

Great North Road Solar And Biodiversity Park

Environmental Statement

Volume 4 – Technical Appendices

Technical Appendix A11.8: Outline Archaeological Mitigation Strategy

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Contents

	. –	
A11.8.1	Introduction	3
A11.8.1.1	Project Background	3
A11.8.1.2	Purpose and scope of document	3
A11.8.1.3	Roles and Responsibilities	4
A11.8.2	Planning Background and Technical Guidance	5
A11.8.2.1	Legislative and Planning Background	5
A11.8.2.2	Relevant Guidance	6
A11.8.3	Stage 1: Pre-Consent Archaeological Investigation	6
A11.8.3.1	3	
A11.8.3.2	2 Results	11
A11.8.4	Stage 2: Post-consent Archaeological Investigation	11
A11.8.4.1	I Introduction	11
A11.8.4.2	2 Geophysical Survey	11
A11.8.4.3	3 Geoarchaeological Investigation	12
A11.8.4.4	Archaeological Evaluation	12
A11.8.5	Stage 3: Mitigation Measures	13
A11.8.5.1	I Introduction	13
A11.8.5.2	Review and Decision-Making	13
A11.8.5.3	Mitigation through preservation in situ	14
A11.8.5.4	Mitigation through preservation by record	15
A11.8.5.5	5 No mitigation	16
A11.8.6	Application of mitigation	16
A11.8.6.1	l General	16
A11.8.6.2	2 Consultation	16
A11.8.6.3	Monitoring and review	17
A11.8.7	Stage 4: Post-Excavation	17
A11.8.7.1	I Introduction	17
A11.8.7.2	2 Finds	18
A11.8.7.3	B Environmental Sampling	19
A11.8.7.4	Post-Excavation Assessment	20
A11.8.7.5	Publication, Dissemination and Heritage Interpretation	21
A11.8.7.6	Archive Preparation and Deposition	21
A11.8.8	Long Term Management	21
A11.8.8.1	Archaeological Management Plan	21



A11.8.9	References	
A11.8.10	Appendix A: WSI	. 24

Figures

Figure A11.8.1a-d Stage 1 Geophysical Survey and Trenching

Figure A11.8.2a-d Information for Stage 2 Investigations

Tables

Table A11.8.1 Previous investigations

Table A11.8.2 Heritage Significance

Table A11.8.3 Heritage significance and appropriate mitigation



A11.8.1 INTRODUCTION

A11.8.1.1 PROJECT BACKGROUND

- Wessex Archaeology has been commissioned by Elements Green Trent Ltd (hereafter 'the Client'), to prepare an Archaeological Mitigation Strategy (AMS). This document sets out the scope and mitigation principles for the planning and implementation of further archaeological investigations to be completed prior to the completion the Great North Road Solar and Biodiversity Park project (the Development).
- This report forms a technical appendix to the Environmental Statement (ES) which will accompany the Development Consent Order (DCO) application for a proposed solar farm and associated infrastructure across an area of approximately 1,765 hectares (the 'Order Limits').
- The Development will comprise the installation of a series of ground-mounted solar PV panels within the Order Limits. Associated works will include a Battery Energy Storage System (BESS), inverter housings, switch gear, access tracks, compounds, underground cabling, security measures and other ancillary equipment and landscaping (ES Chapter 5, Development Description [EN010162/APP/6.2.5]).

A11.8.1.2 PURPOSE AND SCOPE OF DOCUMENT

- The AMS is the principal document setting out the proposed post-consent approach to archaeology. The purpose of the AMS is to set out the scope and methods proposed to mitigate the effects of the Development on below ground archaeological remains within the Order Limits, secure compliance with relevant legislation and national and local planning policy and agree on the approach with statutory consultees.
- This document describes the principles to be applied in undertaking archaeological mitigation works, including strategies for protecting archaeological remains (where practicable and feasible) and investigation, recording and analysing archaeological remains that will be impacted by construction activities.
- The baseline assessments and ES identified that archaeological remains exist within the Order Limits, and that there is potential for further remains to be present. This document identifies further assessment and mitigation measures to be undertaken to evaluate and/or mitigate potential effects of the Development on the archaeological resource.

A11.8.1.2.1 Broad Approach and Staging

- The process set out in this document is based on a staged approach to archaeological investigation of the Order Limits, with each of the stages discussed below, as follows:
 - Stage 1: All archaeological investigations carried out pre-consent;
 - Stage 2: Post-consent archaeological investigations;
 - Stage 3: Mitigation measures; and
 - Stage 4: Post-excavation assessment and reporting.



- The results of each stage of archaeological work have and will inform both design decisions (as appropriate) and the needs for, scope and extent of subsequent phases of work, whether that be further evaluation or sampling, or implementation of agreed mitigation.
- The approach is intended to be iterative, and collaborative, with regular consultation and engagement with the archaeological curators throughout the process.
- The detail of subsequent proposed works referred to in this document will be set out in detailed Written Schemes of Investigation (WSI). The WSIs are nested under the AMS process and are subordinate to it.

A11.8.1.3 Roles and Responsibilities

- 11 The following roles have been identified:
 - Client Elements Green Trent Ltd;
 - Principal Contractor (to be confirmed (TBC), as appointed by the Client)
 - Project Archaeologist (TBC, as appointed by the Client);
 - Archaeological Curator Nottinghamshire County Council; and
 - Archaeological Contractor (TBC, as appointed by the Client).

A11.8.1.3.1 The Client

The Client is ultimately responsible for ensuring that the AMS is carried out as required and this is secured via a DCO Requirement.

A11.8.1.3.2 Principal Contractor

- The Principal Contractor (once appointed) is responsible for implementing the AMS and ensuring that any subcontractors undertaking work on the Site are made fully aware of the AMS and the archaeological requirements as set out therewithin, before work commences.
- The principal contractor and/or their appointed representatives will adhere to the AMS and works agreed to in Stage 2 and Stage 3 WSI/s. They will seek curatorial advice as appropriate and administer interactions with the Archaeological Curator. Should archaeological deposits be discovered, the Archaeological Curator will be contacted.
- In advance of the Principal Contractor being appointed, the Client would undertake this role.

A11.8.1.3.3 Project Archaeologist

- A Project Archaeologist will be appointed by the Principal Contractor (or client if a Principal Contractor has not been appointed) who will be responsible for monitoring the work undertaken by the Archaeological Contractor to ensure compliance with the AMS. The Project Archaeologist will also organise and attend regular site meetings with the Archaeological Curator, to keep them fully informed of progress and significant discoveries.
- The Project Archaeologist in collaboration with the Archaeological Curator will also monitor and sign off-any archaeological works prior to those areas being released for construction.



The Project Archaeologist will in collaboration with the Archaeological Curator to ensure that reporting and post-excavation assessment and analysis are carried out in line with the provision of the AMS and relevant WSIs.

A11.8.1.3.4 Archaeological Curator

- The Archaeological Curator will have ultimate responsibility for confirming that the DCO Requirements relating to archaeology are met.
- The Archaeological Curator will review archaeological works including, but not limited to, completion of phases of fieldwork, reporting and agreeing post-excavation assessment and reporting. While considered unlikely for this Development, Historic England may also be involved in the above or provide advice to the planning authority's archaeological advisor, if appropriate.
- No works should commence until approval of a WSI for each stage of archaeological investigation is agreed as part of the AMS.
- During any fieldwork, the Archaeological Curator will be afforded access to the site for monitoring visits as required. After construction has been completed, the final archaeological reports or publication(s) for this project will be submitted to the Archaeological Curator.

A11.8.1.3.5 Archaeological Contractor(s)

- The Archaeological Contractor/s will be responsible for delivering the archaeological mitigation programme, as set out in this AMS. Their responsibilities will include all on-site and off-site works, including preparation of the WSI/s, post-fieldwork reporting, and publication of the works they have completed.
- The Project/Fieldwork Manager of the Archaeological Contractor/s will be responsible for ensuring that the archaeological works assigned to them are delivered in accordance with the parameters outlined in the WSI/s.
- The Archaeological Contractor will be appointed by the Client.

A11.8.2 PLANNING BACKGROUND AND TECHNICAL GUIDANCE

A11.8.2.1 LEGISLATIVE AND PLANNING BACKGROUND

- There is national legislation and guidance relating to the protection of, and proposed development on or near, important archaeological sites or historical buildings within planning regulations as defined under the provisions of the Town and Country Planning Act 1990. In addition, local authorities are responsible for the protection of the historic environment within the planning system.
- The Planning Background is provided within the ES Chapter (11: Cultural Heritage and Archaeology [EN010162/APP/6.2.11] and the Archaeological Desk-Based Assessment (ES Technical Appendix A11.1 [EN010162/APP/6.4.11.1]).



A11.8.2.2 RELEVANT GUIDANCE

- The following general guidance will be used to guide the work undertaken:
 - Chartered Institute for Archaeologists (ClfA) 2014a (revised 2019) Code of Conduct;
 - Chartered Institute for Archaeologists (ClfA) 2014b (revised 2023) Standard and Universal Guidance for Archaeological Field Evaluation;
 - Chartered Institute for Archaeologists (CIfA) 2014d (revised 2023)
 Standard and Universal Guidance for Archaeological Excavation;
 - Chartered Institute for Archaeologists (ClfA) 2014e (revised 2023)
 Standard and Universal Guidance for Archaeological Watching Brief;
 - Chartered Institute for Archaeologists (ClfA) 2014g (revised 2020)
 Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives;
 - Chartered Institute for Archaeologists (CIfA) 2014h (revised 2020)
 Standard and Guidance for the collection, documentation, conservation and research of archaeological materials;
 - Department for Communities and Local Government (DCLG), 2018.
 National Planning Policy Guidance;
 - Campbell, G, Moffett, L and Straker, V 2011 'Environmental Archaeology. A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (second edition)'. Portsmouth: English Heritage;
 - Historic England, 2008, MoRPHE Project Planning Note 3: 'Archaeological Excavation';
 - English Heritage 2008. Conservation Principles, Policies and Guidance: For the sustainable management of the historic environment;
 - Historic England, 2015. Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record;
 - Historic England, 2015b. Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide;
 - Historic England, 2016. Preserving Archaeological Remains: Decisiontaking for Sites under Development; and
 - MOLA 2004. Mitigation of Construction Impact on Archaeological Remains.

A11.8.3 STAGE 1: PRE-CONSENT ARCHAEOLOGICAL INVESTIGATION

A11.8.3.1 PREVIOUS INVESTIGATION AND ASSESSMENT

The Order Limits has been subject to a series of geophysical surveys and archaeological evaluations (illustrated on **Figures A11.8.1a-d**). Previous investigations undertaken as part of Stage 1 are listed in **Table 1** and summarised below.



Table A11.8.1 Previous Investigations

Report Type	Title	Technical Appendix
Archaeological Evaluation 2022	Land south of Staythorpe Road Staythorpe, Newark, Nottinghamshire. Unpublished Client Report	N/A – undertaken for a separate application
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire. Unpublished report	
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Brown Land). Unpublished report	TA A11.4
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Burnett Land). Unpublished report	
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Carlton Land). Unpublished report	
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Chase Land). Unpublished report	
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Dakin Land). Unpublished report	
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Germany Land). Unpublished report	
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Garage Farm Land). Unpublished report	
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Garage Hewson Land). Unpublished report	
Geophysical Surveys	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe,	



Report Type	Title	Technical Appendix
ERM 2023	Nottinghamshire (Jackson Land). Unpublished report	
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Stainiforth Land). Unpublished report	
Geophysical Surveys ERM 2023	Detailed Gradiometer Survey Report. Land To The West of A1, North of Staythorpe, Nottinghamshire (Ward Land). Unpublished report	
Geophysical Surveys 2024	Land To The West of A1, North of Staythorpe, Nottinghamshire. (East Of Eakring, Maplebeck Estate, South Of Ollerton Road). Unpublished Report	TA A11.4
Geophysical Surveys Magnitude Surveys 2024	Detailed Gradiometer Survey Report Land To The West Of A1, North Of Staythorpe, Nottinghamshire. Unpublished Report	TA A11.4
Geophysical Survey (Phase 2) Magnitude Surveys 2024	Interim Geophysical Survey Report Great North Road Solar Farm, Staythorpe	TA A11.5
Archaeological Desk-Based Assessment 2024	GNR Solar Farm Newark, Nottinghamshire: Archaeological Desk-Based Assessment. Unpublished Report	TA A11.1
Archaeological Evaluation (Phase 1) 2024	Great North Road Solar Park. Archaeological Evaluation. Unpublished Client Report	TA A11.6
Archaeological Evaluation (Phase 2) 2025	GNR Solar Farm Phase 2. Interim Report for Archaeological Evaluation (forthcoming) Unpublished Client Report	TA A11.7
Geoarchaeologi cal Desk-based Assessment & Landscape Characterisation 2025	GNR Solar and Biodiversity Park, Nottinghamshire. Geoarchaeological Desk- based Assessment and Landscape Characterisation	TA A11.3



A11.8.3.1.1 Archaeological Evaluation (Wessex Archaeology 2022)

- Wessex Archaeology was commissioned by Arcus Consultancy Services Ltd to undertake an archaeological evaluation of land located to the south of Staythorpe Road, Nottinghamshire, within the southern part of the Order Limits.
- The earliest feature uncovered was a north-east–south-west aligned Late Neolithic ditch, which was noted in three trenches in the central south-east part of the Order Limits. Sherds of Grooved Ware and Beaker pottery were recovered from one of the ditch fills, as well as worked flint typical of Late Mesolithic/Early Neolithic forms. Evidence of post-medieval/modern boundary ditches was also recorded in the north and western parts of the Order Limits and correspond well with boundaries shown on the 1884 Ordnance Survey (OS) map.
- Additionally, a palaeochannel was identified at the northern edge of the Order Limits that was potentially a continuation of a river channel, from which a human thigh bone carbon dated to the Mesolithic period was recovered from, 1.3 km to the east of Order Limits. The bulk sediment samples from the upper fills of the palaeochannel contained plant remains indicative of medieval/post-medieval settlement.

A11.8.3.1.2 Geophysical Surveys (Wessex Archaeology, AOC and Magnitude Surveys) (TA A11.4 [EN010162/APP/6.4.11.4])

- A series of geophysical surveys were commissioned by Environmental Resources Management (ERM) (formerly Arcus Consultancy Services Ltd) with the aim of establishing the presence, or otherwise, and nature of detectable archaeological features to assess the archaeological potential of land parcels and their suitability for development. The geophysical surveys were conducted by various contractors in 2023 and 2024.
- The results of the surveys highlighted areas of geophysical anomalies within the Order Limits. Concentrations of geophysical anomalies were noted in the following locations; south-west of Cromwell, west of Carlton-on-Trent, between Bathley and North Muskham, south of Little Carlton, and South Muskham. These areas lie close to the River Trent and the Great North Road and would have been favourable for occupation and settlement.
- The results of the surveys were used to inform the design of the Development. Where geophysical survey has been undertaken and areas of significant archaeological concentration have been identified, these areas have been taken into consideration within design and excluded from the Development on the basis that archaeological remains in these areas will be preserved in situ. Therefore, these areas were excluded from subsequent archaeological evaluations. Should this change through the evolution of the design, these areas could be evaluated as part of a subsequent phase of trial trenching.



A11.8.3.1.3 Geophysical Surveys (Magnitude Surveys 2024) (TA A11.5 [EN010162/APP/6.4.11.5])

A further phase of fluxgate gradiometer survey was successfully completed on a 515 ha area of land (out of a planned total of c. 635 ha) within the Order Limits. The remainder of the area (120 ha) was unable to be surveyed due to unsuitable ground conditions, overgrown vegetation and lack of access. A number of possible and probable archaeological anomalies were identified, within three areas of archaeological activity. The majority of these areas appear to form isolated Iron Age/Romano-British enclosures in close proximity to the River Trent, Kersall and North Muskham. Anomalies relating to the historical and modern agricultural use of the landscape are evident across this survey area in the form of ridge and furrow cultivation regimes, modern ploughing trends, mapped and unmapped former field boundaries and drainage systems.

A11.8.3.1.4 Phase 1 Trial Trenching (York Archaeological Trust 2024) (TA A11.6 [EN010162/APP/6.4.11.6])

- York Archaeological Trust (YAT) were commissioned to undertake a programme of archaeological evaluation (trial trenching) on several land parcels located to the north-west of Newark-on-Trent, across an area of c. 307 ha, during May-June 2024. Through the geophysical survey, areas of archaeological interest that could not be avoided by design were identified. The Phase 1 trench layout focussed upon these remaining areas, to assess and characterise potential archaeological remains which may be subject to physical effects as part of the Development.
- Of a planned 444 trenches, 231 were excavated as part of this phase. Of these 125 trenches were found to contain features or deposits of archaeological interest, and a further 28 trenches produced artefactual material.
- The evaluation area at Maplebeck consisted of 89 trenches of which 37 contained archaeological features. The features broadly comprised pits, gullies, and enclosure ditches, dating to the later prehistoric and Romano-British periods. Later ridge and furrow systems and former field boundaries identifiable on historic mapping were also recorded.
- The area at Castle Hill consisted of the excavation of 12 trenches. A probable Romano-British ditch was recorded, suggested to be a boundary ditch and a post-medieval pond were recorded as well as former field boundary ditches.
- At Cromwell archaeological features consisted of ditches, pits and ridge and furrow field systems as well as former field boundaries. Many of the features did not contain any dating evidence but were suspected to date from the prehistoric to Romano-British period and medieval to modern periods. Undated and naturally formed features such as evidence for palaeochannels were also identified.
- At Cromwell north, archaeological features included ditches, pits and postholes of medieval and post-medieval date, as well as associated agricultural activity such as ridge and furrow and former field boundaries.



A11.8.3.1.5 Phase 2 Trial Trenching (York Archaeological Trust 2025) (TA11.7 [EN010162/APP/6.4.11.7])

The second phase of archaeological evaluation was undertaken between January and March 2025. An interim report on the results has been issued. The trench layout for this phase focussed on areas with little to no anomalies identified by the geophysical survey, in order to test the accuracy of the survey results, and to distinguish any as-yet unknown archaeological features. The interim report details a small number of truncated ditches of likely Romano-British date at Kelham West, with all other trenches being blank (with the exception of post-medieval or later field boundaries) generally confirming the geophysical survey results.

A11.8.3.1.6 Geoarchaeological Desk-based Assessment & Landscape Characterisation (ES TA A11.3 [EN010162/APP/6.4.11.3])

A Geoarchaeological Landscape Characterisation based on British Geological Society archive boreholes, mapping of superficial deposits and analysis of LiDAR data was used to define nine preliminary Geoarchaeological Character Zones within the Order Limits, based on variations in the geological characteristics of the deposits present. This identified five areas within the Order Limit where Quaternary deposits may be present, which could contain archaeological evidence and/or deposits with palaeo-environmental interest.

A11.8.3.2 RESULTS

The results of the Stage 1 archaeological investigations have allowed for embedded development design mitigation to be included within the design of the Development. This comprises the careful routing of the cable route and siting of the solar array areas, compounds, substations and BESS to avoid or minimise impacts to key areas of archaeological sensitivity, based upon the results of the investigations completed to date. Areas where archaeological remains have been avoided as part of the design will be preserved in situ.

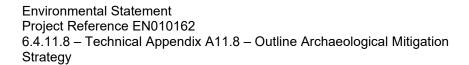
A11.8.4 STAGE 2: POST-CONSENT ARCHAEOLOGICAL INVESTIGATION

A11.8.4.1 INTRODUCTION

- The following section sets out the broad approach to the post-consent work, the requirement of which was identified at Stage 1.
- Areas within the Order Limit that would be subject to Stage 2 archaeological investigation are illustrated on **Figures A11.8.2a-d**.

A11.8.4.2 GEOPHYSICAL SURVEY

Further geophysical survey is required within areas of the Order Limits that could not be surveyed at Stage 1. The results of the surveys will be used to inform the subsequent Stage 2 evaluation (see below). It is not proposed to carry out geophysical survey in those areas allocated to Work Order 3,





- Mitigation/Enhancement, where the proposed mitigation is not expected to affect below ground remains.
- It is necessary for the geophysical survey to be undertaken prior to any further trial trench evaluation that will occur within the same areas. This will ensure that the results of the survey are taken into account ahead of trenching.
- The geophysical survey will be carried out in accordance with the postconsent WSI(s).

A11.8.4.3 GEOARCHAEOLOGICAL INVESTIGATION

- Informed by the Stage 1 Desk-based Assessment, Stage 2 evaluation of selected areas of high potential and in consideration of the anticipated development impacts (i.e. that the deposits are of depth they will be impacted by construction activities, for example in Work Areas 4, Intermediate Substations, and 5a, BESS), geoarchaeological may be required at Stage 2. Techniques for geoarchaeological sampling could include test pits for controlled recovery of artefacts and/or palaeo-environmental and dating samples. Another alternative method could be targeted borehole sampling. The type of geoarchaeological sampling technique and analysis are usually subject to a staged program of investigation, with detailed requirements determined at each stage.
- The scope of any further geoarchaeological works will be set out within a specified WSI, conforming to Historic England Guidance, 'Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record' (2015b) and 'Curating the Palaeolithic' (2023).

A11.8.4.4 ARCHAEOLOGICAL EVALUATION

- The general aim of the evaluation is to 'ground-truth' the geophysical survey result and confirm the potential for the presence or absence of archaeologically significant remains, allowing the mitigation measures set out to be applied appropriately. The evaluation will be located within parts of the Order Limits that have not yet been subject to intrusive investigation (with the exception of areas of preservation in situ). It is envisaged that this is an archaeology-led process, drawing on the results of the Stage 1 work (including desk-based assessments as well as intrusive and non-intrusive surveys) and Stage 2 geophysical survey, when appropriate.
- The area sample size for the Stage 2 evaluation will be agreed following consultation with the Archaeological Curator and will take into account the results of the pre-submission and Stage 1 work.
- The proposed evaluation will be reviewed in the field and the excavation and sampling methods, density of trenching, and use of contingency allowances can be adjusted. This would be undertaken in consultation with the Archaeological Curator, as needed to reflect changing circumstances or improved understanding.
- Trenching will be at a density of typically 1-2% overall, up to a maximum of 4% in any one area. Final trenching densities in any given area will respond to the potential for damage to archaeology. Densities will be at the upper end



of the above range where archaeology is more significant and/or less certain (based on desk-based data and geophysical survey) and in areas of higher ground disturbance, such as Work no.s 4, 5a, 5b (substations/BESS) and at construction compounds and access tracks. In other areas, trenching densities would be much lower in response to lower risk arising from lesser archaeological significance/greater certainty and lesser proposed ground disturbance.

The archaeological evaluation will be carried out in accordance with the approved WSI/s.

A11.8.5 STAGE 3: MITIGATION MEASURES

A11.8.5.1 INTRODUCTION

Once the Stage 2 works have been completed, the extent of the archaeological resource across the Order Limits will be reviewed. Implementing the principles set out within this section, mitigation measures which remove any potential further impact (preservation *in situ*), where practicable, will always be preferred. Where this is not possible, mitigating the loss of the archaeological resource through preservation by record will be proposed. However, there may be areas where no archaeology is present or the remains of which warrant no further investigation.

A11.8.5.2 REVIEW AND DECISION-MAKING

On the completion of the Stage 2 investigations, the results will be considered together with those from the Stage 1 archaeological work to establish an overall picture of the archaeological resources within the Order Limits. Significance scores in line with the table below will be assigned to any remains/groups of features identified considering both regional and national research frameworks.

Table A11.8.2 Heritage Significance

Heritage Significance	Description/ Reason
Very High	Assets that can contribute significantly to acknowledged international research agendas
High	Scheduled monuments and undesignated assets of Schedulable quality and importance
riigii	Archaeological assets that can contribute significantly to acknowledged national research objectives
Medium	Designated or undesignated archaeological assets that contribute to regional research objectives
Low	Archaeological assets of limited value, but with potential to contribute to local research objectives
Negligible	Assets with very little or no surviving archaeological interest with little or no value at local or other scale;



- Following this review, consultation will be undertaken with the Archaeological Curator with a view to agreeing levels of heritage significance and appropriate measures required.
- Where archaeological remains of "high" or "very high" significance are identified, preservation in situ will be the preferred option. Where remains of less significance (Medium, Low and Negligible) are identified, archaeological measures will be presented, ranging from implementing a programme of archaeological monitoring and recording (Watching Brief), additional or specific sampling strategies and/or other site-specific investigations, up to and including detailed area archaeological investigation as appropriate. These are presented in **Table A11.8.3** below.

Table A11.8.3 Heritage significance and appropriate mitigation

Heritage Significance	Appropriate Mitigation		
Very High	 Preservation in situ where feasible and practicable Implementation of appropriate program of archaeological works to provide mitigation through preservation by record. 		
High	 Preservation in situ where feasible and practicable Implementation of appropriate program of archaeological works to provide mitigation through preservation by record. 		
Medium	Implementation of appropriate program of archaeological works to provide mitigation through preservation by record.		
Low	Implementation of appropriate program of archaeological works to provide mitigation through preservation by record.		
Negligible	No further work.		

A11.8.5.3 MITIGATION THROUGH PRESERVATION IN SITU

- The implementation of preservation *in situ* will be completed through strategies and construction techniques to avoid physical impact on the archaeology (beyond those that may have been caused as part of the initial evaluation works). This will be achieved by removing areas from development or designating them as greenspaces. Any specific measures or areas will be identified and presented in appropriate documentation to the Archaeological Curator.
- Decisions on arrangements to secure preservation *in situ* will have regard to the principles outlined in the *Preserving Archaeological Remains* documentation to ensure that any strategy is right for the site and archaeology in question¹.

¹ https://historicengland.org.uk/images-books/publications/preserving-archaeological-remains/



Some areas of preservation in situ were established during Stage 1 (**Figures A11.8.2a-d**).

A11.8.5.4 MITIGATION THROUGH PRESERVATION BY RECORD

Where preservation by record is the practicable or feasible approach for archaeology, the exact scope and extent of any works will be determined. Methodologies that may be implemented following the results of the post-consent evaluation are presented below. The ordering of each method does not imply that there is a preference in technique

A11.8.5.4.1 Additional Non-Intrusive Surveys

- It may be possible to implement alternative forms of non-intrusive surveys (e.g. metal detecting and fieldwalking), in areas of the Order Limit with specific archaeological potential and appropriate surveying conditions. Areas that have already been subject to trenching as part of Stage 1 would be excluded from both survey techniques.
- It would be necessary to complete both or either of these forms of survey in advance of evaluations, or any other form of intrusive archaeological investigation. This includes Stage 2 trial trenching.
- Fieldwalking is a non-intrusive form of investigation that can highlight areas of archaeological activity. Within the Order Limit, this could be particularly appropriate for locating Mesolithic artefacts scatters beyond the river flood plain, which would not be picked up through geophysical survey or evaluation trenches.
- Areas under trackways and in pastural use would be excluded from fieldwalking due to unsuitable conditions, whilst arable areas would only be accessible in autumn and winter months, to avoid tall crops.

A11.8.5.4.2 Geoarchaeological Investigation

Depending on the results of any Stage 2 geoarchaeological evaluation further mitigation works may be required. The scope of any further geoarchaeological works will be set out within a specified WSI, conforming to Historic England Guidance, 'Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record' (2015b) and 'Curating the Palaeolithic' (2023).

A11.8.5.4.3 Targeted Strip, Map and Record or Archaeological Excavation

- Targeted strip, map and record or detailed archaeological excavation will be undertaken on archaeological remains of medium heritage significance or where preservation in situ is not a viable mitigation method for remains of the Very High/High levels of heritage significance (national and international), as appropriate.
- The scope of the archaeological works will be set out within a WSI.
- Areas selected for targeted strip, map, and record or detailed archaeological excavation may be temporarily fenced to demarcate the excavation area to ensure no physical impacts are caused prior to the programme's implementation.



Open area excavation may be used for detailed excavation of areas with significant, complex and /or dense archaeological remains. Whilst these areas should ideally be defined and excavated prior to construction, where this is not possible, agreed areas will be fenced off whilst archaeological work is completed.

A11.8.5.4.4 Archaeological Monitoring and Recording

- Dependent on the results of the Stage 2 investigations, a programme of Archaeological Monitoring and Recording (Watching Brief) may be required on areas with archaeological remains which are of "Low" heritage significance as set out in **Table A11.8.3**.
- However, should significant archaeological remains be identified within an area of archaeological monitoring, then specific appropriate intervention may be required, such as the implementation of a targeted strip, map and recording exercise or other detailed excavation programme.
- The scope of the archaeological works will be set out within a location or activity specific WSI.

A11.8.5.5 NO MITIGATION

In areas where there have been no known heritage assets noted within the Desk-based Assessment, no anomalies identified during the geophysical survey and/or no features uncovered during the Stage 1 or 2 evaluations, no mitigation may be proposed. These areas will be formally identified at the conclusion of Stage 2, noting this may be staged depending on the programme.

A11.8.6 APPLICATION OF MITIGATION

A11.8.6.1 General

Based on the information to date, there is no indication that any archaeological remains within the Order Limits would be of the highest significance. Archaeological remains dating from the prehistoric to 18th century have been identified within the Order Limits, ranging from negligible to high heritage significance (high value assets are only found in the vicinity of Cromwell where ecological mitigation works are scheduled as part of Work Area 3.

A11.8.6.2 CONSULTATION

- Consultation with the Archaeological Curator will be undertaken throughout the post-consent process, with specific consultation points at the following milestones:
 - Following consent to proceed, the Written Scheme of Investigation (WSI) for the Stage 2 investigations will be submitted to the discharging authority (Nottinghamshire County Council) for approval;
 - Upon completion of the Stage 2 investigations, discussions will be held to determine the significance of findings and agree on appropriate mitigation measures. These may include preservation in situ, further



- phases of fieldwork, or confirmation of areas where no further investigation is required;
- Establishing methodologies to achieve preservation in situ;
- During the preparation of the Stage 3 Mitigation Measures WSI(s), which will also be submitted to the discharging authority for approval;
- During the implementation of mitigation measures through preservation by record;
- Agreeing on the sign-off of areas to allow construction activities to proceed;
- Following the completion of all on-site fieldwork, reviewing the postexcavation assessment and any necessary updates to the project design; and
- Upon conclusion of the post-excavation assessment phase, finalising an updated project design that sets out the required post-excavation analysis, publication, and archiving requirements.
- Consultation will also be undertaken should there be a requirement to deviate from this strategy.

A11.8.6.3 Monitoring and review

- Agreed fieldwork for all phases will be monitored by the Project Archaeologist on a regular basis. The Archaeological Curator will be invited to attend on-site monitoring, and such visits will be facilitated by the Archaeological Contractor.
- It is envisaged that these monitoring visits will form part of a process by which formal sign-off on areas of evaluation and specific mitigation works can be discussed and agreed. A specific process for recording discussions and agreements, as well as identifying signed-off areas, will be developed and set out in the relevant detailed WSIs.
- Where regular monitoring cannot be undertaken, or where archaeologically "blank" trenches are excavated, an appropriate photographic record will be submitted, before backfilling to expedite the work.
- Reporting will be undertaken at intervals agreed with the Archaeological Curator, with content and format subject to approval, depending on the anticipated programme.
- Results will be reviewed regularly with the Archaeological Curator to assess the suitability of proposed techniques and to evaluate whether the density and locations of trenches (Stage 2) can be reduced or amended as necessary.
- Where specific measures to achieve preservation *in situ* have been agreed and implemented, an appropriate record will be submitted to the Archaeological Curator upon completion.

A11.8.7 STAGE 4: POST-EXCAVATION

A11.8.7.1 Introduction

After the on-site fieldwork has taken place, post-excavation assessment is required. Set out below is a general process for the post-excavation assessment. Due to the varied nature of the archaeological fieldwork



outlined above, the below will need to be tailored to each investigation type. This would be set out in the individual WSIs for separate pieces of work.

A11.8.7.2 FINDS

A11.8.7.2.1 General

All archaeological finds from excavated contexts will be retained, although those from features of modern date (19th century or later) may be recorded on site and not retained, depending on the research objectives set out in the WSI. Where appropriate soil samples may be taken and sieved to aid in finds recovery. Any finds requiring conservation or specific storage conditions will be dealt with immediately in line with First Aid for Finds (Watkinson and Neal 1998).

A11.8.7.2.2 Human Remains

- In the event of the discovery of any human remains (articulated or disarticulated, cremated or unburnt), all excavation of the deposit(s) will cease pending the Principal Contractor obtaining a Ministry of Justice Licence (this includes cases where remains are to be left in situ).
- Should human remains require removal, all excavation and post-excavation will be in accordance with the Principal Contractors protocols and current guidance documents (McKinley 2013) and ClfA Technical Paper 13 Excavation and post-excavation treatment of cremated and inhumed remains. Appropriate specialist guidance/site visits will be undertaken if required.
- The final deposition of human remains subsequent to the appropriate level of osteological analysis and other specialist sampling examinations will follow the requirements set out in the Ministry of Justice licence.

A11.8.7.2.3 Treasure

The Principal Contractor will immediately notify the Client and the Archaeological Curator on discovery of any material covered, or potentially covered, by the Treasure Act 1996 (as amended by The Coroners and Justice Act 2009). All information required by the Treasure Act (i.e. finder, location, material, date, associated items etc.) will be reported to the Coroner within 14 days.

A11.8.7.2.4 Finds Processing

- All retained finds will, as a minimum be washed, weighed, counted and identified. They will then be recorded to a level appropriate to the aims and objectives of the Development. The report will include a table of finds by period and/or feature group.
- Metalwork from stratified contexts will be X-rayed and along with other fragile and delicate materials, stored in a stable environment. The X-raying of objects and other conservation needs will be undertaken by an appropriately qualified and approved conservation centre.



Artefacts and other finds will be suitably bagged and boxed in accordance with the guidance given by the relevant museum and generally in accordance with the standards of the CIfA (2014).

A11.8.7.3 ENVIRONMENTAL SAMPLING

A11.8.7.3.1 Introduction

All sampling will adhere to the principles outlined in Historic England's Guidance (English Heritage 2011 and Historic England 2015c).

A11.8.7.3.2 Sampling Strategy

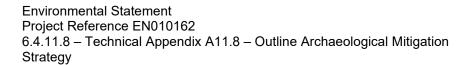
Depending on the size, complexity and duration of the work, the formulation of a site-specific sampling strategy will be considered at an early stage. Initially informed by prior works or predicted conditions, the strategy will be developed and adapted as the excavation continues, with support provided by specialist site visits and/or phone advice as appropriate. The aim of the strategy will be to effectively target the identified archaeology in order to address the aims and objectives of the Development, if appropriate with reference to local or regional research agendas.

A11.8.7.3.3 Sampling Methods

- Bulk environmental soil samples, for the recovery of plant macrofossils, wood charcoal, small animal bones and other small artefacts, will be taken as appropriate from well-sealed and dateable contexts or features. In general, features directly associated with particular activities (e.g. pits, latrines, cesspits, hearths, ovens, kilns, and corn driers) should be prioritised for sampling over features such as ditches or postholes which are likely to contain reworked and residual material.
- If waterlogged or mineralised deposits are encountered an environmental sampling strategy will be devised. Specialist guidance will be provided by a geoarchaeologist, with site visits undertaken as required.
- Any sample will be of an appropriate size- typically 40 litres for the recovery of environmental evidence from dry contexts, and 10 litres from waterlogged deposits
- Following specialist advice, other sampling methods such as monolith, Kubiena or contiguous small bulk (column) samples may be employed to enable investigation of deposits with regard to microfossils (e.g. pollen, diatoms) and macrofossils (e.g. molluscs, insects), soil micromorphological and soil chemical analyses.

A11.8.7.3.4 Environmental Processing

Bulk environmental soil samples will be processed by standard flotation methods and scanned to assess the environmental potential of deposits. The flot will be retained on a 0.25 mm mesh, with residues fractionated into 5.6/4 mm, 2 mm, 1 mm and 0.5 mm and dried if necessary. Coarse fraction (>5.6/4mm) will be sorted, weighed and discarded, with any finds recovered given to the appropriate specialist. Finer residues will be retained until after any analyses and discarded following final reporting.





- In the case of samples from cremation related deposits the flots will be retained on a 0.25 mm mesh, with residues fractionated into 4 mm, 2 mm and 1 mm. In the case of samples from inhumation deposits, the sample will be artefact sieved through 9.5mm and 1mm mesh sizes. The coarse fractions (9.5mm) will be sorted with any finds recovered given to the appropriate specialist together with finer residues.
- Any waterlogged or mineralised samples will be processed by standard waterlogged flotation methods.

A11.8.7.4 POST-EXCAVATION ASSESSMENT

- The Post-Excavation Assessment will assess the results of the fieldwork against the aims, objectives and research questions identified in the WSI(s) and identify opportunities for analysis, publication and community engagement.
- A fieldwork archive will be created, involving the processing and packaging of finds and samples and entering these into a database. The object of the initial processing is to create a checked and ordered corpus of data, with supporting stratigraphic matrices, and digitised feature plans.
- The post-excavation assessment allows a review of the findings and identifies the need for further analytical work or where less significant remains are found- no further work. The assessment will inform the analysis and publication stage by creating a revised framework of priorities following the completion of the fieldwork. The post-excavation assessment will be submitted to the relevant stakeholders for approval.

A11.8.7.4.1 Reporting

- Following each stage of archaeological fieldwork, a draft post-excavation assessment report will be submitted to the Archaeological Curator.
- Each report should include, as a minimum, the following elements:
 - A non-technical summary;
 - Archaeological and historical context;
 - Aims and objectives;
 - Methods;
 - Results stratigraphic, finds and environmental;
 - Archive preparation and deposition arrangements;
 - Appendices;
 - Illustrations; and
 - References.
- Full details of the requirements for each report will be discussed within the WSI.
- Should remains of sufficient significance be encountered which warrant further post-excavation analysis, an updated project design should be included with the relevant report, the amendments to which should be made in consultation with the Archaeological Curator.



A11.8.7.5 PUBLICATION, DISSEMINATION AND HERITAGE INTERPRETATION

Where the post-excavation assessment has identified that further analysis should be carried out this will be undertaken in accordance with the updated project design. The post-excavation assessment will make recommendations for appropriate publication and dissemination of the results based on the significance of the findings. This could include journal publication, booklet, exhibitions or web-based initiatives.

A11.8.7.5.1 Heritage Interpretation and Community Engagement

- Public benefit and engagement with the community could help to offset some of the physical effects of the Development. This would enhance the public value and engagement with the historic environment, contribute to place-making and provide information to the public on the special archaeological and historic interest of the area. The form of the community engagement will be dependent upon the findings of the investigations.
- A potential location for a community archaeological project has been identified at the site of the proposed community orchard south of Vicarage Lane, North Muskam. This would be subject to a WSI under this AMS.

A11.8.7.6 ARCHIVE PREPARATION AND DEPOSITION

It is recommended that the project archive resulting from the excavation be deposited with a suitable museum. Newark and Sherwood District Council Museum Service are currently accepting archives dependant on space. In the absence of a museum in the area actively collecting archaeological archives at the time of deposition, the archive will be stored by the Principal Contractor until such time as the situation is resolved.

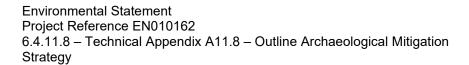
A11.8.7.6.1 Preparation of Archive

The complete archive which may include paper records, graphics, artefacts, ecofacts and digital data, will be prepared following the standard conditions for the acceptance of excavated archaeological material by the accepting museum, and in general following nationally recommended guidelines (SMA 1995; CIFA 2014c, Brown 2011; ADS 2013). The archive will usually be deposited within one year of the completion of the Development, with the agreement of the Client.

A11.8.8 LONG TERM MANAGEMENT

A11.8.8.1 Archaeological Management Plan

- Should any remains of national or international importance be identified in Stage 2 or 3 investigations which require preservation in situ, an Archaeological Management Plan will be required.
- An Archaeological Management Plan (AMP) is a document prepared to aid the effective management of a monument for the future, as well as to provide a framework for standard maintenance ensuring the longevity of the monument within the landscape. An AMP would set out the long-term objectives for the management of nationally significant archaeology and



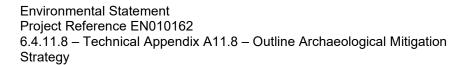


outline specific proposals for appropriate management and maintenance operations, where such remains to be identified.

- 120 The key principles of the AMP would be to;
 - Propose and undertake measures designed to minimise degradation of archaeological remains;
 - Promote understanding of the archaeological resource;
 - Remove features/vegetation which detract from the character or affect the below ground survival of archaeological remains; and
 - Reinstate/repair or stabilise areas which have been previously lost or damaged.
- The AMP would set out the vulnerabilities and potential threats to the archaeological remains as well as identifying opportunities for improving enhancing their significance and ensuring their ongoing conservation. Opportunities for positive change will be outlined for the short and long term, and it will be necessary to review and update the AMP on a regular basis as issues are addressed to ensure that the remains are continuously managed for future generations and enjoyment of the monument.

A11.8.9 REFERENCES

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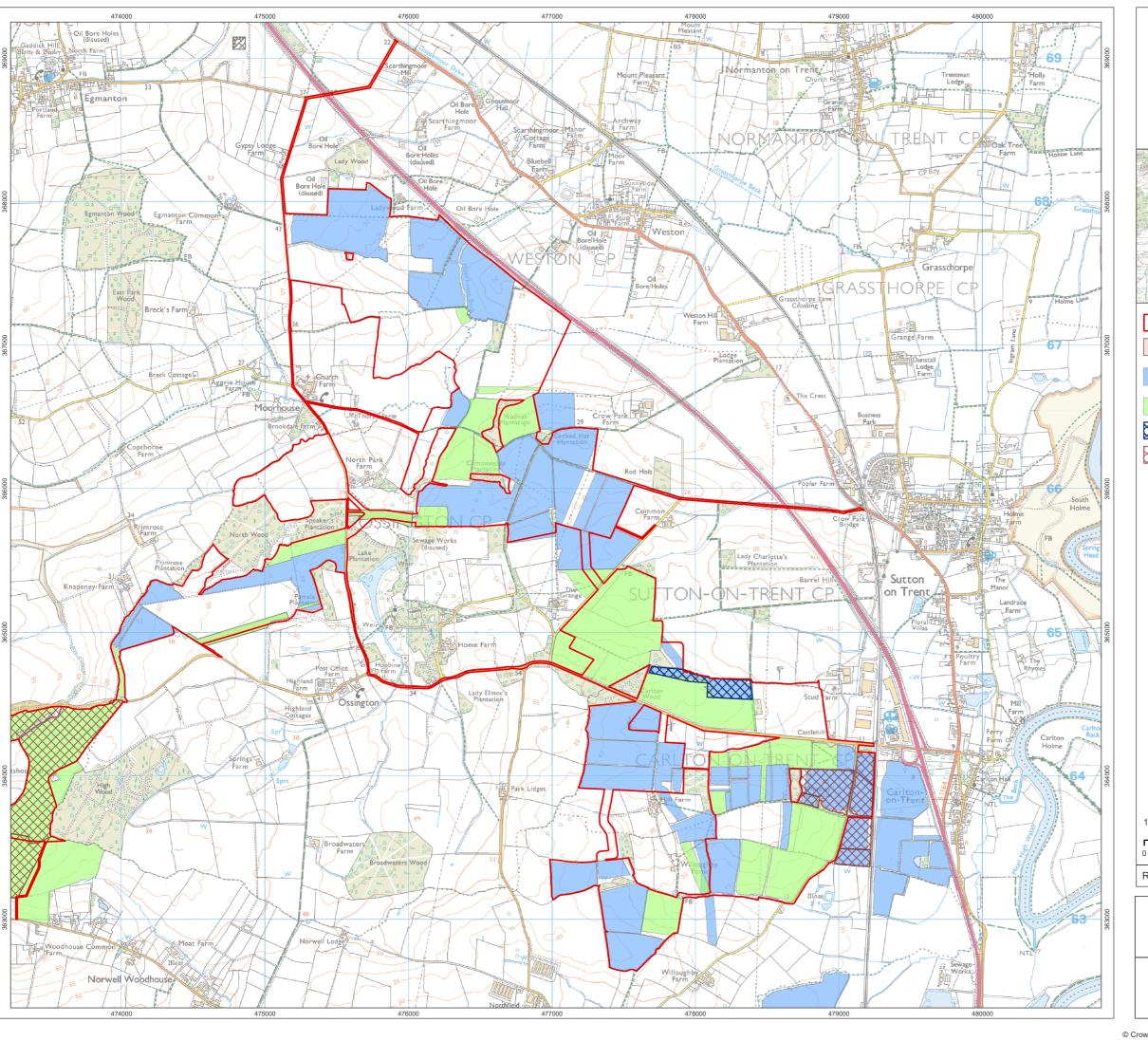
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A11.8.10 APPENDIX A: WSI

WSIs are to be added here as required in the full AMS and submitted for approval under the DCO Requirement.



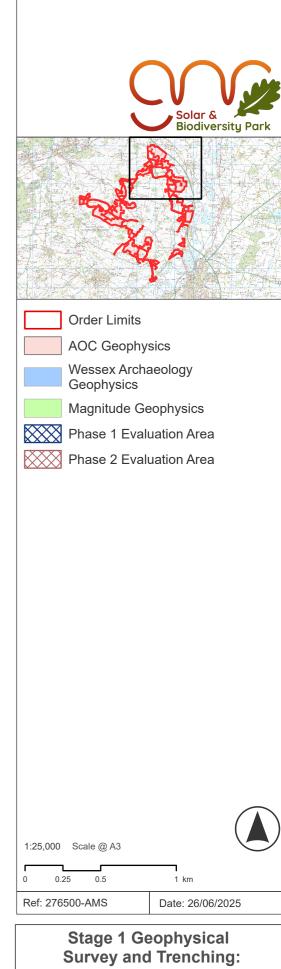
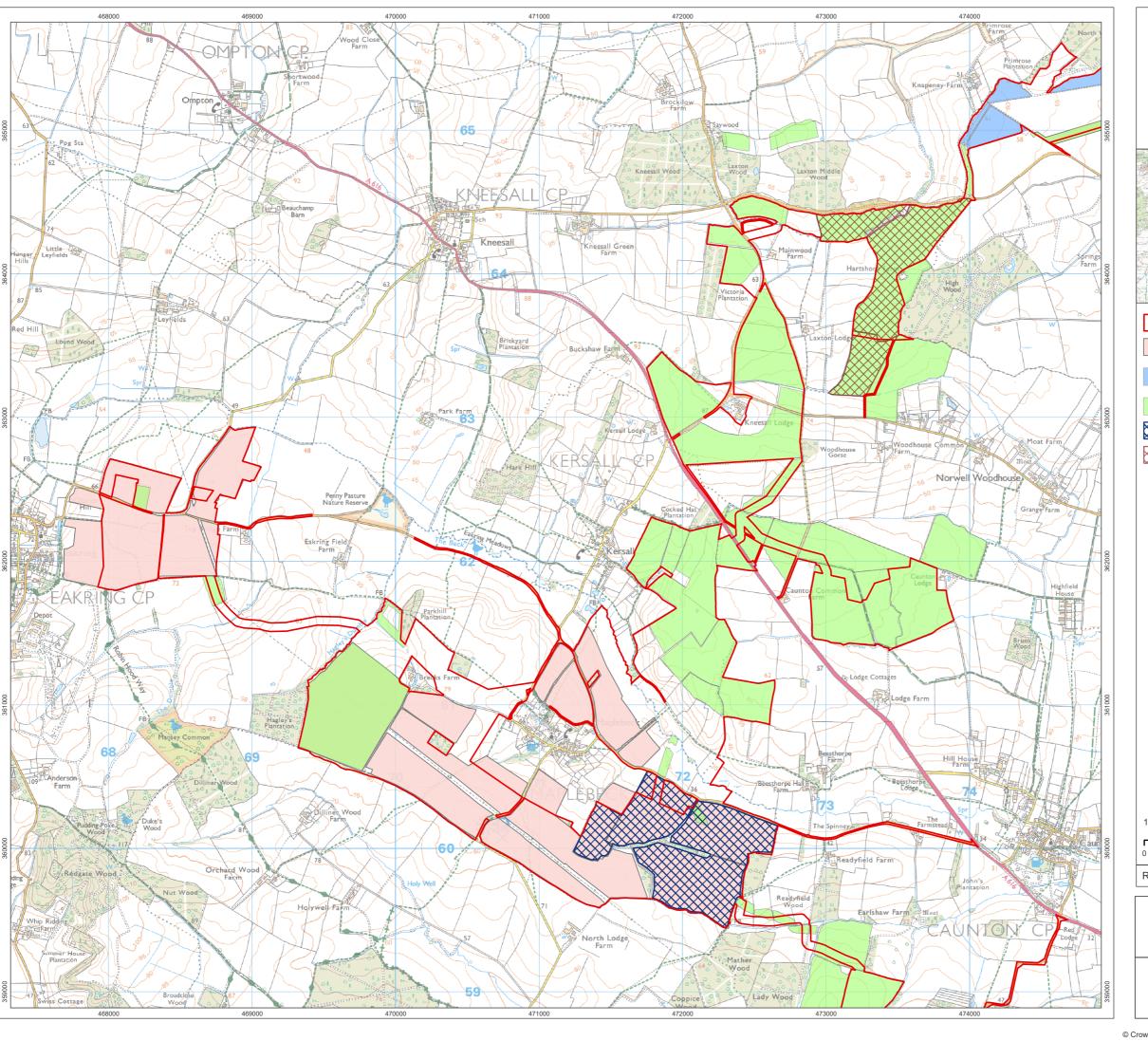


Figure A11.8.1A



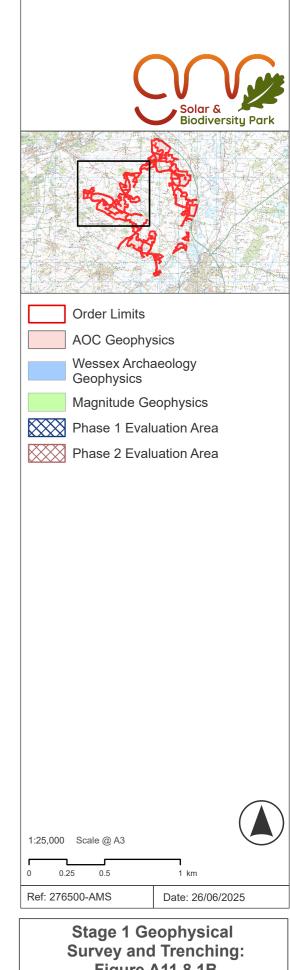
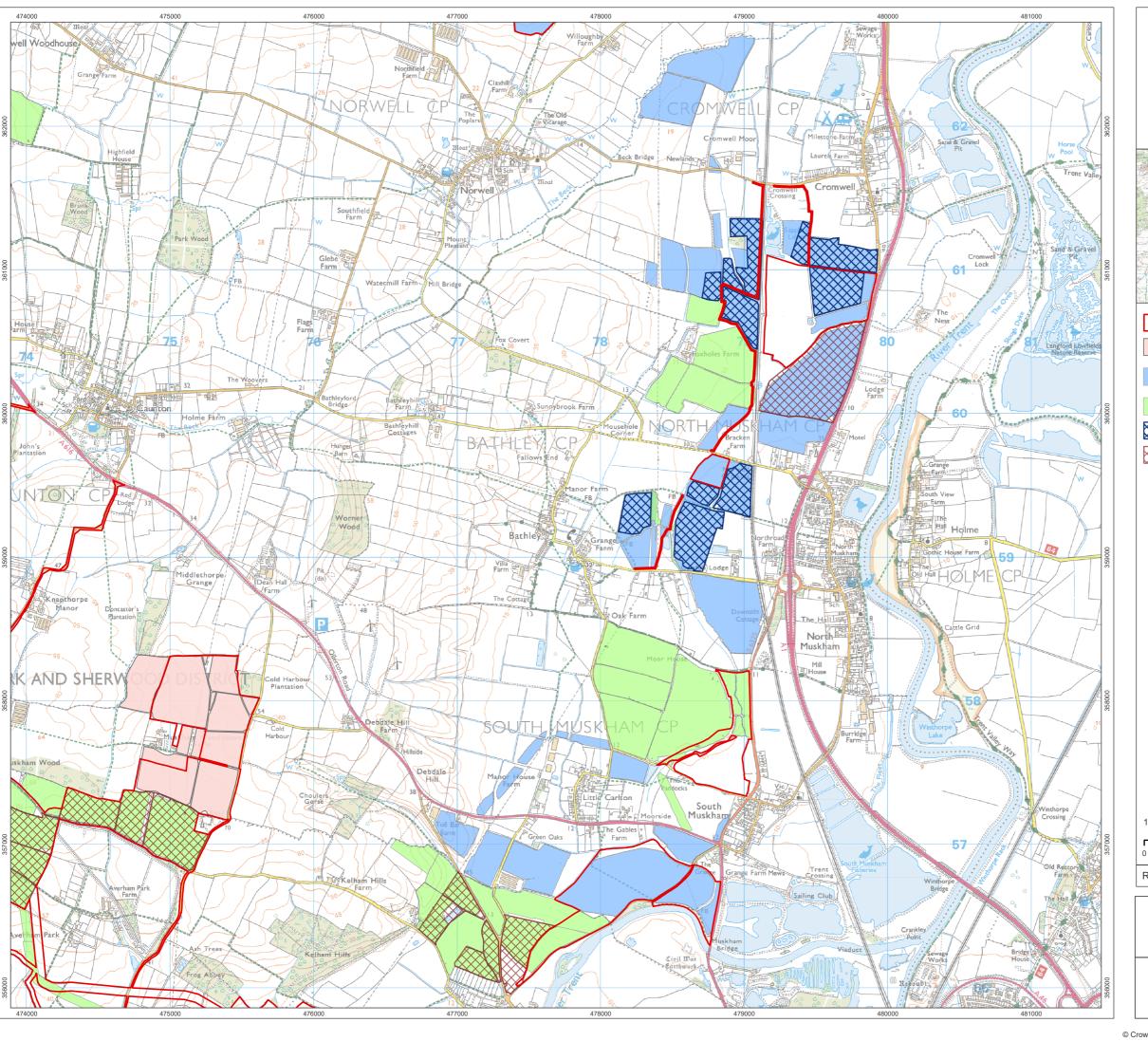
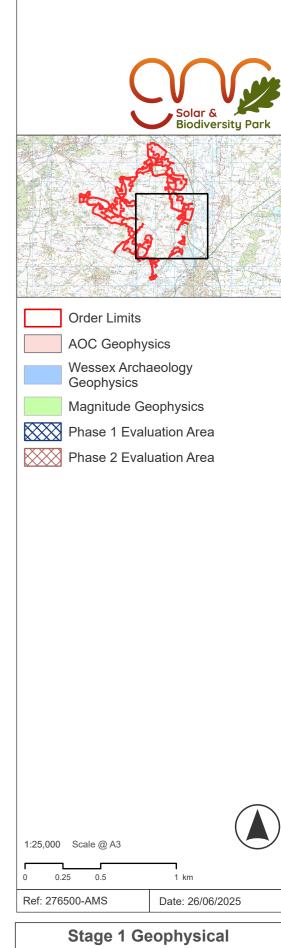
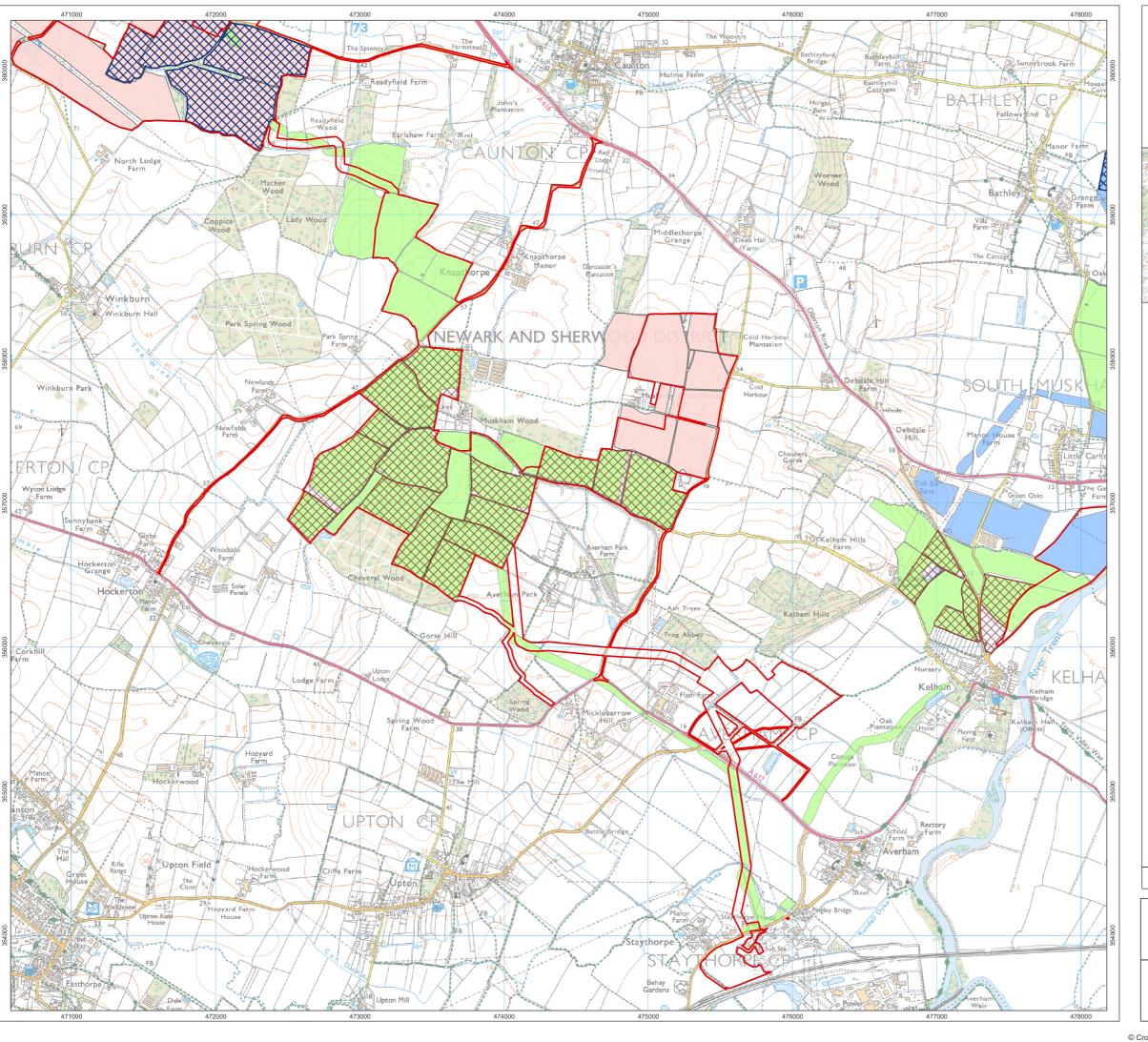


Figure A11.8.1B





Stage 1 Geophysical Survey and Trenching: Figure A11.8.1C



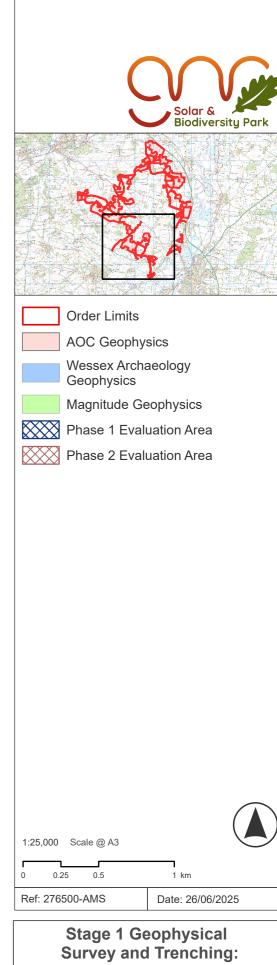
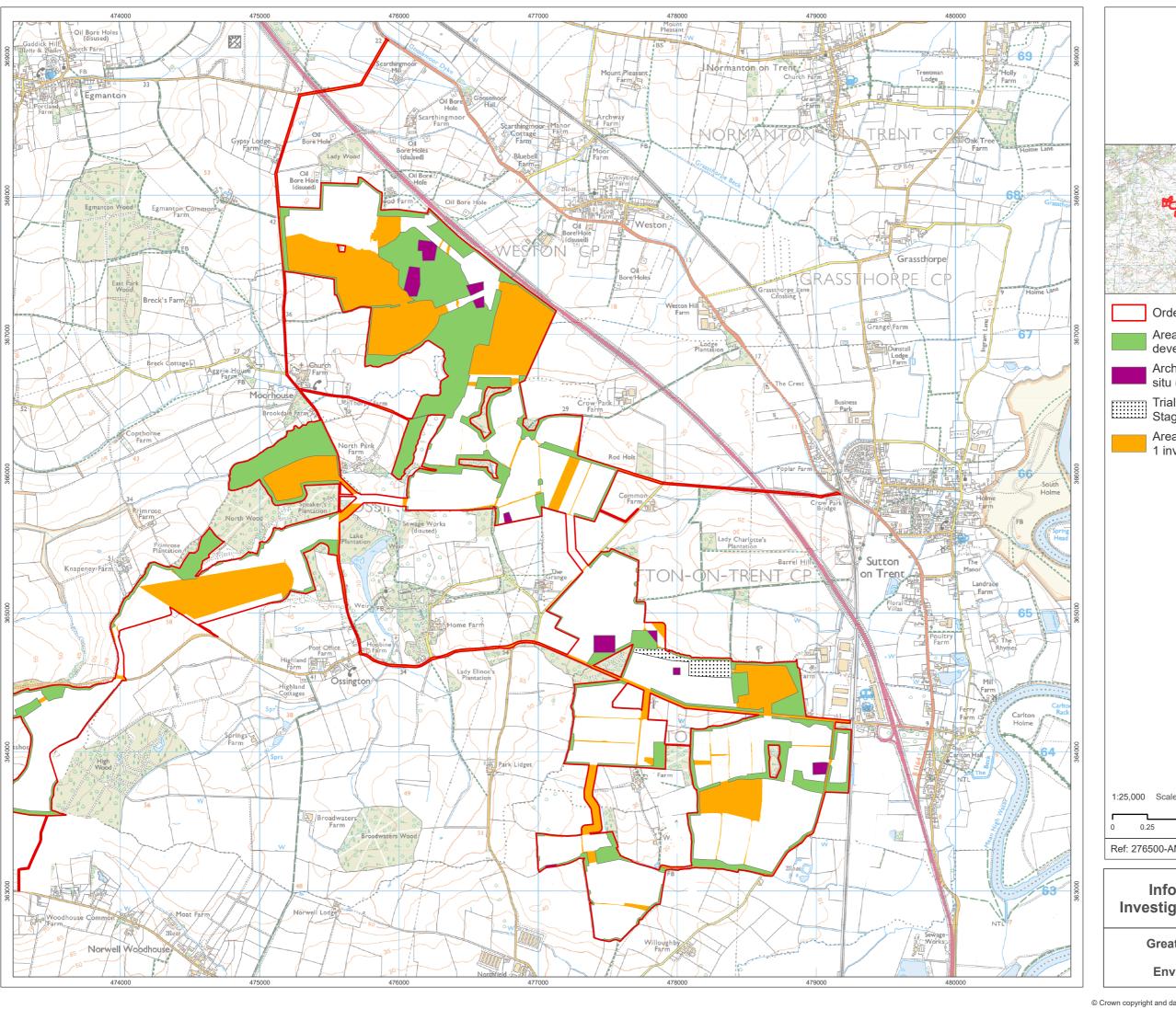
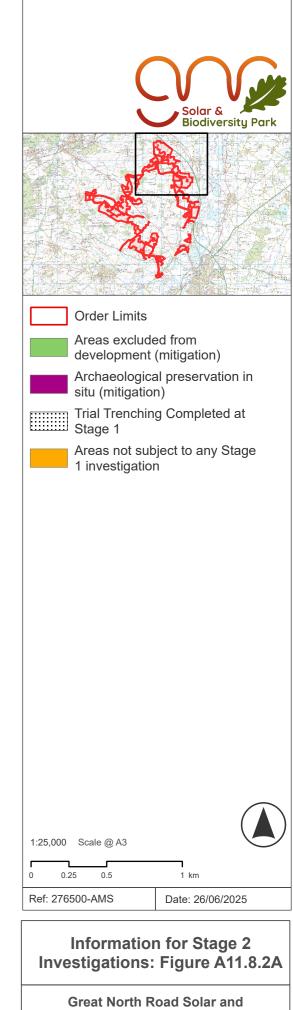
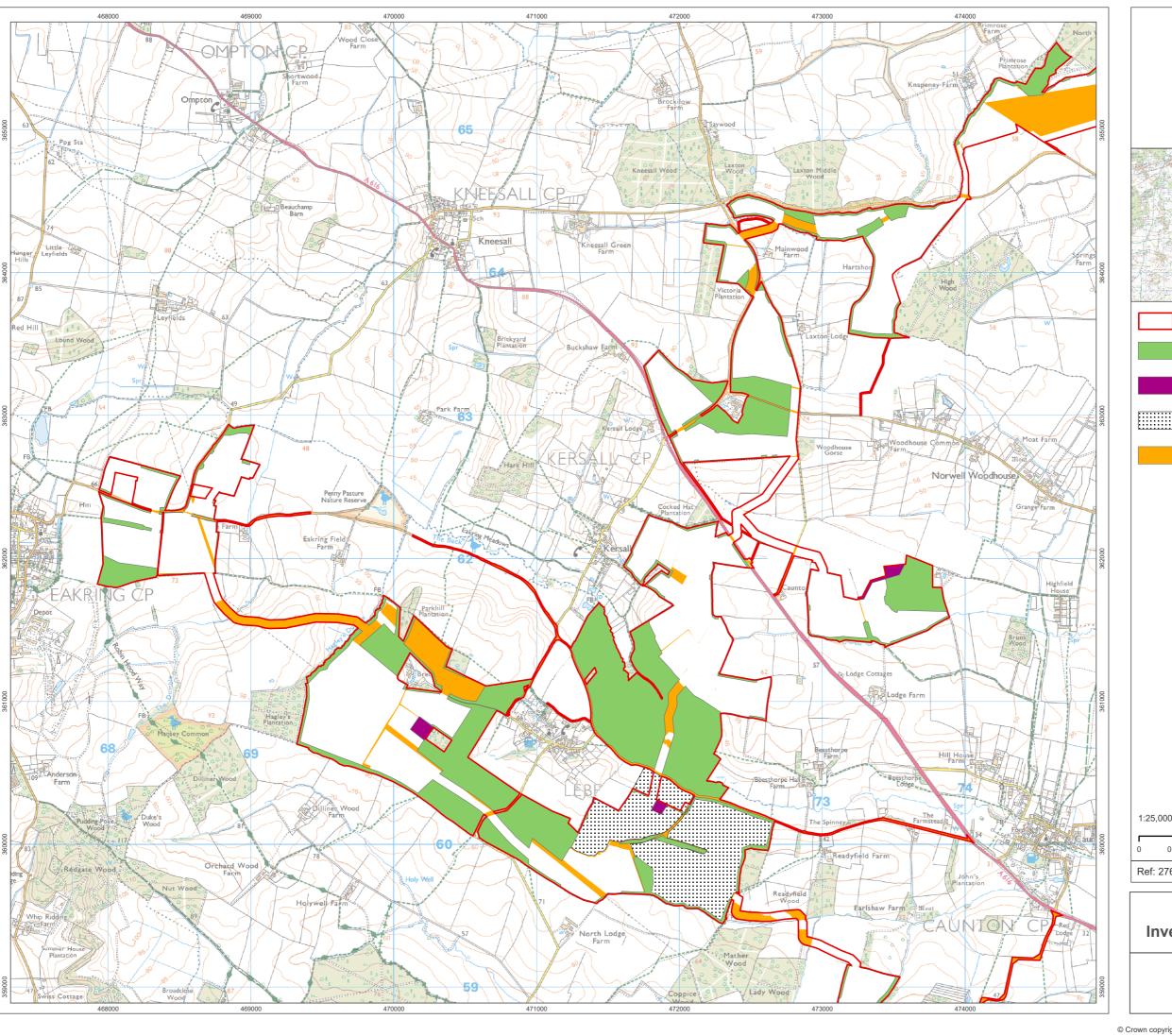
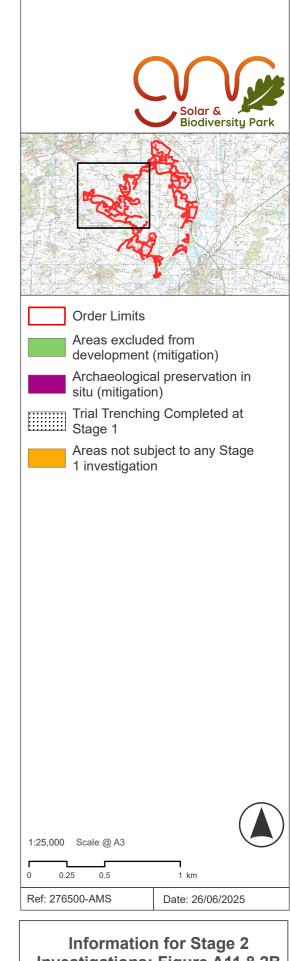


Figure A11.8.1D

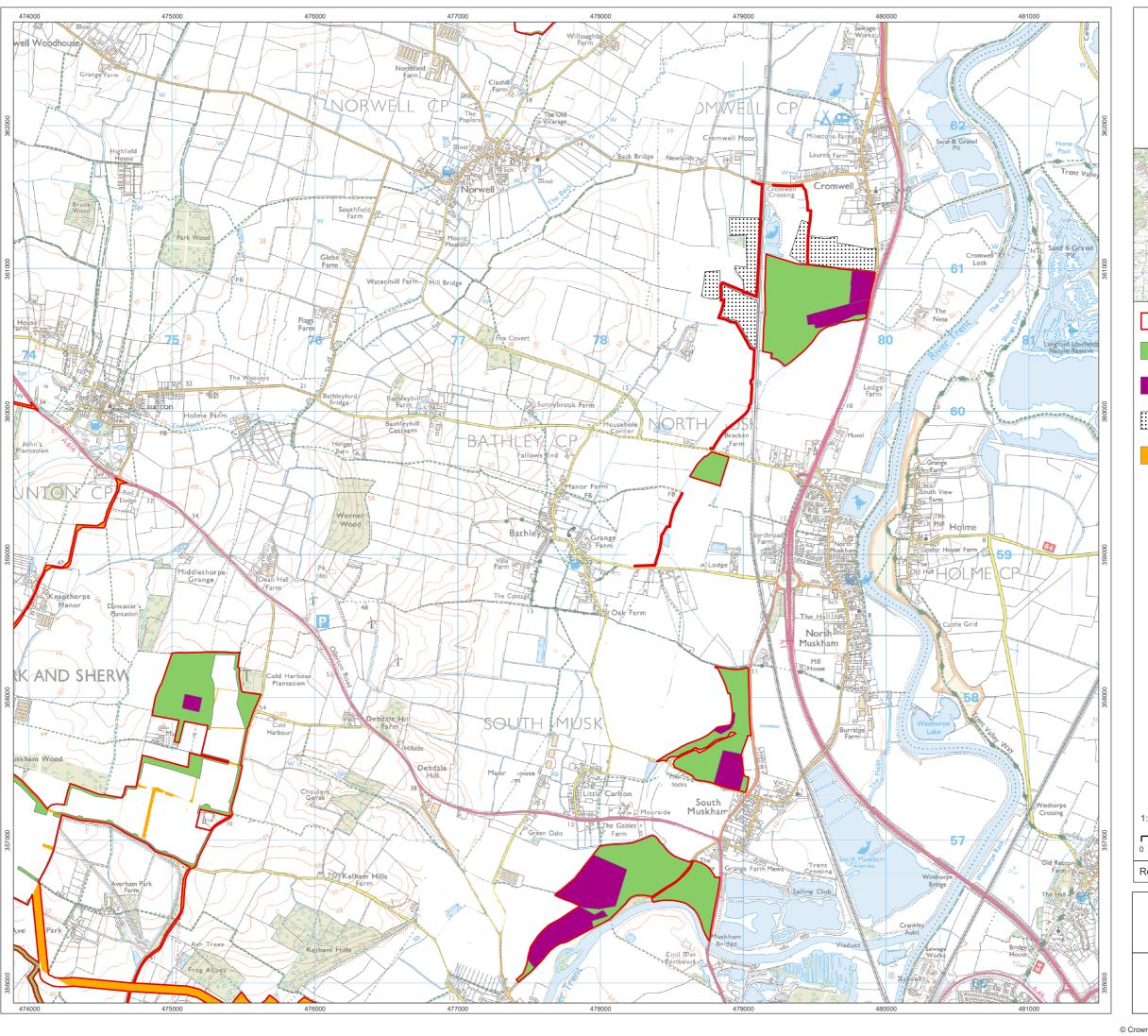


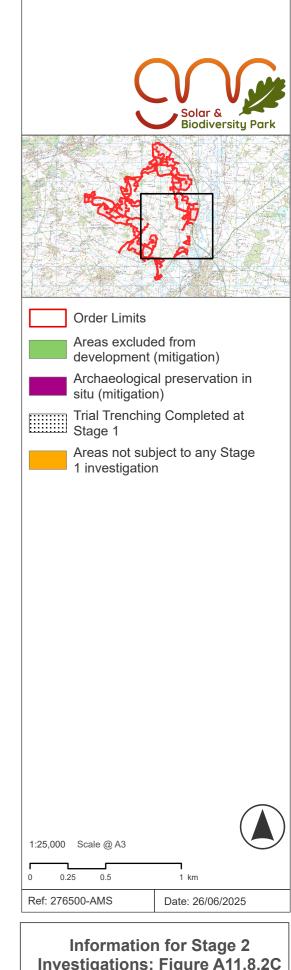






Investigations: Figure A11.8.2B





Investigations: Figure A11.8.2C

