P24-294

LITTLE SOUTH SOLAR FARM, ASH, KENT

Interim Archaeological Evaluation Report

for Little South Clean Energy Ltd

04/12/2024

HEADLAND ARCHAEOLOGY

Little South Solar Farm, Ash, Kent

Archaeological mitigation report

for Little South Clean Energy Ltd

December 2024

Ver 1.3

PROJECT INFORMATION:

HA JOB NO.	P24-294
NGR	631210, 159330
PARISH	Ash
COUNCIL	Dover District Council

PROJECT TEAM:

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LIST OF ILLUSTRATIONS

PROJECT SUMMARY

This report presents the results of an archaeological evaluation for a proposed development site located southwest of Richborough, Kent (NGR 631401, 159144), post code CT3 2DD. It has been prepared by Headland Archaeology (UK) Ltd on behalf of Little South Clean Energy Ltd to facilitate the determination of a planning application in relation to the potential impacts on buried archaeological remains at the site (Planning Reference number DOV/23/01363).

The site is primarily located on reclaimed agricultural land over the former Wantsum Channel to the south west of the site of Roman Richborough.

The evaluation was targeted at features identified from desk-based research and geophysical surveys, including the channel edge and a portion of high ground projecting into the former channel. There has been speculation that the high ground may have carried a Roman road towards the amphitheatre and settlement at Richborough to the north east.

A total of 10 trenches were excavated, all measuring 50.00 m x 1.80 m. Of these trenches 8 produced no remains of archaeological significance. One trench (Trench 5 on the high ground) produced six cremation burials with associated grave goods, consisting of Samian ware, red and grey ware vessels and a small shale bracelet. A single coin was recovered by metal detecting from the adjacent spoil heap. A second trench exposed naturally formed peat deposits which were sampled for dating and paleoenvironmental analysis. There was no evidence for the presence of a Roman road at the site.

The investigations built on information assembled from the desk-based research and geophysical surveys, demonstrating the form and location of the Wantsum Channel and area of high ground projecting into the channel. Most of the development site is located within the former channel with any associated archaeological remains, if present, buried at depth (15+m below the surface) beyond the impact of the proposed development. The evaluation found no evidence for archaeological remains at the channel edge (such as waterfront facilities) or a road. The evaluation identified archaeological remains in the form of a cremation cemetery on the high ground projecting into the channel.

This report is an interim statement on the results. Specialist analyses of the peat sample and artefacts are currently in preparation and will be included in an updated version of this report.

The investigations were monitored by a Kent County Council Archaeologist and the field work confirmed to have been undertaken to a good standard in line with the written scheme of investigation.

Preliminary discussion of the results established that the identified burials are of archaeological interest but do not represent remains that are of such importance that development impacts cannot be satisfactorily mitigated. Possible mitigation options are discussed in the report. The results will allow the determination of the planning application with respect to buried archaeological remains at the site.

ARCHAEOLOGICAL MITIGATION REPORT

1. Introduction

1.1.1. Headland Archaeology (UK) Ltd was commissioned by Little South Clean Energy Ltd (the Client), to undertake an archaeological evaluation in support of a proposed redevelopment of the site for the construction of a solar farm. The works were undertaken to facilitate determination of a planning application in relation to the potential impacts on buried archaeological remains at the site (Planning Ref DOV/23/01363).

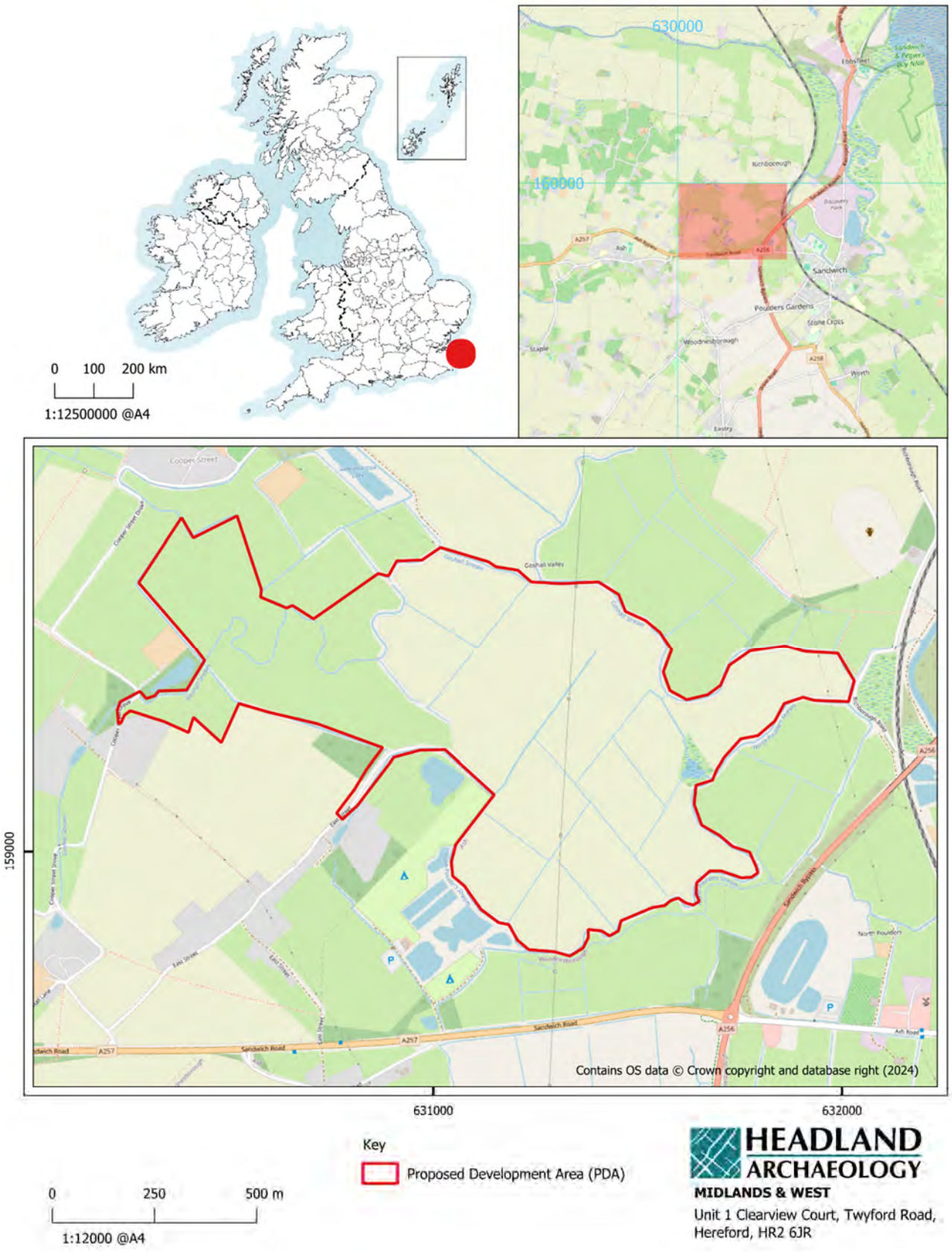
1.1.2. The programme of archaeological work was informed by the results of an Archaeological Impact Assessment (Foundations Heritage 2022) and geophysical surveys with Magnetometer (TigerGeo, 2023) as well as with Electromagnetic Ground Conductivity (EM) and Electrical Resistivity Tomography (ERT) (RSK Geosciences 2024).

1.1.3. This report describes the results of the evaluation.

1.1.4. The site works were undertaken between the 16th and 27th September 2024.

Acknowledgements

1.1.5. The site team consisted of staff from Formation Archaeology (Richard Woolley, Kate Griffiths, Sabrina Sheffield and Maria Gale) under the direction of Ben Redclift and Andy Towle of Headland Archaeology Ltd. The works were monitored by Ben Found of Kent County Council and the client project manager was Mark Henderson of Statkraft. Plant, welfare, and operator were provided by Mark Winch and Lee Villiers (Randall Plant Ltd). A UXO watching brief was maintained by Andy Miller and Mark Topliss (1st Line Defence).



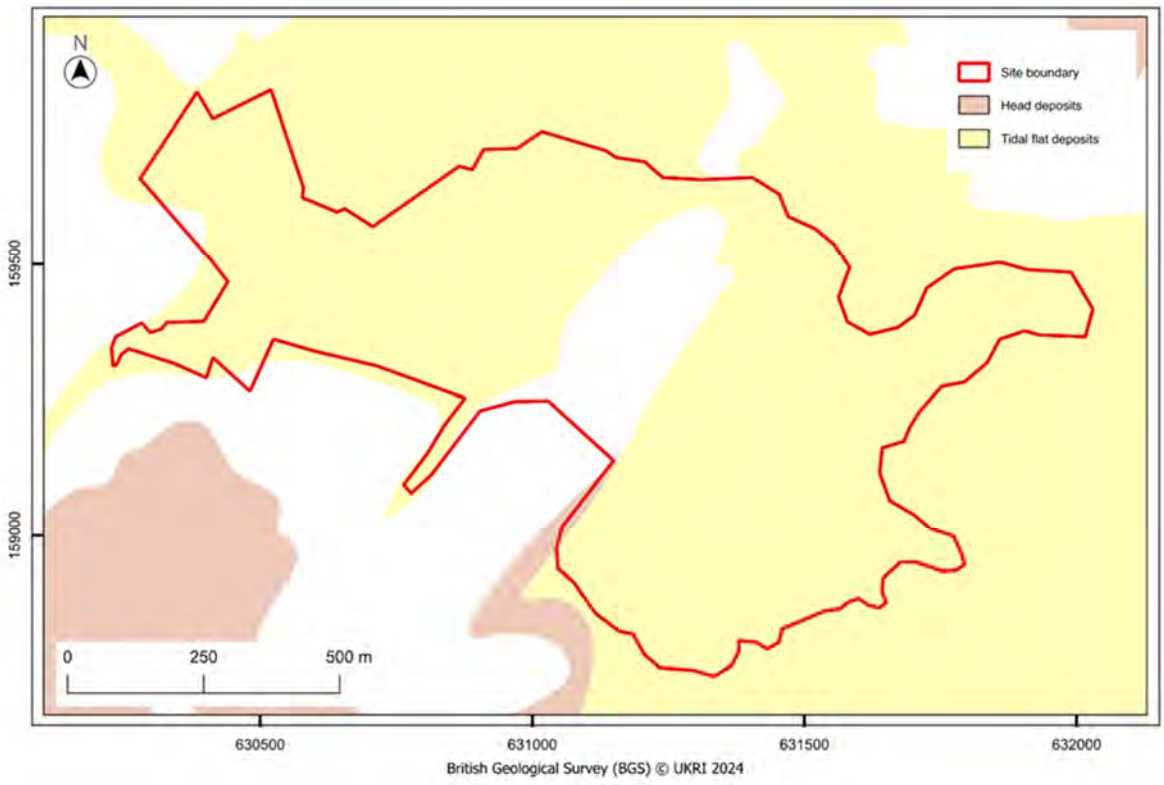
Illus 1. Site location.

2. Site location and description

2.1.1. The proposed development area (PDA) is located to the southwest of Richborough, Kent (Illus 1). It covers an area of approximately 79 ha and currently consists of 18 fields of arable land centred on National Grid Reference (NGR TR 3111 5933). It is situated approximately 700 m northwest of Sandwich, in the parish of Ash, with Ramsgate Road (A257) to the east and Sandwich Road (A257) to the south. The Goshall Stream traverses the western part of the site and forms greater part of the site's north perimeter. The PDA is generally situated on relatively flat, low-lying ground, at around 2-3m above Ordnance Datum, although the central part of the site is slightly higher than the surrounding ground (Illus. 4).

2.1.2. The site lies within reclaimed ground within the Wantsum Channel- a watercourse which was a transport route during the Iron Age and Romano-British period and formed a natural defence to the nearby Roman settlement at Richborough.

2.1.3. The BGS Geology of Britain Viewer (https://geologyviewer.bgs.ac.uk/) records the bedrock geology at the site as consisting of Thanet Formation – sand, silt and clay; sedimentary bedrock formed between 59.2 and 56 million years ago during the Palaeogene period. These are overlain by Tidal Flat deposits of clay and silt; sedimentary superficial deposits formed between 11.8 thousand years ago and the present during the Quaternary period (Illus 2).

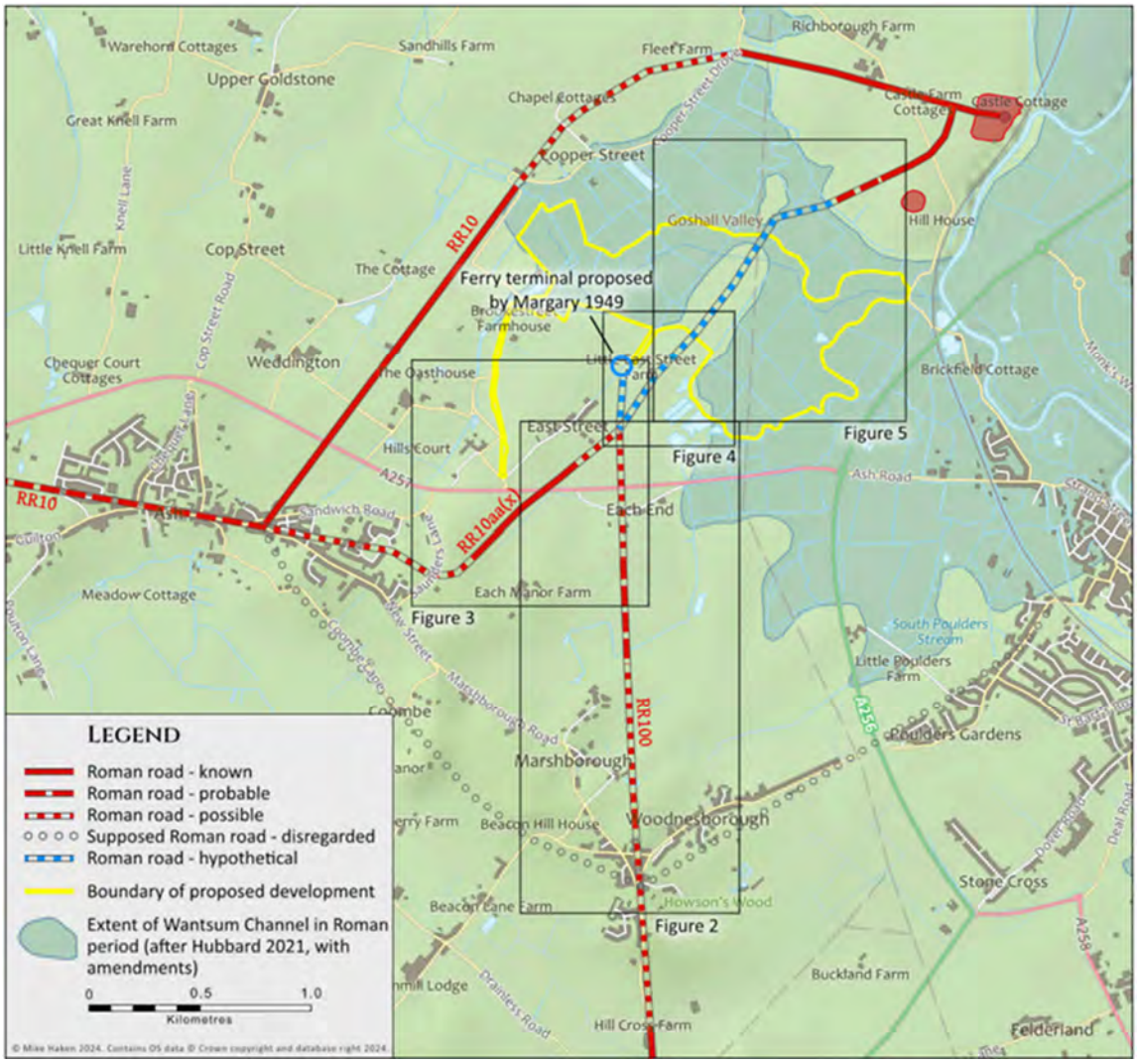


Illus 2. British Geological Survey, Superficial geology.

3. Archaeological and planning background

3.1.1. An Archaeological Impact Assessment (Foundations Heritage, Nov 2022), informed by a geophysical (magnetometry) survey report (TigerGeo, Sept 2023) was produced as part of an Environmental Impact Assessment and the planning application for the site. This concluded that the site occupies part of what was once the south side of the Wantsum Channel, the now silted arm of the sea, which formerly separated the Isle of Thanet from the mainland of Kent. It is understood that the island was connected to the landward side by a causeway, which established the line of the later Watling Street (to the north and west of the site). The Wantsum Channel was likely to have been underwater until at least the medieval period and the marshland was drained for agricultural use in the 20th century.

3.1.2. There are no designated heritage assets within the PDA but it lies in proximity to the nationally important Roman Fort at Richborough (*Rutupiae*) and the associated amphitheatre, both of which are scheduled monuments located to the north east of the site. Richborough was a major port during the Roman period and was the bridgehead for the Claudian invasion of Britain in 43 CE.

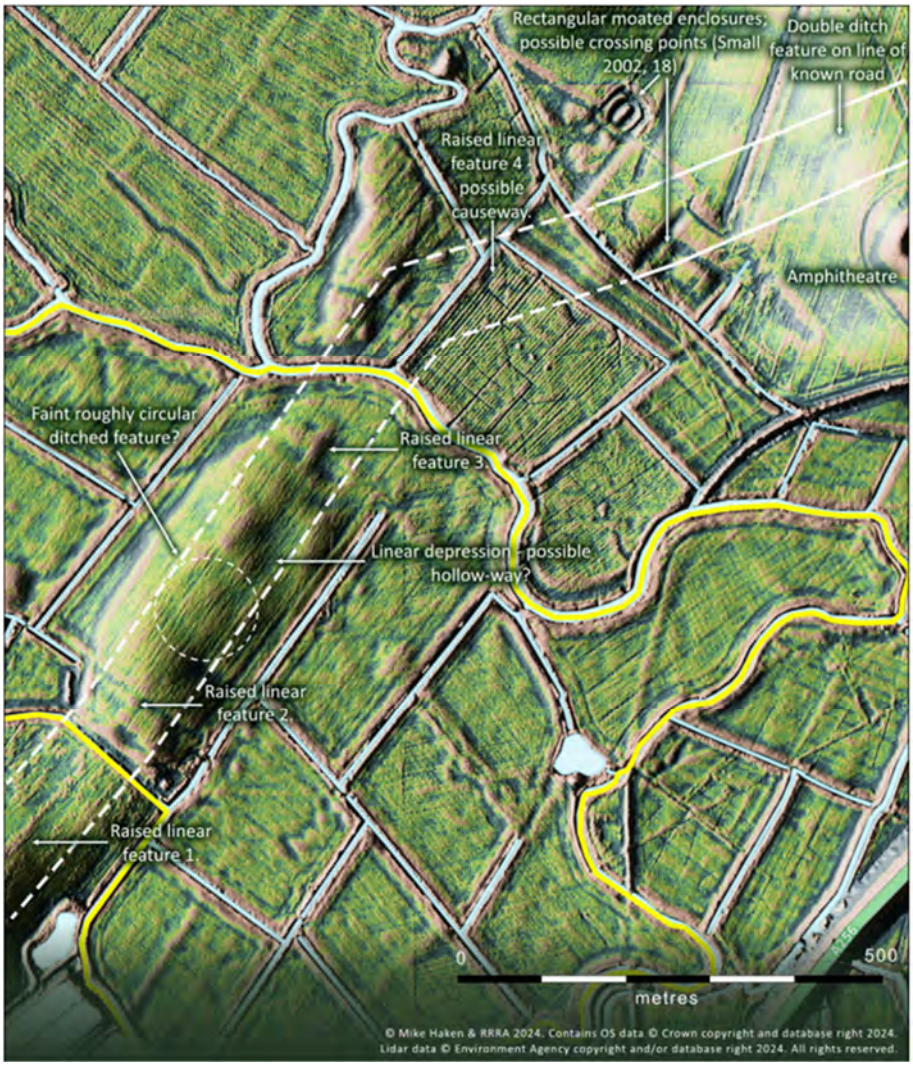


Illus 3. - Map showing a projected layout of Roman roads near Richborough and the extent of the Wantsum Channel. (after Haken 2024)

3.1.3. A number of known Roman Roads connect in the area, in particular a road that runs through the extra mural settlement (*vicus*) at *Rutupiae* and swings southwards past the amphitheatre to the edge of the Wantsum Channel (Illus 3). Its identification close to the Wantsum channel during excavations in 2007 is

mentioned in the excavation report (para 6.4.5). Investigations at Each End, Ash to the south of the site have also revealed a roadside settlement dated to the mid to late 2nd century AD and part of a Roman Road (Hicks 1992).

3.1.4. The alignments of these roads are orientated towards the former Wantsum Channel at Little East Street Farm directly to the south of the site, from where a ferry crossing (mooted by Margery in 1949) or causeway may have connected it with the fort. Although no evidence for such a causeway, or road were detected in the geophysical and LiDAR survey (Tigergeo 2023), there has been some discussion about the form of assessment used in these previous surveys (Haken 2024) and the possibility that a causeway was used to cross the channel which lies within site (Illus 4). The channel itself also has the potential to provide important palaeoenvironmental data, as well as evidence for waterside management and the former landscape context of Richborough island.



Illus 4. - Lidar visualisation of the putative route of a Roman road and causeway via the gravel spur and interpretation of possible associated features (Haken 2024)

3.1.5. The local planning authority's archaeological advisors for Kent County Council (KCC) Heritage Conservation responded at length to the planning application (DOV/23/01363) in a letter dated 8th February 2024, requiring additional information to be submitted to inform determination of the application. In particular they requested a field evaluation prior to the determination in order to understand the significance of the archaeological resource that may be present on the site.

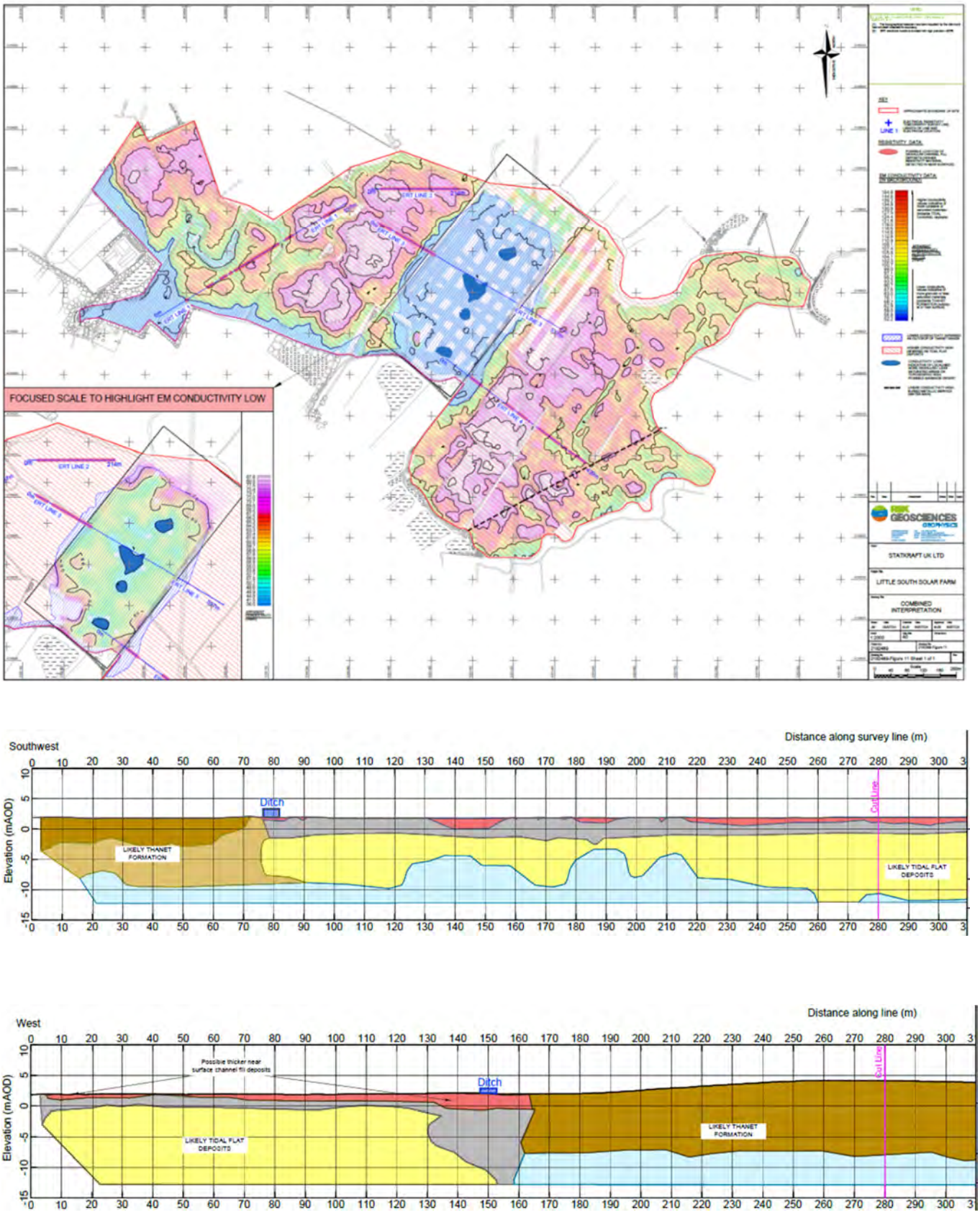
3.1.6. Email correspondence between Headland Archaeology and Ben Found (Senior Archaeological Officer, KCC) and Anne de Vareilles, (Science Advisor at Historic England) as well as in follow up meetings on the 13th and 24th May, confirmed that a staged programme of work would be required. An initial phase of Electro Magnetic (EM) survey was scheduled for the w/c Mon 24th June (5-10 days) followed by EM reporting and agreement of Electro Resistivity Tomography (ERT) transects with KCC w/c 8th July, to be followed by ERT survey (5 days) w/c 15th July.

3.1.7. In summary the EM data results from this survey (Illus 5) showed two broad types of response; a low conductivity area in the centre of the site and the southwest boundary where less saturated and granular Thanet Sand near surface geology is present. This was surrounded by higher conductivity material indicative of more cohesive/saturated tidal flat channel deposits. There was no clear evidence from the data of a linear feature on the topographic high ground in the centre of the site to indicate the presence of a causeway, however there were several discrete areas of lower conductivity here that may indicate more granular ground.

3.1.8. The ERT data showed the presence of high resistivity material where more granular, sandier material was present at or near the surface, and lower resistivity material where more cohesive and saturated tidal flat deposits were present (Illus 5). This allowed the profile of the channel to be mapped along the transects, confirming that any deposits of archaeological interest within the channel would be buried at depth (15 m +) within the site, below the later deposited silts.

3.1.9. A follow up meeting was conducted on 19th August 2024 with KCC and the HE advisors to feed back the results of the survey and outline the next phase of work. It was agreed that given the limited archaeological impacts arising from a solar farm development the determination of the application could be best achieved through a programme of targeted trial trenching aiming to detect any subsurface features that may be present in the upper sequences of deposits. Trenches would focus on the raised spur of land in the centre of the site to target the potential Roman road alignment, the north of the spur to investigate any features that may be present where the topography drops away, as well as the channel edge in the far southwest of the site. An area in the northeast of the site would also be investigated where there is some potential for a prehistoric land surface (detected by previous work on the Thanet Main Supply scheme) which passed to the north of the application site. There archaeological remains were previously found to be preserved beneath later alluvium at a depth of about 1m.

3.1.10. As part of this exercise archaeological monitoring would also be undertaken, with test pits (as sondages) to be driven in some key trenches. Analysis would be conducted on material showing potential for organic remains within these sondages to determine the nature of the deposits and would form the basis of a specialist report to be produced as an appendix to the evaluation report. This would allow for an assessment of the material to be made to identify deposits which may contain paleoenvironmental and dating evidence. It would also investigate the uniformity of the deposits in the raised spur in the centre of the PDA to inform consideration of whether the spur is likely to represent redeposited material from man-made intervention or naturally-occurring deposits. Archaeological monitoring would also take place during the excavation of soakaway pits as part of the preliminary ground investigations to similarly investigate the near-surface deposits in a wider spread of locations across the site.



Illus 5. - Results of the EM/ERT survey (RSK 2024) Combined interpretation and ERT transects below (Line 1&3 west).

4. Aims and objectives

4.1.1. The primary aim of the works is to facilitate determination of a planning application with respect to buried archaeology at the site.

4.1.2. The specific objectives of the evaluation are therefore to:

- Make a competent record of the location and character of any archaeological remains encountered in the evaluation as illustrated in Error! Reference source not found.;
- Recover any archaeologically significant artefacts disturbed during the works for specialist examination and reporting;
- Recover samples of any material which has potential for the survival of paleoenvironmental or dating evidence from secure archaeological contexts;
- Prepare a report on the findings of the archaeological evaluation, any material recovered, and their significance; and
- Deposit the archive with an appropriate repository and submit the completed report to the online OASIS archaeological report library.

4.1.3. The evaluation was specifically designed to establish the presence/absence of a Roman road running across an area of high ground projecting into the Wantsum Channel; test the geophysical surveys with their characterisation of the edge of the channel; investigate the potential for deposits to contain paleoenvironmental evidence; test the potential for the presence of buried land surfaces towards the north eastern limit of the site.

5. Methodology

5.1.1. The trial trenching comprised ten trial trenches (T1 to T10) each measuring 50.00m x 1.80m designed to assess the route of the Roman road as well as to target the channel edges, areas of higher impact such as the compound locations and area which may have contained potential deposits of interest.

5.2. Site works

5.2.1. All trenches were set out using differential GPS, which was also used to provide absolute heights Above Ordnance Datum (AOD). Service plans were consulted in advance of excavation and safe digging techniques were observed. A cable avoidance tool (CAT Scanner) was used to scan trenches in advance of opening. The position of any overhead cables was noted on site and an appropriate stand-off was used to ensure that no trenches were excavated in unsuitable locations.

5.2.2. Trenches were opened with a tracked excavator, suitably equipped with a toothless ditching bucket. All trenches were excavated by machine under direct archaeological supervision to remove topsoil and were excavated in controlled spits/levels. Machine excavation was terminated at the top of the natural geology or the first significant archaeological horizon, whichever was encountered first. Further investigation of deep depositional sequences, particularly where potential colluvium or other deposits were present, was undertaken by machine-dug sondages at selected locations as considered necessary. Spoil was stored beside the trench; topsoil and subsoil were kept separate by putting topsoil on one side of the trench and subsoil on the other.

5.2.3. Excavation of archaeological deposits and features required to satisfy the objectives of the evaluation continued by hand. On completion of machine excavation, a representative section of the trench was cleaned using appropriate hand tools where required. The stratigraphic sequence was recorded in full in each of the trenches, even where no archaeological deposits had been identified.

5.2.4. A sufficient quantity (to adequately evaluate the site) of identified features was investigated and recorded. This involved excavation of 50% of discrete features, and a 1m slot of linear features. Where features formed a definite arrangement a sample of features within the arrangement was sample excavated with the agreement of the curator. Features not suited to excavation in evaluation trenches were investigated in plan only. This typically applies to areas of complex, intercutting features such as structures with in-situ floor surfaces, kilns and other 'special' features, all of which benefit from open area investigation and suffer when excavated during trial trench evaluations. No features were wholly excavated; similarly, structures and features worthy of preservation were not unduly excavated.

5.2.5. Due to Health and Safety considerations, excavation of sondages were constrained. There was no hand excavation beyond a maximum depth of 1m and machine excavated sondages greater than 2 m proved to be unstable in the waterlogged loose material encountered at the site. Further work to investigate deeper deposits for palaeoenvironmental or geoarchaeological analysis will require a separate methodology using borehole drilling and specialist geoarchaeological assessment. For the purposes of determining the planning application with respect to archaeological impacts, the information provided here should be sufficient since deposits in the top 2m of the sequence have been investigated.

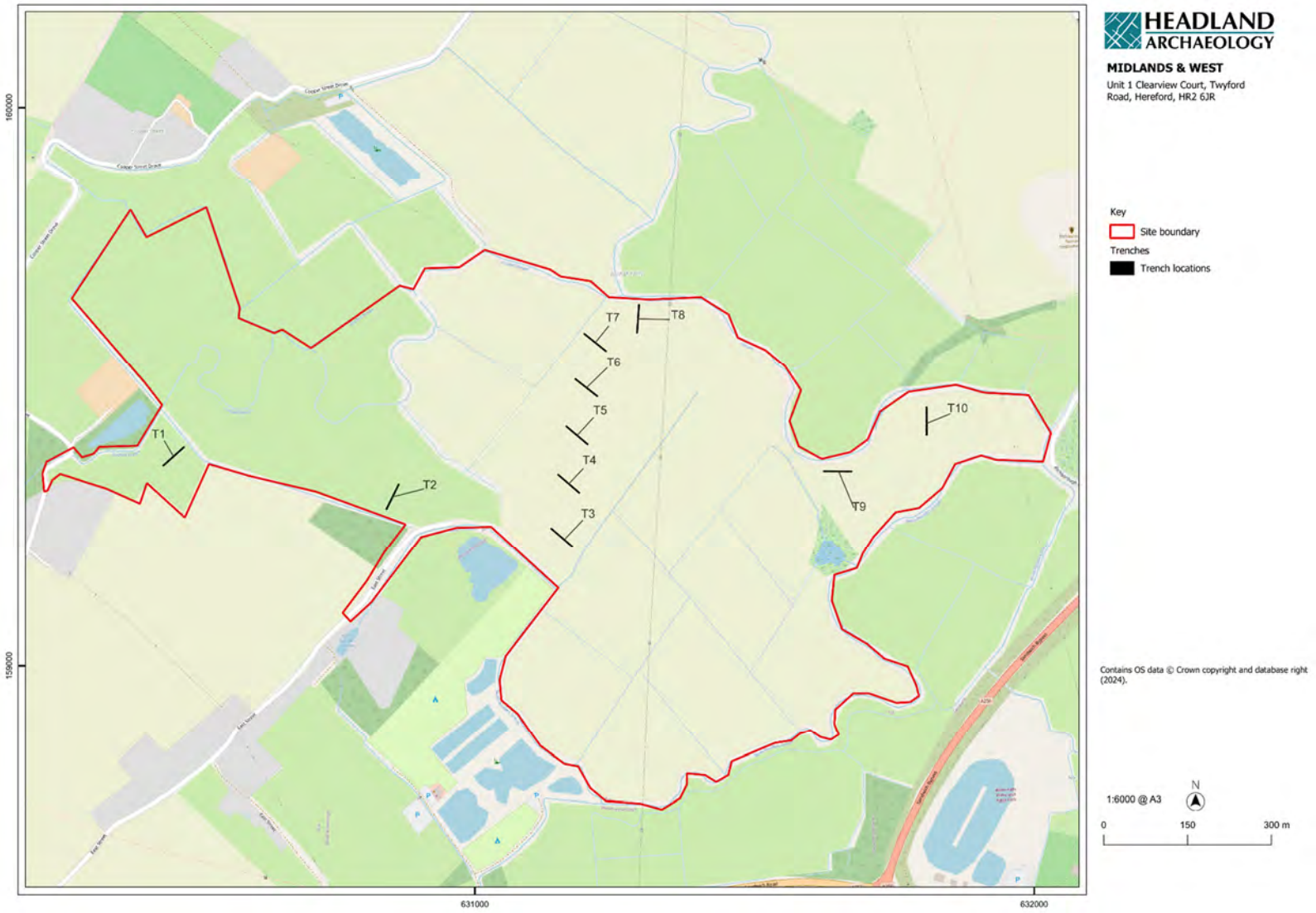
5.3. Recording

5.3.1. All recording has followed CIfA Standards and Guidance for conducting archaeological field evaluation (CIfA 2023a). All contexts, small finds and environmental samples were given unique numbers. All recording was undertaken on Headland's pro forma context record sheets. Where stratified deposits were encountered, a 'Harris' matrix was compiled. Digital photography was used to record all archaeological features; a graduated metric scale is clearly visible. All relevant registers will be compiled and included in the final version of the report.

5.3.2. A site plan including all identified features, areas of excavation and other pertinent information was recorded by digital recording undertaken using a differential GPS that allowed data checking while in the field. Plans and sections were recorded digitally.

5.4. Reporting and archives

5.4.1. The archive comprising finds and records has been retained by Headland Archaeology and will be deposited with Dover Museum following the completion of the post-excavation stages of work. All archive preparation will be undertaken in accordance with the guidelines published by the CIfA on behalf of the Archaeological Archives Forum (AAF 2011) and in line with the WSI, which states any additional requirements by the curator. A summary will be prepared for the OASIS database and will be accompanied by a PDF of the final report.



Illus 6. – Trench location plan

6. Results

Trench 1

6.1.1. Located in Field 16 aligned northeast-southwest measuring 50.00m by 1.80m. This trench was located across the edge of the Wantsum Channel identified from the geophysical surveys.

6.1.2. A machine-excavated sondage was placed at either end of the trench.

6.1.3. The "natural" deposits in trench 1 were identified at 0.4m below-ground level (bgl) and as being a greyish yellow clay (103), this was shown in Sondage A to extend to 1.4m bgl.

6.1.4. Sondage A located at the southwestern end of the trench was excavated to a depth of 2m. At c.1.7m bgl (105) a grey organic clay sand was found, above this sat (104) a grey clay, this had a thickness of 0.3m and was found at 1.4m bgl. Above this sat the uppermost natural drift geology, (103) this was a greyish yellow clay c. 1.00m thick, above this was a thin layer of subsoil (102) which was 0.10m thick above which was (101) the topsoil.

6.1.5. Sondage B, located at the northeastern end of the trench, was excavated to a depth of 2.5m. At 1.7m bgl (106) a deposit of peat was located, above this was (104) which was 0.6m thick, and was located at 1.1m bgl. Above this was (102) which was located at 0.35m bgl, and finally the topsoil. The greyish yellow clay (103) was not found at this section of the trench.

Illus 7. Trench 1 looking south west.

6.1.6. The peat deposit was sampled for palaeoenvironmental and dating analysis. This is assumed to be a naturally-formed deposit accumulated in waterlogged conditions during the post-Roman period prior to the drainage of the area and land reclamation during the post-Medieval period.

6.1.7. The absence of peat deposits at the south western limit of the trench is consistent with a different sequence of deposits outside the channel to within it, with the south western end of the trench located in this area.

6.1.8. No archaeological cut features, artefacts, structures or former land surfaces were identified in Trench 1.

Illus 8. Trench 1 looking south west.

Trench 2

6.1.9. Located in Field 8 aligned northeast-southwest and measured 50.00m by 1.80m. Trench 2 was located in area within the Wantsum Channel close to the southern edge in an area which will be used for hard infrastructure in the proposed development.

6.1.10. A sondage was placed at either end on the trench. Sondage A at the southern end and Sondage B at the northern end.

6.1.11. The natural drift geology was investigated along the trench: a greyish-yellow clay (203) was identified at 0.7m below-ground level. Above this sat (202) a brown alluvial clay at 0.3m below-ground level.

6.1.12. Sondage A was excavated to a depth of c.2.5m at a depth of 2.3m bgl a green clay was identified (206), above this sat (205) a grey clay, at 0.2-0.3m in depth, a sample <2> was taken. Above this was a yellow-grey clay (204), this sat below (203) and (202), (201) being the topsoil at 0.3m in depth.

6.1.13. Sondage B was excavated to a depth of 1.3m: at 1.0m (204) a yellow clay was identified. At 0.3m bgl a mix of alluvium and yellow clay (207) was found, this was beneath (202) a layer of brown alluvial clay at 0.2m bgl. This was overlain by the topsoil (201) which had a depth of 0.3m.

6.1.14. No archaeological cut features, artefacts, structures or former land surfaces were identified in Trench 2.

Illus 9. Trench 2 looking north east.

Trench 3

6.1.15. Located in Field 9 aligned northwest-southeast and measured 50.00m by 1.80m.

6.1.16. This trench was located as one of five designed to intercept a postulated Roman road which could have run along a ridge of raised ground towards the Roman settlement at Richborough to the north east.

6.1.17. The natural drift geology (302) was encountered at 0. 5m bgl, this was a mid-brownish orange silty clay with sparse small sub-rounded stones, this sat beneath the topsoil (301) a mid-brownish grey silty clay with sparse small sub-rounded stones contained within.

6.1.18. Within trench 3 groups of animal bones were identified at the interface between topsoil and drift geology.

6.1.19. A partially intact sheep skeleton (303) was found above animal skeleton (304) at the interface between the topsoil (301) and underlying natural drift geology (302).. Context (304) a partial sheep skeleton, had

been placed into a cut within topsoil (301) and backfilled: there was no visible cut, and this this sat above the interface with underlying natural (302).

6.1.20. An animal skeleton (305) below, likely sheep, but also may have been pig based on the site, had been heavily disturbed by the machining, this skeleton appeared to have been deposited in the topsoil, only one piece of limb bone was remaining in the trench, this was not retained, as this was likely to be a modern deposit given the context of its discovery in topsoil, and was found at 28m along the trench from the southeastern end.

6.1.21. Animal skeleton (306) was also found at 24-26m along the trench from the southeastern end, this sat above context (302). This was a partially intact portions of an animal skeleton(s). there were several patches of semi-articulated pieces of skeleton, however these were not fully intact and as a head, trunk, and limbs were placed separately it was likely to be multiple individual sheep placed in a shallow cut; there was no visible sign of butchery marks. The skeletons were recovered from within the topsoil with no cuts visible in the trench, suggesting that these were relatively modern. The excavation team included a fully qualified palaeopathologist, so it is possible to be confident in the identification of the skeletons as sheep.

6.1.22. No definite archaeological cut features, artefacts, structures or former land surfaces were identified in Trench 3. There were no indications of a Roman Road in Trench 3.

Illus 10. Trench 3 showing partial animal skeletons context (303) and (309) located at base of topsoil.

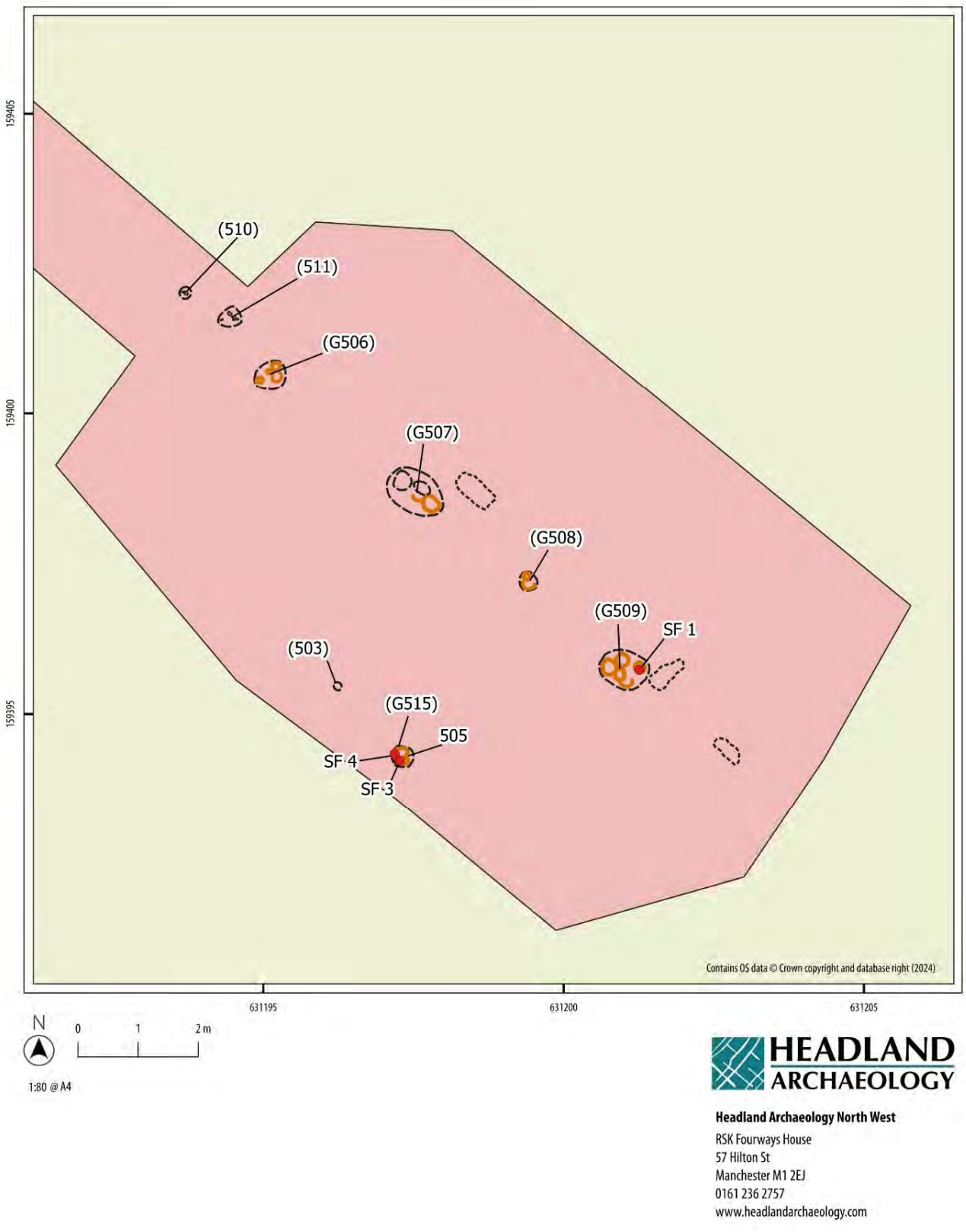
Trench 4

6.1.23. Located in Field 9 aligned northwest-southeast and measured 50.00m by 1.80m. Trench 4 was designed to intercept the posited Roman road which may have been located on the ridge of high ground projecting into the Wantsum Channel.

6.1.24. The natural (402) was found at 0.35m bgl, this was a natural yellow clay. Above this sat (401) the topsoil. A machine-excavated sondage was placed at the southeastern end of the trench with was excavated to a further 0.55m with no change in the “natural”.

6.1.25. No archaeological cut features, artefacts, structures or former land surfaces were identified in Trench 4. There were no traces of a Roman road (such as roadside ditches or spreads of metalling).

Illus 11. Trench 4 section of machine excavated sondage into natural clay (402).



Illus 12. Trench 5 detail of archaeological features.

Trench 5

6.1.26. Located in Field 9 aligned northwest-southeast and initially measured 50.00m by 1.80m. Southern limit extended. The extension was located 40m along the trench from the northwestern end, this additional area measured 12m by 8m.

6.1.27. This trench was designed to intercept the posited line of a Roman road running towards the Roman settlement of Richborough to the north east.

6.1.28. The natural drift geology (502) was a mid-greyish orange sandy clay with frequent small sub-rounded pebbles; this deposit was encountered at 0.26m bgl. Above this sat the topsoil (501) a dark greyish brown silty clay with frequent sub-rounded pebbles and 0.20-0.25m in depth.

6.1.29. At the southeastern end of the trench cremation vessels and artefacts were exposed immediately beneath the topsoil. The trench was extended to establish the extent of the cremation burials and see if it was an isolated example.

6.1.30. A total of 6 cremation burials (or likely cremations) were identified. Only 2 were excavated during the evaluation to demonstrate their nature and the remainder were preserved in situ. The two excavated cremations were both in urns (i.e. ceramic containers) which were lifted on site and subsequently excavated in the laboratory by a palaeopathologist (See Appendix 1 for detailed report).

6.1.31. Contexts (510) and (511) were discrete spreads of pottery exposed after machining. These were not obviously located over cut features and are thought to have been either within the topsoil and/or dragged into position during the machine stripping.

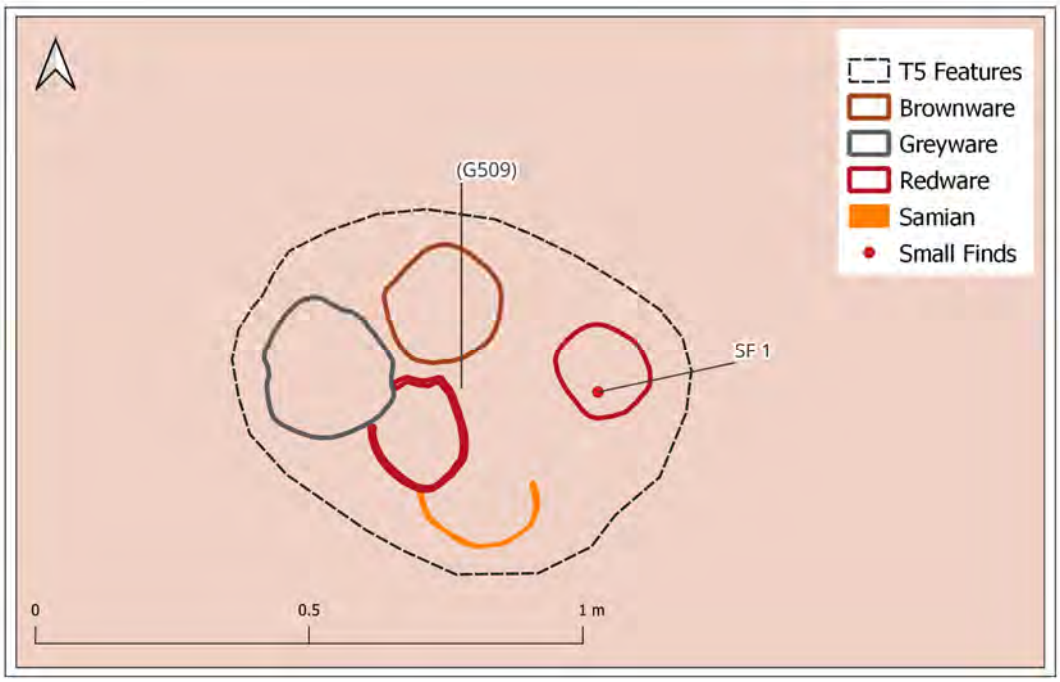
6.1.32. Context group (G506) consisted of a greyware vessel urn containing a cremation, a Samian plate and Samian vessel rim and a small greyware vessel. All were left in situ and not excavated.

6.1.33. Context group (G507) was the number allocated to a cluster of up to two cremations, one urned and another un-urned (observed as a concentration of charcoal and burnt bone). There was a large sherd of Samian plate alongside these cremations. G507 was left in situ and not excavated.

6.1.34. Context group (G508) consisted of a small broken redware vessel (such as a cup or jug) and part of a Samian plate. These were exposed at the surface and not obviously related to a cremation, although they may have been goods deposited alongside and within a cut which otherwise contained an unexposed cremation. G508 was left in situ and not excavated.

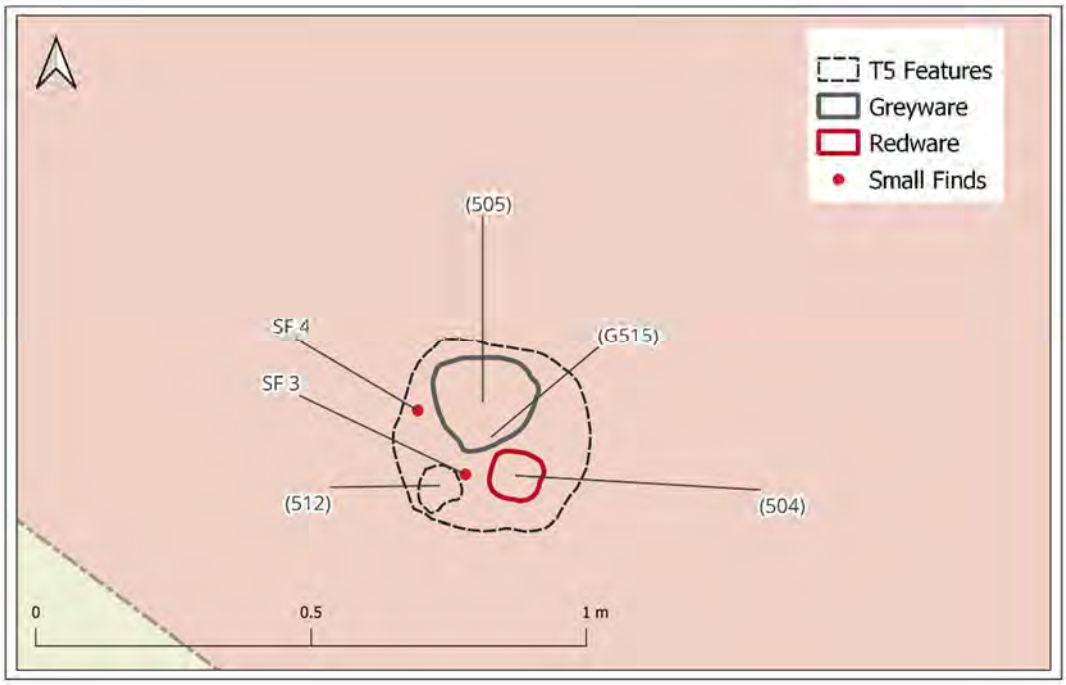
6.1.35. Context group G509 was a cluster of at least three urned cremations, one of which had a small shale or jet bracelet located over it (Small find 1). A partially exposed Samian plate and broken redware vessel were immediately adjacent to the urns. All the cremations had been truncated by ploughing. The bracelet was recovered and is currently being conserved. The cremations and vessels were left in situ and not excavated.

Illus 13. Trench 5: working shot of G509 cluster of cremation urns recorded and left in situ



Illus 14. Trench 5: detail of context group G509

6.1.36. Context group G515 was an urned cremation (505) with two associated vessels (512)/SF 3 and (504)/SF4. This cremation was recovered, with the urn being excavated in the lab (see Appendix 1). The burial pit fully excavated to expose a circular cut (514) which was 0.38 m in diameter and 0.08m deep.



Illus 15. Trench 5: Context Group G515 including cremation urn 505

Illus 16. Trench 5: lifting cremation (505) looking southwest

6.1.37. Context (503) (SF2) was part of a Samian vessel containing burnt bone (i.e. an urn) sat on the surface of the underlying natural. This may have been the remnant of an urned cremation in situ or a previously displaced component of another cremation burial. (503) was recovered and excavated in the lab (see Appendix 1 below).

Illus 17. Trench 5. Showing Samian vessel (503) small find number 2 in-situ looking west.

Illus 18. Trench 5 context group (G506) looking northwest.

Illus 19. Trench 5. Showing context group (G507) looking southeast.

Illus 20. Trench 5 showing context group (G507) partial excavation.

Illus 21. Trench 5 showing group (G508) looking northwest.

Illus 22. Trench 5 showing group (G509), pre-excavation and left in-situ.

Illus 23. Trench 5. Showing group (G509) shale (or jet) bracelet top left.

Illus 24. Trench 5, showing detail of small find 1 (jet or shale bracelet) in-situ.

6.1.38. Trench 5 was the only trench with archaeological remains. After recording the positions of the respective cremations, two were lifted for excavation in the lab. The recovered pottery is subject to specialist analysis (forthcoming). The shale/jet bracelet was recovered, and the remains of the unexcavated features covered with geotextile and carefully reburied. It should be noted that the cremations were partially truncated by ploughing. Assuming that they had originally been buried at a reasonable depth (i.e. over 400 mm below the contemporary ground surface): the area has been subject to erosion since the Romano-British period.

If the remains had not been identified during the evaluation, they would soon have been lost to modern agricultural practice (such ploughing, drilling and removal of root vegetables).

6.1.39. The upper surface of the exposed natural geology was 5.76m AOD adjacent to pottery scatter (510) and 5.73m AOD close to context group (G509).

6.1.40. There was no evidence for the presence of a Roman road within Trench 5.

Trench 6

6.1.41. Located in Field 9 aligned northwest-southeast and measured 50.00m by 1.80m.

6.1.42. The trench was designed to intercept the potential alignment of a Roman road postulated to run along the ridge of raised ground projecting into the Wantsum Channel.

6.1.43. The natural drift geology was located at 0.5m below-ground level (bgl): an orange clay (603), above this was an orange sandy-silty clay subsoil with rounded flint evenly spaced (602), this measured 0.2m in depth and was located 0.3m bgl. Above this was the topsoil (601) 0.3m thick.

6.1.44. A sondage was placed at the south-eastern end, this was taken to 1.25m bgl, with context (603) still visible at this level. There were no deposits indicative of channel silts in the sondage, consistent with the interpretation of topographic data suggesting that this ridge of high ground was not part of the Wantsum Channel.

6.1.45. No archaeological cut features, artefacts, structures or former land surfaces were identified in Trench 6. There were no traces of a Roman road (such as roadside ditches or spreads of metalling).

Illus 25. Trench 6, northwest end looking southeast.

Trench 7

6.1.46. Located in Field 9 aligned northwest-southeast and measured 50.00m by 1.80m.

6.1.47. This trench was designed to intercept the projected line of a Roman Road.

6.1.48. Over the length of the trench it was excavated through the topsoil and subsoil to c.0.3m bgl, where the natural was located, this was a medium light grey-orange clay (703). Above this was a shallow layer, 0.1m thick and located 0.2m bgl, (702) a medium grey clay subsoil, above was a 0.2m thick layer of topsoil, (701) a medium brown silty clay. There were inclusions of chalk and 19th century porcelain in the topsoil.

6.1.49. A band of grey clay was observed in the natural clay- this was 6m wide and interpreted as a palaeochannel. It was not investigated.

6.1.50. No archaeological cut features, artefacts, structures or former land surfaces were identified in Trench 7. There were no traces of a Roman road (such as roadside ditches or spreads of metalling).

Illus 26. Trench 7 looking northwest.

Trench 8

6.1.51. Located in Field 9 aligned north south and measured 50.00m by 1.80m.

6.1.52. Trench 8 was located at the northern tip of the high ground projected into the Wantsum Channel. This is the area where the ridge would have dropped towards the water during the Romano-British period. It was located with a view to identifying former land surfaces and any waterfront facilities which may have been positioned at the end of the putative road running along the ridge of high ground.

6.1.53. The natural (803) was located at 0.5m bgl, this was a medium-light grey-orange sandy clay with rounded flint pebbles. Above this was a thin layer, 0.2m in depth (802) a medium light grey sandy friable clay subsoil, which was 0.3m bgl. The topsoil (801) was a medium grey-brown silty clay 0.3m thick.

6.1.54. A sondage was placed at the southern end; however, this was stopped when a land drain fragment was observed.

6.1.55. A band of grey clay was observed in the natural clay- this was 6m wide and interpreted as the same paleochannel as identified in Trench 7.

6.1.56. No archaeological cut features, artefacts, structures or former land surfaces were identified in Trench 8. There were no traces of a Roman road (such as roadside ditches or spreads of metalling).

Illus 27. Trench 8 looking south.

Trench 9

6.1.57. Located in the proposed nature restoration area Trench 9 was aligned east-west and measured 50.00m by 1.80m.

6.1.58. Trench 9 was one of two trenches located towards the north eastern limit of the site to investigate the potential for former land surfaces. Previous excavations to the north of the site had identified Iron Age archaeological remains. The geophysical survey results suggested that this trench was within the Wantsum Channel away from the channel edge.

6.1.59. No archaeological remains were identified in Trench 9. The exposed deposits were investigated by sondage (to 2.7m bgl) after the stripping of the modern topsoil. The sondage collapsed at depths beyond this with the deposits waterlogged and sand-rich.

6.1.60. The deepest (earliest deposit) encountered was a water-saturated mid-grey slightly silty sand (904) located at 2.7- 1.9 m bgl. Above this was a light greyish green clay (903) 1.1m thick located at 0.4m bgl and extended to 1.5m in depth. Above (903) was a mid-orange-brown silty clay (902) this was 0.1m thick and located 0.3m bgl. The topsoil (901) was a dark brown soft clayey silt which was 0.3m in thickness. No archaeological cut features, artefacts, structures or former land surfaces were identified in Trench 9.

Illus 28. Trench 9 facing west.

Trench 10

6.1.61. Located in the proposed nature restoration area the trench was aligned north-south and measured 50.00m by 1.80m.

6.1.62. Trench 10 was one of two trenches located towards the north eastern limit of the site to investigate the potential for former land surfaces. Previous excavations to the north of the site had identified Iron Age archaeological remains. The geophysical survey results suggested that this trench was within the Wantsum Channel away from the channel edge.

6.1.63. The trench was excavated to a depth of 0.4m and then a machine-dug sondage excavated to 2.0m at the southern end.

6.1.64. The earliest deposit encountered was a very wet mid-grey slightly silty sand (1004) located at between 1.5 and 2.0m+ bgl. Above this was a light greyish green clay (1003) this was 1.1m thick located between 0.4m and 1.5m bgl. Above (1003) was a mid-orange-brown silty clay subsoil (1002) this was 0.1m thick. The modern topsoil (1001) was a dark brown soft clayey silt which was 0.3m in thickness.

6.1.65. No archaeological cut features, artefacts, structures or former land surfaces were identified in Trench 9.

Illus 29. Trench 10 looking south.

7. Finds

7.1.1. The finds assemblage consists of:

- 1 shale/jet bracelet (being conserved)
- 1 coin (being conserved, tentatively identified as a Trajan coin date range 98-117 CE)
- 2 urns
- 87 sherd of pottery including 4 Samian, 30 other redwares and 53 greyware fragments.
- 8 fragments of ceramic building material

7.1.2. All the datable finds are identified as being of Romano-British date. The finds assemblage is currently being conserved and will be studied by specialists at Headland Archaeology and will be reported upon in an updated report.

Illus 30. Jet/shale bracelet.

Illus 31. Cremation urn 505.

Illus 32. Cremation urn 503.

8. Palaeoenvironmental samples

8.1.1. A total of 10 samples were recovered, of which 4 were associated with cremations and 6 were bulk samples. Those with cremations have been dry-sieved for recovery of bone fragments by the palaeopathologist. Of the bulk samples one (Sample 8) is currently being analysed for palaeoenvironmental assessment and recovery of material suitable for scientific dating.

9. Discussion

9.1.1. The works were undertaken to gather sufficient information to facilitate determination of the planning application for a solar farm at the site. This meant that it was necessary to understand what archaeological remains might be present at the site, their heritage significance, what the likely development impact might be on them and identify possible mitigation measures.

Archaeological Remains and their significance

9.1.2. The site investigations built upon a body of information accumulated by desk based research and three phases of geophysical survey at the site. The geophysical survey helped to identify the form of the Wantsum Channel within the site boundary and confirm the ridge of slightly higher ground as a naturally-formed body of material.

9.1.3. The trenching and machine-excavated sondages generated results consistent with the expected model of archaeological survival at the site: specifically Romano-British remains on the ridge of high ground but no features of interest elsewhere since the near-surface of the site is largely post-Medieval reclaimed land. A deposit of peat at one location hints at varied formation processes in the silting up and disuse of the channel.

9.1.4. There is local interest in the site and it has been postulated that a Roman road ran through the site running along the low ridge of high ground projecting into the former Wantsum Channel (Hakon 2024 and illustration 3 above). Trenches 3-7 were specifically designed to intercept the route of the postulated road: there was no evidence for the presence of such a road.

9.1.5. If there had been a route to the Roman settlement of Richborough running through the site, then it might be expected to have been a substantial construction, given the long occupation at the site, and therefore subject to phases of maintenance and renewal. Elsewhere in England this is evident as heavily compacted aggregate deposited in layers to form the raised *agger* or road surface, flanked with roadside ditches, typically evident as sequences of ditches filled and recut reflecting a long lifespan and repair over time. Even where roads have been subject to post-Roman use and disrepair, the road is present as compacted spreads of aggregate and traces of roadside ditches. There is clear evidence for soil erosion/ground reduction across the ridge, the exposed cremations were only 200mm below the current surface and clearly partially truncated by modern ploughing. Despite this, it would still be expected that fragmentary evidence for a Roman road would have survived at the site if it were ever there.

9.1.6. The discovery of a cremation cemetery at the site was unexpected and represents a contribution to our understanding of the land use in the area during the Romano-British period. The evaluation trench was extended to establish whether or not the initial discovery (at the southeastern limit of Trench 5) was an isolated cremation burial. It was apparent that there were more cremations present, and it is possible that the cemetery extends beyond the enlarged excavation area investigated here. The cemetery is unlikely to extend beyond the area of raised ground since the adjacent lower-lying land would have been within the Wantsum Channel under water or marshland during the Romano-British period. This sets a boundary to the maximum possible extents. Analysis of the cremated bone identified one adult and one unaged individual with the cremations having taken place away from the immediate burial location. The pyre technology indicated consistent high temperatures associated with well-established practise. The material examined established selection of cremated material and the careful placement of high quality (Samian) table wares and shale/jet jewellery.

9.1.7. Two of the cremations were lifted and excavated in a lab (under the provisions of burial licence 24-0267). The heritage significance of this discovery is in their archaeological value: their capacity to inform our understanding of funeral practices and use of land at this location during the Romano-British period. The selection of this location to bury dead was a conscious choice to take it out of other uses such as for arable in one of the few locations in the immediate vicinity which was not low-lying marshland or water.

That it was adjacent to the channel may be significant since it would have been a busy waterway for military traffic during the Romano-British period. The cremation cemetery can be regarded as being of local to regional, moderate importance, and represents an addition to our understanding of Roman Richborough's hinterland. The eroded and damaged condition of the cremations means that without the investigation they would have soon been lost to posterity. Their fragile condition and vulnerability to ongoing agricultural practice means that the development represents their best opportunity for investigation and/or preservation. Possible mitigation measures are discussed below. It might be noted that burials during the Romano-British period are sometimes associated with roads. Whilst this might be considered a secondary form of evidence for the presence of a road in the vicinity, no evidence for a road was encountered during the evaluation.

9.1.8. Initial discussion on site with the LPA archaeological advisor confirms that cremations are a common archaeological discovery, frequently encountered during development-led investigations. Development impacts are not considered to be so significant that they would warrant refusal of consent for a scheme, although mitigation measures would typically be expected to ameliorate impacts.

Development impacts

9.1.9. The cremation cemetery is in an area identified for solar panel arrays. The remains are vulnerable to the following activities:

- Plant traffic movement: especially in wet conditions, but also in dry weather since the cremations are close to the surface and there is evidence for soil erosion in the area.
- Any ground reduction associated such as for ballasted foundations, insertion of piles, fence posts, excavation of trenches for cables, topsoil stripping for access tracks, temporary compounds, buildings and solar farm infrastructure.

Mitigation measures

9.1.10. No mitigation measures have been agreed for the likely development impacts on the cremation cemetery. It is possible to suggest several options for consideration:

- Preservation in situ 1. An area of the site around the cemetery could be fenced-off and no development take place within a defined zone. With the area of archaeological sensitivity managed in such a way as to prevent damage to the cremations (such as conservation grazing). However, the limits of the cemetery are not well understood at this point, so further investigations may be necessary to define this area. Any such work will expose the cremations to damage during topsoil stripping.
- Preservation in situ 2. This area of the site could be populated with solar arrays on ballasted foundations with no below-ground activities, so no levelling of ground before positioning of frames, no buried cable routes; carefully managed plant movement on tracked vehicles only. There are difficulties in knowing how large this area would be without further site investigations to define the limit of the cemetery.
- Preservation by record. The cemetery could be the subject of an open area excavation to record and recover the archaeological remains. This would ensure that a full a picture of what is present is made releasing the land for development in the solar scheme without archaeological constraints. This has the advantage of removing the archaeological constraints for both the development and future land use. The likelihood of the remains surviving a resumption of agricultural activities beyond a few years is very low. The uncertainties over extent of the cemetery would be resolved during the excavation. There may be public sensitivities over disturbing the burials. Disturbance is and has already happening without prior knowledge- respectful

excavation, study and either reburial or deposition in an archive would return the buried to the human community and ensure their survival in perpetuity.

Further works

9.1.11. This interim report will be updated on completion of conservation work and specialist analyses of:

- A Roman coin
- Pottery
- Shale/jet bracelet
- Palaeoenvironmental sample of peat
- Sieved residues of 2 cremations; and be supported with a
- Catalogue of records.

9.1.12. During earlier discussion with Historic England's Regional Science Advisor and the LPA's archaeological advisor, the potential for geoarchaeological information to be present at the site was identified. The subsequent geophysical surveys and this trial trenching have refined our understanding of the form of the Wantsum Channel and near-surface deposits within it. If it proves desirable to develop a better understanding of the geoarchaeological information at the site, this will require a tailored investigation with a capacity to sample deposits at depth.

10. Conclusions

10.1.1. This interim report sets they key findings of the archaeological evaluation. The works were inspected by the LPA archaeological advisor and confirmed to be to an appropriate standard.

10.1.2. The evidence presented here is sufficient to determine the application.

10.1.3. There is no evidence for a Roman Road leading to Roman Richborough.

10.1.4. Archaeological remains were identified, in the form of a Romano-British cremation cemetery, associated artefacts and a peat deposit of paleoenvironmental potential.

10.1.5. The remains are not so important that development impacts should warrant refusal of planning consent to redevelop the site.

10.1.6. Potential mitigation measures have been identified for consideration by the LPA and their archaeological advisor at Kent County Council.

10.1.7. Specialist analyses will be completed and this report updated with the additional information. This will enhance the detail of the investigation but not change the key information for the purposes of determining the planning application.

10.1.8. The archive will be deposited at Dover Museum.

Illus 33. Opening Trench 5.

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Appendix 1: Little South Solar: An Osteological Report

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Little South Solar Farm

Cremated Human Remains. An Osteological Report.

Written by Dr Kate Griffiths

FAL Job Number: 2410 Report Number: FAL2401

8th November 2024

Formation Archaeology Ltd.

Contents. Page No.

1. Introduction

This report contains the results of the osteological analysis of cremated human remains recovered during an archaeological evaluation at Little South, Thanet. The evaluation was undertaken by Formation Archaeology Limited, on behalf of Headland Archaeology, in September 2024, for which a full Assessment Report is currently in preparation.

A total of two cremation burials were recovered from the site, both in ceramic containers ('urns') as were three further cremation related deposits which have been given sample numbers <5>, <6> and <7> and all contain cremated bone. There were potentially at least a further four cremation burials identified in the immediate vicinity, all within a single evaluation trench (Trench 5).
These cremations burials were cleaned, photographed and planned, but left *in situ,* covered with breathable fabrics and backfilled to allow for a proper assessment of the site and its archaeological potential.

Provisional dating, based on the ceramic fabric indicates a Roman date for the cremated bone within, and a detailed specialist report is also in preparation by Headland Archaeology. The surrounding area is known to have been the site of nationally import Roman settlement, with Richborough Fort and the associated Amphitheatre located approximately one mile to the northeast of the site.

This osteological analysis aims to provide a detailed description of the cremated bone recovered, to quantify the bone, to assess, within the limitations of the assemblage, the age, sex and presence of pathological changes, to identify any evidence of pyre technology used in the cremation process and post -cremation treatment of the remains.

2. Method

The cremated material was analysed according to the standards laid out in the guidelines recommended by the British Association of Biological Anthropologists and Osteologists in conjunction with the IFA (Guidelines to the Standards for Recording Human Remains, Brickley and McKinley (eds) 2004) as well as by English Heritage (Human Bones from Archaeological Sites: Guidelines for producing assessment documents and analytical reports, Centre for Archaeology Guidelines, 2002).

After a light spay with water to soften up the fill matrix, the urned cremation burials (503) and (505) were micro-excavated in spits approximately 25 mm thick and the bone fragments were sorted in >10mm, >5mm and >2mm groups using sieves and, after a visual inspection and removal (as far as possible) of smaller bone fragments, the remaining fill resides were retained for removal of bone fragments <2mm and further environmental analysis by Headland Archaeology.

The recovered bone fragments were then washed in order to remove any adhering matrix and aid identification and analysis of skeletal elements, demographic data (sex/age) and presence of pathological lesions.

Although every effort has been made to identify individual skeletal elements in the cremated bone assemblage, there are inherent difficulties when working with cremated human remains. In order to consider an element 'identifiable' a fragment must be placed specifically, for example 'radius shaft' rather than 'upper limb', (McKinley, 2004:11). This level of certainty is highly dependent on the fragment size, which can be the result, of several different factors. It is possible that fragmentation is the result of the cremation process itself, either from the raking of the cremation pyre, or a deliberate act, as part of the collection and interment ritual. Also, damage may inevitably occur during excavation and post-excavation processing (McKinley 1994b). Natural taphonomic processes such as pressure and bioturbation can also play a significant part.

Identification of particular elements of the human body, however, serves to confirm the presence of human material and also may give an insight into any

particular areas of the body which may have been purposefully collected following cremation. The absence of elements, especially those that are smaller, may be due to the lack of their survival as a result of fragmentation during the cremation, post-depositional preservation conditions or may be due to their loss during the cremation itself. The weight of identifiable skeletal elements compared to the total weight of cremated bone per context is presented in Table 2.

The level of disturbance of the urned cremation burials has also been assessed. McKinley (2004:10) identifies six levels of disturbance. These range from 'undisturbed lidded urned burials with little or no sediment infiltration', resulting in the cremated bone being the same size as at the time of deposition, to 'badly disturbed'. The cremation burials in this report fall somewhere in the middle of this range, and this will be briefly discussed later.

The relative quantities of recovered clean bone was weighed to 0.1g accuracy before being analysed, and the relative percentage of fragment size calculated. The results of this are presented in Table 1. The minimum number of individuals (MNI) was also estimated for each context by spit, and this is presented in Table 2.

Cremation burial (505) was micro excavated in 3 spits. Each spit was photographed prior to micro-excavation, and a plan was drawn to show the relative positioning of concentrations of bone.

Cremation burial (503) was much smaller and, as such, only contained a single spit and was photographed but not drawn due to the lack of visibility of the bone fragments.

The cremation related deposits were sieved into the relevant fragment sizes and weighed. It is worth noting that sample 5, although processed separately, was almost certainly part of burial (503) as it contained fragments of the same vessel.

The colour of the bone, reflecting the degree of oxidisation and, therefore, the estimated temperature of the cremation process, was observed and recorded

from both cremation burials. The range of colour variation relating to temperature has previously been characterised thus:

Brown/Orange = unburnt

Black = charred (*circa* 300 degrees C)

Blue/Grey = incompletely oxidised (up to *circa* 600 degrees C)

White = completely oxidised (over 600 degrees C)

(Holden *et al,* 1995).

Where visible, the effects of dehydration during the cremation were observed and recorded. This can be characterised by shrinkage, warping along characteristic patterns such as fissures and transverse, concentric and parabolic cracking, particularly on long bones and cranial vault fragments (McKinley, 1994a). Also, the splitting apart of component parts of an element such as vertebra (McKinley, 2004).

The assemblage was also assessed for the presence of pyre goods, such as animal bone or glass or metal artefacts but none were observed. There is a difference between 'pyre goods' and 'grave goods', with the former being included on the pyre with the deceased individual/s, and the latter being placed in the grave after the cremation process. The cremation process will invariably affect pyre goods, with a degree of oxidisation visible on animal bone, and melting and fusion with bone fragments with glass and copper alloys (McKinley, 2004).

It is also worth bearing in mind, given the degree of fragmentation in the cremated bone from these burials, it is difficult to conclusively differentiate been human bone and animal bone and it is far easier where inhumed burials are concerned when diagnostic skeletal characteristics are easy to observe. With very few diagnostic elements available for observation in this assemblage the identification of 'human' has been made mostly based upon cortical density.

There was no evidence of pyre debris such as ash, charcoal or burnt flint or clay in the fill of either cremation burial, nor was there evidence of any heat action in the surrounding soil matrix, and this will be briefly discussed later.

3. Results

Figure 1. Cremation burial (503) pre-micro excavation.

3.1 Cremation Burial (503).

Although this burial was contained in a ceramic vessel, the quantity of recovered cremated bone was very small, as was the ceramic vessel itself. The fill was a maximum diameter of 72mm, with a maximum thickness of 25mm. For a detailed analysis of the vessel please see the corresponding Headland Archaeology specialist ceramic report.

The level of disturbance of this burial is unclear due to its small size, but all the cremated bone discussed below was recovered from the well compacted sediment infill of the vessel.

The total weight of cremated bone recovered from (503) is 5.4g.

The recovered cremated bone assemblage was so small it was possible to count the fragments in each size category, and these consist of seven fragments in the >10mm category, five fragments in the > 5mm category and nine fragments in the > 2mm category. They were also weighed and these results are in Table 1.

In the >10mm size range the largest fragment was 40mm in length and is almost certainly part of a long bone, although it was not possible to ascertain from which part of the body. Another piece resembles a cranial fragment, and two of the fragments are identified as ribs.

In the >5mm size range there were two fragments of what appears to be trabecular bone possibly belonging to the joint surface of a long bone but the other fragments were unidentifiable.

It was also not possible to identify any skeletal elements in the >2mm size range.

Due to the small size of this cremated bone assemblage, it was impossible to make any evaluation of possible age or sex and it was not possible to observe any pathology. The sole observation it was possible to make was that the minimum number of individuals represented was one individual.

Figure 2. Incompletely oxidised rib fragments from cremation burial (503).

The majority of the bone fragments were white, indicating complete oxidisation due high temperature (> 600 degrees C), except for the two rib fragments which had some patches of blue/grey colouration on the anterior surface.

There were no cremated pyre goods observed, and also no evidence of pyre debris in the fill.

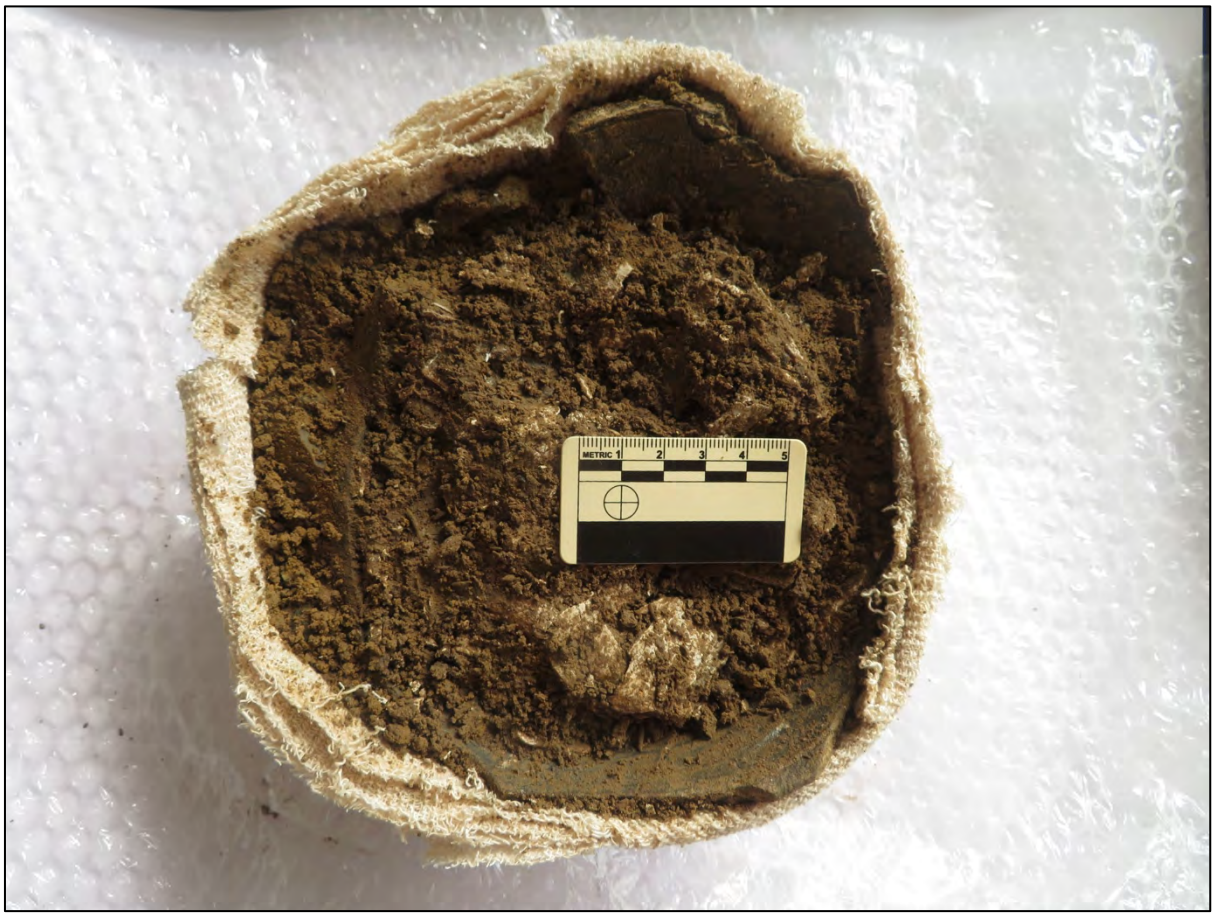

Figure 3. Cremation burial (505), spit 2.

3.2 Cremation Burial (505).

The other urned cremation burial, also within a ceramic vessel was considerably larger with a far larger cremated bone assemblage. Two other ceramic artefacts (504) and (512) were also placed in this burial with the cremation urn. This burial was excavated in three spits approximately 25mm thick, which decreased in diameter from spit 1, to spit 3 at the base of the pot. As above, see the Headland Archaeology specialist ceramic report for detailed analysis of the vessel and associated ceramic artefacts.

The vessel in this burial was partially intact, with a solid base, but there was fragmentation around the top edge with pot sherds collapsed onto the top of the

burial within and the entire vessel was full of compact sediment. The sediment infill will have reduced the fragment size from that of the time of deposition.

The total weight of cremated bone recovered from (505) is 343.5g.

Analysis of the cremated bone assemblage will now be discussed spit by spit, and the relative quantities by weight can be found in Table 1.

Spit 1.

All three fragment size categories are well represented in spit 1.

In the > 10mm size range the largest piece is 32mm in length is probably part of a scapula, but the distortion due to high temperature cremation means this is not certain, so this has not been included in the 'identifiable skeletal element' count. There is a quantity of cranial vault fragments, including one (31mm in length) which is appears to be part of the occipital bone. Also recognisable to body part, if not specific element, is a piece of trabecular bone (25mm in length) from a vertebral body. There are also numerous long bone fragments, some of which may well come from the lower arms.

The > 5mm size range also contains skull and long bone fragments, but again it is not possible to specify skeletal elements, as is the case with the > 2mm sample.

Spit 2.

Spit 2 has the largest quantity of bone fragments. The majority of these fall into the > 10mm category and include a substantial (59mm) fragment of radius shaft and a fragment of a left mandibular gonial angle. There are also numerous cranial vault fragments, several >20mm in size.

There is considerably less in the >5mm and >2mm categories, and with these it was not possible to identify any skeletal elements or body parts.

Figure 4. Cranial fragments from cremation burial (505), spit 2.

Spit 3.

In spit 3 the fragments were more evenly distributed between the size ranges, although in the >10mm category there were noticeably less recognisable cranial vault fragments (only four). Most of this material consists of long bone fragments including three from a femur shaft, the largest of which measures 55mm in length.

It was not possible to identify any skeletal elements in the smaller size ranges.

In the assemblage as a whole, observation of the cortical thickness and general density of the larger bone fragments indicate an adult individual, but there are no sexual diagnostic characteristics. There was also no visible pathology, and, with no recognisable replicated skeletal elements, the minimum number of individuals must be estimated at one.

As with cremation burial (503), almost the whole assemblage is completely calcined/oxidised and white in colour indicating pyre heat of 600 degrees C or more. There is also extensive fissuring both longitudinally and transversely, and warping. Only a very few fragments display any blue/grey colouration, and this is at the lighter end of the colour spectrum.

Again, there was no evidence of pyre goods, and no trace whatsoever of pyre debris (not even charcoal) or ash in the fill.

3.3 Cremation related deposits.

The cremation relation deposits (samples <5>, <6>, and <7>) were small cremated bone surface scatters that were recovered with a small amount of soil. As mentioned above, sample <5> is part of (503), and the association of the other two is unclear so they have been categorised as redeposited bone. All the bone in these deposits is similar in appearance to the urned remains in that they are fully oxidised and exhibit similar patterns of fissures and cracking.

The relative quantities of fragment size can be found in Table 1, but these deposits have not been included in Table 2.

Context/Spit No.	>10mm Weight (g)	>10mm % of total	>5mm Weight (g)	>5mm % of total	>2mm Weight (g)	>2mm % of total	Assessment of bone % <2mm	Total Weight (g)
(503) spit 1	3.7	68.5	1	18.5	0.7	13	<2	5.4
(505) spit 1	53.5	60.2	20.2	22.8	15.1	17	<2	88.8
(505) spit 2	121.1	82.5	13.6	9.3	12.1	8.2	<2	146.8
(505) spit 3	67.2	62.3	34.2	31.7	6.5	6.0	<2	107.9
<5>	4.2	82.4	0.4	7.8	0.5	9.8	<2	5.1
<6>	42.5	81.1	5.8	11.1	4.1	7.8	<2	52.4
<7>	9.4	76.4	1.2	9.8	1.7	13.8	<2	12.3

Table 1. Weight of each fragment size, percentage of total weight, assessment of remaining bone in fill residue< 2mm, and total weight.

Context/Spit No.	Total weight of Cremated bone (g)	Total weight of identifiable skeletal elements(g)	Minimum No. of Individuals (MNI)
(503) spit 1	5.4	1.8	1
(505) spit 1	88.8	7.2	1
(505) Spit 2	146.8	28.5	1
(505) Spit 3	107.9	23.8	1

Table 2. Total weight of cremated bone, total weight of identifiable skeletal elements and minimum number of individuals.

4.0 Discussion

Unfortunately, it was not possible to gain much demographic data from this assemblage, apart from the fact that the deceased individual in Burial (505) was most likely an adult, although this assumption has been based on cortical thickness and general bone density, rather than clear diagnostic skeletal elements such as fully fused epiphyses or dentition.

The weight of the cremated bone from the two burials clearly differs greatly, with 343.5g recovered from (505) compared to 5.4g from (503). Even the quantity recovered from (505) falls well short of the 1,650g which has been found to be the average collected from a modern adult cremation (McKinley 2000a; 269). This is commonly reported in archaeological cremation burials and may well reflect the selection of specific skeletal elements for interment relating to ritual beliefs or perhaps the status of the deceased (McKinley 2000a; 270). McKinley also posits that all cremation burials are essentially 'token' as the entire skeleton is never truly represented (2000c; 42). The very small quantity of cremated bone in (503) may also indicate that this is a 'cenotaph' or memorial burial, which is also recognised archaeologically as a specific cremation rite (McKinley 2000b).

Due to the fragment size, there were also difficulties in clearly identifying skeletal elements. Even though there were numerous recognisable long bone fragments, it was mostly impossible to tell which long bone they were from as there were no cross sections or other diagnostic landmarks visible. The cranial vault fragments were much easier to recognise, even in very small pieces. This bias towards the identification of skull in cremated bone assemblages is well documented (McKinley 2004; 1994b; McKinley and Bond 2001).

As for the pyre technology, the complete oxidisation of the vast majority of the fragments indicates consistent high temperature, at least in the parts of the pyre from where the cremated bone was collected. The complete absence of pyre debris in the urn fills, and the lack of burnt material (ash etc.) adhering to the bone does suggest that the pyre was allowed to run its course and then the bone was carefully collected before being placed in its container. There was also no evidence of heat action in the soil surrounding the cremation vessel.

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