Capelands Farm, Bratton Fleming, Devon: an early Neolithic long enclosure and Beaker activity
Post-excavation report

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Capelands Farm, Bratton Fleming

Archaeological Evaluation Report

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Summary

Prior to the construction of a solar farm a series of archaeological investigations was carried out at Capelands Farm, Bratton Fleming, Devon. The first phase of the investigations consisted of a geophysical survey which suggested the existence of a range of features, the most significant of which was a possible Neolithic long enclosure. Subsequently a series of evaluation trenches was excavated, comprising a 1% sample of the site. However, of three trenches that were focused on the possible enclosure, only one revealed the existence of a ditch that could be associated with the survey results. The same discrepancies occurred in other trenches where geophysical anomalies did not appear to correspond with archaeologically visible features.

Additional detailed geophysical work was commissioned to confirm the existence of the long enclosure and to establish the reasons for the inconsistency between the geophysical survey and the evaluation and a number of explanations are advanced in this report, the most persuasive of which may be that the survey detected the remains of banks rather than features cut into the natural substrate.

Despite these difficulties, the evidence for an early Neolithic enclosure is convincing. It was 146m long and 21m wide, which places it in the upper range of a group of enclosures known as 'long enclosures', and a modest number of similar enclosures are already known in Devon. The only evidence for the date of the Capelands enclosure is provided by a single radiocarbon-dated sample, not entirely convincingly associated with the construction or use of the enclosure, which probably falls in the 38th century cal BC. This is a very early date for a linear monument in Britain, and it suggests that a variety of linear monuments may have been constructed in different regions at an early date. Nevertheless, it is stressed that we should not place too much emphasis on a single poorly associated radiocarbon date, and that further dates would be needed to establish these possible conclusions.

Other significant archaeological evidence from Capelands Farm comprised two probably contemporary Bronze Age pits, one of which contained a relatively large assemblage of Beaker pottery. These features provide potential evidence for the re-use of an earlier ritual complex.

1 INTRODUCTION

This report describes the surprising results of an archaeological evaluation and subsequent geophysical survey undertaken at Capelands Farm, to the east of Bratton Fleming, Devon. These investigations are primarily of interest because they suggest the existence of a long sub-rectangular early Neolithic enclosure (what would once have been called a 'long mortuary enclosure') and a pair of pits dating from the Beaker period. The results of the investigations were not, however, entirely straightforward. Although the enclosure was clearly visible in geophysical surveys, of the three evaluation trenches positioned to investigate what were presumed to be the ditches of the enclosure, two contained no traces of corresponding features. The third did, however, reveal a shallow ditch which contained hazel nutshell from which an early Neolithic radiocarbon date (*c* 3800-3700 cal BC) was obtained. A further two radiocarbon dates indicate that two pits in the same area, one of which contained Beaker pottery, date from the Beaker period (*c* 2300-2200 cal BC). Whilst, overall, the evidence is sufficient to establish the existence of a sub-rectangular early Neolithic enclosure on the site, the unexpected results of the evaluation mean that this report will be concerned with both explaining the seemingly contradictory results of the evaluation and geophysical survey and the significance of the enclosure itself.

2 LOCATION

The area investigated lies 1.5km to the east of Bratton Fleming (Fig. 1), and consisted of an L-shaped group of five fields, covering 23ha (Fig. 2). This area extends from the top of Bratton Downs to the south, descending from *c* 330m aOD to *c* 315m aOD at the southern edge of the site. The underlying solid geology is formed by the Morte Slates Formation.

Prior to enclosure in 1838, the area was probably uncultivated open land. There appears to have been little change in the field boundaries since this time. The land has been used predominantly as pasture, although the recent owner, Mr C Clare, has indicated that it was under arable cultivation in the late 20th century, and the north-western field had been cultivated immediately prior to the evaluation, the crop having just been harvested.

3 ARCHAEOLOGICAL INVESTIGATIONS

3.1 Reasons for the investigations

The investigations were commissioned by CgMs Consulting on behalf of juwi Renewable Energies Ltd to support a planning application to develop the land as a solar farm. It should be stressed at the outset that the impact of the planned solar farm on buried archaeological finds and features was to be very limited. Even after construction of the solar farm, most of the site would remain untouched, and extensive excavation was not, therefore, warranted.

3.2 Desk-based assessment

A desk-based assessment (Evans 2013) had, however, indicated that that the site lay within an area of potentially high archaeological significance. Scheduled bowl barrows lay to the north and east of the site (Fig. 2; Scheduled Monument refs: 1016654 and 1016655), and further round barrows lay further to the south (Scheduled Monument ref: 1017137) and north of the site (Evans 2013; Scheduled Monument ref: 1016657, and HER refs: MDV12062, MDV12063, MDV12064 and MDV12065). The desk-based assessment (Evans 2013, 12, citing English Heritage 2011, 4) suggested that, lying between two barrows, the site of the solar farm might well contain features associated with them. The subsequent evaluation described here did indeed find Beaker period pits which might have been contemporaneous with some of the nearby barrows.

3.3 Geophysical survey

Because of the potential significance of the site, a magnetic susceptibility survey of the site was commissioned. The survey, which is described in more detail below, was carried out by Pre-Construct Geophysics using a fluxgate gradiometer (Pre-Construct Geophysics 2013). Alongside pits and other ditches (including parallel ditches which appeared to define a trackway), the most significant feature revealed by the survey was a sub-rectangular enclosure which it was thought could be the remains of an early Neolithic long enclosure.

3.4 Evaluation

Following the potentially significant results of the geophysical survey, an archaeological evaluation was commissioned. The evaluation was carried out by Oxford Archaeology in October 2013, and given the limited impact of the construction of the solar farm, took the

form of 20 evaluation trenches, measuring 50m by 2m, comprising a 1% sample of the development area. The trenches were laid out across the entirety of the development area, (Fig. 2) but a number of them were located to assess the more significant features revealed by the geophysical survey, and specifically (in Trenches 9, 10 and 14) the potential early Neolithic sub-rectangular enclosure, and (in Trench 2) the possible trackway. Other anomalies identified by the geophysical survey were targeted by Trenches 3, 5, 7 and 15.

3.5 Evaluation methodology

The topsoil and subsoil were removed under archaeological supervision using a mechanical excavator with a toothless bucket, down to the first archaeologically significant horizon or to the natural substrate (typically at a depth of around 0.3m). One long face of each trench was then cleaned by hand to show the stratigraphy and to identify archaeological features. The small number of features were then completely excavated by hand (within the confines of the evaluation trenches). All features were drawn in plan and section at appropriate scales (1:20 or 1:50). Bulk environmental samples were taken from all features of potential prehistoric date to recover charred plant remains and charcoal, and to provide material for radiocarbon dating.

3.6 Discrepancies between geophysical survey and archaeological evaluation

One of the most surprising results of the evaluation was the apparent absence of features where the first geophysical survey had suggested they should exist. The trenches where expected features were not found included two positioned across the Neolithic long enclosure. In the light of this result, it was felt that further excavation might be fruitless and was not warranted by the limited impact of the solar farm on buried features. Nevertheless, it was still important to establish with more certainty the existence of the enclosure, and to clarify how the enclosure could still be visible in the geophysical survey when no traces of subsurface archaeological features could be observed. Further geophysical work was therefore commissioned, as well as radiocarbon dates to establish the date of the features which had been revealed by the evaluation.

3.7 Radiocarbon dates

Three radiocarbon dates were obtained, one from the ditch of the possible early Neolithic enclosure, and two from Beaker pits (Table 1). The radiocarbon dates were measured at the Scottish Universities Environmental Research Centre (http://www.gla.ac.uk/research/az/suerc/). They have been calibrated using OxCal v.4.1.7 (Bronk Ramsey 2009), using the IntCal13 calibration data (Reimer *et al*. 2013), and the calibrated ranges have been rounded outwards to the nearest ten years.

Table 1: Summary of radiocarbon dates

Phase	Feature	Context	Lab. no.	Material	$\delta^{13}C$	Uncalibrated radiocarbon date BP	Calibrated date cal BC (68.2% probability)	Calibrated date cal BC (95.4% probability)
Beaker	pit 803	807	SUERC-56337	charred hazel nutshell	-25.4‰	3806±39	2300-2190 (58.9%) 2180-2140 (9.3%)	2460-2130
Beaker	pit 1405	1404	SUERC-57050	Oak sapwood charcoal	24.3‰	3812±31	2300-2200	2350-2140
Early Neolithic	ditch 1003 (long enclosure)	1004	SUERC-56338	charred hazel nutshell	-28.2‰	4981±39	3800-3700	3940-3870 (14.4%) 3820-3650 (80.1%)

4 THE FIRST GEOPHYSICAL SURVEY

The first phase of the fieldwork consisted of a magnetic susceptibility survey which covered the entire site (Pre-Construct Geophysics 2013). The survey was carried out in July 2013 by Pre-Construct Geophysics, using Bartington Grad-601 Dual Fluxgate Gradiometers, following English Heritage guidelines (English Heritage 2008). The methodology is summarised by Pre-Construct Geophysics (2013, 4) as follows: 'the zig-zag traverse method of survey was used, with readings taken at 0.25m intervals along 1.0m wide traverses. Each survey area was established with a Global Positioning Satellite using a Topcon GRS-1, with an accuracy of ±0.1m and subsequently geo-referenced on an AutoCAD drawing of the site. The data was processed using ArcheoSurveyor 1.3.2.8. In order to enhance the magnetic response of the anomalies, the data was clipped and de-striped.'

The most significant of the features revealed by the survey (Figs 2-3) was the possibly early Neolithic sub-rectangular enclosure, which lay near the eastern edge of the site. Other features included parallel ditches defining a possible trackway near the western side of the site (part of which runs parallel to the modern field boundaries), a small rectangular enclosure in the south-western corner of the site, and a possible circular feature, again near the western edge of the site. Numerous other anomalies which could reflect the presence of ditches and pits were noted – distributed with little apparent order across the site – as well as traces of cultivation which ran parallel to the modern field boundaries. Traces of a recent quarry in the north-western corner of the site were also found. Much variation was also observed which could reflect the presence of natural features.

5 RESULTS OF THE EVALUATION

On the basis of the results of the first geophysical survey, the archaeological evaluation mentioned above was commissioned. Although a number of trenches were positioned specifically to investigate features identified by the geophysical survey (Fig. 2), many of the features identified in the geophysical survey could not be identified in the excavated trenches. The excavations did, however, identify the ditch of the early Neolithic enclosure in one location, two pits which can be dated to the Beaker period, and a small number of features which cannot be dated.

5.1 The early Neolithic enclosure

Three trenches were positioned to investigate the early Neolithic enclosure (Fig. 4). Trench 14 ran through the northern end of the enclosure, Trench 9 east-west across both sides of the enclosure, and Trench 10 across the southern end of the enclosure.

The enclosure ditch in Trench 10 and a radiocarbon date

Of these trenches, only Trench 10 (Figs 5-7) contained any trace of a ditch which might correspond to the enclosure. This ditch (1003) ran roughly east-west across the trench. It was around 0.4m deep, and had a flat base. Near the bottom, the sides sloped more steeply on the southern (outer) edge than they did on the northern (inner) side (Fig. 6). Towards the top of the profile, the sides of the ditch splayed outwards to a greater or lesser extent, and on the southern side (in section 1004 in particular) had a quite marked step. Monitoring of the experimental earthwork at Overton has shown that this sort of profile can be created by the collapse of the upper edges of ditches (Bell *et al*. 1996, figs 7.5-6). The upper parts of the ditch in Trench 10 are perhaps shallower than might be expected if they had been created in this way, but it nonetheless seems likely that the sides of the ditch would originally have been steeper than the upper part of the profile suggests. The surviving width of the ditch (3.0m to 3.7m) probably exaggerates the original width. Extending the steeper, lower part of the profile upwards suggests an original width of around 2.3m at the level of the natural substrate (and around 3m at the surface of the current topsoil).

Although two fills were distinguished within the ditch, they were very similar, consisting of orange-brown clay silt which contained fragments of shale and a few large pieces of granite (up to 0.3m across). The pieces of granite were concentrated especially in the lower layer of

fill (1004) and particularly in a band along the centre of the ditch. As has been mentioned above, similar stones occur naturally on the site, and the arrangement of the stones did not suggest the existence of a structure within the ditch, but rather that they had accumulated as a result of natural erosion or perhaps field clearance.

No artefacts were recovered from the ditch, but hazel nutshell fragments were recovered from a sample taken from the upper layer of fill 1007. Small fragments of charcoal were also recovered from samples taken from both layers of the fill.

A radiocarbon date obtained from the hazel nutshell fragments gave a result indicating an early Neolithic date: probably 3800-3700 cal BC (68.2% probability) and more certainly 3940-3870 cal BC (14.4% probability) or 3820-3650 cal BC (81.0% probability; SUERC-56338: 4981±39; Table 1). It should be stressed that whilst this date certainly indicates early Neolithic activity on the site, the hazel nutshell cannot be regarded as being well associated with the use (and still less of the construction) of the enclosure. The shell fragments were found in the second layer of fill within the ditch and occurred in quite small numbers. They could easily have been stray residual items, incorporated by chance into the ditch fill. Despite this lack of strong association, aside from the form of the monument itself, this determination is the only evidence for the date of the enclosure. As is discussed in more detail below, this is an early date for a Neolithic rectangular enclosure and is not much later than the earliest Neolithic dates in Devon, which raises a number of significant questions. It is, therefore, unfortunate that the dated material was not more certainly associated with the enclosure.

The absence of features in Trenches 9 and 14

Trenches 9 and 14, which would have been expected to cross the sides and northern end of the enclosure were, in fact, devoid of archaeological features (with the exception of a Beaker period pit (1405, described below). In Trench 9 two very faint and irregular bands were found near the area where the western side of the enclosure would have been expected (Fig. 4). Excavation of these bands revealed them to be very shallow and irregular in plan and profile, and that their fills were indistinguishable from the surrounding natural geological substrate. They contained no artefacts or any other indication of having been anthropogenic. They appear to have been natural bands in the substrate which were similar

to natural variations found in most of the other trenches. In both Trenches 9 and 14, after hand excavation was completed, test trenches were excavated mechanically into the natural substrate (to a depth of 0.65m in the case of Trench 9 and to 0.55m in Trench 14) to confirm that no cut archaeological features were present (Fig. 8). In both cases the test trenches failed to reveal any traces of such features. The possible reasons for this are discussed in more detail below.

5.2 Beaker period pits

Evidence for activity in the Beaker period is provided by two features: a pit (803) in Trench 8 and a stone-packed pit (1405) – possibly a large posthole – in Trench 14. Radiocarbon dates were obtained from both features which support their attribution to the Beaker period. The first pit (803) also contained a large deposit of Beaker sherds.

Pit 803

The pit (803) in Trench 8 corresponded to one of the anomalies revealed by the geophysical survey (Fig. 4). It lay around 80m to the west of the possible early Neolithic enclosure. It was oval in plan, measuring 1.1m by 0.8m, and was 0.45m deep. It had near-vertical sides, slightly undercut on the south, and a flattish base (Figs 9-10).

A number of rounded pieces of granite were found in the base of the pit, which held vertical pieces of flat shale in place around the south-western edge of the pit - perhaps the remains of a stone lining. Above (and around) these stones, the fills of the pit consisted of brown silty clay deposits which differed slightly in colour, and which contained varying proportions of stone, charcoal and pottery.

In total 68 sherds (784g) of pottery were recovered from the pit, including decorated sherds from at least two Beakers as well as sherds from a large urn. The largest quantities of pottery were recovered from fills 808 and 805, but sherds were recovered from all of the fills. Some of the sherds from the upper and lower fills probably derive from the same vessels, and it thus seems likely that the pit was filled over a quite short period of time.

Table 2: Summary of the pottery from pit 803

Context	No. sherds/weight	Fabric/form	Comments	Date
804	6/13g	Grog	Undec. body	LN/EBA
805	18/398g	Grog/very large vessel (urn)	1 simple rim, others are undec body	LN/EBA
806	3/24g	Grog	Undec. body	LN/EBA
807	9/24g	Grog	Small undec. body	LN/EBA
807	15/268g	Grog/from large vessel (poss. part of 805)	Undec. body	LN/EBA
807	4/20g	Grog/Beaker	Comb-impressed dec.	LN/EBA
808	1/3g	Grog	Undec. body	LN/EBA
808	10/11g	Grog + granitic rock/Beaker	Comb-impressed	LN/EBA
809	2/23g	Grog	Undec. body	LN/EBA

The pottery (Table 2) was almost entirely in grog-tempered fabrics which are consistent with a Beaker period/early Bronze Age date. The only exception was the presence of a sherd in context 808 which also contained granitic temper.

Overall, the mean sherd weight was 11.5g, but this average is heavily biased by the presence of a large number of sherds from contexts 805 and 807 which may derive from the same larger vessel, probably an urn. The remaining pottery was much more highly fragmented.

Most of the pottery consisted of undecorated body sherds, but several sherds with comb-impressed decoration clearly derive from Beakers. The pottery was too fragmentary for any more detailed attribution of the Beakers to be possible, but it seems likely that they derive from at least two vessels. The pottery in context 805 included a simple rim.

The only other artefact recovered from the pit was a small, very battered flint flake from fill 804.

Charcoal dominated by oak, but also including some alder and hazel, was recovered from samples taken from each of the fills, with the highest concentrations occurring in fills 805 and 807. Hazel nutshell fragments were recovered from fills 805 and 806.

A radiocarbon date obtained from one of these hazel nutshell fragments (from fill 807) indicates that it probably dates from 2300-2140 cal BC (68% probability) and more certainly

from 2460-2130 cal BC (95.4% probability; SUERC-56337: 3806±39 BP; Table 1; Fig. 11). The radiocarbon date obtained from pit 1405 gave a very similar result (see below).

Pit or posthole 1405

A second feature – a pit or posthole (1405) – was found in Trench 14 (Figs 12-13), around 105m to the east of pit 803. It lay close to the location of an anomaly identified by the geophysical survey, within the possible early Neolithic enclosure, close to its northern end, at the location of a possible entrance (Fig. 4). A radiocarbon date obtained on oak sapwood charcoal retrieved from the uppermost fill (1404) suggests, however, that it dates from the Beaker period; probably in the period 2300-2200 cal BC (68.2% probability) and more certainly 2410-2140 cal BC (95.4% probability; SUERC-57050: 3812±31; Table 1; Fig. 11). As such, it was roughly contemporary with pit 803. A correction can be applied to the date to allow for the likely age of the sapwood (see Bayliss and Tyres 2004 and Millard 2002 for details, using data from the post-Roman period), but it makes the date only slightly younger: 2290-2170 cal BC (68.2% probability) and more certainly 2390-2110 cal BC (95.4% probability).

The feature was oval in plan, measuring 1.35m by 0.7m wide. It had steep sides which flared slightly at the top and a flat base, 0.8m deep. Three fills were distinguished, all of which consisted of reddish brown silty clay densely packed with shale and granite stones. The stratigraphically earliest fill (1406) extended down the side of the feature, giving the other two fills (1407 and 1404) the appearance of a post-pipe. This impression was supported by the fact that the stones appeared less densely packed in the latter two fills. There is, however, no indication that the feature formed part of a larger structure, and if it did support a post, it appears that it might have been an isolated feature (although it should be remembered that the evaluation trenches were only 2m wide).

No artefacts were recovered from this feature, but charcoal was retrieved from samples taken from each of the contexts. The sample from context 1404 (the uppermost fill of the feature) also contained hazel nutshell fragments, and charred seeds (not more specifically identified) were recovered from the samples from contexts 1406 and 1407.

5.3 Undated features and finds

In addition to the three dated features discussed above, a small number of other features were identified, to which no specific date can be attributed.

A small pit or posthole (1005) was located in Trench 10 just to the north of the Neolithic enclosure ditch. It was 0.36m wide and 0.15m deep. It had an irregular profile and may have been a natural feature. It contained no finds.

A small, shallow oval pit (103, 0.78m by 0.75m across and 0.09m deep) was identified in Trench 1 (Fig. 14). It appeared to correspond to a pit-like anomaly identified by the geophysical survey.

A small feature (1103) measuring 0.35m in diameter and 0.09m deep was found in Trench 11 (Fig. 15). The feature contained no finds, and may have been either a posthole or a natural feature, such as a root hole or animal burrow. The trench was positioned in an area where the geophysical survey had not identified any features, though that is hardly surprising given the small size of the feature.

Trench 6 was located in an area where the geophysical survey suggested that three features two ditches and one pit - might exist. A faint linear band (603) was identified in the trench, but its fill was not clearly distinguishable from the surrounding natural substrate, and it was extremely shallow (Figs 16-17). It was probably a natural feature, like those identified in Trench 9 (see above).

A single irregular snapped flake, the distal end of which was retouched, and which may originally have formed part of a scraper, was recovered from the topsoil in Trench 10.

5.4 Trenches where no features were found

In addition to Trench 9, which has been discussed above in relation to the early Neolithic enclosure, a number of the other trenches (Trenches 2, 3, 5, 7 and 15) contained no archaeological features even though they were specifically located to investigate anomalies identified by the geophysical survey. Trenches 1 and 2, for example, were located so that they would cross the rectangular enclosure and both of the roughly parallel ditches defining the trackway identified by the geophysical survey near the western edge of the site. Neither of the trenches contained features which appeared to correspond to those revealed by the

survey. In a number of other cases the excavated trenches contained fewer features than the geophysical survey had suggested might exist. Trench 8, for example, contained only one feature, even though the geophysical survey had suggested that a cluster of features would be present. Trenches 4, 12, 13, 16, 17, 18, 19 and 20 also contained no features but were not located in areas where the geophysical survey had suggested they might exist.

6 FURTHER GEOPHYSICAL INVESTIGATIONS

Given the fact that many of the features identified in the first geophysical survey could not be identified in the excavation, further geophysical investigations were commissioned with the aim of testing the initial results (and the existence of the early Neolithic enclosure in particular), and of shedding light on the reasons why features could be detected by geophysical survey but not by excavation.

This second phase of work consisted of a more detailed magnetometer survey of the area of the Neolithic enclosure and a suite of magnetic susceptibility measurements to test whether the magnetic response could be accounted for by variations in magnetic properties within the topsoil.

The susceptibility readings taken during the survey gave high but variable readings, as would be expected on a partially metamorphic bedrock. (The mean value of the readings was 113 x 10-8 SI/kg, with a standard deviation of 60.) It is probable in these conditions that minor displacements or variations in the depth or composition of the topsoil will give rise to detectable magnetic anomalies.

6.1 Survey Procedure

Magnetometer survey

The long enclosure is visible in the 2013 magnetometer survey as a distinct but variable magnetic anomaly, suggesting the feature might not be well-preserved. There is a high background noise level, particularly on the higher ground to the north of the field boundary which intersects the structure (as seen in Figures 18i and 18ii). A further similar but more detailed magnetometer survey was therefore undertaken across a 40 x 152m rectangle located (by GPS) to contain the enclosure. Readings were recorded as in 2013 at 0.25m intervals using Bartington fluxgate magnetometers, but with a transect separation of 0.5 rather than 1m. Results are displayed as grey scale and graphical plots at 1:1000 scale in Figures 18iii and 19i, together with an interpretation showing outlines of selected magnetic anomalies in Figure 19iii.

The graphical plot (Fig. 19i) represents minimally pre-processed magnetometer readings, as recommended for initial presentation of survey data in the English Heritage geophysical guidelines document (English Heritage 2008). Adjustments are made for irregularities in line

spacing caused by variations in the instrument zero setting (as is required for legibility in gradiometer data), but no further filtering or other process which could affect the anomaly profiles or influence the interpretation of the data has been applied. A weak additional 2D low pass filter has been applied to the grey scale plot to adjust background noise levels.

Magnetic susceptibility survey

It is not unknown for magnetic anomalies to represent variations in soil properties within the topsoil, without necessarily extending into the subsoil (see discussion below). This possibility was investigated further by measuring soil magnetic susceptibility values on samples (each of *c* 10g) collected on a 1m grid from areas corresponding to the ends of the long enclosure, together with an intermediate transect. The central transect had to be moved to the north from its intended location to avoid a gravel track which had been constructed alongside the field boundary.

Magnetic susceptibility values represent the ratio of applied to induced magnetic field strength, and so there will be an increase in field intensity (or gradient, as measured in a magnetometer survey) above an area of ground where susceptibility values are enhanced. There is extensive literature on the processes which give rise to soil magnetic susceptibility enhancement (as is summarised for example in Clark 1990, 100-101). One factor is a natural tendency for topsoil to accumulate iron minerals, and any localised increase in topsoil depth will in consequence create a magnetic anomaly. Additional processes may contribute to enhancement in the vicinity of an archaeological site, where burning and decomposition are likely to have occurred. The mechanisms may include the conversion of haematite to maghaemite (by way of magnetite as an intermediate stage) through the alternation of reducing and oxidizing conditions, as may occur during burning. The presence of charcoal (which may relate either to ancient land clearance or settlement) in feature fills suggests that susceptibility enhancement is likely to have occurred here, and that enhanced soils may be more prevalent in fills than in undisturbed topsoil.

The sampling scheme for the survey represents a compromise between detail and coverage, and required 812 samples to be collected and processed. These were dried, weighed, and measured with a Bartington MS2 meter and MS2B laboratory sensor coil. Initial readings were converted to mass-specific values by dividing each by its weight in a spreadsheet,

giving data as shown in Figure 19ii. It was hoped that a gridded sampling exercise of this kind would be more likely to confirm the presence of the enclosure than tests on samples previously collected from the trenches. Sampling was preferred to in-situ measurements of volume susceptibility values taken using a Bartington MS2D coil because sample measurements are not subject to variations caused by irregularities in the ground surface.

Broader trends in the susceptibility data can be seen more clearly in the smoothed plot (also shown in Figure 19ii), where each reading is averaged with a weighted mean of its neighbours. A further high-pass filter (which allows anomalies to be seen against a uniform background) has been applied to the readings as shown in the colour image plot (Fig. 19iii). Interpreted outlines of features from the magnetometer survey are shown superimposed for comparison on the susceptibility plot in Figure 19iii.

6.2 Results

The magnetometer survey, as seen in Figures 18iii and 19i, appears to have achieved its purpose of confirming the presence of the ditched enclosure as seen in the 2013 survey. (An interpreted outline copied from the 2013 plot (2ii) is shown (in brown) together with the (red) 2014 outline in Figures 19ii and 19iii.)

Some additional magnetic disturbances which were not present in the 2013 survey are visible in the 2014 results, but the enclosure remains visible. These include strong negative magnetic anomalies caused by metal spikes which had been inserted to mark the locations of the proposed solar panels (as indicated by blue outlines in Figures 19i and 19iii), and disturbances corresponding to the backfilled trenches.

The relatively coarse resolution of the susceptibility survey (1 reading per m^2 compared with 8 readings per m^2 for the magnetometer survey), and limited coverage, mean that the results cannot fully replicate the magnetometer findings. The most strongly defined features clearly relate to the backfilled trenches 10 and 14, which are represented by strong linear positive susceptibility anomalies (at A and B as labelled in Figure 19iii), but other variations are present which could in total equate to an incomplete representation of the enclosure ditch. The most clearly defined of these is at the north-east corner of the enclosure at C, but other enhanced susceptibility values (at D, E, F) also correspond to magnetic anomalies. Other susceptibility anomalies were detected which do not relate to the enclosure. These

are seen particularly in the central transect, and in the south-east corner of the survey (to the east of B). More extensive sampling might demonstrate whether the susceptibility anomalies seen at C, E and elsewhere continue along the line of the enclosure ditch, but this would be a logistically demanding exercise.

7 DISCUSSION

7.1 Introduction

The results of the investigations of the Neolithic enclosure at Capelands Farm present an unfortunate combination of uncertainty over the existence of the monument and potentially significant chronological evidence which is at odds with some recent theories concerning the development of long enclosures and cursus monuments.

After briefly considering how it is possible that such a site could be represented so clearly in the geophysical surveys and yet not be evident in the excavations, this discussion will consider the classification of the monument. Although it seems clearly to fit within the category of long enclosures, it is noted that the best way to classify linear enclosures of all sorts (and the purposes of such classification) is very uncertain, and that the few similar monuments in southern England which have absolute dates are significantly later in date than the Capelands enclosure.

Brief consideration is then given to the evidence for potentially comparable sites in Devon. Although the chronological evidence from these sites is limited, there are a number of examples which suggest that the enclosure at Capelands Farm was not necessarily isolated but could have formed part of a wider regional tradition.

In conclusion, the wider chronological evidence for long enclosures and related monuments is briefly reviewed. It is noted that if it is accepted that the date from Capelands Farm is associated with the monument, it provides evidence that such monuments were present in the south-west of England probably at an earlier date than those in Scotland (which have been used to argue for a Scottish origin for this broad class of sites). Indeed, the early date for the Capelands enclosure suggests that it was close in date to the beginning of the Neolithic in the south-west, and in particular, to the dates for a sub-rectangular long house at Penhale Round, Cornwall. It thus provides one possible example of a context in which the appearance of long enclosures can be related to the construction of long houses.

7.2 The lack of correspondence between the geophysical survey and the evaluation

The question of why features which were revealed so clearly by the geophysical survey were not apparent in the excavated trenches can be approached in several ways. One explanation

can be made in terms of the way in which certain variations in sediments may be measurable in some ways but not in others. In other words, differences in sediments might correspond to variations in magnetic susceptibility or in soil density, but they may not be visible or evident in differences in soil texture. Such variations must, however, correspond to some anthropogenic alteration of the ground, and it is, therefore, also worth giving some broader consideration to the possible reasons why the resulting physical differences in the ground were not archaeologically visible within the evaluation trenches. The potential reasons include the scale of the excavation and the way it was carried out, the nature of the natural substrate and the fills of the features which were identified, and the way in which the enclosure and other features were constructed. It is suggested that the geophysical survey may, at least in some cases, have detected either the remains of banks in the subsoil (perhaps marked by a higher density of granite and shale fragments than the surroundings), or that the features were so shallow that they were not evident after the subsoil had been machined off. In either case, narrow evaluation trenches do not provide the best means of identifying faintly represented features.

7.3 Soil properties: measurements and observations

by A Bartlett

The possibility that an anomaly might be observed in archaeological prospection data, but that no corresponding structure is seen during subsequent excavation has been noted previously, and was discussed in a paper given at the 2013 Archaeological Prospection Conference in Vienna (Seren *et al*. 2013). This paper suggests that physically measurable variations in the subsurface (including variations in soil magnetic properties) may be caused by archaeological structures, but may not be directly apparent when excavated. An increase in magnetic susceptibility or decrease in soil density (which would potentially be measurable by earth resistance) need not correspond with visible changes of soil colour or texture. This circumstance is described in the paper as unsurprising, and as an indication of the potential value of archaeological prospecting methods.

It is probable that a similar explanation applies to some of the other features which were seen in the 2013 survey (in addition to the long enclosure), and which were not seen in the trenching (perhaps including the apparent trackway at the west of the site which was not identified in Trench 2). The present survey provides an example of these possibilities, and

appears to have demonstrated the presence of a structure which is identifiable primarily on the basis of its magnetic response.

The scale of the excavation

Although the possibility that features may be detected by geophysical survey which might not be visible when excavated provides a general explanation for the results at Capelands Farm, it nonetheless remains the case that the anomalies detected by the survey must correspond to some physical difference in the ground. Before considering what these differences might be, it is worth noting that the scale of the excavation – consisting of narrow evaluation trenches, 2m wide – whilst commensurate with the extent to which the development of the solar farm would disturb the site, did not provide an ideal means of identifying features which might be only faintly visible. Indeed, some of the suggestions made below concerning what the features identified by the geophysical surveys actually consisted of (and how the enclosure and other features were constructed) would imply that the only visible traces in the ground would be quite difficult to identify in a narrow trench. Open area excavation would have provided a better opportunity to identify such faint traces.

One possibility raised below, for example, is that the geophysical surveys actually identified the remains of banks (perhaps marked by a greater density of granite and shale fragments in the subsoil compared to the surroundings). If the banks are now represented only by a somewhat diffuse concentration of stones in the subsoil, then they were probably removed by machine with the subsoil (without attracting attention since such stones are present naturally throughout the site), and would not necessarily be evident in the sections in the sides of the trenches.

Substrates and fills

There is some indication that the character of the natural substrate on which the site lies, and the associated topsoil, might have contributed to the difficulty in observing features. Table 3 presents a summary of the characteristics of the natural substrate and topsoil, and of the fills of the features which were identified. Overall, allowing for individual, subjective variations in the way that the deposits are described, there is very little difference between the descriptions of the fills and the natural substrate and topsoil, most of which consist of

brown, grey-brown or orange-brown silty clays or clayey silts. The one possible exception is the light reddish fill of Beaker pit or posthole 1405.

Table 3: summary of the composition of features fills and natural deposits

Phase	Feature	Colour	Consistency	Inclusions
-	Topsoil	Mid brown	Silty clay loam	
-	Natural substrate (shillet)	Mottled orange-brown/grey	Silty clay	High proportion of shale and occasional granite
Beaker	Pit 803	Varying shades of brown	Silty clay	High proportion of stones, charcoal, pottery
Beaker	Pit or posthole 1405	Light reddish brown	Silty clay	Very high proportion of granite and shale, charcoal
Early Neolithic	Ditch 1003 (long enclosure)	mid orange brown	Clay silt	Shale and occasional granite, charcoal
Undated	Pit 103	Mid greyish-brown	Clay silt	High proportion of stones
Undated	Pit or posthole 1005	mid orange brown	Silty clay	-
Undated	Posthole/root hole/burrow 1103	mid grey brown	Silty clay	-

It is perhaps worth noting here that on sites which have been stripped of the topsoil and subsoil it is commonly found that some features only become apparent after the exposed surface of the site has 'weathered out'. It is impossible to exclude the possibility that some of the features apparently missing from the trenches excavated at Capelands Farm might have become visible if there had been time available to allow for this. There are, however, good arguments against the suggestion that the fills of the features were so similar to the natural substrate that it was not possible to identify them. As has been described above, in Trenches 9 and 14, sondages were machined into the natural substrate to verify the absence of any features, and no trace could be found. The usual process of filling a ditch begins with the collapse of the upper edges (Bell *et al*. 1996). The upper edges would usually consist of topsoil which, in most cases at least, would contrast with the substrate into which the ditch is cut. Whilst it is clear that the fills of ditches undergo certain changes after deposition, it is difficult to imagine a process which would lead to the fills being visually indistinguishable from the substrate. Furthermore, the features which were identified did stand out from the natural substrate both in colour and in the density of stones they contained. At least in the case of Trenches 9 and 14, it seems likely that the features

detected by the geophysical surveys were either not cut into the substrate, but lay within the subsoil or topsoil above, or were preserved only to such a shallow depth that they were effectively invisible after machining.

The depth of the features

In the context of a site such as Capelands Farm, which has been subject to arable cultivation, it is easy to assume that the anomalies revealed by the geophysical survey correspond to features cut into the natural substrate, and that any trace of cut features or of features such as banks in the subsoil and topsoil above have been removed by ploughing. In the light of the fact that the site may not have been cultivated until it was enclosed in 1838, and the suggestion made by the land owner that the fields were ploughed only to a shallow depth to avoid bringing up stones from the shillet (Hughes 2013, 12), it is possible that plough damage to the site has been limited. Furthermore, it has been shown on a number of occasions that traces of features may survive in plough soils for long periods (Bradley and Fisher 1984; Crowther 1983; Taylor 1979). Of particular note here is the fact that Bradley and Fisher (1984) were able to show that at Radley, Berks, the former existence of completely ploughed out barrows was revealed by the presence of higher densities of stones (revealed by sieving soil samples) in the areas where they had existed. Use of the same technique at Yarnton has suggested the existence of a bank around a Neolithic long rectangular enclosure (Hey *et al.* 2016).

In the case of the features at Capelands Farm it is possible that it is the remains of banks, perhaps now represented only by higher densities of granite and shale fragments, which have been detected by the geophysical survey. Both types of rock are characterised by relatively high magnetic susceptibility (Garrison 2003, table 3.2) and will, therefore, produce positive readings. It is worth noting that the features revealed by the survey were only slightly enhanced relative to the background (compared, for example, to the traces of the evaluation trenches (Fig. 19), and were rather patchily represented. It is also perhaps worth adding that most of the features which were identified in the evaluation which did correspond to anomalies identified by the geophysical survey contained high densities of stone. It is thus likely that their stony fills were one reason why these features showed up in the geophysical survey.

The suggestion that features identified in the geophysical survey consisted of high densities of stone which derive from former banks, could, then explain the presence of anomalies in the geophysical survey which could not be easily observed in the narrow evaluation trenches. It does, however, raise certain other questions. It is possible to create banks without digging ditches (by scraping soil from the surroundings, eg Holleyman and Curwen 1935), and in the case of Capelands Farm it is possible that some of the features, such as the trackway, were created by clearing stones from the site, rather than as a result of the deliberate construction of banks. In the case of the Neolithic enclosure, however, the evaluation did reveal the existence of a ditch which might have formed part of the enclosure. Although this ditch was shallow (0.4m deep), its depth was not wildly different from those of the ditches of other long enclosures of broadly similar date (see below). It was, however, sufficiently deep to raise questions about why there should be a ditch here but not in the other evaluation trenches cut across the enclosure. And if it is accepted that the enclosure could have been defined by a bank without a ditch, then some doubt must arise about whether the ditch (from which the radiocarbon-dated hazel nutshell derived) was related to the enclosure or not. These questions cannot be definitively answered here. Not surprisingly there are no obvious parallels for an enclosure of this sort having been constructed without a ditch, but it is nonetheless possible that different parts of the enclosure – and its ends in particular – were constructed in different ways (eg Loveday 1985, 30-2).

The absence of features: conclusions

No entirely satisfactory explanation for the lack of correspondence between the geophysical survey and the excavations has been found, and any satisfactory resolution would require further analysis and possibly full open-area excavation, at least of the enclosure. The results of the geophysical surveys leave little doubt about the existence of the enclosure, although its date and association with the ditch in Trench 10 is less certain. Capelands Farm thus clearly provides an example of a site where features which can be detected by geophysical survey are not visible in excavation. The best explanation for this that can be proposed here is that the features revealed by the geophysical survey were the remains of banks, probably represented by densities of granite and shale in the topsoil and subsoil which were higher than those elsewhere.

7.4 The possible early Neolithic enclosure

Introduction

The most significant result of the investigations was the discovery of the long rectangular enclosure. Despite the frustrating results of the excavations, the existence of the enclosure has been demonstrated sufficiently by the geophysical survey. The limited investigations have provided little more than an indication of the size and shape of this enclosure, and perhaps (as is discussed more fully below) of its date. Even this limited information is, however, of considerable significance.

This section of the discussion will focus first upon the classification of the enclosure in relation to other similar Neolithic monuments in Britain, and more specifically in Devon. The enclosure falls at the upper end of the category of long rectangular enclosures as defined by Loveday on the basis of rather arbitrary size distinctions within a diverse range of enclosures which form the 'cursus continuum'. It is, however, only just shorter than the shortest examples of cursus monuments. A small number of possibly comparable enclosures have been found in Devon, and the Capelands Farm example could thus form one element of a wider pattern, although the limited chronological evidence suggests that the enclosures could have been of quite different dates.

It then considers the potential significance of the radiocarbon date (based upon the questionable assumption that it was related to the construction or use of the monument). The date for the enclosure lies near to the beginning of the Neolithic period in Devon. It is most significant, however, because it is earlier than dates for cursus monuments elsewhere in England and, in particular, may be earlier than dates for post-built cursus monuments in Scotland. The date from Capelands Farm thus indicates that it is possible that enclosures forming part of the cursus continuum did not originate in Scotland, but may have had more diverse geographical origins.

The Capelands enclosure

Needless to say, the limited traces of the enclosure at Capelands Farm which were revealed by the geophysical survey and excavation provide little detail about its precise form. They do, however, show that it was 146m long and 21m wide, with apparently quite straight, parallel sides and slightly convex ends (conforming to Loveday's type Aii - partially

flattened), with rounded corners. The results of the excavation suggest that any ditch associated with the enclosure was quite shallow but relatively wide (around 0.4m deep and 2.5m wide). The geophysical survey does not clearly reveal any gaps in the perimeter of the enclosure, and the location of any entrances is unknown. It is, of course, possible, but unlikely, that all of the evaluation trenches except the one in which a ditch was found were located at entrances. Other similar enclosures have varying numbers of entrances in varying locations, although they occur most often offset along the sides rather than at the ends (Loveday 1985, 52-3). If, however, the geophysical survey detected the remains of a bank rather than a ditch, then the results suggest that the enclosure was defined by a fairly narrow bank which would have run close to any ditch. Although the results are not precise enough to show whether any such bank was inside or outside the ditch, at other sites the banks are almost always positioned inside the enclosures. There was no clear indication of any contemporaneous internal (or external) features.

The Capelands Farm enclosure and the cursus continuum

Although the way in which the enclosure was constructed is uncertain, it clearly belongs somewhere in what Loveday has referred to as the 'cursus continuum'. This phrase captures the fact that the large number of linear (as opposed to circular) earlier Neolithic enclosures now known in Britain defy simple classification into discrete types. The continuum encompasses sites ranging in size from 35m to 10km in length (Loveday 2006, 25), in shape from trapezoidal to regular rectangular in plan (as well as less regular forms and, sometimes, oval forms; although Loveday's (2006, 25) definition would confine the category to parallel sided enclosures), constructed of posts, pits or ditches with internal banks or single central mounds. Despite the extraordinary range of enclosures which may be placed in the category, the variation in size and shape appears to be continuous, and to make hard and fast distinctions based upon these attributes or upon methods of construction appears to underplay the possible relationships between sites.

The most thorough study of such sites has been carried out by Loveday (2006; see also 1985), who, whilst highlighting the difficulties involved and the arbitrariness of any such categories has divided the sites into five categories, based upon their length and width

(modifying his 1985 classification). These do at least provide a way of defining where the Capelands enclosure lies in relation to other monuments.

The Capelands enclosure falls at the very upper end of Loveday's (2006) category of long enclosures. This is the smallest category of sites he distinguishes, and is defined as enclosures up to 150m long and up to 25-30m wide. He also distinguishes four categories of larger sites: cursiform long enclosures, which are similar in width to the long enclosures but between 180 and 800m long, minor cursuses which were again 180 to 800m long but over 30m wide, major cursuses, with lengths between 1000 and 2000m and widths of 40 to 100m, and finally mega cursuses, which are over 2700m long. In contrast, Harding and Barclay (1999) simply distinguish shorter sites (less than 150m in length and less than 25m wide) from (longer) cursus monuments.

Falling in terms of length close to the upper limit of the category of long enclosures as defined by Loveday, the enclosure at Capelands underlines the extent to which the distinctions between categories are arbitrary. The fact that in his earlier classification, Loveday (1985, 40) drew the upper boundary for long enclosures at 140m and the lower boundary for minor cursus at 180m, leaving the Capelands enclosure in limbo between the two, underlines this fact even more clearly. Overall, however, the dimensions of the Capelands enclosure fit comfortably within the variation exhibited by other sites. A plot of the distribution of the widths of the enclosures analysed by Loveday (1985, 39, fig. 3.2; 2006, 63, fig. 32) shows that widths around 20m occur most frequently, and although the distribution of lengths has no single clear modal value (Loveday 1985, 376, fig. 3.1), most sites are less than 240m long (although there are a large number which are less than 80m long). The ditch found in Trench 10 is rather wider than might be expected given the size of ditches at other sites (Loveday 2006, 35-6, fig. 19; 1985, 147), but still falls within the upper range found elsewhere. The relatively shallow depth of the ditch, however, is consistent with other comparable sites.

Early Neolithic long enclosures in Devon

A small number of potentially comparable sites are known in Devon, although in the case of the smaller examples, it is possible that they were related to long barrows, rather than forming open enclosures (*cf*. Loveday 2006, chapter 6).

The only excavated examples were found on the A30 at Castle Hill (Fitzpatrick *et al*. 1999, 23-26, 213-16), some distance to the south-east of Capelands Farm. There, two rectangular enclosures were investigated. One (enclosure 218) may have lain fully within the excavated area, and measured 42m long by 29m wide. It is perhaps worth noting that the ditches were very shallow – usually only 0.2m deep – and the discontinuities in the ditches may, therefore, have been the result of truncation. No trace of a ditch was, however, found at the eastern end, and it is possible that the enclosure was open in this direction. Rather than having been an open enclosure, it is possible, given its size and the fact that it was open at one end, that the ditch was associated with a long barrow (ibid., 216). Two radiocarbon dates were obtained, one of 3630-3120 cal BC (95.3% confidence; 3510-3350 cal BC at 68.2% confidence; AA-30670: 4630±50 BP) from *Prunus* charcoal from what may have been the primary fill of the ditch, and the other of 2930-2610 cal BC (95.4% confidence; 2910-2690 cal BC at 68.2% confidence; Beta-78183: 4220±60 BP) from unidentified charcoal from a secondary fill (ibid.; Whittle *et al*. 2011, 520, fig. 10.32). Even the earlier date implies that the enclosure was significantly later than the example at Capelands Farm (assuming that the dated material was associated with the enclosure). The earlier Castle Hill date is perhaps more consistent with the chronology of cursus monuments and long enclosures than it is with long barrows, many of which had gone out of use before 3600 cal BC (Whittle *et al*. 2011, see figs 14.38-46).

The second enclosure (218) extended beyond the excavated area, but was over 26m long and up to 19.4m wide. The sides of the enclosure were defined by distinct, but almost conjoining sections of ditch which were again quite shallow (up to 0.35m). The only evidence for the date of the enclosure was provided by Peterborough Ware which implies a date (Beamish 2009) which is at least compatible with the earlier radiocarbon date from the first enclosure.

A couple of further sites lie not far from Capelands Farm. At Challacombe, to the east of the Chapman barrows, and only around 6km to the north-east of Capelands Farm, a small rectangular enclosure has been found, defined by traces of a bank within a ditch and by geophysical survey (Devon SMR Monument ID: 7353). Measuring just 25m long by 10m

wide, however, the HER notes that it could also be the remains of an early Neolithic longhouse. No direct dating evidence has been recovered.

A second potential nearby example was revealed by the National Mapping Programme survey of Exmoor. The site is a possible enclosure at Kentisbury, only around 6km to the north of Capelands Farm, comprising a platform surrounded by a ditch with an outer bank measuring around 48m long by 23m wide, traces of which survive as earthworks (Hegarty and Toms 2009, 38, fig. 9).

The National Mapping Programme survey of North Devon revealed four further possible examples at Sandford, some distance to the south-east of Capelands Farm. Three of these were quite small examples relative to Capelands Farm, measuring around 50m long, but the fourth can be traced for nearly 200m in aerial photographs and it has been suggested that it might be the remains of the only cursus so far identified in Devon (Young and Turner 2007, 33).

At a greater distance to the south-east a small number of other sites are known, all comparable in shape (ie with slightly convex ends but straight, parallel sides), but rather smaller than the enclosure at Capelands Farm. Three examples, spread over a quite wide area at North Tawton, measure 80m by 14m (enclosure A), 70m by 20m (enclosure B) and 40m by 12m (enclosure C, possibly open at one end; Griffith 1985; Loveday 1985, 418, 431). A further example at Nether Exe measured 80m by 14m (Loveday 1985, 418).

It is also worth noting that long barrows associated with surrounding ditches have been found near Tiverton (Smith 1990) and at West Putford (Loveday 1985, 478), to the south-east and south-west respectively of Capelands Farm, which, in the absence of the mound, would appear similar to some of the small enclosures listed here. It is, of course, possible that some of the other examples were, in fact, associated with long barrows or long mounds (*cf*. Loveday 2006, chapter 6).

Overall, then, there is now a good number of sites which could be long enclosures in Devon, including a small cluster in the area around Capelands Farm. Most of these sites are small, however, and it is possible that some of the smaller examples were actually associated with long barrows. There is still no clear evidence for the existence of cursus monuments proper (or even cursiform long enclosures, to use Loveday's classification), although one of the

enclosures at North Tawton provides a possible example. Overall, however, the Capelands enclosure stands out as relatively large compared to the other enclosures in Devon.

So far the evidence for the chronology of these sites is very slight. The only extensively excavated examples at Castle Hill provide radiocarbon dates and ceramic evidence which are broadly consistent with the wider dating of cursus monuments and long enclosures elsewhere in southern England. The radiocarbon date from Capelands Farm, however, is significantly earlier than those from Castle Hill, as discussed further below.

The early date of the enclosure and the development of long enclosures and cursus monuments

Before examining the evidence for the chronology of long enclosures and cursus monuments in southern England and Wales in relation to Capelands Farm, it is important to stress once again that the date obtained from the enclosure ditch at Capelands is not well associated with either the construction or use of the enclosure. It was obtained from a fragment of hazel nutshell (part of only a small group) which could well have been residual. It came from the upper fill of the ditch and thus could, if not residual, post-date the construction and use of the enclosure by some undefined period. It is, however, the only evidence (aside from comparison with other sites) for the date of the enclosure, and the rest of this discussion is premised on the assumption that it does provide a date which in some way was associated with the construction or use of the enclosure. Clearly, more certain conclusions could be drawn only if better, more certainly associated material could be dated.

The chronology of cursus monuments and long enclosures is notoriously uncertain, due in large part to the scarcity of finds of any kind associated with them (Bradley 1986; Barclay and Bayliss 1999; Whittle *et al*. 2011, 724-7). Overall, based upon their thorough analysis of the available radiocarbon dates, Whittle *et al*. (2011, 724), suggest that sites that fall into their broad category of linear monuments were first constructed in the period 3915-3545 cal BC (95% probability) and probably in the period 3795-3610 cal BC (68% probability). These ranges are clearly consistent with the period of 3800-3700 cal BC (68.2% probability) and more certainly 3940-3870 cal BC (14.4% probability) or 3820-3650 cal BC (81.0%

probability; SUERC-56338: 4981±39) suggested by the date obtained from the enclosure at Capelands Farm.

Closer examination, however, shows that this comparison is somewhat misleading. Barclay and Bayliss (1999) note that the dates for cursus monuments suggest that they largely date from the latter half of the 4th millennium cal BC. More precisely, the revised estimates of the dates for cursus monuments produced as a result of Whittle *et al*.'s (2011) analyses, (which do not differ significantly from those given by Barclay and Bayliss) suggest that the earliest cursus monuments could have been constructed only as early as the end of the 37th century cal BC. The sites which could have been constructed this early include: Castle Hill (see above: 3630-3120 cal BC); Stonehenge Greater Cursus (Whittle *et al*. 2011, 202, fig. 4.51, 3630-3585 (18%), 3530-3490 (21%), 3470-3370 (56%); Stonehenge Lesser Cursus (Whittle *et al*. 2011, 201-2, fig. 4.51, 3635-3555 (8%), 3540-3100 (87%) or 3500-3005 (94%)); Drayton (Whittle *et al*. 2011, 429, fig. 8.30, 3640-3520 (92%)); and North Stoke bank barrow (Whittle *et al*. 2011, 430, fig, 8.30, 3640-3350 cal BC), although note that the large trapezoidal enclosure at Rectory Farm, Godmanchester could have been slightly earlier: 3685-3365 cal BC (95%), Whittle *et al*. 2011, 286-8; Lyons *et al.* forthcoming). A smaller number of monuments could only have been constructed as early as the 36th century cal BC. These sites include: Godmanchester cursus (Whittle *et al.* 2011, 287-8, fig. 6.15, 3550-2505 cal BC (95%)); Dorchester-on-Thames (Whittle *et al.* 2011, 427, fig. 8.30, 3520-2900 cal BC (95%)) and Maiden Castle long mound (Whittle *et al.* 2011, 86-7, fig. 4.44, 3545-3500 (40%) or 3480-3385 (55%). A further group of assorted linear sites, consisting of a cursus, two long enclosures, and two bank barrows could have been constructed at the earliest only in the 34th century cal BC: Normanton Down (Whittle *et al*. 2011, 201, fig. 4.51, 3340-3100 cal BC (95%)), the Dorset cursus (Whittle *et al*. 2011, 156, fig. 4.20, 3365-3005 (94%), Allington Avenue bank barrow (Whittle *et al*. 2011, 192, 3370-2900 cal BC - TPQ only), the Raunds long enclosure (Whittle *et al*. 2011, 304, fig. 6.27, 3365-3065 cal BC (95%); 3345-3230 cal BC (68%)) and the Fordington bank barrow (Whittle *et al*. 2011, 3340-2920 cal BC (95%)).

It should be stressed that ordering the dated sites in this way does not give a good indication of their actual chronological relationships. The ranges of the calibrated estimates

related to many of the sites are quite wide, and many of them may, of course, have actually been much later than the start of their date ranges. Examining only the earliest plausible dates for these sites, however, does underline the extent to which the 38th century cal BC date obtained for Capelands stands out from other potentially related monuments.

There are just two linear sites which have dates potentially as early (or indeed earlier) than that obtained at Capelands Farm. They are the long mound and the avenue at Raunds (Harding and Healy 2007). The available evidence for the long mound suggests a date of 3930-3770 cal BC (95%) and probably 3900-3820 cal BC (68%), but there are certain problems with the dated material and its relationship to the monument and these estimates may not be reliable (Whittle *et al*. 2011, 302-3, fig. 6.26; Harding and Healy 2007, 62-4). The evidence for the avenue, however, is less problematic, and suggests that it was constructed in the period 3850-3625 cal BC (92%) and probably 3770-3655 cal BC (68%; Whittle *et al*. 2011, 304-11, fig. 6.27; Harding and Healy 2007, 67). This result is very close to that obtained at Capelands Farm.

It is worth extending this brief survey to cursus monuments and long enclosures in Scotland, since it has been argued that apparently early dates for such sites indicate that the timber cursus monuments of Scotland provide the prototypes for cursuses elsewhere in Britain (Thomas 2006; *cf*. Brophy and Millican 2015, 311-13). Unfortunately, most of the apparently early dates from the Scottish sites were obtained from potentially old wood, and thus provide only *termini post quem* for the construction of the monuments (Brophy and Millican 2015, 311-13; Whittle *et al*. 2011, 830). Whittle *et al*.'s (2011, 830, fig. 14.170) analysis of the available dates suggests that none of the Scottish monuments necessarily predates 3700 cal BC, and that they are thus not necessarily much earlier in date than the majority of the cursus monuments in England and Wales.

The early date from Capelands Farm provides another piece of evidence which challenges the idea that cursus monuments in Scotland were earlier than those in England (Thomas 2006). It also provides one of the earliest dates for any kind of linear monument in Britain. It is, however, noticeable, that linear monuments of varying kinds are found in different areas at potentially early dates, such as the Capelands Farm enclosure in the south-west, the long mound and the avenue at Raunds, Northants, and perhaps, at a slightly later date, the

posthole-defined cursuses in Scotland. The early date from Capelands Farm thus raises the possibility that monuments on the cursus continuum could have had diverse origins, with the south-west potentially being one of the areas in which they were first developed.

The cursus monuments of Scotland remain significant, however, in suggesting a potential link between the cursuses and early Neolithic rectangular houses (eg Bradley 2007, 68; Thomas 2006; Brophy 2007; Brophy and Millican 2015). The local context of the Capelands Farm enclosure provides another potentially significant example of such a relationship.

The date of the enclosure and the development of the Neolithic in the south-west

The early date obtained for the enclosure at Capelands Farm places it quite close to the beginning of the Neolithic in the south-west. Whittle *et al*.'s (2011, 516) analyses suggest that the Neolithic began in the south-west in the period 3940-3735 cal BC (and probably 3855-3765 cal BC, 68% probability). The date from Capelands must thus lie within a few generations at most of the beginning of the Neolithic, almost certainly predating the dated causewayed enclosures in Devon (which date broadly from after 3700 cal BC). This early date is particularly striking in the context of the south-west more widely since the Broadsands passage grave may provide evidence for connections to north-west France, with radiocarbon dates clustered in the 38th century cal BC which suggest activity at roughly the same time as is suggested by the Capelands date (Sheridan *et al*. 2008; Sheridan 2010; Whittle *et al*. 2011, 516; Radford 1958).

A number of other sites in the south-west – pits, as well as burials in caves – have equally early dates (ibid., 514-18), but amongst the sites with early dates, one of the structures at Penhale Round, Cornwall (Nowakowski 1998, 21) is perhaps of most interest. The structural evidence (3299) consists of a sub-rectangular arrangement of postholes measuring 19m long by 7m wide. The arrangement is easily interpreted as the remains of a long house, although Nowakowski (ibid.) notes that it could also have been an open enclosure. The dates from the structure (one from a posthole and the other from an associated pit) are modelled by Whittle *et al*. (2011, 516, table 10.5) as falling in the period 3855-3635 cal BC (95%) and probably 3805-3635 cal BC (68%), and thus are likely to be close in date to the Capelands Farm enclosure. Although the plan is not entirely regular, the slightly convex ends

of the arrangement of postholes is an unusual feature for early Neolithic houses in England (despite their varied forms, see Last 2013). However, this is a common feature of such structures in Scotland (Brophy 2007). It nonetheless parallels the form of the Capelands Farm enclosure. The possibly quite close chronological relationship between these two sites not only provides an example of an area where houses could have been closely related to long enclosures, but also suggests that if there was a genetic relationship between the two, the enclosures developed at an early date, quite soon after such long houses were first constructed in south-western England.

The early date obtained from the hazel nutshell fragments in the enclosure ditch thus has potentially significant implications for our understanding of the development of linear monuments in Britain. However, the weight of these implications is too much to be borne by this one, uncertainly associated date. It would, of course, be useful to test the validity of the date both by dating further samples from Capelands Farm and by obtaining further samples to date from some of the other potentially comparable enclosures in Devon.

7.5 The Beaker pits

The radiocarbon dates from the two Beaker period pits (or pit and posthole) were very similar. They pass a χ^2 test (df=1 T=0.0(5% 3.8), indicating that they could have been contemporaneous. The pits may also have been contemporaneous with the nearby barrows, although at some sites, pits containing Beaker pottery close to barrows have proved to predate the barrows (eg Ridgeway Hill, Dorset; Brown *et al*. 2014).

The occurrence of rich assemblages of pottery (such as that recovered from pit 803), which contrast with the smaller assemblages of more varied material from many other Beaker-period pits, has been remarked upon elsewhere (eg Garwood 2011). It is unclear in the case of pit 803 whether or not the pottery could originally have come from a small number of complete vessels, but it appears more likely that it was already fragmentary when it was deposited, and consisted only of parts of the vessels. Whilst it seems likely that such deposits derive from particular activities associated with the pottery, rather than consisting of debris from a more general range of activities, they may well still reflect the disposal of items that in some sense were regarded as waste (in contrast to special deposits of whole vessels). An association with activity related to the barrows is therefore possible, but it is

equally possible that the finds from the pits derive from domestic activity, which may have pre-dated the construction of the barrows.

Although the fieldwork presented here did not involve the nearby barrows, it is perhaps worth noting in conclusion that late Neolithic/early Bronze Age barrows are often found clustered around earlier Neolithic long enclosures and cursus monuments. Given that the barrows do not fall within the scope of this discussion, the theme will not be pursued here. It is, however, worth noting that the site provides another example of a recurring pattern in which a Neolithic enclosure became the focus for later ritual and funerary activity (*cf*. Loveday 1985, chapter 5). It is perhaps worth noting that small Beaker-period pits comparable to those at Capelands Farm were found near to the enclosures on the A30 at Castle Hill (Fitzpatrick *et al*. 1999, 26), although the nearest ring ditches lie around 200m from that site.

8 ACKNOWLEDGEMENTS

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APPENDIX A SITE SUMMARY DETAILS

Site name:	Capelands Farm, Bratton Fleming
Site code:	BAFC13
Grid Reference	266492E 139057N
Type:	Evaluation
Date and duration:	October 2013, two weeks
Summary of Results:	Prior to the construction of a solar farm a series of archaeological investigations was carried out at Capelands Farm, Bratton Fleming, Devon. The first phase of the investigations consisted of a geophysical survey which suggested the existence of a range of features, the most significant of which was a possible Neolithic long enclosure. Subsequently a series of evaluation trenches was excavated, comprising a 1% sample of the site. However, of three trenches that were focused on the possible enclosure, only one revealed the existence of a ditch that could be associated with the survey results. The same discrepancies occurred of other trenches where geophysical anomalies did not appear to correspond with archaeologically visible features. Additional detailed geophysical work was commissioned to confirm the existence of the long enclosure and to establish the reasons for the inconsistency between the geophysical survey and the excavations and a number of explanations are advanced in this report, the most persuasive of which may be that the survey detected the remains of banks rather than features cut into the natural substrate. Despite these difficulties, the evidence for an early Neolithic enclosure is convincing. It was 146m long and 21m wide, which places it in the upper range of a group of enclosures known as 'long enclosures', and a modest number of similar enclosures are already known in Devon. The only evidence for the date of the Capelands enclosure is provided by a single radiocarbon-dated sample, not entirely convincingly associated with the construction or use of the enclosure, which probably falls in the 38th century cal BC. This is a very early date for a linear monument in Britain, and it suggests that a variety of linear monuments may have been constructed in different regions at an early date. Nevertheless, it is stressed that we should not place too much emphasis on a single poorly associated radiocarbon date, and that further dates would be needed to establish these possible conclusions. Other significant archaeological evidence from Capelands Farm comprised two probably contemporary Bronze Age pits, one of which contained a relatively large assemblage of Beaker pottery. These features provide potential evidence for the re-use of an earlier ritual complex.

Area of Site	1% sample of *c* 23ha
Location of archive:	The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be offered to The Museum of Barnstaple and North Devon in due course.

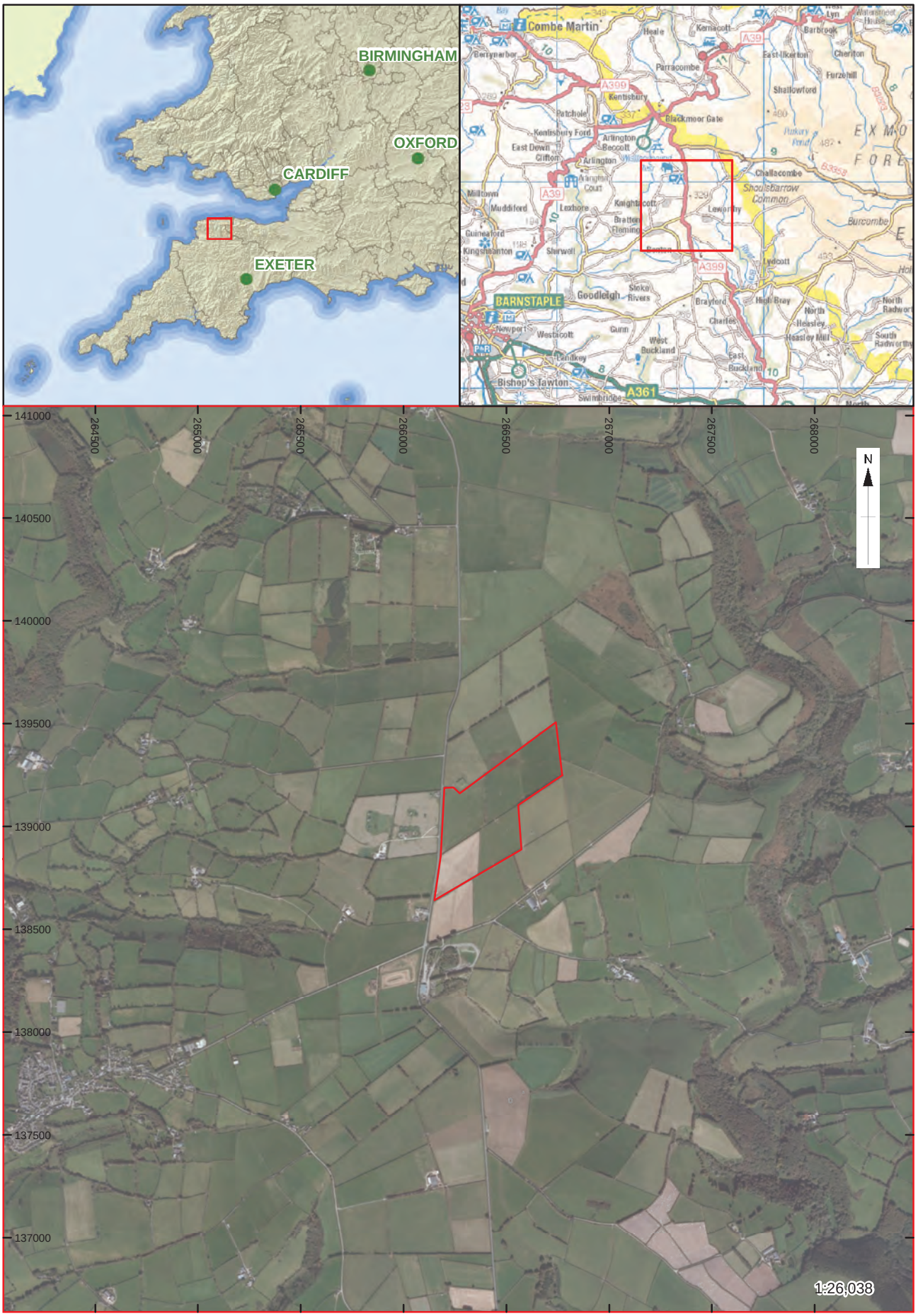

Figure 1: Site location

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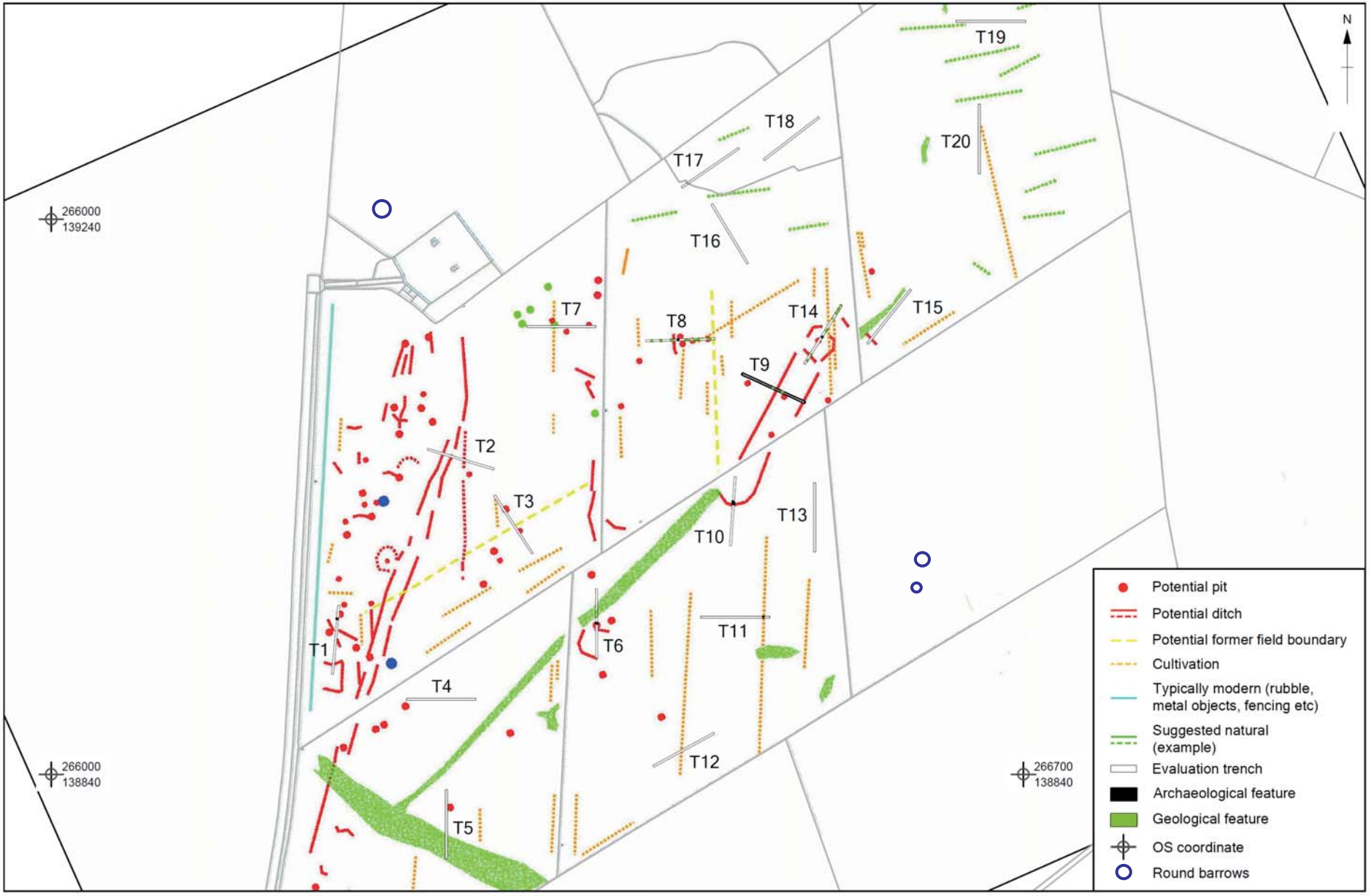


Figure 2: Overall site plan, including interpretation of the results of the first geophysical survey and adjacent round barrows

F1

F2

F3

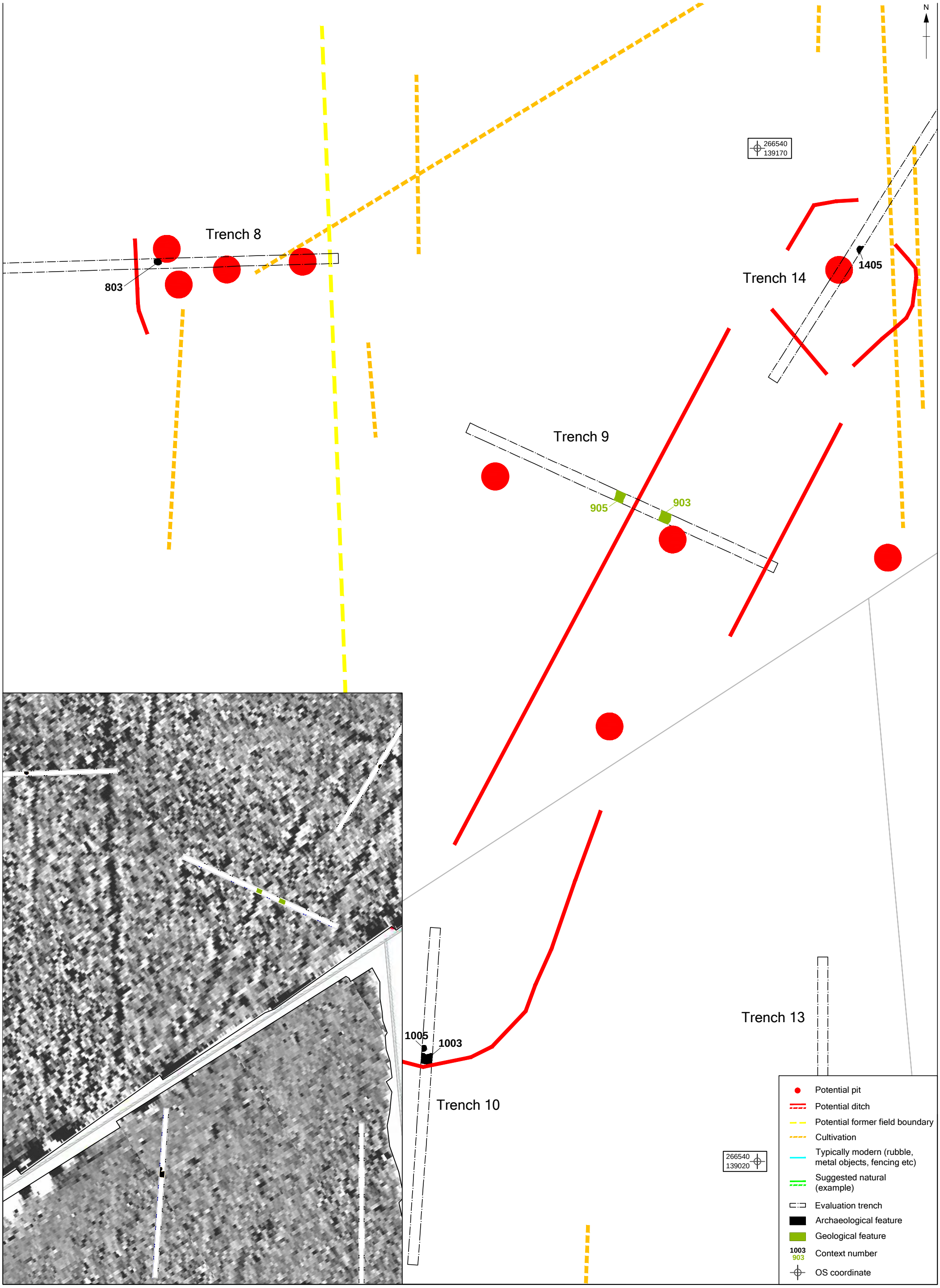
F4

F5

SITE BOUNDARY

200m

Figure 3: Results of the first geophysical survey
(greyscale processed data; from Pre-Construct Geophysics 2013, fig. 3)



Geophysics interpretation supplied by :
Pre-Construct Geophysics Ltd

Figure 4: Features in Trenches 8, 9, 10 and 14 superimposed onto an interpretation of the first geophysical survey (inset shows greyscale survey plot with the trenches and features superimposed)

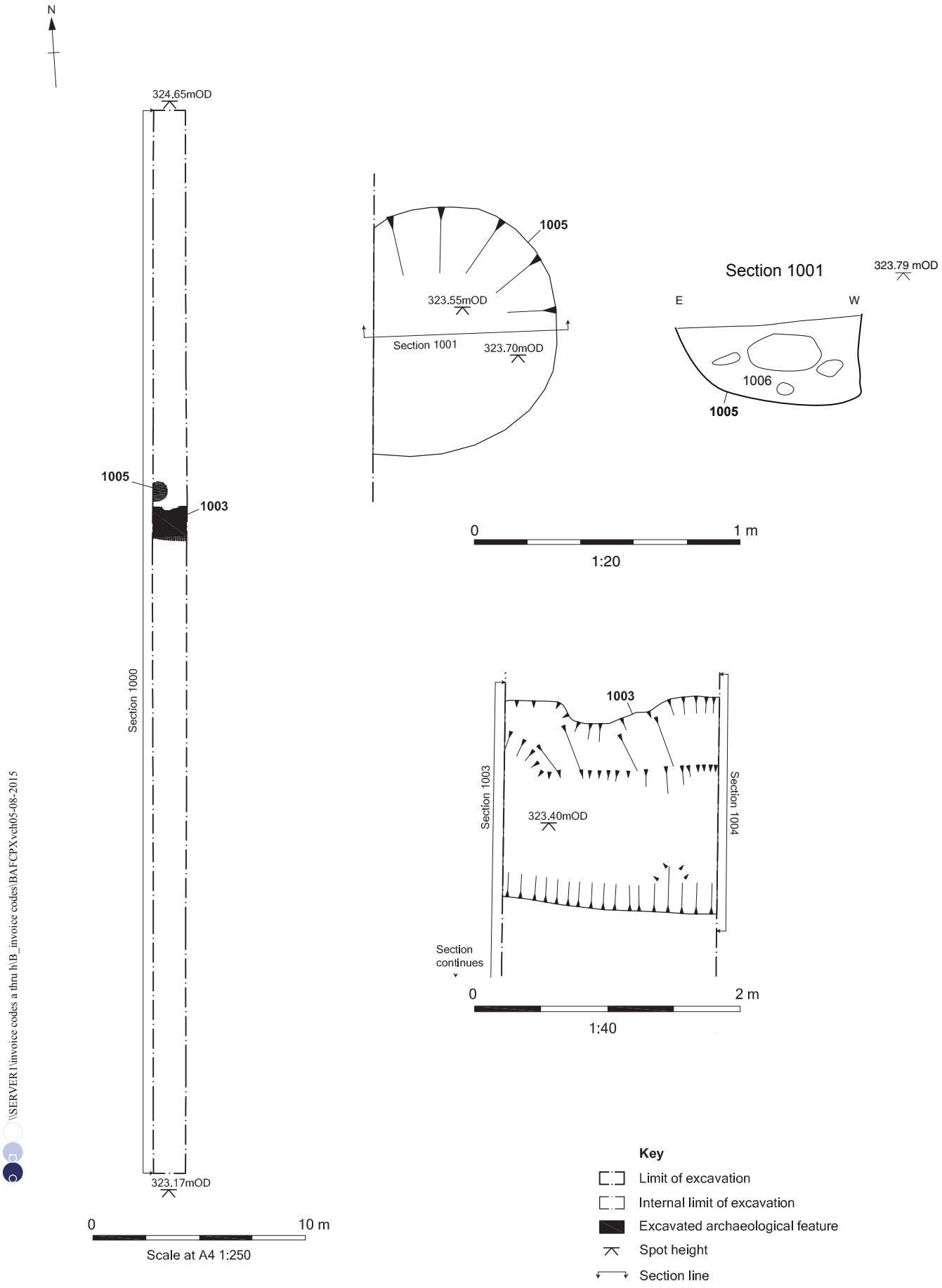


Figure 5: Plan of Trench 10, with detailed plan of ditch 1003

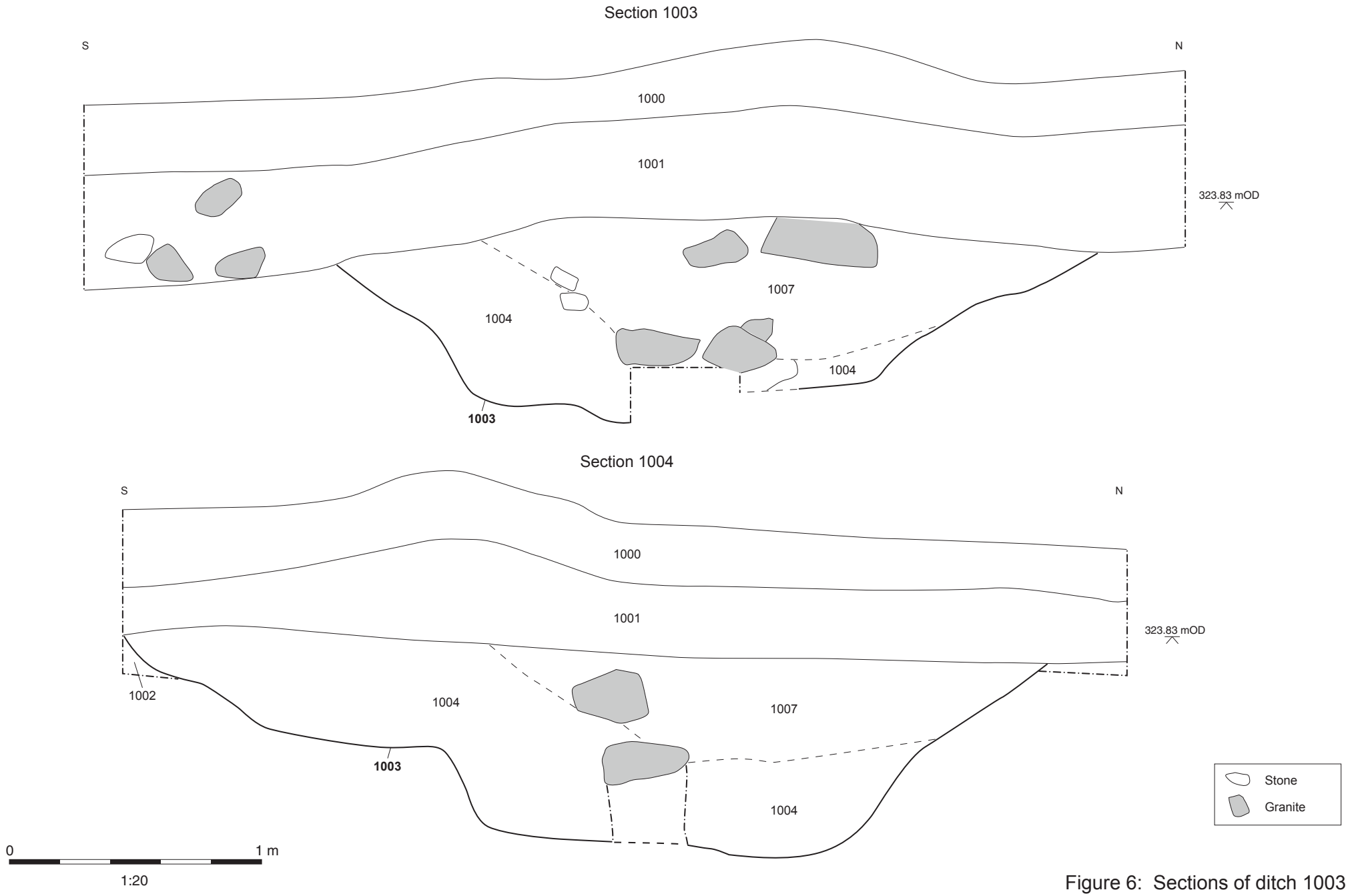


Figure 6: Sections of ditch 1003

Figure 7: Trench 10, ditch 1003

Figure 8: Sondage cut into Trench 9 to confirm natural

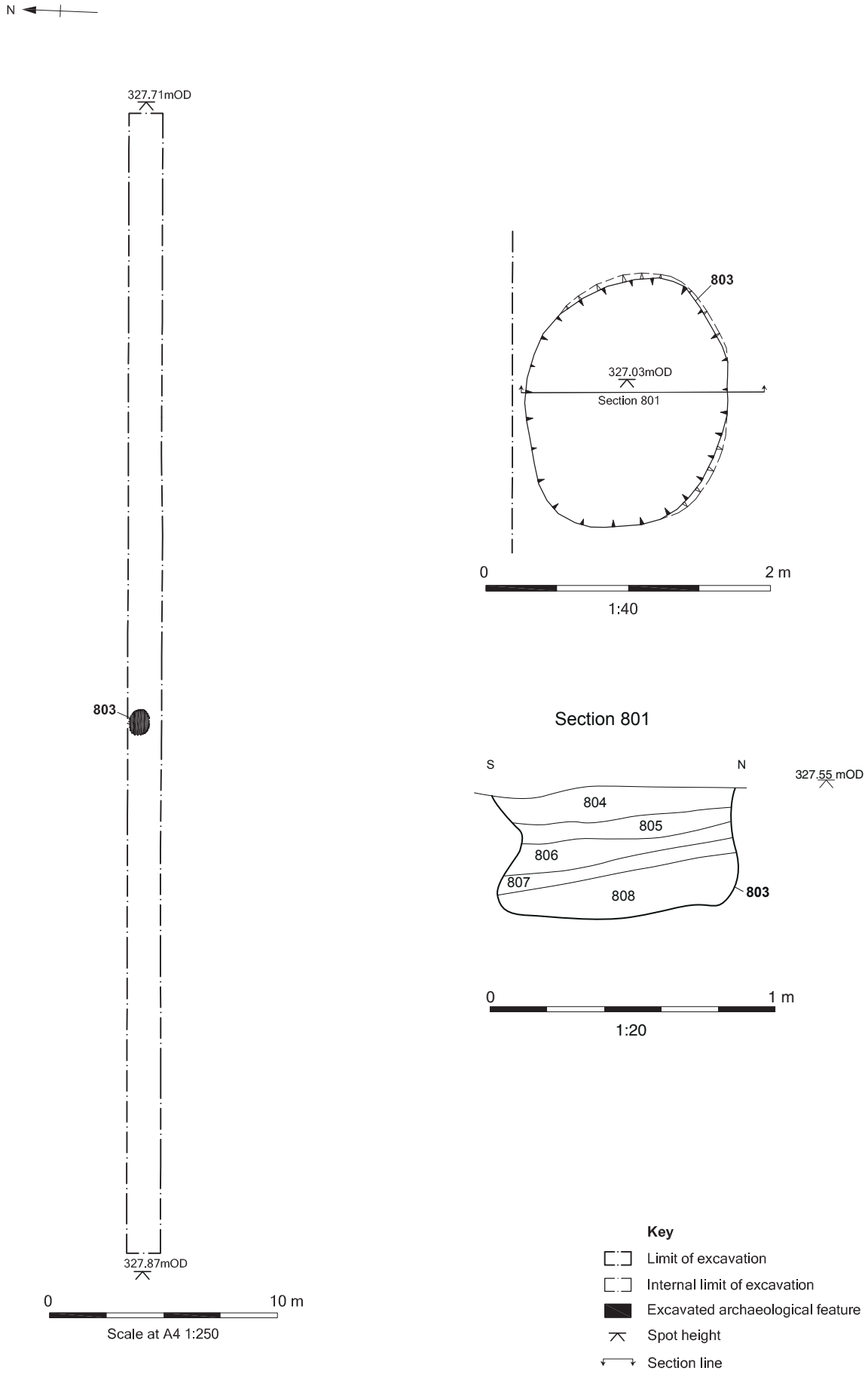


Figure 9: Plan of Trench 8, with detailed plan and section of pit 803

Figure 10: Trench 8, pit 803

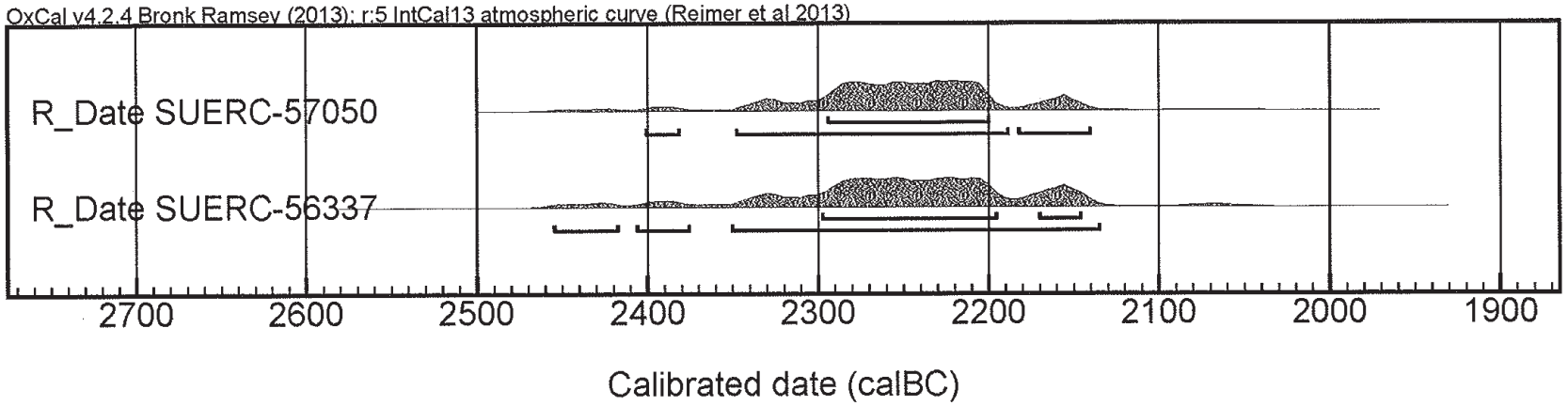


Figure 11: Radiocarbon dates from Beaker pits

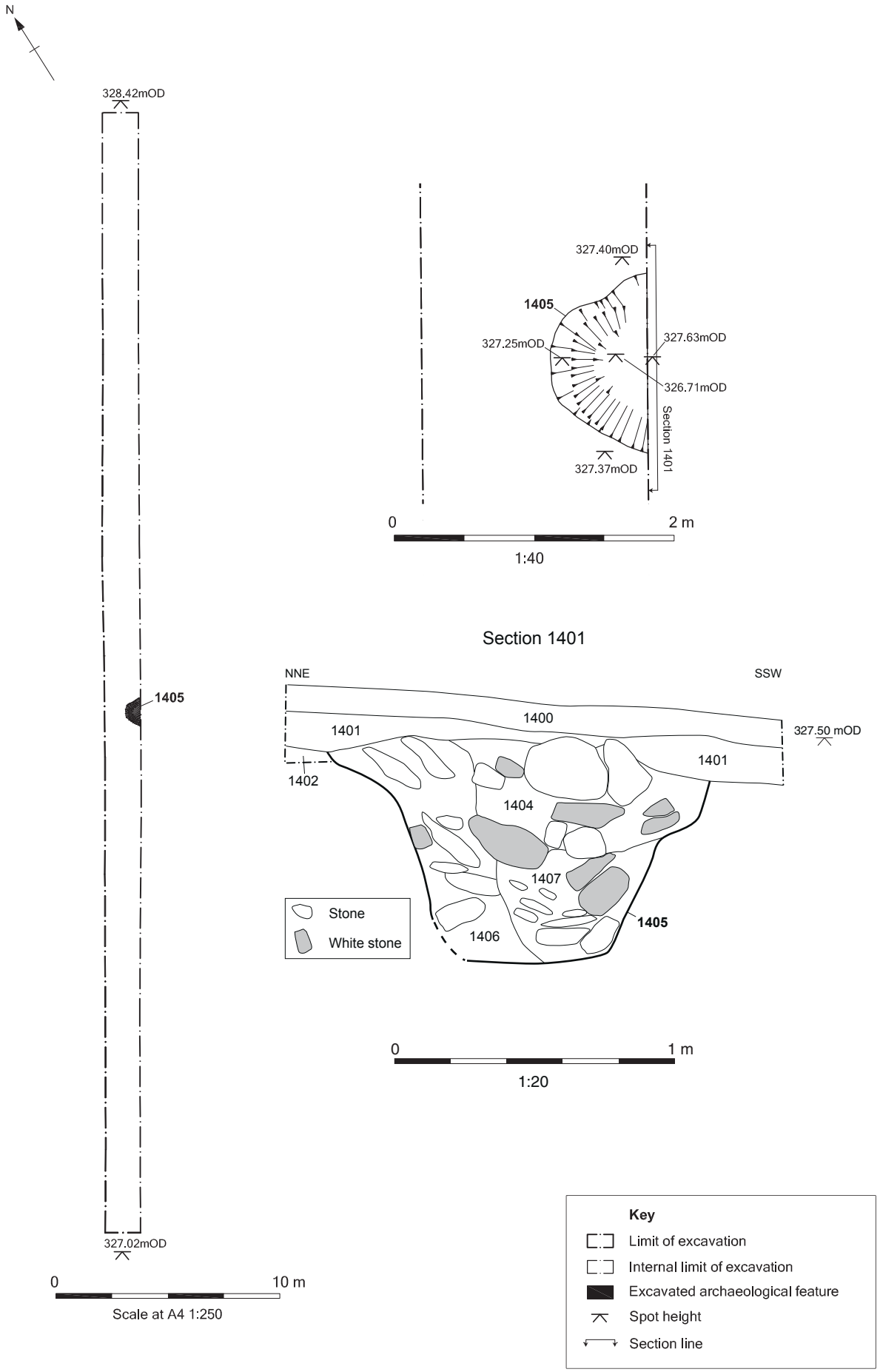


Figure 12: Plan of Trench 14, with detailed plan and section of pit 1405

Figure 13: Trench 14, pit 1405

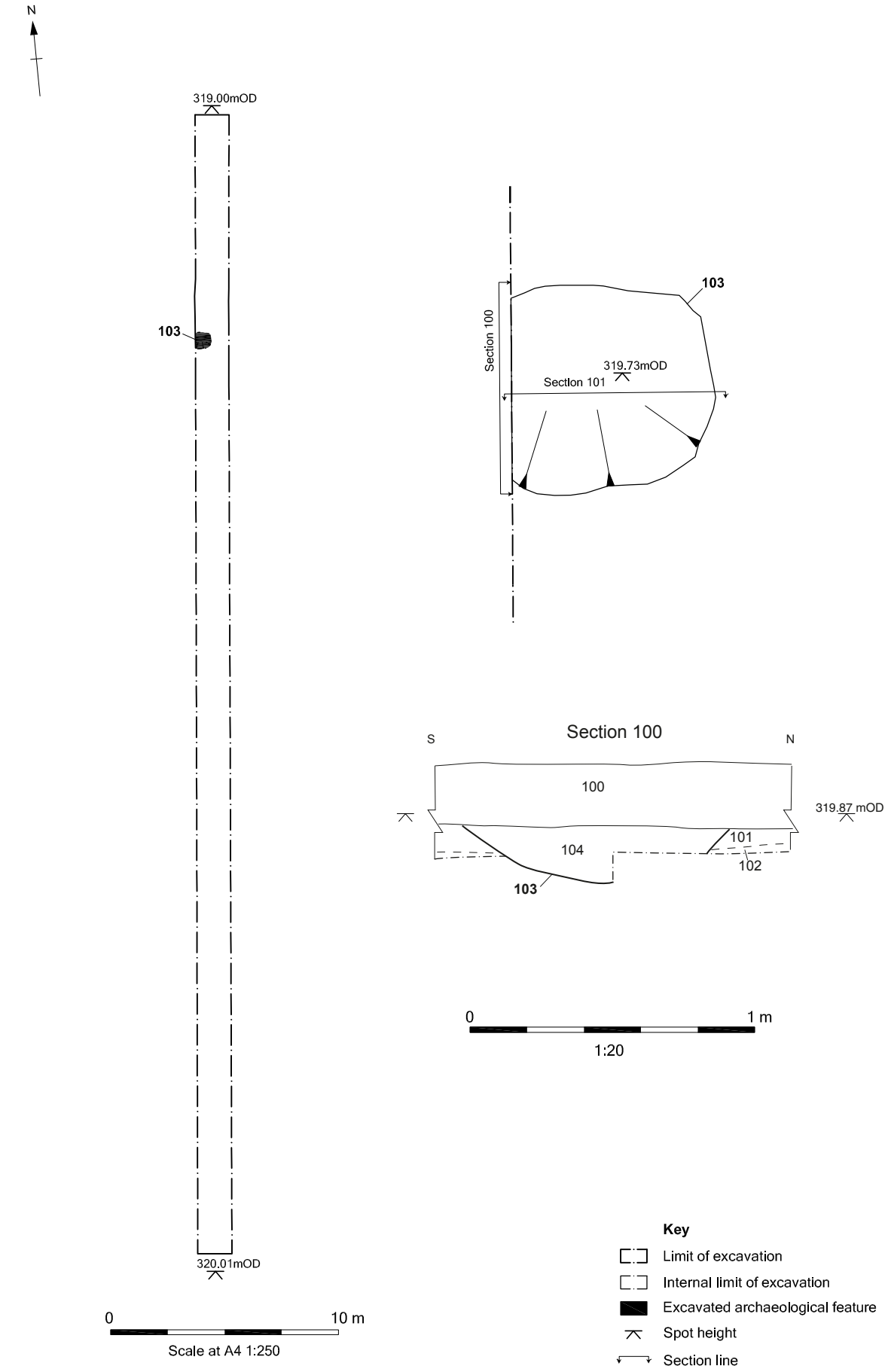


Figure 14: Plan of Trench 1, with detailed plan and section of pit 103

Figure 15: Trench 11, pit 1103

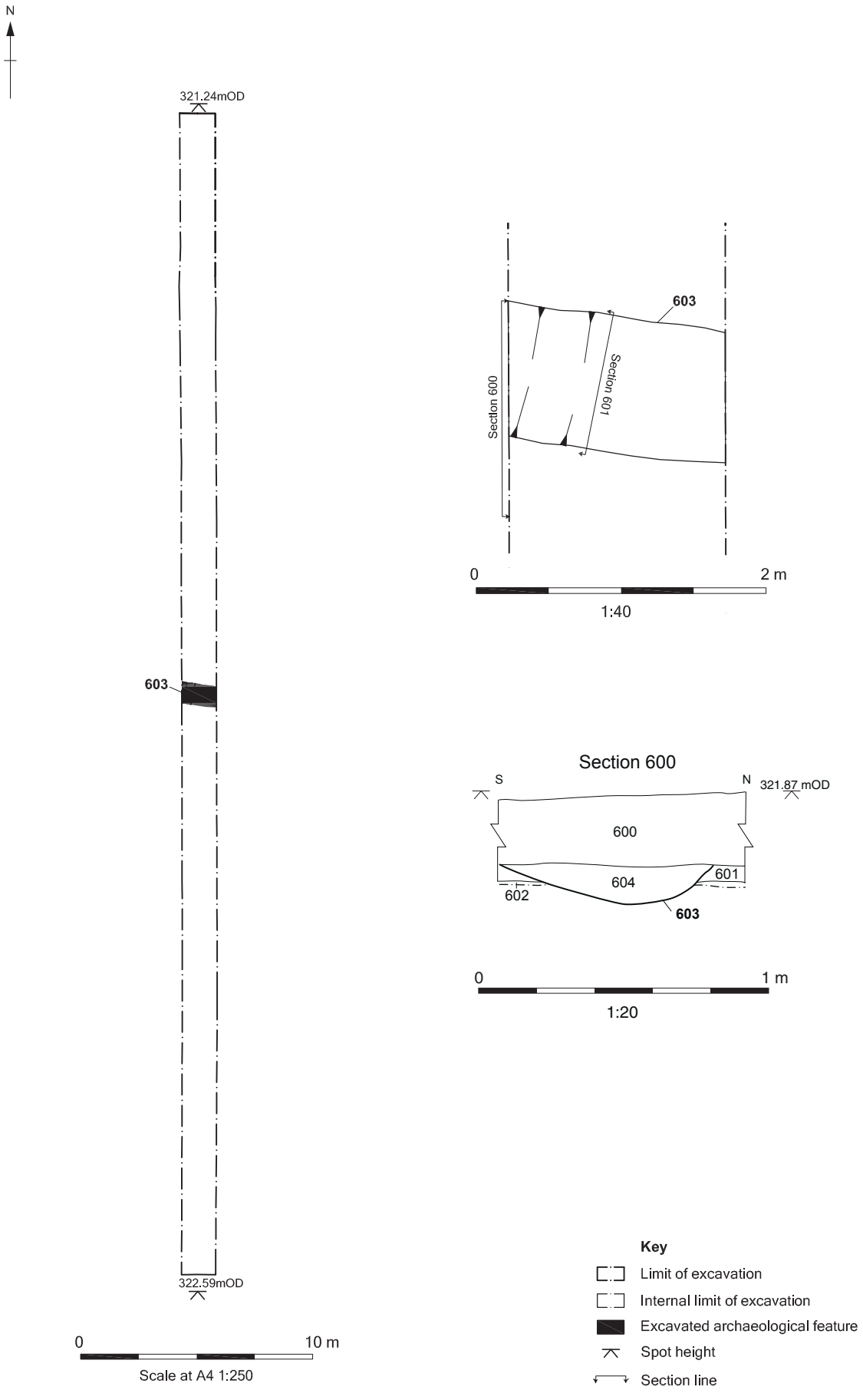
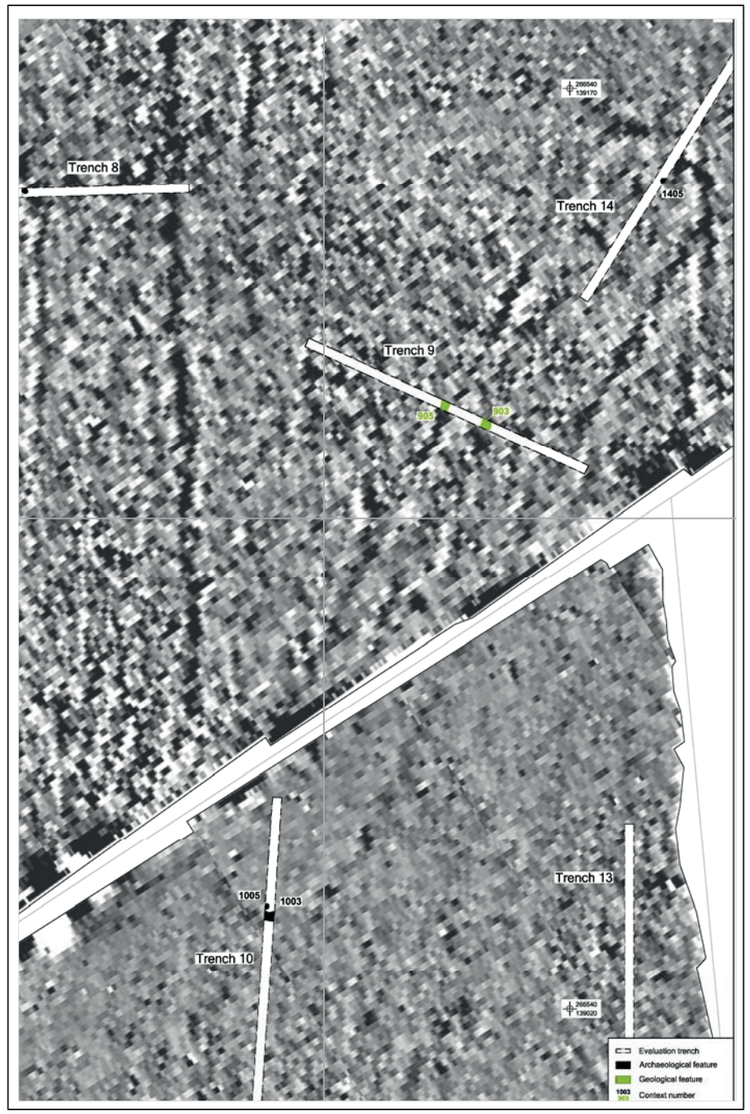
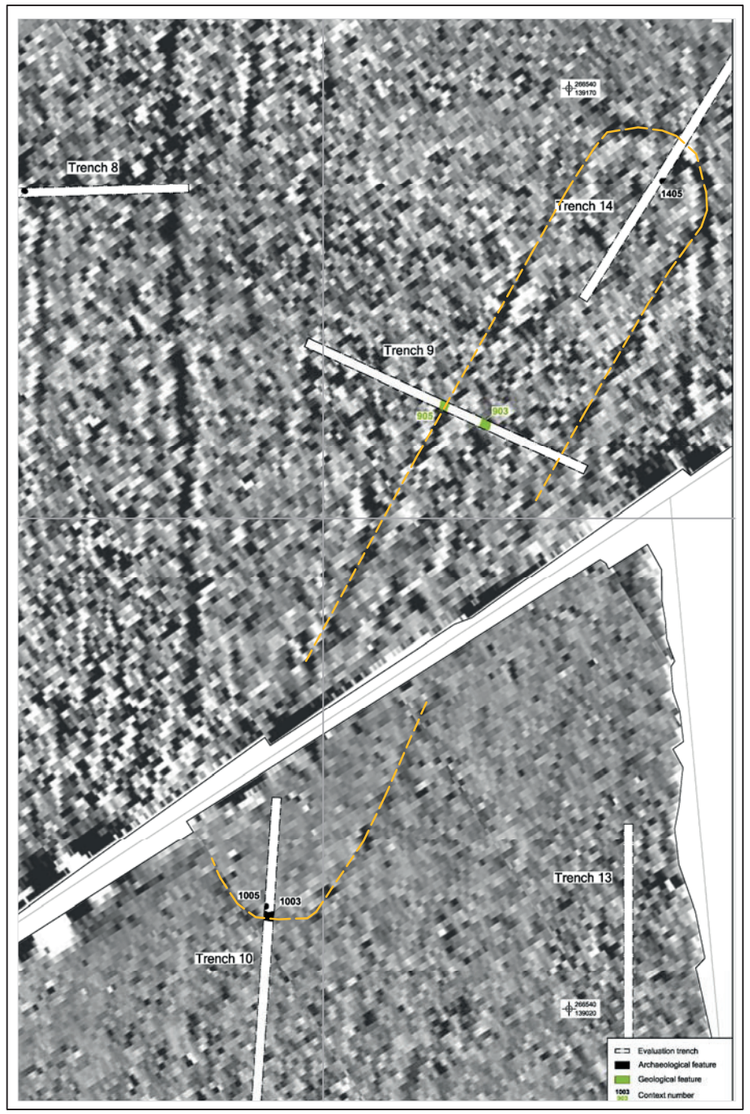


Figure 16: Plan of Trench 6, with detailed plan and section of feature 603

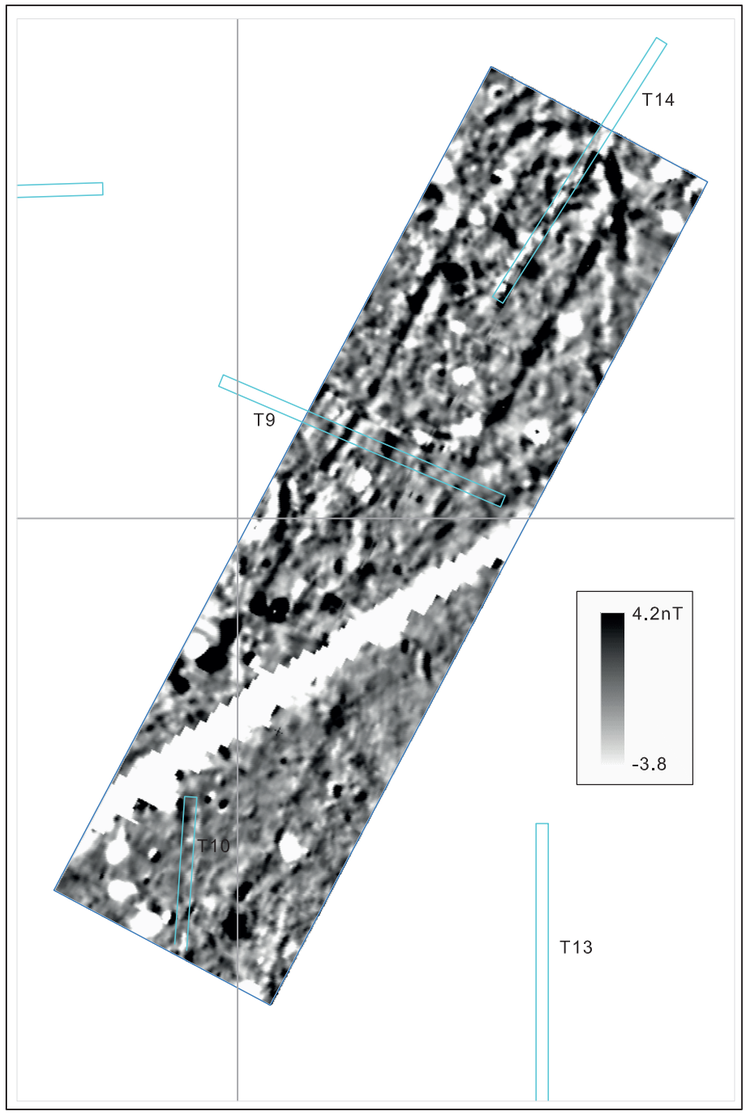
Figure 17: Trench 6, ditch 603



18(i) Extract from 2013 magnetometer survey: plot supplied by Pre-Construct Geophysics (from OA Archaeological Evaluation Report figure 4)



18(ii) 2013 magnetometer survey (with interpretation)



18(iii) 2014 magnetometer survey (0.5m transect separation)

mortuary enclosure

Scale 1:1000 @ A3

0 50m

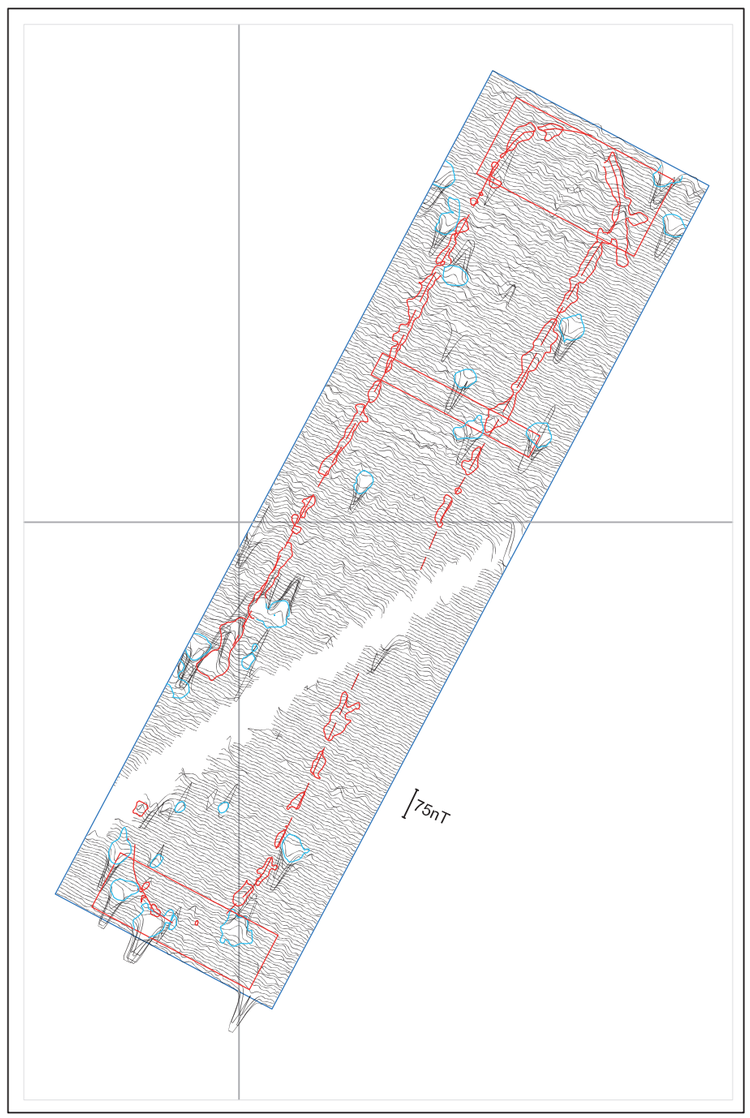
CAPELANDS FARM,
BRATTON FLEMING, DEVON

Geophysical Survey 2014

Surveyed by Bartlett - Clark Consultancy (01865 200864)
for Oxford Archaeology and CgMs Consulting (Cheltenham)

Figure 18: (i) Extract from 2013 magnetometer survey;
(ii) 2013 magnetometer survey (with interpretation);
(iii) 2014 magnetometer survey (0.5 m transect separation)

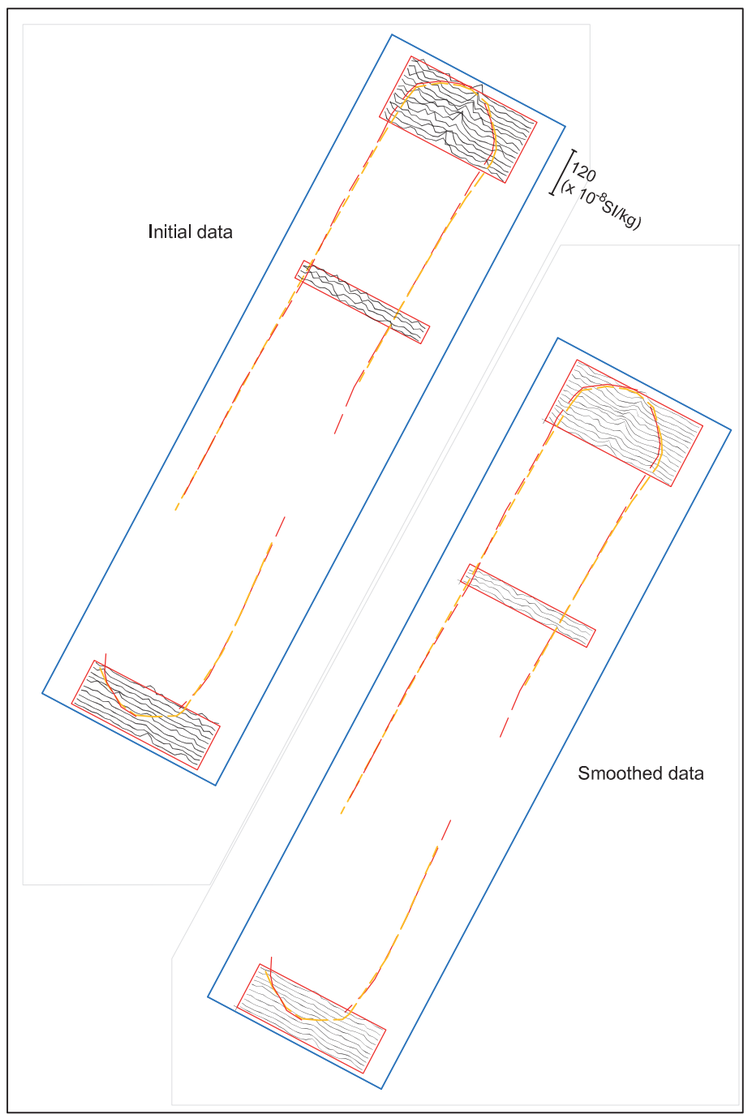
N



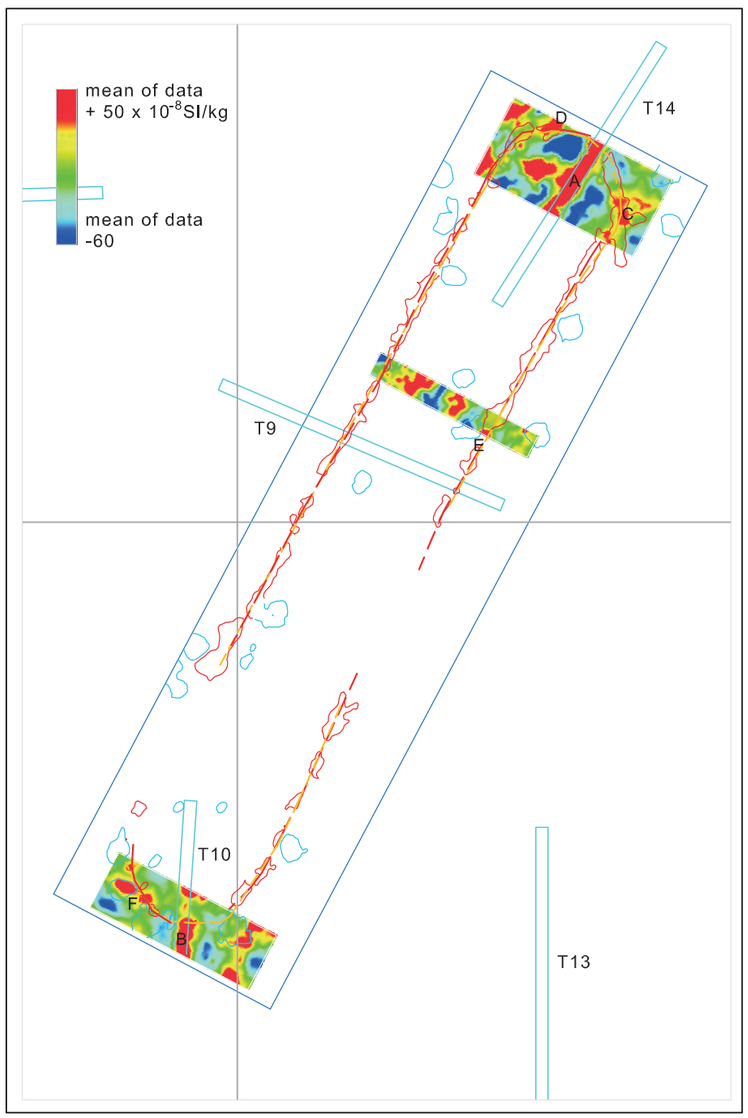
19(i) 2014 magnetometer survey (with interpretation)

Scale 1:1000 @ A3

0 50m



19(ii) Magnetic susceptibility survey (raw and filtered readings) 1:1250



19(iii) Interpretation of 2014 magnetometer survey (with susceptibility data)

magnetic anomalies (corresponding to mortuary enclosure ditches: 2014 survey)

strong (ferrous) magnetic anomalies (including metal pegs)

outline of mortuary enclosure (2013 survey)

trench

Surveyed by Bartlett - Clark Consultancy (01865 200864)
for Oxford Archaeology and CgMs Consulting (Cheltenham)

CAPELANDS FARM,
BRATTON FLEMING, DEVON

Geophysical Survey 2014

Figure 19: (i) 2014 magnetometer survey (with interpretation);
(ii) magnetic susceptibility survey (raw and filtered readings);
(iii) interpretation of 2014 magnetometer survey with susceptibility data)

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