

**A66 Northern Trans-Pennine Project
TR010062**

**2.7 Environmental Management Plan
Annex B3 Outline Heritage Mitigation
Strategy (Rev 3) (Clean)**

APFP Regulations 5(2)(a)

Planning Act 2008

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

Volume 3

4 April 2023

Infrastructure Planning

Planning Act 2008

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

A66 Northern Trans-Pennine Project
Development Consent Order 202x

**2.7 ENVIRONMENTAL STATEMENT
ANNEX B3 OUTLINE HERITAGE MITIGATION STRATEGY**

Regulation Number:	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010062
Application Document Reference	2.7
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Version	Date	Status of Version
Rev 1	13 June 2022	DCO Application
Rev 2	24 January 2023	Deadline 3
Rev 3	4 April 2023	Deadline 6

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B3 Outline Heritage Mitigation Strategy

B3.1 Introduction

Purpose

- B3.1.1 This document sets out the scope, principles and standards to which archaeological works proposed as mitigation for the Project will be carried out.
- B3.1.2 The production of a Detailed Heritage Mitigation Strategy (DHMS) is secured by the cultural heritage environmental commitments in the Register of Environmental Actions and Commitments (REAC). The REAC described in the EMP presents an initial register which has been developed using information presented in the ES. The EMP and its associated Annexes will be updated by the Principal Contractor when preparing the EMP (construction stage) and then ‘as required’ as the Project progresses. This document is the Outline Heritage Mitigation Strategy, upon which the DHMS must be based.

Structure

- B3.1.3 This document is structured as follows:
- Section 1.2 Strategy - this sets out the strategy for the archaeological works, summarising the work undertaken to date, the research agenda and the approach to mitigation proposed
 - Section 1.3 Overarching Written Scheme of Investigation (OWSI) - this sets out the framework for the archaeological works and will be used as a reference for the Site-Specific Written Schemes of Investigation (SSWSI) which will be produced in advance of the commencement of the work
 - Section 1.4 Standards and guidance
 - Section 1.5 Outline Mitigation - this section provides details of the proposed mitigation across each of the schemes, showing the specific mitigation proposed and the justification for the work.

Roles and Responsibilities

- B3.1.4 The organisations/individuals involved in this document are those with an approval or advisory capacity, those involved in supervising the Project and those involved in carrying out the work. National Highways will be involved throughout. Flow charts setting out the supervisory and approvals process are provided in Figure 1 and Figure 2.

Supervisory

- B3.1.5 National Highways will appoint a Principal Contractor to construct the Project; the Principal Contractor will appoint an Archaeological Clerk of Works (ACoW) and an Archaeological Contractor, who will provide oversight over the construction of the Project.
- B3.1.6 The ACoW will be responsible for oversight over the archaeological mitigation and will coordinate between the Archaeological Contractor, National Highways, Historic England and the Local Authority Curatorial Archaeologists.

B3.1.7 The ACoW will be responsible for monitoring the archaeological mitigation to ensure that the Project complies with all legislative obligations and requirements of the Development Consent Order (DCO) relating to the historic environment. They will coordinate and monitor archaeological fieldwork, facilitate monitoring arrangements and access and give tool box talks. The ACoW will ensure all on site are briefed and that the works proceed in accordance with the DHMS and SSWSIs.

Archaeological Contractor

B3.1.8 The Archaeological Contractor will be appointed by the Principal Contractor. Their role will be to carry out the archaeological mitigation on behalf of National Highways. They will deliver the archaeological mitigation set out in the OWSI, including the production of SSWSIs, off-site analysis, post-excavation, reporting and archive deposition.

B3.1.9 The Archaeological Contractor will retain the services of, or have the ability to procure, as a minimum, the following specialists:

- Buildings archaeologist/archaeological surveyor
- Environmental archaeologist(s) with the capability to analyse macro and microscopic faunal and archaeobotanical remains
- Finds specialists capable of analysing ceramics, metal objects and lithics
- Geoarchaeologist
- Human osteologist.

B3.1.10 Further specialists may be required depending on the nature and significance of the archaeological remains encountered.

B3.1.11 The Archaeological Contractor will also be responsible for the creation of a strategy and programme for public engagement, in line with proposals set out in the Environmental Statement Appendix 3.4 Historic Environment Research Framework, to be agreed in consultation with National Highways and the relevant local planning authorities, include outreach and engagement with the local community and local/regional museums. This commitment will be confirmed and developed through the DCO process. The Archaeological Contractor shall include within the strategy proposals for appropriate public access (which may include temporary exhibitions) to view findings and information in relation to any discoveries during the archaeological works that are confirmed by Historic England as being nationally significant. This shall allow visitors, tourists and local residents to learn and discover more about the archaeological heritage of the A66NTP route corridor.

Advisory and approvals

B3.1.12 The Local Authority Curatorial Archaeologists (and Historic England where work within Scheduled Monuments is proposed) will be responsible for the sign off (acting reasonably) of SSWSIs in advance of any excavations or other activities as part of the main works which 'break ground' in the area relating to that SSWSI. The Local Authority Curatorial Archaeologists or Historic England (as appropriate) will be given five days notice of the intent to submit a SSWSI for approval, and

a minimum defined period of 20 working days to review and approve the SSWSI. If the relevant party does not notify a decision whether or not to approve the SSWSI during the defined periods, then it shall be deemed that approval is granted for the proposed SSWSI. The Local Authority Curatorial Archaeologists (and Historic England where relevant) will monitor the archaeological mitigation undertaken pursuant to a SSWSI and review and approve reports produced by the Archaeological Contractor following the completion of archaeological works. The SSWSIs will also identify the museum where the archive will be deposited, in line with the process outlined in this document. Further detail will be added to this document as it is developed through the DCO process. A dispute resolution process will be included to deal with the unlikely event of disagreement between parties in respect of any matter under the Detailed Heritage Mitigation Strategy.

Areas described in this report

B3.1.13 The Project has been split into a number of schemes:

- M6 Junction 40 to Kemplay Bank
- Penrith to Temple Sowerby
- Temple Sowerby to Appleby
- Appleby to Brough
- Bowes Bypass
- Cross Lanes to Rokeby
- Stephen Bank to Carkin Moor
- A1(M) Junction 53 Scotch Corner.

B3.1.14 These areas are shown on Figure 8.10.1.

Revision and Dissemination

B3.1.15 The OHMS will be refined and developed to a DHMS during the detailed design stage of the scheme in consultation and agreement with the Local Authority Curatorial Archaeologists and Historic England prior to construction.

B3.1.16 It is the Principal Contractor's responsibility to ensure that the details of the DHMS and any agreed amendments are known and understood by all site personnel.

B3.1.17 Copies of the agreed documents will be available on site and the site manager will brief all personnel who could have an impact on heritage assets and unknown buried archaeology. This will be a part of the site induction procedures and written into appropriate site management documents.

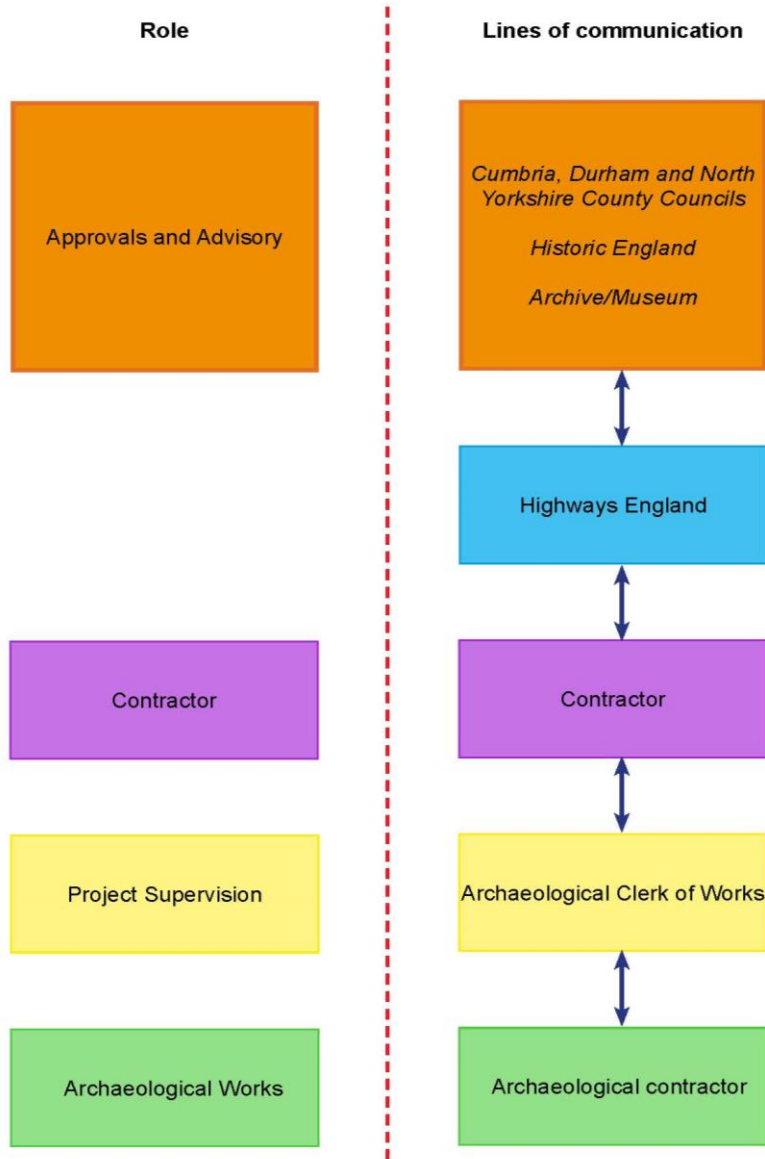


Figure 1: Roles and indicative lines of communication



Figure 2: Process for development and implementation of the DHMS

B3.2 Strategy

Approach to mitigation

B3.2.1 Archaeological investigations carried out to inform the DCO have established that the Project is likely to result in the removal of a range of heritage resources, including buried archaeological remains, historic buildings and geological deposits of geoarchaeological interest. There are several areas of high value buried archaeological remains (and built heritage) within the Order Limits which will be affected by the construction of the scheme.

B3.2.2 Where it has not been possible to mitigate potential impacts through design (i.e. by avoiding identified archaeological remains) a programme of archaeological and geoarchaeological works, alongside historic building recording and, where possible, preservation in situ will be put in place.

B3.2.3 Historic England and the Local Authority Curatorial Archaeologists will be involved throughout the development of this strategy and its implementation.

Historic environment surveys undertaken to date

B3.2.4 A range of historic environment surveys have taken place to support the cultural heritage assessment within the ES (Chapter 8: Cultural Heritage and supporting appendices). This has included:

- Historic environment desk-based research, which used Historic Environment Record (HER) and National Heritage List for England (NHLE) data, alongside analysis of historic maps and other published sources, to identify known heritage resources and identify potential areas of archaeological remains and buildings of historic or architectural interest (ES Appendix 8.1: Archaeological and Historical Background (Application Document 3.4))
- Historic Landscape Characterisation - using existing studies produced for Cumbria, County Durham and North Yorkshire (ES Appendix 8.2: Historic Landscape Character (Application Document 3.4))
- Geoarchaeological desk-based assessment and deposit modelling (ES Appendix 8.3: Geoarchaeological desk-based assessment (Application Document 3.4))
- LiDAR and Aerial Photographic interpretation (ES Appendix 8.4: AP & LiDAR Assessment (Application Document 3.4))
- Geophysical survey (magnetometry) (ES Appendix 8.5: Geophysical survey report)
- Trial trenching - comprising 1349 trial trenches (ES Appendix 8.6: Trial trenching reports (Application Document 3.4))
- Geochemical Analysis (ES Appendix 8.7: Geochemical Survey Report (Application Document 3.4))
- Building Recording of the Rokeby Rectory

Resource assessment and research agenda

B3.2.5 The DHMS is founded on the resource assessment and research agenda developed for the Project (Appendix 8.9: Historic Environment Research Framework). The research agenda provides a framework for all future historic environment investigation within the Order Limits, covering both research topics/questions on a period basis and across four key 'data themes':

- **Chronology:** there is limited availability of dating evidence for most periods represented in the historic environment of the A66 corridor. As a result, a scheme-wide dating strategy forms a key component of the mitigation strategy
- **Environment:** there is remarkably little environmental data from the A66 corridor leaving knowledge gaps in our understanding of local environments around known sites, the archaeological potential of lowland peat, environmental material from river and stream deposits, and human and animal bone survival
- **Artefacts:** artefact assemblages from along the A66 Corridor are generally limited creating a 'shortfall' in material culture
- **Identification of new sites/topics.** This extends beyond just archaeological or built heritage to include a wider range of subject areas including 'intangible heritage'.

B3.2.6 These four themes span across the different period-based research questions, which are briefly summarised in Table 1: Summary of research questions by period.

Table 1: Summary of research questions by period

Period	Resource	Areas of focus/questions
Palaeolithic	A66 corridor was climactically marginal in the Late Pleistocene meaning that discovery tends to be serendipitous or of residual material. Data from this period is almost non-existent within the route corridor. However, it is possible that some Palaeolithic material has been wrongly categorised as Mesolithic	<ul style="list-style-type: none"> • Geology and lithology of Palaeolithic artefacts • Sampling of environmental deposits (such as river terrace deposits) • Any artefacts or ecofacts
Mesolithic	Although fieldwork has been limited, quantities of Mesolithic artefacts have been found across the Eden Valley and through the Stainmore Pass corridor. There is environmental evidence of woodland clearance in this period, although the population was likely small	<ul style="list-style-type: none"> • The Late Upper Palaeolithic/Mesolithic transition - evidence for preferred/reused site locations and/or resource sources - disaggregation of Late Upper Palaeolithic and Mesolithic assemblages in tandem with improved chronologies is key in this period • The location of Mesolithic occupation sites - Relationship to Historic Landscape Characterisation data: character of locations, topography and available resources • Impact of climate change into the Holocene • Preferential use of landscape elements - possible significance of site's aspect

Period	Resource	Areas of focus/questions
		<ul style="list-style-type: none"> • Locations of Mesolithic production/exploitation (knapping, hunting) sites • Precise chronology - there is need for secure radiocarbon dates C14 • Sources/catchments of raw materials • Extent of Mesolithic contacts into and across the area • Mesolithic environment/palaeoecology • Extent of or seasonality of Mesolithic exploitation of the area • Variation, if any, between the Mesolithic east and west of Stainmore • Mesolithic/Neolithic transition • Mesolithic/Neolithic continuity of landscape exploitation and preferred/reused site locations (as evidenced at Stainton West in the lower Eden Valley)
Neolithic	<p>The A66 corridor links two areas with significant concentrations of ritual monuments and there are several known Neolithic sites along the route. Stray finds of Neolithic material have also been found</p>	<ul style="list-style-type: none"> • Need for chronological evidence, particularly for ceramics • Recognition of local forms of expression • Absence of burial monuments along the A66 route corridor - evidence for burial traditions • Isolated clusters of features, such as pit groups, may provide insight into movement of materials, lifeways and the environment • Movement of artefacts and materials to inform understanding of the relative importance of the Stainmore route • Modelling of the Neolithic landscape
Chalcolithic	<p>Limited visibility of the Chalcolithic in the North East and North West</p>	<ul style="list-style-type: none"> • Should archaeological remains of chalcolithic date be found, research questions will need to be developed for the analysis and publication of the results
Bronze Age	<p>There are several funerary monuments along the route corridor, but settlement evidence is more limited. A quantity of artefacts found near the eastern end of the route corridor suggests that there may have been a high status settlement in the area</p>	<ul style="list-style-type: none"> • Disaggregating Bronze Age field systems and settlements from earlier and/or later elements of the landscape • Identification of higher status sites and investigation of what evidence there is for contemporary social structures and change between periods. Can potential social foci be identified? • Understanding contrasts between lowland and upland settlement • Does the morphology of sites or the nature of associated material suggest

Period	Resource	Areas of focus/questions
		<p>evidence of function or social stratification?</p> <ul style="list-style-type: none"> • Do sites offer any evidence relating to developing 'architectural' practices or change through time? • Refining understanding of burial practices • Use of ceramics through time • Does metalwork distribution inform consideration of site function, trade/.exchange patters, sources of materials or metalworking technology • Do organic remains suggest a wider suite of material and objects than those usually recovered may have been available? • Chronological evidence, including environmental
Iron Age	<p>Relatively few known sites, perhaps reflecting lack of recognition/differentiation in past archaeological surveys, particularly given number of sites dated as 'prehistoric/Roman'</p>	<ul style="list-style-type: none"> • Late Bronze Age to Iron Age transition • Identifying the Middle Iron Age, if datable materials are found • Dating the origin of sites that produce Roman-period material culture • Dating and understanding Iron Age field systems • Iron Age trade networks and supply • Craft production • Burial evidence
Roman	<p>The Roman period is the most intensively studied along the A66 corridor. The current A66 largely follows a Roman road, although this may have followed a more 'braided' course than the traditionally understood single alignment. Archaeological work has largely been focused on 'honey pot' Roman fort and vicus sites. Non-,military sites are less well understood</p>	<ul style="list-style-type: none"> • Garrisoning of sites and changes through time along the Roman road • Burial evidence • Questions of ethnicity • Evidence for status, governance, extent, functions and longevity of vici • Wider economy (beyond the forts) • Can Roman rural settlements be identified • Origins of the Roman Road (Margary 82)
Early Medieval	<p>Documents from this period, including the epic poem Y Goddodin, indicate that the area of the A66 corridor played a part in major events. Evidence from the period includes a small number of pottery sherds, some possible building remains and field systems, burials, and fragments of sculptured stone. Although the archaeological evidence is limited, place names suggest that many of the settlements were occupied during the early medieval period</p>	<ul style="list-style-type: none"> • Any remains of this period would be of at least regional importance • Ethnic and/or cultural changes through time, with the possibility of Roman-British/native British, Irish, Anglian, Anglo-Scandinavian or Hiberno-Norse strands • 'The End of the Roman North' and the potential for the sort of societal fragmentation that has been argued for elsewhere in the North • Diagnostic building types • Early medieval field systems

Period	Resource	Areas of focus/questions
Medieval	Many of the key elements of the historic landscape across the route corridor are medieval, including towns, fortified sites, religious houses, villages and field systems. There was also a deer park at Whinfall Park and, probably, at Rokeby	<ul style="list-style-type: none"> • Medieval landscapes • Evidence and chronology of upland transhumance • Medieval industry • Evidence of the impact of religious orders • Economic impact/importance of the routeway across Stainmore • Extent and importance politically/socially of the routeway across Stainmore • Dislocation and/or social or economic disruption resulting from the Anglo-Scottish wars
Post Medieval	For most of the urban settlements along the A66 route corridor, the first part of the post-medieval period can be seen as a continuation and development of the medieval situation, although there were impacts from the Dissolution of the Monasteries under Henry VIII. Greater change came from around 1750, with new industries, agricultural intensification, new religious movements, the development of settlement, the creation of large estates for the wealthy and the creation of new infrastructure	<ul style="list-style-type: none"> • Creation of the great and smaller gentry houses and estate centres • Landscapes designed to facilitate field sports • Changes in agriculture • Evidence of expansion/abandonment of upland farmsteads • Changing functions of buildings • The 'afterlife' of ecclesiastical properties • Changes in religious practices and their social impact • Development of industry and extraction and their connections to later medieval activity • Impact on redundant railway infrastructure • Chronologies • Transitory settlements, 'navvy camps', in particular those associated with the construction of the railways
20th and 21st Centuries	The route corridor developed in form to accommodate the needs of motorised transport. There is a large military training area at Warcop, a survivor of a larger number of military installations created during the Second World War along the route corridor. There is also extractive industries, including gypsum and stone quarrying	<ul style="list-style-type: none"> • Secondary activities, such as rail side loading facilities associated with quarrying • Employment, urban/village life and the tourist economy • Changes in agriculture • The 'afterlife' of earlier buildings
Intangible heritage	The annual Appleby Horse Fair is an important Romanichal tradition. Other intangible heritage includes language/dialect and local customs	<ul style="list-style-type: none"> • The Appleby Horse Fair and other Romani heritage • Local traditions and dialect usage

Strategy for mitigation

Project wide

- B3.2.7 The DHMS has been written to comply with the *National Policy Statement for National Networks (NPSNN)* (Department for Transport, 2014)¹, *National Planning Policy Framework (NPPF)* (Ministry of Housing, Communities and Local Government, 2021)², *National Planning Practice Guidance* and the *Design Manual for Roads and Bridges (DMRB)*.
- B3.2.8 Where possible, impacts on the historic environment have been reduced or avoided through the design of the scheme as outlined in A66 ES Chapter 8 Cultural Heritage Section 8.8 Essential mitigation and enhancement measures. However, where this has not been possible a programme of archaeological mitigation will be put in place. This includes archaeological excavation and recording, monitoring, reporting, publication, dissemination and archiving. The DHMS forms the framework within which the mitigation will be developed and undertaken.
- B3.2.9 The archaeological mitigation strategy applies to all areas and works required for the Project, as defined in the DCO. This includes elements such as landscaping, and the decommissioning and reinstatement of land used for compounds, if archaeological remains may be present (i.e. if features have been retained within these areas).
- B3.2.10 Currently it is assumed that all areas within the Order Limits may be required for construction activities and that, as a result, any heritage resources within the Order Limits could be removed. Mitigation for this worst-case scenario is laid out in this document but, where it is possible to do so, impacts will be limited. This document will be refined during the detailed design stage.
- B3.2.11 A programme of archaeological measures will be put in place to ensure the protection of archaeological remains which are to be retained and the recording of archaeological remains otherwise affected by the scheme. This includes:
- Preservation in situ, where possible, of scheduled monuments or where it is possible to limit ground disturbance
 - Additional geophysics and geochemical survey in selected areas not previously surveyed
 - The recording of historic buildings and structures which will be relocated or demolished as part of the Project
 - The relocation or protection in situ of post-medieval milestones
 - The salvage of sufficiently intact railway-related materials from Bowes Railway Station and transfer to a suitable repository
 - Ploughzone artefact collection - including fieldwalking of ploughed fields in advance of topsoil strip and following initial strip in areas of current vegetation/pasture

¹ Department for Transport (2014) National Policy Statement for National Networks

² Ministry of Housing, Communities and Local Government (2021) National Planning Policy Framework

- Targeted geoarchaeological and paleoenvironmental studies, including boreholes and/or sampling of excavated deposits
- The excavation and recording of archaeological remains, phased into the construction programme to allow appropriate time and resource for areas where extensive and/or complex remains are likely
- The analysis and reporting of the materials produced through the works described, including appropriate publication, dissemination, public engagement and outreach, and archiving.

B3.2.12 In areas where it is known that past activities, such as construction or quarrying, have disturbed the ground to the extent that no archaeological remains are likely to survive, no archaeological works are proposed. This includes areas of recent quarrying and much of the existing footprint of the A66, which although ancient in origin, is a major, modern road where significant past disturbance is likely. Roads and trackways, other than the A66, and areas of the A66 where it is possible the earlier road could survive, will be included within the archaeological excavation programme.

B3.2.13 The areas where archaeological mitigation will be carried out are referred to as 'sites' in this document and are shown on Figure 8.10.2. Each site has been given an ID, comprising a three-letter code based on the scheme within which it is located, followed by a three digit number (e.g. M6K_001). The three letter codes are as follows:

- M6 Junction 40 to Kemplay Bank - M6K
- Penrith to Temple Sowerby - PTS
- Temple Sowerby to Appleby - TSA
- Appleby to Brough - ABR
- Bowes Bypass - BBY
- Cross Lanes to Rokeby - CRK
- Stephen Bank to Carkin Moor - SCM
- A1(M) Junction 53 Scotch Corner - J53

B3.2.14 All archaeological work undertaken will be carried out to recognised professional standards as set out in section 1.4 and informed by the resource assessment and research agenda developed for the Project (ES Appendix 8.9: Historic Environment Research Framework (Application Document 3.4)). It is anticipated that the results may have the potential to contribute to future research and the data produced will be appropriately analysed, reported and the archive preserved. The results will be published formally and made publicly available.

B3.2.15 Archaeological works will only proceed in accordance with this OHMS, the further developed DHMS and other documentation submitted and approved to meet relevant DCO Requirements.

Scheme specific

B3.2.16 While the approach to mitigation will follow a consistent pattern across the whole of the Project, each individual scheme, and the sites within them, will be treated individually in terms of how their archaeological potential is understood and the specific research questions which will

apply. These elements will be detailed for each site in the SSWIs produced, and summarised here per scheme. This will also form a key element in the initial assignment of resources, both time and staff, to reflect the complexity and significance of anticipated archaeology, although this will be adjusted as required.

B3.2.17 Table 2: Summary of potential provides a summary of the archaeological potential of each scheme, the mitigation proposed and the relative risk to programme of the sites. This risk is categorised as low, medium or high, and does not reflect the potential archaeological significance, but is given as an indication of the likely time and resource required to ensure any archaeological remains can be excavated and recorded to the highest possible standard. Briefly:

- High – areas where extensive and significant archaeological remains are anticipated. Likely to require considerable time and staffing in advance of construction
- Medium – areas where some archaeology has been identified but which are unlikely to require more than two months to investigate and/or where no geophysics/trial trenching has been undertaken, meaning that archaeological potential is not confirmed. Should be programmed in advance of main construction phase but potentially less resource required than 'high'
- Low – areas where no or very limited archaeological remains have been identified, or where individual archaeological features do not coalesce into an definable 'site'. To be carried out in advance of construction, but sign off and handover unlikely to require more than one month from the start of archaeological excavation. Additional time may be required to produce the SSWSI in advance of the excavation.

B3.2.18 Table 2: Summary of potential provides an initial overview. Details of each proposed site are detailed in section B3.4 and Figure 8.10.2: Historic Environment Mitigation.

Table 2: Summary of potential

Scheme	Overview	Programme Risk		
		High	Medium	Low
M6 Junction 40 to Kemplay Bank	The road corridor within the scheme is a large swathe of modern infrastructure, within which archaeological remains are unlikely to survive. However, the scheme is in close proximity to a concentration of major Neolithic monuments at Eamont Bridge and fieldwalking in the area has revealed many artefacts of prehistoric date. Earlier prehistoric and paleoenvironmental remains may be present in the river terrace gravels and glaciofluvial deposits present across parts of the scheme. Lidar and geophysical survey has identified a possible Roman enclosure or marching camp to the west of Kemplay Bank roundabout. Parts of the	M6K_006 M6K_007	M6K_001, M6K_002 M6K_003 M6K_005 M6K_009 M6K_010 M6K_011 M6K_013 M6K_014	M6K_004 M6K_008 M6K_012 M6K_015 M6K_016 M6K_017 M6K_018

Scheme	Overview	Programme Risk		
		High	Medium	Low
	scheme are also within areas of post-medieval designed landscapes			
Penrith to Temple Sowerby	<p>At the western end of the scheme there is a significant concentration of Roman archaeological remains, associated with the scheduled Roman fort at Brougham and its vicus. Across the remainder of the scheme, archaeological remains are scarcer, with a range of small features including pits and ditches, as well as prehistoric artefacts within the ploughzone</p> <p>The superficial geology is primarily till, which has a negligible geoarchaeological potential. However, alluvial and river terrace deposits are present between Whinfell and Temple Sowerby in a single linear band running in a north south direction. The geoarchaeological potential in these areas is high</p> <p>There is also one pre-1890 building, and one listed milestone located within the Order Limits</p>	PTS_001 PTS_002 PTS_003 PTS_004 PTS_029	PTS_005 PTS_006 PTS_008 PTS_009 PTS_013 PTS_020 PTS_026	PTS_007 PTS_010 PTS_011 PTS_012 PTS_014 PTS_015 PTS_016 PTS_017 PTS_018 PTS_019 PTS_021 PTS_022 PTS_023 PTS_024 PTS_025 PTS_027 PTS_028 PTS_030 PTS_031
	PTS_032 - Preservation in situ			
Temple Sowerby to Appleby	<p>Kirkby Thore is known to have been the site of a Roman fort and settlement and the Roman road passes through the scheme in several points. Trial trenching has identified evidence of a possible Roman enclosure and a possible ring ditch (uncertain date) as well as a range of ditches, pits and other small features</p> <p>There is potential for deposits of geoarchaeological interest to be present where the scheme crosses the Trout Beck and at its eastern most extent where palaeochannels of the River Eden may be present. The underlying superficial geology across the rest of the study area however suggests limited potential for the recovery of geoarchaeological deposits</p>	TSA_004 TSA_030	TSA_003 TSA_005 TSA_006 TSA_008 TSA_010 TSA_011 TSA_014 TSA_022 TSA_024 TSA_025 TSA_026 TSA_031 TSA_032 TSA_033 TSA_035 TSA_036 TSA_038	TSA_001 TSA_002 TSA_007 TSA_009 TSA_012 TSA_013 TSA_015 TSA_016 TSA_017 TSA_018 TSA_019 TSA_020 TSA_021 TSA_023 TSA_027 TSA_028 TSA_029 TSA_034 TSA_037 TSA_039

Scheme	Overview	Programme Risk		
		High	Medium	Low
Appleby to Brough	<p>The modern A66 largely follows the projected line of the Roman road. To the north of Warcop there is a scheduled Roman fort, just to the north of the road and partially within the Order Limits. Trial trenching revealed evidence of prehistoric and Roman activity in some 'hotspots'. There is a listed boundary marker stone at the eastern end of the scheme, as well as non-designated historic structures. Archaeological remains are likely to survive across the scheme, although trial trenching and geophysical survey does not indicate a high density</p>	ABR_036	ABR_003 ABR_006 ABR_007 ABR_010 ABR_012 ABR_014 ABR_015 ABR_016 ABR_017 ABR_018 ABR_019 ABR_023 ABR_024 ABR_025 ABR_026 ABR_027 ABR_028 ABR_029 ABR_031 ABR_032 ABR_033 ABR_035 ABR_037 ABR_040	ABR_001 ABR_002 ABR_004 ABR_005 ABR_008 ABR_009 ABR_011 ABR_013 ABR_020 ABR_021 ABR_022 ABR_030 ABR_034 ABR_038 ABR_039 ABR_041 ABR_042
Bowes Bypass	<p>The Roman road runs through the village of Bowes, which is bypassed by scheme, avoiding the known concentration of Roman and medieval archaeology within the village. The scheme runs through an area of well-preserved medieval and post-medieval fields, but very limited archaeological evidence has been identified through trial trenching</p> <p>There is limited geoarchaeological interest in the underlying superficial geology</p> <p>There are two pre-1890s buildings within the Order Limits</p>	NA	BBY_001 BBY_007 BBY_009 BBY_010 BBY_014 BBY_017	BBY_002 BBY_003 BBY_004 BBY_005 BBY_006 BBY_008 BBY_011 BBY_012 BBY_013 BBY_015 BBY_016 BBY_018 BBY_019 BBY_020
Cross Lanes to Rokeby	<p>The A66 mostly follows the line of the Roman road through the scheme, bypassing away from it only at the eastern end. At Rokeby, north of Greta Bridge, there is a large post-medieval designed landscape.</p>	CRK_001 CRK_002 CRK_020	CRK_003 CRK_004 CRK_006 CRK_07	CRK_005 CRK_009 CRK_010 CRK_012

Scheme	Overview	Programme Risk		
		High	Medium	Low
	The remainder of the scheme is formed by a fieldscape, much of which has its origins in the medieval period. Very limited archaeological evidence was identified. There are two listed milestones		CRK_008 CRK_011	CRK_013 CRK_014 CRK_015 CRK_016 CRK_017 CRK_018 CRK_019
Stephen Bank to Carkin Moor	The A66 follows the line of the Roman road through the scheme and the historic continuation of the road's usage means that there are several historic buildings and structures along its course, including milestones. The scheduled monument of Carkin Moor Roman fort is bisected by the road, which runs in cutting through the fort. Archaeological remains of the fort and the recently discovered, and therefore unscheduled, remains of a vicus to its west have been confirmed to survive within the Order Limits. Analysis of lidar and aerial photography has identified paleochannels of potential paleoenvironmental and geoarchaeological interest. There are several areas of historic quarrying within the Order Limits, where any earlier archaeological remains will have been removed	SCM_006 SCM_007	SCM_001 SCM_002 SCM_003 SCM_004 SCM_008 SCM_009 SCM_014 SCM_022 SCM_026 SCM_027	SCM_005 SCM_010 SCM_011 SCM_012 SCM_013 SCM_015 SCM_016 SCM_017 SCM_018 SCM_019 SCM_020 SCM_021 SCM_023 SCM_024 SCM_025 SCM_028 SCM_029 SCM_030 SCM_031
	SCM_032 - Preservation in situ			
A1(M) Junction 53 Scotch Corner	While the scheme is located at the junction of two Roman roads and past archaeological investigation has revealed significant archaeological remains in close proximity, the Order Limits enclose an area where considerable disturbance has taken place for the construction, in multiple phases, of Scotch Corner junction. As such no mitigation is proposed	-	-	-

B3.3 Overarching Written Scheme of Investigation

Scope

- B3.3.1 The archaeological mitigation proposed is a programme of works to include the excavation of buried archaeological remains within the Order Limits, ploughzone artefact collection, geoarchaeological analysis, building recording of historic buildings and structures which will be demolished and the relocation of historic milestones. The strategy includes the requirements for analysis, reporting, publication, dissemination and archiving.
- B3.3.2 This OWSI sets out the principles and parameters within which all archaeological mitigation will be carried out. The Archaeological Contractor will produce SSWSIs to provide the details of individual elements of the work.
- B3.3.3 The OWSI includes details of the communication and monitoring which will be required throughout the archaeological works.
- B3.3.4 The works described in the OWSI are designed to provide an appropriate level of archaeological mitigation as required by the *DMRB LA 106 Cultural heritage assessment (DMRB LA 106)* (Highways England, 2020)³ and the *NPSNN*. All works should be carried out in line within the ethical standards contained within Chartered Institute for Archaeologists' (CIfA) *Code of Conduct* (Chartered Institute for Archaeologists', 2014a)⁴, bylaws and Policy Statements, as listed section B3.3.97.

SSWIs and method statements

- B3.3.5 The Archaeological Contractor will prepare SSWSIs for each site, or group of sites. They will be prepared at the detailed design stage and will be informed by the DHMS, this OWSI and results from previous archaeological investigations undertaken. The SSWSIs will be prepared by the Archaeological Contractor in consultation with the Local Authority Curatorial Archaeologists and Historic England. They must be agreed with the Local Authority Curatorial Archaeologist and/or Historic England in relation to scheduled assets prior to the start of the element of works described in each SSWSI. All works at that site (or group of sites) must be carried out in accordance with the prepared SSWSI for that site (or sites).
- B3.3.6 The SSWSI will contain a specification for the mitigation works and include details of how the works relate to the research agenda, the purpose of the specific works and the methodology to be used, alongside details of the timing, programme and personnel proposed. It will include a Risk Assessment and Method Statement (RAMS), tied to

³ Highways England (2020) Design Manual for Roads and Bridges LA 106 Cultural heritage assessment

⁴ Chartered Institute for Archaeologists' (2014a) Code of conduct: professional ethics in archaeology

the specific constraints and proposed methodologies for each area of the works.

- B3.3.7 Site-specific ecological constraints will also be included in the SSWSI, which will detail the methodology to be taken in relation to protected or controlled species and other constraints.
- B3.3.8 Where it is possible to preserve archaeological remains in situ an archaeological Method Statement will be put in place that describes the specific protection that will be applied.
- B3.3.9 Should it be necessary for the SSWSI to be updated, for example where more extensive archaeological remains are identified within a site than anticipated, the Archaeological Contractor will inform the ACoW, who will liaise between the Archaeological Contractor, the Principal Contractor and National Highways to arrange for sufficient time and resourcing for the revised requirements. The Archaeological Contractor will prepare a revised SSWSI and submit it to the Local Authority Curatorial Archaeologist (and to Historic England where work within a Scheduled Monument is proposed) for approval.

Notification of the discovery of significant archaeological remains

- B3.3.10 Across all the elements of work described in the OWSI, should significant archaeological remains be identified these procedures should be followed. Significant archaeological remains, in the context of this OWSI, include human remains, artefacts which constitute treasure under the terms of the Treasure Act 1996, or archaeological remains which could warrant designation by scheduling.
- B3.3.11 If previously unrecorded archaeological remains of potentially schedulable significance are identified, Historic England will be consulted about the approach to their preservation, either in situ (if practicable) or by record. Such remains will be identified through regular liaison between the Archaeological Contractor, the project manager, the Local Authority Curatorial Archaeologists and Historic England, which will include the monitoring of the archaeological works.

Human remains

- B3.3.12 It is anticipated that human remains will be found during the course of the archaeological works. The strategy for the recovery of human remains is discussed further in the finds and samples section below. Before that strategy can be implemented this procedure must be followed.
- B3.3.13 The Archaeological Contractor should obtain a burial license from the Ministry of Justice prior to the start of work on site, to allow exhumation under the terms of the Burial Act 1857. The details of the license should be included within the SSWSI. Any finds of human remains will, initially, be left in situ, covered and protected. The Archaeological Contractor will inform the Principal Contractor, the ACoW and the project manager, National Highways and the coroner. The LPA Curator, and Historic England (if within or adjacent to SMs) should also be informed if burials are found. The excavation of the human remains will be undertaken in

line with the provisions of the license obtained and following best practice guidance and the codes of practice and ethics for dealing with human remains detailed in section B3.3.97.

Treasure

- B3.3.14 Should finds falling within the definitions of treasure, under the terms of the Treasure Act 1996 (with subsequent revisions), they shall be reported immediately to county archaeologist and the Lancashire and Cumbria, North East, North and East Yorkshire Finds Liaison Officer (as appropriate). All subsequent works will be undertaken in accordance with the relevant legislative requirements.
- B3.3.15 To be defined as ‘treasure’ an object must be at least 300 years old when found and:
- Not be a coin but be at least 10% (by weight) precious metal
 - Be at least two coins in the same find with at least 10% (by weight) precious metal
 - Objects found associated with the above
 - It should be noted that the Secretary of State has the powers to designate any object over 200 years old which they consider to be of “outstanding historical, archaeological or cultural importance”.
- B3.3.16 To protect the finds from theft, the finds shall be recorded and removed to a safe place. Where recording and removal is not feasible or appropriate on the day of discovery, adequate 24-hour security will be provided to protect the artefact(s) from theft or damage.

Preservation in situ or mitigation of significant archaeological remains within the Order Limits

Scheduled monuments

- B3.3.17 There are eight scheduled monuments within the Order Limits:
- Brougham Roman fort (Brocavum) and civil settlement and Brougham Castle (02-0002)
 - Settlement 1/3 mile (540m) ENE of Brougham Castle (03-0004)
 - The Countess Pillar (03-0006)
 - Kirkby Thore Roman Fort and Associated Vicus (0405-0003)
 - Roman camp, 350m east of Redlands Bank (0405-0003)
 - Greta Bridge Roman fort, vicus and section of Roman road (08-0002)
 - Warcop Roman camp and length of Roman road, 285m south west of Moor House (06-0003)
 - Roman fort and prehistoric enclosed settlement 400m west of Carkin Moor Farm (09-0001).
- B3.3.18 Any unconsented damage to these heritage resources would constitute a criminal offence under the terms of the Ancient Monuments and Archaeological Areas Act 1979.
- B3.3.19 The works within the scheduled monument included in the DCO are shown in Table 3: Schedule of Impacts.

Table 3: Schedule of Impacts

Reference	Scheduled Monument	Works
02-0002	Brougham Roman fort (Brocavum) and civil settlement and Brougham Castle	<ul style="list-style-type: none"> • Construction of one (1) bridge abutment for the Brougham Accommodation Bridge. The abutment would comprise a sleeved RC column, RC capping beam, RC spread foundation and a reinforced earth retaining wall and wingwall. Only the southernmost part of the abutment will be within the scheduled area, impacting 297.5m² • Construction of an access track from the B6262 under the A66. This will run through 310m of the scheduled area, impacting approximately 1870m² • Fencing along the Order Limits perimeter
03-0004	Settlement 1/3 mile (540m) ENE of Brougham Castle	<ul style="list-style-type: none"> • Construction of an access track from the B6262 under the A66. This will run through 106m of the scheduled area, impacting approximately 745m² • Construction within the existing road corridor, which covers approximately 4135m² of the scheduled area • Fencing along the Order Limits perimeter
03-0006	The Countess Pillar	<ul style="list-style-type: none"> • The Countess Pillar, the alms table adjacent and the railings around the monument would be fenced off for protection and preserved in situ • There would be groundworks in the area of the scheduled monument beyond the railings, which is understood to be a buffer rather than an indication of the extent of the monument
0405-0003	Kirkby Thore Roman Fort and Associated Vicus	<ul style="list-style-type: none"> • An area of 4.5m² of the scheduled monument is within the Order Limits due to it extending into the property ownership of National Highways. No works are proposed within this area
0405-0004	Roman camp, 350m east of Redlands Bank	<ul style="list-style-type: none"> • An area of approximately 1384m² of the scheduled area is within the Order Limits. This is along the existing road verge and field boundaries and may be required for construction
06-0003	Warcop Roman camp and length of Roman road, 285m south west of Moor House	<ul style="list-style-type: none"> • The south-western corner of the scheduled monument is within the Order Limits. An area of 200m² would be required for the construction of an access track • A second area, of 34m², located within the land required for the widening of the existing road corridor
08-0002	Greta Bridge Roman fort, vicus and section of Roman road	<ul style="list-style-type: none"> • An area of 1765m² of the scheduled area, located within the existing dual carriageway, is temporarily required for traffic management during construction

Reference	Scheduled Monument	Works
09-0001	Roman fort and prehistoric enclosed settlement 400m west of Carkin Moor Farm	<ul style="list-style-type: none"> The existing cutting would be widened, removing part of the scheduled area to the north and south of the A66. On the southern side this is an area of 2109m², varying in width but, at its most, 26.5m from the northern boundary of the monument to the edge of the land required for construction. On the north side the area will be 2627m², at its most 24m wide The remainder of the monument will be fenced for protection and preserved in situ

- B3.3.20 Impacted areas would be excavated and recorded in line with this OWSI and SSWIS, which will be produced to specifically address them.
- B3.3.21 Scheduled areas which will not be impacted physically, will be protected from inadvertent harm during the works. Prior to the start of any intrusive works in their vicinity, the area of the scheduled monument and an exclusion zone approved by Historic England will be fenced off and remain fenced throughout the duration of the works. Ideally, the fencing should be freestanding (e.g. heras) to prevent any unnecessary ground disturbance. Should more robust temporary fencing with earth fast posts be required, the installation of the posts should be monitored archaeologically by watching brief. Notices indicating the exclusion zone will be displayed clearly on the fence. The fencing will be erected or demarcated to a height at which it will be clearly visible from the drivers' cabins of construction vehicles.
- B3.3.22 The details of these protective measures, including plans showing the extent and location of fencing, will be established in a Method Statement, produced by the Principal Contractor, and approved by Historic England and the Local Authority Curatorial Archaeologists in advance of any works commencing within 50m of the scheduled area. Should archaeological monitoring of fence post installation be required, the scope and methodology will be detailed in a SSWSI.
- B3.3.23 All construction and ground works staff working on the scheme will receive a briefing about the approach taken to protect these heritage resources and the approach included in tool box talks throughout the duration of the works.

Archaeological remains

- B3.3.24 During the detailed design it may be possible to identify areas within the Order Limits where archaeological remains may be retained within the development. These are likely to be within areas outside of the engineering footprint of the road (i.e. in areas required for ecological mitigation or temporary stockpiles and compounds). If it is possible to exclude ground disturbance in these areas, they will be identified and measures to protect them from plant movement detailed in the Environmental Management Plan (EMP).

Relocation of milestones

B3.3.25 There are four listed milestones and one listed boundary stones within the Order Limits. These are:

- Milestone 80 metres west of entrance to Tutta Beck Farm
- Milestone east of Whinfell Park (03-0013)
- Milestone to north-east of Crackenthorpe Hall (0405-0047)
- Boundary Stone To North Of Bullistone Cottage (06-0038)
- Milestone 100 metres west of junction with B6277 (08-0014).

B3.3.26 Additionally, there are two non-designated milestones, both near East Layton. One is on the A66 close to Carkin Moor Roman fort (09-0017), the other north-west of Fox Hall Cottage (09-0018).

B3.3.27 Due to the high-speed nature of the A66, it has not been possible to determine if the milestones and boundary stones are still in situ. If they are present, they will be removed and, following the completion of construction, relocated to a position further back from the road to allow them to be preserved and their relationship with the road maintained. During construction they will be stored in an appropriate environment provided by the Principal Contractor.

B3.3.28 An initial condition survey will be carried out by the Archaeological Contractor and, if required, an appropriate conservator appointed by the Archaeological Contractor. The results of the condition survey will be used to inform a Method Statement which will describe the procedure for safely moving the milestone. This will include details of:

- Any temporary protection required to protect the milestone during relocation
- Lifting methods and transportation
- Details of storage during construction
- How and where they will be relocated
- Any measures required for maintenance.

B3.3.29 Prior to their relocation they will be recorded to a standard agreed with the Local Authority Curatorial Archaeologists on the basis of the standards and best practice guidance published by Historic England (section B3.3.97). This will follow a simplified version of the methodology contained within the archaeological building recording section below.

Archaeological building recording

B3.3.30 Archaeological building recording is an investigative process for researching and recording built buildings or other structures. ClfA' *Standard and guidance for the archaeological investigation and recording of standing buildings or structures* (Chartered Institute for Archaeologists', 2019)⁵ define it as:

“a programme of work intended to establish the character, history, dating, form and archaeological development of a specified building,

⁵ Chartered Institute for Archaeologists' (2019) Standard and guidance for the archaeological investigation and recording of standing buildings or structures

structure, or complex and its setting, including buried components, on land, intertidal zone or underwater.”

- B3.3.31 In the context of the Project, the purpose of archaeological building recording is to develop a better understanding of the structures in question and create a lasting record of them which can be formally disseminated.
- B3.3.32 There are 16 'historic buildings' or structures located within the Order Limits. These are defined as any listed building or any extant building shown on the first edition Ordnance Survey mapping of c1890. Each building has been given a site identifier and detailed in section B3.4.
- B3.3.33 Prior to demolition or, in the case of the milestones detailed above, relocation, archaeological building recording will be carried out. This will be carried out to comply with ClfA's standard and to the level of detail outlined in Historic England's guide *Understanding Historic Buildings* (Historic England, 2016)⁶. The levels required will be described in detail in the SSWSI having been agreed in consultation with the Local Authority Archaeological Curators. However, it is anticipated that this will comprise Level 1 recording for milestones and Level 3 for standing buildings.
- B3.3.34 Level 1 is a basic visual record of the structure in its context, including:
- A sketched plan and other sketches as appropriate (minimum)
 - Photographs to include views of the structure in its setting and its appearance from all angles. Further photographs could be taken during its removal and relocation
 - A basic report including its exact location (original and relocated) and a summary of its type, purpose, materials and possible date.
- B3.3.35 Level 3 is an analytical record and will include:
- A measured drawing of the existing structure (minimum)
 - Photographs to include views of the building in its setting, its external appearance, the principal rooms, particular details of the structure or decorations and any traces of its historic use (i.e. old equipment, graffiti, signage)
 - A written account to include details of the building, its form, function, date and sequence of development as well as research into its history and historic significance.
- B3.3.36 The archaeological building recording will be informed by the research agenda. Further research questions will be detailed in the SSWSI as appropriate.
- B3.3.37 The SSWSI will contain full details of the health and safety constraints at the sites. While full interior inspection is anticipated as part of the Level 3 recording, this will only be carried out as far as is deemed safe.

⁶ Historic England (2016) *Understanding Historic Buildings. A guide to good recording practice*

B3.3.38 Details of the standards for recording, reporting and archiving of the archaeological building recording will be in line with all the mitigation outlined in this document, and is detailed below.

Ploughzone artefact collection

B3.3.39 Given the high priority of obtaining dating evidence and filling the 'gap' in the existing artefact assemblages for the A66 corridor (see section B3.2), a programme of ploughzone artefact collection will be put in place across the Project. This will allow large scale evidence-gathering of historic activity beyond the archaeological features identified and help to highlight possible ephemeral sites which may otherwise be missed.

B3.3.40 Where possible, within the existing ploughing schedules, land currently under arable cultivation will be fieldwalked shortly after ploughing. The ACoW will liaise with the Archaeological Contractor and National Highways to programme this appropriately, in advance of the construction phase. Archaeologists with experience of identifying artefacts in the ploughzone will carry out a fieldwalking over a 1m grid of each field, collecting any artefactual material visible on the surface and recording their spatial location, unless otherwise agreed with the Local Planning Authority.

B3.3.41 Additionally, following the initial topsoil strip (see archaeological excavation below) there will be a rapid fieldwalking assessment made of each site unless otherwise agreed with the Local Planning Authority. This will allow a second opportunity to find artefacts in previously ploughed areas, and a first opportunity for the areas currently under pasture. In addition to fieldwalking, these sites will be scanned with a metal detector. Where metal detecting is proposed on a Scheduled Monument Historic England must be consulted and a licence under Section 42 of the Ancient Monuments and Archaeological Areas Act 1979 obtained. The relevant SSWSI must be approved by Historic England.

B3.3.42 Materials collected through fieldwalking will be analysed by the appropriate finds experts and included within the interpretation, reporting and archiving of the whole project (see below).

Archaeological excavation

B3.3.43 Archaeological excavation is a detailed process of investigation, the purpose of which is to examine archaeological remains present across a defined area and with the intention of contributing to set research questions and produce a record of the results. ClfA's *Standard and guidance for archaeological excavation* (Chartered Institute for Archaeologists', 2014b)⁷ define excavation as:

“a programme of controlled, intrusive fieldwork with defined research objectives which examines, records and interprets archaeological deposits, features and structures and, as appropriate, retrieves artefacts, ecofacts and other remains within a specified area or site on

⁷ Chartered Institute for Archaeologists' (2014b) Standard and guidance for archaeological excavation

land, inter-tidal zone or underwater. The records made and objects gathered during fieldwork are studied and the results of that study published in detail appropriate to the project design.”

B3.3.44 The purpose, as stated by ClfA⁸, is:

“to examine the archaeological resource within a given area of site within a framework of defined research objectives, to seek a better understanding of and compile a lasting record of that resource, to analyse and interpret the results, and disseminate them.”

B3.3.45 It is proposed to investigate all archaeological remains within the Order Limits in line with the research framework presented at Environmental Statement Appendix 3.4 Historic Environment Research Framework. In areas where there is a confirmed presence of extensive or complex archaeological remains, excavation will be undertaken considerably in advance of construction. Areas where limited prior investigation has taken place, or where there is evidence of archaeological remains of potential complexity, will also be given a longer lead time in advance of construction. Where limited or no archaeological remains have been identified, less time will be initially allocated, with sites stripped of topsoil with the intention of relatively quick sign off and handover to the Principal Contractor. These three categories, high, medium and low, are detailed per site in Table 2: Summary of potential and Table 5: Proposed historic environment mitigation and ES Figure 8.10.2 (Application Document 3.3).

B3.3.46 All archaeological excavation and recording should comply with the ClfA Standard and Guidance for archaeological excavation⁹ and other appropriate relevant standards as listed in section B3.4. The following sections detail the general parameters for the work. The SSWSIs will provide greater detail for each site.

Topsoil stripping

B3.3.47 While the SSWSIs will detail the specific requirements, it is anticipated that the excavation of each site will begin with machine excavation to remove topsoil and subsoil down to the top of the uppermost archaeological layers. This will be carried out using a 360° mechanical tracked excavator fitted with a toothless ditching bucket. Topsoil will be removed in spits of no more than 200mm depth and care taken to make the surface excavated to as smooth as possible to aid the identification of archaeological remains. Machine excavation will proceed until the top of the archaeological deposits are reached or undisturbed natural deposits are encountered.

B3.3.48 The machine excavation will be constantly monitored by an experienced archaeologist. The mechanical excavator will not be allowed to track over any areas until they have been inspected and cleared by the archaeologist.

⁸ Ibid.

⁹ Ibid

Excavation methodology

- B3.3.49 Once the archaeological horizons have been revealed all further excavation will be carried out by hand by qualified and suitably experienced archaeologists. Before any excavation takes place, there will be a phase of ploughzone artefact collection (see above). Following this, the area will be cleaned using hand tools to allow archaeological features and structures to be identified. Following this, features will be excavated by hand. Spoil should be checked for finds and metal-detected. The SSWSI will contain a sampling strategy for each site, to be informed by the specific requirements and research questions for the anticipated archaeological remains. This allows a flexible approach to be taken, determined by an evolving evidence base. However, as a general rule, this should include:
- All features relating to burial or other ritual activity
 - All fills/layers with potential for detailed scientific analysis and/or dating (e.g. post hole fills or features associated with industrial activity)
 - Fifty percent (minimum) fill of features such as pits or ring ditches
 - Twenty percent of features associated with structural remains; and
 - Ten percent of linear features not associated with structural remains, to include terminals and relationships with other features).
- B3.3.50 Sampling should particularly focus on answering the specific research questions identified in the research agenda. This includes focusing on any deposits occurring at the interface between periods and where environmental evidence is a particular focus.
- B3.3.51 The SSWSIs will contain details of specific sampling strategies to be employed for the recovery of artefacts and environmental artefacts (ecofacts) (see below).
- B3.3.52 Should any significant archaeological remains be identified the process outlined in above will be followed.
- B3.3.53 Across several areas within the Order Limits colluvium has been identified. Colluvium may mask earlier archaeological remains and, as a result, particular caution should be taken when signing off areas as complete. An experienced geoarchaeologist should be provided by the Archaeological Contractor to assist in the identification of colluvium. It may be necessary, in areas where a significant depth of colluvium is present, to undertake auger samples to inform the further investigation of sites. Methodologies and method statements for hand or power auger equipment should be included in the SSWSIs, as appropriate.
- B3.3.54 Should excavation encounter areas where archaeological remains are waterlogged, the ACoW will liaise between the Archaeological Contractor and Principal Contractor to establish a working method in line with the Environmental Management Plan. The excavation will be carried out by suitably qualified field archaeologists, with experience working with waterlogged deposits and the work should be in line with the relevant best practice guidance included in section B3.3.97.

- B3.3.55 All excavations will be monitored by the project manager, the Local Authority Archaeological Curators, and where appropriate, Historic England. The frequency of any such monitoring will be agreed in advance between National Highways and relevant stakeholders.
- B3.3.56 A sufficient amount of time will be allowed within the programme for the archaeological excavation and recording and the Principal Contractor will not be able to begin any preparation or construction work before sites have been signed off by the Local Authority Archaeological Curators.
- B3.3.57 The requirements for recording, the treatment of finds and samples, post-excavation, reporting and archiving are detailed in the sections below.

Important hedgerows

- B3.3.58 Where 'important hedgerows' have been identified - those identified as being protected by the Hedgerows Regulations 1997 - particular attention will be taken to the recording of the hedge bank, which may reveal chronological data and enhance our understanding of the agricultural history of the area. Important hedgerows are shown on ES Figure 8.10.2 (Application Document 3.3). Historic England is to be informed where work is proposed to important hedgerows within designated assets which fall under HE's remit.

Geoarchaeology

- B3.3.59 Within the site there are some areas where deposits of geoarchaeological interest have been identified. In order to further investigate these, there will be a programme of geoarchaeological sampling undertaken, including boreholes, test pits and the sampling of in situ deposits during excavation.
- B3.3.60 The Archaeological Contractor will develop a programme of geoarchaeological interventions in consultation with the Historic England Regional Science Advisor and will detail the process in the SSWSIs for each site. The work should be undertaken following the Historic England guidance for geoarchaeology (Historic England, 2015)¹⁰.

Recording

- B3.3.61 Detailed records will be made for all work, including written, drawn and photographic records. Records should be tied into the OS grid and 3D coordinates collected, with levels taken above Ordnance Datum.
- B3.3.62 Archaeological features shall, at a minimum, have an individual context record on an appropriate pro-forma record sheets and an accompanying drawn record, normally a plan and section drawing.
- B3.3.63 Other appropriate drawn and written records will also be produced (for environmental sampling etc).
- B3.3.64 A photographic record, including both monochrome and digital images, will be made. Each photograph shall include an appropriate scale, north arrow and a header board detailing (as a minimum) the site code and

¹⁰ Historic England (2015) Geoarchaeology: using earth sciences to understand the archaeological record

context/feature number. The Archaeological Contractor shall also take appropriate record photographs to illustrate work in progress.

B3.3.65 Digital records shall comply with digital data standards and must be stored in an appropriate location and backed up regularly, with the backups held separately. The SSWSI will detail any specific requirements for format as directed by the digital archive policies of the Museum where the archive will be deposited.

B3.3.66 The SSWSI will provide specific details of the recording systems to be put in place.

Finds and samples

B3.3.67 During excavation artefacts (finds) and environmental artefacts (ecofacts) will be collected. They will be appropriately labelled and packaged on site, with arrangements made for the immediate conservation of artefacts which are deemed to require it. All artefacts and ecofacts, unless agreed with the Local Authority Archaeological Curators and the Museum where the archive will be deposited and detailed in the SSWSI, will be retained for analysis.

B3.3.68 The SSWSI will detail the approach to be taken for bulk and registered finds. Bulk finds are those which typically occur in quantities (i.e. pottery) and which requires no specialised treatment or storage conditions. Registered finds are more unusual or sensitive finds which are recorded in greater detail. They can include metalworks, glass, worked bone and other materials which may require specialised storage or conservation. They are recorded individually. Registered finds may be treasure, as defined by the Treasure Act 1996. In these cases, the approach detailed (under notification of the discovery of significant archaeological remains) above must be followed.

B3.3.69 Where human remains are encountered, specialised methodologies may be required for their excavation. In addition to ensuring that remains are treated with dignity and respect, the complexity and potential for scientific analysis makes human remains and associated grave contexts of particular sensitivity. The SSWSI will provide details on the methodology for each site and their preparation should be informed by best practice guidance, as listed in section B3.3.97, and the specialist advice of the Archaeological Contractor's human osteologist.

B3.3.70 It is anticipated that 100% of all burial contexts will be excavated. In the case of discrete cremations, efforts shall be made for them to be bulk lifted so that they can be excavated in controlled laboratory conditions following x-radiography. Depending on nature and condition, the same approach may be appropriate for grave goods. Inhumation burials will be carefully excavated, with samples taken from the surrounding soil in order to allow for further analysis.

B3.3.71 Samples will be taken for environmental analysis, following Historic England's guidance on *Environmental Archaeology* (Campbell and

Straker, 2011)¹¹. Details of the sampling strategy for each site will be detailed in the SSWSI.

- B3.3.72 Finds and environmental samples will be analysed concurrently with the archaeological fieldwork to allow interpretations to be developed and refined on site.
- B3.3.73 The Archaeological Contractor will make appropriate provision for the application of scientific dating techniques and other scientific analyses.
- B3.3.74 The collection, recording, analysis and conservation of artefacts and ecofacts collected during the archaeological fieldwork will comply with the ClfA' *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (Chartered Institute for Archaeologists', 2014c)¹².
- B3.3.75 Materials will be cleaned and packaged to recognised standards listed in section B3.3.97. Further requirements, as dictated by the Museum where the archive will be deposited, will be detailed in the SSWSI.

Post-excavation assessment

- B3.3.76 Following the completion of archaeological fieldwork an assessment shall be made of the necessary scope of post-excavation analysis required. Consultation with the Local Authority Archaeological Curators and Historic England shall be undertaken to establish any additional research objectives that have emerged through the fieldwork. The post-excavation assessment should include, but is not limited to:
- Assessment of the findings against the original research agenda and questions to determine to what extent they have been met and to identify any new research questions to be included in the post-excavation design
 - Statement of the quantity and perceived quality of the data in the site archive
 - A statement of the archaeological potential of the data to answer the scheme's research aims
 - Recommendations for analysis, data storage and curation.
- B3.3.77 Best practice guidance for the compilation of a post-excavation assessment is included in ClfA's *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* and this should be used to inform and guide the specification for this stage. Further best practice guidance can be found in section B3.3.97.

¹¹Campbell, G. Moffet, L and Straker, V (2011) *Environmental Archaeology. A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation*

¹² Chartered Institute for Archaeologists' (2014c) *Standard and guidance for the collection, documentation, conservation and research of archaeological material*

Post-excavation analysis

- B3.3.78 Post-excavation analysis, appropriate to the nature, scale and significance of the findings, shall be carried out following the archaeological works and be informed by the post-excavation assessment and consultation with the Local Authority Archaeological Curators and Historic England.
- B3.3.79 Analysis of the finds and ecofacts will follow the ClfA's *Standard and guidance for the collection, documentation, conservation and research of archaeological materials*, as well as specific guidance as appropriate to the materials.

Reporting, publication and dissemination

- B3.3.80 The Archaeological Contractor will produce interim reports at intervals detailed in the SSWSIs and, on completion of the works, produce a final report on the results of the archaeological works. This will detail the results of the archaeological excavation and watching briefs integrated with the results of the post-excavation and written within the framework of the research agenda contained within the dHMS (and any subsequent revisions to this). The form of this report, together with the number or hard and digital copies required, will be detailed in the SSWSI.
- B3.3.81 The analysis and reporting of the archaeological work will synthesise the results within their landscape context, reflecting on the influence of the topography, intervisibility, hiddenness and routeways on the archaeological remains identified.
- B3.3.82 It is likely that results of at least regional interest will be made during the archaeological mitigation. It is important to ensure that these results are made accessible and are disseminated appropriately. The SSWSIs and post-excavation assessment will detail appropriate avenues for dissemination, such as archaeological journals, public information events and lectures and online materials.

Public Engagement

- B3.3.83 A programme of outreach and public engagement will be developed by the Archaeological Contractor in consultation with National Highways to ensure engagement, dissemination of results to the people in the local and regional area and contribute to public benefit. The programme will take into account the following documents: document reference 2.7 Environmental Management Plan Annex B11 Community Engagement Plan and document reference 3.4 Environmental Statement Appendix 8.9 Historic Environment Research Framework in particular section 8.9.7.
- B3.3.84 This should include opportunities for safe and appropriate public access during the mitigation stage. There may also be opportunities for wider involvement of the community and specific interest groups. Although it is likely that involvement with the work within the Order Limits will be prevented by Health and Safety considerations, it may be possible to develop associated initiatives working with groups such as the Roman Roads Research Association, the Cumberland and Westmorland

Antiquarian and Archaeological Society - Penrith Affiliated Group , Cumbria County History Trust, Museums Friends Groups or other local history and archaeological organisations, schools and local communities directly affected by the proposal. In addition, there is the potential to engage with established or developing programmes of community-based work such as the North Pennines Area of Outstanding Natural Beauty led 'Fellfoot Forward' project.

B3.3.85 This could include:

- Early fieldwalking
- Building recording (particularly the Bowes Railway Station)
- Research into relevant historical records, or associated areas of social or cultural research within the broader A66 Route Corridor
- Public lectures, both to established groups and 'open' events for the wider local communities
- Regularly updated online information - website(s), social media and/or blogs and following the Cultural Heritage mitigation works
- Popular publication(s) aimed at local communities, and also potentially the 'development community'.

B3.3.86 These initiatives could be open-ended, depending on the interest generated, or lead to the establishment of new local or special interest groups, potentially producing a cultural legacy from the A66-NTP Project.

Archive preparation and deposition

B3.3.87 Following the completion of archaeological works the material archive, including finds samples, digital, written, drawn and photographic records and associated report will be deposited in an appropriate archive. Deposition of the archive will be in line with ClfA's *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (Chartered Institute for Archaeologists', 2014d)¹³.

B3.3.88 The archive shall conform to best practice standards for the UK both for the artefactual, paper and digital materials produced by the archaeological works (see section B3.3.97 for relevant guidance).

B3.3.89 A digital record to the project outline should be inputted to OASIS, the online index to archaeological grey literature.

B3.3.90 The SSWSI will detail the specific requirements of the depositing archive. The Project crosses the areas of responsibility of several museums. This section of the OWSI will be developed as responsibility and process is negotiated.

Communications, monitoring and sign off

B3.3.91 Liaison between the Archaeological Contractor, National Highways, the Local Authority Archaeological Curators and Historic England will be handled by the project manager and the ACoW. They will arrange for

¹³ Chartered Institute for Archaeologists' (2014d) *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives*

monitoring visits and handle the communication of issues such as the discovery of significant archaeological remains.

B3.3.92 The Local Authority Archaeological Curators and, where appropriate, Historic England, will review and approve as aligned to and limited by the DCO requirements all documents relating to the works, including the SSWIs, interim reports, post-excavation assessment and final reports.

B3.3.93 The archaeological mitigation will be monitored throughout by the project manager, the Local Authority Archaeological Curators and, where appropriate, Historic England. Monitoring visits will be used to track ongoing process and also to sign off on areas which are complete and can be handed over to the Principal Contractor.

Programme

B3.3.94 The archaeological works described in this OWSI will be carried out as part of the preparatory and main works packages. Archaeological mitigation must take place prior to the disturbance of the ground by other preparatory or construction activities and must be signed off before other contractors can move into areas cleared of archaeology.

B3.3.95 The majority of the archaeological fieldwork will be undertaken during the preparatory works phase. This is likely to take several months to complete and be programmed to start enough in advance of when areas are required by other contractors to prevent undue delays to construction. Areas with lower risk to programme and resource can be integrated more closely with the preparatory works programme, with areas stripped, examined and recorded by the Archaeological Contractor and signed off on a rolling basis to prevent the need to backfill areas.

B3.3.96 Following the completion of fieldwork, the post-excavation assessment, post-excavation, reporting and archiving phases will be undertaken. The programme for these will be detailed in the post-excavation assessment.

B3.3.97 Standards and guidance Table 4: Historic environment standards and guidance is a non-exhaustive list of historic environment standards and guidance which are likely to be useful when compiling SSWIs. They represent both general and more specific best practice standards and guidance. They have been compiled on the basis of the current understanding of the potential historic environment resource.

Table 4: Historic environment standards and guidance

Author/organisation	Date	Document
Archaeological Data Service	2011	Digital Antiquity Guides to Good Practice
Archaeological archives forum	2007	Archaeological Archives. A guide to best practice in creation, compilation, transfer and curation.
ALGAO	2015	Advice Note for Post-Excavation Assessment
BABAO	2010 (updated 2019)	Code of Practice
		Code of Ethics
Brickstock, R.J.	2004	The production, analysis and standardisation of Romano-British coin reports

Author/organisation	Date	Document
Brown, A. and Perrin, K.	2000	A model for the description of archaeological archives. Information management and collections
Brown, D.H.	2011	Safeguarding Archaeological Information. Procedures for minimising risk to undeposited archaeological archives
		Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation.
Cole, S.	2017	Photographing Historic Buildings
ClfA	2020	Code of Conduct
		Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives
		Standard and guidance for the collection, documentation, conservation and research of archaeological materials
		Standard and guidance for archaeological excavation
		Standard and guidance for archaeological watching brief
		Standard and guidance. Appendices
	2018	Policy Statements
	2020	Standard and guidance for the archaeological investigation and recording of standing buildings or structures
ClfA and BABAO	2017	Updated Guidelines to the Standards for Recording Human Remains
DCMS	2008	Treasure Act 1996 Code of Practice
Historic England	2006	Guidelines on the X-radiography of archaeological metalwork
	2010	Waterlogged Wood. Guidelines on the recording, sampling, conservation and curation of waterlogged wood
	2011	Environmental Archaeology: A guide to the theory and practice of methods, from sampling and recovery to post-excavation
	2015	Management of Research Projects in the Historic Environment. The MoRPHE Project Manager's Guide
	2015	Geoarchaeology: using earth sciences to understand the archaeological record
	2015	Archaeometallurgy: Guidelines for Best Practice
	2015	Digital image capture and file storage
	2016	Understanding Historic Buildings. A guide to good recording practice
	2016	Preserving Archaeological Remains
	2017	Organic residue analysis and archaeology. Guide for good practice
2018	Waterlogged organic artefacts. Guidelines on their recovery, analysis and conservation	

Author/organisation	Date	Document
	2018	Our Portable Past:Guidance for Good Practice
	2018	The role of the human osteologist in an archaeological fieldwork project
	2018	3D Laser Scanning for Heritage: Advice and guidance on the use of laser scanning in archaeology and architecture
	2019	Animal bones and archaeology: recovery to archive
McKinley, J.I and Roberts, C.	1993	Excavation and post-excavation treatment of cremated and inhumed human remains. (Institute of Field Archaeologists Technical Paper, 13)
Museums and Galleries Commission	1992	Standards in the museum care of archaeological collections
Prehistoric Ceramics Research Group (Study Group for Roman Pottery and Medieval Pottery Research Group)	2016	A Standard for Pottery Studies in Archaeology
Walker. K.	1990	Guidelines for the preparation of excavation archives for long-term storage. (UKIC)
Watkinson, D.E. and Neal, V.	2009	First Aid for Finds. Rescue and UKIC
Yorkshire, the Humber and the North East Region Archaeological Services	2019	Regional statement of good practice for archaeology in the development process

B3.4 Outline Mitigation

Table 5: Proposed historic environment mitigation

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
M6K_001	Excavation	Part of post-medieval designed landscape and site of possible holloway	Medium	9140-9280
M6K_002	Excavation	Part of post-medieval designed landscape and site of possible holloway	Medium	9861-9949
M6K_003	Excavation	No previous survey, proximity to standing stone	Medium	10000-10200
M6K_004	Geoarchaeology and excavation	No archaeological remains identified but located on river gravel geology with paleochannels	Low	10200-10620
M6K_005	Excavation	No previous survey, rough ground	Medium	10551-10749
M6K_006	Excavation	Possible Romano-British enclosure identified from AP and Lidar. No evidence	High	10540-10760

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
		found during evaluation, but outside ditch (?) not targeted so remains may be present		
M6K_007	Excavation	Possible Romano-British enclosure identified from AP and Lidar. No evidence found during evaluation, but outside ditch (?) not targeted so remains may be present	High	10570-10730
M6K_008	Excavation	No archaeological remains identified	Low	10740-10770
M6K_009	Excavation	No previous survey	Medium	10800-10920
M6K_010	Excavation	No previous survey	Medium	10760-11020
M6K_011	Excavation	Part of a designed landscape with earthworks and a former watercourses identified from Lidar. Findspot in area of bronze tool	Medium	11000-11380
M6K_012	Geoarchaeology and excavation	Trial trenching identified a single undated gully and paleochannels, although there were no trenches in eastern part of the area	Low	11300-11955
M6K_013	Excavation	No previous survey	Medium	10420-10610
M6K_014	Excavation	No previous survey	Medium	10900-11800
M6K_015	Geoarchaeology	Glaciofluvial deposits	Low	11080-11110
M6K_016	Excavation	No archaeology, but limited survey	Low	10810-11300
M6K_017	Geoarchaeology and excavation	Thacka beck	Low	11900-11150
M6K_018	Excavation	No previous survey but likely disturbed	Low	10800-10900
PTS_001	Excavation	Roman fort and cemetery	High	19960-20835
PTS_002	Excavation	Roman fort and cemetery	High	19950-20175
PTS_003	Excavation	Roman fort and cemetery	High	19920-20680
PTS_004	Excavation	Roman cemetery and other features	High	20715-21070
PTS_005	Excavation	No previous survey	Medium	20680-20720
PTS_006	Geoarchaeology and excavation	Curvilinear feature and peat	Medium	20855-21050
PTS_007	Geoarchaeology and excavation	No archaeology identified but close to Roman fort and paleochannel present	Low	21050-21585
PTS_008	Excavation	No previous survey	Medium	21310-21550
PTS_009	Excavation	No previous survey	Medium	20960-21550

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
PTS_010	Excavation	No archaeology but proximity to fort	Low	21075-21575
PTS_011	Excavation	Woodland and compound - likely disturbed	Low	21550-21800
PTS_012	Excavation	Eval identified one ditch but no other remains. Close to possible round barrow	Low	21770-23015
PTS_013	Excavation	No previous survey	Medium	22380-22950
PTS_014	Excavation	No previous survey but roadside	Low	23100-23100
PTS_015	Building recording	Pre-1890 building	Low	23300-23400
PTS_016	Excavation	Eval identified one ditch but no other remains. Close to possible features from LiDAR and lots of findspots	Low	23000-23800
PTS_017	Geoarchaeology and excavation	Trial trenching found a pit and two ditches, paleochannel	Low	23800-24200
PTS_018	Excavation	Eval identified two ditches but no other remains. Lots of findspots in vicinity	Low	24300-25238
PTS_019	Geoarchaeology and excavation	Trial trenching found three ditches and a paleochannel	Low	21600-22300
PTS_020	Excavation	No previous survey	Medium	22200-22300
PTS_021	Excavation	Trial trenching found a pit and a ditch. No dating evidence but in area of prehistoric findspots	Low	22300-23300
PTS_022	Geoarchaeology and excavation	Paleochannel	Low	24100-24300
PTS_023	Excavation	Trial trenching found a pit. Proximity to cropmarks and lithic findspots	Low	23600-24100
PTS_024	Excavation	Trial trenching found a ditch. Proximity to cropmarks and lithic findspots	Low	24300-25100
PTS_025	Excavation	No archaeology but within area of prehistoric findspots	Low	24300-24600
PTS_026	Excavation	No previous survey	Medium	24200-24400
PTS_027	Excavation	Existing road, but possible earlier road surface surviving	Low	20100-20200
PTS_028	Excavation	Existing road, but possible earlier road surface surviving	Low	23100-23100

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
PTS_029	Building recording and relocation	Listed milestone (NHLE: 1348706)	High	22500-22500
PTS_030	Building recording	Former smithy, now houses	Low	20900-21000
PTS_031	Excavation	Area under the modern road but within scheduled monument. Possible survival beneath	Low	20000-20100
PTS_032	Preservation in situ	Two listed structures within a larger scheduled buffer. Only the area within the listed railings will be preserved in situ	NA	20600-20600
TSA_001	Excavation	Road corridor (along line of Roman road)	Low	30600-32700
TSA_002	Excavation	Limited archaeological remains	Low	30400-31300
TSA_003	Excavation	No previous survey	Medium	30700-31500
TSA_004	Excavation	Trial trenching found evidence of Roman enclosure and pits	High	30900-31600
TSA_005	Excavation	No previous survey	Medium	31300-31600
TSA_006	Excavation	No previous survey	Medium	31300-31600
TSA_007	Excavation	No previous survey but narrow area	Low	30100-31400
TSA_008	Excavation	No previous survey	Medium	31600-32300
TSA_009	Excavation	Only a small number of features identified - ditches, PM features etc. Possibly some isolated prehistoric/ Roman but no artefactual evidence	Low	31500-32300
TSA_010	Excavation	No previous survey	Medium	31500-31700
TSA_011	Excavation	No previous survey	Medium	32200-32400
TSA_012	Excavation	Minor Road	Low	32400-32400
TSA_013	Excavation	One PM gully only. Other areas not evaluated, but narrow	Low	32700-32600
TSA_014	Excavation	No previous survey	Medium	33800-33500
TSA_015	Excavation	Former railway	Low	33500-33500
TSA_016	Excavation	No previous survey but narrow. Earthwork boundary and important hedgerow	Low	34000-33900

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
TSA_017	Excavation	Minor road corridor and important hedgerows	Low	33900-33000
TSA_018	Excavation	Fairly narrow strip along field boundaries. Partially within former railway corridor. No previous survey	Low	34500-34300
TSA_019	Geoarchaeology and excavation	Narrow strip, not previously surveyed. Paleochannel and important hedgerows	Low	34900-34800
TSA_020	Excavation	Minor road corridor	Low	34900-35000
TSA_021	Excavation	Minor road corridor (partially within scheduled area)	Low	34900-35000
TSA_022	Excavation	No trial trenching (scoped but not completed)	Medium	33400-32800
TSA_023	Excavation	Minor road corridor	Low	32800-32800
TSA_024	Excavation	No trial trenching (scoped but not completed)	Medium	33900-33000
TSA_025	Excavation	No previous survey, route of railway and R-road	Medium	34700-34100
TSA_026	Excavation	No previous survey, route of railway and R-road	Medium	35300-35500
TSA_027	Excavation	Minor road corridor	Low	35300-35600
TSA_028	Excavation	Limited archaeology	Low	36500-36800
TSA_029	Excavation	Narrow area, no previous survey. Partially under minor road	Low	36600-36600
TSA_030	Excavation	Possible ring ditch	High	38000-38100
TSA_031	Excavation	No previous survey	Medium	37800-37900
TSA_032	Excavation	No previous survey - disused railway and Roman road	Medium	37900-37600
TSA_033	Excavation	Prehistoric archaeology	Medium	37800-37400
TSA_034	Excavation	Minor road and surroundings. No previous survey	Low	38300-38635
TSA_035	Excavation	Roman ditches/enclosure?	Medium	35700-35900
TSA_036	Excavation	Roman (?) ditches	Medium	31700-31900
TSA_037	Excavation	Historic road course and important hedgerows	Low	30000-31800
TSA_038	Excavation	No previous survey	Medium	30000-30400
TSA_039	Building recording and relocation	Listed milestone (NHLE: 1225905)	High	37100-37100

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
ABR_001	Excavation	Existing road corridor, but Roman road may survive	Low	40800-42100
ABR_002	Excavation	Limited archaeology	Low	40200-40200
ABR_003	Excavation	No previous survey	Medium	40700-41400
ABR_004	Excavation	Limited archaeology	Low	40500-40600
ABR_005	Excavation	Limited archaeology/ narrow area	Low	40700-41000
ABR_006	Excavation	No previous survey	Medium	40500-40400
ABR_007	Excavation	No previous survey	Medium	41100-41100
ABR_008	Excavation	Minor road	Low	42100-42100
ABR_009	Excavation	No archaeology identified	Low	41900-42000
ABR_010	Excavation	No previous survey	Medium	42200-42200
ABR_011	Excavation	No arch identified	Low	41900-42100
ABR_012	Excavation	Partially scheduled No trial trenches	Medium	42300-42500
ABR_013	Excavation	Limited archaeology identified	Low	42900-43600
ABR_014	Excavation	Possible Roman road remains	Medium	43200-43400
ABR_015	Excavation	No previous survey	Medium	43200-44000
ABR_016	Excavation	No previous survey	Medium	42700-42900
ABR_017	Excavation	No previous survey	Medium	43300-43600
ABR_018	Excavation	No previous survey	Medium	43600-43700
ABR_019	Excavation	No previous survey	Medium	42200-42500
ABR_020	Excavation	Current A66 and side roads, possibly earlier surfaces may survive	Low	44400-46000
ABR_021	Excavation	Hardstanding and trackway, but there might be deposits surviving	Low	44300-44800
ABR_022	Excavation	Hardstanding and light buildings, possible surviving deposits	Low	44900-44900
ABR_023	Excavation	No previous survey. Possible ditches seen on lidar	Medium	44000-44200
ABR_024	Excavation	No previous survey	Medium	44400-44500
ABR_025	Excavation	Prehistoric features identified during trial trenching	Medium	44600-44800
ABR_026	Excavation	Prehistoric features identified during trial trenching	Medium	45200-45700
ABR_027	Excavation	Roman features identified during trial trenching	Medium	44400-44600
ABR_028	Excavation	No previous survey	Medium	44300-44400

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
ABR_029	Excavation	No previous survey	Medium	45100-45100
ABR_030	Excavation	No previous survey but wooded	Low	45200-46100
ABR_031	Excavation	No previous survey. Lidar shows it is part of a medieval field system	Medium	45400-45600
ABR_032	Excavation	No previous survey	Medium	45500-45700
ABR_033	Excavation	Gullies, shallow ditches and pits found during trial trenching	Medium	45700-46300
ABR_034	Excavation	No archaeology identified in trial trenches and narrow, unsurveyed areas	Low	46100-47000
ABR_035	Excavation	No previous survey	Medium	46400-47600
ABR_036	Building recording and relocation	Listed boundary stone	High	47900-47900
ABR_037	Excavation	No previous survey	Medium	47000-47900
ABR_038	Excavation	Current road corridor - potential survival of Roman road	Low	47000-47500
ABR_039	Excavation	Narrow area - no previous survey. Important hedgerow	Low	48000-48000
ABR_040	Excavation	No previous survey	Medium	47900-47900
ABR_041	Building recording	Building features on 1890 mapping	Low	44700-44800
ABR_042	Building recording	Non-designated historic gateway and wall	Low	47900-47900
BBY_001	Building recording	Bowes Railway Station	Medium	51000-51200
BBY_002	Building recording	Low Broats - on 1st ed OS mapping	Low	52500-52600
BBY_003	Excavation	No archaeology identified	Low	50000-50400
BBY_004	Excavation	Narrow area - one undated ditch in one trench	Low	50100-50200
BBY_005	Excavation	No archaeology identified. Part of Medieval field system	Low	50400-51000
BBY_006	Excavation	No archaeology identified	Low	50700-50900
BBY_007	Excavation	No previous survey	Medium	50700-51000
BBY_008	Excavation	Very limited archaeology - two ditch, one gully, no dating evidence. Crossed by disused railway	Low	51000-51400
BBY_009	Excavation	No previous survey	Medium	51100-51300

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
BBY_010	Excavation	Survey limited by ecological constraints	Medium	51000-51700
BBY_011	Excavation	One ditch, one pit, one furrow	Low	51500-51700
BBY_012	Excavation	Two ditches, gully and furrow - all likely med/post-med	Low	51700-52700
BBY_013	Excavation	Survey limited by ecological constraint but geophysics show no remains and very limited in surrounding area	Low	51900-52100
BBY_014	Excavation	No previous survey	Medium	52100-52400
BBY_015	Excavation	No archaeology identified (only furrows)	Low	52300-52941
BBY_016	Excavation	Likely historic road - possible early road surfaces beneath	Low	52900-52941
BBY_017	Excavation	No previous survey	Medium	52300-52800
BBY_018	Excavation	No trenching, but only some small circular features on geophysics	Low	52700-52900
BBY_019	Excavation	No trenching but narrow area. Mostly road, but along line of Roman road	Low	52941-52941
BBY_020	Excavation	Current road corrido but Roman road may survive	Low	52000-52100
CRK_001	Building recording and relocation	Listed Milestone (NHLE: 1121675)	High	60100-60100
CRK_002	Building recording and relocation	Listed Milestone (NHLE: 1121674)	High	61700-61700
CRK_003	Excavation	No previous survey	Medium	59500-59550
CRK_004	Excavation	No previous survey	Medium	59500-59650
CRK_005	Excavation	Current road corridor, but Roman road may survive	Low	59450-63250
CRK_006	Excavation	No previous survey	Medium	63050-63500
CRK_007	Excavation	No previous survey	Medium	60800-60900
CRK_008	Excavation	No previous survey	Medium	59650-59800
CRK_009	Excavation	Limited archaeology identified (just one posthole)	Low	59650-60200
CRK_010	Excavation	Limited archaeology - one ditch terminus, one gully, one furrow	Low	59600-60200
CRK_011	Excavation	No previous survey	Medium	60200-60250

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
CRK_012	Excavation	No archaeology identified	Low	60200-60850
CRK_013	Excavation	No archaeology identified	Low	60300-61000
CRK_014	Excavation	No previous survey but very small area	Low	60950-60950
CRK_015	Excavation	No archaeology identified, and minor road	Low	60950-61750
CRK_016	Excavation	No archaeology (in surveyed area) and narrow stretch with hedgerow	Low	61150-61950
CRK_017	Excavation	No archaeology identified and narrow area	Low	62200-62450
CRK_018	Excavation	No previous survey but small area	Low	62350-62450
CRK_019	Excavation	Very limited archaeology identified - one pit	Low	61750-63300
CRK_020	Excavation	Within the Rokeby Registered Park and Garden. Area of historic, likely plantation, woodland Potential for designed landscape features, and evidence of historic planting plan	High	62500-63200
SCM_001	Building recording and relocation	Non-designated milestone	Medium	74200-74200
SCM_002	Building recording and relocation	Non-designated milestone	Medium	72500-72600
SCM_004	Building recording	Monks Rest Farm	Medium	70900-70900
SCM_003	Building recording and relocation	Non-designated milestone	Medium	73700-73700
SCM_005	Excavation	Current road corridor and side roads - possible surviving earlier deposits	Low	71200-73600
SCM_006	Excavation	Roman fort and vicus - partially scheduled	High	74300-74500
SCM_007	Excavation	Enclosures, north of Roman fort (partially scheduled)	High	74200-74500
SCM_008	Excavation	Although trenching identified no archaeology, some areas	Medium	74800-74900

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
		unsurveyed and close to Roman fort		
SCM_009	Excavation	Only limited archaeology identified (one ditch) but proximity to Roman Fort suggests caution	Medium	74800-74800
SCM_010	Excavation	No archaeology identified	Low	75000-75051
SCM_011	Excavation	No previous survey but small area	Low	69974-69974
SCM_012	Excavation	No previous survey but narrow area	Low	69974-70200
SCM_013	Excavation	No previous survey but narrow area with areas of quarrying	Low	69974-70000
SCM_014	Excavation	No previous survey	Medium	69974-70000
SCM_015	Excavation	No archaeology identified	Low	70200-70600
SCM_016	Excavation	Limited archaeology (one posthole)	Low	70500-70900
SCM_017	Geoarchaeology and excavation	No archaeology identified, but two paleochannels present	Low	71100-71300
SCM_018	Excavation	No previous survey but narrow area	Low	71300-71700
SCM_019	Excavation	No archaeology identified	Low	71500-71900
SCM_020	Excavation	No archaeology identified in trenching, some cropmarks of field boundaries	Low	72000-72200
SCM_021	Excavation	Limited archaeology - three small pits in one trial trench	Low	72200-72800
SCM_022	Excavation	No previous survey	Medium	72400-72700
SCM_023	Excavation	Limited archaeology identified - singular pit in one trench - and narrow linear strips which have not been surveyed	Low	73300-73200
SCM_024	Excavation	Narrow area, with small part of possible enclosure embankment identified from aerial photograph - thought likely natural	Low	74000-74000
SCM_025	Excavation	No archaeology identified through trial trenching, although possible enclosure ditch identified from aerial photograph	Low	73800-73700
SCM_026	Excavation	No previous survey	Medium	73700-73600
SCM_027	Excavation	No previous survey. Lidar suggests possible circular platform or ditches	Medium	73500-73500

Site	Mitigation	Reason	Resourcing/ programming risk	Approximate chainage
SCM_028	Excavation	Narrow area. No previous survey. Lidar suggests possibly natural mound and circular enclosure	Low	73800-73900
SCM_029	Excavation	Narrow area along field boundary	Low	74800-74900
SCM_030	Excavation	Narrow area along field boundary	Low	74700-74700
SCM_031	Excavation	Narrow area along field boundary	Low	74200-74300
SCM_032	Preservation in situ	Scheduled monument	NA	74500-74500

B3.5 References

Ancient Monuments and Archaeological Areas Act 1967.

DMRB LA106 Cultural Heritage Assessment (Highways England (now National Highways), 2020).

Environmental Archaeology. A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (Campbell, G. Moffet, L and Straker, V) 2011.

Geoarchaeology: using earth sciences to understand the archaeological record (Historic England) 2015.

National Policy Statement for National Networks (Department for Transport), 2014.

Standard and guidance for archaeological excavation (ClfA) 2014.

Standard and guidance for the archaeological investigation and recording of standing buildings or structures (ClfA) 2019.

Standard and guidance for the collection, documentation, conservation and research of archaeological material (ClfA) 2014.

Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (ClfA) 2014

Understanding Historic Buildings. A guide to good recording practice (Historic England, 2016).

B3.6 Glossary

Table 6: Glossary

Term	Definition
Evaluation	Archaeological trial trenching survey
Geoarchaeology	The archaeological study of sites using the methods of earth sciences
Fieldwalking	Systematic artefact collection from ploughsoil by walking in a grid across areas of land

Term	Definition
Transhumance	The seasonal movement of livestock to different grazing areas (typically higher meadows in summer)
Trial Trenching	A rapid form of archaeological investigation, consisting of opening trenches to characterise a percentage of a site (typically between 2-5%)
Vicus (or Vici)	A settlement adjacent to a fort

B3.7 Abbreviations

Table 7: Abbreviations

Term	Definition
ACoW	Archaeological Clerk of Works
BABAO	British Association for Biological Anthropology and Osteoarchaeology
CIfA	Chartered Institute for Archaeologists
dEMP	Draft Environmental Management Plan
DfT	Department for Transport
DHMS	Detailed Heritage Mitigation Strategy
DMRB	Design Manual for Roads and Bridges
EMP	Environmental Management Plan
ES	Environmental Statement
HER	Historic Environment Record
HLC	Historic Landscape Characterisation
NHLE	National Heritage List for England
OASIS	Online Access to the Index of Archaeological Investigation
OHMS	Outline Heritage Mitigation Strategy
OWSI	Overarching Written Scheme of Investigation
REAC	Register of Environmental Actions and Commitments
SSWSI	Site Specific Written Scheme of Investigation