Land at Scotter Road, Scunthorpe

Written Scheme of Investigation for an Archaeological Watching Brief and Paleoenvironmental Assessment

York Archaeology

Report Number YA/2023/130

Land at Scotter Road, Scunthorpe:

Written Scheme of Investigation for an Archaeological Watching Brief

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ABBREVIATIONS

AOD Above Ordnance Datum

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1 INTRODUCTION

1.1.1 York Archaeology (Nottingham) have been commissioned by William Saunders Architects on behalf of their clients Lincolnshire Lakes Ltd. to conduct an archaeological watching brief on land to the west of Scotter Road, Scunthorpe, North Lincolnshire (henceforth referred to as 'the Site') (Figure 01). A proposed 36 new dwellings, a new access road and an adoptable sewage pumping station are to be to be developed on this land. The watching brief will cover the plots for twelve of the proposed dwellings (Plots 8-20) (Figure 02).

1.1.2 The watching brief follows previous archaeological works comprising geophysical survey, trial trench evaluation and geoarchaeological test pit survey. The latter identified peat deposits in the area of Plots 8-20 which has the potential to mask underlying archaeological features and deposits.

1.1.3 This Written Scheme of Investigation (WSI) also includes the strategy of paleoenvironmental assessment of peat deposits sampled during the trial trenching phases.

1.1.4 The work will be conducted as directed by the condition of planning approval (ref: PA/2018/2186). The works are centred on the National Grid Reference SE 86993 10139. The Site Location can be seen in Figure 01.

1.1.5 This document forms the WSI for the proposed archaeological watching brief and paleoenvironmental assessment. It outlines the principal objectives of the works, and the detailed methodology by which the works will be carried out. Its implementation will be conducted under the approval and monitoring of the Archaeological Advisor to North Lincolnshire Council. It has produced in accordance with the guidelines laid out in the Management of Research Projects in the Historic Environment: The MoRPHE Project Managers Guide (Historic England 2015b), the Chartered Institute for Archaeologists (CIfA) Standards and Guidance (CIfA 2020), Code of Conduct (CIfA 2022).

2 SITE BACKGROUND

2.1 Location, Topography Geology

2.1.1 The Site is located to the west of Scotter Road, approximately 2.75km to the south-west of Scunthorpe town centre. The Site comprises a field and its access road which together measure *c* 3.42ha and are bordered by plantations to the north and west, arable fields to the south, and Scotter Road to the east.

2.1.2 The Site is situated on a gradual slope measuring c 10-8m AOD (Above Ordinance Datum) to its north and c 3m AOD towards its southern boundary.

2.2 Geological and Geoarchaeological Background

2.2.1 The underlying geology of the Site, as mapped by the British Geological Survey (BGS), consists of the Mercian Mudstone Group – a sedimentary bedrock which formed during the Triassic Period 252.2-201.3 million years ago (BGS 2023).

2.2.2 Although a search of the BGS (2023) borehole record did not return any entries for the Site, a geological investigation consisting of four percussive boreholes (maximum depth 16.45m BGL) and ten trial pits (max. depth 2.2m BGL) was undertaken by Solmek in 2021 (Simpson 2021). During this investigation a thin layer of peat was identified between 4.5-6m BGL (Below Ground Level) within three of the four boreholes. Peat deposits identified during other evaluations within the vicinity of the Site were dated from the Mesolithic to the Early Bronze Age, with peat deposits recovered from Brumby Common, a seasonally wet acidic heathland environment c 2km southwest of site, dating from c 6700-3000 BP (c 5600-1500 cal BC) (AOC 2017a and 2017b).

2.2.3 Within the Site this layer of peat was overlain by a superficial deposit of Warp – fine clays and silts which were formed within the Lower Trent valley by deliberate inundation for two principal reasons: to make unproductive peaty and acidic soils workable, and to reduce the impact of seasonal inundations and waterlogging by artificially raising the ground surface level (Lille 1998). This process was largely achieved by the deliberate 'flood-warping' of areas, with material (silts and clays) carried in suspension being allowed to settle and accumulate throughout areas where warping was desirable. The extent of warping is summarised as 'most of the (Trent) floodplain south of Neap House (3.25km northwest of the Site) is occupied by flood-warp, which was allowed to run from the levee slopes east towards to the rising blown sand outcrops' (cf Gaunt 1976, 419 in Lille 1998b). Specifically, the land south of Crosby (the Great Common) 1.7km north of Site, underwent warping from 1808 with 243 ha of ings, common and moor warped until c 1832 (Lille 1998, 110). A substantial warping drain is located *c* 1.26km west of the Site (Earl Beauchamp's Warping Drain). These deposits can seal former land surface in addition to smoothing out any subsurface topographic variation. No evidence for flood warping sediment however was identified at the Site during the 2023 geoarchaeological survey and archaeological evaluation (Davies and Lowther 2023).

2.2.4 Across the western edge of the Site a superficial deposit of Sutton Sand Formation is recorded (BGS 2023). The Sutton Sand Formation is concentrated in an area between York and Lincoln and is characterized as aeolian (of the wind) in origin. These sands were originally deposited during the Devensian period (the last glacial period c 116,000-11,700 years ago), although no precise chronology exists with regards to the retreat of the Vale of York ice front (Bateman et al 2015). However, organic sediments underlying the Sutton Sand Formation as Sutton on the Forrest, approximately 61.4km northwest of the Site, have been dated to 12,287 +/- 168 cal

yr BP indicating that the ice sheet front must have retreated to the north of this location by the late Devensian (.ibid). Locally, west of Scunthorpe and approximately 400-700m west and northwest of the Site, borehole data (BGS 2023) has shown that the sands range from 1.5-7.3m in thickness and are likely to have been extensively reworked in the Holocene (McIlwaine and McDonnell 2006). Detailed investigations as part of the North Lincolnshire Coversands Research Project (ibid.) at Willow Holt Quarry, Flixborough (approximately 60km southeast of Site) indicate that the 'cover sands' have been accumulating and reprofiling since c. 11,000 BP. These have the potential to seal former land surfaces and contain archaeological remains such as lithic scatters.

2.2.5 Blown sands were also identified in the profile of the Site's southeast boundary ditch during a site walk-over (Stenton 2022).

2.2.6 The Cranfield Soil Site Reporter records the Site as predominantly consisting of freely draining acid sandy and loamy soils, with loamy and clayey soils with naturally high groundwater located towards the southwest of Site (Cranfield Soil and Agrifood Institute 2023). A thin 0.1m layer of peat was also found in trial pit 8 of the Solmek evaluation beneath the topsoil at a depth of 0.3m BGL. The remaining trial pits produced layers of sand beneath the topsoil (Simpson 2021).

2.2.7 This geological makeup is consistent with those recorded during other evaluations within the nearby vicinity with peat accumulation having been recorded within sand undulations and sealed with warp (Allen Archaeology 2015; AOC 2017a and 2017b; Keyworth 2021).

2023 Geoarchaeological Survey results

2.2.8 In the 2023 trial trench evaluation and geoarchaeological survey a depositional sequence was identified consisting of fine, well-sorted sands, likely the wind-blown Sutton Sand Formation, which developed in the early Holocene. The peat unit found within the sands on the Site suggested that it was waterlogged for a time, before being buried by another unit of sand (Davies and Lowther 2023, 18).

2.2.9 A silty peat layer (Plate 1) was present across large areas of the Site at 0.26-0.58m BGL, overlaying the sands. A similar peat layer has been seen at nearby sites, Keadby and Brumby Common (AOC, 2017a, 2017b; TPA 2021). At Keadby this peat overlaid mid-Mesolithic reworked sands and was dated to the Neolithic to Early Bronze Age periods. At Brumby Common it was radiocarbon dated to between the Mesolithic and Bronze Age. It is possible that the Site experienced waterlogging as part of the low-lying floodplain if the Trent Valley, forming the peat deposits, but further dating of the sediments would be needed to determine this. In this period the Site would have been a wetland environment which would have provided rich resources for exploitation (Davies and Lowther 2023, 18-19).

2.2.10 A thin sand layer was sometimes present above the peat, this was determined to represent artificial deposition possibly deposited during the later historical period to improve the quality of the land (Davies and Lowther 2023, 19).

2.2.11 This sand was overlain by topsoil and sometimes subsoil (Davies and Lowther 2023, 19).

2.2.12 The flood warping identified by AOC Archaeology at Brumby Common (AOC 2017a and 2017b) was not encountered during the 2023 investigations (Davies and Lowther 2023, 20).

2.3 Archaeological Background

2.3.1 A detailed archaeological background was prepared for the desk-based assessment (Stenton 2022) produced for the Site. The background detailed below summarises those results with additional input from a 1km study area around the Site on the Lincolnshire Historic Environments Record (HER). No nationally designated heritage assets are recorded within the Site or the search area.

Palaeolithic (650,000 BC-10,000 BC), Mesolithic Period (10,000 BC-4,000 BC), Neolithic Period (4,000 BC-2,400 BC) Bronze Age (2,400 BC-700 BC), and Iron Age (700 BC-AD 43)

2.3.2 One prehistoric heritage asset is recorded within the Site on the HER. This consists of part of the Frodingham Causeway (HER 25905) which crosses the northern part of the site from northeast to southwest, terminating at Burrington Ferry on the east bank of the River Trent. However, a survey plan produced for Charles Budgen in 1822 shows a track along this alignment, with Frodingham Causeway being labelled as a different track located to the north of the Site and terminating at Boggard Hall, which is also located on the east bank of the Trent. This 1822 identification appears to be incorrect, as a geophysical survey carried out by Allen Archaeology in 2015 (Pringle 2015) identified the sub-surface remains of part of Frodingham Causeway along the course of the route given by the HER and which terminated at Burringham Ferry. This was also shown to be the route of the Causeway on the 1856 Ordnance Survey (OS) map.

2.3.3 Nine prehistoric findspot monuments were also identified within the 1km search area around the Site. These consist of a Neolithic flint scraper (HER 1915) discovered between the Site's eastern boundary and Scotter Road; a polished flint axe (HER 1938) found east of Kingsway Road; and Late Mesolithic flint flakes and Bronze Age Beaker sherds (HER 1957) found at Westcliff. East of Viaduct Plantation a Neolithic flint scraper was discovered (HER 1914), with early Neolithic to early Bronze Age flints uncovered west of the M181 (HER 7767) and a Neolithic flake and scraper found at the site of Berkeley Roundabout (HER 1947). These finds suggest that the search area included marginal land, perhaps adjacent to former water courses within the floodplain of the River Trent during the prehistoric period.

2.3.4 The Portable Antiquities Scheme (PAS) records one prehistoric findspot within the search area; a Neolithic brown flint knife fragment (NLM-9F4726). The location of this PAS findspot is restricted, however the flint knife was not found within the site nor its immediate vicinity.

2.3.5 Bronze Age activity elsewhere on Brumby Common is demonstrated by the discovery of spearheads and the Brumby Shield, to the north-east and outside the search area. Settlement during this period is indicated by a possible ring ditch (25906), approximately 0.60km to the south-west of the Site. This is likely to have been created during the construction of a burial mound, the locations of which were typically selected to be prominently visible from associated settlements. There is currently no evidence to demonstrate the location or extent of Bronze Age settlement within the search area.

2.3.6 As mentioned in section 2.2 above, peat deposits dating from the Mesolithic to the Bronze Age have been identified on the Site as well as within its wider landscape. These peat deposits may contain palaeo-environmental evidence contributing to our understanding of the prehistoric environment, climate, and human activity or they may contain preserved organic materials such as wood and leather.

Romano-British Period (AD 43-AD 410)

2.3.7 There is no recorded Romano-British activity on the Site nor its 1km search area. Frodingham Causeway is likely to have still been in use during this period, however there is no evidence to demonstrate this.

Medieval Period (AD 410-AD 1540)

2.3.8 Brumby derives its name from the Old Norse personal name of 'Bruni' and the Old Norse term 'by', meaning farmstead (Institute for Name-Studies 2023). The Scandinavian settlement in Lincolnshire took place after over-wintering of the Viking 'Great Army' at Torksey in AD 872 and Repton in AD 873, and their control of Lincoln from AD 876.

2.3.9 In the 1086 Domesday Survey, Brumby is recorded as 'Brunebi', located in the hundred of Manley, with 14 freemen, 3 men's plough teams and 80 meadow acres to its land and resources (Foster and Longley 1942, 20; Powell-Smith 2023).

2.3.10 During the later medieval period the Site formed part of the Brumby Common with the site record as being 'Heathland' by the North Lincolnshire Historic Landscape Characterisation (HLC) record. This would indicate that the land within the Site was utilized for livestock grazing as opposed to arable uses (like the fields to the immediate north) during the later medieval period.

2.3.11 A feature named 'Brumby caucee' was recorded in a Lindsey court roll in 1446 (Peacock 1889, 101). A 'caucee' or 'causey' was a route "over boggy land, that has been made by raising a bank above the level of the water as it stands in flood time" (Peacock 1889, 100). In that case, Brumby Caucee may have been a name for the part of Frodingham Causeway which ran within the manor of Brumby. Should that be the case, the 1446 reference would be the earliest documentary evidence for activity within the Site.

Post-Medieval Period (AD 1540-AD 1750)

2.3.12 No records of any post-medieval heritage have been identified within the site on either the HER nor the PAS, neither are any features recorded on the site or around its immediate vicinity on Johann Blau's 1645 map of Lincolnshire.

2.3.13 A 1558 inquisition of Sewers record of 'Brumby causey' states that this feature had "dikes to either side" (quoted in Peacock 1889, 102). This may support the suggestion that Brumby Causey was Frodingham Causeway, as the part of the causeway identified in the south-western part of the Site during the 2015 survey has ditches to either side of the raised bank (Pringle 2015, 6-7). Should this be correct this would indicate that the ditches of Frodingham Causeway remained open in the mid-16th century. The 1558 inquisition ordered that the '*dikes*' were to be "*sufficiently scowred and cleansed*" (quoted in Peacock 1889, 102). As such, these works may have removed any earlier materials that would have been deposited within the ditches.

2.3.14 In 1696, the Yorkshire historian and antiquarian Abraham de la Pryme reported that "*great stones full of petrified shell-fish… are common at Brumbe*" (quoted in Peacock 1889, 352). It is not known if de la Pryme had recovered any of these fossils from within the Site or its immediate vicinity.

Modern (AD 1750 – Present)

2.3.15 As previously discussed in section 2.2, the wider landscape around the Site started to undergo warping in the early 19th century to transform and elevate the previously wet landscape for commercial uses such as arable agriculture. As a result of this, several assets recorded around the site on the North Lincolnshire HER are either associated with warp drains, such as a drain terminus located southwest of the Site (HER 24682), or are associated with the land transformation resulting from this warping such as Frodingham Grange and Brumby Grove farmstead. The record on the North Lincolnshire HER further speculates that groundworks associated with warping may have commenced earlier, during the 18th century, but no such features are shown on subsequent maps of the area.

2.3.16 In 1822 survey drawings for the Ordnance Survey (OS) were produced by Charles Budgen, which depicted the Site as being part of Scunthorpe, Froddingham and Brumby Common. As discussed in 2.2.2, this map mislabels a trackway north of the site as the prehistoric Frodingham Causeway which cuts northeast to southwest through the northern part of the site, an error which was repeated on the subsequent Andrew Bryant map of Lincolnshire in 1828 and Christopher Greenwood's 1830 map of Lincolnshire. Whilst this error also continued into the publication of the 1856 OS map the feature is now labelled a causeway as opposed to a trackway.

2.3.17 Around 1863 further warping works were undertaken, with a large canaled warping drain being constructed south of the Site. These works were likely undertaken by Earl Beauchamp, but no archaeological materials were retrieved during these groundworks (Smith 2012, 179)

2.3.18 In 1886 the site is depicted on the OS map as being a large area of rough pasture situated between regularly set fields with boundaries depicted either side as a result of the parliamentary enclosure act. The geologist William Ussher described the northern part of Brumby Common as being covered in "rank marsh vegetation" as opposed to grasses or scrubs (Ussher 1890, 162) and as such indicates that the Site was no longer suitable for livestock grazing, as it had been during the late medieval period. Ussher goes on to described this part of the Common as being a very marshy area where "*Blown Sand forms low hills and mounds and occurs in a labyrinth of irregular patches of swampy ground, apparently consisting of Peat and Warp*" (Ussher 1890, 162).

2.3.19 Whilst the Site may not have been viable for livestock grazing in 1886, its north-eastern corner was utilized for an osier bed, osiers being a type of willow used for basket-making. The osier bed was fed by a small rectangular water pond north of the Site and the presence of the bed may support the suggestion that the ditches either side of Frodingham Causeway had been infilled. A further series of warping drains were recorded west of the Site, indicating the continued land transformation throughout this century, and the Frodingham Viaduct north of the site now carried the Manchester, Sheffield and Lincolnshire railway line.

2.3.20 By 1905 the Scunthorpe Infectious Diseases Hospital (HER 22174) was constructed in the woodlands between the eastern boundaries of the Site and Scotter Road. This Hospital would remain extant until 1960. By the time of the publication of the 1907 OS map, the Site was shown as a field, bordered by drainage ditches, demonstrating that the 19th century land warping programmes had been a success. The osier bed depicted on the 1886 OS map was no longer present. Plantations which had previously been recorded along either side of Scotter Road now extended to the eastern boundary of the Site, with areas of rough pasture and bog with plantations of new trees located to the west of the Site.

2.3.21 By 1971 sand extraction had been undertaken to the southwest of the site, with continued sand extractions shown on the 1982 OS map, where previous extraction pits were shown as flooded pits. No Archaeological remains are known to have been discovered during these sand extraction works.

2.3.22 No archaeological observations were made during the felling and clearance of trees for the construction of the road to the Site in 2015. Additionally, no features were identified by aerial photography undertaken between 2002 and 2019. A high-pressure gas pipeline marker was identified in the south-eastern part of the Site, the date of which is unclear, with no known archaeological remains having been discovered during its installation.

2.3.23 DEFRA's 2020 lidar data (LZ_DSM-1m SE81SE) does not show any potential earthwork features within the Site.

2.4 Previous Investigations

2.4.1 Prior to the 2023 archaeological evaluation and geoarchaeological survey the Site itself had only been investigated by walkover surveys and geophysical survey.

2.4.2 A walkover survey of the Site undertaken for the DBA (Stenton 2022) did not identify any visible archaeological features. The geophysical survey was conducted in 2022 by Magnitude Surveys (Nicholas and Anderson 2022).

Geophysical Survey

2.4.3 With regards to the geophysical survey, a fluxgate gradiometer survey was successfully completed by Magnitude Surveys across the Site in 2022 (Nicholas and Anderson 2022). This concluded that a single linear anomaly has the potential to be archaeological in origin. This originated at a point approximately midway along the southern boundary of the site and continued in a north-easterly direction for approximately 100m.

2.4.4 Additional linear features were identified as agricultural drainage systems, as were other modern disturbances. Geological anomalies identified within the north-eastern area of the Site have the potential to obscure additional archaeological anomalies, should they be present.

2.4.5 No features could be discerned that might be associated with the Frodingham Causeway, although this area recorded magnetic disturbance which has the potential to obscure nearby features, should they be present.

Archaeological evaluation and geoarchaeological survey

2.4.6 No archaeological finds or features were found during the trial trench evaluation and the anomaly identified by the geophysical survey was proved to be a modern field drain. No trace of the Frodingham Causeway (HER 25905) was present within the excavated trenches (Davies and Lowther 2023).

2.4.7 The full results of the geoarchaeological survey are given in section 2.2. The peat layer encountered was considered to be of potential archaeological and paleoenvironmental significance as at a nearby site, Keadby, mid-Mesolithic reworked sands were overlain by peat dating from the Neolithic to Early Bronze Age periods. At another nearby site, Brumby Common, radio carbon dating dated the organic deposition to between the Mesolithic and Bronze Age (Davies and Lowther 2023, 18-19).

2.4.8 The waterlogged peat is expected to preserve a rich paleoenvironmental archive which would contribute to the understanding of the local and regional landscape and its evolution in later prehistory.

2.4.9 The sealed layers also have potential to have preserved lithic scatters from earlier prehistory.

2.4.10 A column sample of the peat was retained from Trench 7 (Figure 02).

2.4.11 A representative section showing the peat layer is included (Plate 1).

3 RELEVANT LEGISLATION AND GUIDANCE

3.1 Planning Conditions

3.1.1 The archaeological evaluation of the Site was mandated by a pre-commencement condition of planning approval (PA/2018/2186) which states:

"26) The details submitted in pursuance of the outline permission shall be accompanied or preceded by the submission to the local planning authority of an archaeological strategy that provides the following:

Stage One

(i) The proper identification and evaluation of the extent, character and significance of archaeological remains within the application area comprising geophysical survey followed by the excavation of trial trenches in accordance with a brief provided by the North Lincolnshire Historic Environment Record.

(ii) An assessment of the impact of the proposed development on the archaeological remains

(iii) The submission of an updated written scheme of investigation for the approval in writing of the local planning authority setting out mitigation proposals that include the following:

Stage Two

Measures to ensure the preservation in situ or by record of archaeological features of identified importance

(i) Methodologies for the recording and recovery of archaeological remains, including artefacts and Ecofacts

(ii) Post-fieldwork methodologies for assessment and analyses

(iii) Report content and arrangements for dissemination, and publication proposals

(iv) Archive preparation and deposition with recognised repositories

(v) A timetable of works in relation to the proposed development, including sufficient notification and allowance of time to ensure that the site work is undertaken and completed in accordance with the strategy

(vi) Monitoring arrangements, including the notification in writing to the North Lincolnshire Historic Environment Record of the commencement of archaeological works and the opportunities to monitor such works.

(vii) A list of all staff involved in the implementation of the strategy, including sub-contractors and specialists, their responsibilities and qualifications.

Reason

To comply with paragraph 199 of the National Planning Policy Framework, Policy CS6 of the Core Strategy and Policy HE9 of the North Lincolnshire Local Plan because the site has the potential to contain significant archaeological remains, including human remains, that the development would otherwise destroy. The evaluation strategy is required in order to assess the archaeological significance and the impact of the proposals, and to inform a subsequent archaeological mitigation strategy to preserve archaeological evidence in situ or by means of a comprehensive record and creation of a permanent archive, to advance public understanding. The Stage Two archaeological mitigation strategy must be prepared and

approved for implementation prior to the commencement of any groundwork within the application site that would otherwise result in destruction without record.

27) No development shall take place until the applicant, or their agents or successors in title, has provided the local planning authority with written confirmation that they have secured the implementation of the programme of archaeological work set out in the approved written scheme of investigation for archaeological mitigation (Stage Two)

Reason

"To comply with paragraph 199 of the National Planning Policy Framework, Policy CS6 of the Core Strategy and Policy HE9 of the North Lincolnshire Local Plan because the site has the potential to contain significant archaeological remains, including human remains, that the development would otherwise destroy. The evaluation strategy is required in order to assess the archaeological significance and the impact of the proposals, and to inform a subsequent archaeological mitigation strategy to preserve archaeological evidence in situ or by means of a comprehensive record and creation of a permanent archive, to advance public understanding. The Stage Two archaeological mitigation strategy must be prepared and approved for implementation prior to the commencement of any groundwork within the application site that would otherwise result in destruction without record.

28) The development shall not be occupied until any archaeological mitigation investigation and post-investigation assessment has been completed in accordance with the programme set out in the approved written scheme of investigation, and provision made for analysis, publication and dissemination of results and archive deposition has been secured.

Reason

To comply with paragraph 199 of the National Planning Policy Framework, Policy CS6 of the Core Strategy and Policy HE9 of the North Lincolnshire Local Plan because the site has the potential to contain significant archaeological remains, including human remains, that the development would otherwise destroy. The evaluation strategy is required in order to assess the archaeological significance and the impact of the proposals, and to inform a subsequent archaeological mitigation strategy to preserve archaeological evidence in situ or by means of a comprehensive record and creation of a permanent archive, to advance public understanding. The Stage Two archaeological mitigation strategy must be prepared and approved for implementation prior to the commencement of any groundwork within the application site that would otherwise result in destruction without record.

29) A copy of any analysis, reporting, publication or archiving required as part of the mitigation strategy shall be deposited at the North Lincolnshire Historic Environment Record within one year of commencement of the archaeological programme of work or such other period as may be agreed in writing by the local planning authority.

Reason

To comply with paragraph 199 of the National Planning Policy Framework, Policy CS6 of the Core Strategy and Policy HE9 of the North Lincolnshire Local Plan because the site has the potential to contain significant archaeological remains, including human remains, that the development would otherwise destroy. The evaluation strategy is required in order to assess the archaeological significance and the impact of the proposals, and to inform a subsequent archaeological mitigation strategy to preserve archaeological evidence in situ or by means of a comprehensive record and creation of a permanent archive, to advance public understanding. The Stage Two archaeological mitigation strategy must be prepared and approved for implementation prior to the commencement of any groundwork within the application site that would otherwise result in destruction without record."

3.1.2 The Archaeological Watching Brief was mandated as a condition of planning approval following the results of the evaluation.

3.1.3 The following comments were received from the planning officer:

"The submitted archaeological evaluation report complies with Stage 1 Clauses i) and ii) of condition 26 on the outline planning permission PA/2018/2186.

The geoarchaeological assessment and deposit model of the underlying sequence, however identified that the higher sand surface and absence of overlying peat on the east side and central area of the Site could be significant. 'Areas of slighter higher elevation are significant given they are potential locations for buried 'dryland' archaeological remains, given their advantageous relief within the historically marshy/waterlogged wider floodplain'. (para 8.1.8). Groundwork associated with the construction of house plots in this zone may therefore encounter archaeological remains associated with prehistoric activity not identified in the trial trenches. In order to mitigate the disturbance/destruction of any such remains, a programme of archaeological monitoring and recording (formally known as a watching brief) is recommended during the groundworks in the areas of the house plots 8-20 (PA/2018/2186 Block Plan).

In addition, the report notes that 'The waterlogged silty peat unit [in the southwest area of the site] is likely to preserve a rich paleoenvironmental archive, which records a brief history of the evolution of the local and regional landscape of the site, potentially from later Prehistory. This wetland environmental would have provided s rich environment and resources for any potential settlers to exploit' (para 8.2.8). A column sample of the peat has been retained (para 8.1.3) and should provide suitable material for such analysis and radiocarbon dating. |The results of this work would provide a permanent record of the environmental context to any occupation evidence found on or in the vicinity of the site and contribute to the wider body of archaeological work on the Lincolnshire Lakes.

In view of this potential, the council's archaeologist recommends that an updated mitigation WSI is prepared for these further investigations in accordance with Stage One, clause iii) and Stage Two of condition 26. Once submitted and approved, this WSI would complete the information required with the reserved matters application and development could proceed in accordance with conditions 27-29 that secure the implementation of the mitigation programme with the further archaeological work taking place during the development."

3.2 National Planning Policy Framework (NPPF)

3.2.1 Developments of this nature, and their impact upon the historic environment, are addressed by the revised 2021 *National Planning Policy Framework (NPPF)* published by the Ministry of Housing, Communities and Local Government (MHCLG), now called the Department for Levelling Up, Housing and Communities (DLUHC), and the revised *NPPF Planning Practice Guide Conserving and Enhancing the Historic Environment (*DLUHC 2021).

3.2.2 Section 16 of NPPF, Paragraph 192 states:

"Local planning authorities should maintain or have access to a historic environment record. This should contain up-to-date evidence about the historic environment in their area and be used to:

a) Assess the significance of heritage assets and the contribution they make to their environment; and

b) Predict the likelihood that currently unidentified heritage assets, particularly sites of historic and archaeological interest, will be discovered in the future."

3.2.3 In addition, paragraph 194 states that:

"In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation."

3.2.4 Furthermore, paragraphs 199 and 205 of the NPPF state:

"When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation (and the more important the asset, the greater the weight should be). This is irrespective of whether any potential harm amounts to substantial harm, total loss or less than substantial harm to its significance.

Local planning authorities should require developers to record and advance understanding of the significance of any heritage assets to be lost (whole or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted."

3.3 Local Policy

3.3.1 The North Lincolnshire Local Plan has the following relevant policy:

"HE9 - Archaeological Evaluation

Where development proposals affect sites of known or suspected archaeological importance, an archaeological assessment to be submitted prior to the determination of a planning application will be required. Planning permission will not be granted without adequate assessment of the nature, extent and significance of the remains present and the degree to which the proposed development is likely to affect them.

Sites of known archaeological importance will be protected. When development affecting such sites is acceptable in principle, mitigation of damage must be ensured and the preservation of the remains in situ is a preferred solution. When in situ preservation is not justified, the developer will be required to make adequate provision for excavation and recording before and during development."

4 AIMS AND OBJECTIVES

4.1 Aims

4.1.1 The general aims of the fieldwork can be stated as:

- To identify the presence of any archaeological remains to be affected by any intrusive aspects of the development;
- To characterise and record any archaeological remains present within the impacted area;
- To ensure any remains are recorded to a professional standard to ensure their preservation by record, although for remains of particular importance, discussions with the local planning authority should take place regarding possible preservation in situ;
- To contribute towards the understanding of the ancient environment of the local area and its evolution if possible.
- To monitor for archaeological features masked by the peat deposits.

4.2 Objectives

4.2.1 The objectives for this project are as follows:

- To characterise and record any archaeological remains present within the impacted area;
- To ensure preservation by record (or in situ where appropriate) of any archaeological remains encountered during groundworks
- To recover any archaeological artefacts and Ecofacts present within the area.
- To present the results of the fieldwork in a report.

4.3 Research Agenda

4.3.1 This archaeological mitigation provides an opportunity to contribute to the research themes and objectives outlined in the East Midlands Heritage: An Updated Research Agenda and Strategy for the Historic Environment of the East Midlands (interactive Digital Platform available at: www.researchframeworks.org/emherf).

2. Mesolithic (c.9500 – c. 4000 cal BC)
2.1 Periods of transition
2.1.2: What can analyses of sites contribute to studies of continuity and change during the Mesolithic period?
2.1.3: How may we elucidate further the transition from the later Mesolithic to the earlier Neolithic?
2.2 Spatial distribution of activity
2.2.2: How were sites distributed across low-lying and upland areas, and in particular how many sites might be concealed beneath alluvium, colluvium and other masking deposits or beneath the sea?
2.3 Identification of site types

2.3.3: What range of structural remains may survive on open-air sites across the region (particularly below alluvium and other masking deposits)?
2.6 Environmental change and food procurement strategies
2.6.1: What can analyses of cave deposits, palaeochannel fills, upland peats and other deposits with potential for preserved pollen, charcoal and other organic remains contribute to studies of the earliest stages of woodland clearance and plant domestication?
2.6.2: How can we maximise the potential of palaeochannels, upland or coastal peats and other organically rich deposits as sources of data on Early Holocene landscapes and changes in subsistence strategies and diet?
3: Neolithic and Bronze Age Societies (c 4000—c 1150 cal BC)
3.2 Continuity of hunter-gatherer traditions
3.2.3: How may environmental sampling strategies assist in elucidating the transition from later Mesolithic to earlier Neolithic economies?
3.4 Exploitation of different landscape zones
3.4.2: Can we identify locations with a high potential for elucidating variations in arable, pasture and woodland cover between ecological zones (e.g. palaeochannels; upland peats)?
3.8 Neolithic and Bronze Age societies
3.8.1: Can we identify intra-regional variations in the character of sites and artefacts and what might these mean in social or economic terms?
8: Post-Medieval (AD 1540—1750)
8.3 Agricultural landscapes and the food-producing economy
8.3.2: How did water management and land drainage change the landscape during this period?
9: Modern (AD 1750—Present)
9.6 Agriculture
9.6.2: How did Parliamentary enclosure and other agricultural improvements (e.g. water management) impact upon the rural landscape?

Overarching Agenda Themes
Environment
Pleistocene and Holocene climatic change (as evidenced, for example, by paleochannel deposits)
Changes in sea level, the configuration of sea and land, the drainage network and the spatial extent of wetlands
The impact of human activity upon woodland clearance and other changes in regional vegetation
Exploitation and settlement of diverse ecological zones (including study of the pivotal highland-lowland contrast)

5 METHODOLOGY

5.1 General Conditions

5.1.1 All works will be undertaken in accordance with this WSI as approved by the Archaeological Advisor to North Lincolnshire Council as directed by a Condition of planning approval (PA/2018/2186) and to standards defined by CIfA guidelines for recording of archaeological sites (CIfA 2020 and 2021).

5.2 Monitoring and Excavation

5.2.1 Archaeological monitoring will be undertaken by a suitably qualified archaeologist from YA's supervisory tier.

5.2.2 All machine excavation will be carried out using an appropriate toothless bucket (containing no holes for escaping spoil) to ensure that a clean surface can be exposed and the archaeologist can inspect the deposits revealed.

5.2.3 All machine excavation will be done under constant archaeological supervision with stripping and spoil removal arranged so as to avoid any tracking across the stripped surface. Details of plant to be used will be provided before the start of any excavation by the client.

5.2.4 The investigation area and any archaeological features will be located with reference to the Ordnance Survey National Grid by GPS, Leica CS15/GS15 RTK Differential GNSS, prior to further investigation. If it is impractical to use GPS, the Total Station will be used as an alternative.

5.2.5 If archaeological remains are encountered excavation works will cease until the monitoring archaeologist has sufficiently investigated and recorded the features.

5.2.6 Any features identified will be hand-cleaned. Following scanning by a metal detector features will be sample excavated sufficient to determine their plan and form, and to recover any datable artefacts.

5.2.7 Feature fills will be removed by contextual change (the smallest usefully definable unit of stratification) and/or in spits no greater than 100mm. Substantial features will be hand excavated to a maximum depth of 1.2m, or a perceived safe depth if the sides are unstable.

5.2.8 In the event of the discovery of human remains disturbance will wherever possible be avoided. Where removal is deemed necessary following discussion with, and the approval of, the client and the North Lincolnshire County Archaeologist, the necessary burial license will be obtained in line with the current Ministry of Justice procedures. The excavation of any human remains will be carried out in accordance with Updated Guidelines for the Standards for Recording Human Remains (Mitchell and Brickley 2017).

5.2.9 In the event of the discovery of any artefacts which constitute Treasure, these artefacts will be archaeologically removed to a safe location and reported to the coroner within 14 days in accordance with the procedures of the Treasure Act 1996 and the Code of Practice 1997. All treasure should be reported to the Finds Liaison Officer at North Lincolnshire County Council.

5.3 Recording

5.3.1 Plans of all contexts including features will be surveyed using a GPS, Leica CS15/GS15 RTK Differential GNSS, and will show at least: context numbers, all colour and textural changes, principal slopes, levels expressed as O.D. values, or levelled to permanent features if a benchmark is absent, sufficient details to locate the subject in relation to OS 1:2500 mapping.

5.3.2 Sections will be drawn on drafting film in pencil at a scale of 1:10/1:20/1:50 (as appropriate) and will show the same information, but levelling information will be given in the form of a datum line with O.D/arbitrary value. The locations of all sections will be surveyed.

5.3.3 Digital images of each context will be taken together with general views illustrating the principal features of the excavations.

5.3.4 Written records will be maintained as laid down in the York Archaeology recording manual York Archaeology 2015).

5.3.5 The location of any artefacts including those recovered in the topsoil/subsoil will be recorded by context/spit, or three-dimensionally if determined to be of exceptional archaeological significance.

5.4 Sampling

5.4.1 Where appropriate features are identified, soil samples will be retrieved in order to undertake palaeoenvironmental sampling. The sampling of features will follow procedures set out within the English Heritage (now Historic England) guidelines in Environmental Archaeology (Historic England 2015a). Samples will generally be 40 litres if possible and will be processed within the York Archaeology Environmental Lab, under the supervision of Environmental Officer Stacey Adams.

5.4.2 Where appropriate, soil samples will also be taken from waterlogged peat deposits, these samples will generally be 20 litres if possible and taken at measured intervals through a sequence and will be kept sealed to prevent drying out, following procedures set out in (Historic England 2015a).

5.4.3 Depending on the type of deposits identified, soil samples may also be retained for the purposes of retrieving industrial residues or for the provision of scientific dating (e.g. C14 dating). The range of techniques applicable to differing preservation and depositional environments is set out in Table 1.

5.5 Post Excavation

5.5.1 All finds will be cleaned, conserved, marked and stored as recommended in ‘First aid for finds’ (Watkinson and Neal 1998), and marked with the site and find codes, and relevant accession numbers. These will be deposited with the North Lincolnshire Museum Service, on completion of the report.

5.5.2 The following table of specialists is an example of those who may perform post-ex artefact identification. The final list of individuals who are consulted for this project will be assembled subject to approval by the Archaeological Advisor to North Lincolnshire Council.

Specialist	Class	Int	Ext
Animal Bones	Kris Poole	X	
Geoarchaeology	Kristina Krawiec	X	
Radiocarbon Dating	Beta		X
Metalwork	Ian Riddler		X
Slag/Industrial Residues/XRF	Gerry McDonnell		X
Medieval Pottery	Chris Cumberpatch/Anne Irving		X
Post-Medieval Pottery	Chris Cumberpatch/Anne Irving		X
Architectural Stone	Chris Brooke/Kevin Hayward		X
Enviro. Processing	Site assistant	X	
Enviro Analysis/Reporting	Stacey Adams	X	
Coins	Steve Malone	X	
Pollen	Tom Hill		X
Shell	Matt Law		X
Leather	Ian Riddler		X
Conservation (inc X Ray)	Ian Panter (YAT Conservation Lab)	X	
Finds Illustration	Alison Wilson	X	
Osteoarchaeology	Victoria Owen	X	
Clay Tobacco Pipe	Alison Wilson	X	
Glass – Roman/medieval Glass – Post-medieval	Ian Riddler Alison Wilson	X	X
CBM/Tile	Phil Mills/Anne Irving	X	
WL Wood	Kristina Krawiec/Steve Allen/Mike Bamforth (University of Sheffield)	X	X

5.5.3 The archive will be fully catalogued and prepared to recognised standards (Brown 2007; Lincolnshire County Council 2019) and contain where relevant: copies of correspondence relating to fieldwork, site notebooks/diaries, original photographic records, site drawings (plans, sections, elevations), original context records, matrix diagrams showing stratigraphic sequence of all contexts, artefacts, original finds records, original sample records, original skeleton records, computer discs and printouts.

5.6 Paleoenvironmental Assessment

5.6.1 A column sample which was retained from peat deposits present in Trench 7 during the evaluation phase will be subject to paleoenvironmental assessment.

5.6.2 The retained sample from the evaluation will be subsampled sub-sampled at YA facilities. This will follow procedures set out within the Historic England Guidelines for Environmental Archaeology and Geoarchaeology (HE 2015a and HE 2015c). Tins will be subsampled at measured intervals for palynological assessment and radiocarbon dating. Should waterlogged wood be encountered species identification will be carried out with reference to Schweingruber (1990) and Schoch (2004). The consideration of preservation within the deposits will be made with specific reference to Historic England's guidance document for Preserving Archaeological Remains (HE 2016).

5.6.3 Bulk samples will be assessed for plant and insect remains.

5.6.4 Unprocessed sediment will be retained should full analysis or additional samples be required. In addition, material of post-glacial date will be submitted for radiocarbon AMS dating, single entity macrofossils and identifiable small diameter roundwood will be selected where possible. If no such remains are encountered then bulk sediment will be submitted for dating. All dating will refer to Historic England Guidance on Radiocarbon dating and chronological modelling (2022).

5.6.5 A timetable of expected delivery times is given below.

Analysis	***Number of Samples***	***Specialist/Organisation***	***Expected availability of results***
Radiocarbon dating	2	Beta	3 weeks from posting
Pollen	4	Tom Hill (external)	8 weeks from posting
Insects	3	David Smith (external)	12 weeks from posting
Plant macros	3	Stacey Adams (YA)	2 weeks from point of commission

5.6.6 Sub sampling will commence within 7 days from the point of commission.

5.7 Archive and Finds Deposition

5.7.1 Contact has been made with North Lincolnshire Museum and it has been confirmed that the work will proceed with the same NLMS Archaeology Site Code (BURAI) as for the evaluation.

5.7.2 Final deposition will be made using the appropriate notification form and adhering to all relevant Conditions including North Lincolnshire Museums' (2023) *Guidelines for deposition of Archaeological Archive with North Lincolnshire Museums.*

5.7.3 The Archaeological Advisor to North Lincolnshire Council and museum curator will be notified in writing on completion of fieldwork, with a proposed timetable for deposition of the archive. This should be confirmed in the project report. The Archaeological Advisor will be informed in on final deposition of archive.

5.7.4 The paper and digital archive generated by York Archaeology will remain the property of the unit until deposited with the appropriate museum.

5.7.5 Where necessary the documentary archive will be sent to the HER for copying.

5.7.6 Finds will remain the property of the client with deposition to the appropriate museum being made subject to their approval.

5.7.7 At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/projects/oasis/ will be initiated and key fields completed on Details, Location and Creators Forms. All appropriate parts of the OASIS online form will be completed for submission to the County HER. A digital copy of the report will be uploaded with the online OASIS record, which will be released onto the Archaeological Data Services (ADS) at an appropriate time.

5.7.8 The archive will be deposited within 6 months of the completion of the project. Shapefiles locating the archaeological fieldwork will also be sent to the HER with the report.

5.8 Report

5.8.1 A report will be completed within 4-6 weeks of completion of the fieldwork phase of the project.

5.8.2 The final report will include:

a) cover page

b) list of contents, figures, tables, etc

c) non-technical summary

d) introduction

e) planning background

f) archaeological and historical background

g) methodology

h) results

i) discussion

j) conclusion

k) OASIS cover sheet

5.8.3 The results section will be supported by illustrations (including plans, section drawings and photographs). The location plans will include accurate georeferencing data and relevant figures be clearly marked with OS grid vertices. Plans and section drawings will include datum levels relative to Ordnance Datum.

5.8.4 With the approval of the client the results will be submitted for publication within the annual summary, if applicable, of the Lincolnshire History and Archaeology journal. If significant results are discovered then an individual report of an appropriate level of detail, will also be submitted for publication to a suitable academic journal and a presentation made to local archaeology/history societies or similar bodies.

5.8.5 York Archaeology shall retain full copyright of any commissioned reports, tender documents, or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved excepting that it hereby provides exclusive licence to the client and their appointed agent/consultant for the use of such documents in all matters directly relating to the project, with no limitation on the number of times that the client/consultant may reproduce any report.

5.9 Monitoring

5.9.1 Where possible a minimum of 7 working days prior notice of the commencement of the development is to be given to the Archaeological Advisor to North Lincolnshire Council.

5.9.2 The Archaeological Advisor to North Lincolnshire Council may make monitoring visits throughout the duration of the watching brief and will be kept informed of all material facts relating to the excavation.

5.9.3 All phases of the investigation will be undertaken in line with the relevant 'Standard and Guidance' documents prepared by CIfA (2020 and 2021).

5.10 Access, Health and Safety and Insurance

5.10.1 The client will arrange safe access to the land.

5.10.2 The client will provide plans showing all services/service routes within the development area.

5.10.3 All health and safety requirements will be adhered to. York Archaeology will complete a task-specific risk assessment and safe working method statement before the commencement of the fieldwork, and copies of this will be approved by the client. This will be in compliance with the industry guidelines laid out in the Federation of Archaeological Managers and Employers (FAME) Manual Health and Safety in Field Archaeology (2006). York Archaeology staff will wear appropriate personal protective equipment (PPE) at all times.

5.10.4 York Archaeology carries the appropriate insurance, copies of which are available for inspection if required.

5.11 Timetable

5.11.1 The timetable for archaeological mitigation within the site is to be determined in liaison with York Archaeology and the client.

5.11.2 After the completion of the fieldwork the report on its findings will be produced within 4-6 weeks and the archive will be assembled and deposited within 6 months.

5.12 Staffing

5.12.1 Provisional list of staffing. Full CVs can be supplied on request.

- Project Manager: Edmund Taylor, Project Manager: etaylor@yorkat.co.uk
- Project Team staff will be selected from the supervisory tier staff at York Archaeology, with selected individuals' dependant on timetable and availability, and to be confirmed at a later date.

Feature type	Sediment conditions	Overall scope of sampling	MM	Charred material	C14	OSL	Pollen/Diatom	Ch	BP/BS	Bo	Wood
Sampling method:			**Undisturbed block sample small kubiena tin**	**Loose bulk sample, representative of particle size, and quantity for desired methods**	**A4x1 cm (sea)**	**Light-tight canister, moisture/sediment sample; where available, gamma spec background radiation measurement.**	**column in gutter + Clingfilm**	**Min.40L for dry deposits or 20L from waterlogged deposits (specialists to advise as to appropriate level of sub sampling of deposit)**			**In bags with water**
Archaeological Feature/ buried soil	Waterlogged organic (looks 'peaty')	Each occurrence series of samples if thick (>150mm)		x			x	x	x	x	X
	Dry visible charred material	Each occurrence (C14 selected: best is twigs then layer)	x	x	x			x		x	
	Waterlogged organic	Each occurrence, at thickest point or every 10cm	x		x		x	x	x	x	X
	Dry visible charred material	Each occurrence, at thickest point, series of samples if thick (>150mm)	x		x		x	x		x	
	Buried soil horizon	Across soil profile	x			x	x	x			
Sediment change, reaction to environmental change	Laminated or changes in sediment in profile	Sample of each sedimentation type, in middle of sediment unit, or over equal interval		x	x	x	x				
Any	Wood structure	Retain all, keep damp, bag each timber separately			x						x
Industrial residues / debris etc.		All process stages to be represented							x		

Abbreviations MM Micromorphology **C14** Radiocarbon **BP** Waterlogged Beetles/Plant remains **Bo** small bone. BS –Bulk Sample (industrial waste/residues/processing debris) **CS** Sediment sample

Table 1: Preliminary Site Sampling Strategy

*Adjustments to be made following specialist advice and liaison with North Lincolnshire County Archaeologist where appropriate

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PLATES

Plate 1: Representative section from 2023 evaluation and geoarchaeological survey showing peat and sand layers, Test pit 2 (TP02), Trench 2

FIGURES

Figure 01 - Location Map
SRS - Land At Scotter Road, Scunthorpe, Lincolnshire

Scale at A4 - varies
Drawn by MI

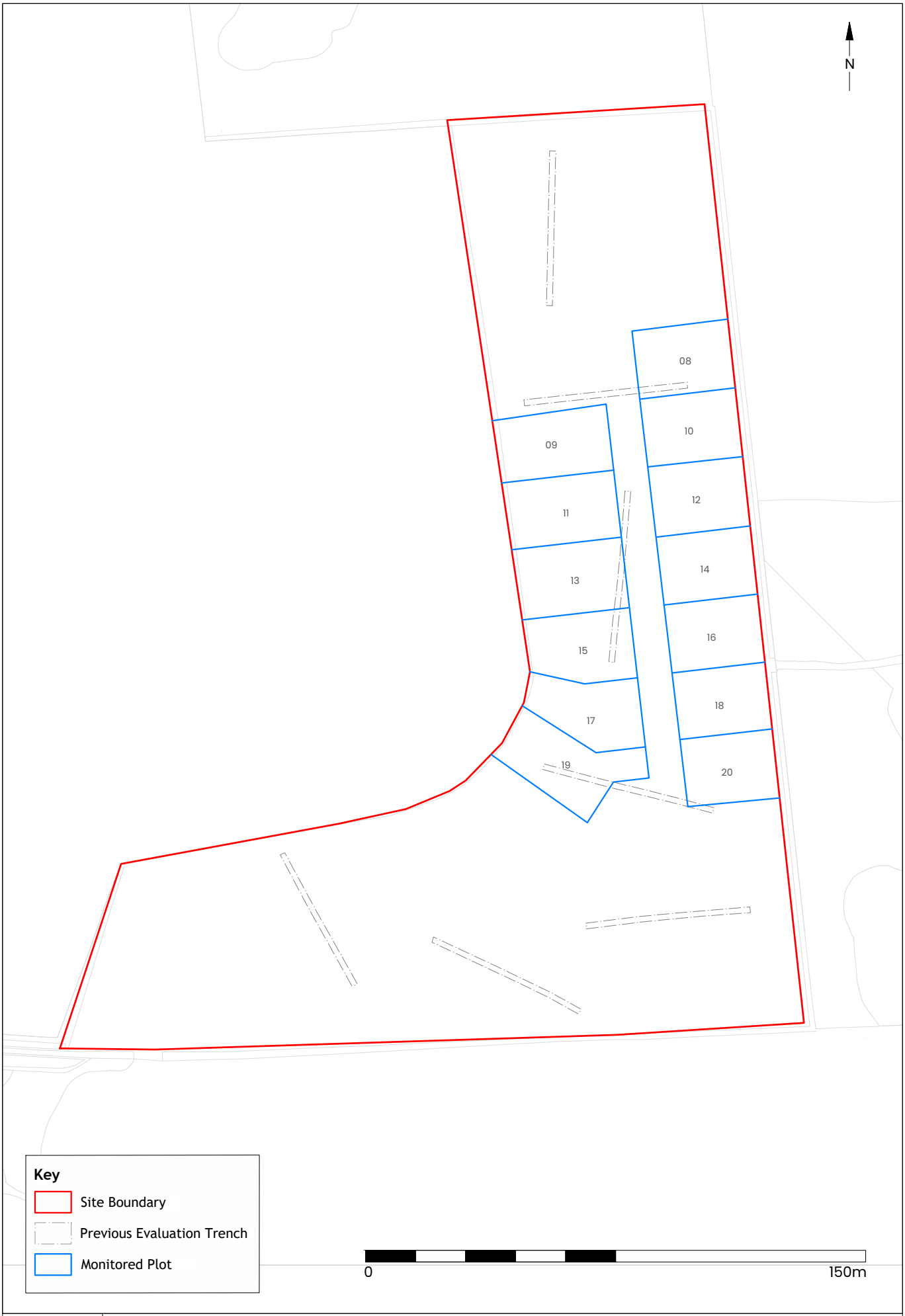

Figure 02 - Site Plan Showing Monitored Plots & Previous Archaeological Evaluation
SRS - Land At Scotter Road, Scunthorpe, Lincolnshire

Scale at A4 - 1:1500
Drawn by MI