



Mallard Pass

Solar Farm

Mallard Pass Solar Farm

Outline Written Scheme of Investigations (oWSI)

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Outline Written Scheme of Investigation

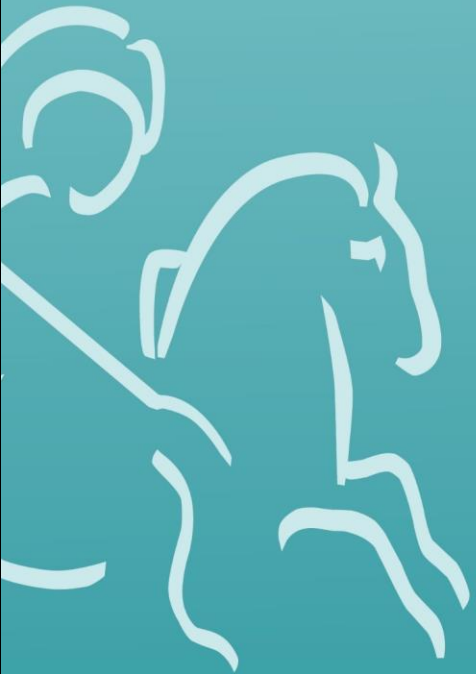


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1. INTRODUCTION

This document

- 1.1. This document is an Outline Written Scheme of Investigation (WSI) drafted by Cotswold Archaeology.
- 1.2. An application for a Development Consent Order has been submitted for the installation of solar photovoltaic (PV) Modules and associated infrastructure which would allow for the generation and export of electricity at land at Mallard Pass, Essendine (the 'Scheme').
- 1.3. This Outline WSI sets out a programme of work to follow the already completed desk-based assessment, geophysical survey and trial trenching (see section 14 for the full references).
- 1.4. The document comprises detail on the scope, parameters and methodological approaches to further archaeological work that will be defined as a requirement of the Development Consent Order (DCO) for the Scheme.
- 1.5. In summary, this Outline WSI sets out the outline scope for further archaeological trial trenching to inform the detailed design of the Scheme; the potential for further archaeological excavations in advance of construction; and the options for preservation in situ.
- 1.6. The nature of the Scheme design at this stage of the development process (i.e., where not all technical parameters for the Scheme have been determined and will not be confirmed until after the granting of the DCO) does not allow this Outline WSI to prescribe the specific requirements for work in defined locations. This is not a limitation or failing of the document. This is a pragmatic approach responding to the realities of a scheme design that is not fixed. Furthermore, the methodological approaches are specifically set out in this fashion to allow for the detailed design process to evolve and respond to potential environmental constraints and opportunities; alongside technological advances that may influence the layout, details and construction methods. This accords with industry best practice, emerging government policy (EN-3) and the same approach has been adopted on recently consented NSIPs (such as Longfield Solar Farm, Essex).

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- 1.7. This WSI has been guided in its composition by the *Standard and guidance for archaeological field evaluation and for archaeological excavation* (both ClfA 2014; updated October 2020), *Management of Research Projects in the Historic Environment (MoRPHE) PPN 3: Archaeological Excavation* (Historic England 2015) and *Management of Research Projects in the Historic Environment: The MoRPHE Project Managers' Guide* (Historic England 2015).
- 1.8. This document has been drafted with reference to the following key policy documents:
- Overarching National Policy Statement for Energy (EN-1);
 - Draft Overarching National Policy Statement for Energy (EN-1);
 - National Policy Statement for Renewable Energy Infrastructure (EN-3);
 - Draft National Policy Statement for Renewable Energy Infrastructure (EN-3);
 - National Planning Policy Framework (NPPF); and
 - National Planning Practice Guidance.
- 1.9. This document should be read alongside the Outline Construction Environmental Management Plan (oCEMP), which also sets out various measures that will ensure any potential effects on buried archaeology will be appropriately mitigated.
- 1.10. A professional, accredited and competent archaeological contractor will be appointed to deliver the work described within this Outline WSI.

The Site

- 1.11. The Solar PV Site and Mitigation and Enhancement Areas comprise a number of separate field parcels / areas presently in use as arable fields to the north of Ryhall, to the east and west of Essendine in Rutland, and to the west of Braceborough and Greatford, Lincolnshire (hereafter referred to as 'the Site'; centred at NGR: 505490 312483). The Site occupies a generally flat landscape with gently rolling hills and slight undulations. The elevations within the Site lie at 26m above Ordnance Datum (aOD) toward the village of Essendine, rising to between 32 and 33m aOD within the eastern and south-eastern areas of the Site. Within the western area of the Site the landscape rises to approximately 58m aOD.
- 1.12. The bedrock geology of the Site is comprised of three 3 differing types (BGS 2022). Predominantly within the eastern part of the Site, but also extending towards the centre in areas, are the Kellaways Formation and Oxford Clay Formation – mudstone, siltstone and sandstone, sedimentary bedrock formed approximately 156 – 165

million years ago. Within the centre and western parts of the Site are the Great Oolite Group – sandstone, limestone and argillaceous rocks, and Inferior Oolite Group – limestone, sandstone, siltstone and mudstone. These sedimentary bedrocks were formed approximately 165 to 176 million years ago in the Jurassic Period (BGS 2022).

- 1.13. Superficial deposits are present, predominately within the eastern half of the Site and forming discrete areas (BGS 2022). Alluvium composed of clay, sand and gravels, and sand and gravel River Terrace Deposits, both formed up to 3 million years ago in the Quaternary Period, meander through the village of Essendine out toward Belmesthorpe to the south-east. Further discrete patches of Head deposit, composed of clay, silt, sand and gravels, also formed in the Quaternary period, are present within the centre of the Site. Within the eastern part of the Site recorded superficial deposits comprise patches of Mid Pleistocene Glaciofluvial Deposits composed of sand and gravels, and Mid Pleistocene Till, consisting of diamicton (terrigenous sediment with particles ranging from clay to boulders) formed up to 2 million years ago in the Quaternary Period within a local environment dominated by ice age conditions.
- 1.14. Borehole samples are recorded within the Site (BGS 2022) and depths of soils and geology are summarised below. Within the south-eastern area of the Site, boreholes undertaken in 1959 recorded 0.3m of soil overlaying river gravels and Oolite Series. To the east of Essendine, boreholes undertaken in 1980 recorded 0.2m of topsoil overlying brown clays with much gravel 0.6m thick, which in turn overlaid firm sandy clays with gravels. To the immediate west of Essendine, boreholes undertaken in 1959 recorded 0.3m of topsoil overlying Upper Estuarine Clays. Boreholes undertaken in 1958 within the furthest western area of the Site recorded 0.15m of soil overlying the Lincolnshire Limestone.
- 1.15. An archaeological excavation undertaken in the centre of the Site recorded topsoil measuring 0.3m in thickness overlaying a subsoil 0.1m to 0.2m thick, which in turn overlaid the natural geology (Dodd 2015).
- 1.16. Geophysical survey (Magnitude Surveys 2022; see below) has identified a network of paleochannels and large natural anomalies across the Site. These potential palaeochannels may have drained toward fenland located to the east of the Site.

2. ARCHAEOLOGICAL BACKGROUND

- 2.1. A detailed archaeological background of the Site and surrounding areas, including detailed map regressions and information regarding known archaeological sites and findspots in the wider area, is presented in Appendix 8.4: Cultural Heritage Impact Assessment [APP-068]. That assessment was founded on a desk-based study, utilising secondary information derived from a variety of sources. Additionally, a programme of geophysical survey has been carried out covering the majority of the proposed development area (Magnitude 2022). The following text represents a summary of these sources.

Palaeolithic

- 2.2. Early prehistoric finds have been identified within recorded palaeochannels towards the centre of the of the Site. Further natural variations were detected across the Site during the geophysical survey (Magnitude Surveys 2022). The survey recorded particularly strong anomalies (variations in the structure of the subsoil indicative of potential human activity) which were interpreted as natural palaeochannels in the north-west. In addition, a single findspot within the eastern area of the Site comprised a Lower Palaeolithic handaxe.

Mesolithic

- 2.3. The Mesolithic/Neolithic period is represented by flint scatters to the north-east of The Freewards within the centre of the Site, located between 2 palaeochannels on the valley floor of the West Glen River. The size of the assemblage suggests there was significant Mesolithic/Early Neolithic settlement (Dodd 2015). Further evidence of the Mesolithic and Neolithic periods is located c. 670m to the south of the Site. This activity comprised of concentrations of worked flint and fired clay interpreted as Mesolithic hearths.

Neolithic

- 2.4. Potential Neolithic worked flint was recovered within the centre of the Site, a polished flint axe within the centre of the Site (recorded by the PAS), and to the south, and a Scheduled Neolithic causewayed monument is located c. 180m to the south of the Site. The monument is located in a valley-side location and tilted to overlook the low-lying ground in the valley toward the west (Oswald et al 2001).

Bronze Age

- 2.5. The Site is located within a landscape of known prehistoric funerary activity, with multiple recorded possible Bronze Age barrows, represented as ring-ditches, in the south-east in Field 53, and the centre of the Site in Field 35, and two others recorded to the south of the Site. Two other potential Bronze Age barrow cropmarks are located c. 800m to the east, and c. 180m to the north-east of the Site. Some of these possible barrows have been identified during the recent geophysical survey within the Site, and some as cropmarks with the Site c. 200m to the east of Essendine Castle. While others had already been known from cropmarks noted on aerial photographs outside of the Site boundary. This evidence suggests that the landscape within the centre of the Site formed an important focus for prehistoric funerary activity. Surrounding the possible Bronze Age round barrows (Field 82) to the south and south-west are multiple cropmarks forming enclosures that might be of prehistoric in date possibly associated with these potential barrows. Further Bronze Age and prehistoric activity within the Site comprises findspots of pottery and possible worked flint across the Site. It is also recorded immediately adjacent to the Site along the route of proposed highway works and comprises a triple ditch cropmark.

Iron Age

- 2.6. The remains of an unenclosed settlement consisting of three possible structures, pits/postholes and three possible ovens, along with 500 pottery sherds was identified within the centre of the Site, dating to the Late Bronze Age/Early Iron Age (Davies and Parker 2014). The remains of another possible settlement are recorded within the centre of the Site, along with multiple linear and curvilinear ditches surrounding settlement site identified on the geophysical survey. The recorded settlement comprised of pits, post holes, ditches and a possible waterhole dating from the 5th to 2nd centuries BC (Dodd 2015). It might be possible that the two settlement sites form part of a larger singular settlement within this part of the landscape. It must be noted that the Iron Age settlement is located close to the historic route of the West Glen River, located to the immediate north of the settlement's location, therefore the river maybe an indicator as to why the settlement is situated where it is. The undulating flood plain of the former river course is recorded on the LiDAR imagery of the Site, therefore the location of the river may have been a factor in the settlement's location.
- 2.7. Further Iron Age activity within the wider area comprises of a large double-ditched enclosure c. 260m to the south-west of the Site. A watching brief of the installation of

a gas pipe recorded features and pottery dating to the Middle Iron Age (Liddle 1983). Late Iron Age settlement remains are located c. 100m from the Site in Great Casterton, comprised of ditches and burials.

- 2.8. Further features, potentially associated with prehistoric or Roman settlement activity, were identified by the geophysical survey. These anomalies were composed of rectilinear enclosures, with linear and curvilinear ditches and possible internal features. The morphology (shape) of these anomalies suggest that they may be the remains of settlements and a wider network of agricultural land divisions.
- 2.9. Within the north-western part of the Site, the geophysical survey identified possible ring ditches and an enclosure (again indicative of the remains of roundhouses and property / field boundaries), features previously identified on air photos. At various other locations across the Site, similar linear and curvilinear anomalies were detected.
- 2.10. Further remains are recorded within the Site and study area which are broadly prehistoric in date. These include: an enclosure and boundary ditch located within the southern area of the Site, an enclosure c. 150m to the east of the Site, a settlement c. 1km to the east, and a ring ditch c. 500m to the north.
- 2.11. Across the Site the geophysical survey identified multiple areas of possible later prehistoric or Roman period settlement activity (Magnitude Surveys 2022) which were also identified as cropmarks. The survey identified possible remains of a complex of enclosures and agricultural features. Roman period pottery has been recorded to the south of this area and suggests a Romano-British origin for these anomalies (Magnitude Surveys 2022). Further anomalies interpreted as potential enclosures with settlement activity and ring ditches within them were recorded to the south-east of the main activity.

Romano-British

- 2.12. Known recorded Roman period remains within the Site comprise findspots of material including pottery sherds, individual coins and industrial waste. Further findspots of a metal brooch and coin within the wider area are recorded by the PAS around the village of Ryhall c. 1.2km to the south of the Site. The recorded location of the PAS findspots are not accurate but give an indication to Roman activity within the landscape.

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- 2.13. A stone sarcophagus was recovered within the eastern area of the Site. The sarcophagus contained a male skeleton with 2 glass vessels and a dish dated to the 4th century (Hurley 1991). The recent geophysical survey of the Site recorded multiple enclosures with internal features close to the findspot of the stone sarcophagus, and therefore could be associated with this possible settlement activity.
- 2.14. Cropmarks of potential Roman in date are located within the Site c. 80m to the east of Essendine Castle. Further recorded Roman settlement activity was recorded c. 1km to the south-west of the Site. This activity comprised of multiple linear ditches interpreted as drainage ditches and flood defences near to the River Gwash, along with ceramic building material indicating the presence of a Roman building nearby (Archaeological Project Services 2007).
- 2.15. Extensive Roman period settlement and activity is recorded to the south-west of the Site, within and around the village of Great Casterton. The settlement began as the fort in the 1st century, located on the north-eastern edge of the current village c.4km to the south-west of the Site, and expanded to become a major settlement spanning around Ermine Street. It is deduced that this settlement flourished, and it is known that the rampart bank was built on the remains of earlier settlement buildings. During the end of the 2nd century and the beginning of the 3rd century the town wall was built, which from evidence from excavations was 2.1m wide at its base with a 6.5m wide ditch in front of the wall (Great Casterton Parish Council 2022). A villa or farmhouse was built in the 4th century AD c. 400m outside the eastern defences of the town to the north-east. The town and villa were occupied well into the 5th century AD.

Early medieval

- 2.16. One findspot is recorded within the centre of the Site, comprising an Anglo-Saxon pot found during the construction of the Stamford & Essendine Railway in 1868, however the location of the findspot is an approximation based on a contemporary account (Meaney 1964). An early medieval watermill is located c. 870m to the south-west of the Site, but immediately to the south of the A6121 in Ryall.
- 2.17. The remains of an Anglo-Saxon cemetery were encountered during emergency excavation carried out in 1966 due to a road widening scheme on the north-eastern edge of Great Casterton, c.4km to the south-west of the Site. A total of 35 Anglo-Saxon cremations and 15 inhumations were recorded during these works. The burials

contained grave goods included an ivory purse ring, 17 bone gaming pieces, a blue-green glass bead, bone combs, copper alloy tweezers, iron tweezers, a miniature iron razor, iron tang fragment, greenish-blue glass vessel, bone beads, an ivory ring, blue glass rod, and an H-shaped iron plate (Leicestershire Archaeological and Historical Society 2015).

- 2.18. The Site is situated within a landscape with multiple settlements recorded in the 1086 Domesday Book, which will usually infer they have early medieval origins. The settlement of Essendine located immediately next to the Site boundary was recorded as having 22 households with 16 villagers, 2 smallholders and 1 slave. The settlement included ploughlands, meadow, woodland and a mill under the lordship of the Bishop of Lincoln (Powell-Smith ND). The origin of the name of Essendine derives from the Old English 'Esa's valley' (University of Nottingham ND).

Medieval

- 2.19. The Site was likely to have been rural in character with dispersed woodland throughout the medieval period, being the agricultural hinterland for the surrounding villages within Rutland and Lincolnshire.
- 2.20. Within the eastern part of the Site is the approximate location of Essendine deer park (Fig. 4: 24), associated with Essendine Castle. The park has its origins in the 13th century, with the park of Essendine being granted to Cecily, Duchess of Warwick, in 1447. At that time it contained 200 acres of wood, 200 acres of land and 20 acres of meadow (Page 1935). Modern Post-War farming methods have completely altered the landscape to form very large open flat fields.
- 2.21. Located outside of the Site is the historic settlement core of Essendine. Within this historic core, located c. 60m to the west of the Site is the Scheduled Monument of Essendine Castle, constructed during the late 12th or early 13th century, and the Grade II* Listed Church of St Mary, immediately to the south of the castle, built in the 12th century. The church is said to have been not the parish church but the chapel of castle, in whose bailey the church is sited. Located to the immediate north and south of Essendine Castle are the remains of fishponds which were likely fed by the West Glen River which flows north to south along the boundary of the castle and fishponds. To the immediate east of Essendine Castle is the location of a watermill, which was also mentioned in the Domesday Book, and referred to in the 14th and 15th centuries (Page 1935).

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- 2.22. To the immediate west of the Essendine Castle are the cropmarks and earthworks of the medieval village forming a number of pits. There is at least one building site and a possible windmill mound.
- 2.23. To the north-west of the Site at a c. 300m distance is the Scheduled Monument of Castle Dyke (NHLE: 1019097) and Castle Dike Wood. Castle Dyke is the remains of moated manor site with a platform surrounded by a ditch and possibly dates to the 12th century and associated with the deserted medieval village of Aunby nearby.
- 2.24. Extensive ridge and furrow remains are recorded within the Site and the eastern part of the study area, illustrating that previous agricultural remains are present as above ground earthworks around the Site. The remains of the ridge and furrow within the Site were identified as part of the recent geophysical survey undertaken in 2022, along with striations related to agricultural activity (Magnitude Surveys 2022).

Post-medieval and modern

- 2.25. The Site and surrounding area appear to have retained an essentially rural character throughout the post-medieval and modern periods.
- 2.26. Remains dating to the post-medieval period are located within the Site. These remains comprise of agricultural features such as ridge and furrow, ditches and field boundaries identified on the accompanying geophysical survey undertaken for the present application (Magnitude Surveys 2022). In addition, within the eastern end of the Site post-medieval settlement remains are present, north of Banthorpe Wood. These remains include possible buildings, ponds and drains identified on the National Mapping Programme, but aerial photography from c. 2000 shows that these features no longer survive as earthworks (CA 2022).
- 2.27. Three railway lines were constructed within the mid-19th century and cross the middle of the Site. The Great North Railway running north-west to south-east was constructed in 1856. Two spurs of the railway line come off of the Great North Railway Line and head north and south. The northern route is the former Essendine & Bourne Branch opened in in 1860 and went out of use in 1965. The route of the line is preserved within the Site as a hedge line and earthwork to the east of Essendine. The former route of the southern line was Stamford & Essendine Railway that opened in 1856 and was closed in the 1960s. The railway line is also preserved within the Site as a treeline and earthwork.

Geophysical survey (Magnitude 2022)

- 2.28. The geophysical survey results indicate the presence of probable and possible archaeological features, interpreted as relating most likely to late prehistoric and Roman settlement, agriculture and burial practices. Further anomalies relating to the historical and modern agricultural use of the landscape are also evident across the survey area in the form of ridge and furrow cultivation regimes, modern ploughing trends, mapped former field boundaries and field drains.
- 2.29. The natural geological anomalies identified across the Site indicate the presence of palaeochannels or historic streams or riverbeds, particularly within the north-west of the Site. Illustrating that the landscape contained numerous rivers and streams than at present. These river channels are predominantly located within the north-west of the Site, within the centre and toward the north and south.
- 2.30. Archaeological remains identified within the Site by the geophysical survey are located in denser concentrations within the southern, eastern and central areas of the Site. Across the Site the anomalies identified as archaeological remains correspond with the pattern of cropmarks within the landscape, in particular those which have been identified as possible prehistoric funerary sites, Iron Age settlement and other prehistoric enclosures. Those anomalies within the centre of the Site and where the anomalies are at their densest, also correspond with the density of cropmarks within that area interpreted as representing settlement activity. Within the south-eastern area of the Site, the geophysical survey identified multiple concentrations of possible settlement activity in the form of enclosures, ring ditches which could be roundhouses, and field divisions. Further ring ditches that may indicate previously unrecorded funerary activity are located within an eastern area of the Site. Other possible prehistoric and/ or Roman enclosures, ring ditches and discrete features were also identified, primarily within the central, southern and eastern areas of the Site. Concentrations of possible enclosures and settlement are located near to Grange Farm within the north-eastern area of the Site, within the area of a previously identified Roman stone sarcophagus.
- 2.31. Further linear features interpreted as agricultural features, and extensive ridge and furrow were recorded across the Site as part of the geophysical survey. These features are anticipated to primarily date from the medieval period onwards.

Archaeological evaluation via trial trenching (Cotswold Archaeology 2023)

- 2.32. Between September and December 2022, Cotswold Archaeology carried out a programme of trial trenching of the Site. The methodology used and results produced by this programme of trial trenching are presented in the Supplementary Trial Trenching Report [PDA-014].
- 2.33. A total of 209 trenches were excavated, largely targeting anomalies identified by a preceding geophysical survey. The field parcel numbers and trench locations can be found on the figures included here (Figure 1 and Figure 2), as extracts from the Supplementary Trial Trenching Report [PDA-014] (Cotswold Archaeology 2023).
- 2.34. The main focal areas of archaeological activity identified by the trenching were accurately predicted by the geophysical survey, particularly in field parcels M6, M10, and PF7. Archaeologically relatively quiet or blank areas indicated by the geophysical survey also were confirmed as such by the results of the trial trenching. However, not all areas predicted by the geophysical survey to contain archaeological remains did so; for example, trenches 33 – 39, in field parcel M10, contained only a single archaeological feature despite having been targeted at a cluster of anomalies morphologically suggestive of a trackway, enclosures and a possible ring ditch. Similarly, trenches 136, 137 and 138 in land parcel PF8 and trenches 183 – 188 in land parcel N8 also contained no archaeological remains despite the presence of morphologically suggestive geophysical anomalies.
- 2.35. In respect of this, across the majority of the trenching areas high levels of modern plough truncation, plough scarring and evidence for wheel rutting were observed. In field parcel M6 in particular, quantities of artefactual material were noted in the ploughsoil in the vicinity of the trenches, suggesting plough erosion of the underlying remains was actively occurring. Particularly heavy plough scarring was also noted across land parcels P1 and M11. Consequently, it is conjectured that some of the anomalies identified by the geophysical survey, where not clearly related to geological variations etc, may be the result of ploughed-out archaeological features surviving as soil bands in the agricultural plough soil.
- 2.36. The remains encountered in the trenches were shown to be predominantly Iron Age and Roman in date, with little evidence for activity pre- or post-dating these periods being identified. The principal exception to this was a complex of curvilinear ditches and associated features in field parcel M10 (trenches 40, 42 and 45), where a double

ring ditch identified by the geophysical survey and targeted by trench 42, appears to be Late Neolithic/ Early Bronze Age in date. Thought on morphological grounds to be a possible burial mound, the absence of any burial pit within the central area of the inner ditch, coupled with evidence for the recutting of both the inner and outer ditch and the presence of pottery and animal bone in the ditches and nearby (seemingly associated) features imply a non-funerary function for the enclosure.

- 2.37. In field parcel M6, an area of Late Iron Age and Early Roman activity was encountered, including a possible stone surface and large quantities of artefacts. The animal bone recovered from this area was dominated by the remains of cattle, almost to the exclusion of other species, consisting exclusively of meat-poor skeletal elements, specifically fragments of the mandible and lower limbs. The bone was well preserved and displayed frequent cut marks; such damage is highly suggestive of the waste from primary butchery where bones that hold little or no meat are removed from the carcass.
- 2.38. A dense area of geophysical anomalies investigated in field parcel PF7 translated into a large number of intercutting ditches, pits, and occupation horizons. The density of features in this area, and the scale and variety of the finds recovered from the features suggest the presence of a small settlement, possibly a farmstead. Pottery evidence indicates activity at this location from the Late Iron Age onwards, spanning the Iron Age – Roman transition and on into the 3rd – 4th century, although it is not clear if this was truly continuous. In contrast to field parcel M6 the cattle bone consisted of elements from throughout the skeleton, with bones both rich and poor in meat yield recovered in relatively equal amounts. Evidence of butchery was common, with bones displaying heavy chop marks highly suggestive of the waste from secondary butchery where a carcass is separated up into manageable portions of meat.
- 2.39. Further to the south and south-east from land parcel PF7, and in particular across field parcels N7/N8 and N11, a lower level of activity was seen, mostly in the form of possible enclosure and field boundary ditches. However, remains of a possible building of Roman date were encountered in field parcel N8. As with the remains in land parcel PF7, pottery of Late Iron Age, Late Iron Age – Early Roman transition and 3rd – 4th century date was recovered from this area, with pottery of Late Iron Age – Early transitional style/ date recovered from structural postholes suggesting that the building may have been constructed in the 1st century AD. Animal bone recovered

from these features was again almost entirely cattle and displayed signs of primary butchery, suggesting the Iron Age – Roman activity in parcels M6 and N8 may represent satellite centres of activity to the main settlement focus in PF7 and were primarily involved in stock raising/ primary butchery, the butchered meat then being consumed at the PF7 settlement.

- 2.40. Although no clear evidence was encountered for the continued occupation of the PF7 settlement and surrounding associated field systems beyond the late Roman period, a small number of pot sherds of possible post-Roman date may indicate a low level of activity continuing into the Saxon period. The area subsequently appears to have formed part of the agricultural landscape surrounding the small medieval settlements at Essendine and Ryhall and continued as agricultural land through the post-medieval and modern periods.

3. OUTLINE SCOPE OF WORK

Further archaeological trial trenching

- 3.1. The trial trenching undertaken for the Scheme has proven to be a successful and efficient means of investigating the potential for buried archaeological remains that could be affected by construction work. It is possible, although relatively unlikely, that further trial trenching work could reveal important buried archaeological remains. Therefore, where necessary and appropriate, further archaeological trial trenching will take place in advance of construction as part of the detailed design phase of the Scheme.
- 3.2. As has been adopted for other solar schemes, further archaeological trial trenching will be employed in only those areas where ground disturbance cannot be avoided and where this disturbance is of a scale / nature that would have a material impact on the heritage significance of buried remains, should any be situated in the relevant location. Specifically, the anticipated piling techniques (being infrequent) are very likely avoid all or any surviving buried archaeological remains. Where an interaction between a pile and buried remains would occur, the area disturbed or displaced would be insignificant and not result in the loss of archaeological evidence (see below for further details on this matter). Therefore, no further trial trenching is proposed in those areas where construction activities are limited to piled foundations or shallow (within the ploughsoil) cable trenches.
- 3.3. As described above, the detailed design for the Scheme has not yet been developed and thus the exact location for cabling, compound locations, temporary or permanent access roads or other substantive earthwork operations (for instance, associated with the ecological enhancement areas) has not been determined.
- 3.4. Thus, as part of an iterative programme of informing the detailed design process, the provisional locations for those construction activities described above will be fed into the design for a programme of further trial trenching work.
- 3.5. Site specific WSIs (or a single WSI for multiple sites covered within a single phase of work) will be prepared for submission and approval to the relevant Local Planning Authorities ('LPAs') prior to the carrying out of any archaeological evaluation, trenching or investigation, which must take place prior to the commencement (as defined by the DCO) of the authorised development (as defined by the DCO).

3.6. This work will be instigated sufficiently in advance of the planned construction work to ensure the outcomes (i.e., the possible discovery of important buried archaeological remains) are appropriately considered and provided for in the detailed design for the Scheme.

3.7. Thus, the results of the trial trenching will determine the scope of any further archaeological work and / or opportunities to minimise and avoid disturbance to any discovered remains via 'no-dig' construction methods or archaeological excavation (as described below). The rationale for the selection of the types of discovered archaeological remains that may be selected for specific mitigation measures is described below (paragraph 3.17)

3.8. Further details on the general methodological approach to the trial trenching is set out in section 4 of this document, below.

Archaeological mitigation (excavation[s] or preservation in situ)

3.9. The assessment work completed for the Scheme to date, most notably the archaeological trial trenching has identified five particular and discrete locations where important buried archaeological remains survive. These are as follows:

- Within the central eastern part of the Site (field parcel M6), in proximity to trial trenches T12, T13 and T15 (as depicted on Figure 5 of the Supplementary Trial Trenching Report [PDA-014], extracted here, for ease of reference);
- To the north of the railway line (field parcel M10), south-east of the location described above, in proximity to trial trenches T40, T42 and T45 (as depicted on Figure 8);
- To the south of the railway line (field parcels PF7), south of the location described above, in proximity to trial trenches T112 – T121 (as depicted on Figure 17);
- To the south of the railway line, on the eastern edge of the Site (field parcel N11), and south-east of the location described above, in proximity to trial trenches T139 to T147 (as depicted on Figure 18); and
- To the south of the railway line (field parcel N8), to the west of the location described above, in proximity to trial trenches T158, T159 and T209 (as depicted on Figure 18).

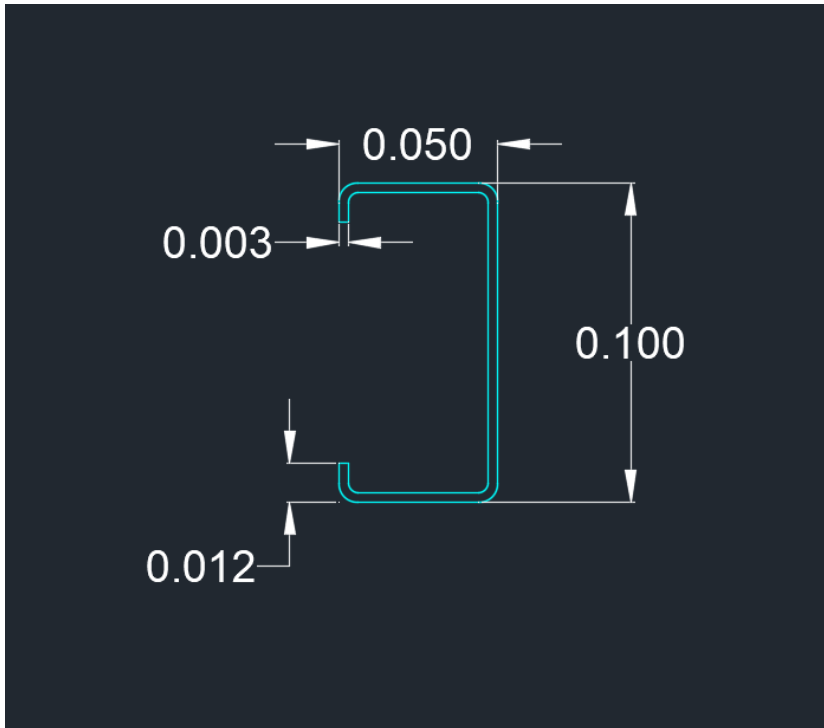
3.10. It is possible, although relatively unlikely, that the further trial trenching work, as described above, could reveal important buried archaeological remains. During the

detailed design process, any such remains (if found) would be treated in the same manner as those five locations highlighted above.

- 3.11. To avoid harm to heritage significance, two alternative design solutions are available to be deployed in those areas of known or discovered buried archaeological remains: i) preservation in situ; or ii) archaeological excavation in advance of / during construction.

Preservation in situ

- 3.12. As recognised within EN-3, “solar PV developments may have a positive effect, for example archaeological assets may be protected by a solar PV farm as the site is removed from regular ploughing”. The results of the trial trenching completed to date have confirmed that recent seasons of ploughing are causing damage to buried archaeological remains (see paragraph 2.35, above). Therefore, it can be stated with confidence that the cessation of ploughing across site will deliver this positive effect.
- 3.13. Furthermore, the specific nature of the shallow cabling and piled footings of the Solar PV Development will cause insignificant effects on the vast majority of the buried archaeological remains that are known, or potential may survive, within the site. Thus, the ‘net result’ will be at worst a neutral effect or more likely an overall positive outcome. In short, the very essence of the Solar PV Development is one of ‘preservation in situ’. This is further explored as follows:
- 3.14. The typical cross-section of the pile footings for solar arrays is 50mm x 100mm, with two 12mm ‘returns’ to create the ‘c-shape’ (see image below). The thickness of each pile is only 3mm. Thus, the total area of ground disturbance for each pile footing would equate to circa. 0.000672m² per pile. But if one is to assume that each pile, during insertion and then removal, was to displace all material within its extent (i.e., as if it were a solid shape, not the thin frame that it is) the total area for each pile would be 0.005m² (50mm x 100mm). One could expect c. 1,200 piles per hectare (or per 100m x 100m). This would equate to 6sqm of displaced (horizontal) material per 10,000m² or 0.06% of the area. It is important to note that this does not equate to 6sqm of potential buried archaeological remains that would be disturbed (see below).



- 3.15. As a comparison, the effects of construction for residential or commercial developments, for new road schemes, water infrastructure projects and new high-speed railways, is typically determined to be 100% of the developed area. This relatively 'limited' impact for solar PV developments is recognised in EN-3 (paragraph 3.10.101).
- 3.16. Typically, even the most densely packed archaeological site (in a rural context, similar to the specific location here) would very rarely extend buried remains to cover more than 1/3rd of any development area. In the examples identified within the Solar PV Site (from the geophysical survey and trial trenching – and highlighted at paragraph 3.9 above) the extent of buried archaeological remains within each land parcel would be expected to be at the most in the region of 5% to 10% of the total area. Thus, it is reasonable to assume that the likelihood of the piles encountering buried archaeological remains is very low (i.e., most would simply miss / avoid buried remains). For instance, remains of pits, post holes or stake holes, similar to those that have been identified already and further ones that might be encountered within the late prehistoric or Roman period settlement sites, occur very infrequently. It is exceptionally unlikely that any given pile would be located at exactly the same position as one of these 'discrete' (small) features.

3.17. Were impacts to occur, for instance at the location of larger archaeological features, such as the discovered infilled boundary ditches, the displaced material from a pile or even several piles would be insignificant (tiny fractions of a percentage) compared with that which would remain unaffected / still in situ. The key consideration is that the archaeological interest of the buried remains would be retained within the Solar PV Site i.e., (as per the definition within EN-1 and the NPPF) the “evidence of past human activity worthy of expert investigation at some point” would in no way be affected. Further to this point, as described above, they would be protected and safeguarded from on-going damage from ploughing.

3.18. The matters described above are referring to all of the known buried archaeological remains on site and those most likely to survive, which are as yet undiscovered. For some especially rare and sensitive buried archaeological remains, the disturbance of piling could have a material effect. For the avoidance of doubt, no such remains have been encountered within the Site, and there is no specific evidence for such remains to survive (noting the caveat below). Particularly sensitive buried archaeological remains comprise:

- waterlogged remains, whereby the soil chemistry and conditions could be affected;
- human remains, whereby even minimal disturbance could result in a potentially disproportionate loss of archaeological evidence, alongside the ethical considerations; and
- complex structured deposits, such as those associated with burials but also structural remains such as floor surfaces.

3.19. As referred to above, while no human remains were encountered, there is still a possible ‘funerary’ interpretation of the discovered remains at two of the sites referred to above. While the other known sites of buried archaeological remains are the remnants of prehistoric and Roman period settlements, our understanding of these ‘site-types’ would suggest that human remains could be interred nearby. Therefore, additional means of mitigation can be employed as the nature of the Development allows for the detailed design process to avoid completely discovered important archaeological remains. This can be achieved by two different means, both reliant on the preclusion (‘no-dig’) or limiting of ground disturbing construction activities.

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- 3.20. The first option is the simple exclusion of the discrete, identified area(s) of buried archaeological remains (and an appropriate protective ‘buffer’) from the Solar PV Development. Associated with the specific exclusion of these areas from the erection of solar panels (and excavation of any cable routes), there will be the need to avoid, limit and control other proximate construction activities too. These other activities could include temporary access routes or haul roads, temporary storage areas and vehicle set down areas (compounds).
- 3.21. The protection of these areas will be described within the CEMP, with physical measures set-out on the ground, in advance of any construction activities, including fencing and signposts. The reasoning and applied measures to protect these areas will be communicated to all site-based / construction staff via induction briefings and ‘toolbox talks’.
- 3.22. The second option that is available as part of the detailed design process is the use of ‘concrete-shoes’ (or other non-piling, surface ballast techniques) for discrete areas within the Solar PV parts of the Site. This option would be deployed on the assumption that the ground conditions are suitable, and compaction or vertical movement could be avoided (and guaranteed). These ‘no-dig’ construction solutions would also necessitate the burying of cables within the ploughsoils (or avoiding trenching excavations altogether) i.e., outside (above) the horizons where buried archaeological survive. Further to this, construction activities would be designed and implemented in such a way to avoid or greatly minimise ground disturbance from vehicular (plant) movements (i.e., avoiding rutting). These specific measures would be set out within the CEMP.
- 3.23. It is feasible and potentially desirable, for both options (‘exclusion areas’ and ‘concrete-shoes’) to be deployed together within areas of known (as above) or discovered buried archaeological remains.

Archaeological excavations

- 3.24. At the three locations of known buried archaeological remains, described above (paragraph 3.9) and any other locations identified during the trial trenching undertaken as part of the detailed design process, small-scale archaeological excavations could take place.

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- 3.25. These archaeological excavations would be directed and designed to achieve two interrelated objectives: (i) furthering our understanding of the past through expert investigation; and (ii) the communication of the findings to a wide audience.
- 3.26. Site specific WSIs would be developed for each area of archaeological excavation, as per the matters presented at paragraph 3.5 above. These will set out the particular research objectives for each programme of work. The research themes will be drafted in the context of the local / regional archaeological research frameworks (*East Midlands Historic Environment Research Framework 2022*), national thematic (site type and / or period) research topics and emerging ideas and theories presented by the work completed to-date.
- 3.27. The site specific WSIs will also set out how the public will be given the opportunity to engage in the site work and the post-excavation process, alongside the means of communicating the findings of the work (via social media platforms, publications, community events and lectures, etc.).
- 3.28. Further details on the general methodological approach to archaeological excavation is set out in section 4 of this document, below. However, the methods deployed will be bespoke to each location and would be heavily influenced by the research objectives and community engagement programmes.

4. TRIAL TRENCHING GENERAL METHODOLOGY

- 4.1. Specific WSIs will be drafted for each location or phase of archaeological trial trenching. The WSIs will follow the ClfA guidance document(s) referred to above. These WSIs will set out any site-specific objectives, methodologies and will be accompanied a trench location plan. The work is likely to adhere to methods as follows:
- 4.2. Trenches will be set out on OS National Grid co-ordinates using Leica GPS. They will be scanned for live services by trained staff using CAT and genny equipment, in accordance with the archaeological contractors 'safe system of working'. The final positions of the trenches may be adjusted during setting out to account for services or other constraints.
- 4.3. Overburden will be stripped from the trenches by a mechanical excavator fitted with a toothless grading bucket. All machining will be conducted under archaeological supervision and will cease when the first significant archaeological horizon or natural substrate is revealed (whichever is encountered first). The depth of the natural substrate will be established in all trenches, including by means of machine excavated sondages; trenches will be stepped out where necessary to maintain a safe working depth; and all trenches will be weathered out and will be checked thoroughly for any emerging features which require further investigation. Topsoil and subsoil will be stored separately adjacent to each trench.
- 4.4. Following machining, any archaeological features present will be investigated, planned and recorded in accordance with the archaeological contractors recording manual. Each context will be recorded by written and measured description. Records will be entered directly into an appropriate digital recording system and/or onto pro-forma site recording sheets. Hand-drawn sections of excavated archaeological features will be prepared (scale 1:10 or 1:20, as appropriate). Features/deposits will be recorded in plan using Leica GPS or Total Station (as appropriate), in accordance with the archaeological contractor's 'survey manual' (or equivalent). Photographs (digital colour) will be taken as appropriate using a digital SLR.
- 4.5. Sample excavation of archaeological deposits will be sufficient to achieve the aims and objectives set out in the site specific WSI(s). All trenches and features will be excavated/ investigated to natural, and all exposed archaeological features will be investigated and recorded by hand, unless otherwise agreed with the site specific

WSI. Investigation slots through all linear features will be at least 1m in length. Discrete features will be half-sectioned or excavated in quadrants where they are large enough to warrant it.

4.6. Trenches will be stepped or tested by sondage to facilitate investigation of the full deposit sequence/ deep excavation; hand auger will be used where excavation of deep features continues below a level that is not practicable or safe at this stage of investigation (e.g., wells). Where structural features, hearths, kilns, ovens or areas of complex remains are encountered then any excavation will not compromise the integrity of the archaeological record and will be carried out in such a way as to allow for the subsequent protection of remains, either for conservation or to allow more detailed investigations to be conducted at a later date.

4.7. Upon completion of the evaluation, all trenches will be backfilled by a mechanical excavator, taking care to ensure that remains left in situ are protected.

Artefacts

4.8. Artefacts will be recovered and retained for processing and analysis in accordance with the archaeological contractor's 'finds manual' (or equivalent). Artefacts will be collected and bagged by context. Artefacts from topsoil, subsoil and unstratified contexts will normally be noted but not retained unless they are of intrinsic interest. All artefacts from stratified excavated contexts will be collected, except for large assemblages of post-medieval or modern material. In agreement with the LPA(s), such material may be noted and not retained or, if appropriate, a representative sample may be collected and retained.

Environmental remains

4.9. The selection, collection and processing of environmental samples will follow the guidelines outlined in *Environmental Archaeology: A guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (English Heritage 2011) and be undertaken in accordance with any further specific directions within the archaeological contractor's guide and / or manual for environmental sampling.

4.10. Due care will be taken to identify deposits which may have environmental potential and, where appropriate, a programme of environmental sampling will be initiated. The sampling strategy will be adapted for the specific circumstances of the Site, but will follow the general selection parameters set out in the following paragraphs.

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- 4.11. Secure, phased deposits, especially those related to settlement activity and/or structures, will be considered for sampling for the recovery of charred plant remains, charcoal and mineralised remains. Any cremation-related deposits (where excavated; see *Human remains*, below) will be sampled appropriately for the recovery of cremated human bone and charred remains. If any evidence of *in situ* metal working is found, suitable samples will be taken for the recovery of slag and hammerscale.
- 4.12. Where sealed waterlogged deposits are encountered, samples will be considered for the recovery of waterlogged remains (including insects, molluscs and pollen) and any charred remains. The taking of sequences of samples for the recovery of molluscs and / or waterlogged remains will be considered through any suitable deposits, such as deep enclosure ditches, barrow ditches, palaeochannels, or buried soils. Monolith samples may also be taken from suitable deposits as appropriate to allow soil and sediment description/interpretation, as well as sub-sampling for pollen and other micro/macrofossils such as diatoms, foraminifera and ostracods.
- 4.13. The need for more specialist samples (such as OSL, archaeomagnetic dating and dendrochronology) will be evaluated on site.
- 4.14. Sample processing will be carried out in conjunction with the relevant specialists. Flotation or wet sieve samples will be processed to 0.25mm. More specialist samples, such as those for pollen, will be prepared by the relevant specialists.

Treasure

- 4.15. Upon discovery of treasure, the archaeological contractor will notify the client / landowner and relevant LPA(s) / PAS officer immediately. The archaeological contractor will comply fully with the provisions of the Treasure Act 1996 and the Code of Practice referred to therein. Findings will be reported to the Coroner within 14 days.

Human remains

- 4.16. Upon discovery of human remains, the archaeological contractor will notify the client / landowner and the relevant LPA(s) immediately. Any human remains (skeletal or cremated) will be treated with due decency and respect at all times and follow the regulatory process set out in the DCO.
- 4.17. Small slots will be hand-excavated across any suspected burial features (inhumations or cremated bone deposits) in order to confirm the presence and condition of any

human bone. Once confirmed as human, the buried remains will not normally be disturbed through any further investigation at the evaluation stage, and will be left *in situ* where possible.

4.18. Where further disturbance is unavoidable, or where full exhumation of the remains is deemed necessary, exhumation will be conducted following the provisions of the Coroner's Unit in the Ministry of Justice. All excavation of human remains and associated post-excavation processes will be in accordance with the standards set out in *Updated Guidelines to the Standards for Recording Human Remains* (ClfA 2017), *The Role of the Human Osteologist in an Archaeological Fieldwork Project* (Historic England 2018) and *Guidance for Best Practice for the Treatment of Human Remains Excavated from Christian Burial Grounds in England* (APABE 2017).

4.19. An illustrated typescript report will be compiled on the evaluation results. This report will include:

- an abstract preceding the main body of the report, containing the essential elements of the results;
- a summary of the project's background;
- a description and illustration of the site location;
- a methodology of the works undertaken;
- integration of, or cross-reference to, appropriate cartographic and documentary evidence and the results of other research undertaken, where relevant to the interpretation of the evaluation results;
- a description of the evaluation results;
- an interpretation of the evaluation results, including a consideration of the results within their wider local/regional context;
- a site location plan at an appropriate scale on an Ordnance Survey (or equivalent) base-map;
- a plan showing the locations of the trenches in relation to the site boundaries;
- plans of each trench, or part of trench, in which archaeological features were recorded. These plans will be at an appropriate scale to allow the nature of the features to be shown and understood. Plans will show the orientation of trenches in relation to north. Section drawing locations will also be shown on these plans. Archaeologically sterile areas will not normally be illustrated;

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- appropriate section drawings of trenches and archaeological features. These drawings will include OD heights and will be at scales appropriate to the stratigraphic detail being represented. Drawings will show orientation in relation to north/south/east/west;
 - photographs showing significant archaeological features and deposits that are referred to in the text. All photographs will contain appropriate scales, the size of which will be noted in the photograph captions;
 - summary tables of the recorded contexts and recovered artefacts;
 - a summary of the contents of the project archive and details of its location;
 - specialist assessment or analysis reports (where undertaken). Specialist artefact and palaeoenvironmental assessments will take into account the wider local/regional contexts and will include:
 - specialist aims and objectives;
 - processing methodologies (where relevant);
 - any known biases in recovery, or problems of contamination/residuality;
 - quantities of material; types of material present; distribution of material;
 - for environmental material, a statement on abundance, diversity and preservation;
 - a summary and discussion of the results, to include significance in a local and regional context.

4.20. The draft trial trenching report will be distributed to the client and the LPA(s) (as identified above) for review prior to finalisation. All copies of the report (draft and final) will be issued in pdf format.

Academic and public dissemination

4.21. If the archaeological trial trenching work does not lead on to further work (see archaeological excavation, below) a note on the results will be produced for inclusion within an appropriate local archaeological journal(s).

4.22. Subject to any contractual constraints, a summary of information from the project will be entered onto the OASIS online database of archaeological projects in Britain. This will include a digital (pdf) copy of the final report, which will also appear on the Archaeology Data Service (ADS) website once the OASIS record has been verified.

Archive deposition

- 4.23. All artefacts and environmental samples will be processed, assessed, conserved and packaged in accordance with the archaeological contractors technical manuals and the relevant recipient museum guidelines.
- 4.24. As part of the development of the site specific WSIs, the archaeological contractor will make arrangements with Rutland County Museum and Lincolnshire County Council Heritage Service for the deposition of the site archive and, subject to agreement with the legal landowner(s), the artefact collection.
- 4.25. An ordered, indexed, and internally consistent site archive will be prepared in accordance with the *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives* (ClfA 2014; updated October 2020), *Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer and Curation* (Archaeological Archives Forum 2007) and *Standard and Guide to Best Practice for Archaeological Archiving in Europe: EAC Guidelines 1* (Europae Archaeologia Consilium 2019), as well as the relevant recipient museum guidelines.
- 4.26. Depending on the nature and scope of any subsequent archaeological works required at the site, the project archive may be combined with that for any subsequent works and deposited as a single archive. Confirmation of this will be included in any further WSI(s).

Selection strategy

- 4.27. As noted above, artefacts from topsoil, subsoil and unstratified contexts will normally be noted but not retained unless they are of intrinsic interest. All artefacts from stratified excavated contexts will be collected, except for large assemblages of post-medieval or modern material. Such material may be noted and not retained or, if appropriate, a representative sample may be collected and retained.
- 4.28. The site-selected material archive will be reviewed following analysis. Stakeholders will make selection decisions based on the specialist reports and selection recommendations. The selection will take place during archive compilation. After discussion with the relevant museum curator and the archaeological contractor, it is possible that no material postdating AD 1800 will be retained for inclusion in the preserved archive.

Digital archive

- 4.29. A digital archive will be deposited with the Archaeology Data Service (ADS). This archive will be compiled in accordance with the *ADS Guidelines for Depositors*.

Data management

- 4.30. All born-digital and digitally-transferred project data created during fieldwork and post-excavation (other than duplicated files) will be stored by the archaeological contractor. Upon project completion and deposition, the data will be transferred to a secure external server. Data will be selected for inclusion in the final digital archive, as detailed below. It is proposed that data selection will occur following completion of post-excavation work.
- 4.31. Selected digital files will be transferred to the ADS, in line with the relevant guidance and standards. Digital photographs will be selected for inclusion in the archive in line with *Digital Image Capture and File Storage: Guidelines for Best Practice* (Historic England 2015).

5. ARCHAEOLOGICAL EXCAVATION GENERAL METHODOLOGY

- 5.1. As per the directions for archaeological trial trenching, specific WSIs will be drafted for each location or phase of archaeological excavations. These WSIs will set out any site-specific objectives, methodologies and will be accompanied an excavation area location plan. The process set out in paragraph 3.5 of this Outline WSI will also apply to the site specific WSIs for archaeological excavations.
- 5.2. The excavation area will be set out on OS National Grid (NGR) co-ordinates using Leica GPS and scanned for live services by trained and competent staff using CAT and Genny equipment in accordance with the archaeological contractors 'safe system of working'. Excavation bounds may need to be adjusted on site to account for currently unidentified services and other constraints. The final 'as dug' trench plan will be recorded using Leica GPS.
- 5.3. Topsoil and overburden will be excavated by a mechanical excavator equipped with a toothless ditching bucket. Topsoil and subsoil will be stored separately in accordance with best practice and, if possible, kept on or adjacent to the site itself to minimise soil movement required. Machining will be conducted under constant archaeological supervision and will cease when the first significant archaeological horizon or natural substrate is revealed (whichever is encountered first) or at a depth where health and safety considerations make further excavation without trench support problematic. A pre-excavation surface plan will be recorded using RTK GPS survey equipment that will enable an excavation strategy to be determined.
- 5.4. Examination of features will concentrate on recovering a stratigraphically coherent site plan and investigate any structural sequences that are present. Particular emphasis will be placed on gaining a secure understanding of the stratigraphic and chronological development of the site, including the recovery of artefactual evidence and samples suitable for radiocarbon dating where appropriate.
- 5.5. Following machining, all archaeological features revealed will be planned and recorded in accordance with archaeological contractor's recording manual. Each context will be recorded by written and measured description. Records will be entered directly into the archaeological contractors digital recording system and/or onto pro-forma site recording sheets. Principal deposits will be recorded by drawn plans (scale 1:20 or 1:50, or electronically using Leica GPS or Total Station (TST) as appropriate)

and drawn sections (scale 1:10 or 1:20 as appropriate). Where detailed feature planning is undertaken using GPS/TST this will be carried out in accordance with the archaeological contractor's 'survey manual' (or equivalent). Photographs (high resolution digital images; unprocessed Raw files of at least 10 megapixels with an APS-C sensor or larger) will be taken as appropriate.

- 5.6. The excavation methodology and recording process is expected to adhere to the following the guidelines; however, this will be confirmed in the site specific WSI(s). Funerary/ritual activity and domestic/industrial and structural deposits will be 100% excavated while discrete features (isolated post-holes and pits) will be sampled by hand excavation (average sample 50%), although if their common/repetitious nature suggests they are unlikely to yield significant new information, a reduced percentage may be undertaken. Some features, for example prehistoric pits or features with large and and/or significant finds assemblages, may require 100% excavation. All linear features (ditches, pathways etc) will be sampled to a maximum of 10%. Bulk horizontal deposits will as a minimum be 10% by area hand excavated, after which a decision may be taken to remove the remainder with machinery. Priority will be attached to features which yield sealed assemblages which can be related to the chronological sequence of the site.
- 5.7. Data will be collected in a format that permits comparison with that recovered from comparable sites, both locally and nationally, and also evidence that will accrue from future work.

Artefacts

- 5.8. Artefacts will be recovered and retained for processing and analysis in accordance with the archaeological contractors 'finds manual'. Artefacts will be collected and bagged by context. Artefacts from topsoil, subsoil and unstratified contexts will normally be noted but not retained unless they are of intrinsic interest. All artefacts from stratified excavated contexts will be collected, except for large assemblages of post-medieval or modern material. Material may be noted and not retained or, if appropriate, a representative sample may be collected and retained.
- 5.9. All finds will be brought back to the archaeological contractor's premises for processing, preliminary assessment, conservation and packing.

Environmental remains

- 5.10. Due care will be taken to identify deposits which may have environmental potential, and where appropriate, a programme of environmental sampling will be initiated. This will follow the Historic England environmental sampling guidelines outlined in *Environmental Archaeology, A guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (English Heritage 2011), and any applicable in-house guidance of the archaeological contractor. The sampling strategy will be adapted for the specific circumstances of the site (as set out in the WSI) but will follow the general selection parameters set out in the following paragraphs.
- 5.11. Secure, phased deposits, especially those related to settlement activity and / or structures, will be considered for sampling for the recovery of charred plant remains, charcoal and mineralised remains. Any cremation-related deposits (where excavated; see *Human remains*, below) will be sampled appropriately for the recovery of cremated human bone and charred remains. If any evidence of *in situ* metal working is found, suitable samples will be taken for the recovery of slag and hammerscale. Sample sizes will be a minimum of 40 litres, or 100% of the context, where deemed more suitable.
- 5.12. Where sealed waterlogged deposits are encountered, samples will be considered for the recovery of waterlogged remains (including insects, molluscs and pollen) and any charred remains. The taking of sequences of samples for the recovery of molluscs and/or waterlogged remains will be considered through any suitable deposits, such as deep enclosure ditches, barrow ditches, palaeochannels, or buried soils. Given what is known regarding the soil/peat sequence that will be encountered, it is likely that monolith samples will need to be taken from suitable deposits as appropriate to allow soil and sediment description/interpretation, as well as sub-sampling for pollen and other micro/macrofossils such as diatoms, foraminifera and ostracods.
- 5.13. The need for more specialist samples (such as OSL, archaeomagnetic dating and dendrochronology) will be evaluated on site. If required, any such samples will be taken in consultation with the relevant specialists.
- 5.14. The processing of samples will be undertaken in conjunction with the relevant specialist following the *Environmental Archaeology, A guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (English Heritage 2011). Flotation or wet sieve samples will be processed to 0.25mm. Other

more specialist samples such as those for pollen will be prepared by the relevant specialist. Further details of the general sampling policy and the methods of taking and processing specific sample types will be set out in the site specific WSI.

Treasure and human remains

- 5.15. The treatment of any treasure and human remains encountered during the excavation work will follow the processes described above (in relation to trial trenching).

Post-excavation, reporting and archiving

- 5.16. Following completion of fieldwork, a programme of post-excavation and assessment of the results will be carried out.

Artefacts and environmental samples

- 5.17. All artefacts and environmental samples will be processed, assessed, conserved and packaged in accordance with the archaeological contractor's guidelines and best practice.
- 5.18. A recommendation will be made regarding material deemed suitable for disposal/dispersal in line with the collection policy of the relevant archive depository which, in this case, will be the SCCAS store.

Reporting

- 5.19. A full archive report will be produced alongside, or instead of a post-excavation assessment (PXA) report that will be prepared in accordance with the specification given in the *Management of Research Projects in the Historic Environment (MORPHE): Project Manager's Guide* (Historic England 2015a) and the *ALGAO Advice note for post-excavation assessment* (ALGAO 2015). A typical PXA report will include:

- an abstract preceding the main body of the report, containing the essential elements of the results;
- a summary of the project's background;
- a description and illustration of the site location;
- a methodology of the works undertaken;
- a description of the project results;
- an interpretation of the excavation results, including a consideration of the results within their wider local/regional context;

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- a summary of the contents of the project archive and its location (including summary catalogues of finds and samples);
 - a plan showing the location of the excavation area and the exposed archaeological features and deposits in relation to the site boundaries;
 - detail plans of archaeological features as appropriate. These will be at an appropriate scale to allow the nature of the features to be shown and understood. Plans will show orientation in relation to north. Section drawing locations will also be shown. Archaeologically sterile areas will not normally be illustrated;
 - appropriate section drawings of excavation areas and features will be included, with OD heights and at scales appropriate to the stratigraphic detail being represented. The orientations of the drawings in relation to north/south/east/west will be shown;
 - site matrices, if appropriate;
 - photographs showing significant features and deposits that are referred to in the text. All photographs will contain appropriate scales, the sizes of which will be noted in the illustration captions;
 - a consideration of the results within their wider local/regional contexts;
 - a summary table and descriptive text showing the features, classes and numbers of artefacts recovered and soil profiles with interpretation; and
 - specialist assessment or analysis reports (where undertaken). Specialist artefact and palaeoenvironmental assessments will take into account the wider local/regional contexts and will include:
 - specialist aims and objectives;
 - processing methodologies (where relevant);
 - any known biases in recovery, or problems of contamination/residuality;
 - quantities of material; types of material present; distribution of material;
 - for environmental material, a statement on abundance, diversity and preservation;
 - a summary and discussion of the results, to include significance in a local and regional context.

5.20. The draft PXA report will be distributed to the client, and the LPA(s). All copies of the report (draft and final) will be issued in pdf format both digitally and, if requested, as hard copy.

Academic and public dissemination

- 5.21. Should the PXA identify the potential for further analysis and/or reporting, then an updated project design (UPD) will be prepared for inclusion in the PXA report. This UPD will detail the further analysis/reporting to be carried out. Depending on the excavation results, the UPD may detail arrangements for an appropriate level of academic publication. As a minimum, a short note on the project results will be produced for inclusion in an appropriate local archaeological journal.
- 5.22. A summary of information from the project will be entered onto the OASIS online database of archaeological projects in Britain. This will include a digital (pdf) copy of the final report, which will also appear on the Archaeology Data Service (ADS) website once the OASIS record has been verified. A summary of the OASIS record will be included as an appendix in the report.

Archive deposition, digital archive and data management

- 5.23. The general methods for archive deposition, digital archiving and data management described above (in relation to the trial trenching) would apply to the archaeological excavations.
- 5.24. Depending on the nature and scope of any subsequent programme of archaeological mitigation works at the site, the excavation archive may be combined with that for any subsequent works and deposited as a single archive. Confirmation of this will be included in any forthcoming WSI or UPD.
- 5.25. As noted above, artefacts from topsoil, subsoil and unstratified contexts will normally be noted but not retained unless they are of intrinsic interest. All artefacts from stratified excavated contexts will be collected, except for large assemblages of post-medieval or modern material. Such material may be noted and not retained or, if appropriate, a representative sample may be collected and retained.

6. HEALTH, SAFETY AND ENVIRONMENT

- 6.1. The archaeological contractor will conduct all works in accordance with the Health and Safety at Work Act 1974 and all subsequent health and safety legislation, as well as the CA Health and Safety and Environmental policies and the CA Safety, Health and Environmental Management System (SHE). Any client/developer/Principal Contractor policies and/or procedures will also be followed. A site-specific Construction Phase Plan (form SHE 017) will be formulated prior to commencement of fieldwork.

7. MONITORING

- 7.1. The site specific WSIs will set out the proposed methods of engagement and liaison with the relevant LPA(s).

8. REFERENCES

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