

Watching Brief For Below Ground Site Investigation Report

At:

Former St Johns Ambulance Site,
Armoury Drive,
Gravesend,
Kent DA12 1CT

For:

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Summary

An archaeological watching brief was conducted during geotechnical augering and hand-pitting at the former St John's Ambulance Brigade Head Quarters, Armoury Drive, Gravesend, Kent DA12 1NB (NGR 565110 173560). The site lay within the former Milton Barracks, active from the 1860s to the 1970s. The fieldwork was undertaken on 25 February 2022 and eight positions were investigated.

Archaeologically sterile Palaeogene (Tertiary) Thanet Formation sands formed the bedrock. These sands were overlain in the western part of the site by up to 0.75m of sandy gravel. This probably represented a remnant Pleistocene Thames River Terrace, perhaps in a shallow periglacial feature(s), though a Holocene(?) head deposit derived from Palaeogene Harwich Formation gravels mapped 250m to the south-west cannot be ruled out. At the eastern end of the site, over the compact, pale grey Thanet Formation sands, a single position encountered looser, fine yellow sand overlain by sandy clay: these were probably late Pleistocene and/or early Holocene deposits within a tributary palaeochannel. All other deposits encountered appeared to be of nineteenth-century or later origin and, other than the rammed chalk bedding for the brick floor of one of its buildings, no significant buried deposits or structures relating to the barracks were identified.

It is suggested that the extent and geoarchaeological potential of the Pleistocene and early Holocene deposits is probably insufficient to merit specialist investigation and that, in the absence of any indicators of later prehistoric or historic activity pre-dating the 1860s barracks (save, perhaps, a probably earlier nineteenth-century cultivated soil), despite a fairly intensive investigation, conventional archaeological evaluation is unnecessary.

Building recording work on standing nineteenth-century military structures on the site will be undertaken and the subject of a later report.

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1 General

1.1 Introduction

1.1.1 This document reports upon an archaeological watching brief (WB) conducted, on 25 February 2022, during geotechnical/geoenvironmental site investigation (SI) at the former St John's Ambulance Brigade Head Quarters, Armoury Drive, Gravesend, Kent DA12 1NB (Fig 1; NGR 565110 173560). The site may also be referred to by its proposed new entrance, off Albert Murray Close. The SI fieldwork was undertaken on 25 February 2022 and five windowlessly-sampled boreholes and three small, hand-dug pits (Fig 2, WS01–WS05 and TP01–TP03) were sunk, all being monitored and logged by the writer.

1.1.2 The WB and this report were commissioned of Canterbury Archaeological Trust (CAT) by Sevenoaks Environmental Consultancy, who undertook the SI on behalf of their clients.

1.1.3 The WB also served as reconnaissance for building recording work on nineteenth-century military structures occupying the site. Of these, through a misunderstanding by the main site contractor, one (a storage shed) had already been largely demolished but recording of what remains of it, plus a water tower and boundary walling, will be undertaken and the subject of a later report.

1.2 Planning

1.2.1 On 23 December 2020, the Local Planning Authority (LPA), Gravesham Borough Council, granted planning permission (20200561), with conditions, for the demolition of the existing brick buildings and the erection of two bungalows and a two-storey block of four flats with associated parking, access, landscaping etc.

1.2.1 Condition 17 of the consent dealt with recording of the standing structures, whilst Condition 18 dealt with buried archaeology and read as follows.

No development shall take place until the applicant, or their agents or successors in title, has secured the implementation of a programme of archaeological work in accordance with a written specification and timetable which has been submitted to and approved by the Local Planning Authority.

Reason: To ensure that features of archaeological interest are properly examined and recorded...

1.2.2 Given the potentially contaminated nature of the site, it was felt that the requirements for, and design of, a programme of archaeological evaluation should be informed by the results of the SI and of a WB upon it. Both these tasks were undertaken at short notice, although a Written Scheme of Investigation (WSI) was drafted, approved in principle by the LPA's archaeological advisors, the Heritage Conservation Group of Kent County Council, and submitted with minor amendments (Pratt 2022) based upon their comments. The WB was conducted in accordance with the WSI and with CAT's standard procedures for such work.

1.3 Background

1.3.1 Digital terrain modelling shows the site is on the northern flank of an island of higher ground on the southern margin of the Thames floodplain. The British Geological Survey (BGS on-line) shows Palaeogene (Tertiary) Thanet Formation here, overlain about 200m to the east by Quaternary Head clay, silt, sand and gravel and, about 200m to the south-west, by Palaeogene Lambeth Group sand, silt and clay, the latter capped by a smaller pocket of Palaeogene Harwich Formation gravel and sand about 250m from the site. However, BGS mapping is dependent upon (generally) sparsely distributed data points and Quaternary deposits of Palaeolithic and/or palaeoenvironmental potential might well extend onto the site.

1.3.2 An archaeological desk-based assessment (AOC 2020) and heritage statement (anon 2020) were prepared for the planning application. The former concluded there was only a low potential for prehistoric, Romano-British, Anglo-Saxon or medieval remains to be encountered on the site (Wright 2020, 5.1–5.2). Eighteenth- and nineteenth-century maps showed that the site was formerly agricultural land and remained undeveloped until becoming part of the 1860–1971 Gravesend (Milton) Barracks, a non-designated heritage asset entered on the Kent Historic Environment Record (KHER on-line, TQ67SE211; Wright 2020, 1.4, 2.1.1 and 5.4.7). The standing remains on the current site comprised a partially rebuilt enclosure wall and two small brick buildings, one supporting a metal water tank, the other being a storage shed. It was considered that there was the potential for other military remains to survive below ground.

1.4 Methodology

1.4.1 The SI involved, after breaking-out of a thin tarmacadam surface at one position, the manual excavation of small (0.2–0.3m diameter, 1.0–1.2m deep) starter pits at five positions (WS01–WS05), followed by the sinking of a borehole at each one, employing a continuous-drive sampling rig taking (or attempting to take) 1m long cores in plastic liners to a target depth of 4m below ground level (BGL). The liners were split open (or, occasionally, shaken empty) on site. Some 1m lengths were first subject to standard penetration test (SPT) sampling, using a 0.45m long, 40mm diameter split steel sampler, but these revealed nothing not apparent in the main core. Three small (0.3–0.4m diameter, 1.1–1.3m deep) test pits (TP01–TP03), added to the SI scope after production of the WSI and, by oversight, notified to CAT only on the day, were also dug by hand

1.4.2 The starter pits test pits and cores were monitored and logged by the writer, using standard CAT *pro forma* sheets with up to 10 contexts per sheet. These were then transcribed to CAT's borehole/test-pit database system (XBore), which was used to generate formatted logs and draft pseudo-sections along a chosen transect line (Fig 3, TX1), to which background interpretative colours and annotations were added manually. Each context was then assigned to a broad group and the logs regenerated to include them (Appendix 1). A phased stratigraphic group matrix was deemed unnecessary given the simplicity of the stratigraphy, as too were plans for individual groups or phases. General descriptions and interpretations were written for each group, combined with various lists generated by XBore (Appendix 2) and the source data exported to two independent formats (Appendix 3), accompanied by relevant metadata.

2 Results and interpretation

2.1 Introduction

2.1.1 For borehole, pit and transect locations, see the site plan (Fig 2). For the overall stratigraphic sequence, see the transect (Fig 3).

2.1.2 For detailed logs for each pit or borehole, see Appendix 1; for descriptions and interpretations of each deposit group, see Appendix 2.

2.2 Phases A–B, geology and geoarchaeology

2.2.1 Bedrock consisted of compact, pale grey, silty sands (G10005), very rarely with a few rounded to well rounded flints. They comprised the lowest deposits at all positions save the westernmost, which was too shallow to reach them. Their uppermost surface over most of the site lay at 24.8–26.3m OD, though was probably around only 22.5m OD at the eastern end. These deposits were followed down from their upper surface for about 2–3m at all positions (save the westernmost) without bottoming. The material appeared consistent with the Palaeogene (Tertiary) Thanet Formation sands mapped here by the BGS, although apparently lacking the glauconitic inclusions often seen in such deposits in, for example, eastern Kent.

2.2.2 In the western part of the site, sands G10005 were overlain by up to 0.75m of sandy, generally rounded to well rounded, gravels (G10011). These were probably late(?) Pleistocene fluvial gravels, representing a remnant Thames Terrace Gravel either *in situ* or within a shallow periglacial feature (or features). However, it is possible that they originated as Palaeogene Harwich Formation gravels, mapped by the BGS about 250m to the south-west, transported to the current site as Holocene(?) Head material.

2.2.3 In the easternmost borehole, where compact pale grey sands G10005 were unusually low, they were overlain by about 1.0m of fairly compact (but looser) very slightly greyish yellow fine sand (G10004). This was probably early Holocene or late Pleistocene sand within a minor palaeochannel cutting the Palaeogene deposits. Overlying sand G10004 was about 0.7m of fairly compact orange brown, slightly sandy clay (G10002). This was probably an early(?) Holocene alluvium forming in the same palaeochannel but in lower energy conditions.

2.3 Phases C–D, potential archaeology and modern

2.3.1 As few very diagnostic characteristics were seen, all the deposits post-dating the natural phases A–B and pre-dating existing surfaces were assigned to a single general group (G10011). For the most part these consisted of relatively loose fills or levellings, often with brick rubble, datable to the nineteenth to twentieth centuries. Near the south-western corner of the site (in WS03), a sandy loam probably represented a nineteenth-century(?) cultivated soil pre-dating the barracks and was sealed by a rammed chalk layer which had served as bedding for the (recently

removed) original brick floor of the 1860s building. At the eastern end of the site (in WS01), a thin loam may have been a relict of similar cultivation.

2.3.2 A general number (G10010) was also assigned to all existing surfaces. These were mainly topsoils but included the tarmacadam surface of the eastern access road and debris from the recent demolition of the building which had stood in the south-western corner of the site.

3 Discussion and conclusions

3.1 Discussion

3.1.1 Though impacted upon to some extent by modern disturbance, gravel G10011 has a very low but not entirely negligible geoarchaeological and Palaeolithic/Mesolithic potential. Sand G10004 and clay G10002 are of limited extent and have a low geoarchaeological, geoenvironmental and Palaeolithic/Mesolithic potential.

3.1.2 No deposits likely to pertain to the later prehistoric period, nor to any other period pre-dating the nineteenth century were seen. Probably nineteenth- to twentieth-first-century materials directly overlay natural deposits at every position investigated save for the westernmost, which bottomed in brick rubble. Despite the fairly intensive nature of the SI, no evidence was seen for additional barracks structures surviving below ground. Whilst some rubbly deposits may pertain to the razing or grubbing out of the foundations of minor buildings shown on a map of 1923 (Wright 2020 5.4.1, fig 5), others may pertain to the 2016 removal of a 1970s or 1980s hall built by St John's Ambulance Brigade (*ibid*, 5.4.7)

3.2 Conclusions

3.2.1 The geoarchaeological and early prehistoric potential is probably insufficient to merit a specialist investigation.

3.2.2 Given the lack of any evidence for human activity other than, perhaps cultivation slightly(?) pre-dating the barracks, the degree of disturbance probably caused by the construction, maintenance and partial demolition of the barracks and later buildings, and the lack of any indication that other barracks structures survive, conventional archaeological evaluation trenching is probably not merited, although an intermittent(?) WB on grubbing-out and/or construction groundworks may be considered by the LPA.

3.2.3 Following building recording and associated reporting, a watching brief on the demolition of the water tower should be considered.

3.2.4 Though the total footprint of the SI was very small, the positions were distributed fairly evenly around the site and probably gave a reasonable impression of the overall distribution of geology and of nineteenth-century and later disturbance. The fieldwork was conducted in good weather and the monitoring adequately resourced: confidence in the results is, therefore, good.

References

Anon 2020, 'Heritage Statement – Site: land at Albert Murray Close, Gravesend, Kent DA12 1NB', unpublished [Gravesham Borough Council?] report
(https://docs.gravesham.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=6A20B770B15311EA9D2FE226BB3BE258).

BGS on-line, *Geology of Britain Viewer*, British Geological Survey
(<https://www.bgs.ac.uk/map-viewers/geology-of-britain-viewer/>).

KHER on-line, *Kent Historic Environment Record*, Kent County Council
(<https://webapps.kent.gov.uk/KCC.ExploringKentsPast.Web.Sites.Public/SimpleSearch.aspx>).

Pratt, S 2022, 'Armoury Drive, Gravesend: method statement for watching brief on geotechnical/geoenvironmental augering', unpublished CAT document.

Wright, P 2020, 'Land at Albert Murray Close, Gravesend, Kent: archaeological desk- based assessment', unpublished AOC Archaeology Group Client Report 25283
(https://docs.gravesham.gov.uk/PublicAccess_LIVE/Document/ViewDocument?id=4790ED47C0F711EAAEEBF06E0BC61EBA).

Appendix 1: individual position logs

A1.1 Conventions

In the following logs, National Grid References (NGR), depths (below contemporary ground level) and elevations (above Ordnance Datum) are given in metres. U100, U90 and U60 refer to windowless-samples of the indicated nominal diameter (in mm), alphabetic suffixes are used where successive sample cores of the same diameter were taken. Where the top or bottom of a deposit was inclined, the uppermost limit is given in the first line of the entry, the lowest (preceded by '/') in the relevant column on the second line. Query marks precede the particular word(s) being questioned. Soil descriptions in this subsection use the following frequency and size codes for inclusions: V = Very, R = Rare, C = Common, A = Abundant, S = Small (<10mm in each dimension), M = Medium, L = Large (>100mm in any dimension).

A1.2 TP01 (NGR 565141.7E 173546.7N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group)	Description & interpretation	Sample type
0.00-0.20	26.00-25.80	10010	(G10010)	Fairly loose brownish grey slightly clayey loam. Modern topsoil.	Dug
0.20-1.20	25.80-24.80	10011	(G10011)	Fairly compact fairly pale brownish grey clayey loam, RSCM flint, RM window glass, RL plastic pipe. ?Levelling/fill.	
1.20-1.30	24.80-24.70	10012	(G10005)	Compact pale slightly greyish brown slightly clayey silty sand. Thanet Formation.	Dug

A1.3 TP02 (NGR 565108.1E 173553.4N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group)	Description & interpretation	Sample type
0.00-0.20	26.50-26.30	10030	(G10010)	Fairly loose brownish grey slightly clayey loam. Modern topsoil.	Dug
0.20-0.35	26.30-26.15	10031	(G10011)	Fairly compact slightly brownish grey slightly sandy loam, RSM flint, RSM chalk, RSML brick, RM slate. ?Levelling/fill.	
0.35-0.55	26.15-25.95			Void.	
0.55-1.00	25.95-25.50	10032	(G10071)	Fairly compact greyish yellow slightly loamy very sandy gravel, ASCM rounded flint. ?Fluvial gravel.	
1.00-1.20	25.50-25.30	10033	(G10005)	Compact pale slightly greenish grey silty sand. Thanet Formation.	Dug

A1.4 TP03 (NGR 565097.7E 173566.9N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group)	Description & interpretation	Sample type
0.00-0.10	26.60-26.50	10050	(G0)	Fairly loose brownish grey	Dug

			slightly clayey loam. Modern topsoil.	
0.10-1.10	26.50-25.50	10051	(G0) Loose slightly yellowish greyish brown slightly sandy loam, RSCL brick, CL concrete. Modern levelling/fill.	Dug

A1.5 WS01 (NGR 565159.1E 173547.9N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.18	24.60-24.42	10000	(G10010) Tarmacadam. Modern surface.	Broken
0.18-0.30	24.42-24.30	10001	(G10011) Fairly compact greyish brown slightly sandy clayey loam, RSM flint. Old ground ?surface/levelling/fill.	Broken
0.30-1.00	24.30-23.60	10002	(G10002) Fairly compact orange brown slightly sandy clay. Probably Quaternary alluvium or Thanet Formation, possibly levelling/fill.	Dug
1.00-1.20	23.60-23.40	10003	(G10004) Fairly compact very slightly greyish yellow fine sand. Probably Quaternary ?fluvial sand or Thanet Formation, possibly levelling/fill.	Dug
1.20-1.30	23.40-23.30		Void.	U100A
1.30-2.00	23.30-22.60	10004	(G10004) Fairly compact orange brown slightly sandy clay. Probably Quaternary alluvium or Thanet Formation, possibly levelling/fill.	U100A
2.00-2.10	22.60-22.50		Void.	U100B
2.10-3.00	22.50-21.60	10005	(G10005) Compact pale slightly greenish grey silty sand, RM rounded to well rounded flint. Thanet Formation.	U100B
3.00-4.00	21.60-20.60	10006	(G10005) Compact pale slightly greenish grey silty sand. Thanet Formation.	U60

A1.6 WS02 (NGR 565123.3E 173549.0N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.20	26.50-26.30	10020	(G10010) Fairly loose brownish grey slightly clayey loam. Modern topsoil.	Dug
0.20-0.70	26.30-25.80	10021	(G10005) Fairly compact pale slightly greenish greyish brown slightly silty sand. ?Weathered Thanet Formation.	
0.70-1.00	25.80-25.50	10022	(G10005) Fairly compact brownish yellow silty sand. Thanet Formation.	Dug
1.00-1.10	25.50-25.40	10023	(G10005) Fairly compact brownish yellow silty sand. Thanet Formation.	U100A
1.10-2.00	25.40-24.50	10024	(G10005) Compact pale slightly	

			greenish grey silty sand. Thanet Formation.	
2.00-3.00	24.50-23.50	10025	(G10005) Compact pale slightly greenish grey silty sand. Thanet Formation.	U100A U100B U100B

A1.7 WS03 (NGR 565098.4E 173555.7N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.11	26.40-26.29	10060	(G10010) Loose crushed mortar. Recent demolition levelling.	Dug
0.11-0.20	26.29-26.20	10061	(G10011) Compact rammed chalk, ASCM chalk. Bedding for (recently removed) brick floor (later capped by concrete).	
0.20-0.60	26.20-25.80	10062	(G10011) Fairly compact brownish grey slightly sandy loam, RSM flint. Old ground ?surface.	
0.60-1.10	25.80-25.30	10063	(G10071) Compact slightly greyish orange brown sandy gravel. ?Fluvial gravel.	
1.10-1.20	25.30-25.20	10064	(G10005) Compact pale slightly greenish grey sandy silt. Thanet Formation.	 Dug
1.20-2.00	25.20-24.40	10065	(G10005) Compact pale slightly greenish grey silty sand. Thanet Formation.	U100 U100
2.00-2.10	24.40-24.30		Void.	U90
2.10-3.00	24.30-23.40	10066	(G10005) Compact pale slightly greenish grey silty sand. Thanet Formation.	 U90
3.00-3.15	23.40-23.25		Void.	U60
3.15-4.00	23.25-22.40	10067	(G10005) Compact pale slightly greenish grey silty sand. Thanet Formation.	 U60

A1.8 WS04 (NGR 565113.3E 173561.1N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.25	26.40-26.15	10070	(G10010) Fairly loose brownish grey slightly clayey loam, RSCM rounded flint. Modern topsoil.	Dug
0.25-1.00	26.15-25.40	10071	(G10071) Fairly compact slightly greyish yellow sand, CSAM subrounded to well rounded flint. ?Fluvial gravel.	
1.00-1.10	25.40-25.30	10072	(G10005) Compact pale slightly greenish grey silty sand. Thanet Formation.	 Dug
1.10-1.20	25.30-25.20		Void.	U100
1.20-2.00	25.20-24.40	10073	(G10005) Compact pale slightly greenish grey silty sand. Thanet Formation.	 U100
2.00-2.15	24.40-24.25		Void.	U90
2.15-3.00	24.25-23.40	10074	(G10005) Compact pale slightly	

			greenish grey silty sand. Thanet Formation.	
3.00-3.15	23.40-23.25		Void.	U90
3.15-4.00	23.25-22.40	10075	(G10005) Compact pale slightly greenish grey silty sand. Thanet Formation.	U60

A1.9 WS05 (NGR 565106.9E 173575.2N)

Depth (m BGL)	Elevation (m OD)	Con- text	(Group) Description & interpretation	Sample type
0.00-0.25	26.30-26.05	10040	(G10010) Fairly loose brownish grey slightly clayey loam, RSM flint, RM chalk, RSM brick. Modern topsoil.	Dug
0.25-1.20	26.05-25.10	10041	(G10010) Fairly compact fairly pale greyish brown slightly loamy silt, RSCM rounded flint. ?Fill.	Dug
1.20-1.25 /1.34	25.10-25.05 /24.96	10042	(G10010) Fairly compact fairly pale greyish brown slightly loamy silt, sharp, inclined contact with 10043. ?Fill.	U100A
1.25-2.00 /1.34	25.05-24.30 /24.96	10043	(G10010) Compact pale slightly greenish brownish grey silty sand. Thanet Formation.	U100A
2.00-2.10	24.30-24.20		Void.	U100B
2.10-3.00	24.20-23.30	10044	(G10010) Compact pale slightly greenish brownish grey silty sand. Thanet Formation.	U100B

Appendix 2: group descriptions

A2.1 Conventions

The following entries are sorted by group number, details within them by position, then context number. Soil descriptions use the following frequency and size codes for inclusions: V = Very, R = Rare, C = Common, A = Abundant, S = Small (<10mm in every dimension), M = Medium, L = Large (>100mm in any dimension).

A2.2 Group G10002

Phase B

Fairly compact orange brown, slightly sandy clay identified only at eastern end of site. Over sands G10004, under loam 10001 (G10010). Probably ?early Holocene alluvium, possibly Thanet Formation or modern levelling/fill.

Position: WS01

Context: 10002

Details:

Position	Con	Description & initial interpretation
WS01	10002	Fairly compact orange brown slightly sandy clay. Probably Quaternary alluvium or Thanet Formation, possibly levelling/fill.

A2.3 Group G10004

Phase B

Fairly compact very slightly greyish yellow fine sand, similar to builder's sand, identified only at eastern end of site. Over Thanet Formation G10005, under ?Holocene ?alluvia G10002. Probably ?early Holocene or late Pleistocene fluvial sand, possibly Thanet Formation or modern levelling/fill.

Position: WS01

Contexts: 10003, 10004

Details:

Position	Con	Description & initial interpretation
WS01	10003	Fairly compact very slightly greyish yellow fine sand. Probably Quaternary ?fluvial sand or Thanet Formation, possibly levelling/fill.
WS01	10004	Fairly compact orange brown slightly sandy clay. Probably Quaternary alluvium or Thanet Formation, possibly levelling/fill.

A2.4 Group G10005

Phase A

Compact pale, mainly slightly greenish grey silty sand, very rarely with a few rounded to well rounded flints. Comprised the lowest deposits at all positions save the westernmost test pit,

which bottomed in nineteenth- or twentieth-century deposits. Overlain by ?early Holocene or late Pleistocene deposits G10004 and G10071, or by nineteenth- to twenty-first-century deposits. Palaeogene (Tertiary) Thanet Formation sands. Highest surviving element (context 10021 in WS02, overlain directly by modern topsoil) was rather browner, suggesting it may have been weathered.

Positions: TP01, TP02, WS01, WS02, WS03, WS04

Contexts: 10005, 10006, 10012, 10021, 10022, 10023, 10024, 10025, 10033,
10064, 10065, 10066, 10067, 10072, 10073, 10074, 10075

Details:

Position	Con	Description & initial interpretation
TP01	10012	Compact pale slightly greyish brown slightly clayey silty sand. Thanet Formation.
TP02	10033	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS01	10005	Compact pale slightly greenish grey silty sand, RM rounded to well rounded flint. Thanet Formation.
WS01	10006	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS02	10021	Fairly compact pale slightly greenish greyish brown slightly silty sand. Probably ?weathered Thanet Formation.
WS02	10022	Fairly compact brownish yellow silty sand. Thanet Formation.
WS02	10023	Fairly compact brownish yellow silty sand. Thanet Formation.
WS02	10024	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS02	10025	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS03	10064	Compact pale slightly greenish grey sandy silt. Thanet Formation.
WS03	10065	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS03	10066	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS03	10067	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS04	10072	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS04	10073	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS04	10074	Compact pale slightly greenish grey silty sand. Thanet Formation.
WS04	10075	Compact pale slightly greenish grey silty sand. Thanet Formation.

A2.5 Group G10010

Phase D

General number for existing modern surfaces. Mainly topsoils but includes the tarmacadam surface of the eastern access road and debris from the recent demolition of the building which stood in the south-western corner of the site.

Positions: TP01, TP02, WS01, WS02, WS03, WS04, WS05

Contexts: 10000, 10010, 10020, 10030, 10040, 10041, 10042, 10043, 10044,
10060, 10070

Details:

Position	Con	Description & initial interpretation
TP01	10010	Fairly loose brownish grey slightly clayey loam. Modern topsoil.
TP02	10030	Fairly loose brownish grey slightly clayey loam. Modern topsoil.

WS01	10000	Tarmacadam. Modern surface.
WS02	10020	Fairly loose brownish grey slightly clayey loam. Modern topsoil.
WS03	10060	Loose crushed mortar. Recent demolition levelling.
WS04	10070	Fairly loose brownish grey slightly clayey loam, RSCM rounded flint. Modern topsoil.
WS05	10040	Fairly loose brownish grey slightly clayey loam, RSM flint, RM chalk, RSM brick. Modern topsoil.
WS05	10041	Fairly compact fairly pale greyish brown slightly loamy silt, RSCM rounded flint. ?Fill.
WS05	10042	Fairly compact fairly pale greyish brown slightly loamy silt, sharp, inclined contact with 10043. ?Fill.
WS05	10043	Compact pale slightly greenish brownish grey silty sand. Thanet Formation.
WS05	10044	Compact pale slightly greenish brownish grey silty sand. Thanet Formation.

A2.6 Group G10011

Phase C

General number for probably nineteenth- to twentieth-century fills, levellings or surfaces. Over natural deposits G10002, G10005 and G10071, under existing surface deposits G10010. Mainly fills/levellings but includes, near the western end of the site, a probably fairly late loam and the overlying rammed chalk bedding for a nineteenth-century building. At the eastern end of the site it includes a thin possible old ground surface (or bedding/levelling?) directly under the existing tarmacadam.

Positions: TP01, TP02, WS01, WS03

Contexts: 10001, 10011, 10031, 10061, 10062

Details:

Position	Con	Description & initial interpretation
TP01	10011	Fairly compact fairly pale brownish grey clayey loam, RSCM flint, RM window glass, RL plastic pipe. ?Levelling/fill.
TP02	10031	Fairly compact slightly brownish grey slightly sandy loam, RSM flint, RSM chalk, RSML brick, RM slate. ?Levelling/fill.
WS01	10001	Fairly compact greyish brown slightly sandy clayey loam, RSM flint. Old ground ?surface/levelling/fill.
WS03	10061	Compact rammed chalk, ASCM chalk. Bedding for (recently removed) brick floor (later capped by concrete).
WS03	10062	Fairly compact brownish grey slightly sandy loam, RSM flint. Old ground ?surface.

A2.7 Group G10071

Phase B

Sandy gravels identified in the western portion of the site. Over Thanet Formation G10005, under nineteenth- to twenty-first-century deposits G10011 and G10010. Probably ?late Pleistocene fluvial gravels, representing a remnant Thames Terrace Gravel either in situ or within a shallow periglacial feature.

Positions: TP02, WS03, WS04

Contexts: 10032, 10063, 10071

Details:

Position Con Description & initial interpretation

TP02 10032 Fairly compact greyish yellow slightly loamy very sandy gravel, ASCM rounded flint. ?Fluvial gravel.

WS03 10063 Compact slightly greyish orange brown sandy gravel. ?Fluvial gravel.

WS04 10071 Fairly compact slightly greyish yellow sand, CSAM subrounded to well rounded flint. ?Fluvial gravel.

Appendix 3: metadata and data

A3.1 Introduction

The archaeological borehole and test pit logs used in CAT's in-house borehole database system (XBore) are included below in two formats, which may readily be copied and pasted into other documents and thence into other databases. A very small font size has been adopted as they are not intended to be human-readable (though they can be made so by adjusting the font size). All non-blank project entries have been exported to a single flat-file (*.flt.csv) in comma separated variables format, which most generic database or spreadsheet programs should be able to import (with or without the first line). The field order may then need altering and/or the data be split into component parts for use in specific databases. The data have also been exported as a set of three files (*.LOC.csv, *.STR.csv and *.LIT.csv, covering location, stratigraphy and lithology), which can be imported to the system employed by Museum of London Archaeology (MoLA) for their Greater London borehole database etc. Please contact CAT if problems are encountered or other formats are desired. Note that XBore and the *.flt.csv format allow overlapping depths for deposits if there is a sloping/articulated boundary or if there are different deposits at the same level for some other reason (eg, a wall-face in one half of the borehole and demolition material in the other). In the first case, only the uppermost level is exported into the MoLA format. In the second case, manual removal/editing of individual entries may be required to avoid error messages etc.

A3.2 Flat-file metadata

The first row comprises column names, every remaining row represents a single context. XBore fields map to the exported data thus:

<i>XBore</i>	<i>Exported</i>	<i>Note</i>
(None)	ProjName	Project information, input during export
SITE	SiteCode	Included if multisite option chosen
JOB	Job	Distinguishes separate fieldwork campaigns etc
CATREF	CATref	Unique position name
OLDREF	OldRef	Alternative position name, if any, may not be unique (eg, if separate SIs have a BH1)
NGRE or site grid EASTING	Easting	National or site grid E, in metres
NGRN or site grid NORTHING	Northing	National or site grid N, in metres
GL	GL	Ground level, in metres above OD or site datum
MAXDEP	HoleDepth	Maximum depth logged archaeologically, may be less than maximum depth augered
ST	HoleTypeID	Two character abbreviation, expanded in next field
(Modified) ST	HoleType	Purpose (archaeological or engineering) and type of position (excavation, shell-and-auger, window, windowless, flight auger,

CON	Context	hand auger or pile arisings) Unique (for given SITE) context identifier, new number usually given with each change in CORETYPE (usually ignoring standard penetration tests), no decimals or alphabetic suffixes permitted
TOP	Top	Depth in metres below GL of context top
BOT	Bot	Depth in metres below GL of context base (if recorded)
TOP2	Top2	Secondary depth (eg, if surface stepped or sloping) in metres below GL of context top
BOT2	Bot2	Secondary depth (as above) of context base
DESCRIPT	Descript	Context description, expanded automatically from abbreviated input field DESC
Inclusions + OTHER	Inclusions	Compiled automatically from individual inclusion code fields plus free-text OTHER
COMMENTS	Interpret	Context interpretation etc, expanded automatically from abbreviated input field COMMENT
PXINTERP	PXinterp	Post-excavation interpretation if significantly different from that in COMMENT
SPOTDATE	Spotdate	Dating evidence
CHARTCOL	ClassID	One or two character code indicating interpretative colour used by XBore in automatically drafted transects, matrices and plans
(Modified) CHARTCOL	Class	Usual general meaning of above code, may not apply to all sites
(Optionally modified) PHASE	Phase	Stored as numeric with one decimal point but integer part may be alphabetized in exported data
GRP	Group	General interpretative group, taking the number of one of its component contexts
SET	Set	Interpretative subgroup (if assigned), taking the number of one of its component contexts
RIGTYPE	RigType	General type of equipment employed, ignoring tools etc for starter pits unless abandoned without augering
CORETYPE	SampType	Type of sample (Bulk, Dug, U100, W100 etc)
DATAUG	DatAug	Date of start of augering (per sheet of 10 contexts, new sheet usually begun at each new position)
DATREC	DatRec	Date of start of recording (as above)
RECBY	RecBy	Initials of recorder(s)

A3.3 MoLA format metadata

The first rows of each data file comprises column names, each other row represents a single context. XBore fields map to the exported data thus:

<i>XBore</i>	<i>MoLA location file (*LOC.csv)</i>
CATREF	Bore
(Blank)	Range
(User input)	Township
(Blank)	Section
("Data from Cant. Arch. Trust")	Legal
(Blank)	Longitude
(Blank)	Latitude
NGRE	Easting
NGRN	Northing
GL	Elevation
MAXDEP	TD
("14")	Symbol
("0")	Color
(Blank)	GEIcon
(Modified) ST	Comments
("TRUE")	Enabled
(Blank)	CollarOffset
(Blank)	Meridian
(Blank)	API
<i>XBore</i>	<i>MoLA stratigraphy file (*STR.csv)</i>
CATREF	Bore
TOP	Depth1
BOT	Depth2
COMMENTS+PXINTERP	Stratigraphy
(Modified) CHARTCOL	Class (non-MoLA field, added by CAT)
(Optionally modified) PHASE	Phase (non-MoLA field, added by CAT)
GRP	Group (non-MoLA field, added by CAT)
CON	Context (non-MoLA field, added by CAT)
<i>XBore</i>	<i>MoLA lithology file (*LIT.csv)</i>
CATREF	Bore
TOP	Depth1
BOT	Depth2
DESCRIPT	Lithology
Inclusions + OTHER	Comment

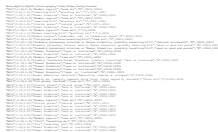
A3.4 Flat-file format data



A3.5 MoLA format location file data



A3.6 MoLA format stratigraphy file data



A3.7 MoLA format lithology file data



A3.8 Technical notes

A3.8.1 When exporting very small fonts to pdf format a very clear and monospaced typeface, such as Courier, should be used as, otherwise, OCR software may be unable to read it reliably.

A3.8.2 In at least some versions of Adobe Acrobat, going through the Edit or Edit Text and Images menus may break the text into unwanted and, perhaps, disordered chunks. Instead, simply press Ctrl+A while in the main viewing panel, then right click and select copy, then paste into the target file in a plain text editor such as Notepad. This may have to be done for each separate source page of interest, though only a single target file is needed. The combined and, if necessary, edited text can then be saved as, or copied to, whatever other document type is desired. When saving such data, a simple, monospaced font is recommended.

A3.8.3 If importing from a file with a .csv extension, any field of a form which possibly could be mistaken as a date (eg, 01/01 as 1 January) will be so mistaken by many or all versions of Microsoft Excel. This can be a particular problem with the CATref and OldRef fields. However, it can be remedied by giving the file a .txt extension instead of .csv, opening it in Excel and selecting the following options (which may vary from version to version) as they appear:

- data type delimited;
- start import at row 1 or 2 (as desired);
- data has headers;

comma as delimiter (deselect any other delimiter options);
double quote as text qualifier;
scroll right, highlight columns with CATref and OldRef (for example) in first row and select text data format;
deselect trailing minus for negative numbers (in Advanced Settings, irrelevant if no GL, Easting or Northing is below zero).

Gravesham Borough Council

Appendix 4: KCC notification form

HER & Fieldwork Notification Form



Sections **A** and **B** to be sent digitally to KCC Heritage Conservation Group **in advance of the start of fieldwork**.
 Section **C** to be completed and sent **at end of fieldwork**.
 Section **D** to be filled in and sent with completed report.

SECTION A - PROJECT DETAILS

Site/Project Name:	ArNPVrZ %rJWe, (rBWeTeOE	NGR:	565125 173555
Site Address: FPrNer 4U +PIOhT ANCVMBODE BrJHBEE)2, ArNPVrZ %rJWe, (rBWeTeOE, KeOU %A12 1/B			
Archaeological Contractor (inc name and address of project contact): \$BOUerCVrZ ArDIBePMPHJDBM 5rVTU, 92A BrPBE 4UreeU, \$BOUerCVrZ \$51 2L6			
Commissioning Body/Client: 4eWeOPBLT EOWJrPONEOUBM \$POTVMUBODZ			
Development Proposals/Reason for Fieldwork:		Planning Reference:	
%eNPMJUJPO Pf \$19UI CBrrBDLT CVJMEJOHT, DPOTUrVDUJPO Pf 2 CVOHBMPXT BOE CMPDL Pf 4 fMBUT		((rBWeTIBN) 20200561	

SECTION B - COMMENCEMENT OF FIELDWORK

Type of Archaeological Fieldwork:	Site Supervisor:	4JNPO 1rBUU	
8B PO HePUeDI 4*	Site Contact Details:	07968573400	
Specification for Works?:	:eT		
Local Museum Notified:	/P	Site Code: A% (22 8BO	
Date:			
Local Arch Soc Notified:	/P		
Date:			
START DATE:	25 FeC 2022	ANTICIPATED DURATION:	1 %A : days/weeks

I (archaeological contractor) confirm that all necessary provision has been made for the resources to complete the archaeological fieldwork, post-excavation analysis and reporting in accordance with the agreed specification.

Name:	4JNPO 1rBUU		
On behalf of:	\$BOUerCVrZ ArDIBePMPHJDBM 5rVTU		
Signed:		Date:	5 MBrDI 2022

SECTION C - COMPLETION OF FIELDWORK

Date Fieldwork Completed:	25 Feb 2022	Was fieldwork monitored by KCC/EH/Other?
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Further Fieldwork Anticipated:	CAT suggests only WB on demo	Who?	n/a
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Map attached showing site location and extent of intervention?	Yes
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Summary of results (Continue on separate sheet if necessary):

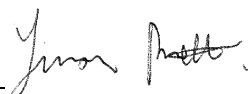
Archaeologically sterile Palaeogene (Tertiary) Thanet Formation sands formed the bedrock. These sands were overlain in the western part of the site by up to 0.75m of sandy gravel. This probably represented a remnant Pleistocene Thames River Terrace, perhaps in a shallow periglacial feature(s), though a Holocene(?) head deposit derived from Palaeogene Harwich Formation gravels mapped 250m to the south-west cannot be ruled out. At the eastern end of the site, over the compact, pale grey Thanet Formation sands, a single position encountered looser, fine yellow sand overlain by sandy clay: these were probably late Pleistocene and/or early Holocene deposits within a tributary palaeochannel. All other deposits encountered appeared to be of nineteenth-century or later origin and, other than the rammed chalk bedding for the brick floor of one of its buildings, no significant buried deposits or structures relating to the barracks were identified.

Agreed Reporting Stages and Program:

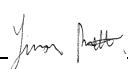
Completed

Name:	Simon Pratt
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On behalf of:	Canterbury Archaeological Trust
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Signed:		Date:	5 March 2022
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SECTION D - COMPLETION OF POST-EXCAVATION ANALYSIS & REPORTING

Reports Submitted (Titles)	Copies to: (Number)											
	KCC	LPA	Arch Soc	Client	EH	Other	Digital Copies					
Former St John's Ambulance Brigade							KCC & Client (latter's client to submit formally to LPA)					
HQ, Armoury Drive, Gravesend, Kent DA12 1NB: watching												
brief on geotechnical site investigation												
HER Data:												
Digital Mapping Data?			Notes:									
			Report includes logs (inc NGR & OD) in two machine-readable formats									
Location and Destination of Archive: Physical and digital archive (ref 4782) currently held by CAT, 92A Broad Street, Canterbury CT1 2LU. Final destination(s) to be agreed.												
Name:	Simon Pratt											
On behalf of:	Canterbury Archaeological Trust											
Signed:					Date:	5 March 2022						

Contains Ordnance Survey data © Crown copyright and database right 2019-2020. Digital elevation model based upon 2019 lidar data collected on a 1m or finer grid for DEFRA. Both data sets are public sector information licensed under the Open Government Licence v3.0 (<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>).

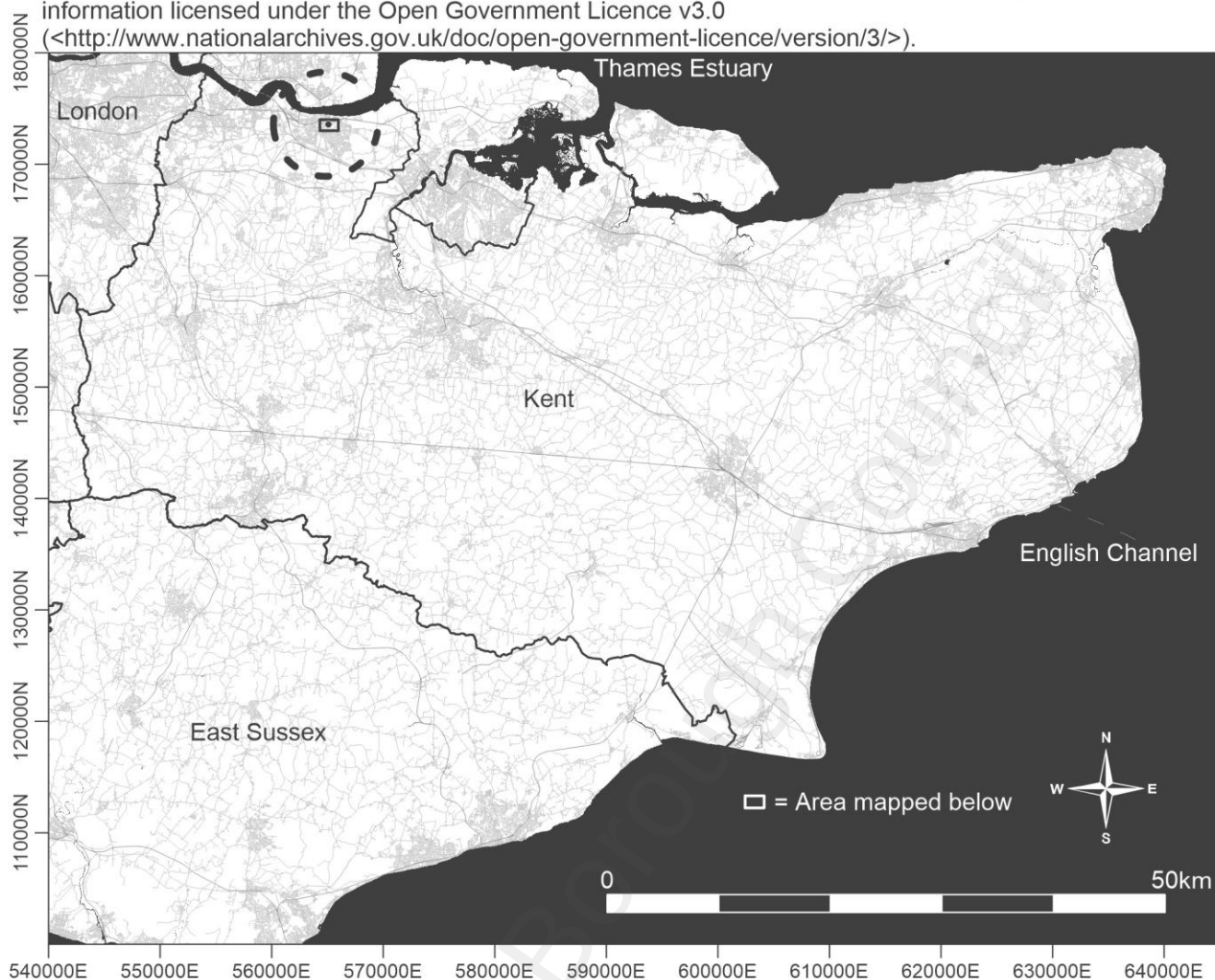


Fig 1 Location maps (1:625,000 and 1:10,000).

Digital elevation model based upon 2018 lidar data collected on a 1 m or finer grid for DEFRA.
Contains public sector information licensed under the Open Government Licence v3.0
(<http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>).

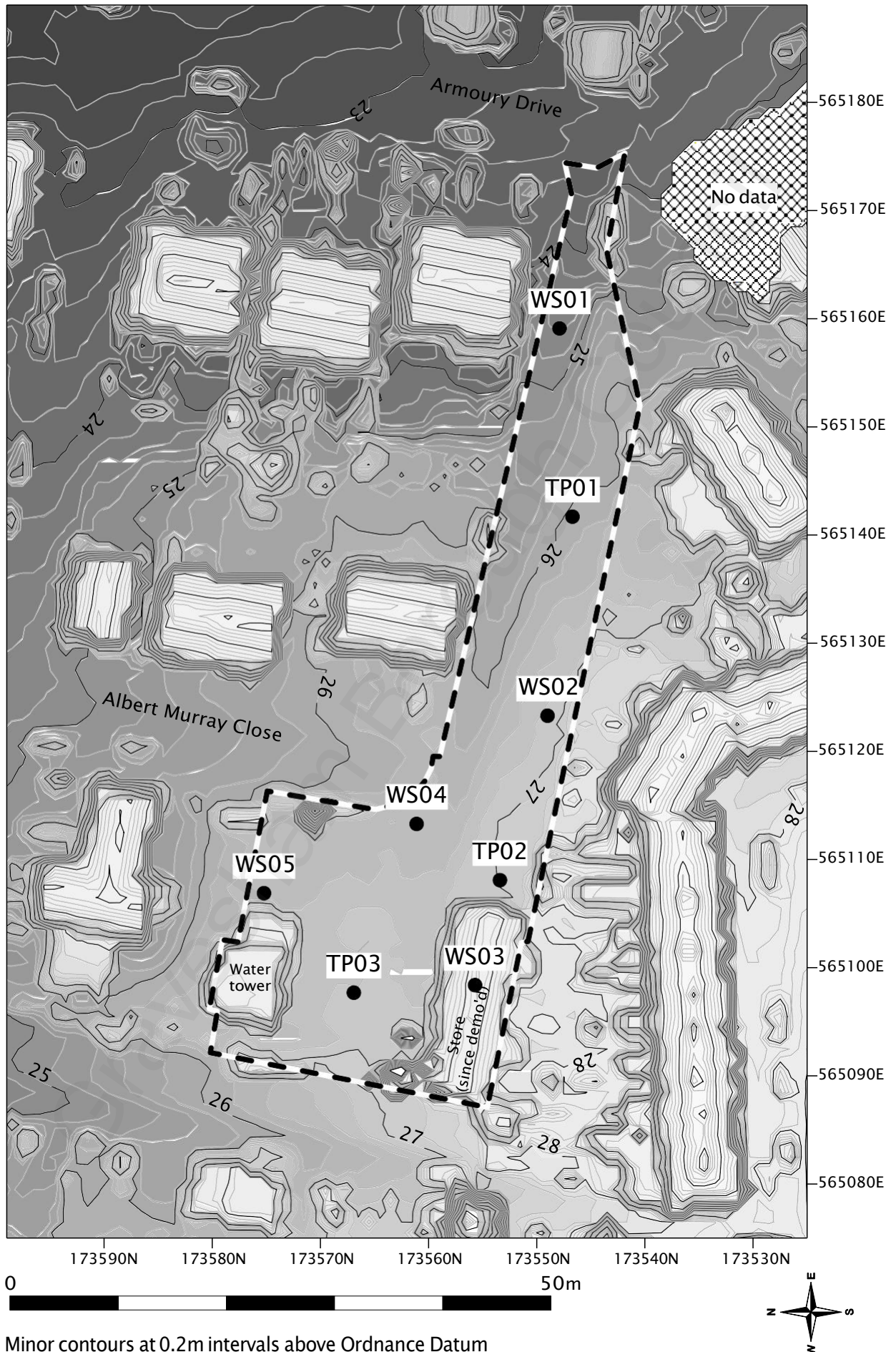


Fig 2 Digital surface model of site (1:500).

