LAND AT THE WHITE HORSE PUBLIC HOUSE
PARK LANE
EATON BRAY
BEDFORDSHIRE

ASSESSMENT OF POTENTIAL AND UPDATED PROJECT DESIGN

Albion archaeology

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Preface

Every effort has been made in the preparation of this document to provide as complete an assessment as possible, within the terms of the brief and project design. All statements and opinions in this document are offered in good faith. Albion Archaeology cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party, or for any loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in this document.

Acknowledgements

The excavation was supervised by Wiebke Starke (Archaeological Supervisor). Fieldwork was undertaken by Wiebke Starke and Allan King (Archaeological Technician). This report was compiled by Christiane Meckseper with contributions from Wiebke Starke, Joan Lightning (CAD Technician) and Jackie Wells (Finds Officer). The ecofact samples were processed by Sławomir Utrata (Assistant Archaeological Supervisor) and analysed by John Giorgi and Gill Cruise. The project was managed by Jeremy Oetgen (Project Manager) and Christiane Meckseper (Project Officer). All Albion projects are under the overall management of Drew Shotliff.

Albion Archaeology was commissioned to undertake the project by Andrew Campbell of Bob Harrington Design Ltd, on behalf of Taylor French Developments. Fieldwork was monitored by the Central Bedfordshire Council Archaeologist Martin Oake.

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1. INTRODUCTION

1.1 Project Background

Planning permission was granted on appeal for the construction of four houses in the car park of the White Horse Public House, Park Lane, Eaton Bray, Bedfordshire (CB/11/04496/FULL).

A condition (no. 5) attached to the planning consent required a programme of archaeological investigation as a consequence of the development. This is in accordance with national planning guidelines in the form of the *National Planning Policy Framework – Section 12: Conserving and enhancing the historic environment*, which was published on 27 March 2012 (Department for Communities and Local Government 2012).

A brief was issued by the Central Bedfordshire Council Archaeologist (CBCA) (CBC 2013a) which recommended a three-stage approach to the programme of archaeological investigation, of which Stage 1 comprised an archaeological field evaluation by trial trenching with a subsequent appraisal of the results (Stage 2) and potential recommendation of further work (Stage 3). The Stage 1 work was carried out by Albion Archaeology in May 2013 (Albion Archaeology 2013a; 2013b).

The significance of the evaluation results led to the recommendation of a programme of archaeological open area excavation (Stage 3). A new brief for this work was issued by the CBCA (CBC 2013b) and a written scheme of investigation produced by Albion Archaeology (2013c). The works were carried out in July 2013.

1.2 Status and Purpose of this Document

This report presents the results of all stages of the archaeological investigations. It assesses the analytical potential of the recovered data-sets and sets out the further stages required to complete the dissemination and archiving of the results of the fieldwork. The latter will fulfil the requirements of the CBCA's brief and will allow the discharge of the archaeological planning condition.

1.3 Site Location and Description

The development area (DA) lies to the west of the White Horse public house, which lies at the junction of Totternhoe Road, Northall Road and the High Street in the centre of Eaton Bray (Figure 1). It includes the western half of the current pub car park, its adjacent grassed area and a neighbouring overgrown plot of land. It is planted along its boundaries with trees and shrubs. The boundaries of the DA are formed by Park Lane in the north and residential properties in the south and west.

Eaton Bray lies on the northern slope of the Greensand Ridge and the underlying geology consists of outcrops of Upper Greensand Formation and West Melbury Marly Chalk Formation. Drift geology consists of "head" deposits made up of clay, silt, sand and gravel.

The DA is *c*. 0.2ha in area, on level ground at an average height of 98.5m OD and is centred on grid reference SP 968 209. The area subjected to open area excavation comprised *c.* 500m and was located adjacent to the Park Lane frontage.

1.4 Archaeological Background

A heritage asset assessment for the DA was prepared in 2012 (Albion Archaeology 2012). This contains a detailed description of the archaeological and historical background of the site. The main points are summarised below.

The present-day settlement of Eaton Bray has its origins in the Saxon period and is first mentioned in historical records in Domesday Book of 1086 where it is recorded as a large manor consisting of 35 households and being worth 12 hides and 1 virgate. The lands belonging to the manor consisted of meadows, pasture and woodland.

There is little evidence of settlement prior to the Saxon period except for two Roman coins (HER 11776 and HER 11777) respectively dating to the 4th and 2nd centuries, which were found in 1912 during gardening work in two locations close to St Mary's Church. A further Roman coin (HER 18344) has been recorded by the Portable Antiquities Scheme; its find-spot was to the south-west of the DA.

The DA lies on the north-west edge of the postulated extent of the medieval village of Eaton (HER 16838). In terms of medieval settlement form it is unusual for the area (Coleman pers. comm.), as it is an elongated settlement which consisted of four foci around several linear village greens. Polyfocal settlement is a feature more common along the Bedfordshire uplands, where distinctive historic villages are often recognisable by their "Ends"; whilst linear greens are more generally found within the settlements on the Chilterns Hills. However, given the proximity of the village to the northern edge of the [chalk?] escarpment the morphology of Eaton Bray is perhaps less surprising.

A designated Scheduled Ancient Monument (SAM 24418), consisting of a large medieval moated site with contemporary deer park and fish ponds is located at Park Farm, *c.* 800m to the west of the DA. The 1819 and 1849 tithe maps show the DA to be lying adjacent to "the Walk", a broad access route (possibly a green lane or drove road) linking the moat to the main crossroads at Eaton Bray.

A possible smaller moated medieval site (HER 11779) was located *c*. 300m to the east of the DA close to the current High Street within Eaton Bray.

St Mary's Church (HER 964) lies to the east of the DA and is a Grade I listed building. It was built in the 13th century and altered and extended in the 15th. Its churchyard (HER 8886) was in use until 1882/83. A fragment of medieval glazed tile (HER 2001), dating to the 14th century but of unknown origin, was found in an area to the south-west of the churchyard.

The tithe map of 1849 shows a mixture of arable and pasture fields within the parish and an area of ridge and furrow cultivation was recorded immediately to the north-east of the DA (HER 5075).

Most surviving heritage assets in the vicinity of the DA and within the village of Eaton Bray date to the post-medieval period and consist of private dwellings and farm buildings. Several of these are designated heritage assets (Grade II Listed Buildings).

2. SUMMARY OF RESULTS

2.1 Introduction

The contextual data was assessed in order to establish whether it would provide a coherent spatial and chronological framework. A total of 101 contexts were assigned to groups, e.g. possible structures, pit groups, boundary ditches, etc. The decision as to which group contexts were assigned to, was made on the basis of the following criteria:

- Do the contexts form a coherent spatial unit e.g. enclosure, pit group etc?
- Do the contexts represent key positions within the stratigraphic sequence?
- Do the contexts contain suitable dating material?

Groups were then assigned to a number of distinct Land-use areas, corresponding to larger, coherent and contemporaneous spatial units. These Land-use areas were then assigned to a number of episodes (Phases) of human activity corresponding to broad, chronological divisions (Periods), e.g. medieval or post-medieval, based on their artefactual assemblage. Where more than one distinct episode of human activity was apparent within a chronological period, they were assigned to separate Phases.

The text which follows is structured by chronological period and discussed by Phase. Relevant elements within these Phases are referred to by their Groups (G). All the archaeological features revealed on the site are illustrated in Figures 2 and 3.

2.2 Phase 1: Undated

Phase 1 comprises three ditch segments (G4) which describe a rectilinear enclosure. The longest preserved stretch of ditch [1076] forms the south-western boundary on a NW-SE alignment. This ditch is preserved over a length of *c*. 24.3m. A probable late Iron Age sherd was recovered from this ditch during the trial trench evaluation (Albion Archaeology 2013b). However, the size and poor, fragmentary condition of the sherd suggest it to be residual (Section 3.1.2). Therefore, it only indicates the existence of late Iron Age settlement somewhere in the vicinity of the DA. This sherd was the only Iron Age artefact that was found and no other datable items were recovered from any of the ditches.

The second ditch [1014] is perpendicular to the first ditch on a NE-SW alignment marking the western boundary of the enclosure. Its recorded length measures 6.5m. The third length of ditch [1016] assigned to this phase is *c*. 13.3m to the north of ditch [1076] on a parallel NW-SE alignment to the first ditch. It is, however, less well preserved and survived only on a length of *c*. 6.5m and was much shallower that the other two ditches.

None of the historical maps consulted for the heritage assessment (Albion Archaeology 2012) depicts an enclosure in this exact location, but from the 1849 tithe map until the 1960 OS edition an enclosure of similar width is shown adjacent to the DA, to the north-west. It is possible that there was once a series of closes running alongside Park Lane. The majority of pits in the subsequent phases are contained within the enclosure which raises the

possibility that it represents the boundary of a late Saxon to medieval croft that had gone out of use by the 19th century. .

2.3 Phase 2: Late Saxon/Saxo-Norman

This Phase is represented by Group 3, comprising pits [1035], [1045] and [1059] which all produced late Saxon pottery.

Two of these three pits, [1035] and [1059], are located *c*. 4m apart, in the eastern half of the investigation area. They do not seem to form a spatial unit with any other feature in this part of the site; however, they are contained within the rectilinear enclosure described by Phase 1 (G4). Pit [1045] is located in the western half of the site at the northern margin of pit cluster G2, cutting pit [1056].

2.4 Phase 3: Medieval

This phase comprises pit groups G1, G5 and G8. The features in G1 and G8 produced a small amount of residual late Saxon pottery and a moderate amount of medieval pottery. No finds were retrieved from pit group G5; however, it lies stratigraphically between groups G1 and G8 and is, therefore, also dated to the medieval period.

2.4.1 Well, backfilled in 12th–13th century

Group1 comprises well [1065]. Feature number [208] represents the upper part of the well as excavated during the evaluation, while feature number [1018] represents the northern part of the well, which was originally thought to be a separate feature.

The well was the outstanding feature in an area of pit clustering in the western half of the DA. Irregular-shaped in plan it measured a maximum length of 5.24m, a maximum width of 3.26m and a depth of *c*. 1.8m. The feature was excavated in three stages. It was first encountered during evaluation (Trench 3), when it was not possible to 'bottom' the feature for safety reasons. Open area excavation enabled safe access to the base of the well by using a mechanical excavator to dig a box trench. Figures 4-6 show the well at various stages of excavation. A composite section has been prepared to illustrate the sequence of deposits within the well (Figure 3).

The relatively high water table provided waterlogged conditions for the lower deposits which were rich in organic materials and subject to environmental sampling (Section 3.4). The lower deposits (1066) and (1068) are thought to represent episodes of deliberate backfill with largely organic material. The deposits were capped by deposit (1069) comprising a sterile silt-clay material. This may also indicate a change of use of the well into a rubbish pit. A number of humic deposits and occupation debris deposits (1069-1074) followed in quick succession representing episodes of rapid deliberate infill and erosion. The upper deposits (210), (211) and (212) represent gradual erosion and natural silting of the well/pit once it had fallen out of use.

The backfilling of the well is dated by 12th- to 13th-century pottery, comprising wares of local manufacture (Section 3.1).

2.4.2 Pit groups

Group 8 combines two pits. Both were excavated during the archaeological field evaluation. Pit [105] was located in Trench 1 which was not included in the subsequent open area excavation. Pit [205] was investigated in Trench 2. It was, like [1065], located in the area of pit clustering in the western half of the site, cutting pit [1049].

Three pits are combined in Group 2, of which pit [1061] was located in the north-west corner of the site and pits [1049] and [1056] were part of the pit cluster mentioned above. The two pits in the cluster were cut by pits from G8 and G1 and do not provide any other dating evidence. Pit [1049] stands out through size; it was nearly 3m wide, 4.5m long and over 1m deep. The fills are very uniform and sterile and are likely to have derived from the natural geology surrounding the feature.

Large pit [1049] was cut by pit [1056], which was backfilled with similar deposits but did not yield any further datable evidence. Both pits had been affected by a modern disturbance, probably a garden waste pit or tree hole.

An isolated pit [1061] was a substantial depth (1.04m) but did not produce any finds apart from an animal bone. The fills derived from the natural geology.

2.5 Phase 4: Undated Postholes

Group 5 consists of a five postholes which are all undated, because they had no stratigraphical relationships and did not contain artefacts.

Posthole [1032] was located south of ditch G4 in the south-eastern part of the site. It was angular in plan and profile and the fill consisted of a compacted black/grey deposit which correlated with disturbed and reworked soils from the current ground level surface beneath the car park. These characteristics might suggest that this posthole is fairly modern in date.

A group of three possible postholes, [1037], [1039] and [1041] was located north of boundary ditch G4 near the south-east corner of the site. These possible postholes were recorded in an area of heavy root disturbance and might themselves be root holes or perhaps tree stakes. They did not produce any datable evidence.

Posthole [1011] was located north of the boundary ditch G4 near the western edge of site. Though very close to the ditch, it did not have a stratigraphic relationship with it and the posthole did not produce any datable evidence.

3. ARTEFACT AND ECOFACT ASSEMBLAGES

3.1 Pottery

3.1.1 Methodology

For each context, pottery was recorded by fabric type and vessel form, and quantified by minimum sherd count and weight. This information was entered into an Access database. Pottery was dated by individual fabric and / or form type. The date of the latest sherd, and assessment of sherd size, abrasion and fragmentation was used in the provision of an overall context date.

3.1.2 Quantification, date range, type series and provenance

The assemblage comprises 34 vessels, represented by 46 sherds (632g) spanning the late Saxon and early medieval periods. A single sherd of probable late Iron Age date also occurred. The pottery is moderately fragmented, with an average sherd weight of 14g, and generally survives in good condition. Pottery fabrics are listed chronologically in Table 1, using common names and type codes in accordance with the Bedfordshire Ceramic Types Series, currently maintained by Albion Archaeology. No new fabric types were identified.

Fabric Type	Common name	Sherd No.	Wt (g)
Late Iron Age			
F09	Sand and grog	1	5
Late Saxon			
B01	St Neots-type	6	13
C12	Stamford ware	8	56
Medieval			
B07	Shell	5	68
B15	Oolitic	9	246
C01	Sand	3	28
C03	Fine sand	1	16
C60	Hertfordshire-type grey ware	8	86
C61	Sand (calcareous inclusions)	3	93
C67	Sand (mixed inclusions)	2	21

Table 1: Pottery type series

Phase 1

The earliest pottery comprises an abraded grog- and sand-tempered body sherd (5g) datable to the late Iron Age. Recovered from the fill of G4 ditch [304], the sherd's poor and fragmentary condition suggests it should not necessarily be taken as an indicator of the date of the feature.

Phase 2

Late Saxon pottery recovered from pits G3 comprises two abraded, wheel-thrown, shell-tempered St Neots-type body sherds (9g), and six glazed Stamford ware sherds (53g), the latter including four sherds from a jug or pitcher.

Phase 3

Six sherds of St Neots-type ware (4g) and two Stamford ware sherds (3g) occurred as residual finds in Phase 3 features.

The remainder of the assemblage (29 sherds: 558g) is of 12th- to 13th-century date and comprises locally manufactured sand-tempered wares, most containing calcareous inclusions, in both hand-made and wheel-thrown forms. A thickened, flat bowl rim with thumbed decoration and an everted rim vessel with a diameter of 260mm are the only diagnostic vessel forms. Feature sherds comprise single base angles from vessels with flat and sagging bases. Sooting and white residues (possibly limescale) were visible on five sherds, suggesting their use as cooking pots.

The majority of the assemblage derived from the fills of G1 well [1065] (Table 2).

Phase	Group	Sherd No.	Wt (g)
1	G4 Ditch segments	1	5
2	G3 Pit group	8	62
3	G1 Well	33	552
	G8 Pit group	4	13
Total		**46**	**632**

Table 2: Pottery quantification by group

3.2 Non-Ceramic Artefacts

Three abraded pieces of lava rotary quern (98g) were collected from Phase 3 well G1 ([1065]). The fragments retain neither original edges nor diagnostic traits. A date range of Roman/mid-late Saxon to the late medieval period is known for these querns, although association with early medieval pottery suggests the White Horse example may be of similar date.

3.3 Animal Bone

3.3.1 Methodology, quantification and provenance

For each context, animal bone was recorded by fragment count and weight, and the information entered into an Access database. The faunal assemblage comprises 73 fragments (1.9kg), the largest collections deriving from late Saxon pit group G3 and early medieval well G1 (Table 3). Individual pieces are sizable, with an average fragment weight of 27g, and display variable surface erosion. Diagnostic bone elements are post-cranial meat-bearing parts (limb bones, ribs and scapulae, the latter with several cut marks). Mandible, skull fragments, and loose teeth, deriving mainly from cattle and pigs, are suggestive of on-site butchery. The fills of Phase 3 features [208] G1, and [205] G8, respectively yielded a complete cow metatarsal (130g), and eight skull and horn core fragments (89g), also likely to derive from a cow. Several large mammal mandible fragments and an avian long bone derived from the fill of G3 pit [1050] Phase 2.

Phase	Group	Frag. No.	Wt (g)
1	G4 Ditch segments	1	97
2	G3 Pit group	17	970
3	G1 Well	44	749
	G2 pit group	1	20
	G8 Pit group	10	153
Total		**73**	**1,989**

Table 3: Animal bone quantification by group

3.4 Environmental samples

Four environmental bulk samples and one core sample were taken on site to test for charred plant remains and pollen respectively. All of the samples were taken from medieval well G1, while one control samples was taken from pit [1059] in Saxo-Norman pit group G3.

3.4.1 Charred plant remains

The samples were processed by Albion Archaeology using a Siraf-style type flotation tank with mesh sizes of 0.25 mm and 0.5 mm for the recovery of the flot and residue respectively. The residues were dried and sorted for biological remains and other archaeological material. The flots were also dried and measured. The flots were divided into fractions using a stack of sieves for ease of assessment and scanned using a stereo-binocular microscope, with a magnification of up to x40.

The presence and relative abundance of charred grain, cereal chaff and other remains (potential food debris and wild plants/weed seeds) was recorded, along with the frequency of charcoal fragments larger and smaller than 2mm, the larger pieces being potentially identifiable and thus suitable for analysis. Other biological remains (un-charred plant material, bones, snails and insect fragments) in the flots were also noted, but not in sufficient quantities to warrant analysis.

An assessment of the charred plant remains by John Giorgi concluded that they were rich in cereals, including free-threshing wheat and barley, and had good potential for full analysis. The CBCA agreed that analysis should be undertaken and, for reasons of efficiency, it was decided to complete the analysis for presentation in this document (Section 7.1.1).

3.4.2 Pollen

The core sample was sent to Gill Cruise for sub-sampling and assessment. In the laboratory the core was unwrapped, photographed, examined and described. In addition, the basal waterlogged, bulk sample (8) comprising very wet, very humic sandy peat from context (1068) was also examined.

The well/pit fills were a series of mixed silty-clay and peaty deposits with variable amounts of charcoal and gravel. In places, layers of black humic materials with sharp stratigraphical boundaries may well be layers of dumped organic materials with a high proportion of charcoal. The mixed nature of the deposits suggests that the pollen would have a variety of provenances, including both dumped materials and the local environment.

On the basis of the good survival of material it was decided to take two sub-samples from the core for full analysis. The CBCA agreed that analysis should be undertaken, to complement the study of the charred plant remains. The full pollen analysis has also been completed for this document (Section 7.2).

4. ANALYTICAL POTENTIAL OF THE DATA

4.1 Research Objectives

Based on the results of the evaluation, it was anticipated that the DA would produce evidence for medieval settlement. It was expected that the remains would most likely take the form of pits, possibly rubbish pits and/or wells or water pits associated with the medieval settlement and boundary ditches which were part of an earlier or later field system. Although none were encountered in the evaluation, the existence of medieval building remains was not excluded.

The following research themes were established for the excavation:

- Landscape development in the Iron Age (Oake 2007, 10);
- The investigation of rural Saxon and medieval settlements to examine diversity, characterise settlement forms and understand how they appear, grow, shift and disappear (Wade 2000, 24-25, Oake 2007, 14 and Medlycott 2011, 57-59 and 70);
- The changes and development of post-medieval rural settlement, particularly in relation to the history of Enclosure and developments in agriculture (Edgeworth 2007, 121-123).

For the excavation these themes were further distilled into the following aims:

1. Ascertain the precise nature and date of the ditch revealed in the evaluation and any potential associated features. Is it part of a prehistoric field system/settlement evidence or part of the post-medieval field layout?
2. What was the nature of medieval activity on the DA?
3. Does the deep pit on site represent a well and does it contain waterlogged material? Are there other similar features on the site?
4. Was it part of the medieval settlement of Eaton Bray or does it represent an area of garden/rubbish disposal that was set back from the main village?

4.2 Contextual Data

The open area excavation revealed a moderate level of preservation in shallow features and a good preservation of deeper archaeological features combined with waterlogged conditions for lower deposits within these contexts which contributed largely to the good preservation and analytical potential of environmental data. These observations indicate that there is considerable potential for the survival of similarly waterlogged deposits in deeper features that may be present on land adjacent to the DA,

The analytical potential of some of the contextual data is limited. An Iron Age date for the ditches could not be confirmed and no further Iron Age finds were uncovered in the open area excavation. Therefore, it is not possible to draw conclusions as to the nature of potential Iron Age activity on the site (Research Objective 1). It has to be assumed, on the basis of the evidence that the focus of Iron Age settlement lay not within the DA itself, but somewhere in the vicinity

The relatively small (*c.* 500 m^2) excavation area produced a number of fairly securely dated pits and a well plus a number of undated ditch segments and pits. The deep well G1 was a well-preserved feature with good dating evidence which gave it a good potential for analysis. Together with the environmental evidence the contextual data had good potential to answer the more focussed research aims of identifying the nature of the well and the possible nature and position of the site within the medieval settlement of Eaton Bray (Research Objectives 2, 3 and 4).

While the Saxo-Norman and medieval pits are undeniably part of the medieval settlement at Eaton Bray, their wider context and function is difficult to interpret due to the lack of associated archaeological features, either on the excavated area or nearby. This makes it impossible to draw conclusions as to the nature of Saxon and medieval settlement at Eaton Bray on the basis of the contextual evidence of this site alone (research themes of settlement characterisation and change).

However, the site is a significant component of the historic environment of Eaton Bray and will serve to inform future investigations within the village and inform investigations into the character, date, distribution and transformation of medieval activity within Eaton Bray.

The assessment and analysis undertaken as part of this UPD has provided sufficient information to answer the Research Objectives. The conclusions are presented in Section 4.4. There is no potential for further analysis at this stage.

4.3 Artefactual and Ecofactual Data

The pottery assemblage comprises fabric types and vessel forms which supplement current knowledge of medieval pottery distribution within Bedfordshire. A full report on all the material has been given in Section 3. Beyond this, the material has no potential for further analysis.

Assessment of the both the charred plant remains and core sample (Section 3.4.1) concluded that the material had good potential for analysis. The full analysis of the material was carried out in November 2013 and January 2014 respectively. The full specialist reports are presented in Appendix 7.

4.4 Conclusions

The excavations have revealed evidence which is of local significance for investigations into the character, date and development of the medieval settlement at Eaton Bray and its contemporary landscape. No structures were revealed on the site but the presence of late Saxon and medieval pitting, the medieval well the undated but possibly contemporary medieval enclosure, suggests that the area was a "backyard" or garden plot.

The environmental evidence suggests that the site lay some distance from domestic and agricultural or industrial buildings. Both the charred plant remains and pollen evidence show that there is little evidence for the early stages of crop processing, suggesting that this was carried out elsewhere. Pollen evidence also indicates a fairly herb-rich, weedy and grassy environment close to the site. There is no indication of stable debris,

accumulation of dung heaps or stock trampling, suggesting that stables and barns may also have been located elsewhere.

The site lies on the north-west edge of the postulated extent of the medieval village of Eaton but some distance away from the main medieval foci which are centred on the Great Green to the north and St Mary's Church and a smaller medieval moated site to the south-east. In terms of medieval settlement form Eaton Bray is unusual for the area (Coleman pers. comm.), as it is an elongated settlement which consisted of several foci around several linear village greens.

One of the elongated greens lies directly to the east of the DA between the White Horse public house and the Totternhoe Road. This is difficult to date. It was a market place by 1860 but it is not clear whether the area was settled in the medieval period or simply part of the road between the various settlement foci of the village that was lined by common land. Evidence from the development site suggests the latter.

The pollen data shows that there was an open mixed arable-grassland landscape around Eaton Bray with very little woodland and hedgerows. The majority of charred plant remains consisted of free-threshing (including bread) wheat, which was probably grown on the heavier loams and clays to the east of Eaton Bray, and barley, which would have been more suitable to the better drained less clayey loams to the east.

5. UPDATED PROJECT DESIGN

5.1 Introduction

A rapid assessment of the ecofacts as part of the work for this UPD determined that there was good potential for further analysis. This analysis was then carried out in order to inform this report and work on these data sets is completed. The full reports are appended (Section 7).

Detailed assessment of the context and artefact data from the investigations has indicated that it has no potential for further analysis, principally because of the small size of the site and finds assemblage. All information obtained from the data sets is presented in this report.

The results of the work do make a modest contribution to our understanding of the nature of medieval occupation and landscape exploitation in and around Eaton Bray in the medieval period.

Accordingly, the results of the investigations will be disseminated further as set out below.

5.2 Publication

This report will be uploaded onto the ADS Online Access to the Index of Archaeological Investigations (OASIS ref: Albionar1-148289). In addition, a small article will be prepared for publication in *South Midlands Archaeology*. The summaries will be cross-referenced to the online OASIS entry.

5.3 Archiving

Following approval of this document by the CBCA the archive of materials (subject to the landowner's permission) and accompanying records will be deposited with Luton Museum (accession no. 2013.06).

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7. APPENDICES – SPECIALIST REPORTS

7.1 Charred Plant Remains

By John Giorgi

7.1.1 Introduction

During the investigation environmental samples were collected for the recovery of biological evidence including charred plant remains for potential information on crop husbandry, diet and the nature of human activities in the area.

7.1.2 Methodology

Five bulk soil samples were collected; four 30 litre samples from the dark organic fills of a large 12th- to 13th-century well and a 20 litre control sample from the fill (1060) of a shallow pit nearby. A column sample was also taken through the fills of the well for the recovery of pollen and evidence on the character of the surrounding environment.

After an assessment of the material, three of the well fills were selected for processing and full analysis. The samples were from a basal (1068) and upper fill (1074) of cut [1065] (the lower part of the feature) and fill (1019) of cut [1018] (the upper part of the well). Fills (1074) and (1019) may be part of the same deposit (Christiane Meckseper pers. comm.). Ten litres of each sample were processed using a Siraf-style type flotation tank and meshes of 0.25mm and 0.5mm for the recovery of the flot and residue respectively. Both components were dried and the residues sorted for biological remains and artefacts.

The large size of all three flots meant that only a fraction (12.5%) of each was sorted with all potentially identifiable plant remains being extracted and quantified except for fragmented grain (<2mm), *Avena* (oat) awns, stem/straw fragments, *Corylus avellana* (hazel) nut shell fragments, charcoal and indeterminate items, estimates of which were recorded using the following scale: + = <5 items; ++ = 5-25 items; +++ = 26-100 items; ++++ = 101-300 items; +++++ = >300 items.

The remaining fractions (87.5%) of each flot were scanned for the presence of additional botanical remains, the frequencies of which were recorded using the same scale.

Identification of the charred remains was carried out using a stereo-binocular microscope (magnification up to x40) together with modern and charred reference material and reference manuals (Cappers et al 2006; Jacomet 2006). Nomenclature used for the wild species follows Stace (2005) which also provided habitat and ecological data along with Brenchley (1911, 1913), Hanf (1983) and Wilson et al (2003). Soil information was taken from King (1969).

7.1.3 Results

The results are shown in Table 4. All three samples produced rich charred plant assemblages dominated by cereal grains which accounted for 92% of the quantified fractions, a proportion that would have been greater had it been

possible to count the large amounts of small grain fragments in all three flots. Preservation, however, was generally poor and almost half of the quantified grains could not be identified further. Cereal chaff (mainly from free-threshing wheat) and largely wild plant/weed seeds, made up 3% and 5% respectively, of the quantified remains.

	period	**12th/13th Century AD**					
	feature type	**WELL**					
	cut number	**1065**				**1018**	
	context type	**FILL**		**FILL**		**FILL**	
	context number	**1068**		**1074**		**1019**	
	sample number	**5**		**4**		**2**	
	vol sample (l)	**10**		**10**		**10**	
	vol flot (ml)	**187**		**168**		**192**	
	%flot sorted	**13%**		**13%**		**13%**	
	%flot scanned		**87.00%**		**87.00%**		**87.00%**
Latin name	**English name**						
Cereal grains							
Triticum dicoccum/spelta	emmer/spelt wheat		+	1			+
T. aestivum/turgidum type	free-threshing wheat	22	+++	76	++++	60	++++
T. cf. *aestivum/turgidum* type	?free-threshing wheat	78	++++	115	++++	121	+++
Triticum spp.	wheat	26	++	34	++	58	++
cf. *Triticum* spp.	?wheat	40	++	58	++	41	++
Triticum/Secale cereale L.	wheat/rye		+	4	++	1	
Secale cereale L.	rye	1		3	+	2	
cf. *S. cereale*	?rye		+	2	++		++
Hordeum vulgare L.	barley, hulled twisted	3		1		10	
H. vulgare L.	barley, hulled straight					6	
H. vulgare L.	barley, hulled	3	+++	1	+++	45	++++
H. vulgare L.	barley, indet	28		18		45	
cf *H. vulgare*	?barley	20	+++	6	++	43	++
Avena sp(p).	oat	3	++	1	++	4	++
cf. *Avena* spp.	?oat	3	++	4	+++	4	+++
Cerealia	indet. cereal	307	+++++	109	+++++	294	+++++
Cerealia	indet cereal fragments <2mm	+++++	+++++	++++	+++++	+++	+++++
Cereal chaff							
Triticum aestivum type	hexaploid wheat rachis fragments		+++	2	+++	1	++
T. aestivum/turgidum type	free-threshing wheat rachis	8	++	7	++	14	+++
Triticum spp.	wheat rachis fragments	14	+++	15	+++		+
Secale cereale L.	rye rachis fragments						+
Hordeum sp(p).	barley rachis fragments	1	+++		+		++
Avena fatua L.	oat floret bases (wild)						+
A. sativa L.	oat floret bases (cultivated)				+		+
Avena spp.	oat awn fragments				+	+	+
Other plant/weed seeds							
Ranunculus acris/repens/bulbosus	buttercups				+		
Corylus avellana L.	hazel nut shell fragments	+	++		+		
Atriplex spp.	orache		++	2	++		
Atriplex/Chenopodium spp.	orache/goosefoots etc		+				
Caryophyllaceae indet.	-			1			
Stellaria spp.	stitchworts						+
Agrostemma githago L.	corncockle			10	+		
Silene sp(p).	campion/catchfly				+	1	

	period	12th/13th Century AD					
	feature type	WELL					
	cut number	1065				1018	
	context type	FILL		FILL		FILL	
	context number	1068		1074		1019	
	sample number	5		4		2	
	vol sample (l)	10		10		10	
	vol flot (ml)	187		168		192	
	%flot sorted	13%		13%		13%	
	%flot scanned		87.00%		87.00%		87.00%
Latin name	**English name**						
Rumex sp(p).	dock	1	+	3	++	1	+
cf. *Malva* spp.	mallow						+
cf. *Vicia faba*	?broad bean						+
Vicia/Lathyrus sp(p).	vetch/tare/vetchling	3	++		+	1	+
Vicia/Lathyrus/Pisum sp(p).	vetch/tare/vetchling/pea		++			1	
Fabaceae indet	small rounded legumes	2	+		+		+
Bupleurum rotundifolium L.	thorow-wax		+		+		+
Lithospermum arvense L.*	field gromwell	1	++		+	2	
Euphrasia/Odontites sp(p).	eyebrights/bartsias		+	1	+	1	
Galium aparine L.	cleavers					1	+
Sambucus nigra L.	elder			1			
Centaurea sp.	knapweeds			1			
Anthemis cotula L.	stinking chamomile				+		
Eleocharis palustris/iuniglumis	spike-rush				++		+
Carex spp.	sedge		+				+
Festuca/Lolium spp.	fescue/rye-grass		+				+
Bromus spp.	brome		++	2	++	7	++
cf. *Bromus* spp.	?brome	7	++	6	++	8	
Poaceae indet.	grasses (large seeds)		++	6	++	5	++
Poaceae indet.	grasses (small seeds)	3	++		++	3	++
Poaceae indet.	grass/cereal node/internode	+	+	+	++	+	++
indeterminate	stem fragments (thin ribbed)			+	+		
indeterminate	wood charcoal	+++	+++++	++++	+++++	++++	+++++
indeterminate		+	+	+	+	+	+
	TOTAL	**574**		**490**		**780**	
	item density (per litre of processed soil)	***57.4***		***49***		***78***	

Item frequency: + =1-5; ++ = 6-25; +++ = 26-100; ++++=101-300; +++++ = >300 items

* = mineralised seeds

Table 4: Charred Plant Remains

7.1.4 The cereals

Triticum (wheat) was the dominant grain in all three fills accounting for 74% of the identifiable and quantified grains, virtually all the well-preserved remains being from free-threshing wheat (*Triticum aestivum/turgidum* type).

Further identification of free-threshing wheat to species is dependant upon the diagnostic rachis fragments, which were present in all three flots, the more complete fragments showing the presence of hexaploid bread wheat (*Triticum aestivum*) although there was no rachis evidence for tetraploid rivet wheat (*Triticum turgidum*). There were very occasional hulled grains of *Triticum dicoccum/spelta* (emmer/spelt wheat) in the three fills, which may be residual grains or weeds from previous harvests.

Hordeum vulgare (barley) was the only other significant cereal in the fills, represented by 23% of the quantified grains with hulled, twisted and straight grains showing the presence of six-row hulled barley including lax-eared forms on the basis of rachis fragments in the samples. There were much smaller numbers of *Secale cereale* (rye) and *Avena* (oat) grains (1% and 2% of the quantified grains), the identification of rye confirmed by traces of rachis fragments in one fill, while a few oat floret bases in two fills showed the presence of both wild oat (*Avena fatua*) and cultivated oat (*Avena sativa*). Occasional oat awn fragments were recovered from two samples.

Free-threshing (including bread) wheat, hulled barley, rye and oats are the four main grains identified in archaeobotanical assemblages from medieval sites in southern England (Greig 1991, 321) including numerous sites in Bedfordshire; for example, free-threshing (including bread) wheat was also the main cereal from excavations at Land West of Kempston near Bedford (Giorgi 2011) and at Land South of Stotfold (Giorgi 2013) together with smaller amounts of the other cereals.

Wheat was the most valued cereal crop in medieval England (Hammond 1995, 2) with bread wheat having good bread making qualities, wheat flour also being used for pies and pastries. Barley, the other main cereal in the samples, may have also been used for bread as well as animal feed and in brewing (as was sometimes wheat and oats), although there were no sprouted grains in the assemblages to suggest they were being used as such at the site.

Regarding the other two poorly represented cereals in the samples, rye has inferior baking qualities and was probably used mostly for peasant bread (ibid., 2) while oats may have been used in mixes for bread and/or as fodder. All four cereals (especially oats) may have been added to pottage (Campbell et al 1993, 27). Occasional grass stem fragments were found in the fills which could be from cereals (and/or wild grasses), straw having a number of potential uses as flooring, thatching (in particular rye), animal bedding, and fuel while oat and barley straw was also used for fodder (Barker 1985, 45).

7.1.5 Other food plants

Small numbers of legumes were recovered from the three fills although virtually all these remains could either not be identified further or only as *Vicia/Lathyrus/Pisum* (vetch/tare/ vetchling/pea) and therefore could be from cultivated and/or wild species. There was, however, a tentative identification of *Vicia faba* (broad bean) in fill [1019], a cultivated legume found on other medieval sites although usually only in small quantities (Moffet 2006, 53) including from excavations in Bedfordshire, for instance at Land West of Bedford (Giorgi 2011) and Land South of Stotfold (Giorgi 2013).

Legumes were probably mainly grown as fodder but could have been ground up and added to cereal flour for making bread particularly following poor cereal harvests or used in pottage (Campbell et al 1993, 27). They were also grown as a means of restoring nitrogen levels in the soils. The gathering of wild foods from hedgerow/woodland/scrubland is suggested by occasional *Corylus avellana* (hazelnut) shell fragments in two fills and a *Sambucus nigra*

(elder) seed in fill [1074]. Archaeobotanical remains of wild fruits are common on medieval sites (Grieg 1991, 325).

7.1.6 Crop husbandry

A relatively small number of wild plant/weed seeds from a limited range of species were found in the samples, probably mainly from arable weeds given their presence in large cereal assemblages. Most of the seeds could not be identified to species which limited ecological interpretation, with over 50% of the quantified seeds being from grasses. Nevertheless, several species provide some information on possible crop husbandry practices at the time.

Occasional charred seeds of *Bupleurum rotundifolium* (thorow-wax), *Anthemis cotula* (stinking chamomile) and mineralised seeds of *Lithospermum arvense* (field gromwell) suggests the cultivation of calcareous loams and calcareous clay loams while *Galium aparine* (cleavers) is found in heavy loams and *Agrostemma githago* (corn cockle) in loam soils.

This evidence corresponds well to the character of the local soils around Eaton Bray; to the west, calcareous clay and clay loam soils with impeded drainage of the Wicken and Icknield series, and to the east the more freely draining calcareous silty clay to clay loams of the Burwell series. The heavier soils to the west would have been better suited to the cultivation of the main grain in the samples, bread wheat, typically associated and growing best on deep clay loams (Jones 1981, 106; Moffet 2006, 48) while barley, the second best represented grain, does not grow well on poorly drained land and heavier soils and would have been being better suited to the more free-draining and less clayey soils to the east.

The other two cereals appear to have only been minor crops at the time, oats, like wheat, growing best on deep clay loams, while rye is often found on lighter usually sandy soils. Beans are also similar to wheat and grow best on heavier soils. Occasional seeds of wetland plants, *Eleocharis* (spike-rush) and *Carex* (sedges) in the fills may reflect the use of damper areas of ground for cultivation, probably to the west and towards the River Ouzel.

Bupleurum rotundifolium, Anthemis cotula and *Lithospermum arvense* may indicate winter sowing of grain although all four cereals may have been sown in either period, bread wheat and rye, however usually being winter-sown and oats and barley being better suited to spring-sowing because they can have a shorter growing season (Moffet 2006, 48). The presence of twining weeds, for example *Galium aparine*, along with free-standing weeds of various heights including low-growing plants such as *Bupleurum rotundifolium*, *Anthemis cotula*, and the absence of basal cum nodes, could tentatively suggest harvesting of cereals fairly low on the straw.

7.1.7 Crop-processing

Cereal grains dominated all three botanical assemblages, accounting for between 88% and 94% of the quantified remains in each sample with no significant difference in the proportions of the different cereals in each fill; free-threshing (including bread) wheat making up between 64% to 88% (in fill [1074]) of identifiable grains, followed by hulled barley (between 8% and 34%) and very small amounts of oats (1% to 3%) and rye (less than 1% to

2%). Cereal chaff in the three fills made up between just 2% and 5% of the quantified remains, largely consisting of free-threshing wheat rachis fragments, while the weed seeds accounted for between 3% and 7% of the quantified remains, with no obvious differences between the weed seed assemblages.

The rich grain assemblages represent the burnt residues of almost fully processed crops which may have become accidentally burnt while being dried before storage and/or milling, during cooking of whole grains or possibly as the result of small conflagrations. The large weed seeds in the samples, *Bromus* (brome), *Agrostemma githago*, *Lithospermum arvense* and *Galium aparine*, are also indicative of virtually cleaned crops because being of a similar size to the grains these weed seeds could only be separated by hand-sorting. There was relatively little evidence for by-products from the earlier stages of crop-processing represented mainly by rachis fragments, which would have mostly be removed following threshing although small rachis fragments may have only been separated at a latter stage using the 'wheat' sieve along with the small weed seeds in the samples (Hillman 1984, fig. 2, Stage 7, 4).

7.1.8 Summary

All three well fill samples produced very rich and virtually clean grain assemblages suggesting that free-threshing (including bread) wheat and to a lesser extent, hulled barley were the main cereals being used on the site while oats and rye appear to have only been minor crops. There is also a little evidence for beans while wild foods (hazel nuts and elderberries) may have been gathered from nearby hedgerows/woodland/scrubland.

The weed seeds, albeit limited, suggest that the local soils around the site may have been used for cereal cultivation, both the heavier loams and clays to the west, which would have been better suited to the growing of bread wheat, and the better drained less clayey loams to the east, which would have been more suited to barley cultivation. There is tentative evidence for the winter sowing of crops and the harvesting of cereals fairly low on the straw.

There is no significant difference between the individual assemblages, all of which are indicative of virtually cleaned grain deposits which may have been accidentally burnt during activities associated with the final cleaning and food preparation/cooking; there is little evidence for debris from earlier stages of crop-cleaning. It is not possible to establish whether or not the sampled feature was a pit or well on the basis of the charred plant remains which form part of the infilling of this feature along with the other biological remains (burnt bone) and artefacts (pot, burnt stone, burnt/fired clay) from the samples.

7.2 Pollen

By Gill Cruise

7.2.1 Introduction

A pollen assessment of a core through a series of waterlogged fills from well G1 was carried out. After assessment, two samples that showed the best potential were selected for pollen analyses. These were from near the base of the feature and core (45 cm, context 1069) and a second from near the top of

the core (13 cm, context 1073), both being from grey organic silty-clay deposits. The remaining mixed peaty, charcoal-rich deposits were found to have little potential for pollen analysis.

The site lies near to a stream at the juxtaposition of two soil types: firstly to the east there is chalky drift where the soils have been described as moderately permeable fine loamy calcareous soils over chalky gravel affected by groundwater (Grove series). To the west towards the River Ouzel, they become more clayey (Evesham series) where they are slowly permeable calcareous clay soils with seasonal waterlogging. Typical modern land-uses are winter cereals in drier areas with some dairying, and grassland with some cereals in moister lowlands (Mackney et al., 1983).

7.2.2 Methods

The pollen preparations were carried out at Trinity St. David, University of Wales, Lampeter, where the chemical preparation methods and methods for determining pollen concentrations were carried out as described in the published literature (Moore *et al.*, 1991; Stockmarr, 1971). Pollen identifications are based on Moore et al. (1991) and modern reference material. A whole slide was counted for each sample which resulted in counts of 297 pollen and spores (13 cm) and 277 (45 cm). Pollen preservation characteristics are based on the published literature (Delcourt and Delcourt, 1980). Pollen nomenclature is based upon Moore *et al.* (1991), Stace (1991) and Bennett *et al.*, (1994).

7.2.3 Results and interpretation

Pollen percentages and pollen preservation characteristics are shown in Table 5. Pollen preservation is generally poor with around 70% of the counted grains being in a degraded condition although some well-preserved grains are also present in both samples. Such a high level of deterioration strongly indicates re-working and secondary deposition, the most likely mechanism here, being the silting-in of these organic silty-clay layers within the well/pit.

It is probable that some differential preservation has affected the pollen percentages with Lactuceae in particular being over-represented.
Trees and tall shrubs are virtually absent from the record with only a few scarce records in the basal sample and none at all in the upper sample.

Curiously, spores are also almost absent from the upper sample but present in the basal sample especially *Pteridium* (bracken). While differential preservation is a possible factor, the association of spores with the presence of a small number of arboreal taxa, suggest they could have been introduced into the sediment along with any imported woody material in the basal layer.

The pollen spectra of both samples are dominated by pollen types most frequently associated with grassland communities such as Poaceae (grasses) and many members of the Asteraceae family especially Lactuceae (dandelion group) and *Solidagovirgaurea*t., (daisy group) and less frequently *Centaureanigra* t., *Trifolium* t., Apiaceae, The presence of *Ophioglossum* (adderstongue) in the basal sample is interesting as it is a small fern associated with old species-rich pastures and meadows (Rodwell 1992, 65) found in moist grassy places and is much favoured by cattle (Dony, 1953).

Other indications of damp areas or moist ground include Cyperaceae (sedges), *Ranunculus* t., and in the upper sample, *Filipendula*. Other taxa associated with weedy grassland are better represented in the upper sample most notably thistles (*Cirsium* t.) and *Plantagolanceolata* t., although both can also be colonisers of waste ground and arable soils. Similarly, *Knautia* t. was found in the upper sample and this is most commonly found in freely-draining grassland, although Dony (1953) also regards it as a colonist of arable fields, rough pastures and waste ground.

Unfortunately preservation did not permit a distinction between *Stachys* and *Lamium* types as these pollen types include species that occur in a variety of both disturbed and undisturbed habitats.

Although pollen types attributable to cultivation and disturbed ground are present in both samples, they are more numerous in the basal sample. Cereal type pollen is 6% of the count in the basal sample as compared to 2% in the upper. Where preservation permits, the cereal type present is identified as belonging to the *Avena-Triticum* pollen group.

In addition to a greater frequency of cereal type pollen, *Sinapis* t. reaches 10% in the basal sample as compared to 2% in the upper. This group includes many members of the Crucifereae (Brassica) family that includes a large number of annual weeds of cultivation and disturbed ground, some cultivated forage crops and *Rorippa* (watercress). The association of *Sinapis* t. with a higher frequency of cereal type suggests weeds/crops are the most likely here.

Other weed taxa occur only at very low frequencies such as a single grain of *Papaverrhoeas* t. Chenopodiaceae and *Polygonum* t. can also include weeds of disturbed soils or can be colonisers of nutrient-enriched ground such as dung heaps.

Depth (cm) below top of core	**13**	**45**
Context	**1073**	**1069**
Trees and tall shrubs		
Alnus		1
Betula		<1
Quercusrobur t.		1
Herbaceous taxa		
Apiaceaeundiff.	1	1
Artemisia t.	1	<1
Asteroidaeae (Solidagovirgaurea t.*)*	2	3
Asteroidaeaeundiff.	2	
Caryophyllaaceaeundiff.		<1
Centaureanigra t.	2	1
Cereal t. (Avena-Triticum group)	**2**	**4**
Cereal t. (undiff.)		**2**
Chenopodiaceae	1	1
Cirsium t.	5	<1

Depth (cm) below top of core	**13**	**45**
Context	**1073**	**1069**
Cyperaceae	3	5
Filipendula	1	
Knautia	<1	
Lactuceae	**54**	**40**
Papaverrhoeas t.		<1
Plantagolanceolata t.	4	<1
Plantago major t.		<1
Poaceae	**15**	**21**
Polygonum t.	<1	1
Ranunculus t.	2	<1
Sinapis t.	2	10
Stachys/Lamium t.	2	
Trifolium t.		<1
Unknown	<1	
Spores		
Ophioglossum		1
Polypodiumvulgare	<1	<1
Pteridium		4
Pteripsida (mon.) indet.		<1
Total	100	100
Total count	297	277
Preservation (%)		
Normal	13	22
Crumpled	7	7
Corroded	2	1
Amorphous	73	68
Split	5	2

Table 5: Pollen counts (%)

7.2.4 Discussion of environment and land-use

There is a direct relationship between the size of a site and its catchment area (e.g. Jacobson and Bradshaw, 1981), so a well of diameter of about 1.5m would have received 80-90% or more, of its pollen from within a few metres. Therefore, it is clear that the immediate medieval environment around the well comprised an open landscape largely devoid of trees and hedgerows.

Single arboreal pollen grains in the basal sample only indicate the presence of woodland or hedgerows at some distance and the fact that woodland resources would have been imported on to the site. Similarly, as no *Corylus* t. pollen was recorded, hazelnuts would have been gathered elsewhere and not in the immediate vicinity (Section 7.1).

Herbaceous taxa dominate the pollen spectra although care has to be taken in the interpretation of such data because of the taphonomic processes that have affected these sediments. In particular natural silting-in may explain the high

levels of pollen deterioration that in turn probably resulted in the over-representation of resistant pollen taxa such as Lactuceae. At the same time, it is well established that cereal type pollen is under-represented in pollen diagrams (Vuorela, 1973). It can be argued, therefore, that grassland pollen taxa are over-represented here and that arable pollen taxa are under-represented although this is a generalisation.

Cereal cultivation is indicated by cereal type frequencies of 2% (context 1073) and 6% (context 1069). Higher percentages for cereal type pollen are more often associated with crop processing (Robinson and Hubbard, 1977) or stable and straw management as found at the Saxon wells at Stratton, Bedfordshire (Cruise and Macphail, 1998). At the Saxo-Norman site at Guildhall Yard, London, extremely high cereal type pollen frequencies (up to 50%) were strongly associated with evidence for stable refuse and dung (Macphail et al., 2007a, b).

The presence here of *Sinapis* t. pollen in the basal sample is consistent with the presence of arable weeds and local, cultivation /soil disturbances although the general paucity of other disturbed ground taxa provide few indications of local cereal and straw processing. Likewise, only sparse records for taxa of nutrient-enriched soils do not suggest areas of stock trampling, dung heaps or refuse tips within the limited pollen catchment area of the well/pit.

Despite the shortcomings of the data an abundance of grass pollen together with a fairly good range of grassland pollen types is indicative of the presence of fairly herb-rich, grassy areas close to the well. Damper areas or ditches would also have been present. It is to be expected that, like the present day, pastures would have been more frequent on the lower-lying clay soils of the Ouzel valley.

An increase in thistle (*Cirsium*) and *Plantagolanceolata* pollen types in the higher sample together with a reduction in cereal t. and *Sinapis* t. are together suggestive of an expansion of weedy, grassy areas and a reduction of cultivated/disturbed ground during the later phase of infilling of the well.

Unfortunately the data are too limited to specify whether this was part of a trend towards an increase in the amount of grassland or possibly more likely, a short-lived episode such as a phase of fallowing that would have been a normal part of the agricultural cycle.

Elsewhere in Bedfordshire, on the Lower Greensand at Haynes, it was suggested that there was a mixed farming regime consisting of arable activity interspersed with phases of fallowing/grassland from late Roman through to 12th century AD (Macphail and Cruise, 1997). In addition, according to Barker's summary (1985, 50-54), rest periods or fallowing was a fundamental part of agricultural strategy during historical times prior to the 18th century.

7.2.5 Conclusions

Available pollen data provide quite strong indications of locally, an open mixed arable-grassland landscape. Woodland and hedgerows would have been largely absent and any woodland resources would have been imported on to the site. Locally there would have been cereal cultivation but there is little

evidence for crop processing which would have taken place elsewhere. This is broadly in agreement with the charred plant remains evidence (Section 7.1).

Similarly, although are indications of fairly herb-rich, weedy, grassy areas close to the site, there are no indications of stable debris, accumulations of dung heaps or stock trampling. Again, any stables would have been located elsewhere. Increases in grassland taxa and reduction in arable/disturbed soil taxa in the later sample suggest a local expansion in grassy communities.

There is no way of knowing whether this represented part of an overall increase in the area of grassland or, more likely, a fallow phase, the last being an integral part of the medieval agricultural system.

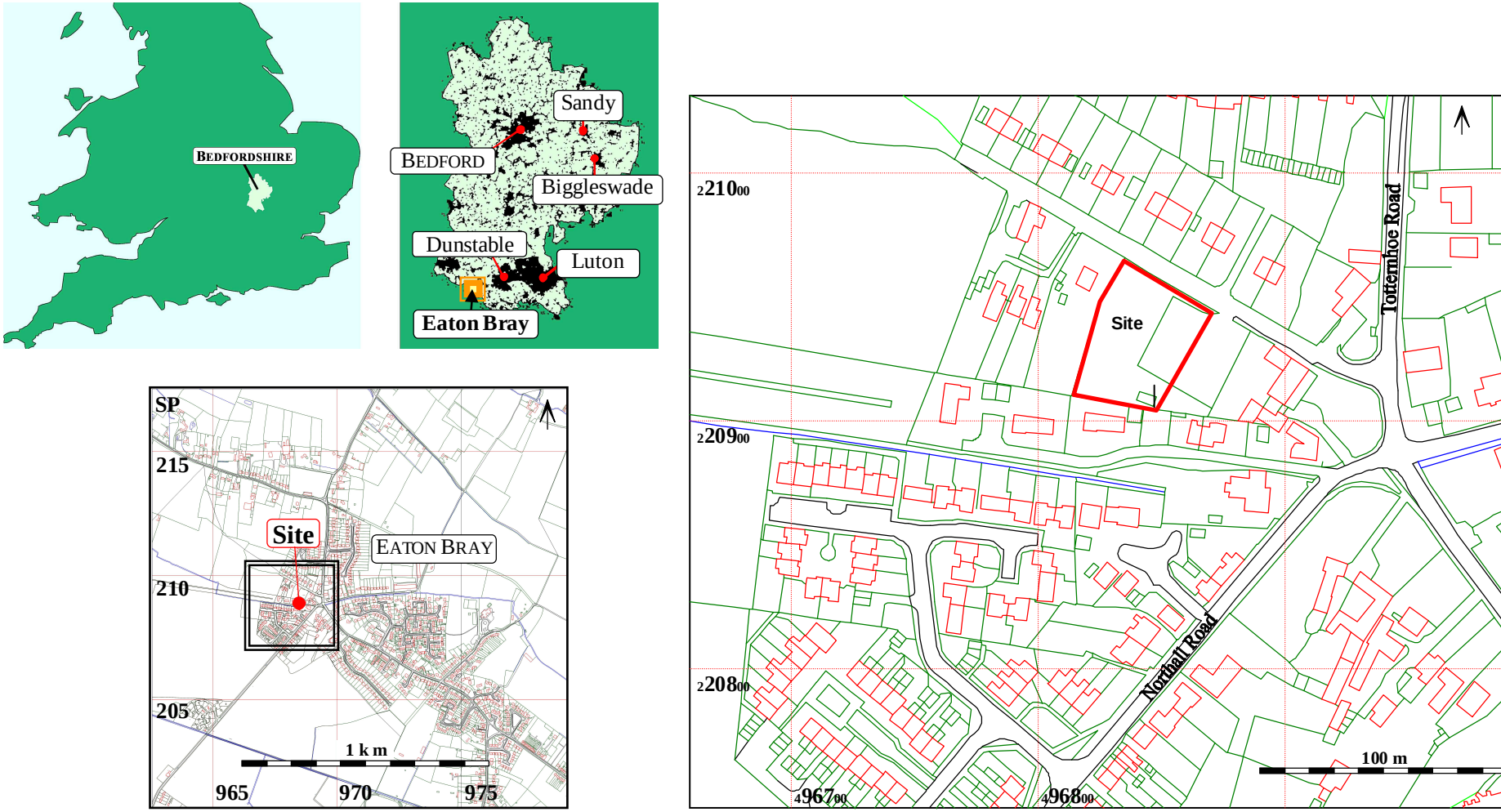

Figure 1: Site location

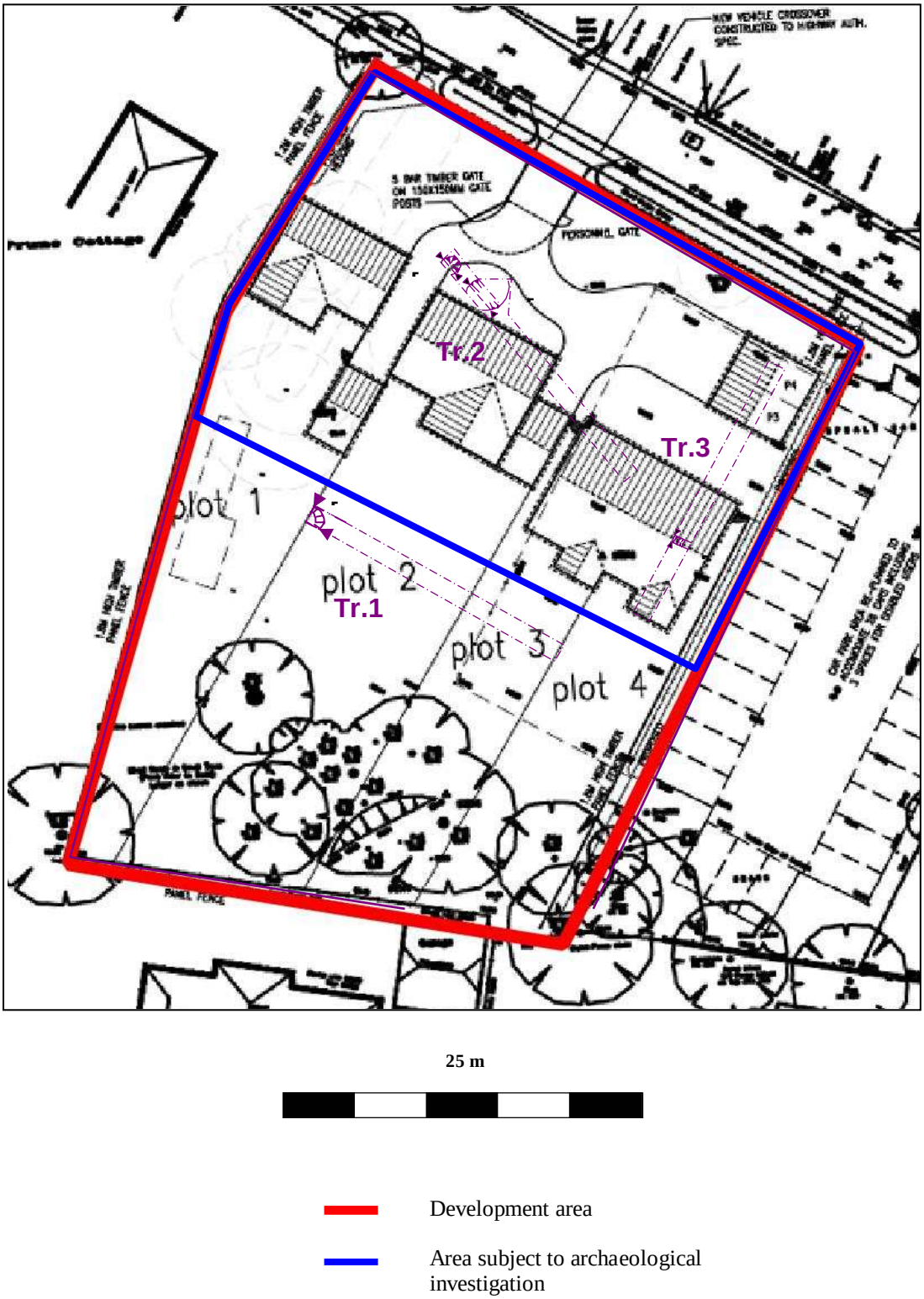

Figure 2: Location of area subject to archaeological investigation with underlay of archaeological trial trenches
(Based on R. Harrington architect's plan SC001.7)

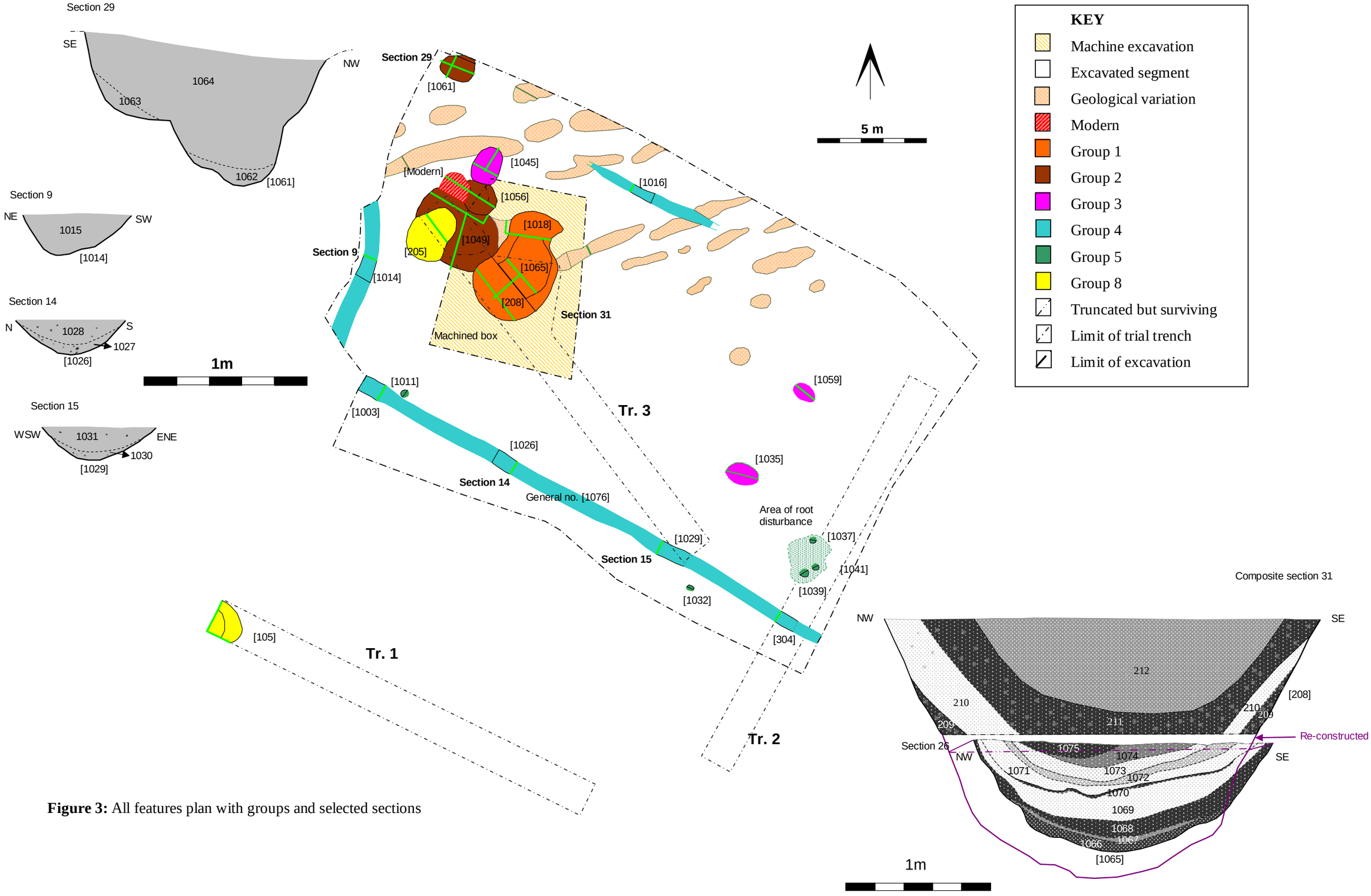

Figure 3: All features plan with groups and selected sections

Figure 4: The top of the well [208] excavated within trial Trench 3 (looking north-west)

Figure 5: The top of the well and backfilled trial trench after stripping open area for excavation (looking north-west)

Figure 6: The unexcavated well after ground reduction
(looking north)

Figure 7: The bottom portion of the well [1065] with partially excavated deposits *in situ*
(looking north-west)

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