



West Sussex County Council

A29 REALIGNMENT PHASE 1

Environmental Statement - Chapter 13





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13 ARCHAEOLOGY AND HERITAGE

13.1 INTRODUCTION

- 13.1.1. This chapter reports the outcome of the assessment of likely significant effects arising from the Scheme upon Archaeology. The focus of the assessment is on buried heritage assets (archaeological remains). It does not include above ground heritage assets (buildings, structures, monuments and areas of heritage interest), which have been scoped out.
- 13.1.2. The remainder of the chapter describes the assessment methodology and the baseline conditions relevant to the assessment, which have been used to reach these conclusions, as well as a summary of the likely significant environmental effects arising from the Scheme, leading to the secondary mitigation measures required to avoid, prevent, reduce or, if possible, offset any likely significant adverse effects, and the likely residual effects and any required monitoring after these measures have been employed.
- 13.1.3. This chapter (and its associated figures and appendices) is intended to be read as part of the wider ES and is supported by an Archaeological Desk-Based Assessment (ADBA) (**Appendix 13.1**) and a Geophysical Survey report (**Appendix 13.2**).

13.2 LEGISLATIVE FRAMEWORK, POLICY AND GUIDANCE

LEGISLATIVE FRAMEWORK

- 13.2.1. Other than The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, there is no specific archaeology-related legislation relevant for the Site.

POLICY

- 13.2.2. The applicable policy framework is summarised in **Table 13-1** below.

Table 13-1 - Archaeology: Summary of Policy

Policy	Summary
National Planning Policy Framework (NPPF) 2019 (Paragraphs 184 – 202) (Ref. 13.1)	The Government issued a revised version of the National Planning Policy Framework (NPPF) in February 2019 (MHCLG 2019). The NPPF requires the significance of heritage assets to be considered in the planning process, whether designated or not. Section 16 of the NPPF deals with 'Conserving and Enhancing the Historic Environment'. The NPPF recognises that heritage assets are an irreplaceable resource which 'should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of existing and future generations' (para 184).
Planning Practice Guidance (PPG) 2018 (Ref. 13.2)	The web-based National Planning Policy Guidance, provides supporting information in respect of conserving and enhancing the historic environment.

West Sussex County Council Structure Plan 2001–2016 (Ref. 13.3)	The West Sussex County Council Structure Plan 2001–2016 has no formal status in the current planning system. However, it remains West Sussex’s strategic policy statement for future development and land-use planning. Policy CH7 covers Archaeology:
Arun District Council’s Local Plan 2011–2031 (2018) (Ref. 13.4)	Arun District Council’s Local Plan 2011–2031 was adopted in July 2018. Policy SP1 covers the Historic Environment. Policy DM1 covers Archaeology.

GUIDANCE

13.2.3. The applicable guidance documents are summarised in **Table 13-2** below.

Table 13-2 - Archaeology: Summary of Guidance

Policy	Summary
ClfA [Chartered Institute for Archaeologists] Dec 2014a, Standards and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment, Reading. (Ref. 13.5)	Standards and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment.
ClfA Dec 2014b, Standards and guidance for historic environment desk-based assessment, Reading (Ref. 13.6)	Standards and guidance for historic environment desk-based assessment.
Historic England, 2008 Conservation Principles (Ref. 13.7)	Conservation principles, policies and guidance for the Historic Environment.
Historic England, 2017 Conservation principles, policies and guidance. Consultation Draft. Swindon (Ref. 13.8)	Conservation principles, policies and guidance for the Historic Environment.

13.3 CONSULTATION, SCOPE, METHODOLOGY AND SIGNIFICANCE CRITERIA

CONSULTATION UNDERTAKEN TO DATE

13.3.1. **Table 13-3** provides a summary of the consultation activities undertaken in support of the preparation of this chapter.

Table 13-3 - Archaeology and Heritage: Summary of Consultation Undertaken

Body / organisation	Individual / stat body / organisation	Meeting dates and other forms of consultation	Summary of outcome of discussions
West Sussex County Council	Scoping Opinion (Appendix 5.1)	2nd April 2019	Archaeology and cultural heritage should be 'scoped in' to the ES, focusing primarily on the potential for impacts on buried archaeology, though impact on built cultural heritage should also be considered.
West Sussex County Council	John Mills - County Archaeologist	12th June 2020	Comments provided on the draft ADBA. Following discussion on these comments it was determined that none of the hedgerows on the Site were to be considered as historic hedgerows.
West Sussex County Council	John Mills - County Archaeologist	23rd July 2020	Comments and interpretation of geophysical survey. If the whole of the route contains remnants of later prehistoric/ Roman agricultural landscape features, such as a field system(s) and some indications of rural settlement, these would normally merit archaeological investigation and recording in advance of road construction, but not preservation intact.
West Sussex County Council	John Mills – County Archaeologist	30th September, 12th, 15th and 16th October 2020	Discussions on options to undertake archaeological investigations prior to construction. This included review of the outline Archaeological Mitigation Strategy and draft Written Scheme of Investigation (WSI) which form Appendix 13.3 and 13.4 of the ES.

SCOPE OF THE ASSESSMENT

13.3.2. The scope of this chapter has been established through an ongoing scoping process. Further information can be found in **Chapter 5: Approach to EIA**.

ELEMENTS SCOPED OUT OF THE ASSESSMENT

13.3.3. The effects shown in **Table 13-4** are considered insignificant and have therefore been scoped out of this ES chapter.

Table 13-4 - Elements Scoped Out of the Assessment

Element scoped out	Justification
Construction and operational effects on above ground assets	<p>Consideration has been given to the potential for significant effects on above ground assets and because of distance between the scheme and and significant above ground heritage assets, it has been concluded that there is no potential for significant effects on these assets as a result of either the construction or operation of the Scheme It is outside the scope of this report to consider the physical impact of the Scheme on above ground assets, e.g. physical impacts which would remove or change building fabric, or changes to the historic character and setting of designated above ground heritage assets within the Site or outside it.</p> <p>The Scheme will result in a decrease in vehicle numbers in Eastergate village but these are no considered to have a significant effect on listed buildings in this location.</p>
Operational effects on buried heritage assets	Operational phase effects on buried heritage assets have been scoped out on the basis that once the Scheme has been completed, no further ground disturbance would occur and consequently there would be no additional impacts upon buried heritage assets.
Cumulative effect on buried heritage assets	Cumulative effects are 'elevated' effects which occur when the combined effect of the Scheme with other proposed schemes in the vicinity, on a discrete and significant shared buried heritage asset, is more severe than that reported in the Site. This is on the basis that for intangible and deeply buried heritage assets it is not feasible to quantify accurately the nature of the resource across the study area, which would enable the identification of a cumulative impact and potential elevated effect.

ELEMENTS SCOPED INTO THE ASSESSMENT

Construction Phase

13.3.4. The following impacts have been identified and the resulting effect assessed in the Chapter:

- Partial or complete loss of buried heritage assets where ground disturbance is proposed.

13.3.5. The following elements of the Scheme are considered to have the potential to give rise to likely significant effects and have therefore been considered within the ES:

- Site preparation (topsoil stripping is assumed to be site-wide); and
- Excavation for road construction; for attenuation ponds; for services/ drainage and possibly for planting.

13.3.6. The receptors that could be affected by the elements listed above are:

- Prehistoric and Roman remains -these two periods have been identified with the greatest potential. The significance depends on what/ if any remains are found.

EXTENT OF THE STUDY AREA

- 13.3.7. In order to determine the full historic environment potential of the Site, a broad range of standard documentary and cartographic sources, including results from any archaeological investigations in the site and a 1.5km radius study area around it were examined in order to determine the likely nature, extent, preservation and significance of any known or possible buried heritage assets that may be present within or adjacent to the Site.
- 13.3.8. The study area is considered though professional judgement to be appropriate to characterise the historic environment of the Site and surrounding area. Where appropriate, there may be reference to assets beyond these study areas, e.g., where such assets are particularly significant and / or where they contribute to current understanding of the historic environment. This is highlighted, where appropriate, within this Chapter.

METHOD OF BASELINE DATA COLLATION

DESK STUDY

- 13.3.9. **Appendix 13.1** provides a desk-based study and includes a review of available information to determine the baseline conditions in the Site and surrounding study area. This assessment consisted of an analysis of existing written, graphic, photographic, electronic information and a site walkover, in order to identify the likely heritage assets within the Site and wider study area, and determine their significance. The following data sources have been reviewed:
- The National Heritage List for England (NHLE) for details of designated heritage assets (including World Heritage Sites, Scheduled Monuments, Listed Buildings, Registered Historic Parks and Gardens and Registered Battlefields);
 - The West Sussex Historic Environment Record (HER) for records on statutory designated sites, and for records of known archaeological or historical interest and archaeological events;
 - LPA information on conservation areas and locally listed buildings;
 - Primary sources such as maps and documents;
 - British Geological Survey data and available geotechnical and topographical survey data; and
 - Online sources, such as British History Online and the Archaeological Data Service.

SITE VISIT

- 13.3.10. The assessment included a site visit carried out on the 25th of February 2020 in order to determine the topography of the Site and existing land use, identify any visible heritage assets (e.g. structures and earthworks), and assess any possible factors which may affect the survival or condition of any known or potential assets.

GEOPHYSICAL SURVEY

- 13.3.11. A geophysical survey was conducted by Wessex Archaeology in June 2020. The survey was requested by the LPA archaeological advisor. Three separate areas of the Site were surveyed. The findings of this survey are included in **Appendix 13.2**.

ASSESSMENT METHODOLOGY

13.3.12. **Chapter 5: Approach to EIA** sets out the general EIA methodology approach. The methodological approach specific to the present chapter is set out below and is informed by the ADBA (**Appendix 13.1**). Following the characterisation of the baseline conditions, the methodology used to characterise the likely environmental effects on potential archaeological buried heritage assets has entailed:

- Evaluating the significance of buried heritage assets, based on existing designations and professional judgment where such resources have no formal designation, and considering values as outlined in the NPPF (Ref. 10.4) and Historic England's Conservation Principles (Ref. 10.10);
- Predicting the magnitude of change upon the known or potential buried heritage significance of assets and the likelihood and resulting significance of environmental effect;
- Considering the mitigation measures that have been included within the Scheme and any additional mitigation that might be required in order to avoid, reduce or off-set any significant negative effects; and
- Quantifying any residual effects (those that remain after mitigation).

ASSESSING ASSET (RECEPTOR) HERITAGE SIGNIFICANCE

13.3.13. The NPPF defines significance as 'The value of a heritage asset to this and future generations because of its heritage interest. That interest may be historic, archaeological, architectural or artistic.' The determination of the significance in this assessment is based on statutory designation and/or professional judgement against four values identified in Historic England Conservation Principles (Ref. 13.7):

- Evidential value: the potential of physical remains to yield evidence about past human activity. This might consider date; rarity; state of preservation; diversity/complexity; contribution to published priorities; supporting documentation; collective value and comparative potential;
- Historical value: the ways in which past people, events and aspects of life can be connected through a place and/or heritage asset to the present. This tends to be illustrative or associative;
- Aesthetic value: the ways in which people draw sensory and intellectual stimulation from a place and or heritage asset, considering what other people have said or written; and
- Communal value: the meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory.

13.3.14. These values encompass the criteria that Historic England are obliged to consider when statutorily designating heritage assets. Each asset is evaluated against the range of criteria listed above on a case by case basis. Unless the nature and exact extent of buried archaeological remains within any given area has been determined through prior investigation, significance is often uncertain.

13.3.15. In relation to designated heritage assets, the assessment considers the contribution which the historic character and setting makes to the overall significance (i.e. value) of the asset.

13.3.16. **Table 13-5** gives examples of the significance of designated and non-designated heritage assets for both above-ground and below-ground heritage assets, though it should be noted that above ground heritage assets are not considered in this chapter.

Table 13-5 - Significance of heritage assets

Heritage asset description	Significance
World heritage sites Scheduled monuments Grade I and II* listed buildings Grade I and II* registered parks and gardens Designated historic battlefields Protected Wrecks Undesignated heritage assets of high national importance	Very High
Grade II listed buildings Grade II registered parks and gardens Conservation areas Burial grounds Protected heritage landscapes (e.g. ancient woodland or historic hedgerows) Undesignated heritage assets of lower national, regional or county importance	High
Heritage assets with a district value or interest for education or cultural appreciation Locally listed buildings	Medium
Heritage assets with a local (i.e. parish) value or interest for education or cultural appreciation	Low
Item with no significant value or interest	Negligible
Heritage assets that have a clear potential, but for which current knowledge is insufficient to allow significance to be determined	Uncertain

MAGNITUDE OF CHANGE

13.3.17. Determination of magnitude of change upon the significance of known or potential heritage assets is based on the severity of the likely impact. **Table 13-6** describes the criteria used in this assessment to determine the magnitude of change. This determination of magnitude of change is based on professional judgement.

Table 13-6 - Magnitude of change (impact)

Magnitude of change	Description of change
High	Complete removal of asset. Change to asset significance resulting in a fundamental change in our ability to understand and appreciate the resource and its historical context, character and setting. The transformation of an asset's setting in a way that fundamentally compromises its ability to be understood or appreciated. The scale of change

Magnitude of change	Description of change
	would be such that it could result in a designated asset being undesignated or having its level of designation lowered.
Medium	Change to asset significance resulting in an appreciable change in our ability to understand and appreciate the asset and its historical context, character and setting. Notable alterations to the setting of an asset that affect our appreciation of it and its significance; or the unrecorded loss of archaeological interest.
Low	Change to asset significance resulting in a small change in our ability to understand and appreciate the asset and its historical context, character and setting.
Negligible	Negligible change or no material change to asset significance. No real change in our ability to understand and appreciate the asset and its historical context, character and setting.
Uncertain	Level of survival / condition of resource in specific locations is not known: magnitude of change is therefore not known.
No change	No change

SIGNIFICANCE OF ENVIRONMENTAL EFFECT

13.3.18. The following terms have been used to define the significance of the effects identified and apply to both beneficial and adverse effects:

- **Major effect:** where the Scheme could be expected to have a substantial improvement or deterioration on receptors. For the historic environment, in terms of the NPPF, this equates to substantial harm to, or loss of, significance of an asset of very high, high or medium heritage significance, as a result of changes to its physical form or setting;
- **Moderate effect:** where the Scheme could be expected to have a noticeable improvement or deterioration on receptors. For the historic environment this equates to less than substantial harm to the significance of an asset of very high, high or medium heritage significance, as a result of changes to its physical form or setting;
- **Minor effect:** where the Scheme could be expected to result in a perceptible improvement or deterioration on receptors. For the historic environment this equates to less than substantial harm to the significance of an asset of very high, high or medium heritage significance, as a result of changes to its physical form or setting, or substantial harm to, or the loss of, significance of an asset of low heritage significance; and
- **Negligible:** where no discernible improvement or deterioration is expected as a result of the Scheme on receptors, including instances where no change is confirmed.

Table 13-7 shows the significance of environmental effect as derived from receptor significance and magnitude of change. The application of this criteria to the assessment is based on professional judgement.

Table 13-7 - Significance of environmental effect

Magnitude of change	Heritage Asset (Receptor) significance				
	Very high	High	Medium	Low	Negligible
High	Major	Major	Moderate or Major	Minor or Moderate	Negligible
Medium	Major	Moderate or Major	Moderate or Major	Minor	Negligible
Low	Moderate	Minor or Moderate	Minor	Minor	Negligible
Negligible	Minor or negligible	Minor or Negligible	Negligible	Negligible	Negligible
No change	No change	No change	No change	No change	No change

- 13.3.19. Effects that are classified as minor or above are considered to be significant. For archaeology minor adverse effects are still significant as they can cause partial loss of an asset. Effects classified as below minor are considered to be not significant. The language used in the NPPF (i.e. substantial or less than substantial harm) has been correlated with the standard EIA methodology. A major effect equates to 'substantial harm' whilst all the lesser effects are considered 'less than substantial harm'.
- 13.3.20. The assessment of likely significant effects has taken into account the site preparation, demolition and construction stages. The significance level attributed to each effect has been assessed based on the heritage significance of the affected receptor (heritage asset) and the magnitude of change (impact) to the heritage significance of the receptor due to the Scheme.
- 13.3.21. The significance of environmental effect is outlined in **Table 13-8**. Effects may be either negative (adverse) or positive (beneficial) and are defined initially without mitigation. The table is essentially a guide only, so that the process is transparent and the rationale for the effect scores is provided in the relevant sections. Where the resulting effect comprises two separate levels (i.e. 'moderate or minor' or 'minor or negligible'), professional judgement has been applied to select the most appropriate significance of effect.
- 13.3.22. Where information is insufficient to be able to quantify either the asset significance or magnitude of change with any degree of certainty, the effect is given as 'uncertain'. This might be the case for possible buried heritage assets, the presence, nature, date, extent and significance of which is uncertain due to the absence of any site-based investigation.

MITIGATION MEASURES AND SIGNIFICANCE OF RESIDUAL EFFECTS

- 13.3.23. An appropriate mitigation strategy would aim to offset or reduce any negative effect. 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. archaeological standing building recording in advance of demolition) with dissemination at an appropriate level (preservation by record).
- 13.3.24. As heritage assets are an irreplaceable resource it is generally considered as standard practice within the planning system to implement mitigation measures in order to reduce or offset any level of negative effect on a heritage asset where the proposed change would physically alter or remove the asset, including minor negative. 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.

13.3.25. The residual effect reflects the success rating for the recommended mitigation strategy.

BASELINE CONDITIONS

DESIGNATED HERITAGE ASSETS

13.3.26. The Site does not contain any nationally designated (protected) heritage assets, such as scheduled monuments, listed buildings or registered parks and gardens. The Site is not within or in close proximity to a conservation area or an Archaeological Notification Area.

TOPOGRAPHY

13.3.27. Topography can provide an indication of suitability for settlement, and ground levels can indicate whether the ground has been built up or truncated, which can have implications for archaeological survival.

13.3.28. The Site is located on the West Sussex Coastal Plain. It lies between two dry valleys which form part of the Lidsey Rife river system. The dry valley to the west of the Site, following the approximate line of Fontwell Avenue, is a continuation of the Slindon Bottom dry valley.

13.3.29. There is a general slope down across the Site from north-west to south-east. The ground level is recorded at 15.4m Above Ordnance Datum (AOD) in the western part of the Site by Fontwell Avenue. The ground rises slightly to a level of 16.1m AOD at the wooded area in the west of the Site. From this high point the ground falls to 13.0m AOD in the centre of the Site. The ground level is recorded at 11.1m OD in the south of the Site by Barnham Road. South of Barnham Road the level is recorded at 11.0m OD. At the southernmost part of the Site the level is recorded at 10.0m OD.

GEOLOGY

13.3.30. Geology can provide an indication of suitability for early settlement, and potential depth of remains. According to British Geological Survey (BGS) digital data the geology of the Site comprises Head deposits (superficial deposits of gravel and sand accumulated by down-slope solifluction and hill wash). There are river terrace deposits of sand, silts and clays in the southern and western parts of the Site.

13.3.31. A geotechnical investigation (GI), which was archaeologically-monitored (see below), was carried out for engineering purposes in 2018. The sequence recorded by the GI displayed a typical Quaternary succession for this part of the Coastal Plain. London Clay was overlain by marine deposits provisionally interpreted as relating to the Brighton-Norton raised beach. The highest depth of the marine deposits was recorded at 3.1m below ground level (mbgl). These, in turn, were overlain by fluvial gravel deposits. Localised Brickearth was recorded in several locations. Undated made ground (likely of modern origin, possibly dumping) was recorded in five locations. The results of the investigation are provided in greater detail in **Appendix 13.1**.

PAST ARCHAEOLOGICAL INVESTIGATIONS

13.3.32. Two past archaeological investigations have been carried out within the Site. In 2018, a geoarchaeological watching brief was undertaken on the geotechnical investigation along the route (see above). Around half of the boreholes, test pits and windows samples were monitored archaeologically. A single prehistoric flake fragment was found in one of the test pits. A single

fragment of ceramic building material (CBM) of Roman or post-medieval date was found another test pit.

13.3.33. A geophysical survey was undertaken by Wessex Archaeology in three areas within the Site in June 2020 (**Appendix 13.2**). The survey identified the following potential heritage features:

- Buried trackway defined by ditches on either side – potentially Late Iron Age or Roman;
- Lesser ditches – potentially prehistoric or Roman; and
- Field division – potentially 19th century or earlier.

13.3.34. Within the area surveyed, there were no obvious indications of masonry structures, such as wall foundations of Roman or medieval buildings.

13.3.35. Within the study area archaeological investigations have been carried out at a further 10 sites. Prehistoric remains have been found at eight sites; Roman remains at five sites; later medieval remains at four sites; and post-medieval remains at three sites. Few of these investigations have been carried out in the immediate vicinity of the Site so the archaeological understanding of the area of the Site itself is limited, in particular for the prehistoric and Roman periods for which there is no documentary record, although the finds in the study area suggest background potential for multi-period activity.

CHRONOLOGICAL SUMMARY

Prehistoric

13.3.36. The findspot of a Palaeolithic axe is recorded at Walberton Lane, 1.2km to the north-east of the Site. A small number of flints of Mesolithic date were found at Fontwell Avenue, 800m north of the Site. Finds of Mesolithic flint flakes at Norton Spinney, 1km south-west of the Site, and at Croft Cottages, 1.1km south-west of the Site, might represent flint working sites.

13.3.37. A single flint flake fragment of late prehistoric date was found in the western part of the Site, during geoarchaeological monitoring. A trackway and ditches of possible prehistoric date were recorded during the geophysical survey.

Roman

13.3.38. The Site lies approximately 950m to the south of the Roman road from Chichester to Arundel. A fragment of CBM was found in the western part of the Site, during archaeological monitoring of a geotechnical investigation. Based on the thickness and surface treatment this was thought to be a fragment of Roman tegula tile (roof tile). A trackway and ditches of possible Roman date were recorded during the geophysical survey.

13.3.39. Within the study area, a gully of Roman date was found at Barnham Manor, 200m to the south-east of the Site.

Early Medieval (Saxon)

13.3.40. Early settlement at Eastergate is thought to have been in the area of St. George's Church, 700m to the south-west of the Site. Saxo-Norman features were recorded at Westergate Community College, 750m to the south-west of the Site. Saxo-Norman pits, ditches and pottery were revealed at 23–27 Ivy Lane, 800m to the south-west of the Site. The Site was probably open fields or woodland to the north of the settlement at Eastergate throughout the early medieval period.

Later Medieval

- 13.3.41. The focus of later medieval settlement was around St George's Church, 700m to the south-west of the Site. The Northfield, between Barnham Road and Fontwell Avenue, which would likely have included the area of the Site, was open fields during the later medieval period.
- 13.3.42. Within the study area, later medieval features were recorded at Westergate Community College, 650m to the south-west of the Site. At 23–27 Ivy Lane, 850m to the south-west of the Site, features dating for the 11th/12th centuries to the 14th century were recorded. Ditches containing pottery dated to the 11th to 13th centuries were revealed at Church Lane, 500m south-west of the Site. At Arundel Road, 1.2km north of the Site, later medieval pottery was recorded. Medieval green-glazed pottery was found on the surface of a ploughed field south of Eastergate Church, 1.2km to the south of the Site.
- 13.3.43. The Site was probably in open fields away from the centre of settlement throughout the later medieval period.

Post-Medieval

- 13.3.44. Historic mapping shows that the majority of the Site in fields throughout the post-medieval period. The Eastergate Workhouse was located in the eastern part of the Site in the late 18th to early 19th century. Any footings of the workhouse are likely to have been removed by later quarrying. Farm buildings (two of which are still extant) belonging to Follyfoot Farm were located in the eastern part of the Site, to the south of the workhouse.
- 13.3.45. From the early to mid 20th century orchards were planted over the majority of the Site. The orchards were removed in the late 20th century.
- 13.3.46. Post-medieval field boundaries were recorded during the geophysical survey.

FACTORS AFFECTING SURVIVAL

- 13.3.47. Past ground disturbance on the Site from late 19th and 20th century developments may have compromised archaeological survival, e.g. building foundations or quarrying, identified primarily from historic maps, site walkover survey, and information on the likely depth of deposits.
- 13.3.48. Archaeological survival across the Site is anticipated to be moderate to high across the majority of the Site. Apart from the small farm buildings in the western part of the Site, there has been no construction on the Site. Any remains will have been removed in the area of 19th century quarrying in the western part of the Site.
- 13.3.49. Much of the Site was occupied by orchards planted in the 20th century. The root action of the trees will have caused localised disturbance to any archaeological remains present.

FUTURE BASELINE

- 13.3.50. **Chapter 2 – The Existing Site**, sets out the future details of the surrounding area from a planning perspective. Schedule 4 of the EIA Regulations requires consideration of the likely evolution of the current baseline in the absence of the Scheme.
- 13.3.51. For buried heritage assets within the Site, 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.

SENSITIVE RECEPTORS

13.3.52. The following potential sensitive receptors have been assessed:

- A moderate to high potential for Prehistoric remains, of isolated stone tools or pottery or cut features such as pits and ditches. The significance of isolated stone tools or pottery would be Low. Cut features would be of Medium significance, or High significance if extensive settlement remains were found; and
- A moderate potential for Roman remains, of isolated pottery finds or agricultural cut features. The significance of isolated pottery finds would be Low. Cut features would be of Medium significance.

13.4 ASSESSMENT OF EFFECTS, MITIGATION AND RESIDUAL EFFECTS

13.4.1. The following sections considers the potential effects of the Scheme on below ground assets during the construction phase. As stated previously, consideration of effects during the operational phase has been scoped out.

CONSTRUCTION PHASE

13.4.2. **Table 13-8** sets out the potential effects of the Scheme on archaeology during the construction phase.

Table 13-8 - Assessment of Effects, Mitigation and Residual Effects (Construction)

Assessment Component	Commentary
Prehistoric remains	<p>There could be impacts on prehistoric remains from site preparation, road construction, excavation for attenuation ponds, services/drainage and possible planting.</p> <p>The significance of any prehistoric remains is considered to be Low Medium or High, and the magnitude of impact prior to mitigation, is considered to be High. Therefore, there is likely to be a direct, long-term major adverse effect on the prehistoric remains (significant) prior to the implementation of mitigation measures.</p>
Roman remains	<p>There could be impacts on prehistoric remains from site preparation, road construction, excavation for attenuation ponds, services/drainage and possible planting.</p> <p>The significance of any Roman remains is considered to be Low or Medium, and the magnitude of impact prior to mitigation, is considered to be High. Therefore, there is likely to be a direct, long-term moderate to major adverse effect on the prehistoric remains (significant) prior to the implementation of mitigation measures.</p>
Secondary mitigation	<p>Archaeological investigation will be required prior to construction in order to clarify the nature, survival and significance of any archaeological assets that may be affected. The local authority's archaeological advisor has suggested that the most appropriate investigation strategy is an archaeological trial trench evaluation. A geophysical survey has already been undertaken. A draft Written Scheme of Investigation (WSI) for an archaeological trial trench evaluation, and an Outline Archaeological Mitigation Strategy are included in Appendix 13.4 and 13.3 of the Environmental Statement.</p>

Assessment Component	Commentary
	<p>The results of the evaluation would allow an informed decision to be made in respect of an appropriate mitigation strategy for any significant archaeological assets. Mitigation normally comprises preservation by record: advancing understanding of asset significance through targeted archaeological excavation in advance of development. This might be combined with a watching brief during ground works for remains of lesser significance. In the unlikely event that nationally important remains are present, preservation in situ may be required (i.e. through redesign/avoidance).</p> <p>As an alternative to trial trenching, followed by archaeological mitigation, a preliminary site strip, in the form of Strip, Map and Sample may be undertaken under archaeological direction during the construction phase. Regardless of the option, a Post-Excavation Assessment Report would be prepared.</p> <p>Any archaeological work would need to be undertaken in consultation with the local authority's archaeological advisor, in accordance with an approved archaeological Written Scheme of Investigation (WSI).</p>
Residual effects and monitoring (prehistoric remains)	There is likely to be a negligible residual effect (not significant) following the implementation of mitigation measures.
Residual effects and monitoring (Roman remains)	There is likely to be a negligible residual effect (not significant) following the implementation of mitigation measures.

13.5 LIMITATIONS AND ASSUMPTIONS

- 13.5.1. The main limitation to the assessment is the nature of the archaeological resource - buried and not visible - which means it can be difficult to predict the presence and likely significance of buried assets accurately, and consequently the impact upon them, based primarily on a desk-based sources. The principle sources of information is the Historic Environment Record (HER), which list all known archaeological sites and finds. The information provides an initial indication of archaeological potential rather than a definitive list of all potential buried heritage assets, because the full extent of a buried heritage resource cannot be known prior to site-specific archaeological field investigation.
- 13.5.2. Notwithstanding this limitation, the methodology is robust, utilising reasonably available information, and conforms to the requirements of local and national guidance and planning policy. Typically, appropriate standard archaeological prospection and evaluation techniques are utilised to reduce the uncertainties inherent in any desk-based assessment, as part of an overall EIA mitigation strategy.

13.6 CUMULATIVE EFFECTS

- 13.6.1. A 1.5km radius study area around the Site was examined in order to determine the likely nature, extent, preservation and significance of any known or possible buried heritage assets that may be present within or adjacent to the Site. The study area is considered through professional judgement to be appropriate to characterise the historic environment of the Site and surrounding area.

- 13.6.2. Cumulative effects were scoped out of the assessment. Cumulative effects are ‘elevated’ effects which occur when the combined effect of the Scheme with other proposed schemes in the vicinity, on a discrete and significant shared buried heritage asset, is more severe than that reported in the Site. This is on the basis that for intangible and deeply buried heritage assets it is not feasible to quantify accurately the nature of the resource across the study area, which would enable the identification of a cumulative impact and potential elevated effect. Beyond the general potential of the area for prehistoric and Roman remains no discrete and significant shared buried heritage assets were identified associated with other proposed schemes.
- 13.6.3. The Site includes a number of hedgerows. However, none of these hedgerows meet the criteria for ‘important’ historic hedgerows under the Hedgerow Regulations Act (Ref 13.9).

13.7 SUMMARY

- 13.7.1. There are no designated assets on the Site. The Site is not in a conservation area or an Archaeological Notification Area.
- 13.7.2. Archaeological survival across the Site is anticipated to be moderate to high. Apart from the small farm buildings and quarrying in the western part of the Site, there has been no construction on the Site, although the former use of much of the Site as an orchard is likely to have caused some disturbance through root action.
- 13.7.3. There would be impact from site preparation (topsoil stripping is assumed to be site-wide), excavation for road construction and excavation for attenuation ponds and services/drainage and possibly planting.
- 13.7.4. There is potential for prehistoric remains, of isolated stone tools or pottery or cut features such as pits and ditches. The significance of isolated stone tools or pottery would be Low. Cut features would be of Medium significance, or High significance if extensive settlement remains were found.
- 13.7.5. There is potential for Roman remains, of isolated pottery finds or agricultural cut features. The significance of isolated pottery finds would be Low. Cut features would be of Medium significance.
- 13.7.6. The assessment of Archaeology and Heritage has established that the following secondary mitigation measures are required:
- Archaeological evaluation will be required prior to construction, in order to clarify the nature, survival and significance of any archaeological assets that may be affected. This would cover the footprint of the Scheme including associated drainage features and compound sites where topsoil stripping is required. The local authority’s archaeological advisor has suggested that the archaeological evaluation should comprise a trial trench evaluation, in accordance with an approved Written Scheme of Investigation;
 - The results of the evaluation would allow an informed decision to be made in respect of an appropriate mitigation strategy for any significant archaeological assets. A draft Archaeological Mitigation Strategy is attached as **Appendix 13.3**. Mitigation normally comprises preservation by record: advancing understanding of asset significance through targeted archaeological excavation in advance of development. This might be combined with a watching brief during ground works for remains of lesser significance. In the unlikely event that nationally important remains are present, preservation in situ may be required (i.e. through redesign/ avoidance);

- As an alternative to trial trenching, followed by archaeological mitigation, a preliminary site strip, in the form of Strip, Map and Sample may be undertaken under archaeological direction during the construction phase; and
- Whichever option is adopted, a Post-Excavation Assessment Report would be prepared.

13.7.7. Any archaeological work would need to be undertaken in consultation with the local authority's archaeological advisor, in accordance with an approved archaeological written scheme of investigation.

13.7.8. The following, **Table 13-9**, provides a summary of the findings of the assessment.

Table 13-9 - Summary of Effects Table for Archaeology

Description of Effects	Receptor	Significance and Nature of Effects Prior to Secondary Mitigation	Summary of Secondary Mitigation	Significance and Nature of Residual Effects
Construction Phase				
Site preparation (topsoil stripping is assumed to be site-wide). Excavation for road construction; for attenuation ponds; for services/ drainage and construction compounds	Prehistoric	Major -P/D/LT	Archaeological trial trench evaluation will be required prior to construction, in order to clarify the nature, survival and significance of any archaeological assets that may be affected. A draft Written Scheme of Investigation (WSI) for an archaeological trial trench evaluation, and an Outline Archaeological Mitigation Strategy are included in Appendix 13.4 and 13.3 of the Environmental Statement as requested by the WSCC Archaeological Advisor. The results of the evaluation would allow the formation of an appropriate mitigation strategy for any significant archaeological assets. Mitigation normally comprises preservation by record: advancing understanding of asset significance through targeted archaeological excavation in advance of development. This might be combined with a watching brief during ground works for remains of lesser significance. In the unlikely event that nationally important remains are present, preservation in situ may be required (i.e. through redesign/avoidance). As an alternative to trial trenching a preliminary site strip, in the form of Strip, Map and Sample may be undertaken under archaeological direction during the construction	Negligible
	Roman remains	Moderate to Major -P/D/LT		Negligible

			phase. Regardless of the option, a Post-Excavation Assessment Report would be prepared.	
Operational Phase – N/A				

Key to table:

+ / - = Beneficial or Adverse P / T = Permanent or Temporary, D / I = Direct or Indirect, ST / MT / LT = Short Term, Medium Term or Long Term, N/A = Not Applicable

13.8 REFERENCES

- Ref. 13.1 MCHLG [Ministry of Housing, Communities and Local Government] (2019) National Planning Policy Framework
- Ref. 13.2 MCHLG [Ministry of Housing, Communities and Local Government] Planning Practice Guidance. [Online] Accessed via <https://www.gov.uk/government/collections/planning-practice-guidance>
- Ref. 13.3 West Sussex County Council (2005) West Sussex County Council Structure Plan 2001–2016
- Ref. 13.4 Arun District Council (2018) Local Plan 2011–2031
- Ref. 13.5 Chartered Institute for Archaeologists (2014a) Standards and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment, Reading
- Ref. 13.6 Chartered Institute for Archaeologists (2014b) Standard and Guidance for Historic Environment Desk-Based Assessment, Reading
- Ref. 13.7 Historic England (2008) Conservation Principles, Policies and Guidance. Swindon
- Ref. 13.8 Historic England (2017) Conservation principles, policies and guidance. Consultation Draft. Swindon



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