as a tangible reminder of WWII (deriving from architectural, and historic interest).	HEN-14	EIA-632
Non-designated built heritage assets within the 1km study area	Moderate	Further assessment required to determine sensitivity for this asset group. At this preliminary stage these assets are assessed as likely to be moderate or low (based on historic interest).	HEN-17	EIA-823
Non-designated mid 20th century Pillbox in Culham	Low	The sensitivity of the Non-designated mid 20th century Pillbox in Culham is low. The asset holds local importance as a tangible reminder of WWII activity, deriving from historic and archaeological interest.	HEN-18	EIA-633
Wiltshire and Berkshire Canal and surviving locks	Low	Group sensitivity value assigned as Low for the surviving structural remains of the early 19th century canal. This asset is of significance for its architectural, historic, and archaeological interest as an early 19th century canal. While much of the canal was infilled and is buried, along the whole of the original canal route parts of the canal and some locks and other structures are still visible, and lengths of the canal are still watered and navigable. While some parts of the canal within the draft Order limits are visible, such as Drayton Lock, the length of the canal within the draft Order limits is not watered or navigable.	HEN-25	EIA-876
Prehistoric remains within the draft Order limits	High	The sensitivity of Prehistoric assets will range across the draft Order limits, assessed at this preliminary stage as High sensitivity for surviving groups of features relating to prehistoric settlement, based on the likely archaeological interest.	HEN-2	EIA-2
Late Iron Age to Romano British settlements within the draft Order limits	High	The sensitivity of Late Iron age to Romano British buried assets will likely range across the draft Order limits, assessed at this preliminary stage as high for evidence of settlement, deriving from archaeological and historical interest.	HEN-3	EIA-2

Receptor Name	Sensitivity	Sensitivity Commentary	Effect-ID(s)	Area-ID
Roman remains within the draft Order limits	High	The sensitivity of Roman assets will likely range across the draft Order limits, assessed as High for potential settlement features, deriving from archaeological and historic interest.	HEN-4	EIA-2
Early medieval remains within the draft Order limits	High	The sensitivity of Early Medieval assets will range across the draft Order limits, assessed at this preliminary stage as High in the case of surviving Early-medieval activity being present within the draft Order limits.	HEN-5	EIA-2
Later Medieval remains within the draft Order limits	High	The sensitivity of Medieval assets will range across the draft Order limits, assessed at this preliminary stage as High in the case of potential surviving domestic settlement activity being present within the draft Order limits. Sensitivity (value) for Later Medieval agricultural features (e.g. ridge and furrow) would be lower.	HEN-24	EIA-2
Post Medieval remains within the draft Order limits	Moderate	The sensitivity of Post-medieval assets will range across the draft Order limits, assessed as Moderate based on group value and the likely form/date of the remains (based on archaeological and historic interest).	HEN-6	EIA-2
Buried 20th century remains within the draft Order limits	Moderate	The sensitivity of buried modern assets will likely range across the draft Order limits, but is unlikely to be no more than Moderate based on the likely nature of the remains, deriving from archaeological and historic interest.	HEN-7	EIA-2
Palaeoenvironmental remains within the draft Order limits	Moderate	Alluvium has been identified across much of the draft Order limits. It is possible that these deposits contain Holocene archaeological finds and features along with very localised areas of aged-peat (preserved land surfaces). Such deposits have been assessed as having geoarchaeological potential. The sensitivity would be confirmed following completion of site investigations but assigned as potentially moderate at this preliminary stage (from archaeological interest).	HEN-20	EIA-2
Palaeoenvironmental remains within the draft Order limits	Moderate	Alluvium has been identified across much of the draft Order limits. It is possible that these deposits contain Holocene archaeological finds and features along with very localised areas of aged-peat	HEN-8	EIA-2

Receptor Name	Sensitivity	Sensitivity Commentary	Effect-ID(s)	Area-ID
		(preserved land surfaces). Such deposits have been assessed as having geoarchaeological potential. The sensitivity would need to be confirmed following completion of site investigations but assigned as potentially Moderate based on group value and likely form of remains at this preliminary stage (from archaeological interest).		

8.7 Project parameters, assumptions and limitations

8.7.1 Chapter 2: Project description relies on the use of relevant parameters and assumptions to allow flexibility in the final design of the Project, in accordance with the Rochdale envelope approach (Planning Inspectorate, 2018). This preliminary assessment for the Historic environment aspect uses the parameters and assumptions outlined in Chapter 2: Project description as well as additional parameters and assumptions specific to this aspect to ensure that the reasonable worst-case scenario is considered within this assessment.

Project parameters and assumptions specific to this aspect

8.7.2 Table 8.8 identifies the Project parameters, components and activities relevant to this assessment where assumptions specific to the preliminary Historic environment assessment have been generated.

Table 8.8 Project parameters and assumptions forming the basis of assessment

Project parameter / component / activity	Assumption (basis of assessment)
Project components within the Core Project Area (this is shown in Figure 2.1: Project Overview)	All archaeological remains within the footprint of construction areas will be directly disturbed by intrusive activities.
Most / all project components	The maximum dimensions (lateral and vertical) for all new structures including the highest vertical limit of deviation (as noted in Chapter 2: Project description) have been assumed for the assessment.
Temporary construction compounds and site establishment	Direct archaeological disturbance would occur within the footprint of Project construction compounds, temporary access roads and stockpile locations, where prior ground stripping/establishment is required.
Below ground conveyance tunnel to River Thames and Intake/outfall	Assumes that direct disturbance to buried archaeological remains could occur at shaft/launch pit locations and at the River Thames intake/outfall structures, however due to its depth within bedrock approximately 23.5m below ground level (below the depth of archaeological horizons) no effects would occur as a result of the tunnel construction itself.
Network of Priority Areas for Biodiversity (PABs) for mitigation and Biodiversity Net Gain (BNG)	It is assumed that localised/direct disturbance to buried archaeological remains could occur within network of PABs. The potential disturbance would likely be greater within areas of habitat creation as opposed to areas of improvement to existing habitats as it is assumed that these works would not require an extensive or deep subsoil strip – the division of these areas is not yet fully defined. Habitat creation would encompass, for example, ground excavation and preparation, pond creation and planting. Ground excavation and pond creation would truncate or remove entirely any archaeological remains in the footprint of the works. Where tree planting is proposed, ground intrusion from planting and subsequent root action is assumed

Project parameter / component / activity	Assumption (basis of assessment)
	for the purposes of this assessment to reach a depth of approximately 1.0–1.5m below ground level. This would remove or severely disturb any archaeological remains at the tree location.
Remote highways works	All archaeological remains within the footprint of the roads (including ancillary structures such as SUDS, ponds, culverts) will be directly disturbed by construction activities.
Recreational buildings	Recreational buildings would be sited in locations that had already experienced direct disturbance to archaeology during the construction phase.
Utilities diversions	All archaeological remains within the footprint of utilities diversions will be directly disturbed by excavation.
Most / all project components	The draft Order limits have been refined to ensure that the majority of the Sutton Wick Settlement Scheduled Monument is avoided by the Order limits. Although there is a slight overlap with the highways boundary no intrusive works are proposed within this area. It is also assumed that whilst there are four Scheduled Monuments in the draft Order limits there would be no ground disturbance (i.e. physical impact) within the extent of Scheduled Monuments in the design, including the Sutton Wick Settlement Scheduled Monument. It is assumed that there would be no habitat creation (or other) works within the Site south-east of Noah's Ark Inn, Frilford Scheduled Monument, which has only been retained in the draft Order limits for the purpose of survey access.
Scheduled Ock Bridge (also listed) – temporary construction access	No permanent works are proposed within the extent of the Scheduled Ock Bridge, which is retained within the Order limits for the purpose of temporary construction access, including transportation of the tunnel boring machine (TBM).
Grade II listed buildings within the Order Limits	Potential settings effects aside, it is assumed that six of the seven listed buildings within the draft Order limits would not be physically (directly) disturbed by any proposed construction works. It is noted that the Grade II listed milestone at SU 4152 9217 on the A338 is within the extent of the proposed highway verge. It is assumed that the listed milestone would be reinstated and retained as its position on the road and as such, a significant impact is not anticipated.
Non-designated Pillbox at Culham	There are no project requirements that would lead to a physical disturbance to this structure. As such, it is assumed it would not require demolition or disturbance.

Assessment assumptions and limitations

8.7.3 This section identifies the aspect-specific assumptions and limitations made for the preliminary Historic environment assessment including those related to the availability of data to inform the assessment and assumptions used in the methodology. The assessment of effects in this chapter is preliminary and will be revisited in the ES in light of data available at that time and the design taken forward for submission. Assessments reported within this PEI Report chapter are considered a reasonable 'worst case' as a precautionary approach has been taken where design, construction or baseline information is incomplete. Nevertheless, the preliminary assessment is considered sufficiently robust to enable consultees to understand the likely significant environmental effects of the Project, based on current design information and understanding of the baseline environment. Gaps in information identified within the PEI Report will be considered and addressed as part of the assessment during the production of the ES, as noted in Section 8.10: Next steps. Assumptions and limitations identified in relation to the preliminary historic environment assessment include:

- The full historic environment walkover and onsite settings appraisal has not yet been carried out. Due to the high quantity of heritage assets within the 2km study area, rather than assessing these individually, they have been grouped based on their location and level of designation, in line with standard practice with a high-level assessment of likely significant effects provided based on professional judgement.
- Access across all land parcels within the draft Order limits has not been possible due to restrictions in accessing land in private ownership. Where there are data gaps these areas will be surveyed to inform the ES assessment stage.
- The full extent of the buried archaeological resource cannot be known prior to site-specific intrusive investigation. Archaeological investigations (geophysical survey and trial trench investigation) within the draft Order limits are currently ongoing and at the time of writing have not been completed or fully reported (although a summary of findings to date is provided in Section 8.6: Baseline conditions). Trial Trenching within the draft Order limits is currently ongoing and the full reporting of results of these works is not available at the time of preliminary assessment for the PEI Report. As the investigations are incomplete, this preliminary assessment for historic environment has not accounted for the results of the investigations in determining effects.
- It should be noted that where the Geophysical survey shows an absence of features (i.e. negative results) this does not necessarily mean that there is an absence of archaeological remains. The effectiveness of geophysical survey in identifying possible archaeological features can depend on a variety of factors such as geology, interference from nearby services, and also the nature of the archaeological remains.
- Due to the nature of the archaeological resource, both buried and not visible, it can be difficult to accurately predict the presence and likely heritage sensitivity (value) of buried assets, and consequently the potential magnitude of impact upon them is based primarily on desk-based sources. The principal source of information used for this preliminary assessment of effects is the HER and the results of past archaeological investigations including trial trenching, geophysical survey and targeted excavation within the draft Order limits and 1km study area.
- Data from the HER comprises secondary information derived from several sources. It is assumed that this data, as well as that derived from other secondary sources, is reasonably accurate. HER data provides an initial indication of assets present rather than a definitive list of all potential archaeological assets. Due to this limitation, previously unrecorded archaeological assets may have survived within the draft Order limits and are not yet identified by the HER.
- Notwithstanding the limitations, the methodology is robust, using all currently available information, and conforming to the requirements of local and national guidance and planning policy.

8.8 Embedded design mitigation and standard good practice

8.8.1 As described within Chapter 4: Approach to the environmental assessment, identified embedded design (primary) mitigation and standard good practice (tertiary) measures are assumed to be applied within this preliminary assessment, to reduce the potential for environmental effects.

8.8.2 Embedded design mitigation identified for the Project at this stage are noted in Chapter 2: Project description. These, and standard good practice measures to be applied, are described in greater detail within the Draft commitments register in Appendix 2.2.

8.8.3 Table 8.9 and Table 8.10 list the embedded design mitigation and standard good practice measures applicable to the preliminary Historic environment assessment during construction and operation respectively, including the unique commitment IDs that relate to the Draft commitments register (where further detail on each can be referred to). The tables also state the purpose of each mitigation and the applicable securing mechanisms. As heritage assets are an irreplaceable resource, it is generally considered standard practice to implement an appropriate archaeological mitigation strategy to offset or reduce any level of adverse effect on assets where the proposed change would physically alter or remove the asset. This is to ensure that finite and irreplaceable remains are not removed/lost without record. The level of mitigation proposed is, in each case, proportionate to the significance of the asset being affected.

8.8.4 Measures to mitigate effects would normally consist of design adjustments, to allow significant resources to be protected and retained (preservation in situ) or, where this is not feasible, investigation and recording in advance of development (e.g. targeted archaeological excavation) and during development for remains of lesser significance (e.g. archaeological watching brief), with dissemination at an appropriate level.

Table 8.9 Construction: Relevant embedded design mitigation and standard good practice measures, their purpose, and the securing mechanisms

Embedded design mitigation or standard good practice measure (unique commitment ID)	Purpose of mitigation measure	Indicative securing mechanism
Avoid physical disturbance to Scheduled Monuments (ED-38)	This will ensure that protected Scheduled Monuments are not physically affected by project components, by avoiding potential activities which would lead to a loss of buried archaeological finds and features which form part of the scheduled extent.	CoCP
Avoid physical disturbance to listed buildings / structures (ED-45)	This will ensure that above ground assets are not physically disturbed through alteration or demolition during the construction phase (including from accidental strike damage by general construction activities).	Under the terms of the DCO
Retention of listed buildings/structures (ED-47)	This will ensure the long-term retention of the milestone at SU 4152 9217 on the A338.	CoCP
Standard good practice measures for avoiding unexpected disturbance to	This refers to standard measures to manage archaeological mitigation works before and during construction works. These could include	CoCP

Embedded design mitigation or standard good practice measure (unique commitment ID)	Purpose of mitigation measure	Indicative securing mechanism
heritage assets during construction (SGP-09)	implementation of controls to avoid damage to buried remains which are to be preserved in situ, including demarcation, fencing and signage.	
Standard good practice measures to protect buried archaeological remains during construction (SGP-10)	Such measures are only relevant where remains of very high sensitivity are identified in the ongoing site investigations (trial trenching), i.e. those which warrant preservation in situ. This would only be applied where avoidance is feasible within the consented DCO. Elsewhere identified archaeological remains will be mitigated through additional mitigation (preservation by record). For Scheduled Monuments which comprise preserved buried remains, good practice measures during site works include demarcation and barriers/signage to ensure assets are protected during the construction works.	CoCP
Good practice measures for protecting landscape and visual receptors during construction (SGP-13)	These measures are relevant to those assets which would experience temporary visual effects during construction. By screening general construction activities this would in part, lessen the prominence of construction activities within the setting of Designated Heritage Assets.	Under the terms of the DCO
Apply measures including Best Practicable Means to reduce construction noise and vibration (SGP-25)	These measures are relevant to those assets which would experience temporary noise effects during construction. By reducing construction noise and vibration, this would in part, lessen the prominence of construction activities within the setting of Designated Heritage Assets.	CoCP
Carry out construction works during standard working hours (where reasonably practicable) (SGP-26)	These measures are relevant to those assets which would experience temporary visual and noise effects during construction. By restricting the hours of general construction activities this would in part, lessen the prominence of construction activities within the setting of Designated Heritage Assets.	CoCP
Reduce light spill from construction (SGP-51)	Reducing levels of artificial light would in part lessen the visual effects of the temporary construction activities.	CoCP

Table 8.10 Operation: Relevant embedded design mitigation and standard good practice measures, their purpose, and the securing mechanism

Embedded design mitigation or standard good practice measure (unique commitment ID)	Purpose of the mitigation measure	Indicative securing mechanism
Drainage strategy to align with national and local planning policy and guidance (ED-22)	The Project drainage strategy would where possible, ensure that preserved waterlogged archaeological remains (where present) are preserved in their 'baseline' environmental conditions.	Under the terms of the DCO
Lining of key watercourses and surface water features and provision of substrate (ED-31)	The Project drainage strategy would where possible, ensure that preserved waterlogged archaeological remains (where present) are preserved in their 'baseline' environmental conditions.	Under the terms of the DCO
Noise bunds (ED-44)	An assessment on historic setting considers the effects of noise on the way Heritage assets are understood and experienced. Where effect to above ground heritage assets have been identified, noise bunds embedded into the design would have the effect of reducing potential increases to operational noise and therefore reduce potential effects on above ground Heritage Assets within the draft Order Limits and those in the wider vicinity.	Under the terms of the DCO
Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines (ED-49)	The Project drainage strategy would where possible, ensure that preserved waterlogged archaeological remains (where present) are preserved in their 'baseline' environmental conditions.	Under the terms of the DCO
Drainage designed to reduce the risk of flooding (ED-50)	The Project drainage strategy would where possible, ensure that preserved waterlogged archaeological remains (where present) are preserved in their 'baseline' environmental conditions.	Under the terms of the DCO
Measures to manage groundwater levels and flow routes (ED-52)	The Project drainage strategy would where possible, ensure that preserved waterlogged archaeological remains (where present) are preserved in their 'baseline' environmental conditions.	Under the terms of the DCO
Design and establishment of planting, habitats, and/or landform to help control, limit, soften and filter views of new infrastructure (ED-57)	Where an effect to above ground heritage assets has been identified through changes to historic setting, embedded landscape mitigation would reduce the overall dominance of proposed new built form and where possible retain the	Under the terms of the DCO

Embedded design mitigation or standard good practice measure (unique commitment ID)	Purpose of the mitigation measure	Indicative securing mechanism
	qualities of the existing landscape which contribute to heritage significance.	
Landscape-led design that responds to landscape character, provides a sense of place and identity, ecological resilience and integrates into the wider landscape setting (ED-58)	Where an effect to above ground heritage assets has been identified through changes to historic setting, embedded landscape mitigation would reduce the overall dominance of proposed new built form and where possible retain the qualities of the existing landscape which contribute to heritage significance.	Design Principles
Design to reduce adverse effects on the North Wessex Downs National Landscape (ED-59)	The northern part of the North Wessex Downs National Landscape contains Scheduled Monuments which are considered to make a contribution to the value of the protected landscape. The mitigation would reduce visual effects by ensuring that the design responds sensitively to the character and special qualities of the North Wessex Downs National Landscape.	Design Principles

8.9 Preliminary assessment of likely significant effects

Introduction

8.9.1 This section summarises the findings of the preliminary assessment of effects for historic environment, focusing on key effects that are initially anticipated to be 'significant', be they adverse, beneficial or neutral. The judgement of significance has been made assuming that embedded design mitigation and standard good practice mitigation relevant to historic Environment is applied (these are noted in Table 8.9 and Table 8.10 and provided in detail in the Draft commitments register in Appendix 2.2). Nevertheless, the assessment assumes that additional mitigation is not yet applied, as the precise nature and extent of any additional mitigation measures is not confirmed at this stage in the EIA process. As a result, consideration of residual effects (those that remain after the implementation of all mitigation, including additional mitigation) has not been completed for the PEI Report.

8.9.2 As noted in paragraphs 8.1.6 and 8.1.7, assessments reported within this PEI Report chapter are considered a reasonable 'worst case' in line with the precautionary approach that has been taken. Where initial likely significant effects are identified at this stage, these may ultimately be determined as not significant in the ES once data gaps are addressed, and the design and mitigation are further developed. The next steps for the Historic environment assessment, including further exploration of relevant additional mitigation are set out in Section 8.10: Next steps.

8.9.3 Appendix 8.4: Preliminary assessment of effects for historic environment, sets out the preliminary assessment of effects, by receptor group, for construction and operation phases respectively. The appendix is split into tables that list effects that are initially anticipated to be significant, and tables that list effects that are not initially anticipated to be significant. The tables identify the following for each effect:

- Receptor name, the Effect ID (a unique identifier for each effect), and sensitivity category
- Project components and activities giving rise to the effect
- Relevant embedded mitigation and standard good practice mitigation (with unique Commitment ID, which relates to Appendix 2.2: Draft commitments register)
- Magnitude of impact category and narrative (for physical construction phase effects only)
- Initial category of effect significance (for physical construction phase effects only), including whether it is adverse, beneficial or neutral (taking account of embedded design mitigation and standard good practice mitigation)
- Description and duration of the effect
- Any additional mitigation and monitoring identified at this stage (with unique Additional Mitigation ID to enable cross reference to the measures noted in Section 8.10: Next steps)

Summary of likely significant construction effects

8.9.4 This section summarises the construction effects that are initially anticipated to be 'significant' through the preliminary assessment of effects for Historic environment. It pulls out the key potential causes and receptors affected.

Key potential causes of effects

8.9.5 Chapter 2: Project description explains the construction components and activities for the Project. Key effects on the historic environment may result from the following:

- Physical disturbance or total loss of heritage assets from construction activities. Such activities comprise works carried out as part of preparatory and enabling works, including topsoil stripping across all construction areas and for temporary construction compounds and access roads. Construction activities, involving excavation for the reservoir, where they extend below the topsoil and subsoils, would truncate or entirely remove any archaeological remains within the footprint of the works, the degree of disturbance depending on the depth of the cut.
- There may be additional effects from planting, landscaping and insertion of utilities across the draft Order limits in addition to piled and shallower foundations for above-ground infrastructure (e.g. pumping station, intake/outfall structures).
- Demolition activities of extant Non-designated above ground heritage assets within the Order Limits, prior to construction (e.g. mid-20th century Steventon Depot).

Key likely significant construction effects

8.9.6 The initial likely significant construction effects on the historic environment are provided in full in Appendix 8.4: Preliminary assessment of effects for historic environment and summarised below:

Major (significant) construction effects

- The majority of key likely significant adverse effects to heritage assets will occur through construction disturbance to non-designated buried assets within the draft Order limits. At this preliminary assessment stage, given incomplete survey information, receptors across all historic periods are anticipated to experience significant adverse effects through direct construction disturbance; this includes effects to:
  - Buried Prehistoric remains
  - Buried Late Iron Age to Romano British settlements
  - Buried Roman remains
  - Buried Early medieval and medieval remains

8.9.7 As the sensitivity (or value) of buried heritage assets is uncertain at this preliminary stage due to incomplete survey information, a reasonable 'worst case' approach has been adopted (i.e. remains would be of high sensitivity). The magnitude of impact from physical disturbance is assessed as ‘large’ as assets are assumed to be damaged or removed entirely by construction works. Adverse disturbance effects are therefore initially anticipated to be of major significance.

Moderate (significant) construction effects

- Where present, non-designated buried assets of lower significance would likely experience moderate (significant) effects through physical construction disturbance. Predicted receptors within this category comprise Post Medieval agricultural remains and buried 20th century remains.
- Where sensitive buried palaeoenvironmental remains are present within the Order limits, such remains may experience moderate (significant) effects though construction activities.
- Activities associated with construction of the reservoir and embankment would entail demolition and removal of the existing mid 20th century Steventon WWII Depot and the former route of the Wiltshire and Berkshire Canal, non-designated assets assessed as having low sensitivity. This would be considered a ‘large’ magnitude of impact and a moderate adverse (significant) effect, prior to additional mitigation measures being applied.

Summary of likely non-significant construction effects

8.9.8 This section summarises the construction effects that are initially anticipated to be ‘non-significant’ through the preliminary assessment of effects for Historic environment. In particular, it pulls out the key embedded design mitigation and standard good practice mitigation that will be applied and are anticipated to reduce adverse effects to be non-significant.

8.9.9 The Project has been designed to avoid physical disturbance to the Scheduled Monuments within the draft Order Limits through embedded design measures. As a result, there is expected to be no physical change to these assets as a result of construction.

8.9.10 Given the temporary nature of construction, and the standard good practice measures that would be applied to reduce construction noise and vibration, to adopt standard working hours where practicable, to protect landscape and visual receptors and to reduce light spill, construction effects on the setting of heritage features are anticipated to be non-significant.

Summary of likely significant operation effects

8.9.11 This section summarises the operation effects that are initially anticipated to be 'significant' through the preliminary assessment of effects for Historic environment. For the assessment of setting-related effects a precautionary 'worst-case' approach has been adopted. Following the next steps as outlined in Section 8.10: Next steps these may ultimately be determined as not significant in the ES.

Key potential causes of effects

8.9.12 Chapter 2: Project description explains the operation components and activities for the Project. Key likely significant operation effects on the historic environment may result from the following:

- Views of the proposed reservoir embankment and other project infrastructure, including reservoir towers, other buildings, car parks, new roads and footpaths, the potential reprovision of ground-mounted solar, and the proposed intake/outtake structure. All of these project components may be visible in medium and long views from assets within the draft Order limits and wider study area, which could lead to a change to setting, which in turn affects their inherent significance and how they are understood and appreciated.
- Whilst the main effects on setting associated with the Project would likely be visual, there may be additional effects deriving from operational lighting and noise, particularly for heritage assets within, and in close proximity to, the Project.
- The loss of certain historic field patterns and a change from open agricultural land use across certain parts of the area within the draft Order limits to create the reservoir and green infrastructure (including new woodland planting). This could lead to an effect on assets through changes to setting, specifically where these changes lead to effects on historical links or associations between above-ground heritage assets in the study area.
- Changes in groundwater levels and flows - operation phase changes to groundwater levels and flows following installation of the reservoir and associated infrastructure could lead to 'drying out' of waterlogged ground, with resulting effects on buried heritage assets.

Key likely significant operation effects

8.9.13 The likely significant adverse operation effects on the historic environment relate to effects on the value of heritage through changes in setting, and potential degradation of palaeoenvironmental remains due to changes in groundwater levels and flows. Likely significant operation effects are summarised below, and provided in full in Table 9.19.

8.9.14 This preliminary assessment has considered the distance between receptors and the Project, and will be further refined during the EIA assessment in reference to their location within the ZTV. Based on the preliminary assessment carried out at this stage, the sensitive receptor groups which could experience significant effects through permanent changes to setting are as follows:

- Grade II listed buildings within the Order limits

- Grade II* listed buildings within the 2km study area (outside of conservation areas)
- Conservation areas and listed buildings within the 2km study area
- Scheduled Monuments within the 2km study area and wider ZTV that are potentially affected through changes to setting

8.9.15 All of the above groups have high sensitivity, and have the potential to be adversely affected through the introduction of new built form, particularly the reservoir embankments and infrastructure, which would likely be visible in medium to long views from assets. There may be additional adverse effects resulting from operational noise, light spill, and where the visual/historical relationships between heritage assets are affected by the Project.

8.9.16 Where changes in groundwater levels and flows occur as a result of the project, this could lead to the drying out (and degradation) of palaeoenvironmental remains of moderate sensitivity, resulting in likely significant adverse effects through loss of value. Where present, these would likely be confined to alluvial deposits located along the present river channels, affecting palaeoenvironmental remains (where present) within the draft Order limits.

Summary of likely non-significant operation effects

8.9.17 This section summarises the operation effects that are initially anticipated to be 'non-significant' through the preliminary assessment of effects for Historic environment. In particular, it pulls out the key embedded design mitigation and standard good practice mitigation that will be applied and are anticipated to reduce adverse effects to be non-significant.

8.9.18 As a result of the landscape-led design principles and the design and establishment of planting, habitats, and/or landform to mitigate views of new infrastructure, plus noise bunds, it is anticipated that adverse effects on registered parks and gardens, Grade II listed buildings outside of conservation areas, and on Non-designated built heritage assets within the 1km study area will be non-significant.

8.9.19 The operation effects on Scheduled Monuments within the draft Order limits through changes to groundwater flows are considered non-significant. Based on the nature of the archaeological remains associated with the Scheduled Monuments and their location on higher ground away from regularly flooded alluvial areas, 'drying out' and subsequent degradation of remains is not considered to form a significant impact. This will be further assessed in the ES following the finalisation of the groundwater model for the Project. In addition, embedded mitigation measures to manage groundwater levels and flow routes as well as lining key watercourses and surface water features will aim to preserve the natural environmental conditions which the Scheduled Monuments currently experience.

8.10 Next steps

8.10.1 As part of next steps, the Project is proactively developing the design, refining the construction approach and continuing to define the environmental baseline, in conjunction with ongoing consultation and engagement. These activities will inform the EIA process and provide a robust evidence base for the ES. The aim is that where initial likely significant effects are identified at this stage, these may ultimately be determined as not significant in the ES once data gaps are addressed, and the design and mitigation proposals are further developed. Effects that remain after the implementation of all mitigation are referred to as 'residual effects'. These effects are not reported in the PEI Report as additional mitigation is not assumed to be implemented at this stage of the assessment. The assessment of the significance of residual effects after all mitigation is applied is a key outcome of the EIA process and will be reported within the ES, which will be submitted with the DCO application.

8.10.2 The next steps anticipated to be undertaken in relation to the Historic environment assessment prior to completion of the ES and submission of the DCO application are explained below.

Further exploration of additional mitigation

8.10.3 A key aspect of the next steps is to further explore additional mitigation that may reduce adverse effects that the preliminary assessment has initially identified as likely to be significant. Additional mitigation that has been identified for the Historic environment assessment is noted against relevant likely significant effects in Appendix 8.4: Preliminary assessment of effects for historic environment. All additional mitigation that has been identified in relation to the Historic environment assessment to date is listed below in Table 8.11 along with a description of what each measure entails. Each measure has a unique Additional Mitigation ID to enable cross reference between Appendix 8.4: Preliminary assessment of effects for historic environment and Table 8.11. As noted previously above, the preliminary assessment presented in the PEI Report assumes that additional mitigation is not yet applied, as the precise nature and extent of any additional mitigation measures is not confirmed at this stage in the EIA process.

8.10.4 At this preliminary stage, no additional mitigation in relation to the likely significant adverse effects on setting has been identified, as this would need to be carried out following the detailed assessment. Embedded design mitigation and standard good practice mitigation relevant to the historic environment are detailed in the Draft commitments register in Appendix 2.2. Where feasible within the design, embedded landscape mitigation would reduce the overall dominance of proposed new built form and retain the qualities of the existing landscape which contribute to heritage significance (value).

Table 8.11 Additional mitigation identified to date in relation to the Historic environment assessment

Additional mitigation ID	Additional mitigation name	Description of additional mitigation measure
AM-02	Archaeological preservation by record	The results of the ongoing extensive archaeological trial trenching evaluations will provide a detailed and robust evidence base to enable the Applicant to formulate with the relevant statutory consultees an appropriate mitigation strategy for any significant archaeological remains that could be affected by the Project (including potential impacts deriving from changes to hydrological conditions). Following completion of the baseline assessment and reporting of site evaluations, a Detailed Archaeological Mitigation Strategy will be submitted as a DCO document in in consultation with the LPA Archaeological Advisor and Historic England and presented in a standalone Overarching Written Scheme of Investigation (OWSI).

Additional mitigation ID	Additional mitigation name	Description of additional mitigation measure
		The OWSI will provide a comprehensive framework for all archaeological works that will be carried out across the Project, including wider research aims and objectives along with the measures for mitigating direct impact to archaeological remains, e.g. 'preservation by record'. This would ensure that archaeological remains are recorded in order to provide an accurate record in the public domain for future research. Archaeological preservation by record, involves recording all buried or built heritage assets affected during the construction phase of the Project (by creating a written and photographic record). This is typically achieved through targeted archaeological excavation in advance of the commencement of ground works and/or a programme of 'strip, map and sample') or watching brief carried out alongside the preliminary topsoil removal. Following the completion of mitigation fieldwork and reporting, there would be further opportunities for in-depth analysis, research, and dissemination. This would contribute to the development of a meaningful and coherent narrative of the site's history. In parallel, a structured programme of public engagement could be implemented to enable the local community to connect with the findings and to participate in the interpretation of the results.
AM-22	Project design avoids historic environment assets wherever practicable	Wherever practicable, archaeological remains would be left in-situ to the degree possible without compromising the construction of the Project. This would be informed by archaeological and geoarchaeological investigation, including geophysical survey and archaeological trial trenching. Where feasible and warranted measures for avoiding known archaeological remains will be set out and agreed in the OWSI.

Other next steps

8.10.5 Other steps that are continuing or are planned to be undertaken to support the Historic environment assessment prior to completion of the ES and submission of the DCO application are noted below with an explanation of how these will inform the EIA process:

- Engagement and agreement will be sought with Historic England and the LPA Conservation Officer regarding the final list of heritage asset receptors to be assessed with respect to setting. This will be undertaken following the completion of further on-site setting appraisal, production of heritage viewpoint photography and with cross-reference to the Landscape and visual assessment (ZTV and viewpoint photography), which will form part of the baseline information for the ES.
- Following agreement of the scope for the detailed settings assessment, the sensitive receptor groups will be refined to allow further assessment and reporting of magnitude

of impacts on specific heritage assets. This will provide a clearer understanding of the likely significant effects with respect to setting and, where feasible and warranted, allow the formulation of additional mitigation measures.

- Site walkover(s) will be conducted within the draft Order limits to assess the nature, condition and likely significance of the known non-designated above ground heritage assets. This includes the 20th century Steventon Depot, Pillbox FW3/24c and any surviving elements of the Wiltshire and Berkshire Canal. This information is required to inform the ES assessment along with the appropriate mitigation response where above ground structures would be physically disturbed by the Project. The site walkover will also include appraisal of existing mature hedgerows, to identify those which would be considered 'important' under the 1997 Hedgerow Regulations, for consideration in the ecology assessment.
- Continuation of the site evaluation surveys, comprising geophysical surveys and trial trenching, to inform the presence, condition and likely heritage sensitivity for buried non-designated archaeological remains within the draft Order limits. This will include further geophysical survey and targeted trenching within the proposed network of Project Priority Areas for Biodiversity (PABs). Where feasible and warranted, this information will inform the emerging landscape design.
- Following completion of the baseline assessment and reporting of site evaluations, a Detailed Archaeological Mitigation Strategy will be submitted as a DCO document. The mitigation strategy will be developed and agreed in consultation with the LPA Archaeological Advisor, and presented in a standalone Overarching Written Scheme of Investigation (OWSI). The OWSI will provide a comprehensive framework for all archaeological works that will be carried out across the Project, including wider research aims and objectives along with the measures for mitigating direct effects on archaeological remains, e.g. 'preservation by record'. This would ensure that archaeological remains are recorded, in order to provide an accurate record in the public domain for future research.

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It should be noted that the Institute of Environmental Management and Assessment (IEMA) has recently rebranded as the Institute of Sustainability and Environmental Professionals (ISEP). Guidance that was historically published by IEMA is still referenced under that institute name.

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