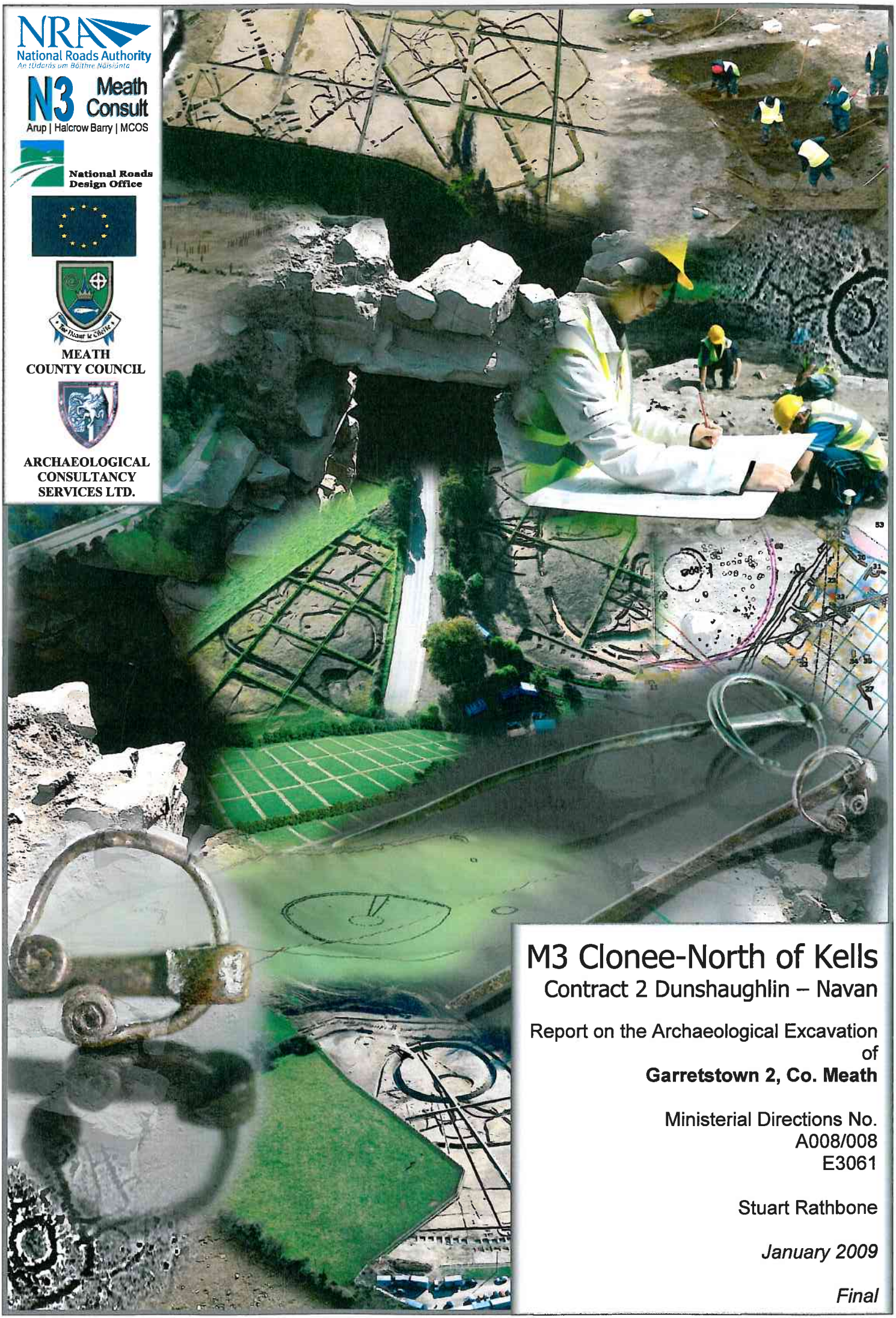

National Roads Authority
An tÚdarás um Bóithre Náisiúnta

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MEATH COUNTY COUNCIL

ARCHAEOLOGICAL CONSULTANCY SERVICES LTD.

M3 Clonee-North of Kells

Contract 2 Dunshaughlin – Navan

Report on the Archaeological Excavation of

Garretstown 2, Co. Meath

Ministerial Directions No.
A008/008
E3061

Stuart Rathbone

January 2009

Final

PROJECT DETAILS

Project	M3 Clonee–Kells Motorway
Site Name	Garretstown 2
Ministerial Direction Number	A008/008
Registration Number	E3061
Senior Archaeologist	Donald Murphy
Site Director	Stuart Rathbone
Excavated	24 March – 13 December 2006
Client	Meath County Council, National Roads Design Office, Navan Enterprise Centre, Navan, County Meath
Townland	Garretstown
Parish	Trevet
County	Meath
National Grid Reference	296021 254807
Chainage	21730–21975
Height	120.5m OD
Report Type	Final
Report Status	Submitted
Date of Report	January 2009
Report by	Stuart Rathbone

ACKNOWLEDGEMENTS

This report has been prepared by Archaeological Consultancy Services Ltd on behalf of Meath County Council National Roads Design Office (NRDO) and the National Roads Authority (NRA). The excavation was carried out under Ministerial Direction Number issued by the Department of the Environment, Heritage and Local Government (DoEHLG) in consultation with the National Museum of Ireland (NMI).

Consulting Engineers - N3 Meath Consult

Engineer – Peter Thorne and Thomas Meagher

Resident Engineer – Gillian Cogan

Meath County Council, National Roads Design Office

Senior Engineer – John McGrath

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NON-TECHNICAL SUMMARY

The site at Garretstown 2 was excavated by Archaeological Consultancy Services Ltd (ACS) as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council NRDO and the NRA. Excavations revealed two principal phases of activity at the site: a ringditch cemetery of the Middle Bronze Age, a series of large enclosures, originating in the developed Iron Age and continuing in use until the late seventh to mid tenth century AD. The excavated enclosures were associated with a large enclosure located immediately west of the site, but consequently undated. Both phases of activity represent significant concentrations of archaeology, but the presence of the Late Iron Age enclosures are of particular importance considering the general paucity of excavated sites of this date in Ireland, and the manner in which it seems that there is continuity of settlement between the Late Iron Age and the early medieval period.

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1 INTRODUCTION

The site at Garretstown 2 (Figures 1–7) was located just to the north of Dunshaughlin, and was located near the southern end of a large area of raised ground. The ground to the south and east of the site is low lying and damp, an area known as 'Redbog'. The southern limit of the excavation area was part of a gently rising slope leading from this wetland and the top of the slope was reached approximately one third of the way across the excavated area. The northern two thirds of the site were part of an extensive area of raised flat ground which extended for a considerable distance to the north and northwest. The vast majority of the archaeology at Garretstown 2 was located on this flat area, and it is interpreted from the evidence that there is a considerable amount of archaeology located both to the immediate east and west of the site.

The site was identified during advance testing carried out by Jonathan Dempsey during April 2004 under licence number 04E0415 when a smelting hearth, a possible charcoal manufacturing kiln and a group of ditches, thought possibly to be the remains of a moated site and associated field system, were located in Area A and one definite and one possible cremation pit, postholes and ditches were located in Area B (Dempsey 2004). A Topsoil Assessment (two phases of metal detection, field walking and test pits) was conducted in 2005 and 66 modern artefacts were recovered from the metal detection along with a further six similar artefacts from the field walking (Appendix 4). Full resolution of the site occurred in 2006 and three principal phases of activity were identified at the site: a ringditch cemetery of the Middle Bronze Age, a series of large enclosures of Late Iron Age date associated with a large enclosure located immediately west of the site, and a large ringfort of the early medieval period that lay partially within the excavated area but interpreted to largely be situated to the immediate east.

1.1 Development

Meath County Council is constructing 49km of two-lane, dual-carriageway motorway between Clonee and Kells and 10km of single carriageway from Kells to just north of Kells alongside additional road upgrades, realignments and associated ancillary works. The scheme has been subdivided into five separate sections as follows: Clonee to Dunshaughlin (Contract 1), Dunshaughlin to Navan (Contract 2), the Navan Bypass (Contract 3), Navan to Kells and the N52 Kells Bypass (Contract 4), and Kells to North of Kells (Contract 5). This section of the scheme (Contract 2) commences at Dunshaughlin (NGR 295567, 253082) and continues to Navan (NGR 287968 263697).

The desk-based study and the field survey for the whole scheme, carried out in 2000–2001, were divided into sections which were investigated by Valerie J Keeley Ltd and Margaret Gowan and Company Ltd. The Record of Monuments and Places, the Sites and Monuments Record, Topographical files, and literary sources were all consulted. This information was augmented by geophysical testing conducted by Bartlett-Clark Consultancy who undertook a magnetometer survey across sample transects which was then supplemented by magnetic susceptibility, and also by GSB Prospection who undertook gradiometer scanning and a detailed gradiometer survey. The Environmental Impact Survey (EIS) compiled this data set to identify approximately 100 sites of interest either along the route or in its proximity (500m of the landtake). Advance archaeological testing was completed in 2004 by ACS and Irish Archaeological Consultancy Services Ltd (IAC). Excavation of the sites identified during testing was conducted by ACS and IAC on behalf of Meath County Council, and the NRA under directions issued by the Minister for the Environment, Heritage and Local Government following consultation with the Director of the National Museum of Ireland.

2 EXCAVATION

Excavation occurred between 24 March and 13 December 2006 under Ministerial Direction Number A008/008 issued to Meath County Council NRDO. The work was carried out by Stuart Rathbone on behalf of ACS. An area of 19000sqm was opened and divided into two halves by a substantial hedgerow running from the western side to the northeast corner which divided the site into an eastern area and a western area.

The subsoil (F6) at Garretstown 2 consisted of bands of black degraded shale and very compact orange clay. In some areas a solid grey bedrock was also uncovered. The materials filling the features at the site directly reflected this material, and were often very compacted. It should also be noted that the site was excavated during an extremely prolonged hot and dry spell, and the normal range of textures, colours and compactions expected among archaeological fills was often not recorded because of the low moisture content. In particular upper fills of features were universally recorded as being more compact than the lower fills, and this can clearly be seen as a product of the weather conditions.

All archaeological features exposed were recorded and excavated by hand with each identified feature being cleaned, photographed, half sectioned and then fully excavated. Each discernible context was numbered individually. Where appropriate, samples were retrieved in an attempt to obtain evidence for the date and function of these features (Appendix 3). Unless otherwise stated, the features have been measured length-width-depth. All measurements are in metres. All finds were numbered according to the requirements of the National Museum of

Ireland from 1 onwards consistent with licence and feature number. The artefacts recovered from the site underwent an initial archaeological assessment and where deemed appropriate further specialist analysis was carried out on each artefact type. All radiocarbon dates are quoted in calibrated form to two sigma.

2.1 Results

Only the principal features of Garretstown 2 will be discussed within this report; full details of all these, and further, contexts are located in Appendix 1.

2.1.1 Ringditches

The earliest archaeological element present at Garretstown 2 consisted of seven ringditches thought to belong to the Middle Bronze Age (Figure 7). There were two substantial ringditches defined by deep, steep-sided ditches and five much smaller ringditches defined by narrow and shallow ditches. None of these ringditches produced significant quantities of artefacts or large bone assemblages. Only the large ringditch F46 has presently been dated, but it is so similar morphologically to the ringditch F208 that the date can confidently be applied to both. The dates of the smaller ringditches are also unknown. Unfortunately, none provided suitable material for dating and cannot be identified to a single period on typological grounds due to a distinct variation in morphology. However in the absence of scientific dating, they have been grouped with the Phase I Bronze Age ringditch.

2.1.1.1 Bronze Age Ringditch F46

The ringditch F46 was located on the crest of the gentle southern slope that led to the lower ground surrounding Redbog. It had been cut through an area of the degraded shale which also contained several of the fissures filled with the hardened clay. The ringditch F46 was 18.4m in diameter and was very close to being perfectly circular in plan (Figures 8 & 10; Plates 1 & 2). The ditch was consistently around 2.6m in width and was up to 1.3m in depth and had a funnel-shaped profile with sides that descended from the top at a 45 degree angle before dropping almost vertically to the base (Figure 16; Plates 3–5). There was no evidence that the ditch had ever had a causeway or entrance to allow easy access into the central area, which measured 13m across. The ringditch had been cut through by the east–west-aligned ditches (F56, F96 and F98), which dated from the Late Iron Age and early medieval periods and are discussed below (Plate 6). The central area of the ringditch was a flat circular area which contained no conclusive evidence of activities taking place within the ringditch. A single pit (F122) was identified in the southern half of the central area, but this had been mostly removed by the ditch F98/F156, and it is not known whether this pit was directly associated with the ringditch. It contained a thin layer of burnt material on its base and sides (F124) (Plate 7). Charcoal from this layer mostly consisted of alder but the associated cremated bone

remains (0.3g) were unidentified (Appendix 9). It is not therefore possible to conclude that the pit represents a cremation burial.

The ringditch contained five distinct layers of fill the lowest of which F90 almost entirely consisted of small pieces of shale which had become well consolidated. The proportion of sandy clay increased incrementally in the three overlying fills F87, F89 and F92. The final fill, F47, appeared to represent a soil that had built up in a slight depression left in the top of the infilled ditch once it had fully stabilised. None of the fills of the ringditch contained charcoal or bone in significant quantities. A flint flake (A008/008:87:1) was recovered from the second fill (F87). This was a large and well-made artefact and may have been made in the Late Neolithic period or Early Bronze Age period. A fragment of a possible stone axehead or similar type object (Appendix 8) was also recovered (A008/008:128:1) and may have been associated with the ring-ditch activity.

Due to the lack of charcoal and animal bone and the small number of recovered artefacts, the ringditch has been dated using the OSL dating technique. This has provided a date of 1523 BC ± 130 years, placing it firmly in the Middle Bronze Age (J L Schwenniger pers comm.; Appendix 5). The Late Neolithic or Early Bronze Age artefacts may therefore be simply residual finds, although there is no obvious source for these. It is possible that they were deliberate later inclusions of and provide a rather curious contrast to the complete lack of Middle Bronze Age artefacts. While the lithics were not 100% diagnostic to a period (Nelis, Appendix 7), it is worth noting the heavily patinated nature of the flake (A008/008:87:1) in comparison to the unpatinated nature of the small flint flake found in upper fill of the ringditch F47 (A008/008:47:2). This certainly suggests that the flint flake in F87 had been created a long time before it was deposited into the ringditch.

The depth and form of the ditch F46 would have provided enough material for a substantial mound to have been constructed within the ringditch, but no direct evidence of a mound survived, and the manner in which the ditch filled up does not provide a conclusive answer. It has been found that bowl barrows often consisted of mounds of soil and turf covered by a layer of bedrock quarried from the surrounding ditches. The lower fill (F90) would be consistent with this covering layer eroding back into the ditch, and the overlying fills may have derived from a mixture of soil eroding from the core of the mound becoming mixed with degraded shale eroding from the side of the ditch. However, the fills within the ditch appear to be rather symmetrical and do not demonstrate that the majority of the material derived from within the ringditch's interior. In addition it should be remembered that the three ditches F96, F56 and F98 run straight through the middle of the ringditch (Figure 10; Plate 6). It is

believed that the first of these ditches was cut in the Late Iron Age and if a mound had existed it would have either had to have eroded entirely by this point, or to have been deliberately levelled during that period, which would be highly atypical behaviour. Consideration of the evidence suggests a number of possibilities: that there was no central mound, that there was a low central mound that could be easily cleared, or that there was a low central mound and a low external bank. The evidence does not indicate that this ringditch was ever part of a standard bowl barrow.

Two pits, F148 and F172, appear to have been associated with the ringditch F46. The pit F148 was located immediately to the southeast of the ringditch and the pit F172 was located immediately NNE of the ringditch. The two pits were very similar in nature, being almost perfectly circular in plan and having steep near vertical sides and flat bases (Figures 8, 10 & 16; Plates 8 & 9). Pit F46 was 0.75m in diameter and 0.45m deep, while pit F172 was 0.95m in diameter and 0.45m in depth. Both pits contained a series of well-compacted sterile fills (F149, F150, F173, F174, and F175). While neither pit produced dateable material their proximity to the ringditch F46, their similarity in form and their dissimilarity to other features on the site strongly suggest that they were direct association with the ringditch.

2.1.1.2 Undated Ringditches

Six additional ringditches were identified in the course of the Garretstown 2 excavations. They ranged in size from 3.4m in diameter to 15m and were between 0.12m and 1.8m deep. Unfortunately, none provided suitable material for dating and cannot be identified to a period on typological grounds due to a distinct variation in morphology.

Ringditch F208

The ringditch F208 was situated 17.5m to the northwest of F46 (Figure 8). It was very similar to F46 in terms of its profile, lack of associated features and absence of artefacts. The ringditch F208 measured 15.8m from northwest to southeast and 15.3m from northeast to southwest, making it a little smaller than F46. The form of the ditch F208 was similar in profile to F46 having the same funnel shape and approximate size, but it was different in plan, where rather than being circular it was a square with rounded corners (Figures 11 & 16; Plate 10). The central area appeared as a small square platform approximately 8m across.

The first cut of the ditch F208 contained the fill F369 which consisted of the same small shale fragments as the base fill F90 in ditch F46, and F382 which had a slightly higher proportion of clay. These fills had been recut by a similarly shaped ditch, F220, which was not quite as deep and had a wider base. The positioning of this recut was such that it appeared initially

that the ditch F208 contained a step or ledge around its inner side (Plates 11–13). It was only in a small number of sections that the fills were different enough to prove the existence of the recut F220. This recut contained the fills F377, which consisted of the same fragmented shale as F369, and F378: an orange brown sandy clay that only survived in one section. The original cut F208 could not have been as deep around the western side of the ringditch because the wider and shallower F220 had removed almost all of the evidence for its former presence in that sector. The third recut F218 was a wide cut with a more triangular profile descending to quite a sharp point a little deeper than the base of F220. It contained a series of fills forming narrow bands of material (F413, F366, F324, F323, and F209). The first four of these fills indicated a process of slow infilling, while the later represented a soil building up in the hollow formed once the ditch had stabilised.

No features were identified within the internal area of the ringditch F208 apart from a small ditch associated with the modern field boundary. The lack of internal features within F208 matches the lack of such features discovered within the ringditch F46. It appears that internal features were not a part of the design of these two monuments. The only artefact associated with this ringditch was a tertiary flint scraper (A008/008:209:1) which was recovered from the upper fill of this feature (Nelis, Appendix 7). No bone or charcoal was recovered form the fills of the ringditch, and the feature is only dated in comparison to the nearby ringditch F46, which was dated by OSL to the Middle Bronze Age.

The manner in which the fills of the ditches were deposited did not provide any conclusive evidence of the former existence of a large internal mound, or an external bank. The recuts in the ditch are difficult to explain in relation to a ringditch with a large internal mound where the construction of the mound marks the end of a major phase of activity at the site. It is possible that as the ditch became in filled it was recut in order to repair and maintain a central mound, but the process of recutting is more consistent with a site where the ditch itself was the principal feature, and was thus subject to maintenance. The location of the ringditch upon the plateau and away from the edge of the slope is not typical of a bowl barrow site, which are often recorded on the false ridge of a slope in order to maximise the impact of the mound. Taken together and with consideration of the evidence presented regarding the ringditch F46, it is thought most likely that this ringditch did not contain a large mound as would be consistent with it being the ditch of a bowl barrow. It is possible that the ringditch contained a low mound, with or without an external bank, or had no mounds or banks at all.

Ringditch F234

At the western edge of the site there was a small semi-circular ringditch F234 with a diameter of 4.3m (Figures 8 & 17; Plate 14). The ditch had a small U-shaped profile with a maximum

width of 0.45m and a maximum depth of 0.21m. At the western end the ditch came had a small rounded terminal, but the terminal at the east had been completely removed by the modern linear feature F426. The ringditch contained a single fill, F235, which was a brownish grey sandy clay with occasional flecks of charcoal.

Ringditch F418

The small ringditch F418 was located a little to the northwest of the large ringditch F208 (Figures 9 & 17). Its southern side had been cut away by the Iron Age ditch F216 and the ringditch survived as an uninterrupted ditch to the north of this. It is not known if the ringditch originally formed a complete circle like F134 or was originally a semi-circular feature like F10 or F234. Given the closer proximity and more similar dimensions of F418 to F10 and F234 the former seems more likely, but this can not be proven. The ringditch F430 had a diameter of 4.8m and had a U-shaped profile with a width of 0.85m and a depth of 0.47m. It contained a single fill, F419, which was a very well-compacted and totally sterile, orange brown, sandy clay.

Ringditch F10

The small ringditch F10 was in the northeastern part of the site approximately 20m ENE of the large ringditch F208 (Figures 9 & 17). It was a curving ditch measuring 12m from terminal to terminal in a straight line, and arcing out to the west by 6.5m. It had a U-shaped profile with a maximum width of 0.36m and a maximum depth of 0.14m. Its southern terminal had been cut away by the kiln F14 but the northern terminal survived as a simple rounded end. The ringditch contained a single fill F11 which was a well-compacted, brownish grey, sandy clay with very occasional flecks of charcoal.

Ringditch F134

The ringditch F134 was located at the very southeast of the site, close to the base of the southern slope (Figures 7, 13c & 17; Plates 15 & 16). It was a small circular ditch with a diameter of 3.1m. It had a U-shaped profile with a maximum width of 0.6m and a maximum depth of 0.3m. It contained two fills: F141, a thin layer of orange brown sandy clay covering the base and sides, and F135, a brownish grey sandy clay with occasional flecks of charcoal. The lower fill, F141, contained a reasonable amount of charcoal, which has been sent for dating.

Ringditch F38

The ringditch F38 was located in the area to the north of the ringditch F46 (Figures 8 & 17). It was a curving ditch measuring 21.85m from terminal to terminal in a straight line, and arcing

out to the west by 10m. It had a single break a little to the east of the middle point of the ditch. It had a U-shaped profile with a maximum width of 0.55m and a maximum depth of 0.24m. It contained a single fill (F39), an orange brown sandy clay with occasional flecks of charcoal. The break in the ditch occurred 17m from the southern terminal and 14m from the southeastern terminal. It was had been at least 1m wide but the ditch terminal at the west of the gap had been removed by the later kiln F52. The kiln F52 was of particular interest because it overlay the earlier and very unusual pit F46 which may have been contemporary with the ringditch and is discussed below. A small rectangular pit F60 was located in the centre of the area defined by the ringditch F38. It was a shallow rectangular feature measuring 2m from northwest to southeast and 1m from northeast to southwest. It was maximum of 0.1m deep and had very gently sloping sides. It contained a rectangular setting of small angular stones (F61) which were covered by F62, a loosely compacted greyish brown sandy clay (Plate 17). It is not known whether this feature was associated with the ringditch F38 but given its location and the absence of similar features elsewhere on the site, this appears to be likely.

2.1.2 Sub-rectangular Enclosure

Ditches F156, F98, F56, F96

In the eastern field the sequence of ditches F156, F98, F56, and F96 ran from east to west across the middle of the site for a total distance of 45.5m (Figure 8; Plate 18). The ditch formed one side of a sub-rectangular enclosure.

The earliest ditch in this sequence (F98) was located at the south of these three east – west aligned ditches. It was cut to the north by F56 and had a substantial re-cut F156 recorded within it. The primary cut (F98) had a wide U-shaped profile, relatively steep sloping sides and a wide flat base. It was on average 1.4m deep and up to 4m wide. It contained three fills (F101, F100 and F99), which were all sterile mixtures of clay and shale. Due to the lack of datable organic remains within this ditch, the primary fill (F101) was dated by OSL to AD 202 – 413.

The re-cut F156 had a U-shaped profile with steeply sloping sides that came together to form a very narrow concave base. The size of this ditch varied and it was up to 2.2m wide and 1.2m deep in the area where it cut through the ringditch (F46) but was smaller elsewhere, being as little as 1.2m wide and 0.6m deep in some areas. The ditch contained the fill (F157) which was a sterile mixture of clay and shale.

The second ditch in the sequence F96 was the smallest and most northerly of the four (Figure 15). It was a U-shaped ditch with steeply sloping sides and a concave base. It had an average depth of around 0.8m and it is estimated that its original width was around 1m. The ditch became progressively narrower to the east and stopped altogether approximately 10m short of the terminal of the later ditches. It contained three fills (F106, F105 and F97) which all contained mixtures of clay and shale (Figure 17; Plate 19). Some cremated bone was retriever from the final two fills F97 and F105 although identification of species was not possible (Appendix 9). A single sherd of E-ware pottery (A008/008:97:1) was collected from the final fill. This ceramic tradition originated in western Gaul and can be dated to the 6th – 7th centuries AD.

The final ditch in this sequence (F56) was cut through the southern side of F96 and the northern side of F98. It had a wide, funnel-shaped profile with gently sloping sides leading to an almost vertically sided channel, and a flat base. It was on average 1.2m deep and c. 1.4m wide and ran all the way to the terminal. It contained three fills (F104, F103 and F57), which all contained mixtures of clay and shale. The top fill (F57) contained 13.9g of cremated bone, two fragments of which may have been human (although this identification is somewhat uncertain) (Appendix 9). A single body sherd of locally produced medieval pottery (A008/008:57:1) dating to the 13th – 14th century was collected from this fill (Appendix 10).

The ditches F56, F98 and F156 appeared to end at a large square terminal close to the eastern edge of the site (Figure 12; Plate 20). The ringfort ditch F126 cut through this area and the actual end of the terminal was separated from the rest of the ditches by this. Each of the ditches behaved differently as they reached the terminal; the ditch F56 became much wider and gained a little depth, the ditch F98 developed a slot in its base which deepened dramatically over the last 5m of its length, while the final ditch F156 appeared to maintain a consistent width and depth all the way to the end.

Ditches F212, F284

In the western field two ditches, F284 and F212, were identified as being the continuations of F56 and F98 (Figure 8; Plate 21). The ditches fan from east to west for a total length of 26.5m. The width of the hedge that divided the east and west fields was 6.3m and so the total length of the ditches along this side of the sub-rectangular enclosures was around 78m. The ditch F284 was a small ditch which had a V-shaped profile with steeply sloping sides and a concave base (Figure 18). It was on average 1.4m wide and 0.8m deep. It contained the fills F264 and F265 which were sterile mixtures of clay and shale. It is thought that this ditch is

the continuation of F56 and that either F96 was not present in this area or had been entirely removed by F284.

The ditch F212 was cut through the southern side of F284 and had removed a large part of it. It was a large ditch with a V-shaped profile, steeply sloping sides and a narrow concave base. The ditch was 3m wide and 1.4m steep at the east but slightly less at the west. The ditch contained four fills (F268, F267, F264, and F213) which were all sterile mixtures of clay and shale. It is thought that this ditch is a continuation of F98 and that the recut F156 was not present in this area.

Ditch F12

In the eastern field the ditch F12 was identified as marking the northern side of the sub-rectangular enclosure (Figures 8, 9 & 15). The ditch ran for a total distance of 47m, first running from the west due east for 20m, and then turning to the southeast and continuing on to exit the field at the same point as the ringfort ditch (F126). The ditch had a wide, V-shaped profile with sloping sides and a wide flat base (Figure 18; Plates 30 & 31). It was an average of 2.2m wide and 0.8m deep. It contained three fills (F13, F33 and F34) which were sterile sandy clays.

Ditches F216, F248

In the western field the ditch F216 and F248 were identified as being the continuation of F12 (Figures 9 & 15). The ditches fan from east to west for a total length of 47m. The width of the hedge that divided the east and west fields was 9.5m and so the total length of the ditches along this side of the sub-rectangular enclosures was around 104m. The ditch F216 had a V-shaped profile with sloping sides and narrow flat base (Figure 19). The ditch ran from east to west and exited the site at the west. Almost the entire length of this ditch had been cut through the degraded shale bedrock. It was an average of 2.2m wide and 1m deep and contained two fills (F246 and F245). The bottom fill (F246) consisted almost entirely of small pieces of shale, while the upper fill was a sterile mixture of clay and shale with one localised charcoal rich lens on its northern side (F240). The recovered charcoal from this lens comprised of hazel, maloideae and willow (Appendix 9). A sample of maloideae was dated to 357 – 50 BC (Beta 246979; Appendix 5). The upper fill (F245) was dated by OSL to AD 2 – 213. A sherd of e-ware pottery retrieved from this upper fill (A008/008:217:4) would appear to indicate that it remained in use until the 6^{th} – 7^{th} century AD.

The ditch F248 was present to the west of the intersection between the ditches F216 and F342. It was a small U-shaped ditch that had been cut away on its northern side by the ditch

F216. It had steeply sloping sides and a wide concave base. It was an average of 1.6m wide and 0.6m deep and contained two fills (F250 and F249). The bottom fill (F250) consisted almost entirely of small pieces of shale, while the upper fill (F249) was a sterile mixture of clay and shale. It is believed that the later ditch F216 had entirely removed this ditch at the east and far west, suggesting it originally had a slightly sinuous course.

It was found that the eastern part of the ditch F216 had cut through three irregular pits: F340, F342 and F434, as well as the small ringditch F418, described above. All three pits had been dug through the degraded shale bedrock and contained fills which consisted almost entirely of small pieces of shale. The pits were characterised by their irregular shape and near-vertical sides but it is far from clear why they were dug. Nothing about their fills was indicative of function, nor was any dateable material recovered.

Ditches F214, F342

In the western field the ditches of the sub-rectangular enclosure were flanked by two curving ditches, F214 at the south (Figure 8) and F342 at the north (Figure 9). The ditch F214 ran from the western limit of the excavation on a course that curved to the northeast and reached almost as far as the ditch F212. The total length of the ditch was 40m. At the northeast end the ditch had a small rounded terminal approximately 1m away from the edge of F212. The ditch in this area had a narrow, V-shaped profile with steeply sloping sides and a slightly concave base (Figure 18). It contained a single fill (F215) which was a sterile clay with gravel and shale inclusions. A localised lens of charcoal rich material (F254) was located close to the base of this ditch. The charcoal recovered from this lens consisted of willow or popular (1.176g) and hazel (1.175g) with smaller quantities of oak also present (Appendix 9). A sample of hazel has been dated to AD 668 – 870 (Beta 246980; Appendix 5). Numerous cultivated cereal grains were also collected from this fill, including oat (554) and barley (162).

About half way along its course it became apparent that the ditch F214 had been cut through an earlier ditch (F242) which was slightly shallower but had obviously been wider than F214 in this area at least. The fill of F242 was noticeably stonier than the fill of F214. This earlier ditch was contemporary with the two rectangular pits, F332 and F358, which are discussed below. In the area to the east of, and overlying the eastern end of, pit F332 the ditch F214 contained a number of thin layers which were rich in charcoal and lumps of oxidised clay (F305, F256 and F259) (Plates 22–24). It was not clear whether these layers had been dumped into the ditch or represent activities taking place within the partially backfilled ditch. A sample of charcoal (wood ID hazel) retrieved from the middle layer (F256) has been dated to

AD 605 – 769 (Beta 246981; Appendix 5). Numerous cereal grains including barley (352) and oat (227) were also recovered from this fill. In the area around the pit F358 the ditch F214 moved away from the earlier F242 and was seen as a small ditch located just to the north.

The two pits F332 and F358 were very unusual features. The pit F332 was rectangular in plan with rounded corners, near vertical sides and a flat base (Figure 18; Plates 26 & 27). It had been excavated through an area of solid bedrock with horizontal bedding planes and so the base appeared as if paved. The pit was 4.7m long, 1.8m wide and 0.6m deep. It contained the fill F333 which was a sterile clay. The pit F358 was only partially excavated as it extended beyond the western limit of the site. It appeared to be another rectangular pit with rounded corners, vertical sides and a flat base (Figure 18; Plates 28 & 29). The excavated portion was 2.3m long, 2.4m wide and 1m deep, and had again been cut through an area of solid bedrock. It contained three fills, (F402, F401 and F400). The base layer (F402) consisted almost entirely of small pieces of shale, the second fill (F401) was a sterile mixture of clay and shale and the top fill (F400) was a hard packed mixture of clay and stone. Above this pit the ditch F242 was clearly visible but was filled by F350 a hard packed layer of small angular stones, which must have been deliberately used to backfill the ditch, presumably when the adjacent replacement ditch F214 was cut.

The ditch F342 ran from the western limit of the excavation on a course that curved to the south east (Figure 9). It connected to the ditch F216 in the middle of the western field. The total length of this ditch was 40m. This ditch had a V-shaped profile with sloping sides and a small concave base, although at the west where it was cut through solid bedrock the sides were stepped as the dropped through the horizontal bedding planes (Figures 19 & 32–34). Typically the ditch was 2m wide and 1m deep, although it became a little smaller to the west. The bottom fill of the ditch (F347) consisted of small pieces of shale in a sticky clay, but the composition altered a little where the ditch was cut through different bedrock. A small quantity of animal bone was recovered from this fill. The top fill (F343) was a sterile mixture of clay and small pieces of shale. An animal bone from this fill (Species ID: cattle right femur) was radiocarbon dated to AD 695 – 967 (Beta 236025; Appendix 5).

2.1.3 Ringfort

At the very east of the site a series of ditches was excavated that was part of a slightly irregular ringfort. It is estimated that approximately one third of the ringfort was excavated, the rest lying beyond the road take (Figure 7). The ringfort had an estimated external diameter of 47.5m, an estimated internal diameter of 37.5m and an estimated internal area of 1112 square meters (Figure 12; Plates 37, 38 & 45). The earliest ditch in the sequence was the

primary cut F126. This ditch had a funnel-shaped profile with extremely steep sides and a very narrow flat base (Figure 20; Plates 39 & 40). It is estimated that the ditch was originally 3m wide and was typically 1.9m deep, but must have been considerably shallower around the north because there it had been entirely removed by the recut F164, and at the south its depth was just 1.6m deep but the recut F164 had not entirely removed it. The ditch contained two fills (F129 and F130). The primary fill (F130) consisted of small pieces of shale in a matrix of brown silty clay. It was succeeded by a grey brown silty clay, most of which would have been removed by the recut F164. A sample of animal bone (cattle mandible) retrieved from the second fill (F129) has been dated to AD 647 – 779 (Beta 220138; Appendix 5). The primary cut was also dated by OSL to AD 497 – 707 (Appendix 5). The section of this ditch to the south of the intersection with the sub-rectangular enclosure ditches (F56, F98, F156) was accompanied by two smaller ditches (F142 and F166). The ditch F142 was a small ditch with a U-shaped profile, steeply sloping sides and a flat base (Figure 12; Plate 40). It ran for 18.5m before reaching the eastern limit of the site. It had an average of 1.12m in width and was up to 0.8m deep. It contained a single fill (F143) which was a sterile sandy clay. The ditch (F166) was located between ditch F126 and ditch F142. It was a U-shaped ditch with sloping sides and a wide concave base (Figure 12 & 20). It ran for 20.5m before reaching the eastern limit of the site. It is estimated that this ditch had been 1.7m wide and was up to 0.9m deep. The fill of the ditch (F167) was a sterile mixture of clay and small shale pieces with occasional larger pieces of stone. The relationship between this ditch and the original ditch F126 had been removed by the recut F164, but it seems unlikely that the two ditches co-existed as their close spacing would make this un-practical. It is possible that F166 was actually part of F126 and it therefore had a stepped side along its inner edge, although the manner in which the width of F166 varies and its absence around the northern part of F126 makes this interpretation unlikely.

The entire circuit of the ringfort had been recut by the wide ditch F164. This ditch had a wide U-shaped profile with sloping sides and a wide flat base (Figure 20; Plate 42). The bottom fill of this ditch was F128, which was a mixture of clay and small pieces of shale and a large quantity of animal bone was recovered from the lower parts of this fill. The top fill (F127) was a relatively thin layer of soil which had developed in the hollow left in the top of the backfilled ditch. At the far north the ditch F164 had entirely removed the earlier cut F126 but elsewhere the lower parts of F126 survived. The most interesting aspect of this ditch was a series of vertically sided pits cut through its base (F192, F190 and F162) (Figures 12 & 20; Plates 41, 43 & 44). The first two of these pits, F192 and F190, were almost identical in nature. They were long, thin, oval shapes in plan with almost vertical sides and flat bases. The pit F192 was located just south of the intersection with F98 and F56 and measured 1.6m by

0.5m and was around 0.8m deep. It contained the fill F193 which was a sterile mixture of clay and small pieces of shale. The pit F190 was located 6.6m to the south of the pit F192 on the same ledge formed by the base of F164 cutting through the inner edge of F126. It measured 1.3m by 0.5m and was around 0.7m deep. It contained the fill F191 which was a sterile mixture of clay and small pieces of shale. The third of the pits (F182) was located 3m to the southeast of F190. It was a long, thin, oval shape in plan and measured 2.9m by 0.8m, almost twice the length of the first two pits, but 0.2m deep. It contained the fill F183 which was a sterile mixture of clay and small pieces of shale. The function of these three pits is unfortunately quite elusive.

The pit F162 had cut through the southern side of an earlier pit (F182), which had also had its western side removed by the ditch F164. This pit was a somewhat irregular oval shape in plan with vertical and even undercutting sides and a flat base. The pit measured approximately 3.5m in length, 2m in width and was up to 1.3m deep. It contained the fill F183 which consisted entirely of small pieces of shale, although most of the material which would have filled it had been removed by later features. The function and date of this pit is unknown, but it resembled the deep irregular pits F340, F342 and F434, which had been cut through by the ditch F216 at the northwest of the site.

2.1.4 Small Ditch System

In the area to the west and northwest of the ringfort there was a series of linear and curvilinear ditches which were all rather narrow and shallow (Figures 8, 9 & 15). The straight ditches (F20 and F18) appear to have defined a rectangular field or enclosure to the north of the ringfort F126. The curvilinear ditches, F48 and F58, appear to be defining a series of irregular-shaped enclosures that were contemporary with the second phase of the rectangular field or enclosure defined by F18. The very small linear ditches F50 and F54 defined a small rectangular area within the area defined by the curvilinear ditch F48. They may have been drains around an activity area, or even a small livestock pen. It is also believed that these features were roughly contemporary with the ditch F96 and that they were eventually replaced by that portion of the sub-rectangular enclosure defined by the ditch F56/F284.

Ditches F18, F20, F48, F58, F50, and F54

Two small ditches F18 and F20 appeared to form a very large rectangular enclosure or field to the north and west of the ringfort F126. The ditch F20 was a small linear ditch that ran for 88m from the northern side of the ditch F56 heading due north and ultimately continuing beyond the northern limit of the site. It had a shallow U-shaped profile with gently sloping sides and a concave base. It was an average of 0.6m wide and 0.2m deep. It contained a single

fill, F21, which was a sterile sandy clay. This ditch was replaced by the ditch F18, which followed the same line in the middle of the site but 25.5m before it turned 90 degrees to the east and ran for 19.5m (given the number F22) before it exited the site at the eastern limit, and at the south approximately 11.8m north of the end of the ditch F20 it split into two and was given the number F48, as described below. The ditch F18 had a shallow, U-shaped profile with gently sloping sides and a concave base (Figure 19; Plates 35 & 36). The fill (F19) was a sterile sandy clay. It is thought that the ditch F20 remained open at the north after the point where the replacement F18 turned to the east, and that this ditch (F22) therefore represents a re-cutting and subdivision of the enclosure. The point where the ditch F20 intersected with the larger ditch system (F156/F98/F56/F96) was obscured by the presence of the kiln F136 at this point (Figure 8). However, the ditch F18 clearly turned to the west immediately before meeting the larger ditches, and may have been a continuation of ditch F96 which did not extend to the east after this point.

The ditch F18 did not continue as far to the south as the ditch F20. Instead, at a point approximately 11.8m north of ditch F96 it split into two at a T-junction (Figure 8). This section of the ditch was numbered F48, although it was essentially the same feature. This ditch was a W-shape in plan which ran for a total of 34.7m. It had a U-shaped profile with steeply sloping sides and a small concave base (Figure 19). It was an average of 1.2m in width and 0.5m in depth and contained two fills. The bottom fill (F77) consisted almost entirely of small pieces of shale while the upper fill (F49) was a sterile mixture of clay and small shale pieces. A single cultivated barley grain was retrieved from this fill (Appendix 9). The ditch (F48) was cut by the ringfort ditch (F126) at its eastern end, while at its western end it appeared to join onto the ditch (F96) and therefore either replaced the right angled corner formed by F96 and F20 or to have formed a sub-division within this corner.

The ditch F58 was a slightly curving ditch which was parallel to, and 9.8m north of, the eastern end of the ditch F48. It ran for a total length of 13m and had a U-shaped profile with sloping sides and a small concave base, and ending at a shallow rounded terminal. The excavation of the intersection between this ditch and the ditches F18 and F20 proved somewhat inconclusive, but it appeared most likely that F58 cut F20 but was simply an extension of F18 in the same way that F48 was.

The final two linear features, F50 and F54, were small straight ditches running from north to south in the western half of the area defined by the ditch F48. The ditches had small V-shaped profiles with steeply sloping sides and small concave bases. Ditch F50 was 7.1m long, 0.4m wide and 0.15m deep. It contained a single fill F51, which was a sterile clay. Ditch F54 was

6.65m long, 0.76m wide and 0.24m deep. It contained a single fill (F55), which was a sterile clay.

2.1.5 Pits

In addition to the two pits associated with the ringditch F46 and the pits associated with the recut of the ringfort ditch F164, nine other pits were located across the site in a dispersed manner. Six of these remain undated. The remainder however returned Iron Age dates.

2.1.5.1 Iron Age Pits

Pit F132

The pit F132 was a shallow sub-circular feature measuring 0.86m by 0.72m and a depth of 0.07m (Figures 7 & 13d). It had a very shallow, saucer-like profile, and contained two fills, (F133 and F140), the lower of which (F140) was rich in charcoal and contained small lumps of fire-reddened clay. The charcoal retrieved from this fill consisted mainly of willow (2.34g) and alder (1.6g) (Appendix 9). A sample of the charred willow been dated to 359 – 55 BC (Beta 246974; Appendix 5).

Pit F116

The pit F116 was located towards the south of the site. It was a small circular feature with a diameter of 0.66m, with steeply sloping sides and a concave base. Its maximum depth was 0.15m and it contained two fills: F117 and the underlying F120 which contained frequent pieces of charcoal. Charcoal collected from this fill (F120) mainly consisted of alder, a sample of which has been dated to 398 – 206 BC.

Pit F160, Pit F191 and Pit F443

A series of three inter-cutting pits, F160, F191, and F443) were located towards the south of the site (Figures 7, 13a & 21). The earliest in the sequence, F443, was the most northerly. It was a small oval pit with vertical sides and a flat base measuring 1.5m by 1.2m and with a maximum depth of 0.28m. Its long axis was aligned northeast–southwest and it contained two fills. Fill F444 was an orange brown sandy clay which overlay F445, a thin layer of sticky, greenish grey, silty clay. At the southwest, this pit (F191) had cut through the earlier pit (F443) and the interface was marked by a large boulder. The pit F191 was an oval shape with its long axis aligned north–south. It measured 2m by 0.8m and was up to 0.44m deep. It contained three fills which, starting at the top, were F187, F188 and F189. All of these fills contained small amounts of charcoal. A sample of charcoal (wood ID sloe/blackthorn) from the second fill (F188) has been dated to 161 – 68 BC (Beta 246977; Appendix 5). Charcoal

(wood ID willow) from the final fill (F187) has been dated to AD 86 – 334 (Beta 246976; Appendix 5). The pit F160 had cut through the southern end of the pit F191. It was a small, oval-shaped feature with its axis aligned north–south. It measured 1.2m by 0.85m and was up to 0.38m deep. It contained three fills which, starting from the top, were F161, F185 and F186. All of these fills contained small amounts of charcoal while the upper fill F161 also contained a small quantity of animal bone fragments. Charcoal (wood ID willow) from the bottom layer (F186) has been dated to 88 BC – AD 124 (Beta 246975; Appendix 5). Relatively small quantities of hazel, ash, hawthorn/whitebeams/apple/pear, blackthorn and oak were retrieved from the top fill (F161; Appendix 9).

2.1.5.2 Undated pits

Pit F328

The pit F328 was one of a pair of features located towards the northwest of the site, the other being the pit F330 (Figures 9 & 21). It was a shallow circular pit with a diameter of 1.05m and a depth of 0.2m. It had a very shallow, saucer-like profile, and contained two fills, F329 and F335. The charcoal retrieved from the upper fill (F329) included alder (7.798g) and willow/popular (1.28g).

Pit F330

The pit F330 was one of a pair of features located towards the northwest of the site, the other being the pit F328. It was a shallow circular pit with a diameter of 0.9m and a depth of 0.1m (Figures 9 & 21; Plate 46). It had a very shallow, saucer-like profile, and contained two fills, F331 and F339, the lower of which (F339) was very rich in charcoal and contained small lumps of fire-reddened clay.

Pit F108

The pit F108 was a shallow, irregular-shaped pit that had been cut away on its southern side by the ditch F96 (Figure 9). It measured 2.65m by 1.6m with gently sloping sides and a flat base. It contained two fills, F109 and F110). The top fill (F109) was compact brownish grey sandy clay, while the bottom fill (F110) was a mixture of orange brown sandy clay, charcoal, and lumps of burnt red clay that had possibly may have been created when a different feature, such as a kiln, was emptied out and had subsequently been deposited in this pit (Plate 47). The charcoal consisted of small quantities of hazel and maloideae (Appendix 9).

Pit F114

The pit F114 was located towards the south of the site (Figures 7 & 13b). It was an irregular, oval shape in plan measuring 2.25m northwest–southeast, 1.3m northeast–southwest and 0.2m in depth. It contained two fills: F115 which contained small amounts of charcoal and some fragments of animal bone, and the underlying F184 which was rich in charcoal and contained small lumps of fire-reddened clay.

Pit F118

The pit F118 was located towards the south of the site (Figures 7 & 13e). It was a shallow oval feature measuring 0.54m north–south and 0.37m east–west. It had a shallow, saucer-like profile with a maximum depth of just 0.08m. It contained the fill F119 which had frequent flecks of charcoal.

Pit F74

The pit F74 was a small, irregular, oval-shaped pit located towards the southeast of the site (Figure 8). It measured 1.36m east–west and 0.7m north–south and had a maximum depth of 0.3m. It had steeply sloping sides and a flat base. It contained two fills, F75 and F76, neither of which produced dateable materials.

2.1.6 Kilns

A total of seven features were identified that appeared to represent cereal-drying kilns of a variety of forms. The range of forms included ‘keyhole’, ‘dumbell’, and ‘clay pipe’ examples, as well as simple oval pits. Six of the kilns have returned early medieval dates that would appear to pre-date the ringfort. They are therefore probably associated with the sub-rectangular enclosure. Although the range of cultivated cereal grains retrieved from the fills of the kilns included small quantities of wheat and oat, the predominant cereal grain represented was barley (Appendix 9).

Kiln F14

The kiln F14 was located in the central area of the site, and was cut through the southern terminal of the ringditch F10 (Figure 8). It was a pear shape in plan measuring 2.12m from east–west and 1.16m from north–south, with the wider end at the west. Its form was reminiscent of the classic keyhole-shaped kiln with a large circular end at the west, with a slightly shallower and narrower section at the east (Plate 49). The western end was a maximum of 0.46m deep while the eastern end was a maximum of 0.35m deep. The sides of the feature were very steep and the base at the west was flat and level while the base at the east was somewhat uneven and sloped down marginally towards the west. The feature

contained a total of six fills, five of which (F40, F41, F42, F43, and F44) were thin layers confined to the bottom of the bowl-shaped western end (Figure 21; Plate 48). The sixth fill (F15) covered these layers and extended across into the eastern end. The basal layer (F40) was rich in charcoal and contained occasional fragments of burnt bone. Although 6g of the burnt bone was analysed, it was not possible to identify it to species (Appendix 9). This bone was possibly used as a fuel and heat regulator within the kiln. 642 cultivated cereal grains were retrieved from this fill, the vast majority of which were barley (6 oat grains and 1 wheat grain were also recovered). Arable weed and wild plant nutlets were also recovered (Appendix 9). The three layers overlying this, F41, F42 and F43, contained small fragments of burnt bone. The burnt bone from F41 (0.5g) and F43 (1.6g) was unidentified while burnt bone from F42 (6.4g) was animal (Appendix 9). Small quantities of oak, willow/popular, ash, hazel and alder were also recovered from this context (F42) (Appendix 9). The cereal grain assemblage from these contexts were again dominated by barley, however, significant quantities of oats were also found in F42. The uppermost of the thin layers, F44, also contained barley grains and 0.9g of unidentified burnt bones. . A radiocarbon date from barley grains recovered from this fill returned a date of AD 434–644 (Beta 241299; Appendix 5). The layer (F15) which filled up the rest of the feature also contained small amounts of charcoal and burnt bone fragments.

Kiln F16

The kiln F16 was located a few metres south of the kiln F14 in the central area of the site (Figure 8). It was an oval-shaped feature measuring 2.1m east–west and 1.2m north–south. It had steeply sloping sides and a flat base at a depth of 0.65m. The western end of the feature was marginally larger than the eastern end and the base of the feature at this end was deeply reddened indicating the location of a fire (Plate 51). The feature contained nine distinct fills (Figure 22; Plate 50). These seemed to relate to an initial period of activity (F32, F31, F30, and F29), a subsequent period of inactivity or deliberate infilling (F28), a second period of activity (F27 and F26), and a final phase of inactivity or deliberate infilling (F25 and F17). An AMS date from barley grains recovered from the bottom layer (F32) has returned a date of AD 422 – 596 (Beta 241298; Appendix 5). Within the initial phase of activity, barley predominated the cereal grain assemblage. Numerous barley grains were identified in F29, F30 and F32. In excess of 2500 individual barley grains were recovered from F29 and more than 400 from F32. Smaller quantities of cultivated wheat and oat grains were also recovered as were various weeds and wild nutlets (Appendix 9). In the second period of activity, barley once again was the predominant cultivated grain represented with small quantities of wheat and oat also recovered. Some arable seeds and nutlets and wild plant nutlets were also present (Appendix 9).

Kiln F52

The kiln F52 was located at the end of one of the sections of the ringditch F38 in the centre of the site (Figure 8). Despite placing a section along the intersection between the kiln F52 and the ringditch F38, the relationship remained obscure and while it is assumed that the kiln cuts through the end of the ringditch other possibilities remain open, as discussed below. The kiln was an oval shape in plan with a maximum length of 2.05m from northwest–southeast and a maximum width of 1.45m northeast–southwest. It had steeply sloping sides and a concave base that was shallower towards the southeastern end (Figure 22; Plate 52). The upper fill of the kiln F53 was a greyish brown sandy clay, 0.44m deep, with small quantities of charcoal throughout. Only two cereal grains (barley; Appendix 9) were retrieved from this fill, one of which has been dated to AD 409 – 575 (Beta 246970; Appendix 5). The lower fill (F64) was a thin layer of dark brown sandy clay with a moderate amount of charcoal throughout. It was 0.05m deep and covered the base and extended up the sides of the kiln.

The kiln overlay an earlier feature (F66) which contained an unusual set of deposits (Figure 22; Plate 55). The feature was a large oval shape pit 2.15m in length from northwest–southeast and 0.6m wide from northeast–southwest. It had vertical sides around the deeper northwest part and steeply sloping sides around the shallower southeast part. The upper fills of this feature, F65, F85 and F84, had had their upper surfaces hardened by the heat generated in the overlying kiln F52. The fills F85 and F84 were located in the shallower southeast part of the feature. F85 was a greyish brown sandy clay with occasional charcoal which overlay F84, which was a blackish brown sandy clay with frequent charcoal. The layer F85 extended a little beyond the shallow southeastern part of the feature, continuing down the side of the slope that defined the deeper part of the feature and merged into F86 which covered the base and sides of the feature. The layer F86 was a mixture of blackish-brown, sandy clay with reddish lumps of burnt clay and frequent small stones. It contained a moderate amount of charcoal throughout but with several dense concentrations. The layer was up to 0.09m deep and around the middle and north of the feature it extended up the sides to height of up to 0.25m. An AMS date from a sample of maloideae recovered from this fill returned a date of AD 426–601 (Beta 241301; Appendix 5).

The layer F86 was overlain by a layer of plastic greyish black clay F83 with frequent charcoal that was up to 0.07 deep. Like the layer F86 this fill also covered the sides of the feature F66. The layer F82 covered over the layer F83. It was a well-compacted, greyish brown, sandy clay with only very occasional charcoal inclusions. This layer was up to 0.13m deep. At the north and northwest of this layer were two small holes, and F80, respectively (Plates 53 &

54). These were circular holes around 0.25m in diameter with vertical sides. They cut right through the hard layer F82 and were filled by very mixed deposits F79 and F81 of blackish grey, plastic clay with lumps of soft, pinkish-red clay, frequent charcoal and occasional inclusions of burnt animal bone. Numerous barley grains as well as smaller quantities of wild plant nutlets were recovered from these fills (F79 and F81) (Appendix 9). A charred barley grain from F79 has been dated to AD 427 – 609 (Beta 246971; Appendix 5). These two fills were very similar to the fill F83 underneath the hard layer F82. It is not clear how these two features had been created. They may have been cut through the layer F82 or the layer F82 may have been deposited around two circular formers (either wooden posts or rounded stones) which were then removed. Where the peculiar fill material was acquired from was also not clear. These layers were covered over by the latest fill in the sequence (F65). This was up to 0.1m in depth and consisted of a greyish-black, sandy clay with frequent inclusions of charcoal and lumps of pinkish-red clay. The charcoal consisted of oak (2.44g) maloideae (2.357g) and alder (1.063g) with smaller quantities of blackthorn, ash and hazel also present (Appendix 9). In excess of 500 cultivated cereal grains were also retrieved. 15 were oat grains and the remainder, barley. Wild plant nutlets and arable weeds were also present (Appendix 9). It was this layer (F65), and the tops of F84 and F85, that the later kiln F52 had been cut through.

Kiln F70

The kiln F70 was located in the central area of the site, approximately 15m south of the kiln F16 (Figure 8). It was a figure-of-eight-shape in plan with the western end being a little larger than the eastern end (Figure 23; Plate 56). The feature measured 2.12m east–west and 0.86m north–south. The western end of the feature was 0.46m deep but the central and eastern parts of the feature had been cut through the north–south linear feature F18 and only the lowest 0.11m of the feature had cut been through the subsoil, making the excavation difficult. Three fills were recorded within this feature. The basal fill (F73) was a thin, charcoal-rich layer. The identified charcoal consisted of relatively small quantities of alder, hazel, maloideae, blackthorn and cherries, and 1.859g of oak. Additionally, 139 cultivated cereal grains were also identified (Appendix 9). An AMS date from a sample of the recovered cherry charcoal returned a date of AD 551–659 (Beta 241300; Appendix 5). The succeeding layer in this kiln (F72) was also charcoal rich and contained 1.7g of animal bone fragments. The sole cereal species recovered from this fill was barley, although this was found in smaller quantities (18 grains) (Appendix 9). These layers were overlain by F71 which contained small amounts of charcoal and burnt animal bone fragments. It is suggested that the lower two fills represent the initial activity within the pit and that the third fill F71 represents the infilling of the feature after it went out of use.

Kiln F112

The kiln F112 was located in the central area of the site immediately south of the ditch F98 (Figure 8). It was a pear shape in plan measuring 1.67m north–south, 0.95m east–west across the larger northern end and 0.5m east–west across the smaller southern end (Figure 22). It had steeply sloping sides and a concave base which was a maximum of 0.2m deep at the north and sloped downwards from the south from as little as 0.05m. The thin basal fill (F121) was a greyish-red, sandy clay with occasional charcoal. This was overlain by F113 which was a greyish-brown, sandy clay with a moderate amount of charcoal. Small quantities of hazel, ash, maloideae and cherry charcoal were retrieved from this kiln along with 226 cultivated barley grains (Appendix 9).

Kiln F136

The kiln F136 had had its southern half removed by the ditch F56 (Figure 8). It was not clear what the original form of the feature had been because the surviving half may have either belonged to a pear-shaped feature or a figure-of-eight-shaped feature. The feature measured 2.05m east–west and a maximum width of 0.83m north–south, although originally the feature must have had a width of twice this amount or more. The sides of the feature were steeply sloping and the base was concave. It was a maximum of 0.28m deep in the deeper eastern part while the shallower central and western part were around 0.15m deep. It contained three fills (Figure 23). The basal layer (F139) was confined to the deeper eastern end of the feature and comprised a reddish-brown, sandy clay, 0.06m thick, clearly indicating in situ burning. This basal layer was covered by F138, a charcoal-rich deposit 0.03m thick, which also covered the base of the rest of the feature. The main charcoal species recovered from this fill was oak. 59 cultivated barley grains were also retrieved (Appendix 9). One of these grains has been dated to AD 427 – 609. The final fill of the feature was F137, a greyish-brown, silty sand with occasional flecks of charcoal.

Kiln F202

The kiln F202 was located towards the southwest of the site (Figure 8). It was a sub-circular feature with a long flue extending to the south. The kiln measured 4.2m in length and comprised of a flue, F326, about 2m in length and 0.4m in width which lead to a sub-circular pit measuring 1.8m by 1.4m and with a depth of 0.5m (Figure 23; Plate 57). The bowl had been recut by F207 which was wider and shallower than the original cut which gave the sides of the pit an unusual stepped profile. The bottom fill of the kiln (F206) was a charcoal-rich layer, as was the bottom fill of the recut (F204). The form of this kiln was very different to others on the site and it resembled the classic medieval ‘clay pipe’ kiln form. Additionally, it

should be noted that the quantities of cereal grains recovered from this kiln were quite small. A total of 58 cultivated cereal grains were identified in the kiln. 49 (46 x oat, 2 x barley rachis fragments and 1 x wheat) were retrieved from the primary layer (F206) and 9 (5 x barley, 2 x oat and 2 x undetermined) from the fill of the re-cut (F204). A sample of barley grain retrieved from the basal fill (F206) has been dated to AD 695 – 967 (Beta 246978; Appendix 5).

2.2 Finds

Some medieval pottery sherds were recovered from the excavations (Appendix 2) as well as some lithic material (Nelis, Appendix 7); however, overall the lack of diagnostic artefacts was notable.

3 DISCUSSION

3.1 Phase I: Ringditch Cemetery

The series of ringditches at Garretstown 2 appear to form part of a small ringditch cemetery dating to the Middle Bronze Age. Within the excavated area there were two major ringditches and five much smaller ringditches. The geophysics survey of the area to the west shows two features which may be further ringditches (GSB Prospection 2000). There was no conclusive evidence that demonstrated the existence of mounds within the ringditches and there was also a complete absence of deposited human remains.

The presence of ringditches in the area is well attested and a number of other sites investigated during this project contained ringditches, such as Ardsallagh 2 (A008/034). Obviously the greatest concentration of such features in the immediate area is found upon the Hill of Tara itself (Newman 1997).

At present the use of the term ringditch is vague. The term ringditch has been used to describe circular, sub-circular and non-circular ditches, with a wide variety of ditch profiles from the shallow and narrow to the wide and deep, and with circumferences ranging from the minute, c. 1m, to the massive, c. 90m. While certain ringditches can be shown to have never had mounds within them, the term has also been used to define ditches which probably did contain mounds that have not survived as extant features. A wide range of burial practices have been associated with ringditches, including inhumations, cremations in pits and spreads, and cremations in urns. The date range of ringditches is also problematic. While they are often thought of as prehistoric, they are not firmly identified with a particular period and early

medieval examples have been found such as the one at Ardsallagh 2 located 10km to the north (A008/034; Clarke 2008).

The current all-inclusive use of the term ringditch in the literature is considered by the author to be unsatisfactory. The use of the term at Garretstown 2 is typical of the problems associated with the term. The ringditches ranged in size from 3.4m in diameter to 18m and were between 0.12m and 1.8m deep. Only the major ringditch F46 has been dated: it returned an OSL date of 1653–1393 BC (Appendix 5). The other ringditches did not provide suitable material for dating and cannot be identified to a period on typological grounds because of the problems already described. The proper typological examination and characterization of the various types of monument currently termed ringditch should in the opinion of the author be further researched and elaborated on.

The location of Garretstown 2 is probably significant in terms of the presence of the ringditches. The ringditches, with the exception of F134, were located at the top of a slope that led up from an extensive area of wet ground to the south and west. The site was also situated on the southern end of a plateau that runs for a considerable distance to the north. In terms of the wider landscape it can be seen that the site lay at the southeastern end of a large range of hills surrounded by wetter areas, of which the Hill of Tara is the highest point and marks the north western end of the range. The distribution of types of monument across the wider landscape is of interest. It can be seen that this range of hills is one of several in the locality and that the hills are the location of numerous prehistoric ritual sites while the lower ground is occupied by early medieval and medieval settlement sites which avoid the higher ground. The range of hills that Garretstown 2 is part of is unusual because a number of early medieval settlement sites are present along the eastern side, such as Garretstown 2 itself, Ross 1 (A008/079) and Baronstown 1 (A008/017). However, the western part of the range of hills is far higher than the eastern part and it is suggested that the general distribution pattern is reflected in relative terms.

The absence of human remains associated with any of the ringditches is problematic, because as was explained above, this cannot be attributed to soil conditions. The absence of any associated artefacts is also problematic. While the large ringditches F46 and F208 present rather classic forms the identification of these other ringditch features as burial monuments is unfortunately tenuous, and is in some sense arrived at by default.

3.2 Phase II: Enclosure Complex

3.2.1 Chronology and Phasing

The second phase of archaeology at Garretstown 2 appears to represent a continuous sequence of development from the Late Iron Age (0BC/AD – AD 400) into the early medieval period (AD 400 – AD 1169). This sequence involved the construction and modification of a series of enclosure ditches and an associated field system including

- The sub-rectangular enclosure
- The ringfort
- The rectangular field system
- The large rectangular enclosure located beyond the western side of the excavated area by geophysical survey

The date and place in this sequence of the large rectangular enclosure is uncertain as it remains unexcavated. Initial interpretations had identified this as possibly being a moated settlement of the later medieval period (AD 1169 – 1600). Additionally, a sherd of later medieval pottery (A008/008:201:1) was collected from the upper surface of this ditch. However, this can not be taken as direct evidence for the dating of the rectangular enclosure. It would therefore appear that it is more likely associated with the sequence of excavated activity recorded at the Garretstown 2 enclosures.

3.2.1.1 Phase IIa

Evidence for the primary phase of the subrectangular enclosure survived at the northwest in the form of a 12m portion of ditch (F248). Although this would have had an original length of roughly 47m, it was largely cut away by the succeeding ditch (Phase IIb; F216) and survived for a length of roughly 12m. The date of 357-50 BC (Beta 246979; Appendix 5) for the succeeding phase provides a general *terminus ante quem* for this primary phase of the enclosure.

3.2.1.2 Phase IIb

The earliest dated activity at the Garretstown 2 enclosure complex was also located at and confined to the northwestern portion of the subrectangular enclosure (F240; lens in primary fill of ditch F216; Beta 246979; Appendix 5) and suggests the excavation of that particular section of ditch between 357 and 57 BC in the developed Iron Age (Becker et al 2008).

3.2.1.3 Phase IIc

Evidence for the subsequent re-cut to the subrectangular enclosure was recorded at both the north and south. At the north, the final fill (F245) of the ditch F216 was dated by OSL to AD 2213. This re-cut presumably continued eastwards and was recorded as F12 in the course of

the excavation. At the south, the primary fill (F101) of the ditch F98 was dated by OSL to AD 202413.

Phase IId

The subrectangular enclosure was modified again between the 5th and 8th centuries AD. At the southern side of the site, the re-cut F96/F284 was recorded on its internal side. This has been dated to the 6th – 7th centuries AD on the bases of a sherd of e-ware pottery (A008/008:97:1) recovered from the upper fill of the ditch. The ditch F96 also turned northwards through the eastern internal side and beyond the subrectangular enclosure creating an associated field system at the east and northeast of the site. The associated linear and curvilinear features on the east and southeastern internal sides of the subrectangular enclosure would have created a series of internal annexes to the enclosure. The ringfort at the east of the site was also created in this period. The primary fill (F130) was dated by OSL to AD 497 – 707.

Phase IIe

This final sub-phase of internal activity involved the creation of two annexes at the northwest and southwest of the subrectangular enclosure. At the northwest, a sample of animal bone from the curving ditch F342 has been dated to AD 695 – 967. At the southwest charcoal from the curving ditch F342 has been dated to AD 605 – 769 (Appendix 5). These dates broadly indicate that the final modification to the enclosure occurred between the seventh and tenth centuries AD. Additionally, the southern side of the subrectangular enclosure appears to have been re-cut in this period. The ditch F56, although not scientifically dated, has been shown to have cut F96 (Phase IIe).

3.2.2 Function

The function of the features associated with the subrectangular enclosure is difficult to ascertain with such a paucity artefacts and minute bone assemblage. Additionally, the lack of any associated srructural evidence makes it unclear if the enclosure was a focus for domestic habitation/settlement. The presence of the two large pits in ditch F214 and the spreads of burnt material are somewhat suggestive of industrial activity taking place, but again nothing specific has yet been determined about its nature. However, it should be noted that five of the cereal drying kilns from the site (F14, F16, F52, F70 and F136) were recorded on the interior of the enclosure. Another kiln (F112) was located externally but to the immediate south while the final kiln (F202) was located on the interior of the southwestern annex (F214). It could therefore be inferred that the subrectangular enclosure may have been a focus for agricultural activity associated with tillage practices.

The portion of the ringfort excavated appeared to be sub-circular in plan, and it is not possible to be certain what the portion of it that lay to the east of the excavated area looked like (Figures 14 & 15). The calculations of the diameter and area given above assume that the monument was close to being circular in plan, but that is not necessarily the case. The debate about how much significance should be given to the distinction between ringforts and the so-called non-circular enclosures has only begun recently, and is far from settled (Kinsella 2007; Appendix 11). A range of interpretations are possible, and the excavations at Garretstown 2 add little of importance to this particular debate.

The sequence of recutting of the main ditch recorded at Garretstown 2 has plentiful parallels elsewhere. The nearest sites of a broadly similar nature, Roestown 2 (A008/002) and Baronstown 1 (A008/017), both demonstrated evidence of multiple events of recutting. The pattern by which the recuts of the enclosure ditch become successively smaller over time is also in evidence at both of these sites.

The presence of multivallation around only part of the circuit of the main ditch is more unusual, and without obvious parallel. One possible interpretation of this is that the approach to the ringfort was predominantly from the south or southeast and that this side of the enclosure was therefore made more visually impressive. Whether there was any direct connection between this site and Roestown 2 cannot be proven, but it is worth pointing out that the south eastern side of the ringfort may have been visible from Roestown 2 and that may also be related to the multivallation of the south east at Garretstown 2. Unfortunately, until the rest of the circuit is investigated such ideas will remain highly speculative.

The fills of the ringfort ditch are the only instances where animal bone was recovered in any quantity, but even this amount was massively less than other superficially similar sites excavated in the vicinity. Roestown 2 and Baronstown 1 both produced around 10,000 pieces of recognisable bone, which contrasts dramatically with the 105 pieces from the ringfort at Garretstown 2. Analysis of the bones suggests that they were butchered for eating (Sloane, Appendix 6), but the relatively small quantity cannot be taken to suggest full-time habitation at the site. No artefacts were recovered from the fills of the ringfort ditch which again compares particularly unfavourably with other nearby sites such as Baronstown 1 (A008/017) and Roestown 2 (A008/002) where significant quantities of artefactual material were recovered from the enclosure ditches. However, the excavated evidence does suggest that while superficially similar, ringforts and ringfort-like enclosures could be constructed and used for different purposes. While Roestown 2 and Baronstown 1 appear to represent high status settlement sites, Garretstown 2 and Ross 1 (A008/079) may have had other functions. It

is tempting to infer information pertaining to class structure and settlement hierarchies from such discrepancies, equating the absence of high status artefacts with low status residences. This is probably a rather simplistic approach to the complexities of the archaeological record, and it would be possible to suggest a range of possible explanations. In particular it is important to note that sites such as Garretstown 2 situated so close to high status sites may simply be one part of a complex settlement pattern spread over a number of locations. Garretstown 2 was approximately 900m north of Roestown 2, while Ross 1 was approximately 600m south of Baronstown 1. It is therefore not appropriate to consider these sites in isolation and attempts to understand these sites must incorporate them within an integrated landscape of settlement.

3.3 Kilns

Seven kilns were recorded in the course of the excavations. Two (F70 & F136) were figure of 8 shaped, 2 (F14 & F112) were pear shaped, 2 were oval shaped (F16 & F52) and the final kiln (F202) was sub-circular. All the kilns were concentrated around the area of the subrectangular enclosure. Five (F14, F16, F52, F70 and F136) were recorded on the interior of the enclosure, 1 (F112) was located externally but to the immediate south while the final kiln (F202) was located on the interior of the southwestern annex (F214).

Kilns are essential for cereal crop processing. Among the functions they are seen to fulfil are:

- to ripen the crop after damp harvests and/or in short growing seasons
- the drying of cereals prior to threshing
- to harden the grain to allow for effective milling. This was relevant both for small-scale and larger-scale production as grinding the grain, without prior drying, was more difficult and resulted in the clogging of the quern surface.
- To dry grain in order to reduce the moisture content prior to storage, and to fumigate for insect pests (Kinsella 2007b)

Cereal-drying kilns were also used for the production of malt and evidence for this has been detected at Corbally, Co. Kildare (Tobin 2003).

At Garretstown 2, the cereal grain assemblage was dominated by cultivated barley with smaller quantities of oat and wheat also retrieved. Barley and oats can be used in both human and animal foodstuffs, and 6-row barley was favoured as it is a relatively hardy crop. Their dominance may indicate that Garretstown 2 was not a particularly high-status site, as these crops were low on the list of relative prestige of cereals outlined in the 8th century law text *Bretha Déin Chécht*. However, the presence (albeit in low numbers) of possible bread wheat,

indicates that the inhabitants of Garretstown 2 had access to higher-status cereals (see Appendix 9). Barley and oats were the main crops identified from other Iron Age and early medieval sites along the M3 corridor such as Clowanstown 3 (A0008/013) and Lismullin 1 (A008/21) (Appendix 9).

Analysis of the radiocarbon dating evidence from the Garretstown 2 kilns would suggest that the majority (F14, F16, F52, F70 and F136) were associated with the Phase IId subrectangular enclosure. All of these kilns have been dated to the period between the fifth seventh centuries AD (Appendix 5). All of these kilns were associated with cereal grain assemblages that were dominated by barley (Appendix 9). Significantly the remaining dated kiln (F202) was in use between the late seventh and mid tenth centuries (Appendix 5) which would imply its association with the Phase IIe enclosure. By contrast the cereal grain assemblage in this kiln was dominated by oats (Appendix 9). The location of these kilns around the area defined by the subrectangular enclosure may be significant in ascribing this aspect of the site as a focus for agricultural activity associated with tillage. However, the dominance of barley in the cereal grain assemblage is an indication that the settlement activity at the site was of relatively low status. This would appear to be supported by the relatively sparse material culture and faunal assemblage recorded at the site.

4 CONCLUSIONS

Garretstown 2, A008/008, was excavated from 24 March to 13 December 2006 by Stuart Rathbone (ACS) as part of the M3 Clonee–North of Kells Motorway Scheme on behalf of Meath County Council NRDO and the NRA. Excavations revealed two principal phases of activity at the site: a ringditch cemetery of the Middle Bronze Age, a series of large enclosures, originating in the developed Iron Age and continuing in use until the late seventh to mid tenth century AD. The excavated enclosures were associated with a large enclosure located immediately west of the site, but consequently undated. Both phases of activity represent significant concentrations of archaeology, but the presence of the Late Iron Age enclosures are of particular importance considering the general paucity of sites of this date in Ireland, and the manner in which it seems that there is continuity of settlement between the Late Iron Age and the early medieval period.

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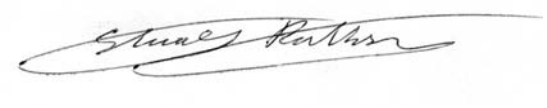


Stuart Rathbone

January 2009.

APPENDIX 1 *Context Details*

Garrettstown 2: A008/008											
No	**Type**	**Fill of/ Filled with**	**Strat above**	**Strat below**	**Description**	**Interpretation**	**Group**	**Artefacts**	**Animal bone**	**Cremated bone**	**Samples**
1-3					used previously for Topsoil Assessment						
4	not assigned / cancelled										
5	topsoil	N/A	6	N/A		topsoil		pottery, flint			
6	subsoil	N/A	N/A	5		subsoil					
7-9	not assigned / cancelled										
10	Cut	11	6	11	curvilinear ringditch 12m by 6.5m with a U-shaped profile 0.36m wide and 0.14m deep	cut of small ringditch					
11	Fill	10	10	5	compact orangish brown sandy clay with very occasional flecks of charcoal	fill of ringditch 10					#1-2 2g charcoal
12	Cut	34, 33, 13	6	34, 33, 13	linear cut running from west to east for 20m then turning to the south east and running for 22m before passing beyond the limit of the excavation. It was on average 2.2m wide and 0.8m deep	cut of ditch marking northern side of sub-rectangular enclosure in the eastern field					
13	Fill	12	33, 34, 12	5	well compacted greyish brown sandy clay with a moderate amount of small and medium sized stones	top fill of ditch 12					#1, 208a 23g charcoal
14	Cut	44, 43, 42, 41, 40, 15	6	40, 41, 42, 43, 44, 15	pear shaped cut with sharp breaks of slope, near vertical sides and a flat base. It measured 2.12m by 1.16m and was up to 0.46m deep	cut of kiln					
15	Fill	14	44, 43, 42, 41,40, 14	5	well compacted brownish grey sandy clay with occasional flecks of charcoal	top fill of kiln 14				yes	#1 36g cremated bone
16	Cut	32, 31, 30, 29, 28, 27, 26, 25, 17	6	32, 31, 30, 29, 28, 27, 26, 25, 17	pear shaped pit with sharp breaks of slope near vertical sides and a flat base. It measured 2.28m by 1.2m and was a up to 0.57m deep. The base in the wider end was red and black in colour indicating where a fire had been located	cut of kiln					#208b <1g charcoal

17	Fill	16	25, 26, 27, 28, 29, 30, 31, 32, 16	5	well compacted greyish brown sandy clay with occasional flecks of charcoal	top fill of kiln 16					
18	Cut	19	6	19	small linear ditch which ran for a total of 45m and varied between 0.3m and 0.6m in width and between 0.2m and 0.4m in depth	re-cut of ditch 20 forming rectangular field system					
19	Fill	18	18	5	well compacted brownish grey sandy clay	fill of ditch 18		copper-alloy brooch frag		yes	#1, 35 charcoal flecks, 17g animal bone, 3g bone, 1g cremated bone
20	Cut	21	6	21	small linear ditch which ran for a total of 88m and varied between 0.3m and 0.6m in width and between 0.2m and 0.4m in depth	ditch of large rectangular field system					
21	Fill	20	20	5	well compacted brownish grey sandy clay	fill of ditch 20					
22-24	not assigned / cancelled										
25	Fill	16	26, 27, 28, 29, 30, 31, 32, 16	17	well compacted greyish brown sandy clay with occasional flecks of charcoal	second fill of kiln 16					
26	Fill	16	27, 28, 29, 30, 31, 32, 16	25, 17	well compacted yellowish grey sandy clay with charcoal flecks	third fill of kiln 16					
27	Fill	16	28, 29, 30, 31, 32, 16	26, 25, 17	moderately compact brownish black sandy silt with frequent flecks of charcoal	fourth fill of kiln 16					#4, 18 5g charcoal, charred grain, bone fragments
28	Fill	16	29, 30, 31, 32, 16	27, 26, 25, 17	moderately compact brownish grey sandy silt with occasional flecks of charcoal	fith fill of kiln 16					

29	Fill	16	30, 31, 32, 16	28, 27, 26, 25, 17	moderately compact brownish black sandy silt with frequent inclusions of charcoal	sixth fill of kiln 16				yes	#5, 19 3g charcoal, cremated bone fragments
30	Fill	16	31, 32, 16	29, 28, 27, 26, 25, 17	moderately compact yellowish orange sandy silt with occasional flecks of charcoal	seventh fill of kiln 16					#6 charred grain
31	Fill	16	32, 16	30, 29, 28, 27, 26, 25, 17	moderately compact brownish grey sandy silt with occasional flecks of charcoal	eighth fill of kiln 16					
32	Fill	16	16	31, 30, 29, 28, 27, 26, 25, 17	moderately compact brownish black sandy silt with frequent inclusions of charcoal and animal bone fragments	bottom fill of kiln 16					#7, 22 charred grain
33	Fill	12	34, 12	13	well compacted orangeish brown sandy clay with frequent small stones and occasional flecks of charcoal	second fill of ditch 12					
34	Fill	12	12	13, 33	moderately compact orangeish brown silty clay with occasional flecks of charcoal	bottom fill of ditch 12					
35-37	not assigned / cancelled										
38	Cut	39	6	39	curvilinear ringditch 21.85m by 10m with a U shaped profile 0.55m wide and 0.24m deep, with a single break 14m from the northern end	cut of small ringditch					#9 charcoal flecks, bone fragments
39	Fill	38	38	5	moderately compact orangeish brown sandy clay with occasional charcoal	fill of ringditch 038				yes	#1 8g bone fragments, 6g cremated bone

40	Fill	14	14	41, 42, 43, 44, 15	moderately compact blackish brown sandy clay with frequent charcoal and occasional animal bone fragments	bottom fill of kiln 14				yes	#20 9g charcoal, charred grain, cremated bone fragments
41	Fill	14	40, 14	42, 43, 44, 15	moderately compact yellowish orange sandy clay with a moderate amount of charcoal and occasional animal bone fragments	fifth fill of kiln 14					
42	Fill	14	41, 40, 14	43, 44, 15	moderately compact reddish brown sandy clay with frequent small stones a moderate amount of charcoal and occasional fragments of animal bone	fourth fill of kiln 14				yes	#1, 16 1g charcoal, charred grain, cremated bone
43	Fill	14	42, 41,40, 14	44, 15	loosely compacted greyish yellow silty clay with occasional flecks of charcoal and fragments of animal bone	third fill of kiln 14				yes	#2 charred grain, cremated bone
44	Fill	14	43, 42, 41,40, 14	15	loosely compacted greyish black sandy clay with frequent charcoal inclusions and occasional fragments of animal bone	second fill of kiln 14				yes	#3, 17 seeds, charred grain, cremated bone
45	not assigned / cancelled										
46	Cut	90, 87, 89, 92, 47	6	90	circual cut 18m in diameter, sharp breaks of slope, steep sided funnel shaped profile 2.6m wide and 1.3m deep	ringditch					
47	Fill	46	46, 90, 87, 89, 92		compact greyish brown sandy clay with a moderate amount of small stones and very occasional charcoal flecks	fill of ringditch		copper-alloy frag, flint			
48	Cut	77, 49	6	77, 49	curvilinear feature that was a continuation of the ditch 18 in the centre of the site. It ran for 34.7m and was up to 1.2m wide and 0.5m deep	ditch forming sub-division with in rectangular field system 18					
49	Fill	48	77, 48	5	well compacted orangeish brown sandy clay with frequent small pieces of shale	top fill of ditch 48		nail	yes		#1, 38 3g bone, 8g animal

											bone
50	Cut	51	6	50	small linear feature measuring 7.1m by 0.4m and with a maximum depth of 0.15m	small ditch sub-dividing area within 48					
51	Fill	50	50	5	moderately compact reddish brown sandy clay with occasional small pieces of shale	fill of ditch 50					
52	Cut	64, 53	65, 82, 83, 81, 79, 80, 78, 84, 85, 86, 66	64, 53	pear shaped cut 2m by 1m by 0.45m deep. U-shaped profile with near vertical sides and a concave base that was a little shallower at the southern end	cut of Kiln					
53	Fill	52	64, 52, 81, 79, 80, 78	5	greyish brown sandy clay with a moderate amount of charcoal flecks	top fill of kiln 52					#8 3g charcoal, seeds
54	Cut	55	6	54	small linear feature measuring 6.65m by 0.76m and with a maximum depth of 0.24m	small ditch sub-dividing area within 48					
55	Fill	54	54	5	moderately compact reddish brown sandy clay with occasional small pieces of shale	fill of ditch 50					#1 5g bone fragments
56	Cut	104, 103, 57	97, 6	104, 103, 57	linear ditch running west to east across the site for approximately 45. On average it was 1.4m wide and 1.2m deep	cut of ditch of the sub-rectangular enclosure. It cut ditch 96 to the north and was cut by ditch 98 to the south					#1 16g unburnt bone
57	Fill	56	103, 104, 56, 97	98, 5	well compacted greyish brown sandy clay with occasional small pieces of shale	top fill of ditch 56		pottery		yes	#1 7g cremated bone
58	Cut	59	6	59	curvilinear feature that was a continuation of the ditch 18 at the north east of the site. It ran for 3m and was up to 1.15m wide and 0.4m deep	ditch forming sub-division with in rectangular field system 18					
59	Fill	58	58	5	well compacted yellowish brown sandy clay	fill of ditch 58		flint			#1 2g bone

60	Cut	61, 62	6	60, 61	shallow rectangular pit measuring 2m by 1m with gently sloping sides and a maximum depth of 0.1m	cut of rectangular pit in centre of area defined by ringditch 038					
61	Fill	60	60	62	spread of small angular stones filling base of pit	layer of stone on base of pit 60					
62	Fill	60	60, 61	5	loosely compact greyish brown sandy clay	top fill of pit 60					
63	not assigned / cancelled										
64	Fill	52	52, 65, 82, 83, 81, 79, 80, 78, 84, 85, 86, 66	53	compact blackish brown sandy clay with gritty texture and a moderate amount of charcoal. The central area of this fill contained a concentration of small angular stones	bottom fill of kiln 52					
65	Fill	66	82	52	compact brownish black sandy clay with lumps of pink oxidised clay and frequent charcoal flecks	top fill of kiln 66					#26 13g charcoal, charred grain
66	Cut	65, 82, 83, 84, 85, 86	6	86, 85, 84, 83, 79, 81, 78, 80, 82, 65, 52, 64, 53	oval shaped cut measuring 2m by 1m. It had sharp breaks of slope, vertical sides and a flat base which was 0.74m deep, except at the south where there was a small step up and the depth was reduced to 0.54m	cut of kiln					
67-69	not assigned / cancelled										
70	Cut	73, 72, 71	6	73, 72, 71	dumbbell shaped cut with sharp breaks of slope near vertical sides and a flat base. It measured 2.05m by 0.86m and was up to 0.46m deep. The ditch 18 had cut through its eastern side	cut of kiln					
71	Fill	70	72, 73, 70	5	moderately compact greyish brown sandy clay with occasional flecks of charcoal	top fill of kiln 70					

72	Fill	70	73, 70	71	moderately compact greyish brown sandy clay with frequent inclusions of charcoal	second fill of kiln 70					#14 4g charcoal, seeds
73	Fill	70	70	71, 72	loosely compacted reddish black silty clay with frequent inclusions of charcoal	bottom fill of kiln 70					#15 6g charcoal
74	Cut	75, 74	6	76, 74	small oval pit measuring 1.36m by 0.7m. It had steeply sloping sides, a flat base and a maximum depth of 0.3m	cut of small pit					
75	Fill	74	76, 74	5	well compacted brownish red sandy clay	top fill of pit 74					
76	Fill	74	74	75	moderately compacted yellowish brown sandy clay	bottom fill of pit 74					
77	Fill	48	49, 48	49	extremely well compacted layer of small shale pieces at base of ditch 48	bottom fill of ditch 48					
78	Cut	79	84, 85, 86, 66	79, 82, 65, 52, 64, 53	circular cut with 0.25m diameter and vertical sides cut through layer 83	cut of circular hole through fill 83					
79	Fill	78	78, 84, 85, 86, 66	82, 65, 52, 64, 53	soft, plastic pinkish brown silty clay with frequent charcoal flecks. This was the same material as 86 and 81	fill of possible posthole 78					#28 charred grain
80	Cut	81	84, 85, 86, 66	81, 82, 65, 52, 64, 53	circular cut with 0.25m diameter and vertical sides cut through layer 83	cut of circular hole through fill 83					
81	Fill	80	80, 84, 85, 86, 66	82, 65, 52, 64, 53	soft, plastic pinkish brown silty clay with frequent charcoal flecks. This was the same material as 86 and 79	fill of possible posthole 80					#27 charred grain, bone fragments
82	Fill	66	83, 84, 85	65, 52	compact greyish brown sandy clay with a moderate amount of small stones and flecks of charcoal	second fill of kiln 66					
83	Fill	66	84, 86	82	very compact greyish brown sandy clay with a frequent small stones and occasional flecks of charcoal	third fill of kiln 66					

84	Fill	66	85, 86, 66	83, 82	moderately compact greyish brown sandy clay with occasional flecks of charcoal	fourth fill of kiln 66					
85	Fill	66	86, 66	84, 83, 82	moderately compact greyish brown sandy clay with occasional flecks of charcoal	fifth fill of kiln 66					
86	Fill	66	66	84, 83	soft, plastic pinkish brown silty clay with frequent charcoal flecks, up to 0.07m thick and covering the base and the lower parts of the sides of 66	bottom fill of kiln 66					
87	Fill	46	46, 90	/	compact layer of small pieces of shale mixed with a small amount of orange clay	fill of ringditch		flint			
88	not assigned / cancelled										
89	Fill	46	46, 90, 87	/	compact layer of small pieces of shale mixed with a moderate amount of orange clay	fill of ringditch		flint			#54 nothing
90	Fill	46	46	/	compact layer of small pieces of shale	fill of ringditch					
91	not assigned / cancelled										
92	Fill	46	46, 90, 87, 89	/	compact layer of orangeish brown clay which included approximately 10% small pieces of shale	fill of ringditch					
93-95	not assigned / cancelled										
96	Cut	106, 105, 97	6	106, 105, 97	linear ditch running west to east across site for approximately 35m where it may have joined up with ditch 20. On average it was 1m wide and 0.8m deep	cut of ditch that was either the first phase of the sub-rectangular enclosure or the last phase of the small ditch system. Located in eastern field. Cut on southern side by ditch 56					#36 nothing

97	Fill	96	105, 106, 96	56	well compacted brownish grey sandy clay with a moderate amount of small pieces of shale	top fill of ditch 96		pottery			
98	Cut	101, 100, 99	57	101, 100, 99	linear ditch running west to east across the site for approximately 45m. It was up to 4m wide and 1.4m deep	cut of ditch of the sub-rectangular enclosure. It cut ditch 56 to the north and had been recut by the ditch 156					
99	Fill	98	100, 101, 98	156	well compacted brownish grey sandy clay with occasional small pieces of shale	top fill of ditch 98					
100	Fill	98	101, 98	99	moderately compact brownish grey sandy clay with frequent small pieces of shale	second fill of ditch 98					
101	Fill	98	98	100, 99	moderately compact brownish grey sandy clay with frequent small pieces of shale and occasional small lumps of yellow clay	bottom fill of ditch 98					
102	not assigned / cancelled										
103	Fill	56	104, 56	57	moderately compact brownish grey sandy clay with occasional small pieces of shale and flecks of charcoal	second fill of ditch 56					
104	Fill	56	56	103, 57	moderately compact brownish grey sandy clay with occasional flecks of charcoal	bottom fill of ditch 56					
105	Fill	96	106, 96	97	moderately compact greyish brown sandy clay with frequent small pieces of shale and occasional flecks of charcoal	second fill of ditch 96				yes	#42 charcoal flecks, cremated bone
106	Fill	96	96	105, 97	moderately compact greyish brown sandy clay with very frequent small pieces of shale and occasional flecks of charcoal	bottom fill of ditch 96			yes		
107	not assigned / cancelled										
108	Cut	110, 109	6	110, 109	Irregular shaped pit measuring 2.65m by 1.6m with sloping sides and a flat base	cut of pit					
109	Fill	108	110, 108	5	brownish grey sandy clay	top fill of pit 108					

110	Fill	108	108	109	mixture of orangeish brown sandy clay, charcoal and lumps of burnt red clay	bottom fill of pit 108		flint			#44 2g charcoal, seeds, bone fragments
111	not assigned / cancelled										
112	Cut	121, 113	6	121, 113	Keyhole-shaped cut with sharp breaks of slope near vertical sides and a flat base. It measured 1.78m by 0.9m and was up to 0.2m deep.	cut of kiln					#45 4g charcoal, charred grain
113	Fill	112	121, 112	5	moderately compact brownish grey sandy clay	top fill of kiln 112					
114	Cut	184, 115	6	184, 115	irregular shaped pit measuring 2.25 by 1.3m with a U shaped profile that was a maximum of 0.2m deep.	cut of pit					
115	Fill	114	184, 114	5	moderately compact greyish brown sandy clay with occasional charcoal and a small quantity of animal bone	top fill of pit 114				yes	#1 3g cremated bone
116	Cut	120, 117	6	120, 117	small circular pit 0.66m in diameter with steeply sloping sides and a concave base. It was a maximum of 0.15m deep	cut of pit					
117	Fill	116	120, 116	5	moderately compact brownish grey sandy clay with a moderate amount of charcoal flecks	top fill of pit 116					
118	Cut	119	6	119	small oval shaped pit measuring 0.5m by 0.2m with gently sloping sides, a concave base and a maximum depth of just 0.07m	cut of pit					
119	Fill	118	118	5	moderately compact brownish grey sandy clay with frequent flecks of charcoal	fill of pit 118					#52 1g charcoal
120	Fill	116	116	117	moderately compact brownish grey sandy clay with frequent flecks of charcoal	bottom fill of pit 116					#46 248g charcoal
121	Fill	112	112	113	moderately compact greyish red sandy clay with occasional flecks of charcoal	bottom fill of kiln 112					
122-125	not assigned / cancelled										

126	Cut	130	6	130, 166	curvilinear ditch with funnel shaped profile. It was estimated to have been 3m wide and up to 1.9m deep, although it was shallower at both the northern and southern ends. It is suspected that this ditch completes a circular course in the field to the immediate east of the excavated area	cut of ringfort ditch					
127	Fill	164	128	5	moderately compact greyish brown sandy clay with a moderate amount of small stones	fill of recut 164			yes		
128	Fill	164	164	127	moderately compact greyish brown silty clay with a moderate amount of small stones and small shale pieces	fill of recut 164		worked stone	yes		
129	Fill	126	130	164	compact greyish brown clayey silt with a considerable amount of small stones	fill of primary ringfort ditch 126			yes		
130	Fill	126	126	166	moderately compact blackish brown silty clay with a considerable quantity of small pieces of shale	fill of ditch 126		nail	yes		
131	not assigned / cancelled										
132	Cut	140, 133	6	140, 133	small sub-circular cut 0.87m by 0.72m with a saucer like profile that was a maximum of 0.07m deep	cut of small hearth pit					
133	Fill	132	140, 132	5	brownish grey sandy clay with a moderate amount of charcoal flecks	top fill of hearth pit 132					
134	Cut	135, 141	6	141, 135	circular ringditch 3.1m in diameter with U shaped profile 0.6m wide and 0.3m deep	cut of small ringditch					

135	Fill	134	141, 134	5	compact greyish brown sandy clay with occasional flecks of charcoal	top fill of ringditch 134					
136	Cut	139, 138, 137	6	139, 138, 137	cut of oval or pear shaped kiln which had had its southern half removed by the ditch 56. It measured 1.95m by 0.66m and was up to 0.5m deep	cut of Kiln					
137	Fill	136	138, 139, 136	5	well compacted greyish brown sandy silt with occasional flecks of charcoal	top fill of kiln 136					
138	Fill	136	139, 136	137	compact greyish black sandy silt with charcoal flecks	second fill of kiln 136					#50 28g charcoal
139	Fill	136	136	138, 137	moderately compact brownish red sandy silt	bottom fill of kiln 136					
140	Fill	132	132	133	loosely compacted blackish brown sandy clay with frequent charcoal and lumps of burnt red clay	bottom fill of hearth pit 140					#49 33g charcoal
141	Fill	134	134	135	moderately compact greyish brown sandy clay with a moderate amount of charcoal	bottom fill of ringditch 134					#51 45g charcoal
142	Cut	143	6	143	curvilinear ditch with U shaped profile sloping sides and a concave base. It ran immediately inside the line of the ring fort ditch from the south east for a total distance of 18.5m. It was up to 1.12m wide and 0.8m deep	cut of ditch concentric to inner edge of ditch 126					
143	Fill	142	142	5	moderately compact yellowish brown sandy clay with frequent inclusions of small shale pieces	fill of ditch 142		flint			
144-147	not assigned / cancelled										
148	Cut	149, 150	6	150, 149	circular pit with vertical sides and flat base. 0.75m in diameter and 0.38m deep	cut of pit, associated with ringditch 046					
149	Fill	148	148, 150	5	compact yellowish brown sandy clay with occasional small shale pieces	top fill of pit 148					
150	Fill	148	148	149	compact blackish brown mixture of sandy clay and small pieces of shale	bottom fill of pit 149					
151-155	not assigned / cancelled										

156	Cut	157	99	157	recut of ditch 98 running west to east across the site for approximately 30m. It was up to 2.2m wide and 1.2m deep	recut of ditch 98					
157	Fill	156	156	5	moderately compact greyish brown sandy clay with occasional small pieces of shale	fill of re cut 156					
158-159	not assigned / cancelled								yes		
160	Cut	186, 185, 161	187, 188, 189, 191, 444, 445, 443	186, 185, 161	small oval pit measuring 1.2m by .85m and was up to 0.38m deep	cut of pit which cut through the south end of the pit 191					
161	Fill	160	185, 186, 160, 187, 188, 189, 191, 444, 445, 443	5	compact greyish brown sandy clay with a small amount of animal bone and occasional flecks of charcoal	top fill of pit 160		slag, copper fragment		yes	#1, 55 3g charcoal, cremated bone fragments, 72g animal bone
162	Cut	163	6	163	very irregular shaped pit with vertical sides and an uneven base. It had been cut by the ringfort ditch 126 but enough survived to indicate it originally measured 3.5m by 2m and was up to 1.3m deep	cut of large deep pit presumably pre-dating the ringfort 126					
163	Fill	162	162	5	well compacted layer of small pieces of shale	fill of pit 162					#1 18g animal bone

164	Cut	128, 127	167, 130	128, 127	curvilinear ditch with U shaped profile sloping sides and a concave base. It was the second recut of the ring fort ditch and was present everywhere along the excavated course. It was between 2.8 and 3.2m wide and up to 1.5m deep	second recut of ringfort ditch 126					
165	not assigned / cancelled										
166	Cut	167	130	167	curvilinear ditch with U shaped profile sloping sides and a concave base. It recut the inner edge of the ring fort ditch and ran from the south east for a total distance of 20.5m. It was up to 1.17m wide and 0.9m deep	re cut of ringfort ditch 126					
167	Fill	166	166	164	moderately compact greyish brown sandy clay with frequent inclusions of small pieces of shale	fill of recut 166		flint			
168-171	not assigned / cancelled										
172	Cut	174, 175	6	175, 174, 173	circular pit with vertical sides and flat base. 0.9m in diameter and 0.45m deep	cut of pit, associated with ringditch 046					
173	Fill	172	175, 174, 172	5	compact yellowish brown sandy clay with occasional small shale pieces	top fill of pit 172					
174	Fill	172	175, 172	173	compact blackish brown mixture of sandy clay and a moderate amount of small pieces of shale	second fill of pit 172					
175	Fill	172	172	174, 173	compact blackish brown mixture of sandy clay and frequent small pieces of shale	bottom fill of pit 172					
176-181	not assigned / cancelled								yes		
182	Cut	183	6	183	cut of pit at base of recut 164. Oval in plan measuring 2.9m by 0.8m, with vertical sides and a flat base 0.2m deep	pit associated with secondary cut of the ringfort, 164					
183	fill	182	182	5	loosely compacted layer of small pieces of shale mixed with yellowish brown clay	fill of pit 182		iron			

184	Fill	114	114	115	compact greyish brown sandy clay with frequent charcoal and small lumps of burnt red clay	bottom fill of pit 184				yes	#53 1g charcoal, cremated bone fragments
185	Fill	160	186, 160, 187, 188, 189, 191, 444, 445, 443	161	compact greyish brown sandy clay with occasional flecks of charcoal	second fill of pit 160					
186	Fill	160	160, 187, 188, 189, 191, 444, 445, 443	161, 185	firmly compacted greyish brown sandy clay with occasional flecks of charcoal	bottom fill of pit 160					#58 5g charcoal
187	Fill	191	188, 189, 191, 444,445, 443	160, 186, 185, 161	firmly compacted greyish brown sandy clay with occasional flecks of charcoal	top fill of pit 191					#56 nothing
188	Fill	191	189, 191, 444,445, 443	187, 160, 186, 185, 161	firmly compacted blackish brown sandy clay with a moderate amount of charcoal flecks and occasional lumps of burnt red clay	second fill of pit 191					#57 3g charcoal
189	Fill	191	191, 444,445, 443	188, 187, 160, 186, 185, 161	firmly compacted yellowish brown silty clay with frequent charcoal and burnt red clay throughout	bottom fill of pit 191					

190	Cut	191	6	191	cut of pit at base of recut 164. Oval in plan measuring 1.3m by 0.5m, with vertical sides and a flat base 0.7m deep	pit associated with secondary cut of the ringfort, 164					
191	Cut	189, 188, 187	444, 445, 443	189, 188, 187, 160, 186, 185, 161	small oval pit with steeply sloping sides and a concave base. It measured 2m by 0.8m and was up to 0.44m deep	cut of pit which cut through the south of pit 443					
192	Cut	193	6	193	cut of pit at base of recut 164. Oval in plan measuring 1.6m by 0.5m, with vertical sides and a flat base 0.8m deep	pit associated with secondary cut of the ringfort, 164					
193	Fill	192	192	5	loosely compacted layer of small pieces of shale mixed with yellowish brown clay	fill of pit 192					
194-199	not assigned / cancelled							pottery			
200	Cut	201	6	201	Cut of rectangular enclosure ditch situated at the west of Garretstown 2; detected in the course of geophysical survey and unexcavated						
201	Fill	200	200		Upper fill of F200; unexcavated.			Medieval pottery			
202	Cut	205	6	206, 205, 207, 204, 203	oval shaped cut measuring 1.8m by 1.4m with sharp break of slope, steeply sloping sides and a concave base	cut of kiln					

203	Fill	207	204, 207, 205, 206, 202, 326	5	well compacted orangeish brown sandy clay which filled both the bowl of the kiln 202 and the flue 326. Medium sized sub-angular stones were present along the sides of the flue which may have been part of a stone lining	top fill in recut 207 of kiln 202					
204	Fill	207	207, 205, 206, 202, 326	203	moderately compact greyish black sandy clay with frequent charcoal inclusions	bottom fill in recut 207 of kiln 202					#11, 31 135g charcoal, animal bone fragments
205	Fill	202, 326	202, 326	207, 204, 203	well compacted orangeish brown sandy clay with occasional flecks of charcoal	top fill of kiln 202					
206	Fill	202	202	205, 207, 204, 203	moderately compact greyish black sandy clay with frequent charcoal inclusions	bottom fill of kiln 202					#10 charred grain
207	Cut	204, 203	205, 206, 202, 326	204, 203	shallow saucer like recut of kiln 202 with a diameter of 1.8m and a depth of 0.3m	recut of kiln 202					
208	Cut	369, 382	6	369, 382, 220, 377, 378, 218, 413, 366, 324, 323, 209	circular cut 15m in diameter, sharp breaks of slope, steep sided funnel shaped profile 3.45m wide and 1.56m deep	ringditch					

209	Fill	208	208, 369, 382, 220, 377, 378, 218, 413, 366, 324, 323	5	compact greyish brown sandy clay with a moderate amount of small stones and very occasional charcoal flecks	fill of ringditch		flint		yes	#25 cremated bone fragments
210-211	not assigned / cancelled										
212	Cut	268, 267, 264, 213	264	268, 267, 264, 213	wide linear ditch running from east to west for 26.5m. It was 3m wide and up to 1.4m deep	cut of ditch of the sub-rectangular enclosure. Continuation of 98 in western field					
213	Fill	212	264, 267, 268, 212	5	well compacted brownish grey sandy clay with occasional flecks of charcoal	top fill of ditch 212					
214	Cut	259, 256, 305, 215	333	259, 256, 305, 215	Curvilinear ditch flanking the south western part of the sub-rectangular enclosure. It had a profile which varied between V shaped at the east and U shaped at the west, with steeply sloping sides and a concave base. It was a maximum of 2.4m wide and 0.6m deep, nut was noticeably smaller at the east.	re cut of ditch flanking the sub-rectangular enclosure in the western field					
215	Fill	214	305, 256, 259, 214	5	well compacted greyish brown sandy clay with occasional small pieces of shale	top fill of ditch 214					#37 nothing
216	Cut	246, 245	248, 6	246, 245	linear ditch running west to east across the site for approximately 47m. It was up to 2.2m wide and 1m deep	cut of ditch of the northern side of the sub-rectangular enclosure. Recut of 248, probably contemporary with 98 and 212					

217	Fill	216	246	5	moderately compact greyish brown sandy clay	top fill of ditch 216; Same as 245		Medieval pottery			
218	Cut	413, 366, 324, 323, 209	208, 369, 382, 220, 377, 378	413, 366, 324, 323, 209	Circular cut 15m in diameter, sharp breaks of slope, moderately steep sides and a U shaped profile 3.45m wide and 1m deep	second recut of ringditch 208					
219	not assigned / cancelled										
220	Cut	377, 378, 218, 413, 366, 324, 323, 209	208, 369, 382	377, 378, 218, 413, 366, 324, 323, 209	Circular cut 15m in diameter, sharp breaks of slope, steep sided funnel shaped profile 3.45m wide and 1.2m deep	recut of ringditch 208					
221-233	not assigned / cancelled										
234	Cut	235	6	235	cut of semi circular ringditch 4.3m in diameter with a U shaped profile 0.45m wide and 0.21m deep	cut of small ringditch					
235	Fill	234	234	5	compact brownish grey sandy clay with occasional pieces of charcoal	fill of ringditch 234					
236-239	not assigned / cancelled										
240	Fill	216	246	5	Localised lens of charcoal rich material within F245, the top fill of F216	Fill of ditch 216					
241	not assigned / cancelled										
242	Cut	243, 350, 258	333, 400	214	Original cut of the curvilinear ditch flanking the south western part of the sub-rectangular enclosure. It had a profile which was in general wider and shallower than its replacement 214. It was a maximum of 2m wide and 0.4m deep	cut of ditch flanking the sub-rectangular enclosure in the western field					

243	Fill	242	242	214, 5	well compacted greyish brown sandy clay with frequent inclusions of small pieces of shale	fill of ditch 242					
244	not assigned / cancelled										
245	Fill	216	246, 216	5	moderately compact greyish brown sandy clay	top fill of ditch 216					
246	Fill	216	216	245	well compacted yellowish brown sandy clay	bottom fill of ditch 216					
247	not assigned / cancelled										
248	Cut	250, 249	6	250, 249	linear ditch running west to east across the site for approximately 47m. It was up to 1.6m wide and 0.6m deep	cut of ditch of the northern side of the sub-rectangular enclosure. Continuation of 12 in western field					
249	Fill	248	250, 248	216	well compacted yellowish brown sandy clay	top fill of 248					
250	Fill	248	248	249	well compacted yellowish brown sandy clay	bottom fill of 248					
251-253	not assigned / cancelled										
254	Fill	214	214	5	Black carbonised silty clay	Charcoal lens within F215, near base of ditch F214					
255	not assigned / cancelled										
256	Fill	214	259, 214	305, 215	moderately compact blackish brown sandy clay with frequent charcoal inclusions	dump of burnt material in ditch 214					#24 43g charcoal
257	not assigned / cancelled										
258	Fill	242	350	214, 5	compact greyish yellow sandy clay with very frequent small angular stones	fill of ditch 242, only present at extreme west					
259	Fill	214	214	256, 305, 215	moderately compact reddish brown sandy clay with frequent charcoal inclusions	dump of burnt material in ditch 214				yes	#1 <1g cremated bone
260-263	not assigned / cancelled										

264	Fill	284	265, 284	212, 5	moderately compact greyish brown sandy clay with a moderate amount of small shale pieces	top fill of ditch 284					
265	Fill	284	284	264	well compacted yellowish brown sandy clay	bottom fill of ditch 284					
266	not assigned / cancelled										
267	Fill	212	268, 212	264, 213	moderately compact greyish brown sandy clay	third fill of ditch 212					
268	Fill	212	212	267, 264, 213	moderately compact brownish grey silty clay	bottom fill of ditch 212					#21, 40 nothing
269-283	not assigned / cancelled										
284	Cut	265, 264	6	265, 264	linear ditch running from east to west for 26.5m. It was 1.4m wide and up to 0.8m deep	cut of ditch of the sub-rectangular enclosure. Continuation of 56 in western field					
285-304	not assigned / cancelled										
305	Fill	214	256, 259, 214	215	well compacted greyish brown sandy clay with frequent charcoal inclusions	dump of burnt material in ditch 214					
306-322	not assigned / cancelled										
323	Fill	208	208, 369, 382, 220, 377, 378, 218, 413, 366, 324	209	compact layer of orangeish brown clay which included approximately 10% small pieces of shale	fill of ringditch					

324	Fill	208	208, 369, 382, 220, 377, 378, 218, 413, 366	323, 209	compact layer of small pieces of shale mixed with a moderate amount of orange clay	fill of ringditch					
325	not assigned / cancelled										
326	Cut	205	6	205, 207, 204, 203	narrow linear cut leading from southern end of 202. It was 2m long, 0.4m wide and sloped upwards from 0.5m deep at the north to 0.1m at the south	cut of flue of kiln 202					
327	not assigned / cancelled										
328	Cut	329, 335	6	335, 329	small circular pit 1.05m in diameter with a saucer like profile that was a maximum of 0.2m deep	cut of small hearth pit					
329	Fill	328	335, 328	5	brownish grey sandy clay with a moderate amount of charcoal flecks	top fill of hearth pit 328					
330	Cut	339, 331	6	339, 331	small circular pit 0.9m in diameter with a saucer like profile that was a maximum of 0.1m deep	cut of small hearth pit					
331	Fill	330	339, 330	5	brownish grey sandy clay with a moderate amount of charcoal flecks	top fill of hearth pit 330					
332	Cut	334, 333	6	334, 333, 242	rectangular pit with rounded corners, near vertical sides and a flat base. It was 4.7m long, 1.8m wide and 0.6m deep	cut of large pit under ditch 242					
333	Fill	332	334, 332	242	well compacted orangeish brown sandy clay with occasional small stones	top fill of pit 332					
334	Fill	332	332	333	moderately compact orangeish brown sandy clay with red patches and occasional flecks of charcoal	bottom fill of pit 332					
335	Fill	328	328	329	loosely compacted blackish brown sandy clay with frequent charcoal and lumps of burnt red clay	bottom fill of hearth pit 328					
336-338	not assigned / cancelled										
339	Fill	330	330	331	loosely compacted blackish brown sandy clay with frequent charcoal and lumps of burnt red clay	bottom fill of hearth pit 330					
340-341	not assigned / cancelled										

342	Cut	347, 343	6	347, 343	curvilinear ditch 40 m long with a width of 2m and depth of 1m. Cut through the fills of 248 at the intersection and may have been contemporary with 216	cut of ditch flanking the sub-rectangular enclosure in the western field					
343	Fill	342	347, 342	5	well compacted greyish brown sandy clay	top fill of 342			yes		
344-346	not assigned / cancelled										
347	Fill	342	342	343	moderately compact orangeish brown sandy clay with occasional small shale pieces	bottom fill of 342					
348-	not assigned / cancelled								yes		
349	Fill	342	347, 342	5	Sama as 343	top fill of 342			yes		
350	Fill	242	242	258	well compacted layer of small angular stones mixed with a small quantity of sandy clay	fill of ditch 242, only present at extreme west. Apparently deliberate backfilling of this part of the ditch					
351-357	not assigned / cancelled										
358	Cut	402, 401, 400	6	402, 401, 400, 242	rectangular pit with rounded corners, near vertical sides and a flat base. It was only partially excavated but measured 2.4m in width and 1m iun depth and ran for 2.4m before continuing beyond the western limits of the excavation	cut of large pit under ditch 242					
359-365	not assigned / cancelled										

366	Fill	208	208, 369, 382, 220, 377, 378, 218, 413	324, 323, 209	compact layer of small pieces of shale mixed with a small amount of orange clay	fill of ringditch					
367-368	not assigned / cancelled										
369	Fill	208	208	382, 220, 377, 378, 218, 413, 366, 324, 323, 209	compact layer of small pieces of shale	fill of ringditch					#39 nothing
370-376	not assigned / cancelled										
377	Fill	208	208, 369, 382, 220	378, 218, 413, 366, 324, 323, 209	compact layer of small pieces of shale	fill of ringditch					
378	Fill	208	208, 369, 382, 220, 377	218, 413, 366, 324, 323, 209	compact layer of small pieces of shale mixed with a small amount of orange clay	fill of ringditch					
379-381	not assigned / cancelled										

382	Fill	208	208, 369	220, 377, 378, 218, 413, 366, 324, 323, 209	compact layer of small pieces of shale mixed with a small amount of orange clay	fill of ringditch					
383-399	not assigned / cancelled										
400	Fill	358	401, 402, 358	242	firmly compacted yellowish brown sandy clay with frequent small stones	top fill of pit 358					
401	Fill	358	402, 358	400	well compacted orangeish brown sandy clay with occasional small and medium sized stones	second fill of pit 358					
402	Fill	358	358	401, 400	soft and plastic greyish brown sandy clay with as gritty texture	bottom fill of pit 358					
403-412	not assigned / cancelled										
413	Fill	208	208, 369, 382, 220, 377, 218	366, 324, 323, 209	compact layer of small pieces of shale	fill of ringditch					
414-429	not assigned / cancelled										
430	Cut	431	6	431	semi-circular ringditch 4.8m in diameter with a U shaped profile 0.85m wide and 0.47m deep	cut of small ringditch					
431	Fill	430	430	5	very compact yellowish brown clay	fill of ringditch 430, apparently deliberately backfilled					
432-442	not assigned / cancelled										

443	Cut	445, 444	6	445, 444, 191, 189, 188, 187, 160, 186, 185, 161	small oval pit with vertical sides and a flat base measuring 1.5m by 1.2m and with a maximum depth of 0.28m	cut of pit					
444	Fill	443	445, 443	191, 189, 188, 187, 160, 186, 185, 161	compact orangeish brown sandy clay	top fill of pit 443					
445	Fill	443	443	444, 191, 189, 188, 187, 160, 186, 185, 161	thin layer of sticky greenish grey silty clay	bottom fill of pit 443					

APPENDIX 2 *Finds List*

Find Number	Description
A008/008:5:1	Medieval pottery sherd
A008/008:5:2	Decorated Medieval pottery rim sherd: Trim ware
A008/008:5:3	Medieval pottery sherd: Local fineware
A008/008:5:4	Post-medieval brown glazed rim sherd
A008/008:5:5	Post-medieval pottery sherd (broken)
A008/008:5:6	Medieval pottery sherd: Local wheel thrown glazed ware
A008/008:5:7	Medieval pottery sherd: Local wheel thrown glazed ware
A008/008:5:8	Medieval pottery sherd: Local wheel thrown glazed ware
A008/008:5:9	Medieval pottery sherd: Local wheel thrown glazed ware
A008/008:5:10	Medieval pottery sherd: Local fineware
A008/008:5:11	Medieval pottery sherd: Local fineware
A008/008:5:12	Decorated Medieval pottery rim sherd: Local wheel thrown glazed ware
A008/008:5:13	Medieval pottery sherd: Local fineware
A008/008:5:14	Medieval pottery sherd: Local wheel thrown glazed ware
A008/008:5:15	Tertiary flint flake
A008/008:5:16	Secondary flint flake
A008/008:5:17	Tertiary flint flake
A008/008:5:18	Tertiary flint knife
A008/008:5:19	Secondary flint flake
A008/008:5:20	Iron nail
A008/008:5:21	Iron knife blade fragment
A008/008:19:1	Copper alloy brooch fragment - conserved
A008/008:38:1	Water rolled pebble
A008/008:47:1	Copper fragment
A008/008:47:2	Secondary flint modified bifacial fragment
A008/008:49:1	Iron nail
A008/008:57:1	Medieval pottery body sherd: Local wheel thrown glazed ware
A008/008:59:1	Secondary flint flake, burnt
A008/008:87:1	Tertiary flint flake
A008/008:89:1	Tertiary flint with retouched edge, possible knife fragment
A008/008:97:1	E-ware rim sherd
A008/008:110:1	Secondary flint flake, burnt
A008/008:128:1	Jasper stone (worked). Broken modified cobble; evidence of grinding on original faces to produce facets; part perforation on one (broken) face. Stone is clearly worked with facets consistent with those of stone axeheads, though fxn of this piece unclear (Mandal)
A008/008:130:1	Iron nail
A008/008:143:1	Secondary flint, unworked
A008/008:143:2	Tertiary chert fragment, unworked
A008/008:161:2	Slag
A008/008:161:1	Copper alloy fragment from possible kiln
A008/008:167:1	Secondary flint flake
A008/008:183:1	Iron object
A008/008:183:2	Iron object
A008/008:201:1	Medieval pottery sherd (broken): Local wheel thrown glazed ware
A008/008:209:1	Tertiary flint scraper
A008/008:215:1	River rolled pebble
A008/008:217:1	Tertiary flint flake
A008/008:217:2	Secondary flint flake
A008/008:217:3	Determined to be non-artifact by conservator, Stone
A008/008:217:4	E-ware rim sherd
A008/008:254:1	Tertiary flint flake
A008/008:343:1	Copper alloy fragment

APPENDIX 3 *Sample List*

Sample No	Context No	Results
1	15	36g cremated bone
1	39	8g bone fragments, 6g cremated bone
1	55	5g bone fragments
1	56	16g unburnt bone
1	57	7g cremated bone
1	59	2g bone
1	115	3g cremated bone
1	163	18g animal bone
1	217	3g bone fragments
1	259	<1g cremated bone
1	327	nothing
2	43	charred grain, cremated bone
6	30	charred grain
7	32	charred grain
8	53	3g charcoal, seeds
9	38	charcoal flecks, bone fragments
10	206	charred grain
13	240	11g charcoal
14	72	4g charcoal, seeds
15	73	6g charcoal
20	40	9g charcoal, charred grain, cremated bone fragments
22	32	charred grain
23	254	3g charcoal, charred grains
24	256	43g charcoal
25	209	cremated bone fragments
26	65	13g charcoal, charred grain
27	81	charred grain, bone fragments
28	79	charred grain
30	357	5g charcoal
30	357	39g charcoal
33	365	2g charcoal, charred grain, seeds
34	363	nothing
36	96	nothing
37	215	nothing
39	369	nothing
41	361	nothing
42	105	charcoal flecks, cremated bone
43	423	nothing
44	110	2g charcoal, seeds, bone fragments
45	112	4g charcoal, charred grain
46	120	248g charcoal
47	429	3g charcoal
48	124	25g charcoal
49	140	33g charcoal
50	138	28g charcoal
51	141	45g charcoal
52	119	1g charcoal
53	184	1g charcoal, cremated bone fragments
54	89	nothing

56	187	nothing
57	188	3g charcoal
58	186	5g charcoal
/	436	66g charcoal
1, 16	42	1g charcoal, charred grain, cremated bone
1, 2	11	2g charcoal
1, 208A	13	23g charcoal
1, 35	19	charcoal flecks, 17g animal bone, 3 g bone, 1g cremated bone
1, 38	49	3g bone, 8g animal bone
1, 55	161	3g charcoal, cremated bone fragments, 72g animal bone
11, 31	204	135g charcoal, animal bone fragments
208B	16	<1g charcoal
21, 40	268	nothing
3, 17	44	seeds, charred grain, cremated bone
4, 18	27	5g charcoal, charred grain, bone fragments
5, 19	29	3g charcoal, cremated bone fragments

APPENDIX 4 *Topsoil Assessment: Maria Lear & Stuart Rathbone*

PROJECT DETAILS

Project	Metal Detection: M3 Clonee to North of Kells, Contract 2
Archaeologists	Maria Lear & Stuart Rathbone
Project Start	13 June 2005
Report Date	June 2005

List of Figures

1. INTRODUCTION

The proposals for archaeological resolution included an assessment of the potential for finds retrieval from topsoil at archaeological sites. This assessment was achieved by a program of metal detecting at ploughed and pasture fields. As per the *Method Statement for Topsoil Assessment Including Metal Detection*, metal detection of the topsoil began within Contract 2 on June 13, 2005.

2. ARCHAEOLOGICAL ASSESSMENT

2.1 Metal Detection Methodology

1. A grid was established as follows – a baseline was marked on one side of each site along the long axis. Perpendicular offset lines were marked at 10m intervals along the baseline to form stints and these were subdivided along the offset line to form parallel transects 2m wide.
2. The metal detection commenced at one end of the baseline and provided for a 2m 'sweep' along each transect, thus providing for 100% coverage of topsoil deposits at each site.
3. The location of all metal 'hits' was marked on the ground with tags.
4. All metal 'hits' in the sod or topsoil were tested by careful hand excavation of the sod/topsoil. Stratified artifacts were left *in situ*.
5. All artifacts were bagged and numbered citing DOE record number, context and individual number. Their location was also recorded.

2.2 Field Walking Survey – Methodology

1. A grid was established as follows – a baseline was marked on one side of each site along the long axis. Perpendicular offset lines were marked at 10m intervals along the baseline to form stints and these were subdivided along the offset line to form parallel transects 4m wide.
2. Each transect was assigned a letter and each stint a number so that each stint would have a unique reference.
3. The field walking took place along each transect and provided for 2m coverage (i.e.: 1m either side of the walker's path), thus providing 50% coverage of the site.
4. The location of all artefacts was marked on the ground with tags.
5. All artifacts were bagged and numbered citing DOE record number, context and individual number. Their location was also recorded.

2.3 Test Pit Methodology

When deemed necessary, a number of pre-designated test pits were dug at various locations within the site. The test pits measured $1m^2$ and their precise position was surveyed. Each test pit was dug by hand to the depth of subsoil and the resulting loose topsoil was sifted on site for the recovery of finds. All finds were bagged and numbered citing DOE record number, context and individual number. Their location was recorded with reference to the specific test pit from where it was collected.

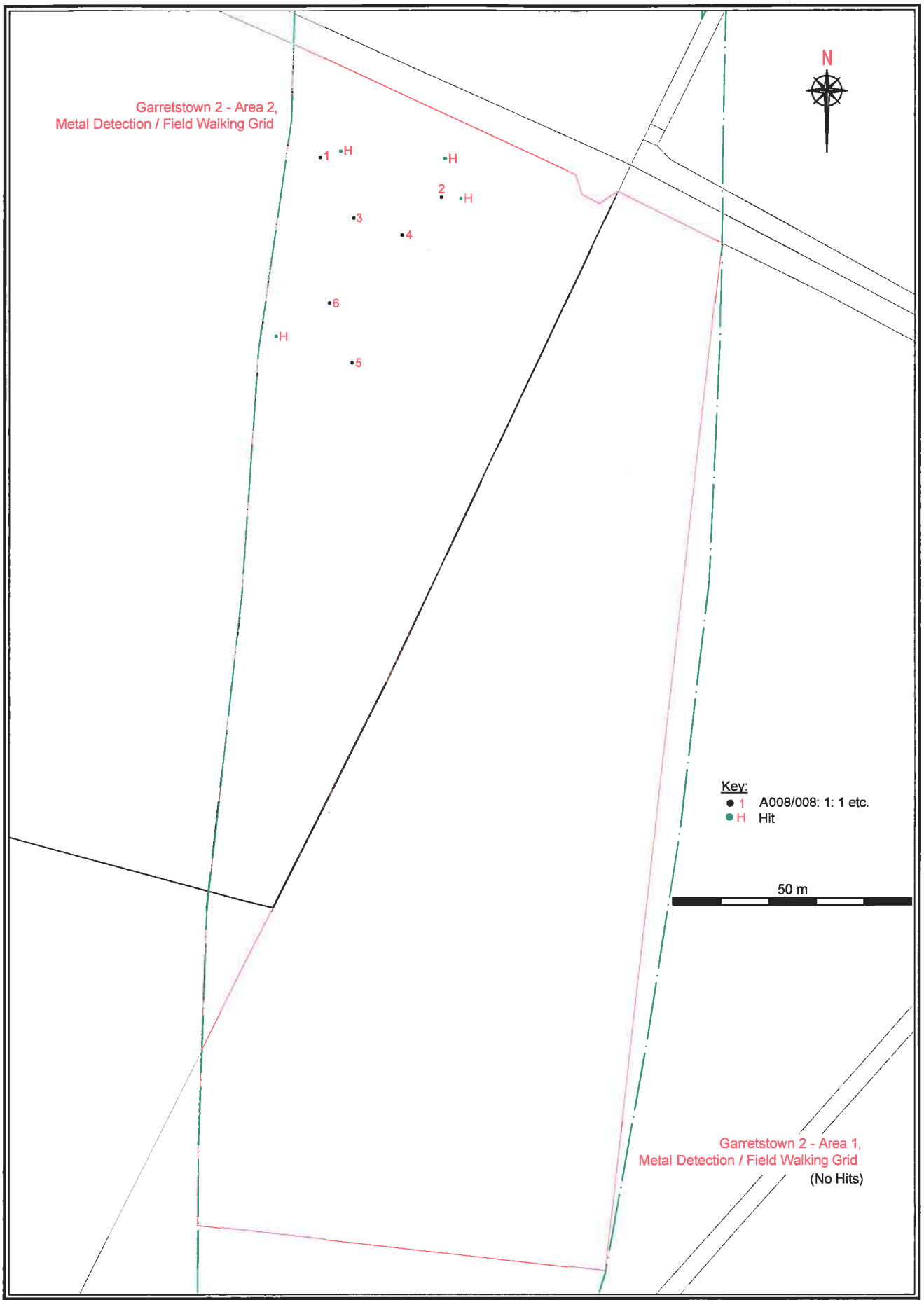
2.4 Results

The first phase of metal detection dealt with the sod layer only and finds recovered were labelled as being from context 1. Initial metal detection of the Garretstown 2a & 2b site produced a total of 10 'hits' with 6 finds recovered and 4 *in situ* 'hits'. The second phase of metal detection was completed after the sod was removed and dealt with the topsoil layer only. These topsoil finds were recorded under context number 2. This second phase produced a total of 60 'hits' with 60 finds collected. Field walking of Garretstown 2a & 2b produced a further collection of 6 modern finds. All of the finds recovered were of modern date and consisted of items associated with a modern timeframe (horseshoe, nails, modern ceramic/pottery, clay pipe stem, etc…). A total of 26 test pits were completed with no finds collected.

2.5 List of Finds

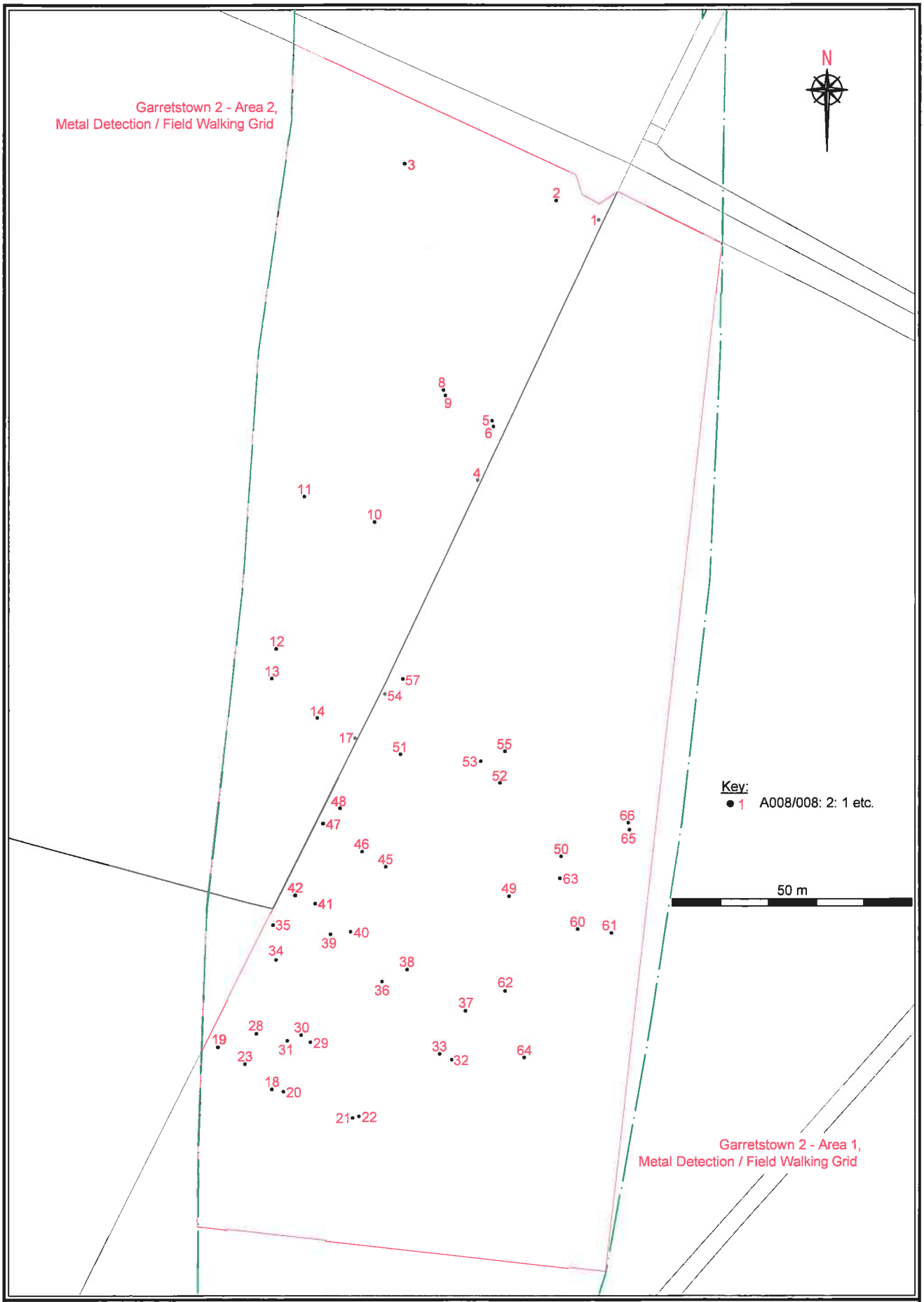
Find Number	Description
A008/008:1:1	Tinfoil
A008/008:1:2	Magnetized stone
A008/008:1:3	Horseshoe
A008/008:1:4	Nail
A008/008:1:5	Metal brace
A008/008:1:6	Nail
A008/008:2:1	Nail
A008/008:2:2	Thin strap of iron
A008/008:2:3	Iron object
A008/008:2:4-6	3 nails
A008/008:2:7	Modern iron object
A008/008:2:8-9	2 pieces of Barbed Wire
A008/008:2:10	Horseshoe
A008/008:2:11	Nail
A008/008:2:12	Iron strap
A008/008:2:13	Nail
A008/008:2:14-16	3 Modern iron objects
A008/008:2:17	Nail/Iron bar
A008/008:2:18	Iron strap
A008/008:2:19	Copper fragment
A008/008:2:20	Modern iron object
A008/008:2:21-22	2 Nails
A008/008:2:23	Bolt/Nail
A008/008:2:24	Clay pipe stem fragment
A008/008:2:25-27	3 sherds of Modern pottery
A008/008:2:28	Bolt
A008/008:2:29	Modern iron object
A008/008:2:30	Iron strap/object
A008/008:2:31	Coin
A008/008:2:32	Possible magnitized stone
A008/008:2:33	Iron bar
A008/008:2:34	Modern iron object, possible magnitized stone
A008/008:2:35-36	2 Nails/Bolts
A008/008:2:37-40	4 Modern iron objects
A008/008:2:41	Nail
A008/008:2:42	Modern iron object
A008/008:2:43	Glass
A008/008:2:44	Modern pottery
A008/008:2:45	Nail
A008/008:2:46	Iron object, possible magnitized stone
A008/008:2:47	Machine part
A008/008:2:48	Nail
A008/008:2:49	Nail/Bolt
A008/008:2:50	Metal piece
A008/008:2:51	Iron fragment
A008/008:2:52	Nail
A008/008:2:53	Modern iron object
A008/008:2:54-58	5 Nails
A008/008:2:59-60	2 Modern iron objects
A008/008:2:61	Nail
A008/008:2:62	Modern iron object

A008/008:2:63	Nail
A008/008:2:64	Modern iron object
A008/008:2:65	Nail
A008/008:2:66	Modern iron object



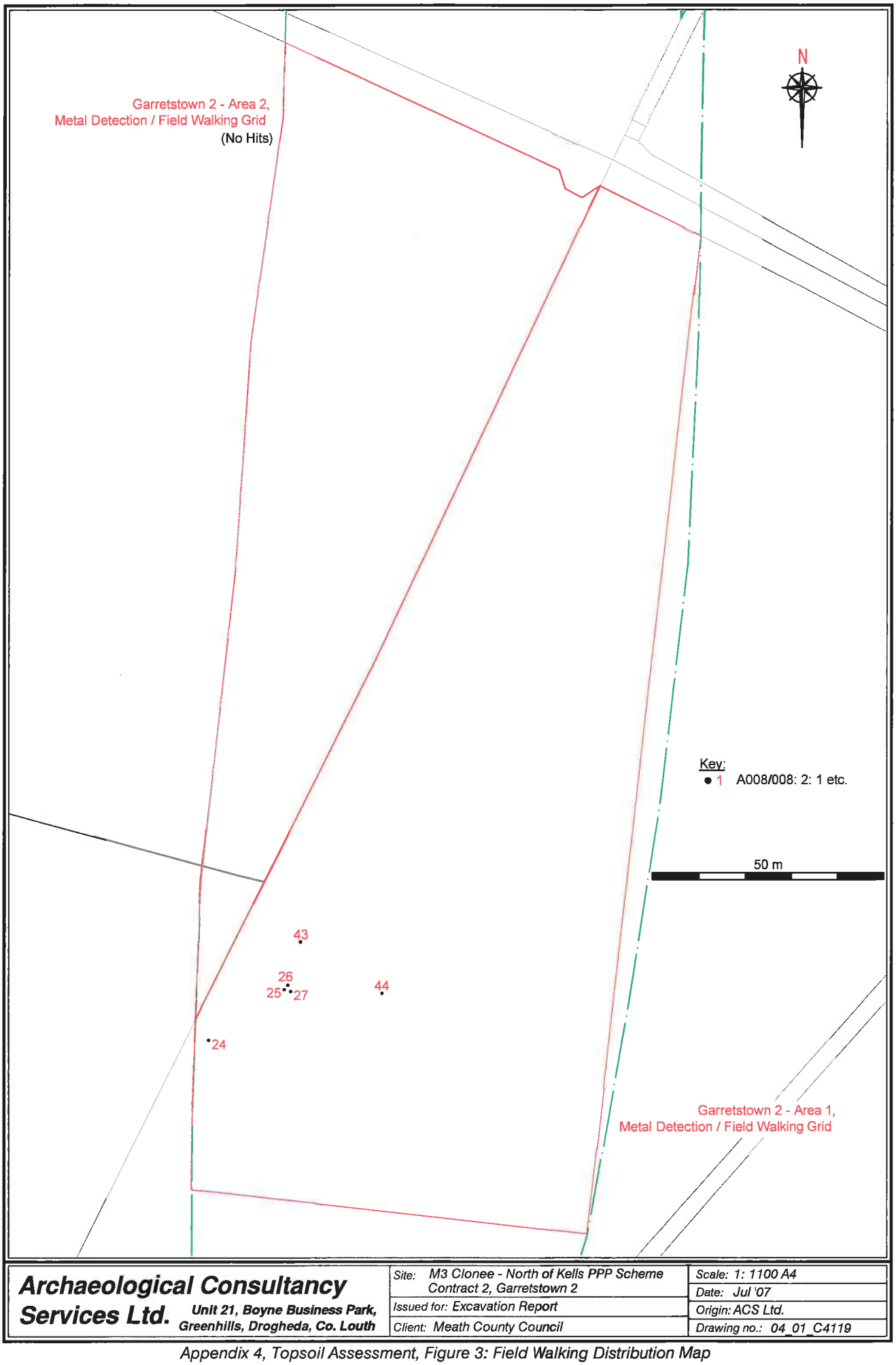
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee - North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1: 1100 A4
	Issued for: Excavation Report	Date: Jul '07
	Client: Meath County Council	Origin: ACS Ltd.
		Drawing no.: 04_01_C4117

Appendix 4, Topsoil Assessment, Figure 1: Metal Detection (Phase 1) Distribution Map



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee - North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1: 1100 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4118

Appendix 4, Topsoil Assessment, Figure 2: Metal Detection (Phase 2) Distribution Map



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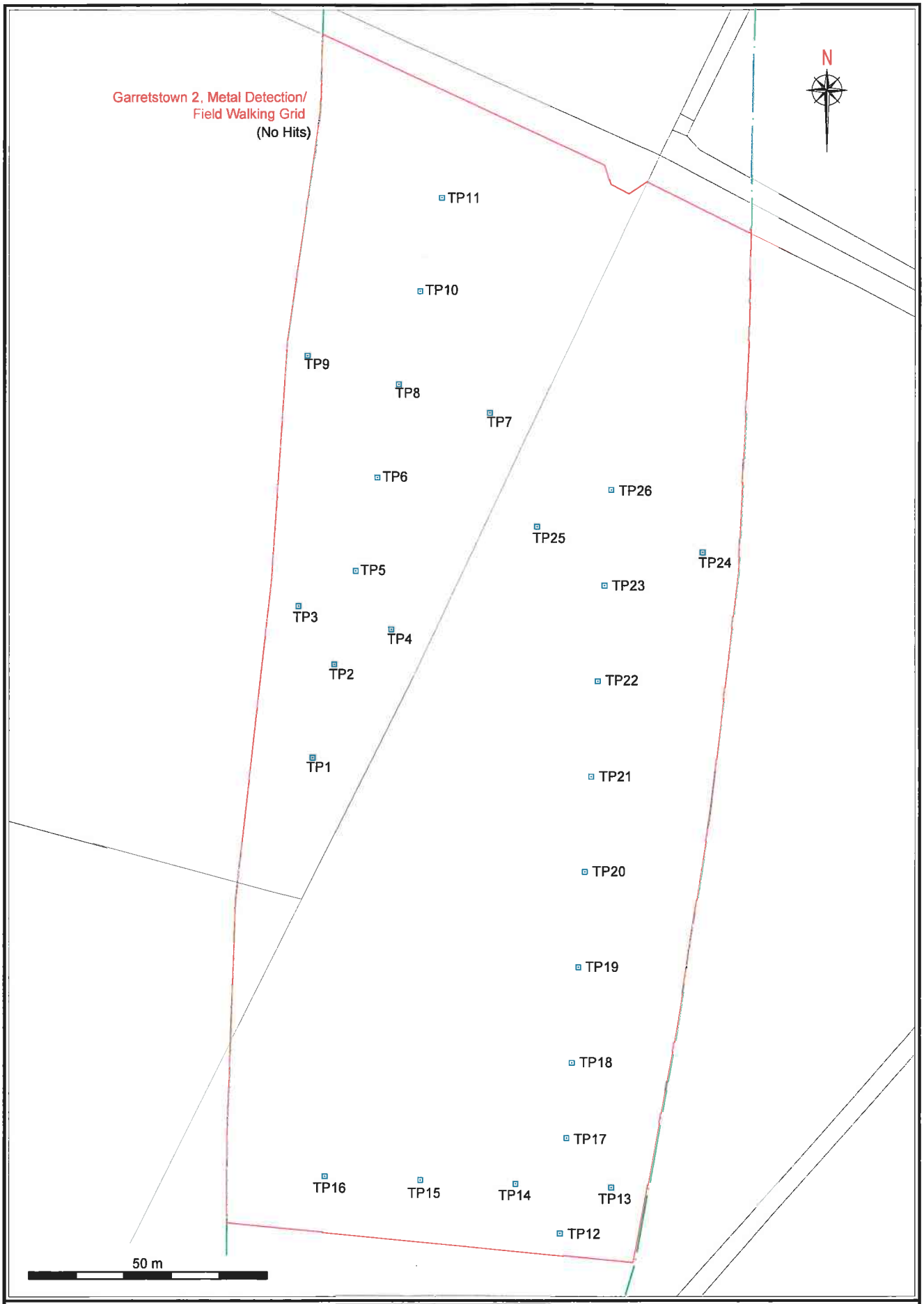
	Client: Meath County Council	Drawing no.: 04_01_C4119

Appendix 4, Topsoil Assessment, Figure 3: Field Walking Distribution Map



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee - North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1: 1100 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4120

Appendix 4, Topsoil Assessment, Figure 4: Test Pit Distribution Map

APPENDIX 5 *Radiocarbon and OSL Dating Lists*

Context	Sample No	Material	Species id/	Lab	Lab code	Date Type	Date	Conventional Date (BP)	13C/12C Ratio ‰
32: 9th fill of kiln C16	22	Grain	Barley grain (212mg)	Beta	241298	AMS (Std)	AD 422-596	1550 +/- 40 BP	-22.2
44: 6th fill of kiln C14	3	Grain	Barley grain (110mg)	Beta	241299	AMS (Std)	AD 434-644	1500 +/- 40 BP	-23.4
53: fill of kiln C52	8	Grain	Charred barley grain (152mg)	Beta	246970	AMS (Std)	AD 409-575	1570 +/- 40BP	n/a
73: 3rd fill of kiln C70	15	Charcoal	Cherry (158mg)	Beta	241300	AMS (Std)	AD 551-659	1440 +/- 40 BP	-26.8
79: fill of posthole/pit C78 within kiln F66	28	Grain	Charred barley grain (10mg)	Beta	246971	AMS (Std)	AD 427-609	1530 +/- 40BP	-22.1
86: bottom fill of kiln F66	29	Charcoal	Maloideae (656mg)	Beta	241301	AMS (Std)	AD 426-601	1540 +/- 40 BP	-26.5
120: charcoal-rich fill of pit F116	46	Charcoal	Alder (612mg)	Beta	246972	AMS (Std)	398-206 BC	2260 +/- 40BP	-26.8
129: fill of primary ringfort cut F126	1	A/bone	Cattle, left madible (179g)	Beta	220138	AMS (Std)	AD 647-779	1310 +/ - 40BP	-21.8

138: charcoal-rich fill of kilnC136	50	Grain	Barley grain (8mg)	Beta	246973	AMS (Std)	AD 427-609	1530 +/-40BP	-21.5
140: fill of pit F132	49	Charcoal	Willow (123mg)	Beta	246974	AMS (Std)	359-55 BC	2150 +/-40BP	-25.5
186: fill of possible pit C160	58	Charcoal	hazel (38mg)	Beta	246975	AMS (Std)	88 BC - AD 124	1980 +/-40BP	-23.5
187: fill of possible pit F191	56	Charcoal	Willow (32mg)	Beta	246976	AMS (Std)	AD 86-334	1810 +/-40BP	-25.8
188: fill of possible pit F191	57	Charcoal	Sloe/blackthorn (166mg)	Beta	246977	AMS (Std)	161-68 BC	2020 +/-40BP	-25.2
206: 4th fill of kiln F202	10	Grain	Barley grain (12mg)	Beta	246978	AMS (Std)	AD 695-967	1190 +/-40BP	-22.5
240: charcoal-rich fill along N side of ditch C216	13	Charcoal	Maloideae (165mg)	Beta	246979	AMS (Std)	357-50 BC	2140+/- 40BP	-28.3
254: charcoal-rich fill within ditch C214	23	Charcoal	Hazel (210mg)	Beta	246980	AMS (Std)	AD 668-870	1260 +/-40BP	-24.5
256: fill of ditch C214	24	Charcoal	Hazel (138mg)	Beta	246981	AMS (Std)	AD 605-769	1360 +/-40BP	-25.5

349: fill of ditch 342	1	A/bone	Cattle rt proximal femur frag (33g)	Beta	236025	AMS (Std)	AD 695-967	1190 +/- 40BP	-23.3

In addition to the radiocarbon dates, OSL dating was carried out at Garretstown 2. The following determinations were communicated to ACS Ltd. by Dr. Jean-Luc Schwenninger of the Research Laboratory for Archaeology and the History of Art, University of Oxford.

ID	Context	Date
OSL3	F90; primary fill of ringditch F46	1653 – 1393 BC
OSL 5	F130; primary fill of ringfort F126	AD 497 – 707
OSL 7	F245; Fill of ditch F216	AD 2 – 213
OSL 8	F101; Fill of ditch F98	AD 202 – 413

APPENDIX 6 *Faunal Report: Rachel Sloane*

04_01, M3 Clonee to North of Kells Road Scheme

Analysis of mammalian bone remains from Garretstown 2, Co. Meath

(A008/008)

Final Report

November 2007

Rachel Sloane

List of Tables and Plates

04_01 Garretstown 2 (A008/008) results of mammal bone analysis:

1. Introduction

This report details the results of analysis of mammalian bone remains retrieved at Garretstown 2, County Meath. Archaeological excavation was carried out at this site in advance of the proposed M3 Clonee to North of Kells Road Scheme. The majority of the mammalian bone assemblage came from Phase 2 i.e. Late Iron Age/Early Medieval enclosure (O'Connell pers. comm.) while a single specimen was recorded from C159, the fill of an isolated pit C158. Therefore, presentation of analysis results for this assemblage comprises the Phase 2 group and a single C159 specimen. Two animal bone specimens from Phase 2 contexts were submitted for radiocarbon dating. A cattle mandible from C129 returned a date of AD 647-779 (Beta 220138, Oxcal calibrated) and a cattle femur fragment from C349 produced a date of AD 695-967 (Beta 236025, Oxcal calibrated). Appendix Tables A1 and A2 display a breakdown of the number of elements from each context and the number of elements per species from each context. Descriptions of the contexts from which countable animal bone was retrieved are detailed in Table 1.

Context	Description	Phase
49	First (top) fill of ditch 48	2
106	Third fill of ditch 96	2
127	First fill of ringfort ditch 126	2
128	Fill of ringfort ditch 126	2
129	Fill of ringfort ditch 126	2
130	Fill of ringfort ditch 126	2
159	Fill of pit 158	Individual
177	Third fill of pit 162	2
217	First fill of ditch 216	2
343	First fill of ditch 342	2
349	Fifth fill of ditch 342	2

Table 1 Garretstown 2: Contexts that produced countable mammalian bone remains.

2. Methodology

The methodology adopted for analysis of this collection is based on that used for Knowth by McCormick and Murray (2007). A detailed description of the applied methodology has been outlined by the current author in the analysis report for mammalian bone remains from Roestown 2, also carried out as part of the M3 Clonee-North of Kells Road Scheme. The quantification method used by McCormick and Murray is in turn a modified version of that used by Albarella and Davis (1996). It entails a selective approach to quantification which, rather than counting every fragment of bone, results in the production of NISP values i.e. number of identifiable specimens. The method involves examination of all faunal bone remains but specimens found to be of low-grade information value are not recorded. Consequently the recording of a narrower range of clearly defined bone elements is ensured. Selected elements are recorded provided at least 50% of the diagnostic zone survives (this material is referred to as 'countable'). This procedure avoids multiple counting of very fragmented elements (*Ibid*). The MNI i.e. minimum number of individuals was calculated for all species. This estimates the minimum number of animals that the recorded faunal remains could have come from (Chaplin 1971, 70). It is calculated through dividing the recorded value of each element for a species by

its frequency in the skeleton. The resulting highest value is the MNI for that particular species. While both sides and proximal or distal were taken into account for MNI calculations, ageing data was not.

3. Results of Analysis

3.1 Summary of Findings

Following a thorough inspection of the Garretstown 2 animal bone remains, a total of 127 countable elements from Phase 2 and one countable element from C159 were recorded. The four species of cattle (*Bos taurus*), sheep/goat (*Ovis/Capra*), pig (*Sus sp.*) and horse (*Equus caballus*) were represented amongst the assemblage. The amount of material retrieved is small and consequently the zooarchaeological interpretation of the site is limited. Table 2 displays the range of elements present for each of the four species in Phase 2. Cattle is dominant in terms of NISP and MNI values as it accounts for 76.2% of the NISP total and a minimum of five different animals are evident. Pig is the next most frequently occurring species accounting for 12.7% of the NISP total with a minimum of two animals represented. Sheep/goat and horse make up 7.9% and 3.2% of the NISP total respectively and both species account for a minimum of one animal. Amongst the sheep/goat specimens, two elements were positively identified as sheep (*Ovis aries*). These included a proximal tibia, confirmed as sheep based on morphological characteristics (Boessneck 1969, 350) and a horn core specimen. None of the recorded specimens were confirmed as goat consequently, all other material was classified as sheep/goat.

Element	Cattle	Sheep/Goat	Pig	Horse	Total
Horncore		1			1
Loose teeth	27	1	7	1	36
Loose lower incisor	5				5
Loose lower canine			2		2
Loose lower premolar	7	1	3		11
Loose lower M1/2	18	3			21
Loose lower M3	7		4		11
Mandible	7				7
Atlas	2				2
Scapula	3				3
Humerus	2	1			3
Radius	5	1			6
Metacarpal	1				1
Pelvis	1	1			2
Femur	6				6
Tibia	1	1		1	3
Metatarsal	1				1
Metapodial	2			2	4
Phalanx 1	1				1
NISP	96	10	16	4	126
%NISP	76.2	7.9	12.7	3.2	
MNI	5	1	2	1	9
%MNI	55.6	11.1	22.2	11.1	

Table 2 Garretstown 2: Phase 2 Number of identifiable specimens (NISP) by element and species[1].

[1] Loose teeth include loose maxillary teeth and teeth that could not be definitely classified as either mandibular or maxillary. For calculation of MNI;

Only one element was retrieved from C159, this was identified as a pig M3 (third molar). It was not possible to determine whether this was a mandibular or maxillary specimen and it was in an unerupted state.

The assemblage was found to be generally in good condition. Of the Phase 2 material, one specimen was recorded as in excellent condition, 115 specimens as in good condition and 10 specimens as in fair condition. Only one element was observed as being of poor condition. The single element from C159 was in good condition. In terms of preservation levels, a total of 61 specimens survived as complete elements, including the C159 element. The % of each individual element which survived for the remainder of Phase 2 is detailed in Table A3 of the Appendix and ranges from four specimens with 5% of the whole bone surviving to two specimens with 90% of the whole bone in tact. As Table 2 has indicated, a range of bones from the various parts of the skeleton were present (the head, axial carcass (vertebrae), main meat-bearing bones and feet) suggesting that animals were butchered, processed, consumed and disposed of at the site. One specimen did provide evidence of butchery and this is discussed in Section 3.5 below. The retrieved material was disarticulated and appears to represent domestic refuse.

3.2 Ageing Data

In analysing mammalian bone remains, two ageing methods are used. These include recording the state of tooth eruption and wear, which is recognised as the more reliable ageing method. The more problematic method (Watson 1978) entails recording state of epiphyseal fusion for appropriate elements. Both were applied to the Garretstown 2 assemblage. Tooth eruption and wear was recorded for cattle, sheep/goat and pig teeth wherever the occlusal surface of the mandibular dP4 (deciduous fourth premolar), P4 (fourth premolar), M1/2 (first or second molar) or M3 (third molar) survived. For cattle and pig, tooth wear stages were assigned after Grant (1982) for sheep, tooth wear stages followed Payne (1973 and 1987). Several loose mandibular M3s were present and as this is the innermost tooth, mandible wear stages (MWS) were assigned following Higham (1967, 104-106). This facilitated provision of estimated age ranges for these specimens. A number of mandible specimens with teeth remaining in situ were also recorded and in any case where the innermost tooth was present a MWS was allocated. For cattle and sheep/goat, interpretation of epiphyseal fusion data followed Reitz and Wing (1999, 76). States of epiphyseal fusion for horse were after Silver (1969, 285-286).

3.2.1 Tooth wear

Cattle

The tooth and mandible wear data recorded for Phase 2 cattle is outlined in Tables 3 and 4. For loose mandibular M3s, mandible wear stages were assigned to five specimens. A wear stage of 16 indicates the presence of an animal at least 31-32 months old. Two cases of stage 20 were observed which represent an

Loose teeth or unfused epiphyses were not counted. Incisors for cattle were divided by 8. Pig canines were divided by 2. Premolars were divided by 6, M1/2 were divided by 4, M3 were divided by 2 and phalanges were divided by 8. With the exception of teeth and phalanges, left and right were taken into account for all elements. Proximal and distal ends were taken into account for all elements where applicable. In the case of cattle metapodials MC2/MT2/MP2 were counted as 0.5 units. (This explains why the total number of elements recorded in the database was 128 but the NISP value was 127).

animal (or animals) that lived to an age of at least 40 months old while a stage 21 and stage 23 specimen are evidence of animals that lived to a minimum age of 40-50 months and over 50 months respectively (Higham 1967, 104). Mandible wear stages were also assigned to two mandible specimens, stage 13 provides evidence of an animal that achieved an age of at least 24-30 months before death and another stage 23 specimen indicates an old animal over 50 months old (*Ibid*). This evidence suggests a dominance of mature/old animals at Garretstown 2 with no evidence for animals younger than 24 months in the mandible wear data. However, this apparent absence of calves must be considered carefully and therefore the tooth wear evidence provided by loose mandibular dP4s and M1/2s is significant. The presence of two dP4s in wear represent animal(s) in the age range of 1-32 months while four M1/2s with a tooth wear stage of 'a' signify the presence of animal(s) aged 0-18 months (McCormick and Murray 2007, 55).

Element	No. of Specimens	Grant TWS	Higham MWS
dP4	1	j	N/A
dP4	1	o	N/A
P4	2	f	N/A
M1/2	4	a	N/A
M1/2	1	c	N/A
M1/2	2	f	N/A
M1/2	2	g	N/A
M1/2	1	h	N/A
M1/2	5	k	N/A
M1/2	1	l	N/A
M1/2	2	m	N/A
M3	1	unworn	N/A
M3	1	c	16
M3	2	g	20
M3	1	h	21
M3	1	k	23

Table 3 Garretstown 2: Phase 2 Tooth wear stages for loose mandibular cattle teeth following Grant (1982, 92) and mandible wear stages assigned to M3 following Higham (1967, 104).

Cattle	Grant TWS					Higham MWS
Mandible	dP4	P4	M1	M2	M3	
Specimen 1		a	X			N/A
Specimen 2	j	-	g	X		N/A
Specimen 3	-	-	k	g	H	13
Specimen 4	-	g	m	m	k	23

Table 4 Garretstown 2: Phase 2 Tooth wear stages for cattle teeth in mandibles following Grant (1982, 92) and mandible wear stages assigned following Higham (1967, 104).

For Early Medieval sites in Ireland, one would expect to find an age-slaughter pattern that signifies a cattle-based dairying economy (McCormick and Murray 2007, 52). A model of such an economy proposed by McCormick, suggests that slaughter of calves would be minimal within such a system, as documentary sources specify that the presence of the calf was necessary in order that the cow would give down its milk (*Ibid*). The cattle-ageing data for Knowth Stage 8 and 9 (7^{th} – 8^{th} and 10^{th} -11^{th} century) indicates a main peak in slaughter in the second and third years with animals older than three years comprising 35% and 41% of the samples respectively (*Ibid*, 51). The general interpretation of such data is that the animals selected for

slaughter in their second and third years are for meat. The older animals (3 years +) are likely to be females that were kept until this later age for dairying and males that were kept for breeding and traction (*Ibid*, 54). Analysis of the older cattle group at Knowth and other contemporary sites has indicated that it is dominated by female remains. Consequently, this implies that it is a majority of male animals that are slaughtered in the second and third years (*Ibid*).

The Garretstown 2 data hints at similarities to that outlined above including the evidence of animals slaughtered in their second and third year as well as a presence of much older animals. Unfortunately, the minute amount of ageing data means that the Garretstown 2 evidence is not statistically reliable and therefore conclusive interpretation is not possible.

Sheep/goat

The tooth wear data for sheep/goat is more limited than that for cattle. It was possible to assign wear stages to four loose mandibular teeth, one P4 and three M1/2s. As none of these are the innermost tooth, mandible wear stages could not be inferred.

Element	No. of Specimens	Payne TWS	Higham MWS
P4	1	12S	N/A
M1/2	1	8A	N/A
M1/2	1	9A	N/A
M1/2	1	10A	N/A

Table 5 Garretstown 2: Phase 2 Tooth wear stages for loose mandibular sheep/goat teeth after Payne (1973 and 1987).

Pig

It was possible to assign tooth wear to six loose mandibular teeth for pig and in three cases mandible wear stages were also assigned. One M3 had a mandible wear stage of 21 while two other specimens both had a mandible wear stage of 22. These indicate the presence of animals within the age ranges of 23-25 months and 25-27 months respectively (Higham 1967, 105). As pigs are reared essentially as a meat source, it is most economical to slaughter them when full size has been reached. Similar slaughter patterns have been noted for pigs at a number of Early Medieval rural sites in Ireland (McCormick and Murray 2007, 61-62). A peak in slaughter at 17-23 months is usual. The Garretstown 2 data is not dissimilar to this recognised trend, but it is too small to facilitate reliable comparison.

Element	No. of Specimens	Grant TWS	Higham MWS
P4	1	d	N/A
P4	1	e	N/A
M3	1	unerupted	N/A
M3	1	c	21
M3	2	d	22

Table 6 Garretstown 2: Phase 2 Tooth wear stages for loose mandibular pig teeth following Grant (1982, 94) and mandible wear stages assigned to M3 following Higham (1967, 105).

Due to the limited nature of the tooth and mandible wear data for Garretstown 2, it is not possible to expand interpretation beyond that already outlined.

3.2.2 Epiphyseal Fusion

Epiphyseal fusion data was observed for Phase 2 cattle, sheep/goat and horse as illustrated in Tables 7-10. In the case of sheep/goat, elements with state of fusion recorded were assumed to be sheep rather than goat for assigning age ranges.

Cattle

A total of 20 cattle specimens were observed as fully fused while a single specimen was found to be in an unfused state. As Table 7 illustrates, cattle specimens from all three categories, Early fusing, Middle fusing and Late fusing, were present. This data complements the tooth/mandible wear data for cattle in demonstrating the presence of mature and old animals. For example, the presence of fully fused distal radius and distal femur prove that animals with a minimum age of 42-48 months, i.e. the age at which fusion of these elements occurs (Reitz and Wing 1999, 76) are evident. The unfused specimen of cattle was a proximal femur, it merely indicates that the animal to which it belonged died before reaching the age of 42 months (*Ibid*).

CATTLE		No. of specimens	Age in months
Early Fusing	humerus d.	2	12-18
	scapula	2	7-10
	radius p.	2	12-18
	metapodium p.	2	fused before birth
	phalanx 1 p.	1	18-24
Middle Fusing	tibia d.	1	24-30
	metapodium d.	2	24-36
Late Fusing	radius d.	3	42-48
	femur p.	4	42
	femur d.	1	42-48

Table 7 Garretstown 2: Phase 2 fused (fused and fusing) cattle specimens present, classified as early, middle or late fusing after Reitz and Wing (1999, 76).

CATTLE		No. of specimens	Age in months
Late Fusing	femur p.	1	42

Table 8 Garretstown 2: Phase 2 unfused cattle specimens present, classified as early, middle or late fusing after Reitz and Wing (1999, 76).

Sheep

Three fully fused specimens were observed for sheep, one from the Early fusing category and one from the Late fusing group. The fused proximal tibia indicates the presence of an animal that achieved a minimum age of 36-42 months (*Ibid*).

SHEEP		No. of specimens	Age in months
Early Fusing	humerus d.	1	3-10
	radius p.	1	3-10
Late Fusing	tibia p.	1	36-42

Table 9 Garretstown 2: Phase 2 fused (fused and fusing) sheep specimens present, classified as early, middle or late fusing after Reitz and Wing (1999, 76).

Horse

For horse, three specimens were recorded as fully fused. Two distal metapodials represent animal(s) of at least 15-20 months old while a fused proximal tibia indicates an animal with a minimum age of 3-3.5 years (Silver 1969, 285-286).

Bone	Ossification Centre	No. of specimens	Age of Fusion
Metapodial	Distal epiphysis	2	15-20mts
Tibia	Proximal epiphysis	1	3-3.5 yrs

Table 10 Garretstown 2: Phase 2 fused horse specimens present with age of fusion after Silver (1969, 285-286).

The limited nature of the ageing data prevents the establishment of age/slaughter patterns. The most plentiful evidence is that for cattle which seems to suggest a dominant presence of mature animals, although some calves are evident when one considers the tooth wear stages for dP4s and M1/2s. The age related data cannot be interpreted as conclusive given the small size of the overall assemblage.

3.3 Metrical Data

Metrical data was recorded where appropriate following recognised measurements. (See Tables A4-A5 of Appendix). In no case was it possible to record a greatest length (GL) or greatest lateral length (GLl). Consequently no estimated shoulder heights (ESH) could be calculated for this assemblage.

3.4 Sex Determination

Sex determination of certain mammalian bone remains is possible through examination of specified characteristics. In the case of pig, the morphology of the root of the permanent canine tooth or the alveolus (where the canine is absent) should be considered in order to distinguish males and females (Schmid 1972, 81). Goat horncores may be classified as male or female based on morphological traits. Cattle metacarpals may be defined as male or female through calculation of the slenderness index (McCormick 1992). Alternatively, if complete metacarpals are few, sex determination may be attempted through examination of the greatest distal width (Bd) of metacarpals (McCormick 1997, 822). The presence of antlers for deer or baculum (*os penis*) for carnivores would indicate male animals. Sex was determined for two elements amongst the Garretstown 2 collection. Two mandibular pig canine teeth (C128 and C129) were identified as male. As there were no distal width (Bd) measurements to record for metacarpals, it was not possible to consider sexing for cattle.

3.5 Butchery/Gnawing/Burning/Pathology/Injury

Butchery was observed in one case for this assemblage where a number of chop marks were noted on the anterior surface of a horse tibia (Plate 1). It was retrieved from C129 for which a radiocarbon date of Cal AD 647-779 (Beta 220138, Oxcal calibrated) was obtained. In addition to the chop marks, the horse tibia also appeared to have been chopped at an angle through the width of its shaft (Plate 2). This may have been for the extraction of marrow. Documentary evidence for horse in Ireland in the Early Medieval period indicates that the church objected to the consumption of horse flesh (McCormick 2007, 92). However the archaeological evidence indicates that horse was, on occasion, consumed during this period but the animal does not appear to have been specifically bred for consumption of its meat (*Ibid*). The context of Early Medieval zooarchaeological evidence consists almost entirely of horse remains being retrieved in association with discarded food waste of other domesticates (*Ibid*). Evidence of cut marks, chop marks and the breaking of long-bones for marrow extraction has been observed amongst the 8th century horse bone remains from Moynagh crannog, County Meath (*Ibid*).

One identified specimen, a sheep/goat distal humerus, provided evidence of burning. This element was completely white and therefore classified as calcined. Other undiagnostic cremated bone fragments were observed amongst the animal bone collection. These were packed separately for examination by the specialist analysing other cremated bone samples such as those retrieved from soil sample flotation or collected by hand during excavation.

Pathology was evident in the case of one cattle first phalanx from Garretstown 2. Stage 2 exostosis (Bartosiewicz *et al* 1997, 46) i.e. bony growth was observed at the proximal articulation where it was heavily concentrated on the cranial and caudal surfaces of the element (Plates 3 & 4). Feint traces of eburnation were also visible on the surface of the proximal epiphysis. This evidence indicates degenerative joint disease (Roberts and Manchester 1995, 99-100).

4. Conclusion

Cattle, sheep/goat, pig and horse were the four species represented in the Garretstown 2 mammalian bone assemblage. While the overall assemblage is very small, the retrieved material is likely to represent discarded food waste. Ageing data was recorded using the methods of tooth wear and epiphyseal fusion, the limited quantity of material prevents construction of statistically reliable age slaughter patterns. However, the ageing evidence produced for cattle suggests a possible dominance of mature animals with some presence of calves/younger animals observed. The age ranges established through tooth and mandible wear evidence compared similarly with that from epiphyseal fusion data in some instances. Metrical data was recorded where possible but this was also very limited and no estimated shoulder heights could be calculated. Determination of sex was possible in two cases for Garretstown 2, two pig canines were confirmed as male. One definite case of butchery was observed for a horse tibia with several chop marks on its anterior surface, it had also been cleanly chopped at an angle through its shaft (Plates 1 & 2). The partial remains of a distal sheep/goat humerus provided the only countable specimen that had been burnt. Pathology was observed in one case where the proximal surface of a cattle phalanx 1 displayed signs of degenerative joint disease (Plates 3 & 4).

5. Recommendations

The ultimate decision on permanent storage of the assemblage will be made by the National Museum of Ireland following dialogue with the excavation licence holder. It should be borne in mind that while this assemblage is small, the majority of it (Phase 2) has been phased as Late Iron Age/Early Medieval in date. Two radiocarbon dates have been obtained from two of the Phase 2 animal bone specimens. In advance of a definitive decision, the collection should be stored in a National Museum approved low-acid box (as used by ACS Ltd.) and be left ready for transfer to NMI. It should be borne in mind that this assemblage forms part of an extensive body of material retrieved from archaeological excavation along the route of the M3 Clonee to North of Kells Road Scheme.

Plate 1 Garretstown 2: Chop marks visible on anterior surface of horse tibia.

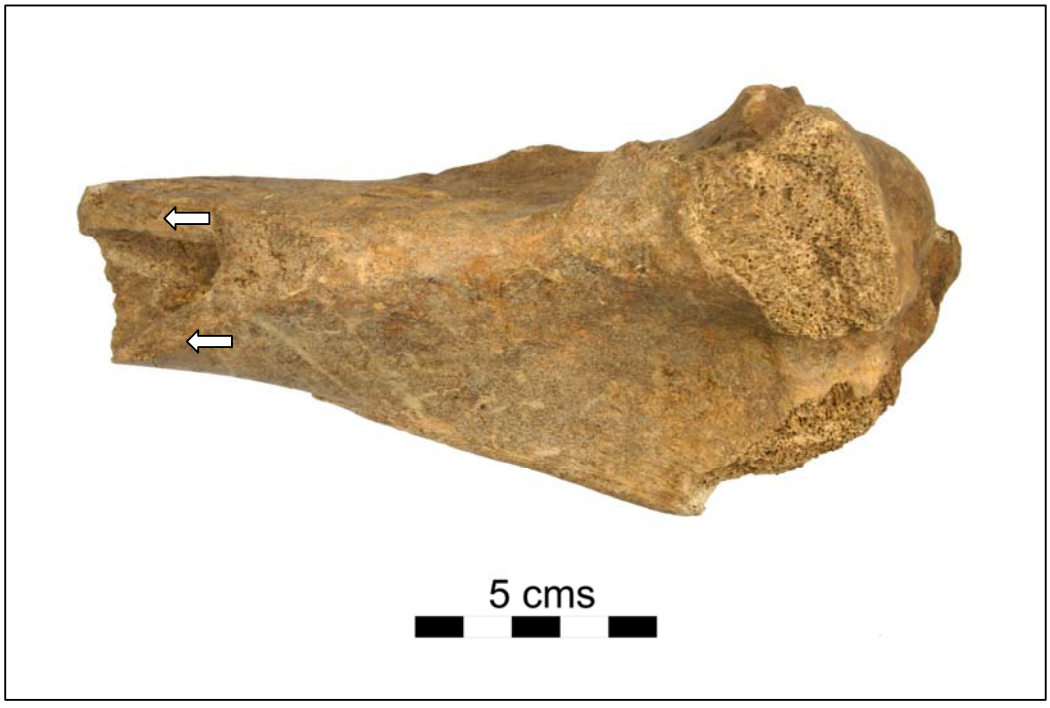


Plate 2 Garretstown 2: Shaft of horse tibia chopped through at surviving distal end.

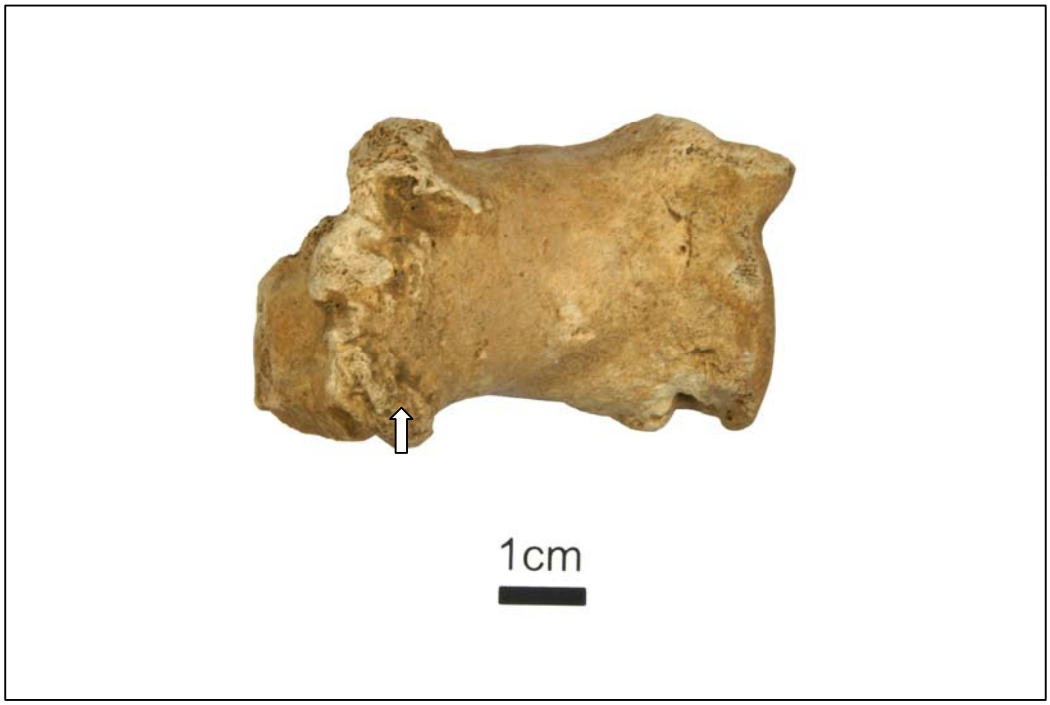


Plate 3 Garretstown 2: Cattle phalanx 1 with Stage 2 exostosis (Bartosiewicz *et al* 1997, 46) present on anterior surface at proximal articulation.

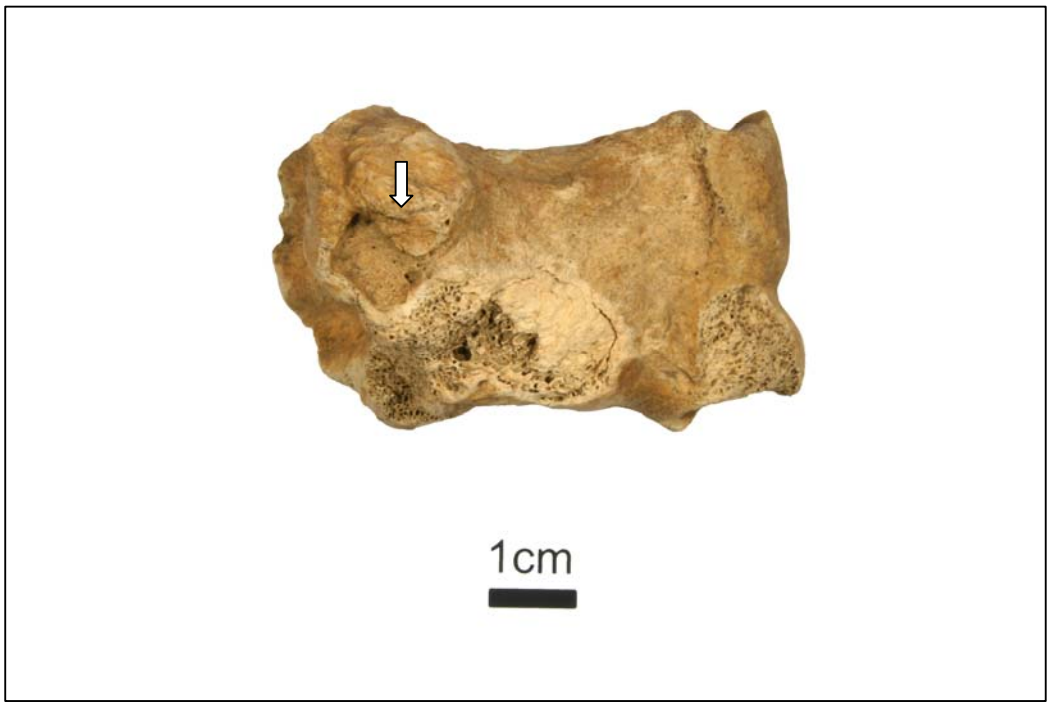


Plate 4 Garretstown 2: Cattle phalanx 1 with Stage 2 exostosis (Bartosiewicz *et al* 1997, 46) present on posterior surface at proximal articulation.

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Appendix

Context	No. of Elements
49	3
106	1
127	3
128	16
129	83
130	3
159	1
177	9
217	2
343	3
349	4

Table A1 Garretstown 2: Number of elements per context.

Context	Species	Element	Number of Elements
49	Cattle	Loose lower incisor	1
49	Cattle	Loose maxillary molar	1
49	Sheep	Horn core	1
106	Cattle	Loose lower M1/2	1
127	Cattle	Loose lower M1/2	1
127	Cattle	Scapula	1
127	Horse	Loose maxillary premolar	1
128	Cattle	Femur	1
128	Cattle	Humerus	1
128	Cattle	Loose lower M1/2	1
128	Cattle	Loose lower M3	1
128	Cattle	Loose lower premolar	1
128	Cattle	Loose maxillary deciduous premolar	2
128	Cattle	Metapodial	1
128	Cattle	Metatarsal	1
128	Cattle	Pelvis	1
128	Cattle	Phalanx 1	1
128	Sheep/Goat	Loose maxillary molar	1
128	Sheep/Goat	Radius	1
128	Sheep	Tibia	1
128	Pig	Loose lower canine (male)	1
128	Pig	Loose maxillary M1/2	1
129	Cattle	Femur	3
129	Cattle	Humerus	1
129	Cattle	Loose lower deciduous premolar	2
129	Cattle	Loose lower incisor	3
129	Cattle	Loose lower M1/2	12
129	Cattle	Loose lower M3	5
129	Cattle	Loose lower premolar	4
129	Cattle	Loose maxillary deciduous premolar	4
129	Cattle	Loose maxillary molar	10
129	Cattle	Loose maxillary premolar	7
129	Cattle	Mandible	7
129	Cattle	Metapodial (MP2)	2 specimens (1 NISP unit)
129	Cattle	Radius	4
129	Cattle	Scapula	2
129	Cattle	Tibia	1
129	Cattle	VC1 (Atlas)	2
129	Horse	Metapodial	2
129	Horse	Tibia	1
129	Pig	Loose lower M3	4
129	Pig	Loose lower canine (male)	1
129	Pig	Loose lower premolar	3
129	Pig	Loose lower M3	1
129	Pig	Loose maxillary molar	1
129	Pig	Loose maxillary premolar	1
130	Cattle	Loose lower M1/2	2
130	Cattle	Metacarpal	1
159	Pig	Loose M3	1
177	Cattle	Loose lower M1/2	1
177	Cattle	Loose maxillary molar	1
177	Cattle	Loose maxillary premolar	1
177	Sheep/Goat	Loose lower M1/2	3
177	Sheep/Goat	Loose lower premolar	1
177	Pig	Loose M3	1
177	Pig	Loose maxillary M1/2	1
217	Cattle	Loose lower M3	1
217	Sheep/Goat	Pelvis	1
343	Cattle	Loose lower incisor	1
343	Sheep/Goat	Humerus	1
343	Pig	Loose maxillary M1/2	1
349	Cattle	Femur	2
349	Cattle	Loose maxillary premolar	1
349	Cattle	Radius	1

Table A2 Garretstown 2: Species and element per context.

Phase	No. of Specimens	%whole bone
2	4	5
2	12	10
2	10	15
2	3	20
2	1	25
2	1	30
2	1	35
2	3	40
2	1	45
2	1	50
2	4	60
2	2	65
2	8	70
2	6	75
2	6	80
2	2	85
2	2	90

Table A3 Garretstown 2: % whole bone surviving for incomplete specimens from Phase 2.
60 other specimens survived as complete elements.

Abbreviation	Description	Source
GLP	Greatest length of glenoid process (in scapula)	vdD
BT	Greatest breadth of trochlea	Payne & Bull
HTC	Height of trochlea	Payne & Bull
Bp	Greatest breadth of proximal end	vdD

Table A4 Garretstown 2: Measurements recorded after von den Driesch (1976) and Payne and Bull (1988).

Phase	Context	Species	Element	No. of specimens	GLP	BT	HTC	Bp
2	127	Cattle	Scapula	1	62.3	0	0	0
2	128	Sheep/goat	Radius	1	0	0	0	25.9
2	129	Cattle	Humerus	1	0	75.4	31.6	0

Table A5 Garretstown 2: Summary of biometrical data recorded (in mm).

APPENDIX 7 *Lithic Report: Eimear Nelis*

M3 Batch 2

CHIPPED AND WORKED STONE ASSEMBLAGE

ANALYSIS, CATALOGUES AND REPORTS

Bennetstown 1 (A017/003)
Bennetstown 3 (A017/005)
Knocks 1 (A017/022)
Leshamstown 1 (A017/025)
Knockmark 1 (A017/028)
Merrywell 1 (A017/029)
Drumree 1 (A017/027)
Johnstown 2 (A017/020)
Johnstown 3 (A017/021)
Ardsallagh 1 (A008/035)
Ardsallagh 2 (A008/034)
Ardsallagh 4 (A008/037)
Ardsallagh 5 (A008/038)
Kennastown 1 (A023/001)
Garretstown 2 (A008/008)

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NOVEMBER 2007

Introduction

During a programme of archaeological testing at the M3 Clonee-North of Kells PPP scheme, an assemblage of chipped, worked and unworked stone was recovered from a total of fifteen sites, namely: Bennetstown 1 (A017/003: 8 pieces); Bennetstown 3 (A017/005: 1 piece); Knocks 1 (A017/022: 45 pieces); Leshamstown 1 (A017/025: 4 pieces); Knockmark 1 (A017/028: 34 pieces); Merrywell 1 (A017/029: 3 pieces); Drumree 1 (A017/027: 5 pieces); Johnstown 2 (A017/022: 10 pieces); Johnstown 3 (A017/021: 16 pieces); Ardsallagh 1 (A008/035: 20 pieces); Ardsallagh 2 (A008/034: 35 pieces); Ardsallagh 4 (A008/037: 2 pieces); Ardsallagh 5 (A008/038: 1 piece); Kennastown 1 (A023/001: 1 piece); Garretstown 2 (A008/008: 17 pieces). For each site assemblage, a similar analytical methodology has been applied (see *Methodology* below). The analysis for each site assemblage is presented individually (Sections 1-15); within each section, the assemblages are quantified and presented in catalogue form,

and the composition of the assemblage is discussed in detail; the distribution of the assemblages is discussed, and the assemblages are discussed in their broader analytical context.

Methodology

All recovered artefacts have been presented for analysis, and have been studied visually and catalogued, and subject to statistical analysis based on the following attributes: contextual information (including context/feature/sample number etc), basic condition, extent of abrasion, material, colour, cortex, basic character and detailed classification, platform and termination type (where relevant for chipped stone), detail of working (where relevant), length (L), breadth (B), thickness (T), fragment size (given in mm) and mass (g). The criteria upon which these attributes have been selected, and the analytical methodology deployed, are presented in further detail elsewhere (Nelis 2003).

Section 15: Garretstown 2 (A008/008)

Introduction

During excavations at Garretstown 2 (A008/008), an assemblage of 17 pieces of flint and chert were recovered from features including boundary ditches, corn drying kilns and possible barrows (Table 15.1).

Unique No	Context	Material	Condition	Cortex	Character	Classification	Fragment size (mm)	Length (mm)	Breadth (mm)	Thickness (mm)	Mass (g)
A008/008:5:15	5	Flint	Fresh	Tertiary	Flake	Platform complete	-	35	28	10	7.87
A008/008:5:16	5	Flint	Abraded	Secondary	Flake	Platform proximal blade shatter	22	-	16	4	1.84
A008/008:5:17	5	Flint	Patinated	Tertiary	Flake	Platform small percussion	-	16	15	3	.76
A008/008:5:18	5	Flint	Patinated	Tertiary	Modified	Knife	35	-	25	6	5.70
A008/008:5:19	5	Flint	Fresh	Secondary	Flake	Platform blade complete	-	35	21	6	4.62
A008/008:47:2	47	Flint	Fresh	Secondary	Modified	Bifacial fragment	25	-	15	9	3.13
A008/008:59:1	59	Flint	Burnt	Secondary	Flake	Platform flake complete	-	23	15	8	2.68
A008/008:87:1	87	Flint	Abraded	Tertiary	Flake	Platform blade complete	-	71	29	9	29.93
A008/008:89:1	89	Flint	Patinated	Tertiary	Modified	Edge retouched: ?knife fragment	28	-	31	6	5.77
A008/008:110:1	110	Flint	Burnt	Secondary	Flake	Bipolar flake complete	-	26	22	8	4.23
A008/008:143:1	143	Flint	Patinated	Secondary	Unworked	Abraded lump	-	14	7	4	.37
A008/008:143:2	143	Chert	Patinated	Tertiary	Unworked	Abraded lump	-	10	6	5	.46
A008/008:167:1	167	Flint	Fresh	Secondary	Flake	Shatter: burin spall	-	25	10	6	1.16
A008/008:209:2	209	Flint	Fresh	Tertiary	Modified	Scraper	22	-	35	10	6.49
A008/008:217:1	217	Flint	Fresh	Tertiary	Flake	Bipolar flake complete	-	14	8	4	.35
A008/008:217:2	217	Flint	Fresh	Secondary	Flake	Bipolar flake complete	-	25	14	9	2.84
A008/008:254:1	254	Flint	Fresh	Tertiary	Flake	Platform flake complete	-	22	12	3	.81

Table 15.1: Garretstown 2 (A008/008): showing basic catalogue of assemblage.

Assemblage composition

The majority of the assemblage is flint (16 pieces), with a single unworked piece of chert being recovered. The bulk of the assemblage is flake debitage (11 pieces), with the remainder being unworked (2 pieces) or modified tools (4 pieces). No cores or angular shatter were recovered.

Distribution

Just under one-third of the assemblage was found in topsoil (C5: 5 pieces), of which most were flake debitage (4 pieces), in addition to a single modified tool, a knife fragment (C5:18). Most of the remainder of the assemblage was found in small quantities in a number of deposits within the ringditches (C47, C87, C89, C209) and other ditches (C59, C143, C167, C217), with some artefacts also being found in other features (C110, C254) (Table 15.2). The majority of these artefacts were flake debitage, but modified tools were found in topsoil and the ringditch fills C087, C089 and C209. Both unworked pieces were recovered from the ditch fill C143 (Table 15.2).

Context No	Description	Unworked	Core	Flake Debitage	Angular shatter	Modified	TOTAL
5	Topsoil	-	-	4	-	1	5
47	Top fill of ringditch C46	-	-	1	-	-	1
59	Fill of ditch C58	-	-	1	-	-	1
87	Second fill of circular ditch C46	-	-	-	-	1	1
89	Fourth fill of circular ditch C46	-	-	-	-	1	1
110	Second fill of feature C108	-	-	1	-	-	1
143	Top fill of ditch C142	2	-	-	-	-	2
167	Fill of ditch C166	-	-	1	-	-	1
209	Top fill of ringditch C208	-	-	-	-	1	1
217	Top fill of ditch C216	-	-	2	-	-	2
254	Charcoal filled feature in ditch C214	-	-	1	-	-	1
	TOTAL	2	-	11	-	4	17

Table 15.2: Garretstown 2 (A008/008): showing assemblage composition and distribution.

Condition

	Unworked	Core	Flake Debitage	Angular shatter	Modified	TOTAL
Material						
Flint	1	-	11	-	4	16
Chert	1	-	-	-	-	1
Condition						
Fresh	-	-	6	-	2	8
Patinated	2	-	1	-	2	5
Abraded	-	-	2	-	-	2
Burnt	-	-	2	-	-	2
TOTAL	2	-	11	-	4	17

Table 15.3: Garretstown 2 (A008/008): showing assemblage composition in relation to material and condition.

Most of the artefacts survived in a fresh (8 pieces) or partially patinated (5 pieces) condition, and had therefore been subject to limited weathering; two pieces had suffered post-depositional abrasion (2 flake debitage), and a further two pieces were in a burnt condition (2 flake debitage) (Table 15.3).

Assemblage analysis

Unworked

Two small pieces of unworked material were found (1 flint, 1 chert), both of which were found in the ditch fill C143. These were small in scale, measuring 14mm or less in maximum dimensions. It is probable that they represent naturally occurring lithics within local soils and it is unlikely that they were ever intended for exploitation.

Primary debitage: cores and flakes

Unique No	Context	Material	Character	Classification	Platform	Termination
A008/008:5:15	5	Flint	Flake	Platform complete	Planar <5mm with edge prep	Plunging
A008/008:5:16	5	Flint	Flake	Platform proximal blade shatter	Pressure facetted	Broken
A008/008:5:17	5	Flint	Flake	Platform small percussion	Planar <5mm with edge prep	Feathered
A008/008:5:18	5	Flint	Modified	Knife	Retouched	Broken
A008/008:5:19	5	Flint	Flake	Platform blade complete	Splintered	Feathered
A008/008:47:2	47	Flint	Flake	Bifacial fragment	Broken	Broken
A008/008:59:1	59	Flint	Flake	Platform flake complete	Planar >5mm	Feathered
A008/008:87:1	87	Flint	Modified	Platform blade complete	Planar <5mm with edge prep	Feathered
A008/008:89:1	89	Flint	Modified	Edge retouched: ?Knife fragment	Broken	Feathered
A008/008:110:1	110	Flint	Flake	Bipolar flake complete	Bipolar	Bipolar
A008/008:167:1	167	Flint	Flake	Shatter: burin spall	Broken	Broken
A008/008:209:2	209	Flint	Modified	Scraper	Broken	Retouched
A008/008:217:1	217	Flint	Flake	Bipolar flake complete	Bipolar	Bipolar
A008/008:217:2	217	Flint	Flake	Bipolar flake complete	Bipolar	Bipolar
A008/008:254:1	254	Flint	Flake	Platform flake complete	Splintered	Plunging

Table 15.4: Garretstown 2 (A008/008): showing platforms and terminations present on flake debitage and modified tools.

While no cores were found, most of the assemblage was flake debitage (Table 15.4). Most of these were produced using platform reduction methods (7 pieces), with a small quantity of bipolar derived artefacts also being found (3 pieces); the remaining piece was a shattered burin spall fragment (C167:1). Most of the platform debitage was in a complete condition (6 pieces), and included flakes (4 pieces) as well as blades (2 pieces); the shattered piece was a proximal blade fragment (C5:16). All of the bipolar debitage was in a complete condition. While the bipolar debitage ranged in length from 14-26mm, the platform debitage had a greater size range, and in general tended to be larger in scale, ranging from 16-71mm in length. It is possible, then, that bipolar techniques were used in order to exploit small scale raw material, which is a common feature of bipolar reduction methods. Whereas bipolar reduction indicates limited control and preparation in the reduction process, the platform assemblage at Garretstown 2 exhibited complexity and careful control in knapping, with surviving platforms invariably being small and carefully prepared before striking (Table 15.4). This indicates that a mindful approach to knapping when using the platform reduction method. No appreciable patterns were discernable within the distribution of the flake debitage assemblage, with all artefacts being found in topsoil, ditch fills and other features (C110).

Angular shatter

No angular shatter was recovered from Garretstown 2.

Modified tools

Four modified tools were found during excavations at Garretstown 2. These included a knife fragment (C5:18: Plate 15.1), an edge retouched tool (C87:1: Plate 15.2), a scraper fragment (C209:1: Plate 15.3) and a fragment of a bifacial tool (C89:1: Plate 15.4).

The knife fragment is the tip of a minimally retouched knife with bilateral curved cutting edges (Plate 15.1). It was found in topsoil (C5:18). As is commonly the case, the tip of the knife was formed on the proximal end of the flake or blade. It is possible that the fragment was reused after breakage, possibly as a piercer, with some post-breakage retouch being found along the broken edge. As a slightly irregular example of a knife, which is also fragmentary, it is difficult to infer a chronological context for this piece, although a broad date during the Neolithic or Bronze Age would be compatible.
The complete form of the bifacial fragment (C89:1) is unclear, and the piece may have been broken during manufacture. It was found in the fill of ringditch C89. The fragment is a lateral sliver of a percussion flaked bifacial tool, perhaps similar to large projectiles (known as 'laurel leaves: Nelis 2003) which tend to be found during the Neolithic period; however, its condition is too fragmentary to conclusively determine that this is the case (Plate 15.2).

The remaining pieces are quite minimally worked, and are examples of opportunistically produced tools which are not typologically comparable to chronologically diagnostic tool types; as such, they are, however, typical of such perfunctorily produced tools which are found throughout the Neolithic and Bronze Age periods at least, and probably are also found during to span the Iron Age and Early Medieval periods. One of these tools, a retouched distal flake fragment, was found in the fill of the circular ditch C46 (C87:1). This piece was minimally edge retouched along one slightly irregular lateral edge and tip and appears to be the remains of a minimally retouched knife. In addition to this, the distal fragment of a minimally retouched scraper was found in the fill of ringditch C208 (C209:1). This piece was formed on a large flake, with the scraping edge being quite squared; some edge-wear along its lateral edges suggest that it may also have been utilised as a cutting tool without having first been retouched.

Discussion

A small assemblage of flint and chert artefacts was recovered from numerous deposits at Garretstown 2. Two small abraded unworked lumps were found, but the assemblage was mainly comprised of flake debitage, which included both platform and bipolar produced pieces. Platform debitage was dominant within the flake debitage assemblage, and also tended to be significantly larger in scale than the bipolar debitage. No cores were found during excavations; nor was any angular shatter recovered.

Given the small quantity of artefacts found, a significant number of modified tools were present, accounting for almost one-quarter of all lithic artefacts. All of the modified tools were fragmentary, and while their original form could, for the most part, be inferred, their incomplete condition hampered a more complete analysis of their chronological and typological significance; in the case of the bifacial fragment, its fragmentary condition was such that its original form could not be inferred, and while this piece may be datable to the Neolithic period, this could not be clearly established. The remaining artefacts include minimally modified tools, which have probably been quite opportunistically produced, and perhaps representing quite short-term use-lives. This is particularly the case with the minimally retouched scraper fragment (C209:1) and the possible fragment of a minimally retouched knife (C87:1). The remaining piece is also a knife fragment (C5:18): although this piece has been more thoroughly worked than the other examples within the assemblage, it is still quite a minimally worked tool, with slightly irregular cutting edges. Its original form has also been altered, in that it was re-worked after breakage and possibly reused as a piercer rather than as a knife.

The characteristics of the modified assemblage point to an informal approach to the production and use of tools, mainly concerned with providing cutting, piercing and scraping functions. Given their informal morphology and fragmentary condition, little can be said of their chronological context, since such perfunctory tools were produced and used throughout both the prehistoric and historic periods in Ireland. The single C14 date was recovered from a context which did not yield lithic artefacts (ie C129), and indicated an Early Medieval date. It is unlikely that all of the lithic assemblage (if any) relates to this period, but it indicates that multi-period occupation activity occurred within the area and the lithic artefacts may have been produced over a significant chronological timeframe.

References

Nelis, E. 2003. *Lithics of the Northern Irish Neolithic*. Unpublished PhD thesis. Belfast: Queen's University, Belfast.

Nelis, E. 2004. 'Neolithic flint-work from the north of Ireland: some thoughts on prominent tool types and their production', pp.155-175, in Gibson, A. and Sheridan, A. *From Sickles to Circles: Britain and Ireland at the time of Stonehenge*. Stroud: Tempus.

Plate 15.1: Garretstown 2 (A008/008): C5:18: Knife tip fragment (showing tip or proximal end at bottom of picture).

Plate 15.2: Garretstown 2 (A008/008): C89:1: Minimally retouched knife fragment, retouched along left side.

Plate 15.3: Garretstown 2 (A008/008): C209:1: Scraper fragment.

Plate 15.4: Garretstown 2 (A008/008): C47:2: Bifacial fragment.

APPENDIX 8 *Petrographical Report: Stephen Mandal*

Notes on Stone Samples from Garretstown 2 – A008/008

EurGeol Dr Stephen Mandal MIAI PGeo

Excavation	Find No	Rock type	Description	Function
A008/008:	128:001	Jasper	Fine grained banded; from ORS	Broken modified cobble; evidence of grinding on original faces to produce facets; part perforation on one (broken) face

Jasper of this type occurs within the Old Red Sandstone facies sandstones and conglomerates that are common in outcrop and in glacial tills. This stone is clearly worked. The ground facets surviving on the faces are consistent with those of stone axeheads, although the function of this piece as it is or before it was broken is unclear.

APPENDIX 9 *Environmental Report*

Archaeological Services
University of Durham

Garretstown 2, M3 Motorway Project, Co Meath, Ireland

plant macrofossil, charcoal and cremated bone analysis

on behalf of
Archaeological Consultancy Services Ltd

Report 1930
September 2008

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Garretstown 2, M3 Motorway Project, Co Meath, Ireland

plant macrofossil, charcoal and cremated bone analysis

Report 1930
September 2008

Archaeological Services Durham University

on behalf of

Archaeological Consultancy Services Ltd
Unit 21 Boyne Business Park, Greenhills, Drogheda, Co. Louth, Ireland

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Contents

1. Summary

The project

1.1 An excavation was undertaken by Archaeological Consultancy Services Ltd at Garretstown 2, Co Meath, Ireland. Bronze Age and Iron Age/early medieval activity were identified on the site. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of pit, ditch and kiln fills excavated on the site.

Results

1.2 Charcoal was present in all of the Bronze Age contexts, but non-wood plant macrofossils were absent. The results of the charcoal analysis suggest that alder was abundant in the local landscape and may have been used for structural purposes.

1.3 Analysis of the Iron Age/early medieval contexts indicated that 6-row hulled barley and oats formed a part of the diet at that time, and flax was used to produce fibre, oil and/or fodder. The main function of the kilns was grain-drying, with a range of wood species being used for fuel.

1.4 Cremated bone was recovered from 34 contexts associated with the Bronze Age and Iron Age/early medieval activity. Animal bone was present in 15 of them, and possible human bone was present in contexts (15) and (57). The material from the remaining contexts could not be differentiated between animal or human bone. A considerable proportion of the bone from most contexts had been burnt at high temperatures and achieved full oxidation, although partially oxidized bone was present in several contexts. 9 contexts contained charred bone that had probably been burnt at low temperatures.

2. Project background

Location and background

2.1 An excavation was undertaken by Archaeological Consultancy Services Ltd at Garretstown 2, Co Meath, Ireland (NGR 296021 254807). Garretstown 2 consists of a complicated site with two main phases of activity. The first phase of the site is represented by a Bronze Age ringditch cemetery, which included 2 large ringditches and 5 smaller ones. The second phase of the site is represented by a series of linear ditches and a sub-rectangular enclosure with a large ditch extending and lying mainly outside the landtake. Corn-drying kilns were also assigned to this phase, which has been dated to the Iron Age/early medieval period. This report presents the results of plant macrofossil, charcoal and cremated bone analysis of the pit, ditch and kiln fills.

Objective

2.2 The objective was to analyse the plant macrofossils, charcoal, and cremated bone from the site, in order to provide information about the diet, land use and local environment.

Dates

2.3 Samples were received by Archaeological Services Durham University in November 2007. Analysis and report preparation was conducted between November 2007 – September 2008.

Personnel

2.4 Sample processing was undertaken by Archaeological Consultancy Services Ltd. Charcoal and charred seed identifications were carried out by Dr Charlotte O'Brien. Cremated bone analysis was by Dr Anwen Caffell, with faunal identifications by Ms Louisa Gidney. Residues were sorted by Mr Lorne Elliott.

Archive

2.5 The licence number is A008/008. The charcoal, flots and bone samples are currently held at the Environmental Laboratory at Archaeological Services Durham University awaiting collection or return.

3. Plant macrofossil and charcoal analysis

Methods

3.1 The residues were examined for plant remains, shells, bones, pottery sherds and metalworking debris. The dry flots were scanned at up to x60 magnification using a Leica MZ7.5 stereomicroscope for charred and waterlogged plant remains. Identification of these was undertaken by comparison with modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. Plant taxonomic nomenclature follows Stace (1997). Flots which contained substantial quantities of charred grain were sub-sampled using a riffle box, the results of which were multiplied up to give an estimate of the contents of the full flot.

3.2 Charcoal was collected from the residues and flots and added to pre-sorted material. Following Boardman (1995), identifications were made on fragments >4mm. At least 100 fragments were identified from each context, where available. The transverse, radial and tangential sections were examined at up to x600 magnification using a Leica DMLM microscope. Identifications were assisted by the descriptions of Hather (2000), and modern reference material held in the Environmental Laboratory at Archaeological Services Durham University. The different species were weighed separately. Charcoal and charred cereal grains were provided for radiocarbon dating.

Results

3.3 Charcoal was present in most of the residues and flecks of calcined bone were frequent. Possible fire-cracked stones were also occasionally recorded. The results of the environmental analysis are presented in Appendix 1.1-1.5.

Phase 1 – Bronze Age

3.4 Charcoal was present in all of the Phase 1 contexts, but charred plant macrofossils were absent. Charcoal fragments were most abundant in the pit and ringditch fills, and were dominated by alder (Figure 3.1). Pit fill (140) also comprised numerous willow/poplar and indeterminate bark fragments. Hazel, ash, Maloideae (Hawthorn, whitebeams, apple and pear), blackthorn and oak were present in small amounts in the kiln fills. The charcoal layer (context 240) comprised hazel, willow/poplar and indeterminate bark.

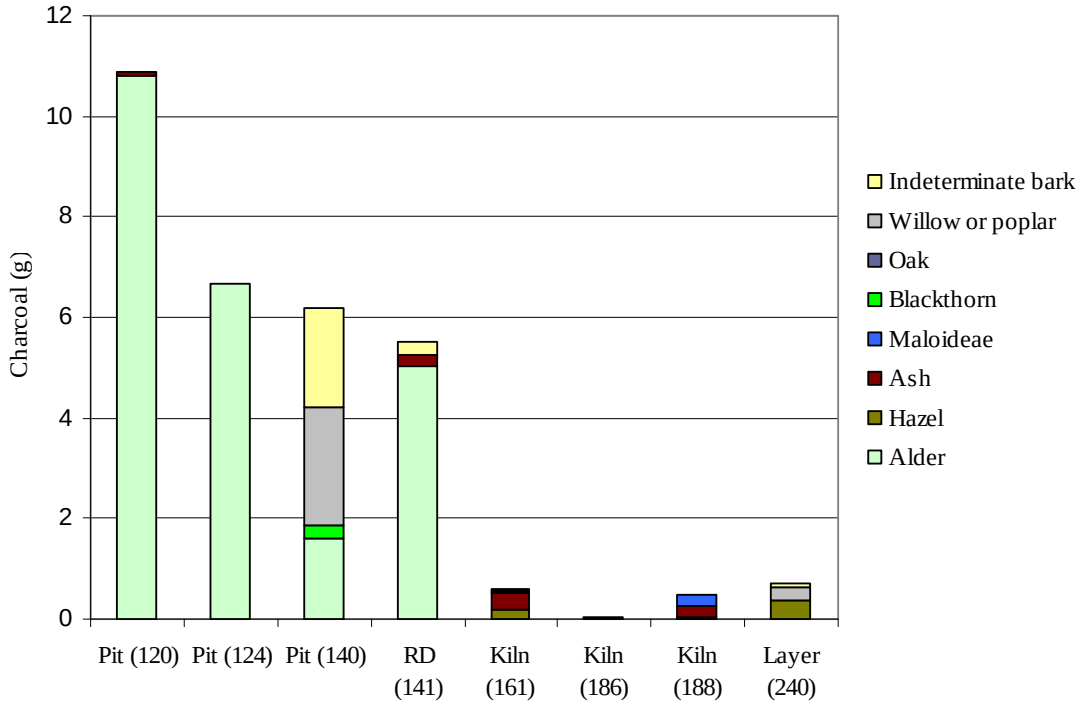

Figure 3.1: Proportions of identified charcoal from the Phase 1 contexts

Phase 2 – Iron Age / Early Medieval

3.5 Most of the Phase 2 contexts contained charred plant macrofossils, which were dominated by barley grains. These were particularly abundant in the kiln fills, but large numbers of charred grains were also present in some ditch and pit fills. Although the grains were in a poor condition, many could be identified as hulled barley, and a proportion had the characteristic twisted morphology of 6-row barley. Barley chaff was also occasionally recorded.

3.6 Oat grains were also common in most of the Iron Age/early medieval flots. Floret bases of the cultivated species (*Avena sativa*), and numerous awn fragments, were recorded in ditch fill context (254). Wheat grains were recorded in 10 contexts, but were always in low numbers relative to the barley and oat grains. A range of charred weed seeds were recorded in most of the flots, which were predominantly from arable and ruderal species. 3 charred flax seeds occurred in pit/posthole fill context (79).

3.7 The charcoal from the Phase 2 kiln fills comprised a range of wood species, with oak, alder, hazel and Maloideae being most frequently recorded (Figure 3.2).

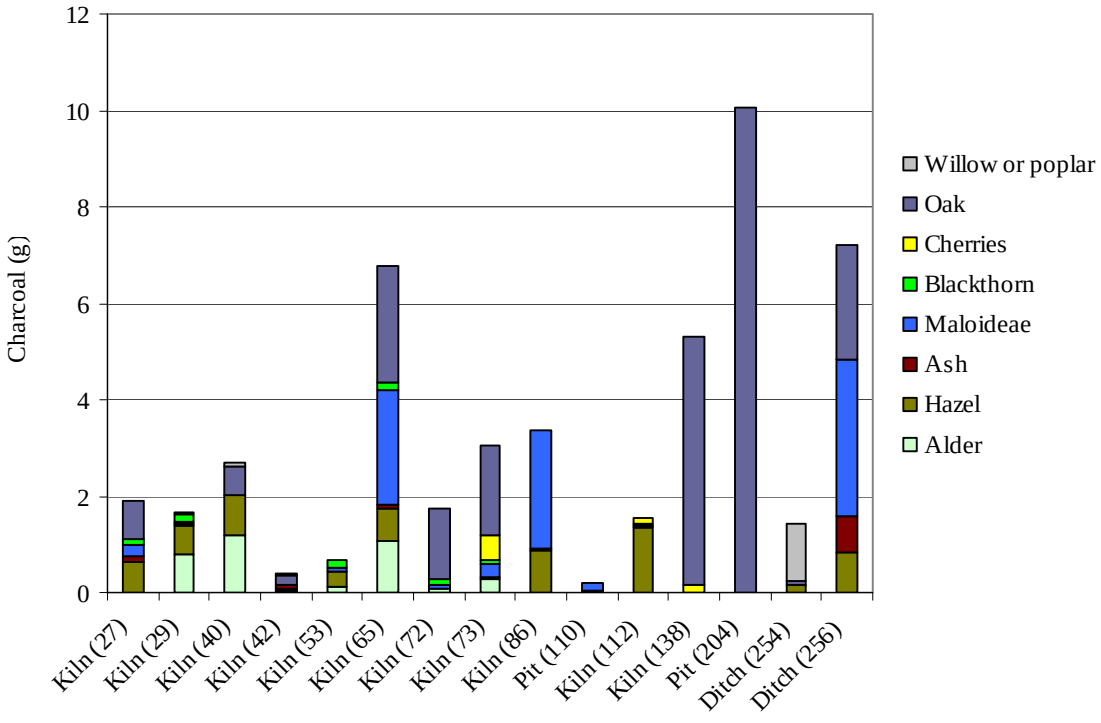

Figure 3.2: Proportions of identified charcoal from the Phase 2 contexts

3.8 Ditch fill (256) was predominantly made up of oak and Maloideae, while willow/poplar was the most frequently recorded taxon in ditch fill (254) (Figure 3.2). Pit fill (204) contained a large amount of charcoal, which was made up entirely of oak stemwood (timber).

Discussion

Cultivated plants

3.9 Unfortunately, the absence of charred cultivated plant remains in the Bronze Age contexts prevents a discussion of the crops used at that time.

3.10 Barley grains dominated the Iron Age/early medieval charred assemblages. A large number of these were hulled, and both straight and twisted grains were recorded. The presence of twisted grains indicates the use of 6-row barley, as 2-row barley crops consist solely of straight grains. The ratio of twisted to straight grains in a 6-row crop is 2:1. The average ratio of twisted to straight grains at Garretstown 2 was 1.3:1, which points at a predominance of 6-row barley. However, it should be noted that a large proportion of the grains could not be differentiated due to their poor condition, and therefore the proportions identified may not be a true reflection of the whole assemblage.

3.11 Oats were also frequently recorded in the Iron Age/early medieval contexts. The large size of many of the grains, and the presence of floret bases of *Avena sativa*, indicates that these are from the cultivated rather than wild species. Smaller quantities of wheat grains were also occasionally recorded, and although the morphology of wheat grains is variable, one in context (256) had the short, stout appearance of bread wheat (*Triticum aestivum*).

3.12 The predominance of 6-row hulled barley is in line with other studies which suggest this was a common crop of the Iron Age and early medieval in Ireland (McClatchie 2007; Monk 1986). Oats also frequently occurs on Iron Age sites and became widely cultivated during the early medieval (Johnston 2007; Monk 1986). Barley and oats were the main crops identified from other Iron Age and early medieval sites along the M3 corridor such as Clowanstown 3 (Archaeological Services 2008a) and Lismullin 1 (Archaeological Services 2008b), and from early medieval sites recently studied in Co. Laois, including Killeany 1 (Archaeological Services 2008c) and Derrinsallagh 3 (Archaeological Services 2008d). Barley and oats can be used in both human and animal foodstuffs, and 6-row barley was favoured as it is a relatively hardy crop. Their dominance may indicate that this was not a particularly high-status site, as these crops were low on the list of relative prestige of cereals outlined in the 8th century law text Bretha Déin Chécht (Binchy 1966). However, the presence (albeit in low numbers) of possible bread wheat, indicates that the inhabitants of Garretstown 2 had access to higher-status cereals.

3.13 A few charred flax seeds were recorded in pit/posthole fill context (79). This versatile crop may have been cultivated to produce linseed oil for food, preservative or medicinal uses, and/or the fibres may have been extracted to produce linen clothing, ropes or sacking. The by-products of oil and fibre production could also have been used as fodder or fuel. Other Irish records of flax include those from levels dated to approximately 900 AD at Fishamble Street, Dublin (Geraghty 1996), and the late prehistoric site at Lismullin 1 (Archaeological Services 2008b).

The features

3.14 The function of the Bronze Age pits and kilns is unclear, but the absence of cultivated plant remains may indicate that they had a non-domestic use. However, the remains of pig and sheep/goat which occurred in kiln fill (161)(see section 4) may represent some domestic activity or the remains of ceremonial food offerings.

3.15 The majority of the Iron Age/early medieval contexts were kiln fills. The abundance of cereal grains suggests their main function was for drying the barley and oat crops prior to storage or grinding. The low numbers of chaff fragments and weed seeds relative to grain, indicates that the crops had been cleaned prior to drying. The charred grain represents batches that were accidentally burnt during the process; the relatively poor condition and surface pitting of the grains suggests exposure to intense heat (Boardman and Jones 1990). The incorporation of charcoal indicates that the fills represent a mixture of both the processed crop and the fuels used for drying. The occurrence of some charred weed seeds and chaff, may indicate that crop-processing waste was also used as a fuel. In some of the contexts calcined animal bone was recorded (see section 4), suggesting that the kilns were used to dispose of other food waste.

3.16 Most of the ditch fills contained few, if any, charred plant remains, but relatively large numbers of charred grains occurred in ditch fills (254) and (256). Numerous fragments of charred oats chaff were also recorded in context (254) and these fills are likely to represent deposits of domestic waste from cooking and grain-drying activities. The fills of pits/postholes (79) and (81) also include accumulations of domestic waste.

Palaeoenvironment and woodland resources

3.17 Charcoal from the Bronze Age contexts was most abundant in the pit and ringditch fills. This was dominated by alder, which would have occupied wetland areas near the site. The proximity of waterlogged soils suggests that all or a majority of the fragments identified as Salicaceae (Willow/poplar) in contexts (140) and (240), are likely to be willow. The Bronze Age kiln fills and charcoal layer (240), suggest that wood from hazel, ash, Maloideae, blackthorn and oak trees were also collected, which would have grown on more well-drained soils near the site.

3.18 The alder charcoal in the pit and ringditch fills was predominantly from stemwood rather than branchwood (Appendix 1.5), which may indicate that alder was being used for structural purposes. This may have been chosen because of its availability in the local landscape or because alder preserves well in waterlogged conditions. The charcoal in the kiln fills and charcoal layer are likely to reflect wood used for fuel.

3.19 The charcoal from the Iron Age/early medieval contexts suggests the presence of mixed deciduous woodland comprising oak and ash, with hazel, Maloideae and blackthorn growing in the understorey or by the woodland margins. Elm also formed a minor woodland component. Wetland areas, supporting individual stands of alder or alder carr, continued to exist near the site,

however, alder was not as abundant in the Phase 2 assemblages, which may reflect a reduction in their numbers in the local landscape. This could have resulted from their exploitation in the earlier prehistoric phase, or could reflect drier climatic conditions which would have encouraged the expansion of woodland which favours more free-draining soils. Salicaceae charcoal may represent willows growing with alder on the waterlogged soils, or poplar trees which would have thrived in drier conditions.

3.20 All of the above woods were used for fuel for the kilns, and both stemwood and branchwood was recorded. This suggests that wood from mature trees was used for firewood, in addition to the gathering of smaller branches. Oak was frequently recorded and makes a particularly good firewood, as it burns slowly producing intense heat (O'Donnell 2007). Pit fill (204) contained a large amount of charcoal, which was made up entirely of oak stemwood. This may again represent fuel, or the remains of a burnt structural timber. As mentioned in paragraph 3.16, the ditch fills (254) and (256) are likely to represent domestic fuel waste, and their charcoal assemblages are similar to those of the kiln fills.

3.21 Charred weed seeds were recorded in the Phase 2 contexts. Many such as stinking chamomile, fat-hen, nettle-leaved goosefoot and black-bindweed are likely to have grown as arable weeds among the cereal crops. Redshank, knotgrass, docks and nipplewort may also have grown with the cereals, or on other areas of disturbed ground near the site. Sedges and pale persicaria favour damp soils, while ribwort plantain is a weed of open, pasture land.

4. Cremated bone analysis

Methods

4.1 58 samples of cremated bone from 34 contexts were presented for analysis, with a total weight of 209.7g. Each sample of bone was passed through a nest of sieves, with mesh sizes of 10mm, 5mm, and 2mm (McKinley 2004). Each fraction was weighed and the largest fragment of bone was measured.

Results and interpretation

4.2 Summary data for each context is presented in Table 4.1. The fraction weights and fragment size data per context are given in Table 4.2.

4.3 The amount of cremated bone recovered per context ranged from 0.1g to 52.2g. The latter came from context (27), which formed part of the fill of kiln (16). The amount of bone in the majority of contexts was extremely small, with 24 weighing <5g, 9 of which weighed <1g (Table 4.1).

4.4 The bone from the majority of contexts tended to be moderately to severely fragmented, with the bulk of the material in the middle or smallest sieved fractions (Table 4.2). Twenty-one contexts contained no material in the largest sieved fraction. The maximum fragment size ranged from 5.5mm (context 254) to 32.0mm (context 55).

Table 4.1: Summary of cremated remains

Context	Context Detail	Bone Colour	Species	Weight (g)
4	Topsoil	Brown/ black to white	Animal	2.1
15	Fill of pit (14)	Pale grey/ white, occasional black	Human?	30.3
19	Fill of small ditch (18)	Pale grey	Animal	3.4
25	Fill of kiln (16)	Pale grey/ white, some black	Unknown	4.9
27	Fourth fill of kiln (16)	Mid to pale grey/ white, some black	Animal	52.2
29	Sixth fill of kiln (16)	Pale grey/ white	Unknown	1.3
30	Kiln	Pale grey/ white	Unknown	0.3
39	Top fill of ringditch (38)	White, occasional black, some light brown	Animal	21.0
40	Second fill of kiln (14)	White, some dark grey/ black	Unknown	6.0
41	Second fill of kiln (14)	White	Unknown	0.5
42	Fourth fill of kiln (14)	White, grey, occasional brown/black	Animal	6.4
43	Fifth fill of kiln (14)	White	Unknown	1.6
44	Sixth fill of kiln (14)	Black to pale grey/ white	Unknown	0.9
47	Top fill of ringditch	White	Unknown	4.6
49	Top fill of ditch (48)	Brown, flecks black	Animal	2.0
53	Fill of kiln (52)	Brown	Animal	1.8
55	Fill of linear (54)	Light brown, flecks black	Animal	2.6
56	Ditch	Light brown, flecks black, occasional white	Animal	13.0
57	Ditch	White	Human?	13.9
59	Fill of ditch (58)	Brown/ black, some white	Animal	0.5
72	Second fill of kiln (70)	White, parts dark grey	Unknown	1.7
79	Posthole/pit	Pale grey/ white	Unknown	1.8
81	Posthole/pit	White	Unknown	1.3
97	Fill of ditch (96)	White	Unknown	6.2
99	Fill of wide ditch	White	Unknown	7.0
105	Second fill of (56)	White, grey	Unknown	0.6
110	Pit	White	Unknown	0.8
112	Kiln	White	Unknown	0.1
115	Fill of pit (114)	White	Animal	1.8
124	Pit	White	Unknown	0.3
130	Fill of circular ditch (126)	White	Unknown	4.3
161	Top fill of possible kiln (160)	White	Animal	3.0
184	Pit	White	Unknown	0.2
186	Kiln	White	Unknown	0.4
187	Fill of possible kiln (160)	White	Unknown	0.1
188	Fill of possible kiln (160)	White, some brown and grey	Unknown	0.3
204	Second fill of pit (202)	Brown, flecks black	Animal	2.2
209	Top fill of ringditch (208)	White	Animal	11.4
217	Top fill of ditch (216)	Pale brown	Animal	1.4
254	Pocket with charcoal in ditch (214)	Brown	Unknown	0.1
259	Fill in ditch (242)	Brown	Unknown	0.3
339	Second fill of pit (330)	Grey, white	Unknown	0.3
429	Fill of pit (428)	White	Unknown	1.6

Table 4.2: Fraction weights and fragment size

Context	Total Weight	Fraction Weights						Max. Frag Size
		>10mm		5-10mm		2-5mm		
	g	g	%	g	%	g	%	mm
4	2.1	0.0	0.0	1.2	57.1	0.9	42.9	14.7
15	30.3	3.0	9.9	16.3	53.8	11.0	36.3	22.1
19	3.4	0.0	0.0	1.9	55.9	1.5	44.1	18.5
25	4.9	1.7	34.7	2.4	49.0	0.8	16.3	21.0
27	52.2	10.6	20.3	26.6	51.0	15.0	28.7	29.4
29	1.3	0.0	0.0	0.5	38.5	0.8	61.5	11.0
30	0.3	0.0	0.0	0.3	95.0	<0.1	5.0	10.0
39	21.0	4.0	19.0	13.2	62.9	3.8	18.1	28.0
40	6.0	0.9	15.0	3.3	55.0	1.8	30.0	18.5
41	0.5	0.0	0.0	0.4	80.0	<0.1	20.0	10.3
42	6.4	0.0	0.0	1.7	26.6	4.7	73.4	13.9
43	1.6	0.0	0.0	0.9	56.3	0.7	43.8	13.6
44	0.9	0.0	0.0	0.4	44.4	0.5	55.6	9.7
47	4.6	0.0	0.0	3.4	73.9	1.2	26.1	12.8
49	2.0	0.0	0.0	1.3	65.0	0.7	35.0	23.9
53	1.8	0.0	0.0	1.1	61.1	0.7	38.9	17.4
55	2.6	1.9	73.1	0.1	3.8	0.6	23.1	32.0
56	13.0	1.4	10.8	5.2	40.0	6.4	49.2	26.1
57	13.9	6.7	48.2	6.4	46.0	0.8	5.8	30.1
59	0.5	0.0	0.0	0.2	40.0	0.3	60.0	11.5
72	1.7	0.0	0.0	1.3	76.5	0.4	23.5	16.5
79	1.8	1.2	65.0	0.4	26.0	0.1	9.0	15.0
81	1.3	1.2	94.0	0.0	0.0	0.7	6.0	17.0
97	6.2	4.8	77.4	1.2	19.4	0.2	3.2	28.6
99	7.0	0.5	7.1	5.8	82.9	0.7	10.0	22.5
105	0.6	0.0	0.0	0.3	50.0	0.3	50.0	10.2
110	0.8	0.0	0.0	0.6	74.0	0.2	26.0	15.0
112	0.1	0.0	0.0	<0.1	58.0	<0.1	42.0	6.0
115	1.8	0.0	0.0	1.5	83.3	0.3	16.7	15.0
124	0.3	0.0	0.0	0.3	100.0	0.0	0.0	14.0
130	4.3	3.0	69.8	1.3	30.2	0.0	0.0	29.3
161	3.0	1.3	43.3	0.9	30.0	0.8	26.7	16.5
184	0.2	0.0	0.0	0.2	76.0	<0.1	24.0	7.0
186	0.4	0.0	0.0	0.0	0.0	0.4	100.0	8.0
187	0.1	0.0	0.0	0.0	0.0	0.1	100.0	6.7
188	0.3	0.0	0.0	0.0	0.0	0.3	100.0	7.5
204	2.2	0.0	0.0	2.0	90.9	0.2	9.1	19.4
209	11.4	3.7	32.5	5.4	47.4	2.3	20.2	27.4
217	1.4	0.0	0.0	0.5	35.7	0.9	64.3	17.6
254	0.1	0.0	0.0	0.0	0.0	0.1	100.0	5.5
259	0.3	0.0	0.0	0.2	66.7	0.1	33.3	10.7
339	0.3	0.0	0.0	0.2	66.7	<0.1	33.3	8.5
429	1.6	0.4	25.0	1.2	72.0	<0.1	3.0	10.0

4.5 Bone colour varied considerably. Bone from 13 of the contexts was white or pale grey in colour, implying exposure to high temperatures in excess of *c.* 600ºC (McKinley 2004), and a further 10 contexts contained predominantly white bone with small areas of darker grey or black, which was almost completely oxidised (Table 4.1). Nine contexts contained bone that was predominantly brown or black, suggesting it had been charred at low temperatures of *c.* 300ºC or less (ibid.). Two contexts contained bone that ranged from brown or black (charred), though grey (incompletely oxidised) to white (fully oxidised).

4.6 All fragments were examined with a view to identification. Fifteen of the contexts contained animal remains, including pig and cattle tooth fragments, and pig and sheep/goat metapodials (Table 4.3). One small fragment of bone from context (15), was probably part of a lower jaw and was very tentatively identified as human (Appendix 2.1). Context (57), a ditch fill, also contained two fragments of bone that could possibly have been human (Appendix 2.1). These included a fragment of cranial vault (0.9g) and a possible fragment of tibia (shin bone; 1.9g). Neither piece was diagnostic, and it is not certain that they were human. Seven fragments of cranial vault (2.4g) were found in context (99), a wide ditch, but identification of species was impossible. Unfortunately, none of the material from any of the remaining contexts could be identified, and it was not possible to determine whether it was animal or human.

Table 4.3: Faunal identifications

Context	Species
4	Indet. animal tooth fragments
19	Indet. animal tooth fragments Cattle tooth fragments
27	Cattle tooth fragments
39	Cattle tooth fragments
42	Indet. animal tooth fragments
49	Cattle tooth fragments
53	Cattle tooth fragments
55	Cattle tooth fragments
56	Cattle tooth fragments
59	Indet. animal tooth fragments
115	Pig metapodial
161	Pig tooth fragment Sheep/goat metapodial
204	Cattle tooth fragments
209	Indet. animal tooth fragments
217	Cattle tooth fragments

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Appendix 1.1: Environmental analysis - Phase 1 contexts (Bronze Age)

Context	120	124	140	141	161	186	187	188	240
Sample	46	48	49	51	55	58	56	57	13
Feature	Pit	Pit	Pit	Ringditch	Kiln	Kiln	Kiln	Kiln	Charcoal
Material available for radiocarbon dating	✓	✓	✓	✓	✓	-	-	✓	✓
Volume of flot (ml)	-	-	-	-	10	-	-	-	10
Residue matrix (relative abundance)									
Bone (calcined)	1	1	-	-	1	1	1	1	-
Charcoal	3	1	2	1	1	1	2	1	2
Cracked/angular stones	-	-	-	-	-	-	1	-	1
Flot matrix (relative abundance)									
Charcoal	-	-	-	-	1	-	-	-	2
Roots (modern)	-	-	-	-	1	-	-	-	1
Charcoal (g/number of fragments)									
Total charcoal (g)	243.774	24.227	28.715	47.172	1.852	5.004	0.1	0.846	6.38
Percentage of sample analysed	10	100	100	37	100	100	100	100	100
Total charcoal analysed >4mm (g)	10.874	6.677	6.175	5.519	0.592	0.026	0	0.478	0.693
Number of analysed fragments >4mm	117	82	163	106	13	2	0	6	21
Alnus glutinosa (Alder)	10.799 (116F)	6.677 (82F)	1.601 (26F)	5.049 (100F)	-	-	-	0.055 (1F)	-
Corylus avellana (Hazel)	-	-	-	-	0.188 (5F)	0.012 (1F)	-	-	0.360 (12F)
Fraxinus excelsior (Ash)	0.075 (1F)	-	-	0.210 (1F)	0.329 (5F)	0.014 (1F)	-	0.217 (3F)	-
Maloideae (Hawthorn, whitebeams, apple, pear)	-	-	-	-	0.033 (1F)	-	-	0.206 (2F)	-
Prunus spinosa (Blackthorn)	-	-	0.277 (9F)	-	0.015 (1F)	-	-	-	-
Quercus sp (Oak)	-	-	-	-	0.027 (1F)	-	-	-	-
Salicaceae (Willow or poplar)	-	-	2.339 (60F)	-	-	-	-	-	0.273 (7F)
Indeterminate bark	-	-	1.958 (68F)	0.260 (5F)	-	-	-	-	0.060 (2F)
Unidentified <4mm fraction	138.77	17.55	22.54	32.448	1.026	4.978	0.1	0.368	5.687

F = number of charcoal fragments. Relative abundance is based on a scale from 1 (lowest) to 5 (highest)

Appendix 1.2: Environmental analysis - Phase 2 kiln fills (Iron Age/early medieval)

Context		27	29	30	32	40	42	43	44	53	65	72	73	86	112	138
Sample		4+18	5+19	6	7+22	20	1,12+16	2	3+17	8	26	14	15	29	45	50
Feature		Kiln	Kiln	Kiln	Kiln	Kiln	Kiln	Kiln	Kiln	Kiln	Kiln	Kiln	Kiln	Kiln	Kiln	Kiln
Material available for radiocarbon dating		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Volume of flot (ml)		100	200	3	20	60	100	20	10	10	80	10	20	-	30	-
Residue matrix (relative abundance)																
Bone (burnt)		-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Bone (calcined)		1	1	1	1	1	1	1	1	1	-	1	-	-	1	1
Charcoal		1	1	1	1	1	1	1	1	1	2	2	2	-	1	3
Cracked/angular stones		3	-	-	-	2	1	-	-	-	-	1	-	-	2	-
Flot matrix (relative abundance)																
Bone (calcined)		-	-	1	-	-	-	-	-	1	-	1	-	-	-	-
Charcoal		1	2	-	1	1	1	1	1	1	1	1	-	-	-	-
Roots (modern)		2	-	1	1	1	1	1	1	1	1	1	-	-	1	-
Charcoal (g/number of fragments)																
Total charcoal (g)		3.591	3.275	-	-	4.885	0.99	-	-	1.508	12.789	3.066	5.867	6.103	2.6	25.784
Percentage of sample analysed		100	100	-	-	100	100	-	-	100	100	100	100	100	100	100
Total charcoal analysed >4mm (g)		1.883	1.702	-	-	2.7	0.391	-	-	0.654	6.784	1.76	3.059	3.368	1.533	5.288
Number of analysed charcoal fragments >4mm		45	40	-	-	41	8	-	-	22	103	51	75	33	22	134
Alnus glutinosa (Alder)		-	0.792 (21F)	-	-	1.202 (22F)	0.051 (2F)	-	-	0.120 (4F)	1.063 (17F)	0.082 (2F)	0.275 (6F)	-	-	-
Corylus avellana (Hazel)		0.642 (17F)	0.584 (11F)	-	-	0.801 (1F)	0.037 (1F)	-	-	0.296 (11F)	0.683 (14F)	-	0.045 (2F)	0.876 (10F)	1.343 (17F)	-
Fraxinus excelsior (Ash)		0.093 (3F)	0.053 (1F)	-	-	-	0.061 (1F)	-	-	0.017 (1F)	0.093 (2F)	-	-	0.042 (1F)	0.050 (2F)	-
Maloideae (Hawthorn, whitebeams, apple, pear)		0.254 (7F)	0.030 (1F)	-	-	-	-	-	-	0.084 (2F)	2.357 (39F)	0.088 (3F)	0.259 (9F)	2.450 (22F)	0.020 (1F)	-
Prunus spinosa (Blackthorn)		0.125 (2F)	0.170 (3F)	-	-	-	-	-	-	0.137 (4F)	0.148 (2F)	0.113 (2F)	0.114 (3F)	-	-	-
Prunus spp (Cherries)		-	-	-	-	-	-	-	-	-	-	-	0.507 (8F)	-	0.120 (2F)	0.165 (5F)
Quercus sp (Oak)		0.769 (16F)	0.049 (2F)	-	-	0.598 (15F)	0.225 (3F)	-	-	-	2.440 (29F)	1.477 (44F)	1.859 (47F)	-	-	5.123 (129F)
Salicaceae (Willow or poplar)		-	-	-	-	0.100 (3F)	0.017 (1F)	-	-	-	-	-	-	-	-	-
Ulmus sp (Elm)		-	0.024 (1F)	-	-			-	-	-	-	-	-	-	-	-
Unidentified <4mm fraction		1.708	1.573	-	-	2.185	0.599	-	-	0.854	6.005	1.306	2.808	2.735	1.067	20.496
Charred remains (total number)																
(a) *Anthemis cotula* (Stinking chamomile)	seed	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
(a) *Chenopodium album* (Fat-hen)	seed	1	49	-	11	-	9	-	-	-	-	-	-	-	-	-
(a) *Chenopodium murale* (Nettle-leaved goosefoot)	seed	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(a) *Fallopia convolvulus* (Black Bindweed)	nutlet	7	18	-	2	4	18	7	1	-	31	-	-	-	3	-
(c) *Avena* spp (Oat species)	grain	14	44	-	28	6	161	15	4	-	11	-	3	-	-	-
(c) *Hordeum vulgare* (6-row hulled barley)	twisted grain	68	198	-	32	29	188	26	-	-	30	-	-	-	-	-
(c) *Hordeum* spp (Hulled barley)	straight grain	42	85	-	41	29	176	3	-	-	10	-	-	-	-	-
(c) *Hordeum* spp (Hulled Barley)	grain	23	118	2	22	31	165	17	3	-	6	-	-	-	14	-
(c) *Hordeum* spp (Barley species)	grain	716	2551	51	386	525	647	302	233	2	472	18	139	-	212	59
(c) *Hordeum* spp (Barley species)	rachis frag.	2	6	-	-	21	1	-	1	-	1	-	2	-	13	-
(c) *Triticum* spp (Wheat species)	grain	7	88	1	5	1	-	-	1	-	-	-	-	-	-	-
(c) Cerealia indeterminate	grain	59	18	-	-	-	90	-	-	-	-	-	-	-	-	-
(r) *Persicaria maculosa* (Redshank)	nutlet	42	10	1	6	10	25	5	5	-	24	-	6	-	5	1
(r) *Polygonum aviculare* (Knotgrass)	nutlet	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-
(w) *Carex* spp (Sedges)	trigonous nutlet	10	18	-	-	-	-	-	-	-	-	-	-	-	-	-
(w) *Persicaria lapathifolia* (Pale persicaria)	nutlet	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-
(x) *Chenopodium* spp (Goosefoot)	seed	-	-	-	-	-	-	-	-	-	14	-	1	-	1	-
(x) Poaceae undifferentiated >2mm (Grass family)	caryopsis	9	-	-	1	-	4	-	2	-	-	-		-		-
(x) *Rumex* spp (Dock)	nutlet	-	19	-	-	3	2	5	-	1	8	-	1		26	-

[a-arable weed; c-cultivated plant; r-ruderal; w-wetland; x-wide niche]. F = number of charcoal fragments. Relative abundance is based on a scale from 1 (lowest) to 5 (highest)

Appendix 1.3: Environmental analysis - Phase 2 ditch, pit and pit/posthole fills (Iron Age/early medieval)

Context		19	49	79	81	105	110	204	206	254	256	361
Sample		35	38	28	27	42	44	11+31	10	23	24	41
Feature		Ditch	Ditch	PH/pit	PH/pit	Ditch	Pit	Pit	Pit	Ditch	Ditch	Ditch
Material available for radiocarbon dating		-	✓	✓	✓	✓	✓	✓	✓	✓	✓	-
Volume of flot (ml)		2	1	25	20	5	10	20	10	50	100	none
Residue matrix (relative abundance)												
Bone (calcined)		-	1	1	1	1	1	-	-	1	-	-
Bone (unburnt)		-	-	-	-	-	-	1	-	-	-	-
Charcoal		-	-	1	1	1	1	2	1	1	1	-
Cracked/angular stones		-	-	1	-	-	-	-	-	-	2	-
Flot matrix (relative abundance)												
Bone (calcined)		-	1	2	2	-	1	-	-	-	-	-
Charcoal		1	1	1	1	1	1	1	1	-	4	-
Avena spp (Oat species)	twisted awns	-	-	-	-	-	-	-	-	3	-	-
Roots (modern)		1	-	-	1	1	1	-	-	-	-	-
Charcoal (g/number of fragments)												
Total charcoal (g)		-	-	-	-	-	0.848	124.746	-	1.88	38.715	-
Percentage of sample analysed		-	-	-	-	-	100	50	-	100	100	-
Total charcoal analysed >4mm (g)		-	-	-	-	-	0.208	10.073	-	1.414	7.225	-
Number of analysed charcoal fragments >4mm		-	-	-	-	-	6	164	-	18	151	-
Corylus avellana (Hazel)		-	-	-	-	-	0.051 (3F)	-	-	0.175 (7F)	0.823 (19F)	-
Fraxinus excelsior (Ash)		-	-	-	-	-	-	-	-	-	0.771 (28F)	-
Maloideae (Hawthorn, whitebeams, apple, pear)		-	-	-	-	-	0.157 (3F)	-	-	-	3.224 (65F)	-
Quercus sp (Oak)		-	-	-	-	-	-	10.073 (162F)	-	0.063 (1F)	2.407 (39F)	-
Salicaceae (Willow or poplar)		-	-	-	-	-	-	-	-	1.176 (10F)	-	-
Indeterminate bark		-	-	-	-	-	-	2F	-	-	-	-
Unidentified <4mm fraction		-	-	-	-	-	0.64	104.6	-	0.466	31.49	-
Charred remains (total number)												
(a) *Fallopia convolvulus* (Black Bindweed)	nutlet	-	-	-	-	-	-	-	-	-	4	-
(c) *Avena sativa* Cultivated oat)	floret base	-	-	-	-	-	-	-	-	18	-	-
(c) *Avena* spp (Oat species)	grain	-	-	-	-	-	1	2	46	536	227	-
(c) *Hordeum vulgare* (6-row hulled barley)	twisted grain	-	-	39	-	-	-	-	-	-	-	-
(c) *Hordeum* spp (Hulled barley)	straight grain	-	-	70	-	-	-	-	-	-	-	-
(c) *Hordeum* spp (Hulled Barley)	grain	-	-	43	-	-	-	-	-	4	-	-
(c) *Hordeum* spp (Barley species)	grain	-	1	376	175	-	4	5	-	150	351	-
(c) *Hordeum* spp (Barley species)	rachis frag.	-	-	1	-	-	-	-	2	8	-	-
(c) *Linum usitatissimum* (Flax)	seed	-	-	3	-	-	-	-	-	-	-	-
(c) *Triticum* cf. *aestivum* (cf. Bread Wheat)	grain	-	-	-	-	-	-	-	-	-	1	-
(c) *Triticum* spp (Wheat species)	grain	-	-	4	3	-	-	-	1	-	-	-
(c) Cerealia indeterminate	grain	-	-	-	-	1	-	2	-	10	-	-
(r) *Lapsana communis* (Nipplewort)	achene	-	-	-	-	-	-	-	-	-	1	-
(r) *Persicaria maculosa* (Redshank)	nutlet	-	-	6	5	-	-	-	-	-	14	-
(r) *Plantago lanceolata* (Ribwort Plantain)	seed	-	-	1	-	-	-	-	-	-	-	-
(x) *Chenopodium* spp (Goosefoot)	seed	-	-	7	1	-	1	-	-	-	-	-
(x) Poaceae undifferentiated >2mm (Grass family)	caryopsis	-	-	13	-	-	-	-	7	3	-	-
(x) *Rumex* spp (Dock)	nutlet	-	-	1	7	-	2	-	-	-	2	-

[a-arable weed; c-cultivated plant; r-ruderal; x-wide niche]. F = number of charcoal fragments. Relative abundance is based on a scale from 1 (lowest) to 5 (highest)

Appendix 1.4: Environmental analysis – unassigned contexts

Context		184	329	357	365	429	436
Sample		53	32	30	33	47	1
Feature		Pit	Pit	Hearth	Posthole	Pit	Pit
Material available for radiocarbon dating		✓	✓	-	-	✓	-
Volume of flot (ml)		3	-	30	-	20	-
Residue matrix (relative abundance)							
Bone (calcined)		1	-	-	-	1	-
Charcoal		1	-	1	1	1	-
Cracked/angular stones		-	-	2	-	-	-
Flot matrix (relative abundance)							
Charcoal		1	-	2	-	-	-
Roots (modern)		-	-	1	-	-	-
Charcoal (g/number of fragments)							
Total charcoal (g)		241	25.396	43.081	-	2.007	58.416
Percentage of sample analysed		100	100	100	-	100	100
Total charcoal analysed >4mm (g)		0.055	9.981	14.11	-	0.652	15.476
Number of analysed charcoal fragments >4mm		2	105	327	-	11	194
Alnus glutinosa (Alder)		-	7.798 (80F)	-	-	0.151 (2F)	-
Betula spp (Birch)		-	0.131 (2F)	-	-	-	-
Corylus avellana (Hazel)		0.055 (2F)	-	-	-	0.028 (1F)	-
Maloideae (Hawthorn, whitebeams, apple, pear)		-	0.772 (13F)	-	-	0.025 (1F)	-
Prunus spinosa (Blackthorn)		-	-	-	-	0.214 (3F)	-
Quercus sp (Oak)		-	-	14.110 (327F)	-	0.234 (4F)	15.476 (194F)
Salicaceae (Willow or poplar)		-	1.280 (10F)	-	-	-	-
Unidentified <4mm fraction		0.186	15.415	28.971	-	1.355	42.94
Charred remains (total number)							
(c) *Hordeum* spp (Barley species)	grain	-	-	-	-	2	-
(c) Cerealia indeterminate	grain	-	-	-	1	-	-

[c-cultivated plant]. F = number of charcoal fragments. Relative abundance is based on a scale from 1 (lowest) to 5 (highest)

Appendix 1.5: Environmental analysis – stemwood/branchwood fragment counts

Context		27	29	40	42	53	65	72	73	86	110	112	120	124	138
Alnus glutinosa (Alder)	Stemwood		1										116	82	
	Branchwood			1											
	Indet.		20	21	2	4	17	2	6						
Betula spp (Birch)	Stemwood														
	Branchwood														
	Indet.														
Corylus avellana (Hazel)	Stemwood									6					
	Branchwood	12	2	9	1	11				4		13			
	Indet.	5	9	3			14		2		3	4			
Fraxinus excelsior (Ash)	Stemwood														
	Branchwood														
	Indet.	3	1		1	1	2			1		2	1		
Maloideae (Hawthorn, whitebeams, apple, pear)	Stemwood									19					
	Branchwood									3					
	Indet.	7	1			2	39	3	9		3	1			
Prunus spinosa (Blackthorn)	Stemwood														
	Branchwood	1						1							
	Indet.	1	3			4	2	1	3						
Prunus spp (Cherries)	Stemwood														
	Branchwood														
	Indet.								8			2			5
Quercus sp (Oak)	Stemwood	15	2	14	3		10	44	47						129
	Branchwood	1													
	Indet.			1			19								
Salicaceae (Willow or poplar)	Stemwood														
	Branchwood														
	Indet.			3	1										
Ulmus sp (Elm)	Stemwood														
	Branchwood														
	Indet.		1												
Indeterminate bark															

Context		140	141	161	184	186	188	204	240	254	256	329	357	429	436
Alnus glutinosa (Alder)	Stemwood	24	100									81			
	Branchwood														
	Indet.	2					1							2	
Betula spp (Birch)	Stemwood														
	Branchwood														
	Indet.											2			
Corylus avellana (Hazel)	Stemwood														
	Branchwood			5	2				12	7	19			1	
	Indet.					1									
Fraxinus excelsior (Ash)	Stemwood		1								5				
	Branchwood										4				
	Indet.			5		1	3				19				
Maloideae (Hawthorn, whitebeams, apple, pear)	Stemwood														
	Branchwood										1				
	Indet.			1			2				64	13		1	
Prunus spinosa (Blackthorn)	Stemwood														
	Branchwood														
	Indet.	9		1										3	
Prunus spp (Cherries)	Stemwood														
	Branchwood														
	Indet.														
Quercus sp (Oak)	Stemwood							162			39		327	4	194
	Branchwood														
	Indet.			1						1					
Salicaceae (Willow or poplar)	Stemwood														
	Branchwood									10		1			
	Indet.	60							7			9			
Ulmus sp (Elm)	Stemwood														
	Branchwood														
	Indet.														
Indeterminate bark		68	5					3	2						

Appendix 2.1: Cremated bone - catalogue of identifiable fragments

Context (15)

Skull	One fragment of posterior ramus of mandible (?)
Axial	-
Upper Limb	-
Lower Limb	-

Context (57)

Skull	One fragment of cranial vault; 0.9g
Axial	-
Upper Limb	-
Lower Limb	One fragment of tibia (?), anterior border (?); 1.9g

APPENDIX 10 *Medieval Pottery Report*

Pottery Report

Garretstown I1-Contract 2
Co. Meath

Licence No. A008/008

By
Niamh Doyle MA MIAI
Margaret Gowen & Co. Ltd
Job No. 07079-R4

For
Maria Lear
ACS

17th April 2007

Illustrations

Figures

1 Introduction

1.1 The assemblage from Garretstown II contains two fragments of post medieval pottery dating to the 18th-20th century, 13 fragments of medieval pottery dating to the 13th-14th centuries, two early Christian fragments from the 6-7th century and one unidentified pottery fragment.

2 Methodology

2.1 These fragments were identified visually in accordance with existing typologies. A brief description of fabric and decoration is given in the following discussion. The different types of pottery are presented in tabular form. Medieval vessel types and styles of manufacture were identified in accordance with the Medieval Pottery Research Group's classification of ceramic forms (1998). Both medieval and post medieval types were identified based on information from published excavations in Ireland and existing typologies. The pottery assemblage is discussed at the end of the report with specific reference to contextual information provided by the excavator.

3 Quantification

3.1 The table in figure 1 illustrates the number of sherds found within each type and the MNV and MNR for each type. The Minimum Number of Vessels (MNV) is a vessel count based on a frequently occurring diagnostic feature of the vessels represented in the assemblage. The high instance of jugs within the medieval assemblage means that basing the MNV on the occurrence of rim-handle fragments, as representative of handled jars, is suitable. A count of the Minimum Number Represented (MNR) of each vessel type is included for also. Date ranges and the origins of types are shown on the tables for both the medieval and post medieval pottery assemblages.

Type	Sherds	MNV	MVR	Form	Date Range	Origin
Black glazed red earthenware	1		1	storage jar	18th-20th C	Ireland/ England
Slip trailed red earthenware	1		1	dish/ bowl	18th-19th C	Ireland/ England
Local Wheel thrown Medieval	8		2	jugs	13th c	local
Local Fine ware Medieval	4		2	jugs	13th-14th c	local
Trim Ware	1		1	jugs	14th C	Trim, County Meath
E-ware	2		1	necked jars	6th-7th c	Gaul
Unidentified	1		1			
Total	18		8			

Figure 1 - Table of pottery from Garretstown 2

4 Post medieval pottery

4.1 The assemblage contains two fragments of post medieval pottery dating from the 18th-20th century. There is a single rim fragment from a black glazed red earthenware vessel, probably a large storage jar associated with activity in the scullery or kitchen. These vessels were made in Ireland and England in the 18th-20th century. The fine, orange fabric of the fragment from this assemblage would suggest that it is of Irish origin (Meenan and McCutcheon 1997, 352). The assemblage also contains a single rim fragment from a slip trailed red earthenware dish. Vessels decorated in this manner were imported into Ireland from England and the Netherlands in the 18th-19th centuries and were also manufactured in Ireland.

5 Medieval Pottery

5.1 The assemblage contains thirteen sherds of medieval pottery including eight sherds of local wheel-thrown pottery. This type of pottery has a sandy oxidised orange fabric, containing occasional quartz and small stone inclusions, with a grey core and patchy green lead glaze. The assemblage contains a MNR of two vessels in this type, probably jugs, with thumbed sagging bases and everted rims.

5.2 Wheel thrown glazed pottery of this type was produced at multiple centres in Ireland in the 13th century (McCutcheon 2006). The pottery from Dunboyne is similar to local types found at Castlefarm, County Meath (Doyle *forthcoming),* Tullykane, County Meath (Sandes *forthcoming*) and at Killeen Castle, County Meath (Doyle 2006). The assemblage contains a single fragment of Trim ware as described by Sweetman (1978, 171). This fine, yellow-buff coloured fourteenth century pottery was also found during excavations at Tullykane, County Meath (Sandes *forthcoming*).

5.3 The assemblage contains five fragments of local wheel thrown glazed fine ware, with a soft orange fabric containing few inclusions. The vessels are glazed with a patchy green lead glaze. The fragments are extremely weathered and abraded, partly due to abrasion within the topsoil (C5) and the soft nature of the fine ware fabric. Fine wheel thrown pottery similar to this has been found on multiple sites in Ireland from the 13th-14th century (McCutcheon 2006).

6 Early Christian Pottery

6.1 The assemblage contains two rim fragments from what has been identified as an e-ware necked jar (Ian Doyle, *pers comm.*) type E1 or E4 (Thomas 1990). The fabric is buff to orange on the surface with a red-pink core. The surface is smooth as with fine clay and is broken or pimpled by inclusions of quartz, and has visible throwing lines.

6.2 This type is the most common found from the period in Ireland, the largest assemblage was excavated at Dalkey Island by Liversage (1968) with more recent findings from Cabinteely, County Dublin (Doyle, I. 1999). E-ware originated from Western Gaul and was imported from the late 6th-7th centuries AD (Doyle, I. 1999).

6.3 The assemblage also contains a single sherd of unidentified pottery. The sherd appears to be from the body of the vessel, the fabric is hard fired and orange in colour with cream and red stone inclusions. One surface is paler orange in colour but the other surface is absent, having been broken away. It could possibly represent a brick fragment.

7 Discussion

7.1 The pottery retrieved from the topsoil (C5) ranges in date from 13th century local medieval pottery and 14th century Trim wares, to 18th-20th century post medieval wares from Ireland and England.

7.2 Locally produced medieval wares were found in C57 and C201, the fills of ditches C56 and C200 respectively, indicating a 13th-14th century date range for the pottery from these fills. Without knowing either the stratigraphic sequence or if these fills are sealed it can only be said that the pottery dates to this period.

7.3 Fragments of possible e-ware, dating to the 6th and 7th century, were found in C97 and C217, the fills of ditches C96 and C216 respectively.

Figure 2- Catalogue of pottery from Garretstown II

Licence Number	Licence Number	Feature Number	Find Number	Category	Description	Part	Origin
A088/088	E3061	2	29	ceramic	Pottery. Local wheel thrown	Base	Local
A088/088	E3061	5	1	ceramic	unidentified	Body	
A088/088	E3061	5	2	ceramic	Pottery. Trim Ware	Body	Local
A088/088	E3061	5	3	ceramic	Pottery. Local Fine ware	Body	Local
A088/088	E3061	5	4	ceramic	Pottery. Black glazed red earthenware	Rim	Ireland/ England
A088/088	E3061	5	5	ceramic	Pottery. Slip trailed red earthenware	Rim	Ireland/ England
A088/088	E3061	5	6	ceramic	Pottery. Local wheel thrown	Base	Local
A088/088	E3061	5	7	ceramic	Pottery. Local wheel thrown	Rim	Local
A088/088	E3061	5	8	ceramic	Pottery. Local wheel thrown	Body	Local
A088/088	E3061	5	10	ceramic	Pottery. Local Fine ware	Body	Local
A088/088	E3061	5	11	ceramic	Pottery. Local Fine ware	Body	Local
A088/088	E3061	5	12	ceramic	Pottery. Local wheel thrown	Base	Local
A088/088	E3061	5	13	ceramic	Pottery. Local Fine ware	Base	Local
A088/088	E3061	5	14	ceramic	Pottery. Local wheel thrown	Body	Local
A088/088	E3061	57	1	ceramic	Pottery. Local wheel thrown	Body	Local
A088/088	E3061	97	1	ceramic	Pottery. E-ware	Rim	Western Gaul
A088/088	E3061	201	1	ceramic	Pottery. Local wheel thrown	Body	Local
A088/088	E3061	217	4	ceramic	Pottery. E-ware	Rim	Western Gaul

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Appendix 11

Non-Circular Enclosed Settlement – Fact or Fiction: A New Irish Early Medieval Site Type?

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8 February 2007

INTRODUCTION

This paper aims to explore and assess the recent introduction into early medieval literature of non-circular type enclosures referred variously as D- , heart- and plectrum-shaped enclosures. It is the writer's belief that these sites demonstrate a diverse range of social and economic activities and display hierarchical divisions. It is argued that the majority of non-circular enclosures do not represent a new early medieval settlement type but that they mirror the range and hierarchical evidence for raths, from the homes of low status farmers to the dwelling places of wealthy farmers and lords. This paper begins with a detailed examination of the morphological, chronological, landscape and artefactual evidence for early medieval raths. The archaeological evidence suggests a hierarchical division within both circular and non-circular enclosures and that the enclosure shape had no relevance to the status of those within these settlements. It is suggested that there has been an overly simplistic approach to the classification of raths, and their supposedly uniform circular plan, and that this has led to the misidentification of several of 'newly recognised' early medieval settlement types. However, there is emerging evidence for a number of early medieval sites that clearly display a much broader range of activities, a longer chronological sequence and a significantly larger quantity of artefacts than the majority of raths. These sites enclosed small communities, rather than the family spaces of raths and, significantly, they are intimately associated with burial grounds. They may tentatively, therefore, be described as the places of market fairs and 'production' centres that probably served the immediate and surrounding communities and this paper concludes with an assessment of their significance.

RATHS

Morphology and problems of definition

Before discussing non-circular enclosed early medieval settlements it is important to identify what has been perceived to be the morphological signature of a rath and whether circularity is a crucial factor. Before we discuss non-circular enclosed early medieval settlements, we must first analyse what we perceive to be the morphological signature of a rath and if, in fact, circularity was such a crucial factor. It becomes apparent that scholars and researchers, past and present, have different views on what defines a rath. Ó

Ríordáin (1991, 29, but first published in 1942), states that, “In its simplest form the ringfort may be described as a space most frequently circular, surrounded by a bank and fosse or simply by a rampart of stone”. Nineteen years later, Proudfoot (1961, 94) declared that the enclosed spaces of raths or cashels are generally circular although “oval or rectilinear” examples are also found. Edwards (1990, 14) has since stated that raths can be circular, oval or pear-shaped enclosed areas while Stout (1997, 14-15), who has most recently written comprehensively on the subject, suggests that the circular shape of the rath was achieved by using a line connected to a central stake and that circularity was the defining characteristic according to the seventh- and eighth- century law-tracts. The circular shape of the rath is thus seen as one of its essential characteristics even though, as we have seen, former scholars have recognised that they also occur in smaller numbers as oval- , pear- or rectilinear- shaped enclosures. I believe that Stout’s (1997) work has been most widely read by recent archaeological directors and researchers and this has, perhaps, led to the view that many non-circular early medieval enclosures may represent a new site-type. Archaeologists, I suggest, place too much importance on typological considerations and on the labelling of sites. This is a modern construct and meant nothing to people of the past and the circularity of the enclosure, I believe, was not a crucial factor for early medieval rath builders.

I am deliberately labelling the early medieval enclosures in this paper as raths, rather than the more common term of ringfort, because it is now time to re-evaluate the title ‘ringfort’ and to replace it with a term that lacks an emphasis on the circularity of the enclosure. The term rath is, and has been, commonly used as an alternative for ringfort, rath meaning the enclosing bank, and this is a more appropriate term in light of the many early medieval non-circular enclosures that are being discovered through development-led archaeology.

Dating and chronological sequence

The dating of raths has been a cause of contention (see Limbert 1996 for his argument that they have their origins in the Iron Age) but Stout (1997, 24) has shown that the majority were occupied from the beginning of the seventh until the end of the ninth

centuries, covering a 300-year period. Identifying chronological phases and morphological changes to raths has caused further disagreement amongst scholars. Monk (1995; 1998), after excavation of a rath at Lisleagh 1, Co. Cork, has demonstrated that the enclosure was enlarged and replaced with a more formidable defence after only a short period. Conversely, its neighbour, Lisleagh 2, began as a large enclosure but the following phase witnessed the levelling of the bank and the construction of a shallow ditch and palisade. The final phase saw the infilling of the ditch as occupation occurred over it. Mytum (1992, 123), on the other hand, states that rath banks were "generally unsubstantial and only constructed once" and backs his view up by declaring that of the 16 excavated raths from Co. Antrim, which allowed for confident interpretation, only four showed evidence for more than one phase of enclosure bank while 12, of 21, sites from Co. Down and all nine excavated raths from Cush, Co. Limerick (Ó Ríordáin 1940) produced similar evidence.

The evidence from the majority of raths suggest they were occupied for between one (Lynn 1978) and two centuries (Monk 1995). It is possible that high status lordly or royal sites may have been occupied over a longer period and, as a result, have produced archaeological evidence for numerous ditch re-cuts, stratigraphical layers and a higher number of artefacts when compared to the majority of enclosures. The royal crannog at Lagore, Co. Meath, for example, broadly dates from the seventh until the end of the tenth/early eleventh centuries (Comber 1997; Hencken 1950) while the royal site at Knowth, also in Co. Meath, was occupied during the medieval period from the eighth until the twelfth/thirteenth centuries (Eogan 1974; 1977). Some raised raths, which based on their morphology and rich artefactual evidence were arguably high status settlements, have also displayed long occupational evidence. The raised rath at Gransha, Co. Down, revealed three occupational phases dating between the sixth/seventh and tenth centuries (Lynn 1985). A similar dating sequence was recorded at Deer Park Farms, Glenarm, Co. Antrim (Lynn 1988), while another raised rath, in Rathmullan, Co. Down, revealed five phases of early and later medieval activity (Lynn 1981-2). Many less substantial and lower status enclosures were possibly constructed once with only occasional repairs. A word of caution must be attributed here, however, due to the low number of raths that

have been excavated. By 1990 it has been established as few as 200 enclosures have been archaeologically investigated (Edwards 1990, 11) while the total number of these sites throughout the country is probably between 30,000 (Stout 1997) and 60,000 (Mytum 1992). It will not be until a much greater sample has been excavated that we will gain an increased understanding of the cultural biographies and life-spans of these enclosures.

Size matters?

Raths commonly have an enclosed space between 15 and 35m (Barrett 1980, 42; Edwards 1990, 14) with the majority approximately 30m in diameter. Most are univallate but where bivallate and multivallate examples occur, they tend to enclose a space greater than 35m (Edwards 1990, 14). Raised and platform raths represent another variation due to the artificial heightening of the interior. They, like multivallate raths, comprise only a small percentage of the overall settlement sites when compared to the number of univallate raths. In the barony of Ikerrin, for example, raised and platform raths comprised only 13% of the total recorded (Stout 1984) while none were noted in south Donegal (Barrett 1980).

The relatively small number of multivallate, raised and platform raths, in comparison to the high frequency of univallate enclosures, has contributed to their identification as high status settlements (Edwards 1990; Graham 1993; Mallory and McNeill 1991; Stout 1997). This possibility is increased when we consider that many multivallate raths enclose a larger space compared to enclosures with just one bank and ditch. It has also been suggested that raised and platform raths were deliberately heightened to convey their status and wealth as they were positioned on prominent locations in the landscape and could be seen from greater distances (Edwards 1990, 20; Graham 1993, 44).

However, it is appropriate to be cautious about attributing status to early medieval raths, based on the number of bank and ditches, height and diameter, until a more sites are excavated. Garryduff I, Co. Cork (O'Kelly 1963), for example, was a univallate enclosure yet it produced a large quantity of prestige artefacts including a gold bird ornament, copper-alloy and iron pins and glass beads among a variety of personal and

functional finds. Evidence for copper-alloy working was noted by the presence of motif pieces, moulds and crucibles while, structurally, the presence of four substantial postholes, linked by palisade trenches, indicated a wooden gate tower at the entrance. This was clearly a dwelling of some prestige, possibly a specialist metalworking centre, yet it was surrounded by only one bank and ditch. The quantity, variety and quality of artefacts uncovered from the rath at Ballycatteen (Ó Ríordáin and Hartnett 1943), also in Cork, was much less impressive than Garryduff I yet this was a very large trivallate enclosure. This demonstrates that the classification of sites, based on multi-vallation alone, can be misleading when attempting to ascribe the status of its inhabitants. Furthermore, the suggestion that raised and platform raths were a means of conveying and displaying status (Edwards 1990; Graham 1993) does not correspond with the evidence for the sites at Inchigaggin (Hartnett 1946) and Lackan (O'Connor 1944) discussed below. The raised construction of these raths was an obvious attempt by the builders to avoid the surrounding damp and wet conditions and their location within bog and marshland, coupled with a paucity of finds from both sites, demonstrates that their inhabitants were of low status.

Landscape and topography

Just as it is a perception that raths are wholly circular in plan, it has also been suggested that they occur exclusively on agriculturally productive lands. Edwards (1990, 19), for example, declares that because the majority of enclosures functioned primarily as farms, poor soils were avoided and only good land was exploited. Stout (1997, 106-7) agrees, claiming that raths avoided areas that could not support farming activity. Upland and lowlands, therefore, were avoided in favour of free-draining and sloping ground. The law-tracts appear to back this up as land values were measured in terms of quality and access to waterways and routeways for example. The best land was considered to be flat and agriculturally productive while the least favoured, unsurprisingly, was mountain and bogland (Kelly 1997, 394-6).

It is probable that environmental determinants have have obscured the actual evidence for site location. Not all are circular and, equally, not all are to be found on the best land. At

Inchigaggin, Co. Cork. the surrounding landscape was prone to flooding but Hartnett (1946, 126) observed that the upper levels of the platform remained dry in adverse weather. O'Connor (1944, 53), in his excavation of three raths in Lackan, Co. Wicklow, showed that the largest enclosure was situated on a slightly raised platform while a second, known as Quinn's rath, occurred on a naturally raised platform. All three rath were situated on marshland. A rath at Boho, Co. Fermanagh, was also located on the summit of a natural mound, above the surrounding poorly drained soils (Proudfoot 1953, 41). Ó Ríordáin (1949, 128) has shown, using the stratigraphy from his excavation at Grange, Co. Limerick, that the area was covered in peat prior to the construction of the enclosure and, finally, a rath at Ballykennedy, Co Antrim, just below the 122m contour, is situated on poor quality marshland (Brannon 1980, 65). What all have in common is that they were built and located in areas that diverge from traditionally accepted views about raths and their local environment.

Material Culture

The finds from the majority of 'regular' raths tend to be small in number and are usually dominated by utilitarian items. Iron artefacts, where they survive, consist of knives, needles, nails, scrap and slag. Stone and bone functional items consist of rotary querns, hone stones, flint and chert debitage, spindle whorls and needles. Personal and dress items are rarer and are represented by copper-alloy and iron ringed pins, glass beads and bracelets, lignite bracelets and bone combs and pins.

Higher status settlements produce similar but a higher number and greater variety of artefacts to those found above. Personal and dress items, such as brooches and ringed pins, are usually more frequent than those found on 'regular' raths and display more sophisticated decoration and use of precious metals such as gold and silver. Imported pottery, including B and E wares, demonstrate contacts with the Mediterranean and western Gaul, respectively, while the presence of crucibles, moulds, ingots and motif pieces show that the production of copper-alloy and glass items occurred on many lordly and royal sites.

The difference in status between early medieval sites can be identified, therefore, by the number, variety and sophistication of the artefacts discovered. Fredengren (2002, 244) demonstrated this by comparing the artefacts excavated on the small crannog at Sroove, Lough Gara, Co. Sligo, with those found on larger high status crannogs such as Rathinaun crannog (Raftery 1957), on the same lake, and Lagore crannog. She concluded that the items from Sroove were fewer in number and showed less variation in the materials used.

It is apparent that the majority of early medieval individuals and kin groups had access to a range of functional items to assist their day-to-day farming and domestic activities while personal and dress items were less common. Wealthier individuals, however, had access to similar objects but also held higher quantities of dress items and the wearing of brooches, in particular, were indicators of status (Nieke 1993) which proclaimed their place at the top end of a hierarchical society.

RATH DISCUSSION

When the morphological, chronological, landscape and artefactual evidence for rath settlement in early medieval Ireland is analysed together, a three-tier social hierarchy becomes apparent. The vast majority of the population, at the base of this hierarchy, were represented by the farming community and many of these individuals were not wealthy. They probably resided in simple and small univallate ringforts with diameters of between 15 and 30 metres. Many raths were located on agriculturally productive lands but there were also a significant number in marginal and upland locations. Very few artefacts are discovered from these sites and they usually consist of everyday utilitarian items for practical farming and domestic use. Occasionally, personal items are represented including lignite bracelets, bone combs, glass beads and ringed pins.

It may also be archaeologically possible to distinguish between the lowest grade of freeman, the *ócaire*, and semi-free individuals within this settlement tier. The raths discussed above at Inchigaggin, Lackan, Boho and Ballykennedy shared similar characteristics in that they were all small univallate enclosures, they were located in

bogland, that was unsuitable for agriculture, and, finally, they each produced a meagre collection of artefacts. The only artefacts from Inchigaggin, for example, were some iron objects, slag, flint fragments and low amounts of animal bone. Boho rath produced a stone hone, flint fragments, three fragments of an iron knife, iron slag, a bone pin and some animal bone while the only finds from Ballykennedy rath were a copper-alloy ringed pin and some souterrain ware.

It is my belief that these enclosures were inhabited by impoverished individuals and it is entirely conceivable that they may once have belonged to the free social classes who had since descended into the ranks of the semi-free. A quote taken from a law-text describes the predicament that faced the free members of early medieval society as the lines between the free and unfree became blurred, "It is not easy for each of them to be a *bóaire* when four or five men are heirs of a *bóaire*" (quoted in Ó Cróinín 1995, 89). The law of inheritance was a major contributory factor in maintaining wealth and status within a kin group but as family sizes increased, it became more difficult to distribute wealth. The youngest family members, therefore, did not receive their inheritance-share resulting in competition and pressure for resources such as land and livestock. Within this socially unstable climate many members of large kin groups, already experiencing economic hardships, must have been precariously close to dropping into the ranks of the semi-free and the archaeological evidence from the raths discussed above indicates that this fate befell those individuals.

By declaring that raths were also inhabited by low status farmers and semi-free individuals, this paper challenges the commonly held view that all early medieval enclosures were occupied by the free and wealthy (see Kinsella 2005 for further discussion). Archaeologists (Edwards 1990; Mallory and McNeil 1991; Mytum 1992; Seaver 2005), historical geographers (Graham 1993; Stout 1997) and historians (Charles-Edwards 2000) have all asserted that raths were occupied, uniquely, by the free classes yet they have not considered the impact that social, political and environmental events had on early medieval farming families and communities. Status fluctuated throughout the early middle ages (Kelly 1988) as kings, for example, could be demoted to the grade

of the common individual while upward social mobility was also possible for those at the lower social scale. Raths, therefore, must also have enclosed those marginally above and below the free social grades.

Many raths were also resided-in by farmers of limited wealth, members of small kin groups who survived by working the land and who were involved in low-scale iron working and textile production. These individuals probably represent the *ócaire* social grades described in the seventh- and eighth- century law-tracts. Typically these univallate raths were situated on agriculturally productive land. They commonly enclosed a round or rectangular house and produced a range of artefacts that assisted their day-to-day living. Some enclosures may have contained some outbuildings and/or a souterrain. One possible example of such a rath was excavated at Lisnagun, Co. Cork (O'Sullivan, Hannan and Tierney 1998). It was located on a gentle slope on pastoral farmland. It had an internal diameter of 35m and enclosed a central round house, some outbuildings and three souterrains. The excavators recognised the difficulty in determining if the enclosed features were all contemporary, or whether they represented a number of phases, although souterrains 1 and 3 may have been related to the central round house. The finds included hone stones, hammer stones, quernstones, an iron blade and iron slag, a small fragment of a bronze plate and animal bone while the only personal object uncovered was a glass bead. The directors surmised that Lisnagun was typical of the majority of univallate raths noting the low levels of animal bone and what they described as a meagre collection of artefacts (ibid., 62).

The second or middle social-tier comprised both wealthy farmers and lords. The law-tracts list the *bóaire* as a prosperous farmer while various grades of lords are described with the *aire déso* at the bottom and the *aire forgill* at the summit of this hierarchy (Kelly 1988; 1997). It is difficult, archaeologically, to distinguish between these social grades but this is probably more to do with an idealised vision of early medieval society envisaged by both jurists and monks than by the reality of contemporary society. The early law-tracts prescribed rather than described the way people should lead their lives although it is not disputed that this was a structured and graded society. Archaeologically,

the prosperous free classes resided in univallate, multivallate, raised and platform raths. The enclosed spaces were probably larger than that of the lower social grades with diameters greater than 30m. Mytum (1992, 152), for example, states that raised and platform raths were resided in by successful aristocratic groups, and that there are no small sites of this type although, as we have seen above, not all heightened early medieval settlements were occupied by the lordly social grades. The artefacts, discovered within their dwellings, include items similar to those from the *ócaire* and semi-free settlements but in greater quantities and varieties. Status symbols such as brooches and decorated ringed pins are usually uncovered. Items indicating foreign contacts or indications of gift exchange, possibly related to free client relationships, are represented by the presence of imported pottery such as B and E wares. There may also be evidence for small-scale copper-alloy and/or glass working. Another feature of wealthier settlements is that they tended to be occupied over a longer chronological period compared with 'regular' raths. The archaeological evidence, therefore, indicates a social group in a position of wealth above that of the majority of the population but clearly below the minority of royal sites which will be discussed below.

Some of the raised and platform raths briefly discussed above are probable archaeological examples of *bóaire* or lordly settlements. The raised rath at Gransha, Co. Down, was first occupied in the early medieval period around AD 600 when a natural ridge about 4.5m in height was utilised. The second phase witnessed a gradual height increase by 1.5m due to the accumulation of occupational debris representing continuous settlement. The final phase, during the 10th century, involved the deliberate heightening of the rath, which created a flat-topped mound approximately 45m in diameter. The wealth of the site is attested by a bronze zoomorphic brooch with enamel and millefoiri glass in its terminals and E ware from the first phase, motif pieces, a stylus and clay moulds from Phase 2 and a bronze ringed pin and glass bead from the final phase (Lynn 1985). Phase 2 represented the longest occupational phase and displayed both settlement and industrial evidence in the form of copper-alloy working and textile production.

Another raised rath, Deer Park Farms, Co. Antrim, was occupied over a prolonged period between the sixth and 10th centuries. It appeared as a flat-topped mound, 25m in diameter, and 6m high. Unlike Gransha, its height was largely the result of continued occupation over approximately four centuries. The status of the occupants is evident from the artefacts including a bronze brooch and approximately 50 variously coloured and decorated glass beads. Over 700 sherds of souterrain ware were also discovered alongside other functional artefacts. A substantial revetment wall was added to the outside of the mound, during its penultimate phase, which made it appear as a large impressive cashel (Lynn 1988, 47).

A more recent example of a probable *bóaire* or lordly rath was excavated at Leggetsrath West, Co. Kilkenny (Lennon 2006). The rath was enclosed by an inner and an outer ditch, the outer ditch forming a semicircle around the east, south and west sides. The inner ditch, represented the earliest occupational phase, and produced a radiocarbon date of AD 610-780. The original occupants' wealth is indicated by the presence of two sherds of B ware which came from this ditch. The outer ditch was dated between AD 690-990 and the concentric nature of the two ditches and the chronological overlap suggests their construction was probably contemporaneous (Lennon 2006, 51). An unstratified decorated copper-alloy crutch-headed ring pin also testifies both to the longevity of the rath and the status of its occupants. Other personal finds included a composite bone comb and a gaming piece while functional artefacts were represented by a loom weight, knives and needles.

The sites at Lagore crannog (Hencken 1950), Knowth (Eogan 1974; 1977) and Clogher, Co. Tyrone (Warner 1988), are archaeologically and historically recognisable as royal sites and represent the sites at the summit of social ranking. Much has been written about these sites already so they are not described in detail here. What all share in common is that they are recorded in contemporary literature as royal settlements. The archaeological evidence confirms this as each site has produced a large and impressive collection of artefacts with many dress items demonstrating the hands of highly skilled and accomplished craftspeople working under the patronage of their respective kings. The

number of artefacts from each royal site far exceeds those uncovered from the *bóaire* and lordly raths discussed above. Common to each is the presence of non-ferrous metal working and glass working while evidence for foreign contacts, involving trade and exchange, is demonstrated by the presence of imported pottery wares. The archaeological record, from the royal sites at Lagore, Knowth and Clogher, clearly identifies that there was a much wider social and political gap between the prosperous freemen and the royal social grades than there was between the former and low status individuals such as the *ócaire*s and semi-free.

NON-CIRCULAR EARLY MEDIEVAL ENCLOSURES

A total of 15 non-circular enclosures were investigated which form the basis of the following research (Appendices with information on the following sites can be found at the back of this paper). The raths at Dowdstown (Cagney forthcoming) and Colp West (Clarke and Murphy 2001), both in Co. Meath, are included because non-circular enclosures were annexed onto both. The chronological, morphological, landscape and artefactual evidence are examined and an integrated assessment of the results follows. The final part of the paper looks at the archaeological evidence for newly recognised early medieval communal enclosures including Johnstown (Clarke 2003; Clarke and Carlin forthcoming), Laytown (McConway 2002), both in Co. Meath, Balriggan (Delaney and Roycroft 2003; Roycroft 2005) and Millockstown (Manning 1986), Co. Louth, and the communal enclosure and possible 'production' centre at Raystown, Co. Meath (Seaver 2005; 2006).

Dating and chronological sequence

A certain amount of variation is apparent regarding the dating of non-circular enclosures. If we firstly choose the earliest radiocarbon date produced for each settlement, as a means of determining the first occupational phase, the following results are produced. From a total of 12 (3/15 have yet to produce radiocarbon dates) seven suggest that they were occupied before the sixth century. Six sites returned fifth century dates while Laytown, Co. Meath (McConway 2002), may have been occupied from the fourth century. The remaining five enclosures were first occupied between the seventh and eighth centuries.

Taken at face value, this suggests that the majority were occupied before the majority of raths were constructed in the seventh century (Stout 1997) and this may be regarded as evidence for the identification of a new early medieval settlement type. However, a number of factors suggest a more cautious interpretation. Firstly, only a tiny percentage of raths have been excavated so we cannot assume a definitive chronological beginning at the start of the seventh century, as Stout has argued, and Limbert (1996) has challenged, suggesting an Iron Age origin. Secondly, if we take the latest radiocarbon date, from the first occupational phase, as an indicator of each site's primary use, four, out of the seven, settlements were first utilised in the seventh century. Added to the other five sites, with definite beginnings from the seventh century, a total of nine, from 12, non-circular enclosures were first occupied from the seventh century and this tally agrees with Stout's rath dating sequence. Also, the material culture from two of the non-circular enclosures at Cahircalla More, Co. Clare (Hull and Taylor 2005), and Balriggan, Co. Louth (Delaney and Roycroft 2003; Roycroft 2005), indicate that they were first occupied in the second half of the first millennium AD. The dating evidence, therefore, can be interpreted in a number of ways and, as a result, cannot be used as a means of identifying a chronologically earlier settlement type.

If we again use Stout's dating sequence, where generally the end of the ninth century is suggested for the abandonment of early medieval raths in Ireland, and compare it with the final occupational phases for the non-circular enclosures under discussion, a variety of results are evident. Only five sites (of the 12 which returned radiocarbon dates) conform to Stout's latest chronological rath dating sequence. However, the remainder have produced evidence for many phases of use across long chronological sequences. Castlefarm (O'Connell 2006; forthcoming), Roestown (O'Hara forthcoming), Johnstown (Clarke 2002; Clarke and Carlin forthcoming) and Laytown (McConway 2002), all in Co. Meath, were each occupied during the early and later medieval periods. Other settlements such as Raystown, Co. Meath (Seaver 2005; 2006), and Ballynacarriga, Co. Cork (Noonan et al. 2004), were probably occupied between the fifth- and 11th- centuries

while the only enclosure to demonstrate occupational evidence for two, or less, centuries was at Colp West, Co. Meath (Clarke and Murphy 2001).

Size matters

Raths have an average diameter of 30m and it has been argued that larger enclosed spaces equated to increased status. Similar arguments have suggested that multi-vallation and raised or platform raths also indicated the wealth of their inhabitants (see above). The vast majority of non-circular enclosures have considerably larger diameters than average sized raths. The only examples of similar or smaller enclosures include the rath at Colp West, Co. Meath, with a diameter of 29m (Clarke and Murphy 2001) and the D-shaped enclosure at Cahircalla More, Co. Clare, which was 38m wide (Hull and Taylor 2005). The site at Colp West, however, had a large sub-rectangular enclosure, measuring 55m east/west by 20m north/south (only part of this enclosure was excavated), attached onto its northern side, and a smaller oval enclosure on the southern side: it is possible all three were contemporary. The majority of the remaining non-circular enclosures have average maximum dimensions of between 50m and 70m while some are very large, such as Castlefarm, Co. Meath, with an inner enclosed space of *c*. 90m by 70m and an outer, and later, enclosed area of 120m by 100m (O'Connell 2006; forthcoming).

Landscape and topography

Only one enclosure, Cahircalla More, Co. Clare (Hull and Taylor 2005), did not provide information on the landscape context of the site. Some degree of variation is present for the location of the remaining 14 non-circular enclosures. Eight sites shared a common characteristic in that they were all situated on the highest point of the surrounding landscape, on a ridge, hill or small rise. Four settlements were located on relatively flat land while Balriggan, Co. Louth (Delaney and Roycroft 2003; Roycroft 2005), differed as it was situated within a large saucer-shaped depression. Three settlements were positioned on the slope of a hill, valley or ridge, respectively, including Killickaweeny, Co. Kildare (Walsh and Harrison 2003; Walsh and Carlin forthcoming), Ballynacarriga, Co. Cork (Noonan et al. 2004), and Laytown, Co. Meath (McConway 2002). Conversely, the site at Ballynacrriga also utilised the valley floor while part of the settlement at

Laytown was positioned on a ridge summit. Many of the enclosures were located on agriculturally productive lands. However, six sites (Roestown, Raystown, Johnstown, all in Co. Meath, Killickaweeny, Co. Kildare, Balriggan, Co. Louth, and Ballycasey More, Co. Clare (O'Neill forthcoming)) were in proximity to bog or marsh land while Laytown, Co. Meath, was located on the coast. The builders and inhabitants of non-circular enclosures, therefore, demonstrated considerable variation in their choice of location, a variation also noted in the discussion of raths generally (see above).

Material culture

The quantity and quality of artefacts uncovered from the 15 non-circular enclosures varied. It is suggested that the status of each settlement can be partly determined through an examination of the personal and dress items that were discovered. Some sites produced large numbers of finds, including impressive items of adornment and exotic pottery, demonstrating their occupants' considerable wealth, influence and status. Roestown, Co. Meath (O'Hara forthcoming), produced a wide range of personal items including an assortment of copper-alloy and iron ringed, bifid and stick pins, bone comb fragments, glass beads, silver, gaming boards, a possible bone flute and lignite bracelets. E ware pottery fragments indicate foreign contacts and a network of trade and exchange which probably involved the movement of goods between Ireland and western Gaul. Dalkey Island may have acted as a gateway community (Doyle 1998) which facilitated the movement of E ware, and other prestige items, from the coast to wealthier farmers, lords and kings inland. The presence of crucibles, ingot moulds and motif pieces at Roestown is also strongly suggestive of the high status of its inhabitants and demonstrates that non ferrous metalworking and possible glass working was undertaken on site. Large quantities of animal bone were also discovered throughout the settlement and the adjoining animal enclosures to the west.

Castlefarm (O'Connell 2006; forthcoming), Laytown (McConway 2002), Raystown (Seaver 2005; 2006) and Johnstown (Clarke 2002; Clarke and Carlin forthcoming), which are also all in Co. Meath, produced a similar range of material culture, but not in the same quantity or variety when compared with Roestown. Two brooches, one which was made

from silver with traces of bronze gilt, and ringed pins, which included a silver spiral-ringed loop-headed type, were discovered at Castlefarm. Other personal items included metal and bone stick pins, an omega pin, a decorated copper-alloy mount, a glass bracelet and beads and lignite bracelets. Laytown, considering its length of occupation, has produced only a small quantity of personal items, namely three ringed pins, glass beads and some bone combs. However, the final report has yet to be published and this may not be an accurate account of quantity of artefacts. The presence of a jet bracelet and E ware indicates contacts with western Britain and Gaul while glass slag was uncovered demonstrating that highly specialised craft working was undertaken there. More than 900 artefacts were discovered at Raystown and personal items are represented by copper-alloy and iron ringed pins, glass beads, lignite bracelets, bone combs and a copper-alloy ring. Horse bits were also found which further suggests that people of status resided here. Johnstown produced a copper-alloy pseudo penannular brooch, iron ringed and stick pins and a glass bead. All four sites also produced large quantities of animal bone and it is apparent that their inhabitants were people of some importance within their respective communities.

The only other sites with comparable material culture to the non-circular enclosures at Castlefarm, Laytown, Raystown and Johnstown, located outside Co. Meath, are Killickaweeny, Co. Kildare (Walsh and Harrison 2003; Walsh and Carlin forthcoming) and Millockstown, Co. Louth (Manning 1986). At Killickaweeny, personal items were represented by four outwardly scrolling iron pins, two incomplete pins, glass beads, bone comb fragments and pins. Large quantities of animal bone were uncovered and it is significant that Killickaweeny is located close to the Meath border and the enclosure at Johnstown. Millockstown produced a bronze peannular brooch terminal, a possible brooch fragment, a toilet implement, three ringed pins, a stick pin and an iron pin with an oval head. Notably, southern Co. Louth also borders Meath. The artefacts, and most notably the personal items, from many of the non-circular enclosures within, and on the margins of, the modern county of Meath suggest that this was a territory of considerable prestige. It appears that the people here had access to wealth and status items beyond that of communities further afield which may be related to their proximity to Tara. It should

also be noted, however, that Leinster, and in particular, the greater Dublin area has experienced considerable levels of development, in recent decades, compared with the rest of the country and this excavation-bias may be influencing this interpretation.

The remaining non-circular enclosures have produced a similar range of material culture but not in the same quantity and, notably, there are fewer items of personal adornment. The remaining county Meath sites within the study area - the raths, including their additional non-circular annexes, at Dowdstown (Cagney forthcoming) and Colp West (Clarke and Murphy 2001) - for example produced only a handful of personal items. A ringed pin, a brooch pin shaft and bone combs were uncovered at Dowdstown while Colp West produced a bronze pin, a bone comb and a glass bead. A similar number and range of personal artefacts were found at Balriggan, Co. Louth (Delaney and Roycroft 2003; Roycroft 2005), Ballycasey More, Co. Clare (O'Neill forthcoming) and Ballynacarriga, Co. Cork (Noonan et al. 2004).

The non-circular enclosures at Newtown, Co. Limerick (Coyne and Collins 2003; Coyne 2006), Lusk, Co. Dublin (Giacometti 2006), and Cahircalla More, Co. Clare (Hull and Taylor 2005), have produced very few artefacts, both personal and functional (see appendices at the back for further details), and will be assessed in greater detail in the following discussion.

The material culture from the non-circular enclosures under discussion suggests a hierarchical division of wealth. The following discussion will integrate these findings with the chronological, morphological and topographical results to consider how non-circular enclosures relate to our understanding of the early medieval period in Ireland.

NON-CIRCULAR ENCLSOURE DISCUSSION

When the chronological, morphological, landscape and material culture evidence is examined as a whole, it becomes apparent that the majority of early medieval non-circular enclosures were the dwelling places of relatively prosperous kin groups and small communities. The hierarchical divisions, noted above during the discussion on

raths, are applicable for the most part to our discussion here. No royal sites were identified because clearly none demonstrate the quantity and variety of material culture evident at Lagore, Knowth or Clogher and, also, there are no historical records to identify them as royal settlements.

Moving our way down to the middle social tier, namely the *bóaire* and lordly social grades, there is sufficient settlement and landscape evidence to suggest that many of the non-circular enclosures fall within this category. Roestown, Co. Meath (O'Hara forthcoming), provides the greatest archaeological evidence that this settlement once belonged to a family of possible noble rank. In terms of a sustained chronological sequence and a range of material culture, that included prestige items, imported pottery and demonstrated non-ferrous metalworking, Roestown was undeniably a settlement of importance in early medieval Brega. Its proximity to Lagore is also strongly suggestive of its probable lordly status. These sites are just three kilometres apart, they produced very similar artefacts, most notably their motif pieces in which the designs may have come from the same hand or workshop, and they were contemporary as both sites were occupied from the seventh until the late 10th/early 11th centuries (There is archaeological evidence that Roestown was occupied into the 12th and 13th/13th centuries as a medieval enclosure was located to the west of the settlement, which had previously functioned as a livestock enclosure – see O'Hara forthcoming). The settlement and landscape evidence suggests that Roestown and Lagore were socially and politically related and that perhaps the inhabitants of Roestown were the noble free clients of the residents within the royal crannog.

A way of recognising possible lordly settlements, therefore, may be to identify a range of material culture which includes a quantity of prestige dress items, imported pottery wares and evidence for non-ferrous metalworking and/or glass working. The site should also demonstrate a long chronological sequence that signifies it was a settlement of importance. Both a landscape study and historical research should investigate if the site is located in proximity to a royal site. If there are no historical references, it may be sufficient to identify large or multivallate raths, close-by, as a possible indicator of royal

settlement. Sites such as Roestown and the raised rath at Gransha, Co. Down (Lynn 1985), were probable lordly dwellings yet the hierarchical gap, notably in terms of the quantity of artefacts, between these and early medieval royal enclosures is considerable. There is less of a division, in terms of status, between lordly dwellings and the homes of wealthy free farmers.

Many of the remaining enclosures were probably the homes of well-to-do early medieval farmers such as those of *bóaire* rank. This can be attested by the large size of the enclosures, a reasonable quantity of artefacts, which include a range of functional items, necessary for farming and small-scale practical day-to-day activities, personal items, represented by ringed pins and, occasionally, brooches and evidence for prolonged occupational activity. The early medieval residents of Castlefarm, Co. Meath (O'Connell 2006; forthcoming), fall comfortably within this category and the archaeological evidence even hints at possible lordly status. The inner, and chronologically earliest, enclosing ditch was substantial, surrounding an area *c*. 90m by 70m. The final outer enclosing ditch was more impressive, measuring 120m by 100m. The artefactual evidence included many fine items of personal adornment, such as silver examples of a penannular brooch and a ringed pin, and the enclosure was occupied for a considerable period, between approximately the fifth or sixth until the 12th or 13th centuries. It is tempting to describe this as a lordly dwelling (Kinsella 2006) although it lacks evidence for foreign trade and non-ferrous metalworking but this may be offset by the fact that approximately only half of the enclosure was excavated. The archaeological evidence certainly indicates that Castlefarm was a high status site where wealthy individuals resided.

Killickaweeny, Co. Kildare (Walsh and Harrison 2003; Walsh and Carlin forthcoming) has been described this settlement as the dwelling place of a prosperous farming family and the range of artefacts, enclosure size and chronology is comparable to the settlement at Ballycasey More, Co. Clare (O'Neill forthcoming; see appendix at back). The raths at Colp West (Clarke and Murphy 2001) and Dowdstown (Cagney forthcoming), both in Co. Meath, differ slightly in that they were initially constructed as circular enclosures

with smaller enclosed spaces. However, the archaeological evidence for both sites shows that they were enlarged, either by annexing enclosures to the north and south of the original dwelling, as at Colp West, or by extending the site at Dowdstown to enclose a much bigger space. Both site modifications probably occurred contemporaneously, or within generations, and this may have been the result of familial pressures on resources, which required the enclosure of more land, or perhaps was the result of upward social mobility.

The square enclosure at Ballynacarriga, Co. Cork (Noonan et al. 2004), produced only a handful of personal artefacts, just three glass beads, some of which were unstratified. Also, animal bone was recovered in small quantities although this was the result of poor soil preservation. The low quantity of finds, however, can be offset by the remaining archaeological evidence, which indicates that prosperous farmers of free rank resided here. Firstly, a number of occupational phases were identified, both within the square enclosure and the L-shaped enclosure, which ran northwards from the original enclosure for 48m then turned west for a further 51m before terminating, and the settlement was occupied, over a prolonged period, between approximately the fifth and eleventh centuries. Secondly, the square enclosure contained a number of structures including a round house, a later rectangular house, four possible structures, two souterrains, a possible sunken oven, a corn drying kiln and several large pits. Finally, the L-shaped enclosure enclosed a number of other features including three round structures, two corn drying kilns, a cooking pit and a possible souterrain. The length of occupation and large number of structures, both within the square and L-shaped enclosures, indicate that a prosperous family and their descendants lived here over a number of centuries.

A plausible interpretation, I suggest, for the three round structures that were located in the upper, or L-shaped, enclosure is that they were the homes of dependent farm labourers. Spatially, they were separated and located outside the main enclosure while they were also situated further up the northern side of the valley, on noticeably sloping ground, which meant that the inhabitants did not enjoy the comforts of the flatter ground in the main settlement. The diameters of the structures were all close to the 6m average

suggested for early medieval round houses (Lynn 1978; 1994) and were of slot trench construction, a building style common to the period (ibid.). No hearths or artefacts were uncovered but this probably indicates the potential danger of lighting fires within small wooden buildings while the lack of artefacts possibly reflects the poverty of the inhabitants.

New heading here

Although highly idealised, the law-tracts nonetheless can be useful guides to certain aspects of early medieval society. The archaeological evidence reflects hierarchical divisions that existed in early medieval society, divisions that contemporary jurists and monkish writers incorporated into their texts albeit with the aim of protecting and containing their lofty social positions. The role of clientship features prominently in these writings and it seems reasonable to believe that one of the roles of the base client was to build and maintain the home of his lord (Charles-Edwards 2000, 71; Kelly 1997, 439-44). Prosperous freemen each held a number of base clients who performed the labour intensive work in, and around, their dwellings and when we consider this alongside the archaeological evidence, from many of the enclosures discussed above, it lends credence to their identification as the homes of wealthy free farmers and lords. Common throughout are prolonged periods of occupation where there is archaeological evidence for re-cuts and multiple habitational layers. The enclosed areas encompass a large space. Some of the sites have been expanded, such as Dowdstown, to incorporate larger enclosed areas while others have witnessed the addition of later enclosing ditches, as at Castlefarm. The field systems related to the settlements at Dowdstown and Roestown, for example, emphasise that considerable labour was required in the surrounding lands and the archaeological and historical evidence, in this case, demonstrates that low status individuals were socially and economically integral to maintaining the position of wealthy freemen within early medieval society.

A minority of the non-circular enclosures, within the study area, belong to the base of the hierarchical settlement division. The archaeological evidence depicts that their inhabitants had few material remains and that they were people of limited wealth. Only a

handful of finds were discovered from the D-shaped enclosure at Cahircalla More, Co. Clare (Hull and Taylor 2005) and the only personal item was represented by a copper-alloy ringed pin. An even smaller number of artefacts came from the sub-square enclosure at Lusk, Co. Dublin (Giacometti 2006). Both enclosures were below 40m in diameter and the sites are awaiting radiocarbon dates so it is too early to determine how long they were occupied for. The low levels of finds, however, would suggest a relatively short chronological sequence more in keeping with the majority of raths which were occupied between one and two centuries. Both enclosed areas also contained a minimal number of structures including an oval structure at Cahircalla More and two structures and a metalworking area within Lusk. The archaeological evidence demonstrates that both enclosures are comparable, in terms of their features and material culture, with the majority of early medieval raths which were the dwelling places of low status farmers and the semi-free.

Another non-circular enclosure which produced little in the way of finds was at Newtown, Co. Limerick (Coyne and Collins 2003; Coyne 2006). Personal items were represented by two glass beads and a glass armlet and functional artefacts consisted of a knife, a flint scraper and a hone stone. The site was a plectrum-shaped enclosure with a central figure-of-eight structure which measured 11m internally. Interestingly, the slot trench on the northern side of the structure revealed a flint scraper, some horse teeth and the top of an adult skull. This has been interpreted as a foundation deposit and, coupled with a general lack of animal bone and occupational evidence, may not have been a settlement but was possibly a pagan ritual site (Coyne 2006, 68-70). Newtown, therefore, appears to differ from the other non-circular enclosures, discussed above, because it was possibly a ritual site.

Coyne and Collins (2003, 18-9) were the first to suggest that non-circular enclosures represent a new early medieval site type. They based this view on the proposition that enclosures such as Newtown and Killickaweeny were high status sites that favoured hilltop locations rather than the mid-slope locations where raths are found. The shape and

landscape context of these sites were used as evidence to identify a new, and high status, early medieval settlement type.

A number of factors, including topographical constraints, may have contributed to the non-circular shape of the enclosures. Walsh and Delaney (2004) challenged Coyne and Collins' (2003) identification of a new site type and their association of Newtown with Killickaweeny. Insert a synopsis of their argument here. Topographic constraints, therefore, must have influenced the shape of the non-circular enclosure at Killickaweeny, (Walsh and Harrison 2003; Walsh and Carlin forthcoming). The D-shape of the enclosure at Roestown was the result of its location in the landscape because the presence of bedrock at the eastern side of the enclosure made the excavation of a circular enclosure more difficult (O'Hara forthcoming). We have seen above that six of the non-circular enclosures were located in proximity to bog, marsh or wet land and this, undoubtedly, would have impacted on the shape of the enclosure. Newman (1997, 201) has previously recognised that the topography was influential in ordering the size and shape of early medieval enclosures and it is clear from the above examples that, in certain instances, this was the case.

The presence of pre-existing upstanding structures may have influenced enclosure shape (Carlin 2005). Stout (1997, 14-5) has suggested that the circular shape of the rath was achieved by running a line from a central post but this became impossible if a structure was already present. It has been suggested that the enclosure at Raystown was originally circular but that its D-shape was the result of an expansion that was restricted by the presence of a milling complex (Mathew Seaver pers comm.).

A social dynamic was also prevalent in determining the shape of an enclosure. Giacometti (2006, 37) has interestingly demonstrated that the sub-square enclosure at Lusk, Co. Dublin, appeared circular and larger when approaching from the south towards the entrance of the settlement. The visitor crossed an impressive wooden bridge, indicated by large post holes, over the ditch which was deepest at this point. The banks were also more substantial here, a point no doubt observed by people approaching the

entranceway. The ditches and banks surrounding the remaining parts of the enclosure were less impressive which indicates that the occupants deliberately designed their settlement to appear more substantial than it was in reality. The residents of Lusk were amongst the lower social grades of early medieval society, evident by their sparse material culture. It may be that they were aspiring to a position in society that belonged to people who had greater material wealth and who resided within larger enclosures.

The results, from the above research, demonstrate that the archaeological evidence from many of the non-circular enclosures mirrors the findings from rath excavations. The majority of settlements equate to the homes of the prosperous free social grades, people who resided in both circular and non-circular enclosures depending on the surrounding landscape and/or the presence of pre-existing upstanding structures. For lower status individuals, enclosures were designed to appear more substantial than they really were, whereas those who had experienced a rise in fortunes, resulting in upward social mobility, expanded their settlements to enclose a larger space. It is much too simplified to state that non-circular enclosures differ to raths, based on their shape and landscape context, because a multitude of factors influenced the eventual appearance of early medieval enclosures while it has been demonstrated that these settlements occur in different topographic settings in the same way that raths are located on agriculturally productive land, marshland and in upland areas.

The integrated archaeological evidence now demands that we classify these sites as early medieval raths or enclosure sites. The term ringfort is a misnomer and fails to adequately describe the many non-circular raths or enclosures that are now being archaeologically discovered. An oversimplified view of the morphology, economy and status of early medieval raths has resulted in the identification of ‘new’ settlement types. It was first necessary to identify the complexity of rath settlement and move away from the stereotype that they were uniquely the homes of the wealthy free classes residing on only the most agriculturally productive lands. Once this was established, it was possible to identify the evidence for early medieval enclosed settlement as a whole and to suggest a three-tiered settlement model whereby royal sites are located at the summit, the raths of

lords and wealthy farmers are found in the middle and the homes of the majority of the early medieval population, low status farmers and the servile classes, are located at the bottom.

My research into non-circular enclosures has shown that the majority were the homes of wealthy farmers although Roestown and Castlefarm may once have been the dwelling places of lords. It is also evident that a minority were low status dwellings, resided in by those of the *ócaire* or semi-free social grades described in the contemporary law-tracts. It is hoped that the many non-circular enclosures that come to light during future excavations will be assessed against the above evidence and that the more appropriate term of rath will be used to describe these enclosures.

The enclosures of communities, market places and 'production' centres

The following non-circular enclosures at Johnstown (Clarke 2003; Clarke and Carlin forthcoming), Laytown (McConway 2002) and Raystown (Seaver 2005; 2006), all in Co. Meath, and Balriggan (Delaney and Roycroft 2003; Roycroft 2005), and Millockstown (Manning 1986), both in Co. Louth, differ from the other non-circular enclosures in the study area because they all contained cemeteries. Rather than being the homesteads of a small kin group and their retainers, these enclosures appear to represent the homes and workplaces of small communities that expanded over time and is evident through the digging of additional and larger enclosures and by the growth of their cemeteries.

It is the presence of the cemetery, I believe, that differentiates these sites from the other non-circular enclosures discussed above. The archaeological evidence from Johnstown, Co. Meath, for example, demonstrates that the settlement developed around its first burials and expanded thereafter in tandem with the growth of the cemetery (Clarke and Carlin forthcoming). The evidence from Raystown, Co. Meath, depicts a similar story whereby the burials returned the earliest dates from the site, from the early fifth century (Seaver 2006, 78), and it appears that the settlement and cemetery expanded from this. It has been suggested that the cemetery at Balriggan, Co. Louth, contained the burials of the extended community throughout the settlement's lifecycle (Dealaney and Roycroft 2003,

19) while the evidence from Laytown, Co. Meath, indicates that the cemetery came into existence during the early Christian phase of the site (McConway 2002) and was established for the burial of its initial settlers and continued in use thereafter. Millockstown, Co. Louth, differed in that the cemetery was established during the latter stages of Phase II and was mostly utilised during its final phase (Manning 1986). The final phase related to the significant enlarging of the enclosure and the cemetery was possibly established as a result of the growth of the settlement.

The amount of people that were buried within each cemetery differed. A total of 398 inhumations were recorded within the main cemetery at Johnstown, Co. Meath, which was utilised between the early sixth and eighteenth centuries (Clarke and Carlin forthcoming). Raystown, Co. Meath, was another large cemetery as approximately 133 burials were discovered and only half of the burial ground was excavated (Seaver 2006, 75-8). Smaller numbers were found in the remaining settlements, for example 80 inhumations were recorded at Laytown, Co. Meath (McConway 2002), and 49 burials were located at Balriggan, Co. Louth (Delaney and Roycroft 2003, 18; Roycroft 2005, 78). Clearly the number of individuals associated with each site and the longevity of use demonstrates that these were not the enclosures of small family groups but were settlements where communities lived, worked and buried their dead. In this respect they are markedly different from early medieval raths. Certain high status raths share similar artefacts and chronologies but none have produced large cemeteries. We then must ask ourselves are these enclosures ecclesiastical and, if not, what was their function and what can this tell us about the people who lived, worked and buried their dead here?

Swan (1983, 274) has listed, in order of frequency, the features that are most common to ecclesiastical sites and these are evidence, firstly, of an enclosure, a burial area, place-name evidence with an ecclesiastical element, a structure or structural remains, a holy well, a bullaun stone, a carved, shaped, inscribed, or decorated stone cross or slab, the line of a townland boundary forming part of the enclosure, a souterrain, a pillar stone, a founder's tomb and, finally, associated traditional ritual or folk custom. He follow this with the assertion that few sites will demonstrate all of the above features but that the

majority will have between four and five and none will have less than three. The average size of ecclesiastical enclosures is between 90m and 120m while a significant amount range between 140m and 400m. The place-name evidence is dominated by the Irish words *Cell*, *Discert* and *Domnach*, which have since been anglicised to Kil(l), Desert and Donough, respectively, and will commonly be used in conjunction with a founding or patron saint. During the later medieval period, terms such as Grange, Glebe and Temple were commonly used (ibid.). Hamlin (1992, 144) has since argued that clear evidence for both a church and burials must be present for it to be considered ecclesiastical in nature.

The size and place-name evidence for the non-circular enclosures discussed above suggests that they were not ecclesiastical settlements. The enclosure sizes were generally smaller (see appendices) while none display place-names that are characteristic of church sites. All settlements were occupied during the latter part of the first millennium and into the second millennium but none have produced evidence for a church. It has been suggested that stone churches replaced wooden structures, between the eighth and tenth centuries, and that they were widespread by the twelfth century (Edwards 1990, 112). We would, therefore, expect to locate the remains of a church within these enclosures, especially as they were occupied across such a long period, yet none were identified. You need to refer to the other items listed above (holy well, a bullaun stone, a carved, shaped, inscribed, or decorated stone cross or slab, the line of a townland boundary forming part of the enclosure, a souterrain, a pillar stone, a founder's tomb and, finally, associated traditional ritual or folk custom).

The archaeological evidence points to the existence of secular communities living, working and burying their dead within their enclosed spaces and the historical sources, from both the early and later medieval periods, confirms that communities were burying their dead in unconsecrated ground. O'Brien (forthcoming) has stated that the laity were buried in familial cemeteries up until the early eighth century and that burial within monastic cemeteries was reserved for important and high ranking individuals. During this period, the Church began encouraging communities to abandon their ancestral burial grounds in favour of their cemeteries. O'Brien (ibid.) suggests that the Church was successful in dealing with this problem and that, by the ninth century, burial in familial

cemeteries had ended. Charles-Edwards (2000, 104-5) also, through an analysis of the historical sources, suggests that the ordinary members of the early medieval *túath* were buried in ancestral cemeteries whilst consecrated ground was exclusively reserved for the clergy.

The historical sources from the later medieval period, contra to O'Brien's assertion that burial had ceased in secular cemeteries by the ninth century, indicates that communities continued to bury their dead in non-ecclesiastical enclosures and in open fields. A letter to the pope, dated to AD 1412, from a community in Co. Derry, describes how many "parishioners who have died without sacraments and have been buried in the fields" (quoted in Leigh Fry 1999, 45). Leigh Fry (ibid.) has also shown that burial in unconsecrated ground occurred in Britain and France in the later medieval period. The archaeological and historical evidence, therefore, combines to demonstrate that communities were burying their dead, throughout the middle ages, in ancestral cemeteries. It is probable that the majority of communities were Christian but that they maintained links with their pagan past and that the conversion to burial in consecrated cemeteries was a slow process whereby the speed of change differed within each community and village.

The cemetery, rather than being removed from the daily life of the community, was at its centre (Leigh Fry 1999, 47). This statement certainly agrees with the archaeological evidence from the non-circular enclosures, discussed above, and indeed with many examples of recently excavated early medieval cemeteries that have shown evidence for related industry and settlement. The cemetery at Augherskea, Co. Meath, for example, contained 197 inhumations. To the east of the burial ground was an area of agricultural activity while the uncovering of artefacts, to the west, indicated settlement evidence (Baker 2002). Tobin (2003, 32-7) has suggested that the cemetery and settlement at Corbally, Co. Kildare, was utilised as a market fair or *óenach*. Twenty six corn drying kilns were located in proximity to the burials and the excavator has suggested that there was evidence for alcohol production in the form of pits containing barley, wheat and oats. Without going into detail, other excavated examples of early medieval settlement, burial

and industrial sites include Knoxspark, Co. Sligo (Mount 2002), Mount Offaly (Conway 1998) and Gracedieu (Conway 1988; 1999), both in Co. Dublin, Colp West, Co. Meath (Gowen 1988), and Parknahown, Co. Laois (O'Neill 2006).

A quote taken from Philippe Ariés (cited in Leigh Fry 1999, 47), regarding a medieval French cemetery, is of interest because it served as a:

> "Place for procurements, auctions, proclamations, sentences; scene of community gatherings; promenade; athletic field; haven for illicit encounters and dubious professions… it was the public place *par excellence*, the centre of collective life… for a very long time, before it was isolated from the church, the cemetery was the public square".

Significantly, similar activities were historically recorded at the early medieval cemetery and *óenach* at Teltown, Co. Meath. The yearly fair originated from the funeral processions of important and high ranking individuals and consisted of communal gatherings where the business of the *túath* was conducted, goods were exchanged, social ties and relationships were arranged and games and sports occurred including horse racing and athletics (see Swift 2000). Burial mounds, or *ferta*, during the early medieval period were perceived, real or imaginary, as ancestral burial places. *Ferta* functioned as territorial boundary markers (Kelly 1988, 186–9) and claims to territories, and important legal decisions, were made through an association with these burial mounds (see O'Brien forthcoming; Swift 1996). The early and later medieval historical sources from Ireland, Britain and France indicate that burial mounds and cemeteries were central to the everyday lives of the surrounding communities and that a range of important social, economic and political activities were performed in proximity to the resting place of their ancestors.

I suggest that certain large non-circular enclosures hosted a number of functions. They were once places where market fairs occurred, they were places where people lived, worked and buried their dead, they were places where the community's legal business was performed and it appears that some grew to become agricultural 'production' centres beyond the scope that we generally think in terms of the subsistence and self-sufficient

economies of early medieval farmsteads. These settlements were occupied for centuries and grew accordingly. It is possible that they began as familial enclosures, which expanded over time, and developed into larger settlements. The archaeological evidence demonstrates that individuals of wealth and prestige resided within these communities, represented by the many finds, including brooches and other dress items, such as those discovered at Johnstown, Co. Meath (Clarke 2003; Clarke and Carlin forthcoming), and Millockstown, Co. Louth (Manning 1986). It is possible that the settlements developed around the burial places of high ranking individuals and that this association resulted in the successful growth and development of the community. Brady (2006) has suggested that there is archaeological evidence for a vibrant economic structure much earlier in the early medieval period than the tenth century which is accepted by historical scholars. Brady (ibid.) identifies Raystown, Co. Meath (Seaver 2005; 2006), as an example of this development due to the presence of at least eight watermills and five cereal drying kilns. I believe the presence of the burial ground, which was established before the construction of the mills, and the quantity of finds, over 900, suggests that Raystown functioned originally as a settlement, burial place and an *óenach* site. Horse bits, for example, were discovered which may be a hint at the horse racing and games associated with market fairs (Reference). They are also high status artefacts which demonstrate that people of rank once resided or stayed here. Perhaps Raystown developed from hosting an annual market fair into a centre of large scale agricultural production.

It appears that the non-circular settlement and burial enclosures developed in size and function across generations. Sites such as Raystown (Seaver 2005; 2006) and Laytown (McConway 2002), both in Co. Meath, and Balriggan, Co. Louth (Delaney and Roycroft 2003; Roycroft 2005), display a number of annexes and field systems that indicate a growth in agricultural activities. Johnstown, Co. Meath (Clarke 2003; Clarke and Carlin forthcoming) produced over two tonnes of metallurgical waste which suggests that large-scale ironworking was undertaken on site throughout its occupation and also revealed a possible watermill and mill race. The enclosures were occupied for a prolonged period and have produced a rich material culture. In many ways, however, they resemble the high status raths, such as Roestown for example, which have also produced evidence for

a long occupational sequence, prestige artefacts and accompanying annexes and field systems. It is the presence of the cemetery that indicates the difference between these sites. Communities rather than families resided within the enclosures and the historical evidence gives an insight into the types of activities that occurred in association with burial grounds. The cemetery linked the community to their land and was the focal point for communal gatherings and important events such as market fairs. The dwellers of raths throughout the *túath*, therefore, attended functions, meetings and markets at settlement and cemetery sites throughout the year and these enclosures acted as a central meeting place for the dispersed population. From there they may have developed into agricultural and/or industrial 'production' centres.

CONCLUSION

This paper has investigated the evidence for early medieval non-circular enclosures in Ireland. It must be stated that many of the sites discussed above are awaiting final publication and my research findings and interpretations may alter as new information comes to light. A true reflection of the evidence will only be possible when a greater number of non-circular enclosures are excavated and published. I hope through my research, therefore, that this paper will challenge people's perceptions about early medieval enclosures and the families and communities who lived within.

It was not possible to investigate the archaeological evidence for non-circular enclosures before firstly examining what we perceive was the social and economic function of early medieval raths. It has been argued that a simplistic narrative dominates current archaeological literature whereby only the free social grades lived within circular enclosures found uniquely on agriculturally productive lands. It is this oversimplified view of rath settlement that has resulted in the separation of early medieval enclosures based on their non-circularity and their supposed uniform location on hilltops. When the integrated archaeological evidence for a range of circular and non-circular enclosures was examined, I have found that there is variation regarding their chronological, topographical and artefactual evidence. These enclosures can be placed into a three-tier social hierarchical model that encompasses the homes of royalty at the summit, lords and

wealthy farmers at the centre and, the majority of the population, low status farmers and the servile classes at its base. The circularity of the enclosure, therefore, was not an issue in determining the function and status of the enclosure. The findings revealed that a majority of the non-circular enclosures were the homes of prosperous farmers while the evidence from Roestown is suggestive that this was a lordly dwelling. Only a small number could be considered low status settlements but an examination of a higher quantity of non-circular enclosures may conceivably alter these findings.

I have suggested, due to my research findings, that the term ringfort should now be abandoned in favour of the less misleading and more appropriate term of rath. By labelling early medieval enclosures as raths there should be no confusion regarding the future identification of the sites based strictly on their morphology. Indeed, this is not a new idea as a perusal through the *Ulster Journal of Archaeology* journals will reveal a host of non-circular enclosures described as raths.

However, a growing number of early medieval settlement sites with associated burial and industrial activity are being discovered. They are similar in morphology, chronology, landscape context and material culture to many high status raths. The significant difference being, I believe, the presence of associated cemeteries. The archaeological evidence demonstrates that agricultural and industrial activities were occurring at a much greater level than those found on the majority of raths. The historical sources indicate that cemeteries and burial mounds were the focus for a range of social, political and economic functions in medieval Ireland. The cemetery, therefore, was a permanent feature in the landscape that confirmed the importance and status of the associated individuals. The settlements grew, as a result, until they enclosed communities involved in a diverse range of activities including large-scale agricultural and industrial production relevant to the surrounding raths. These large enclosures ultimately functioned as the focal point for the surrounding population.

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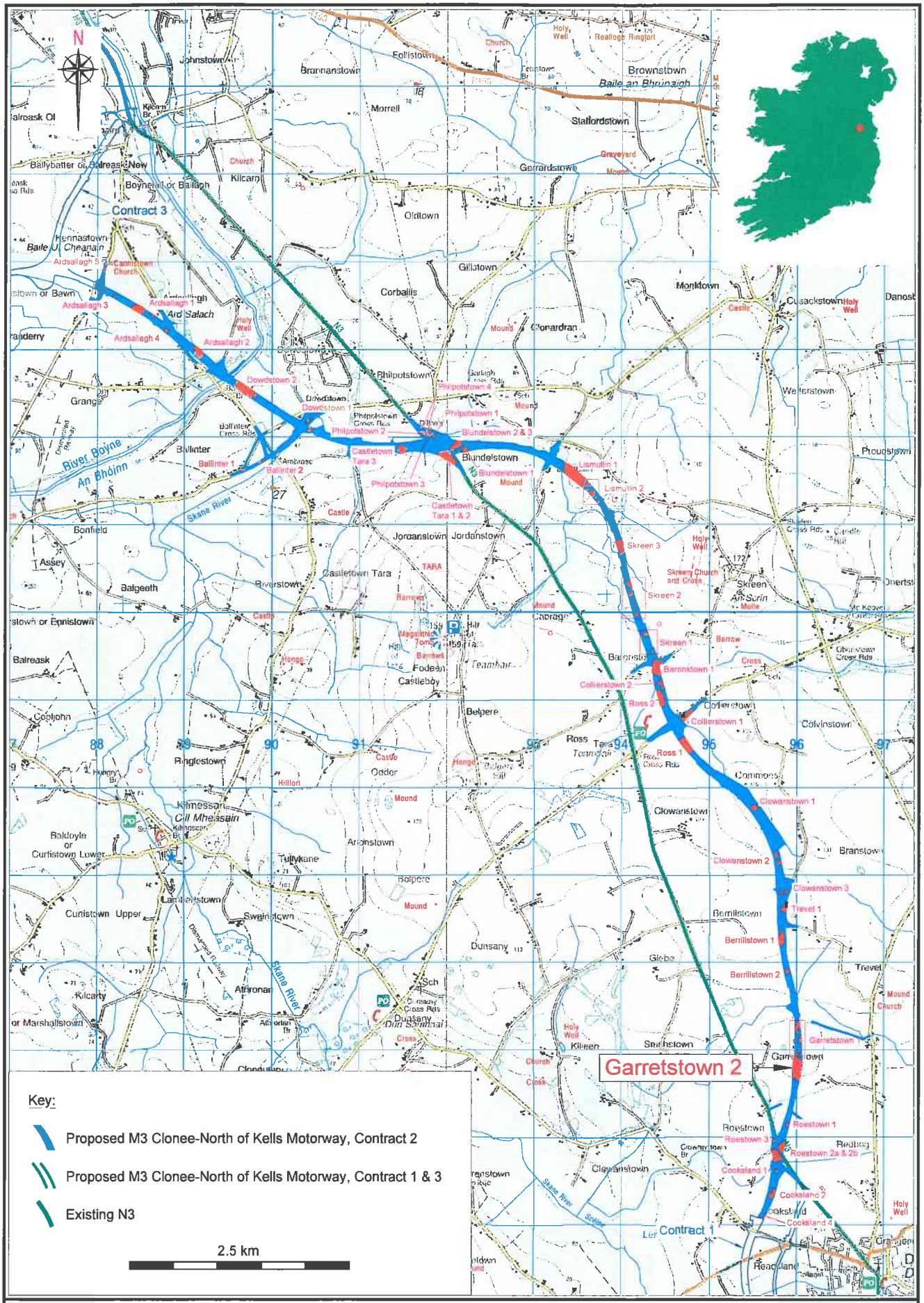
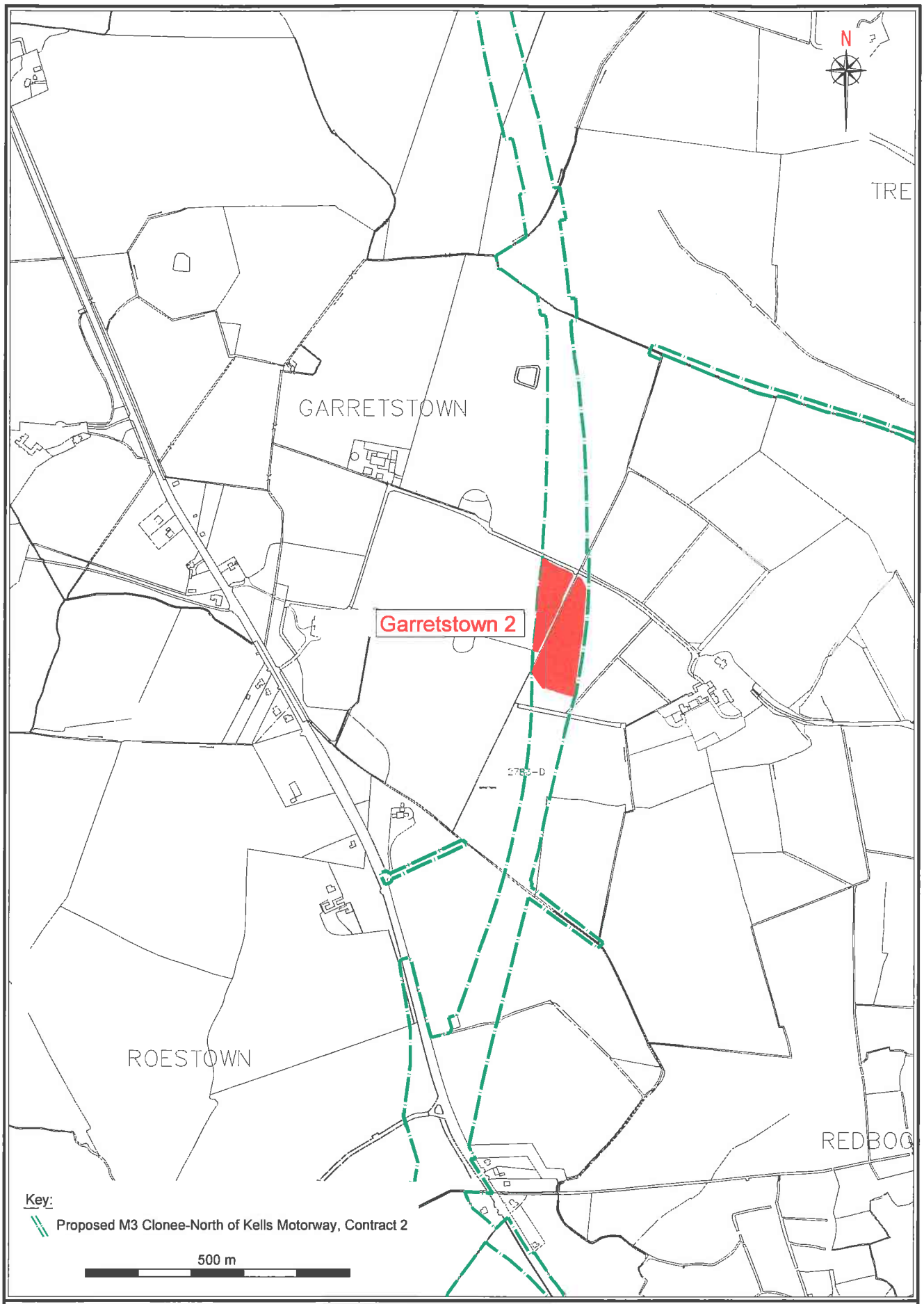


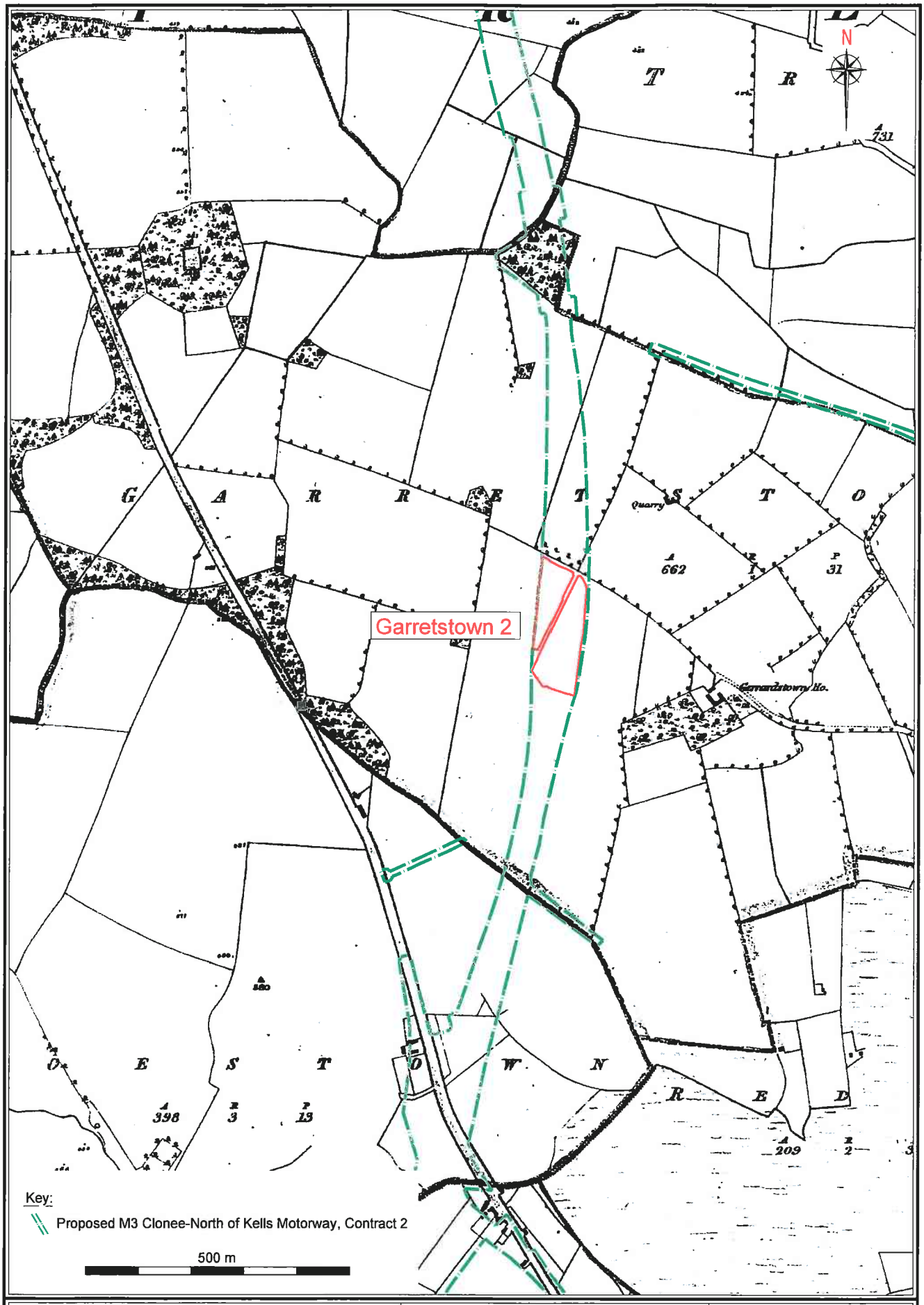
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:60,000 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: OSi Discovery Series
	Client: Meath County Council	Drawing no.: 04_01_C4094

Figure 1: Location of Garretstown 2



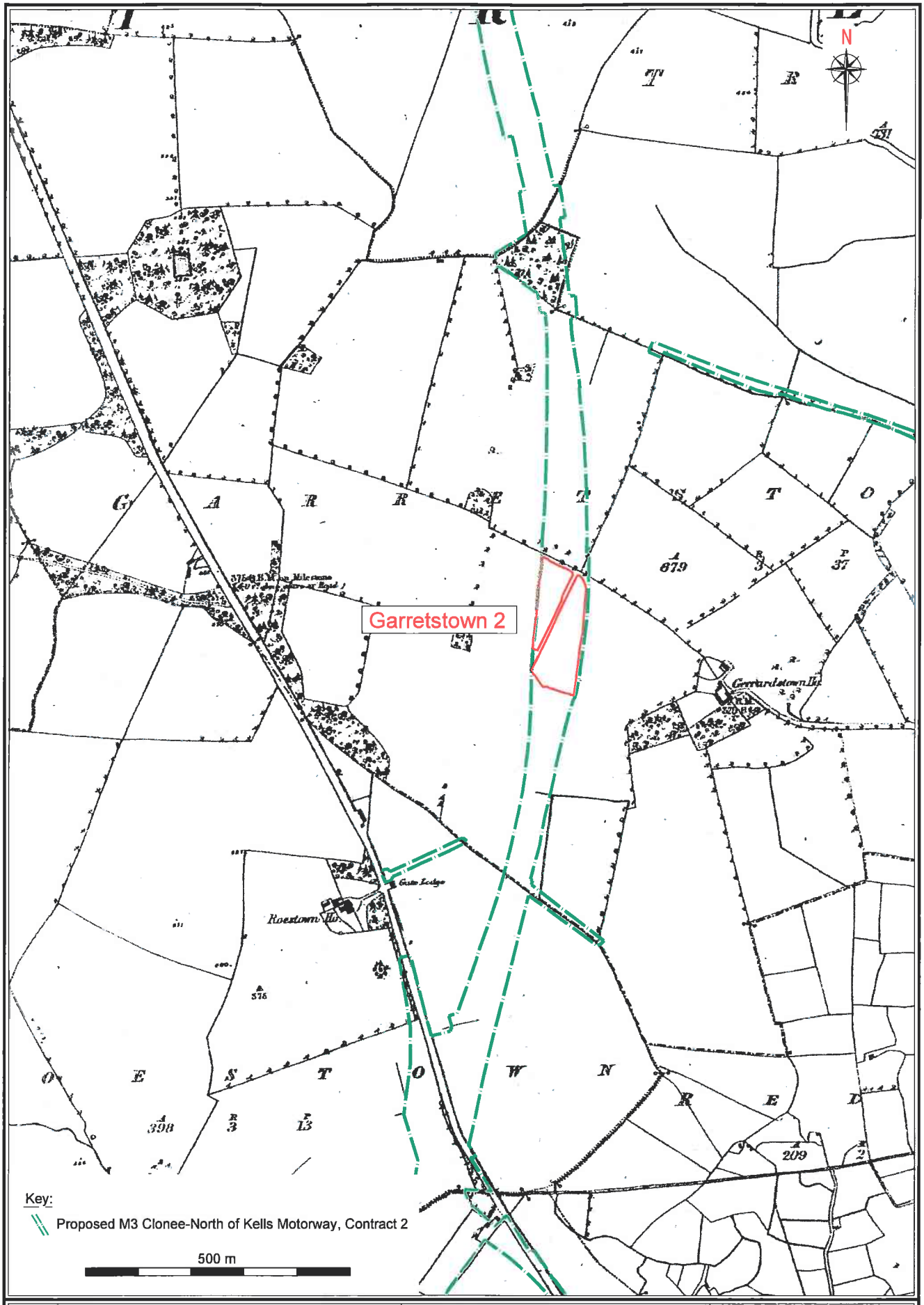
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:10,000 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4095

Figure 2: Location of Garretstown 2 on current OS background



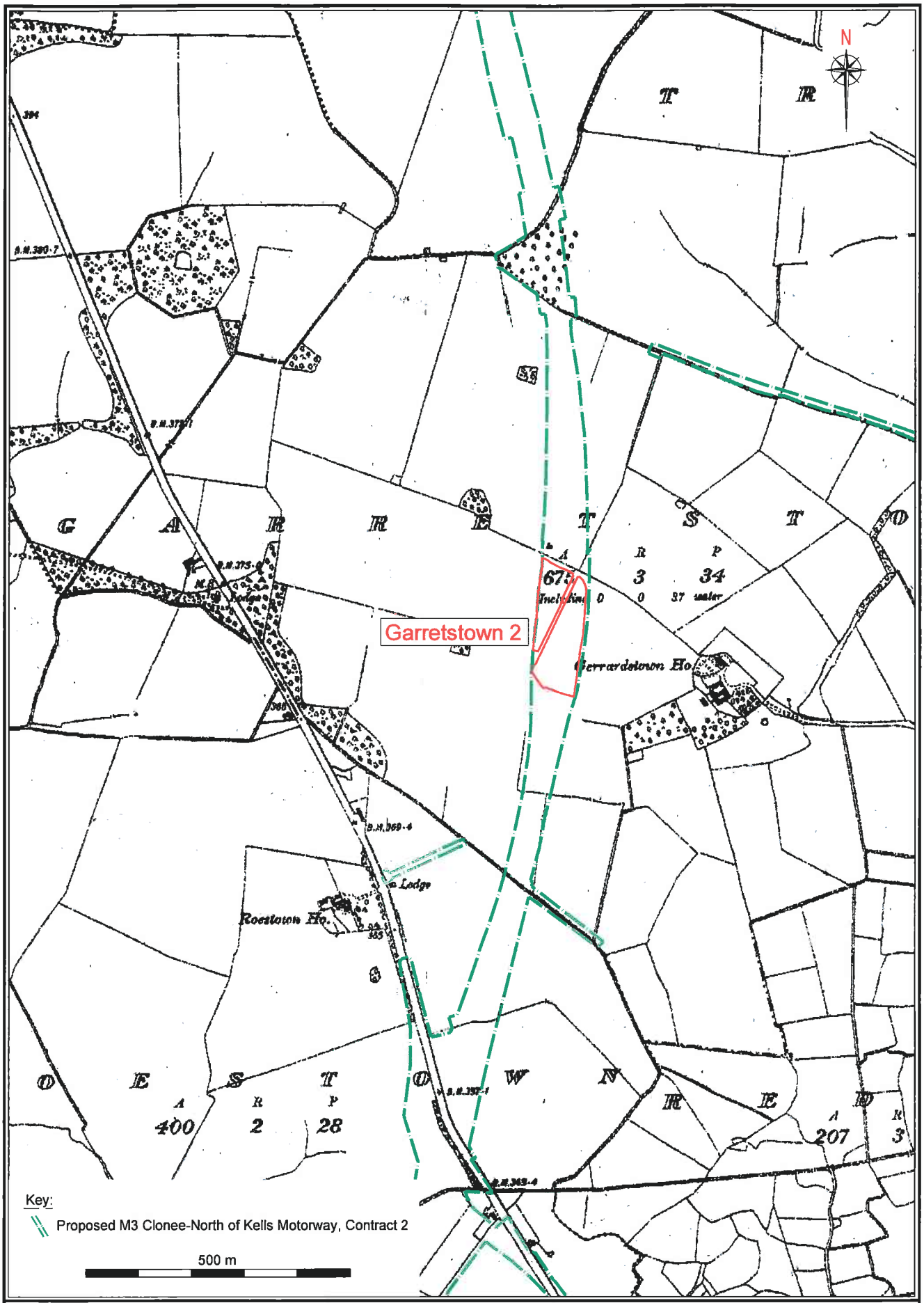
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:10,000 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: OSi (1836)
	Client: Meath County Council	Drawing no.: 04_01_C4096

Figure 3: Garretstown 2, extract from 1st edition OS map, Meath sheets 38



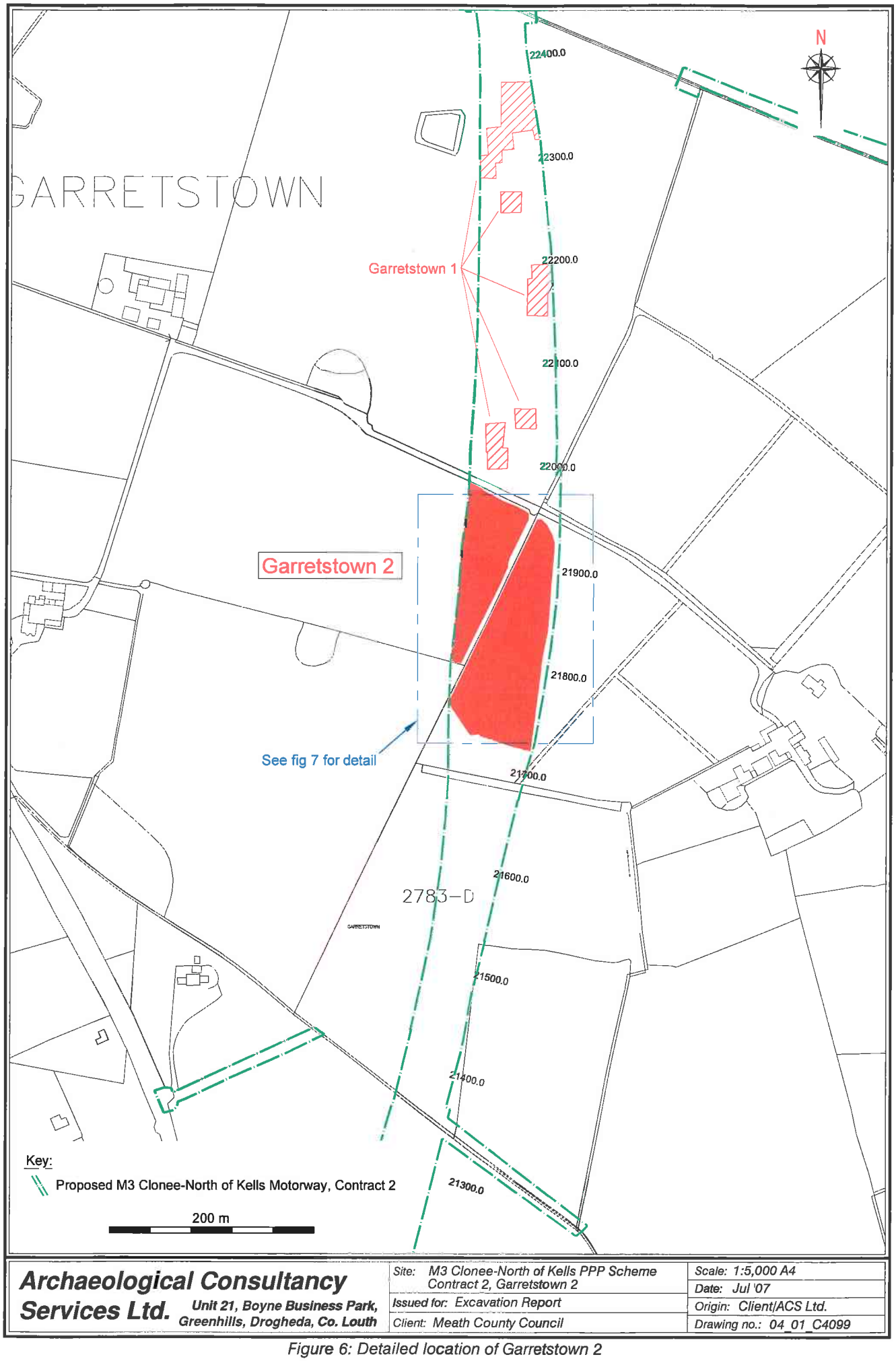
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:10,000 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: OSi (1883)
	Client: Meath County Council	Drawing no.: 04_01_C4097

Figure 4: Garretstown 2, extract from 2nd edition OS map, Meath sheets 38



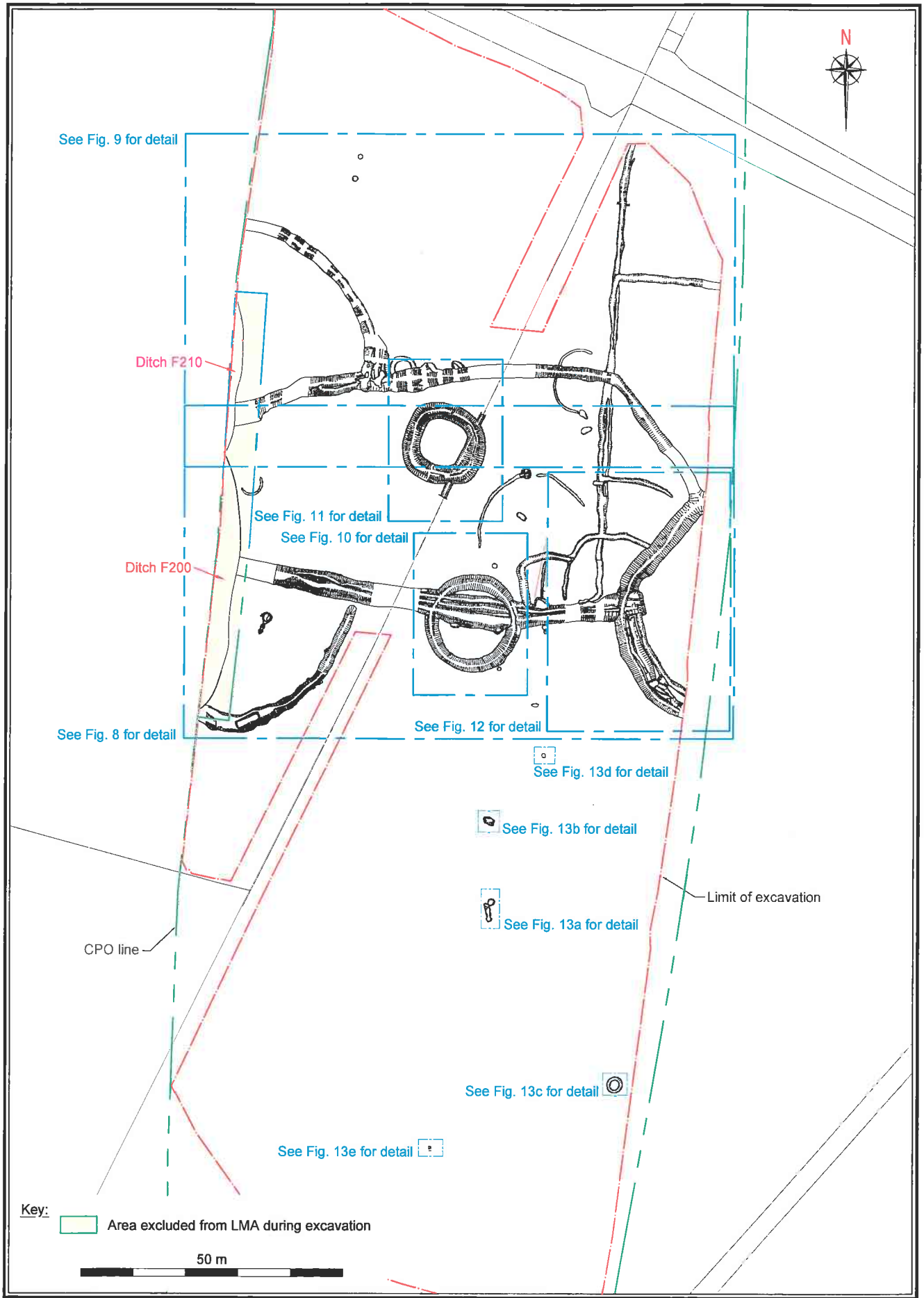
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:10,000 A4
		Date: Jul '08
	Issued for: Excavation Report	Origin: OSi (1909)
	Client: Meath County Council	Drawing no.: 04_01_C4098

Figure 5: Garretstown 2, extract from 3rd edition OS map, Meath sheets 38



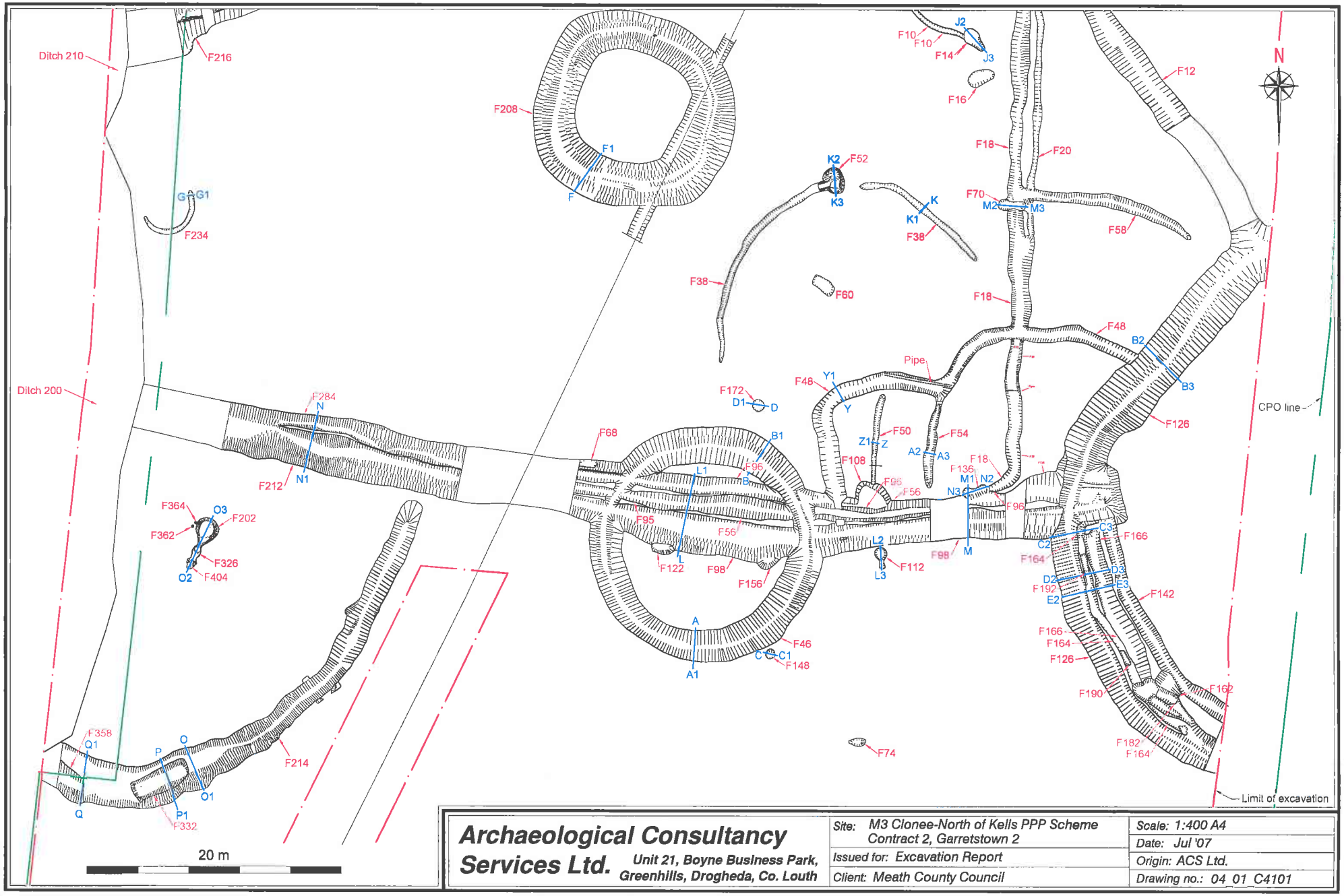
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:5,000 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4099

Figure 6: Detailed location of Garretstown 2



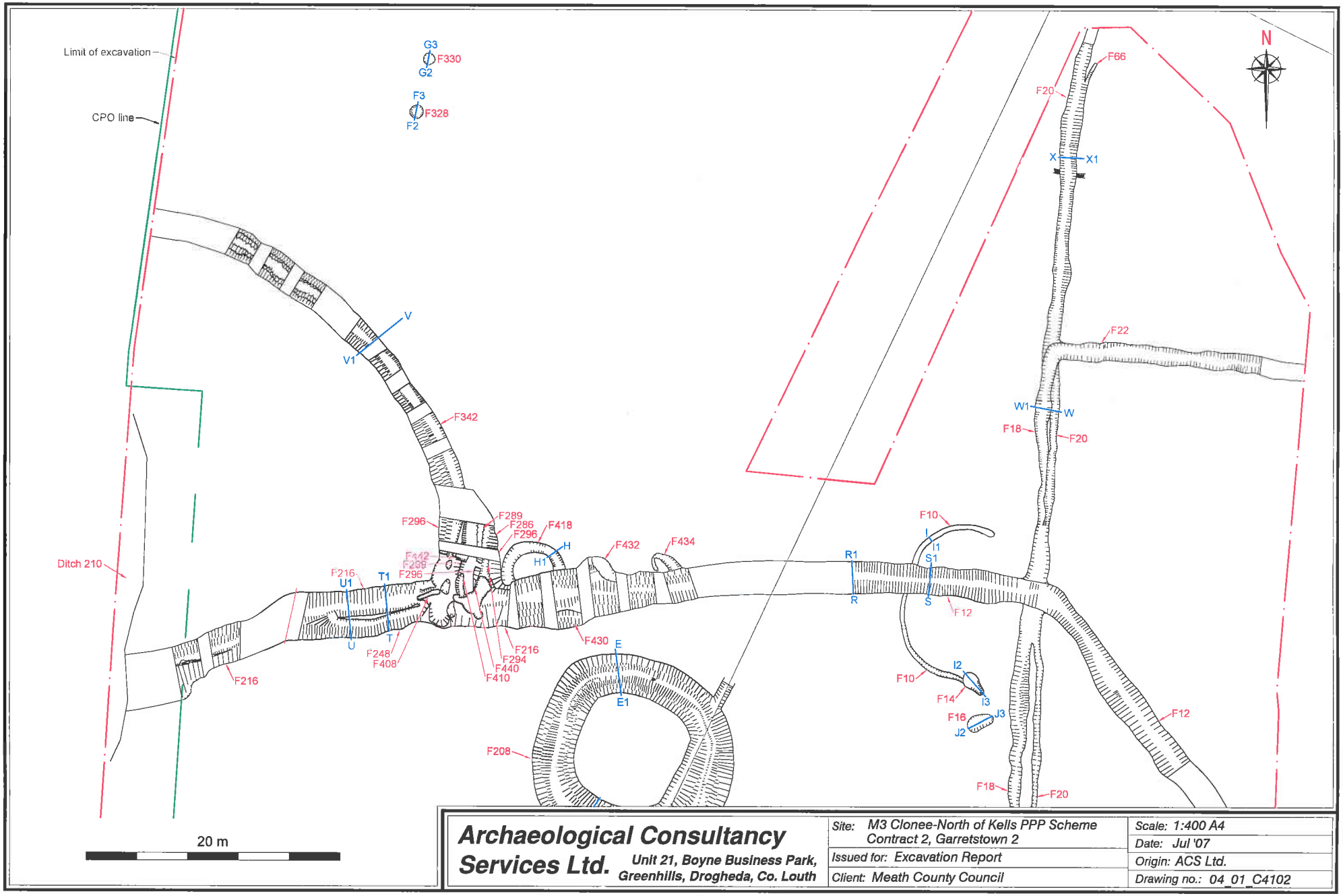
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:1,000 A4
		Date: Jul '08
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4100

Figure 7: Plan of site



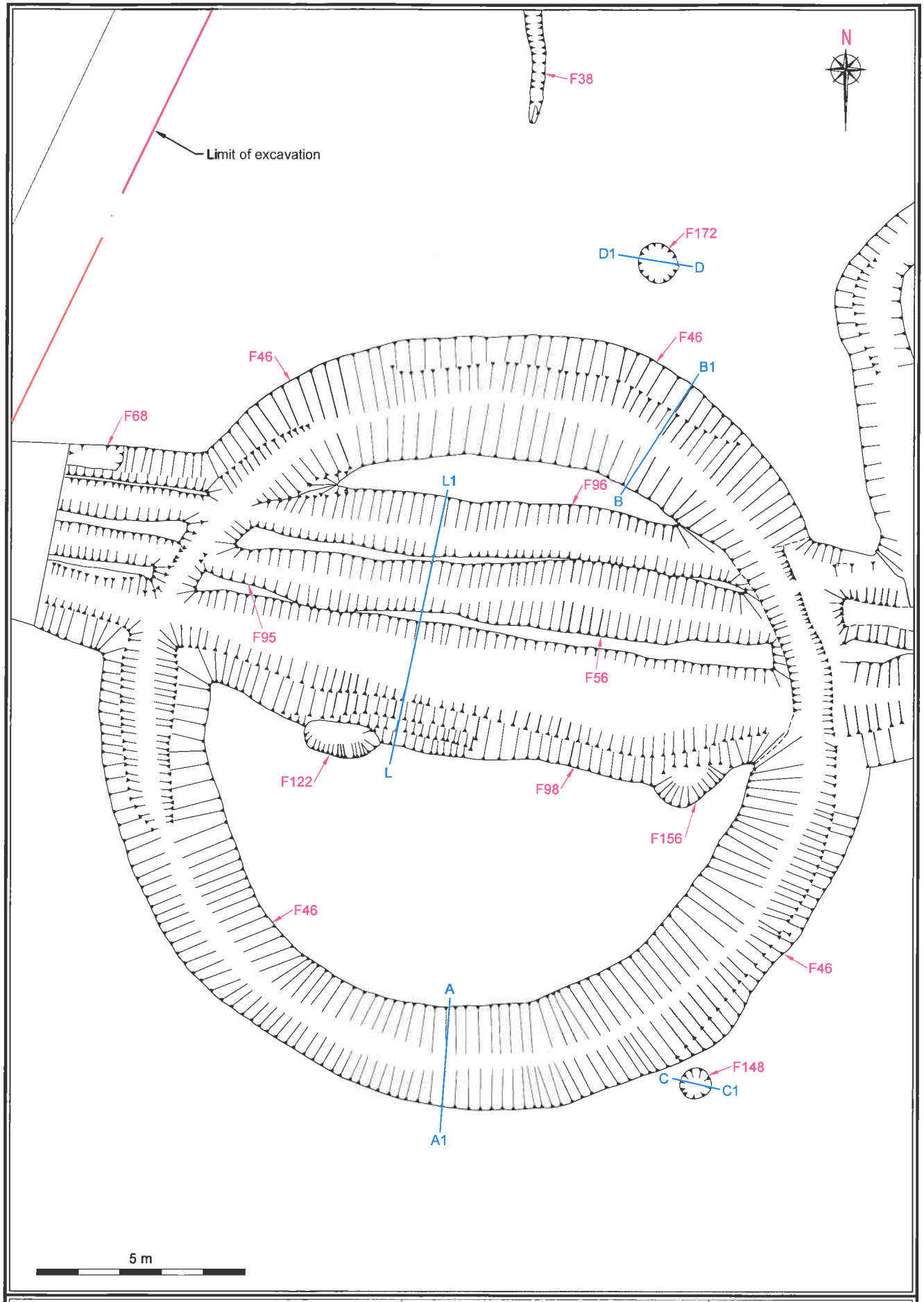
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:400 A4
	Issued for: Excavation Report	Date: Jul '07
	Client: Meath County Council	Origin: ACS Ltd.
		Drawing no.: 04_01_C4101

Figure 8: Post-excavation plan of southern half of the site



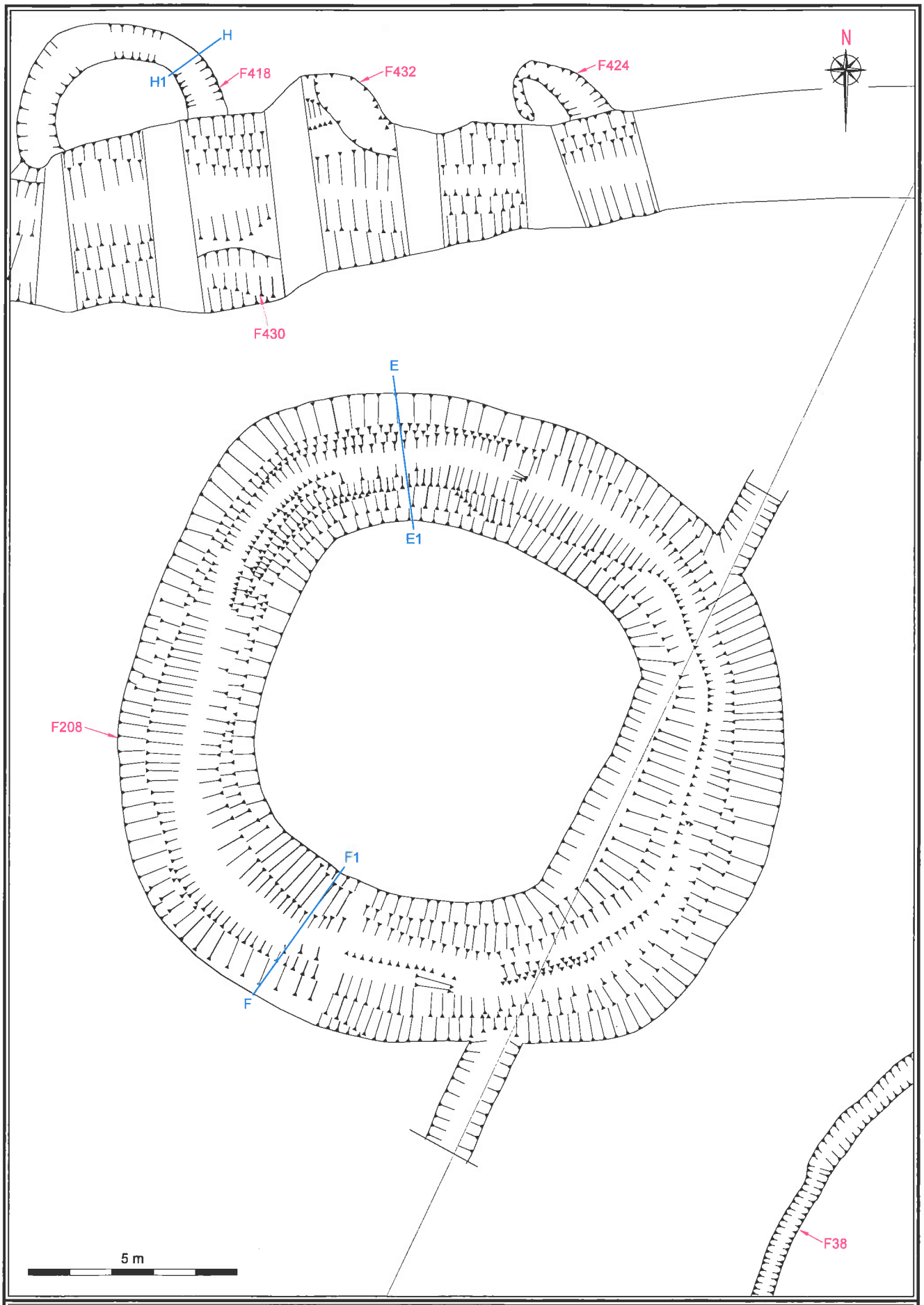
Archaeological Consultancy Services Ltd.	Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:400 A4
			Date: Jul '07
		Issued for: Excavation Report	Origin: ACS Ltd.
		Client: Meath County Council	Drawing no.: 04_01_C4102

Figure 9: Post-excavation plan of northern half of the site



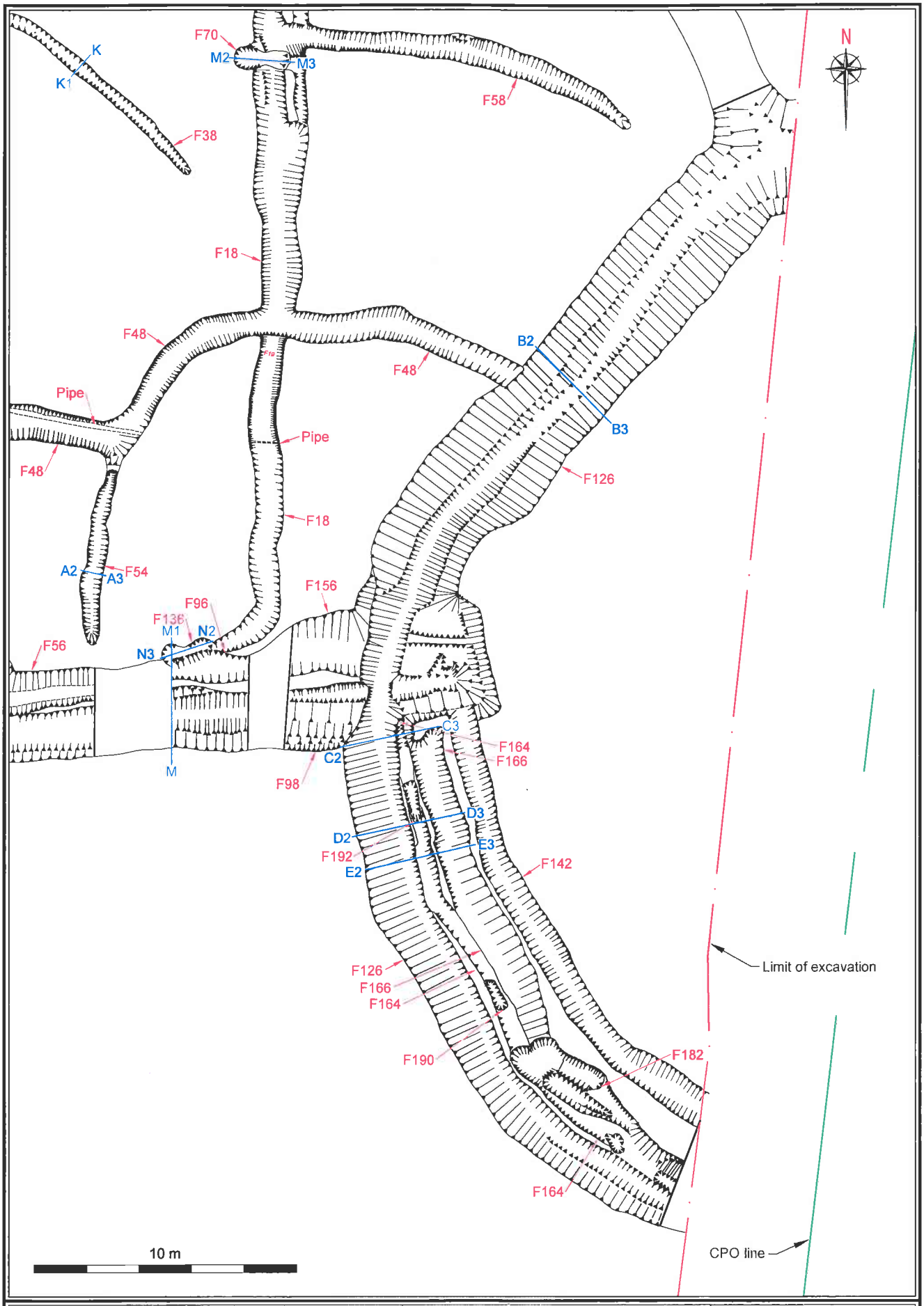
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:125 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4103

Figure 10: Detail of ringditch F46



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:125 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4104

Figure 11: Detail of ringditch F208 & F418



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:200 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4105

Figure 12: Detail of ringfort F126

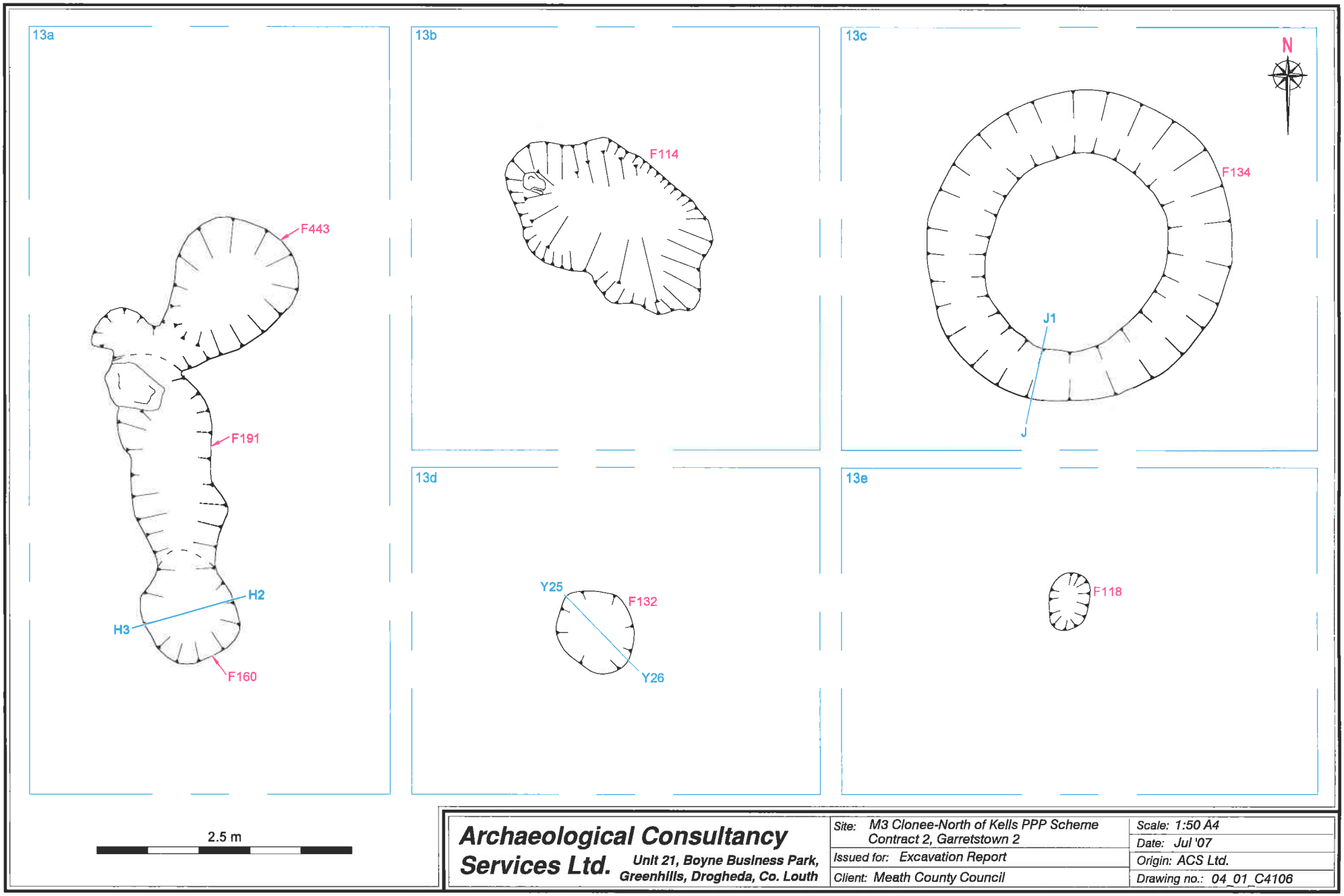


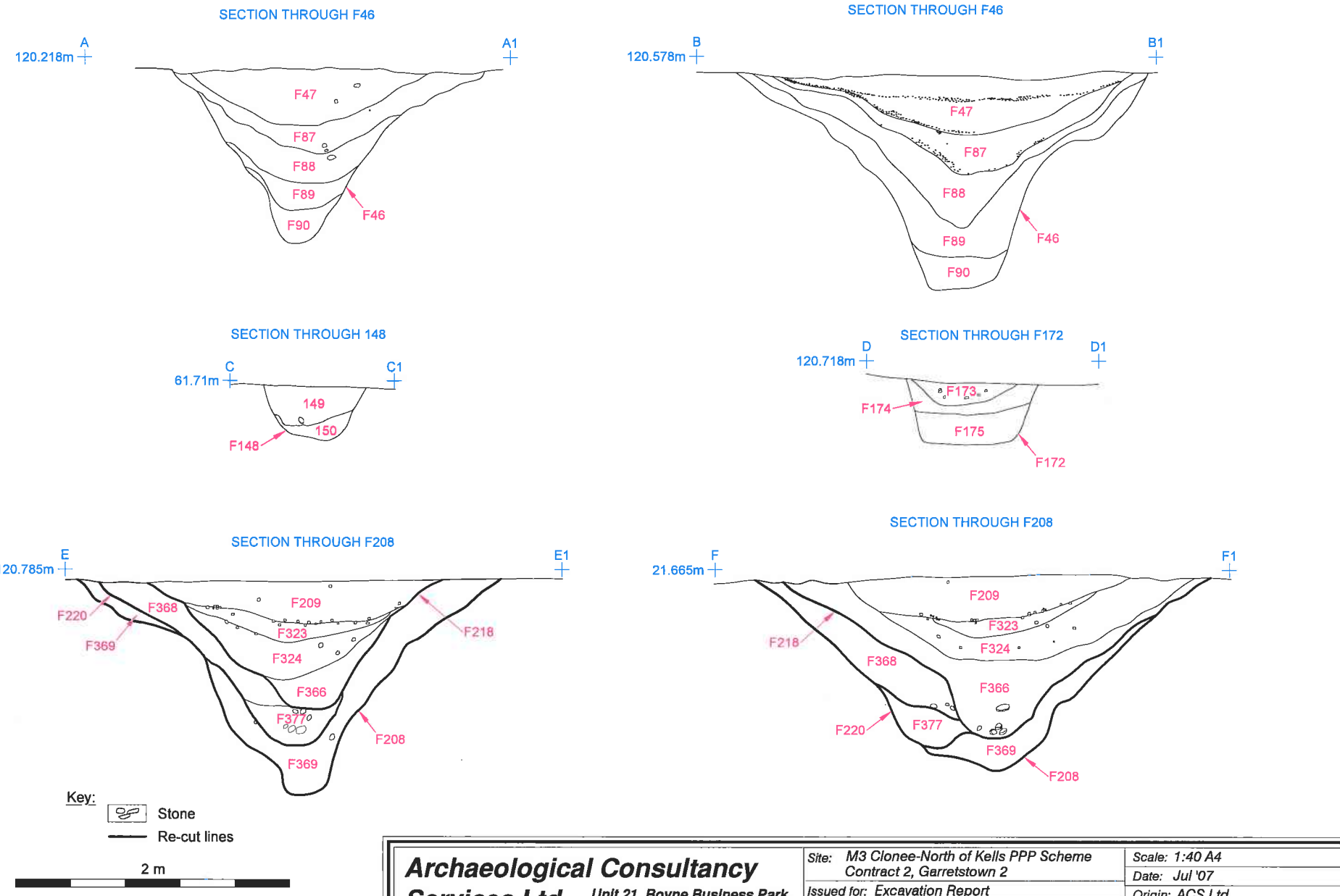
Figure 13: Post-excavation plan of F114, F118, F132, F134, F160 & F443

Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:1,000 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4107

Figure 14: Detail of site showing geophysical survey done outside the CPO

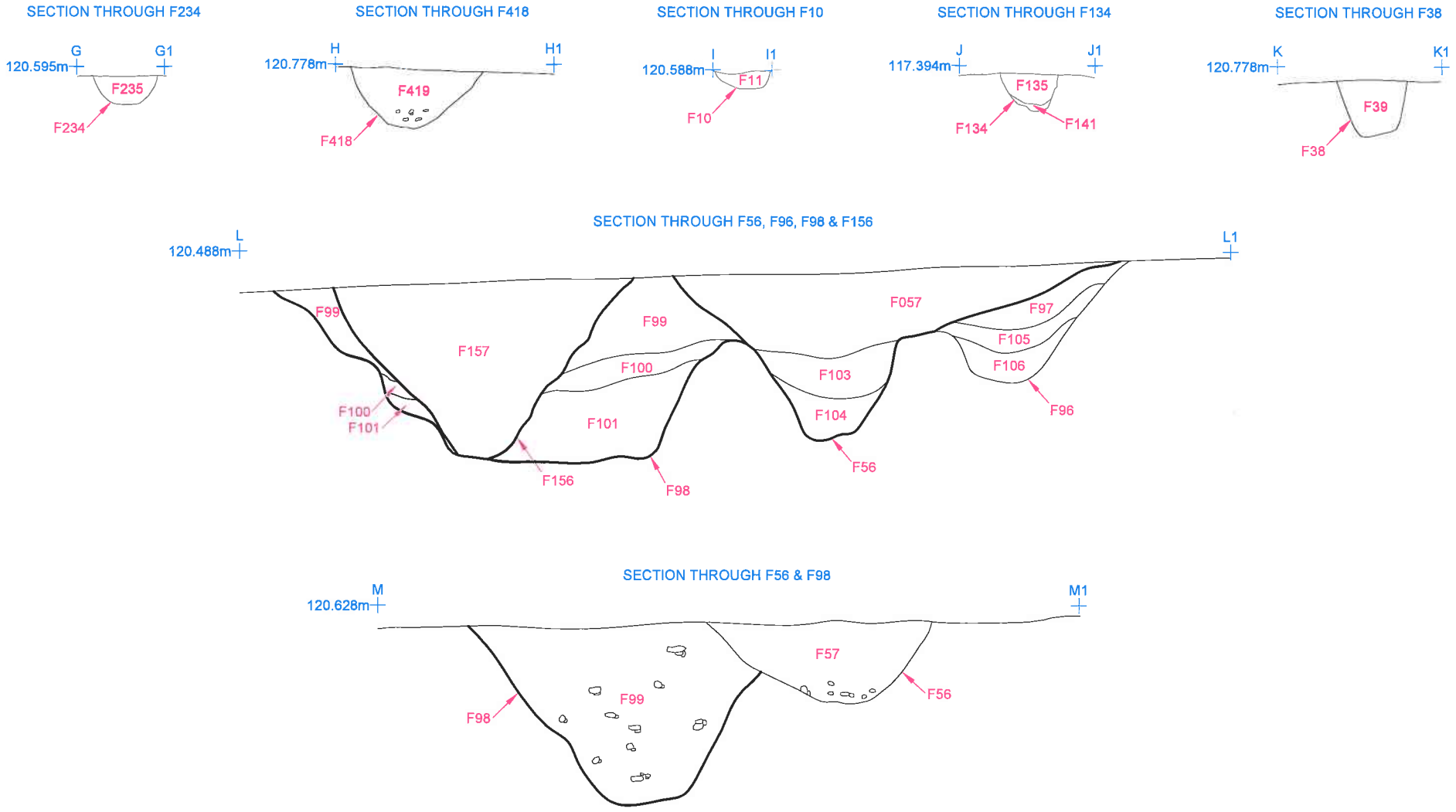
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1: 600 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4108

Figure 15: Detail of site showing phases



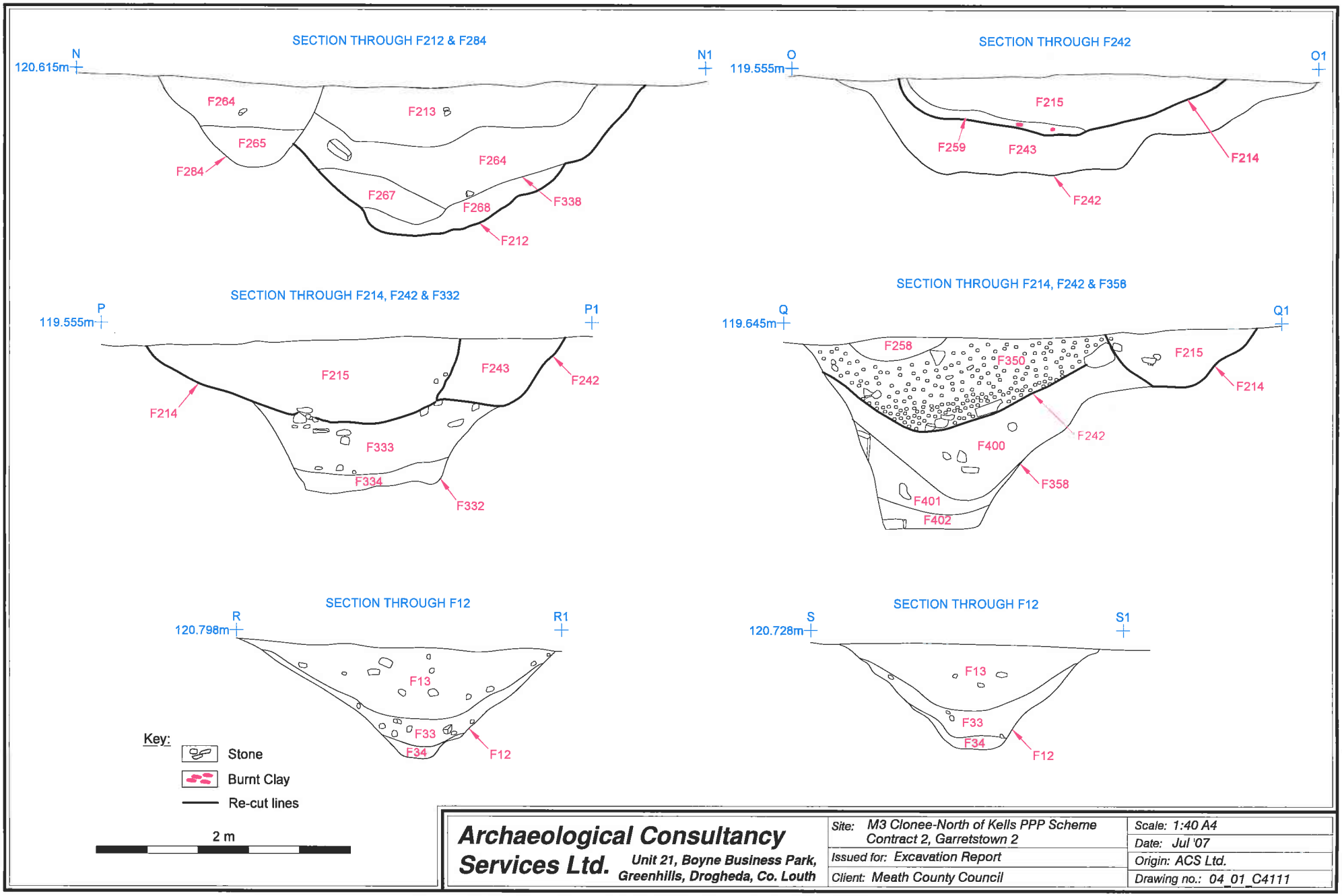
Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:40 A4
	Issued for: Excavation Report	Date: Jul '07
	Client: Meath County Council	Origin: ACS Ltd.
		Drawing no.: 04_01_C4109

Figure 16: Sections through F46, F148, F172, F208



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:40 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4110

Figure 17: Sections through F10, F38, F56, F96, F98, F134, F156, F234 & F418



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:40 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4111

Figure 18: Sections through F12, F212, F214, F242, F284, F332 & F358

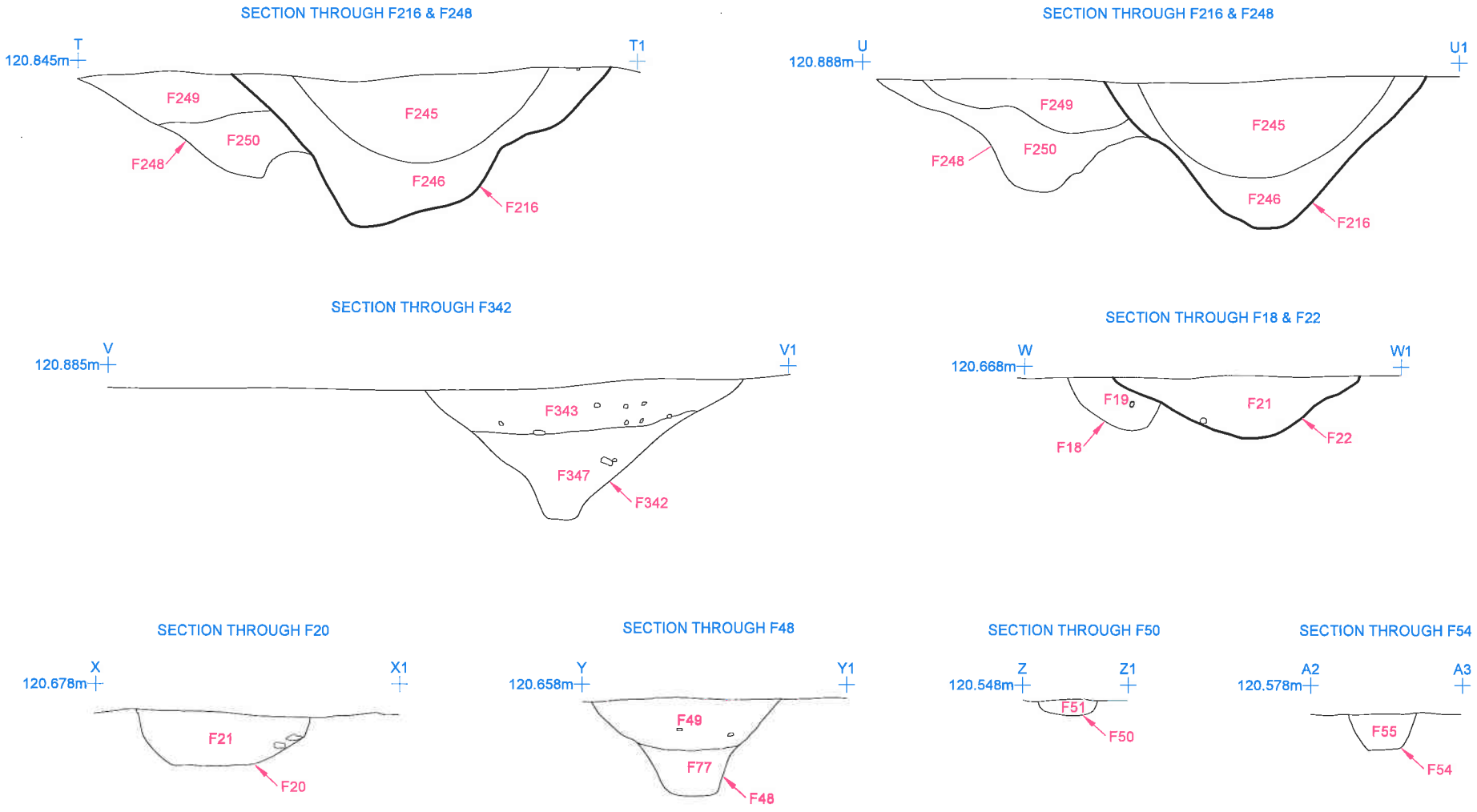
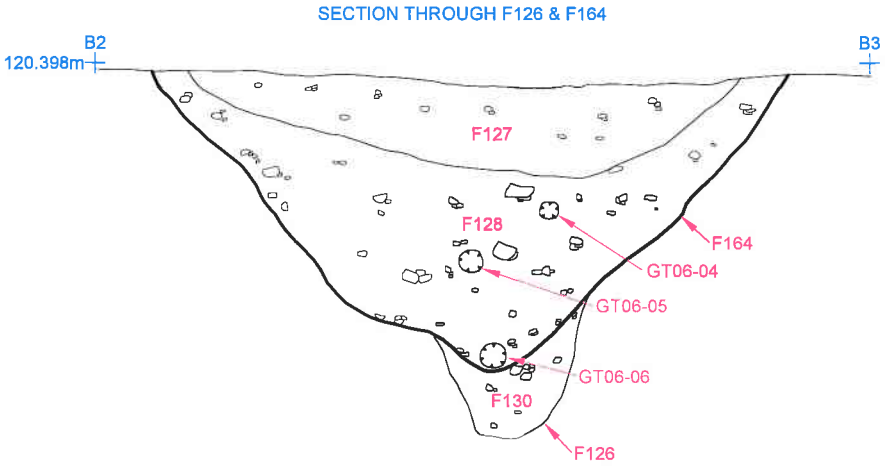
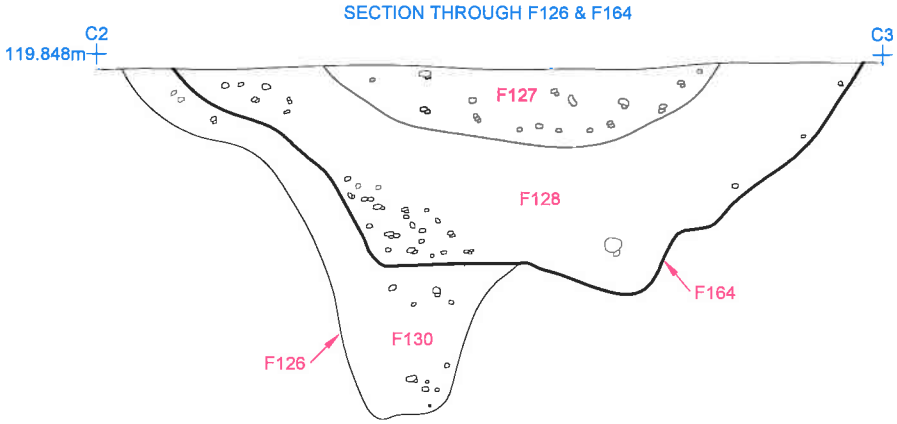
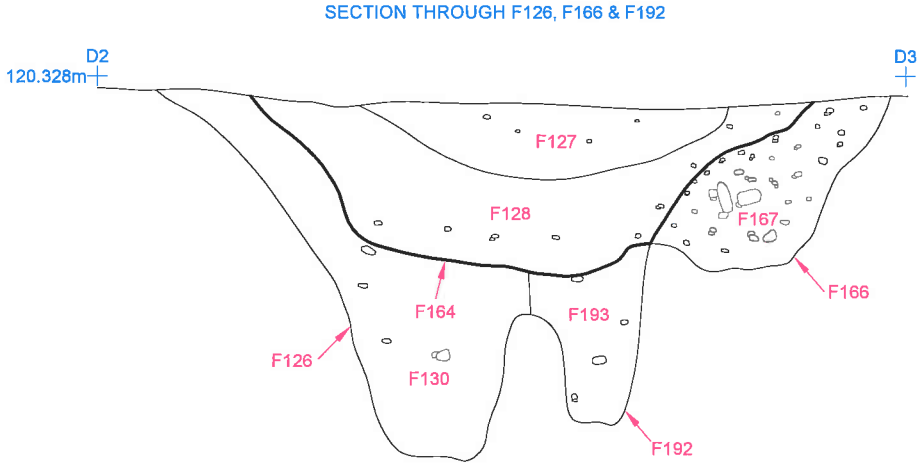
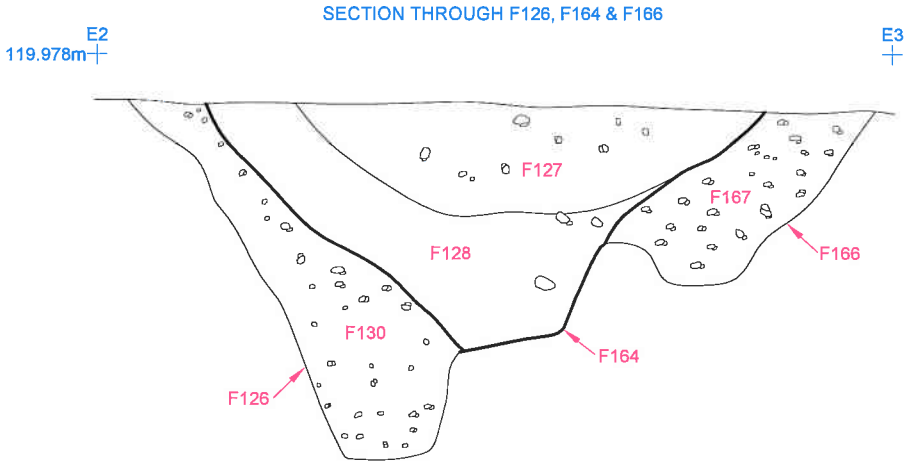


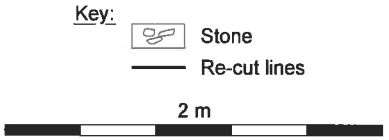
Figure 19: Sections through F18, F20, F22, F48, F50, F54, F216, F248 & F342





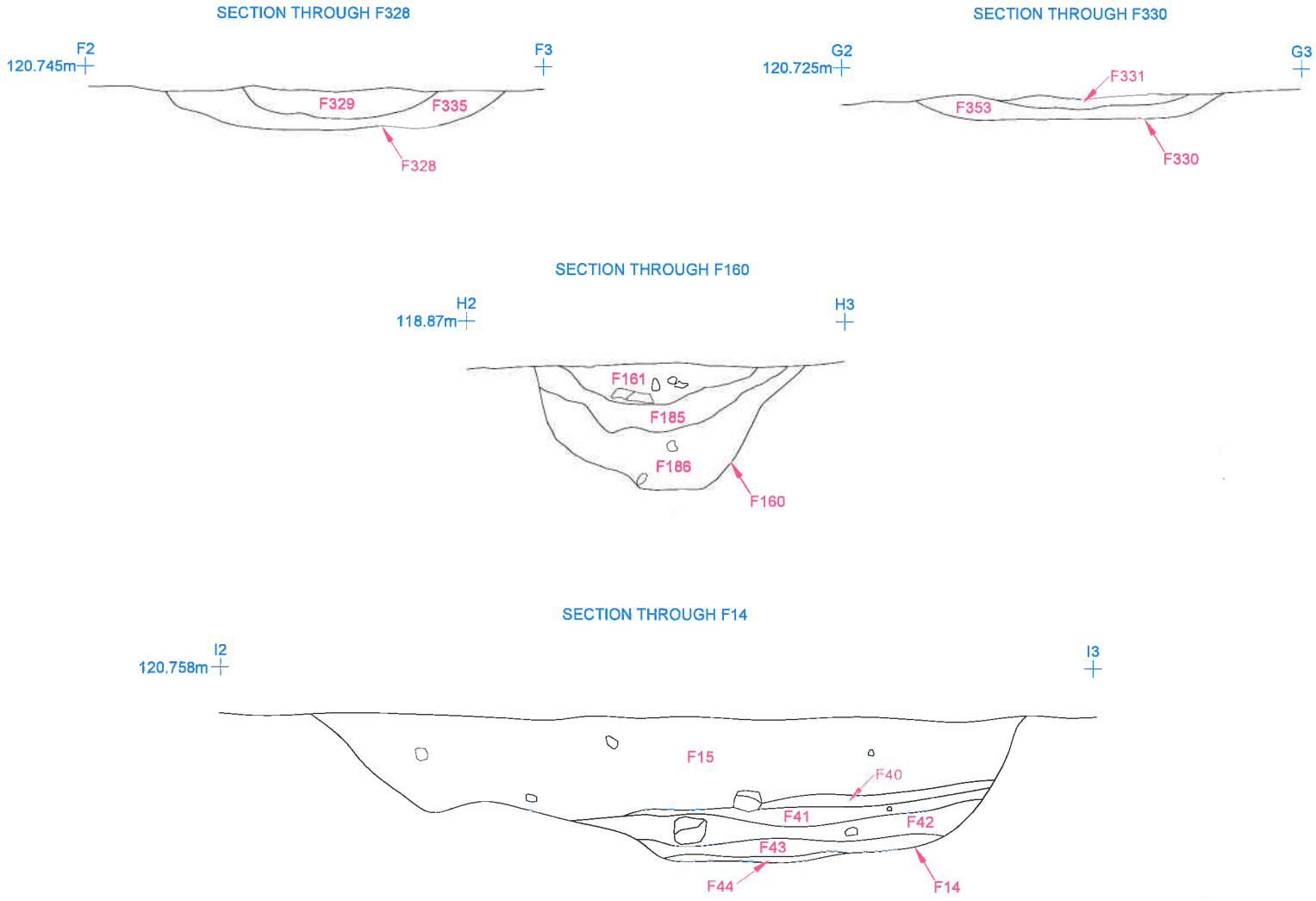






Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:40 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4113

Figure 20: Sections through F126, F164, F166 & F192



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:20 A4
		Date: Jul '07
	Issued for: Excavation Report	Origin: ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4114

Figure 21: Sections through F14, F160, F328 & F330

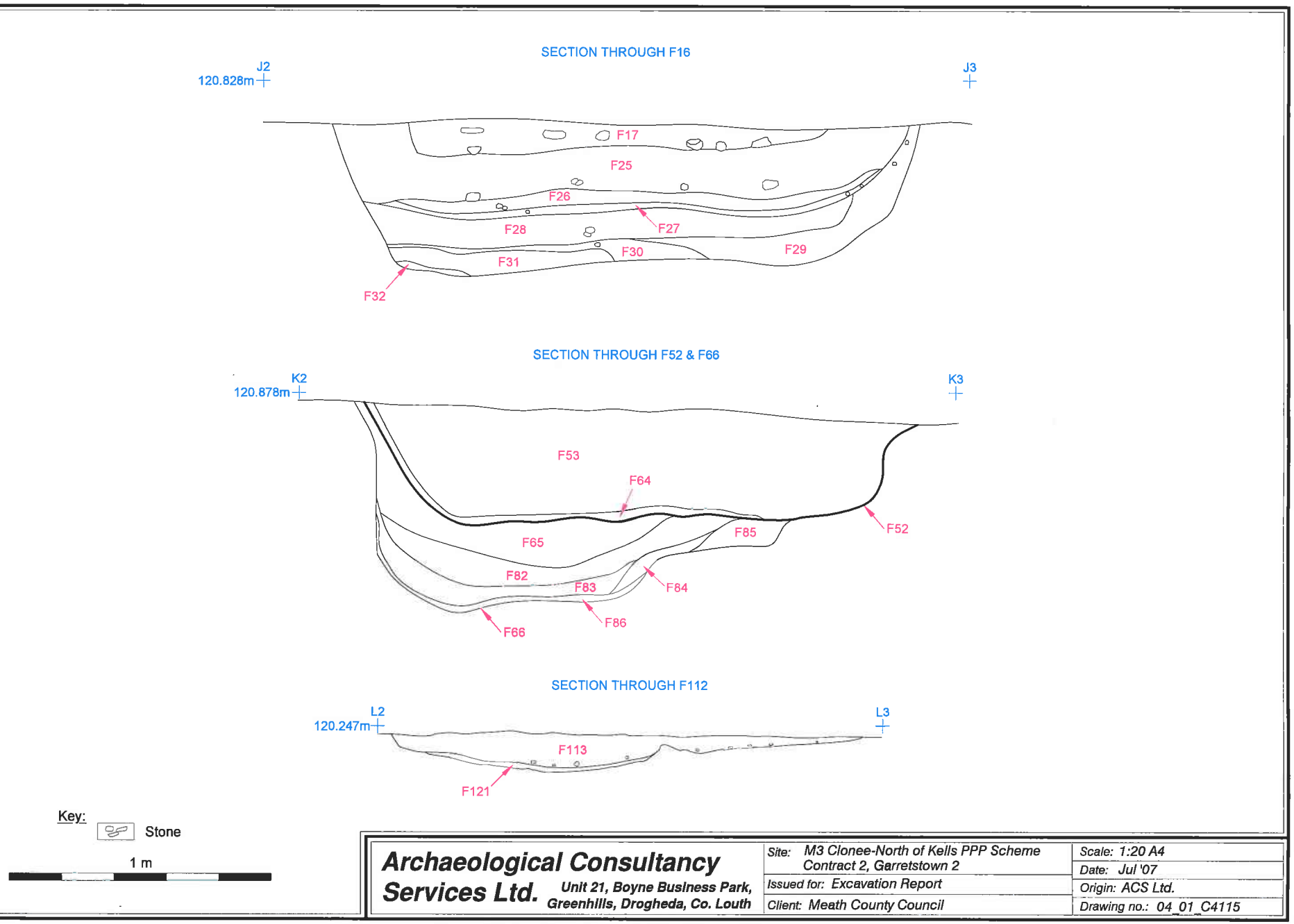
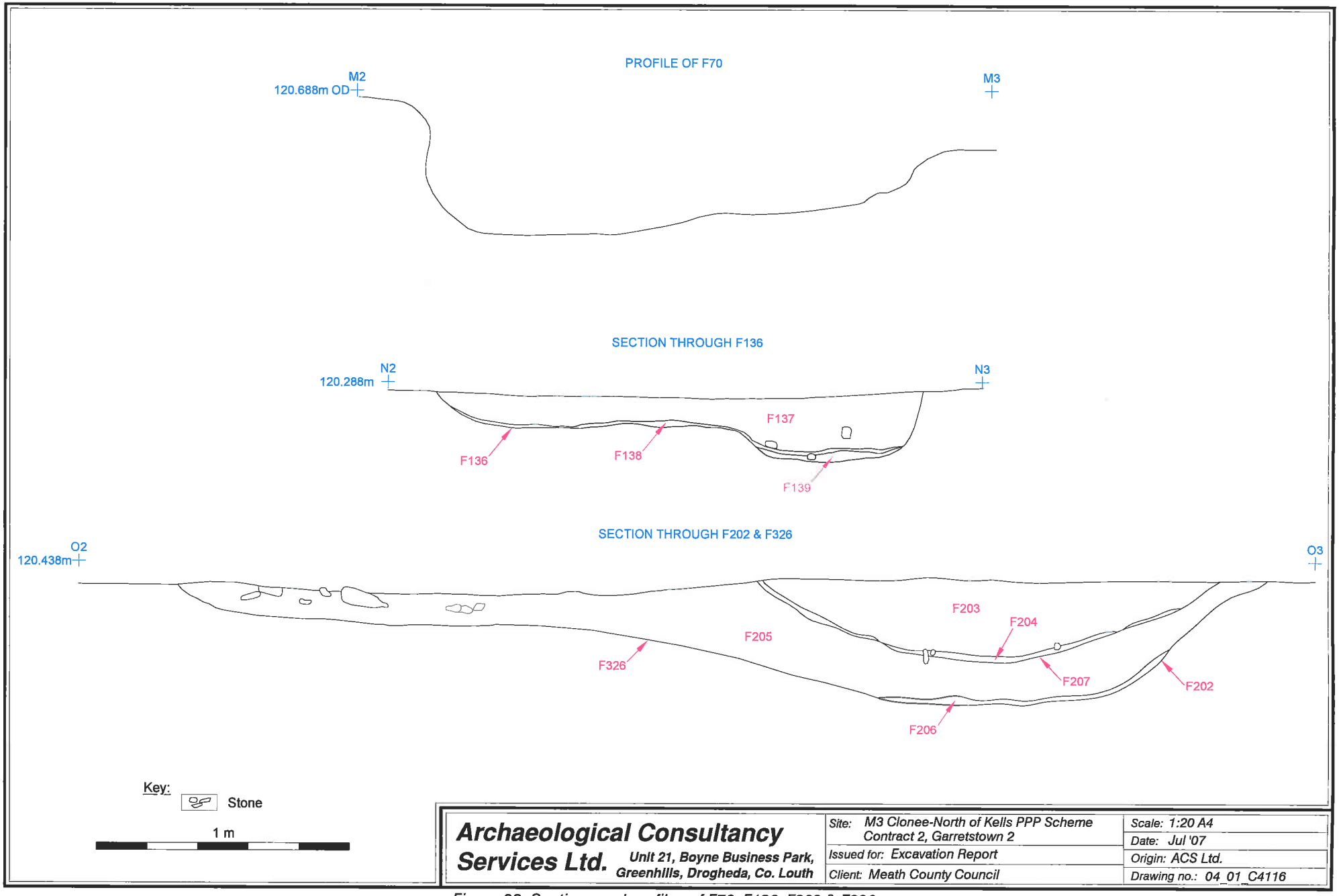


Figure 22: Sections through F16, F52 & F112



Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:20 A4	
	Issued for: Excavation Report	Date: Jul '07	
	Client: Meath County Council	Origin: ACS Ltd.	
		Drawing no.: 04_01_C4116	

Figure 23: Sections and profiles of F70, F136, F202 & F326

Plate 1: Eastern field at Garretstown 2 from the southwest (04_01_Hawkeye Garretstown 2 Aug 06_01)

Plate 2: Low level aerial view of ringditch F46 from the south-east (04_01_Hawkeye Garretstown 2 Aug 06_25)

Plate 3: Section of ringditch F46 from the south-west (04_01_Garretstown 2_CP18_12)

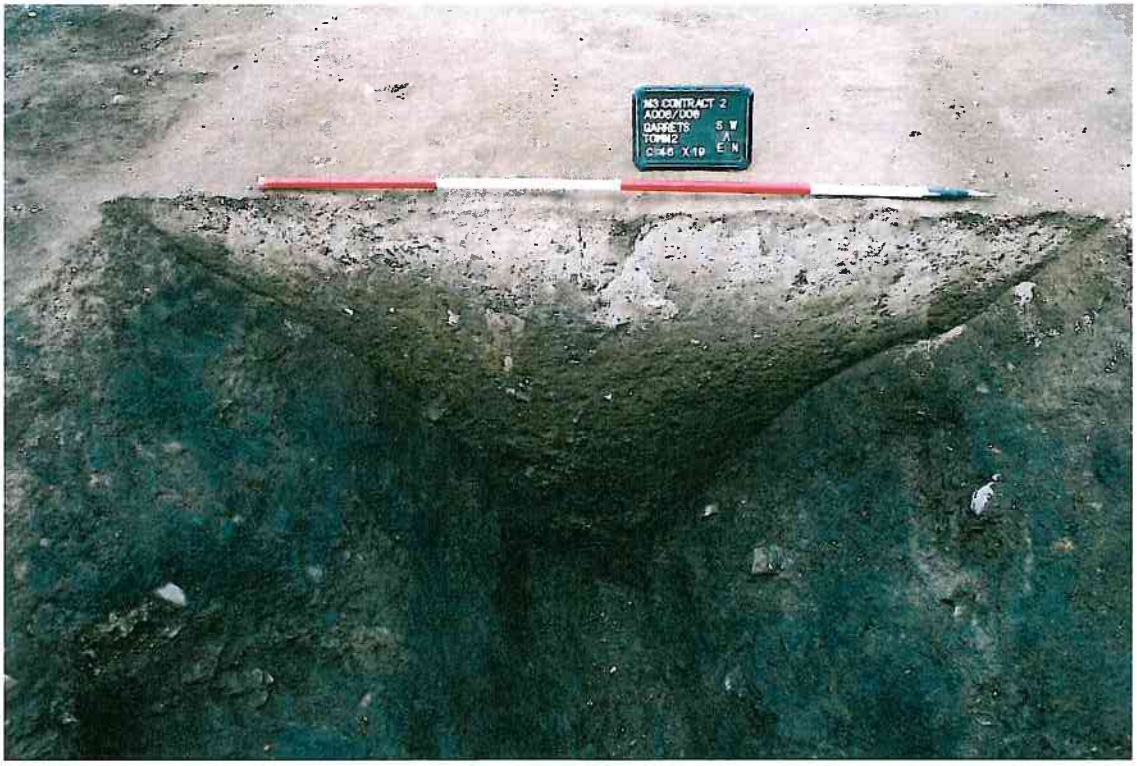


Plate 4: Section of ringditch F46 from the north-east (04_01_Garretstown 2_CP18_16)

Plate 5: Section of ringditch F46 from the north-east (04_01_Garretstown 2_CP26_02)

Plate 6: View showing how the edges of the later ditches (F95/F56/F98/F156) were in places formed of the hard packed fill of the ringditch F46 from the south (04_01_Garretstown 2_CP26_15)

Plate 7: Mid-excavation view showing burnt material at base of pit F122 from the east (04_01_Garretstown 2_CP29_26)

Plate 8: Post-excavation view of pit F148 from the south (04_01_Garretstown 2_CP34_06)

Plate 9: Post-excavation view of pit F172 from the east (04_01_Garretstown 2_CP34_16)

Plate 10: Low level aerial view of ringditch F208 from the south (04_01_Hawkeye Garretstown 2 Jan 07_72)

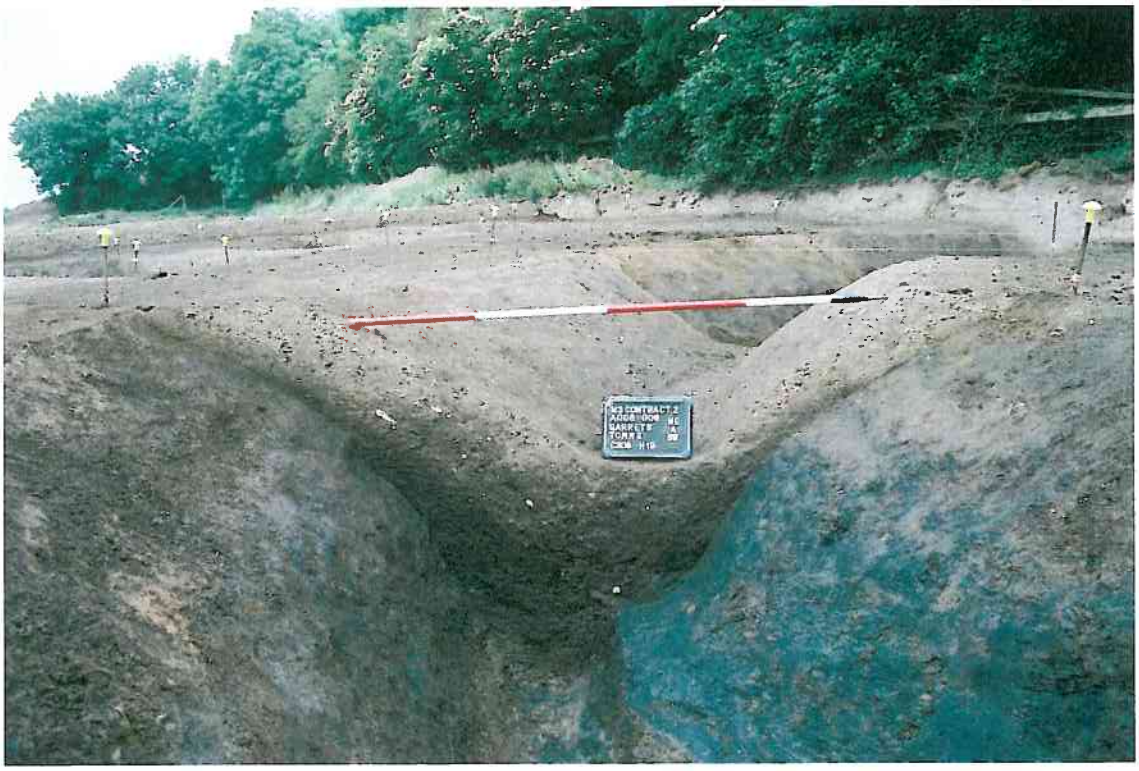


Plate 11: Section of ringditch F208 from the south-west (04_01_Garretstown 2_CP20_22)

Plate 12: Section of ringditch F208 from the south (04_01_Garretstown 2_CP44_20)

Plate 13: Section of ringditch F208 from the east (04_01_Garretstown 2_CP44_17)

Plate 14: Post-excavation view of ringditch F234 from the east (04_01_Garretstown 2_CP23_21)

Plate 15: Post-excavation view of ringditch F134 from the north (04_01_Garretstown 2_CP33_21)

Plate 16: Post-excavation view of ringditch F134 from the west (04_01_Garretstown 2_CP51_05)

Plate 17: Mid-excavation view of pit F60 from the north-east (04_01_Garretstown 2_CP04_01)

Plate 18: Post-excavation view of ditch F96/F56/F98 from the east (04_01_Garretstown 2_CP28_26)

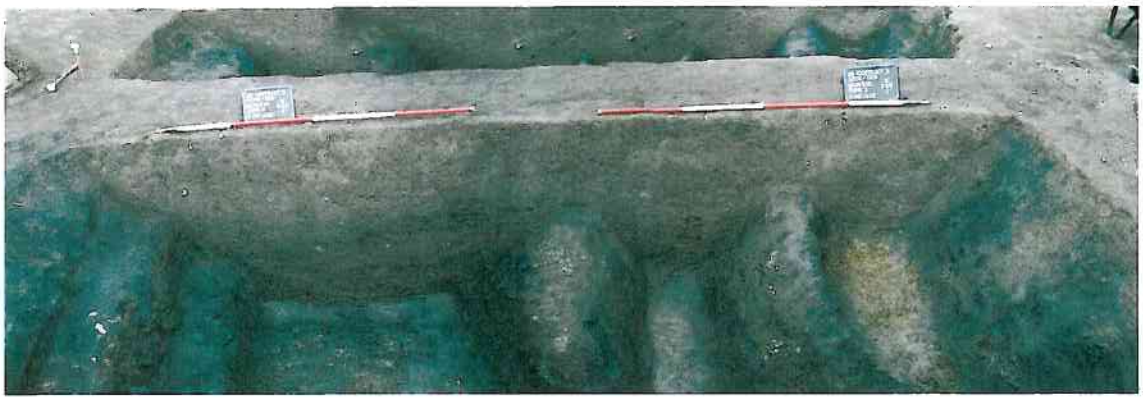


Plate 19: Section of ditch F95/F96/F98 from the east (04_01_Garretstown 2_CP26_27)

Plate 20: Terminal of ditch F96/F56/F98 from the west (04_01_Garretstown 2_CP32_10)

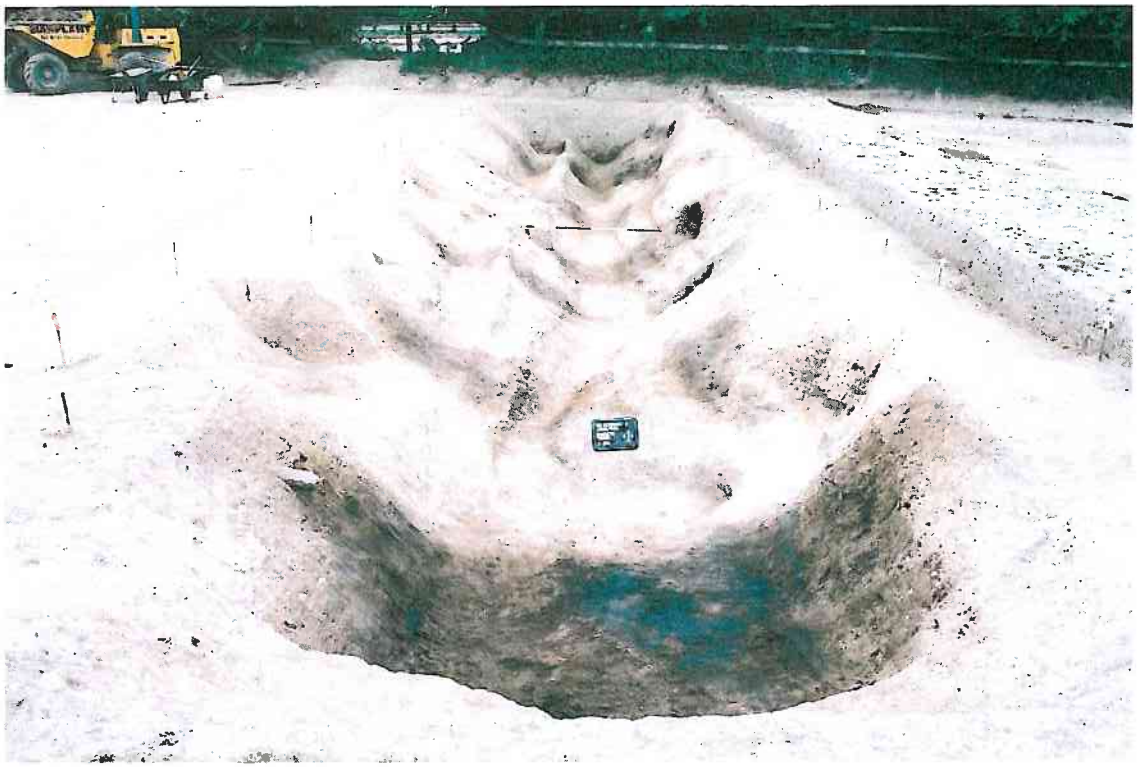


Plate 21: Post-excavation view of ditch F212/F284 from the west (04_01_Garretstown 2_CP16_10)

Plate 22: Section of F214 from the north (04_01_Garretstown 2_CP10_17)

Plate 23: Section of F214 from the south-west (04_01_Garretstown 2_CP15_25)

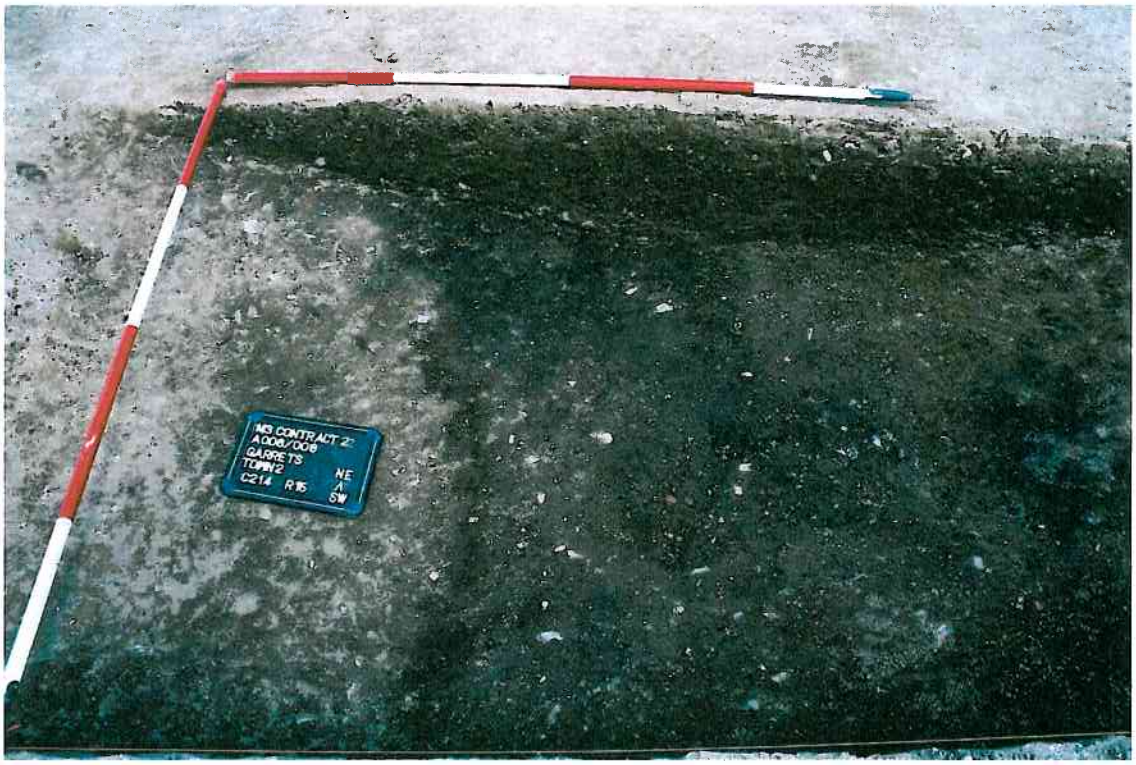


Plate 24: Layer of burnt material F256 in ditch F214 from the south-west (04_01_Garretstown 2_CP11_24)

Plate 25: Section of pit 332 under ditch F214 from the west (04_01_Garretstown 2_CP13_12)

Plate 26: Post-excavation of pit F332 from the south-west (04_01_Garretstown 2_CP19_07)

Plate 27: Section of pit F332 under ditch F214 from the south-west (04_01_Garretstown 2_CP13_15)

Plate 28: Section of pit F358 from the east (04_01_Garretstown 2_CP21_08)

Plate 29: Post-excavation of pit F358 from the west (04_01_Garretstown 2_CP19_08)

Plate 30: Section of ditch F12 from the east (04_01_Garretstown 2_CP02_21)

Plate 31: Section of ditch F12 from the east (04_01_Garretstown 2_CP03_06)

Plate 32: Section of ditch F342 from the south-east (04_01_Garretstown 2_CP21_01)

Plate 33: Section of ditch F342 from the east (04_01_Garretstown 2_CP21_10)

Plate 34: Section of ditch F342 from the east (04_01_Garretstown 2_CP21_16)

Plate 35: Section of ditch F18 from the south (04_01_Garretstown 2_CP05_03)

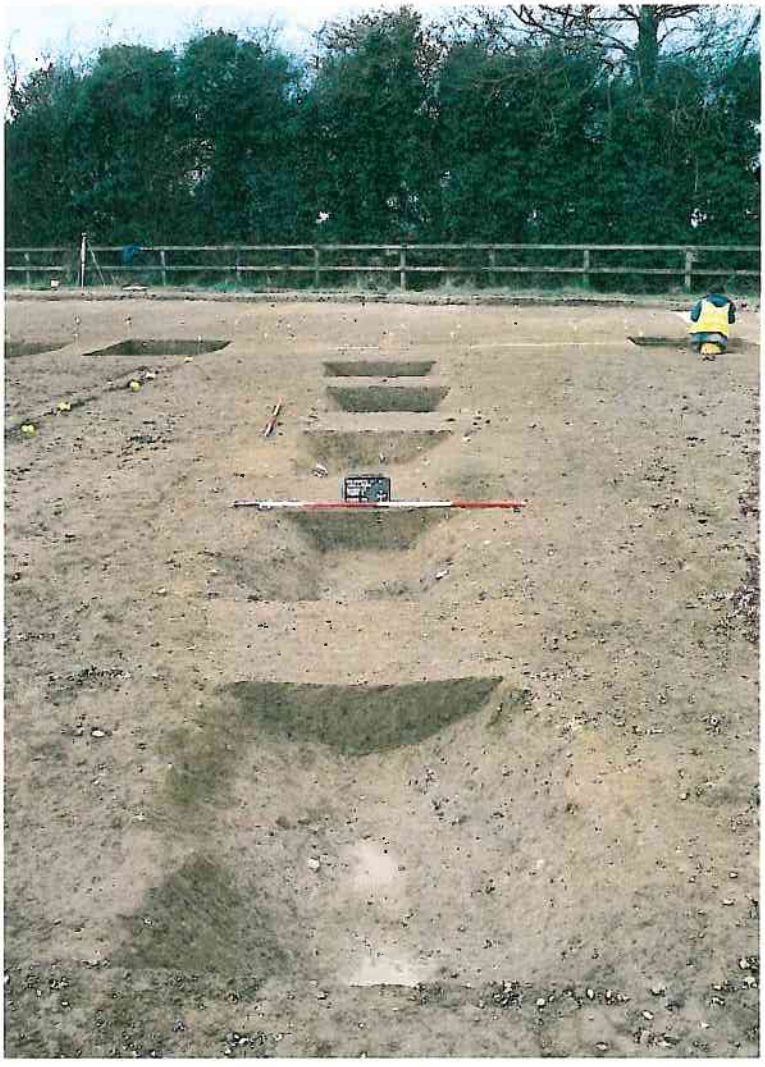


Plate 36: Section of ditch F22 from the east (04_01_Garretstown 2_CP03_24)

Plate 37: Low level aerial view of ringfort from the south-west (04_01_Hawkeye Garretstown 2 Aug 06_30)

Plate 38: Low level aerial view of ringfort from the south-west (04_01_Hawkeye Garretstown 2 Aug 06_47)

Plate 39: Section of ditch F126 from the north (04_01_Garretstown 2_CP32_09)

Plate 40: Low level aerial view of southern half of ringfort from the south (04_01_Hawkeye Garretstown 2 Aug 06_55)

Plate 41: Ditch F126 and pit F192 from the north (04_01_Garretstown 2_CP33_08)

Plate 42: Ditch F126 from the south (04_01_Garretstown 2_CP34_07)

Plate 43: Ditch F126, pits F190 and F162 from the south-east (04_01_Garretstown 2_CP35_08)

Plate 44: Pit F192 from the south (04_01_Garretstown 2_CP35_11)

Plate 45: Ditch F126 from the south-east (04_01_Garretstown 2_CP35_12)

Plate 46: Mid-excavation of pit F330 from the west (04_01_Garretstown 2_CP23_17)

Plate 47: Mid-excavation view of pit F108 from the south (04_01_Garretstown 2_CP25_05)

Plate 48: Section of kiln F14 from the north-east (04_01_Garretstown 2_CP04_17)

Plate 49: Post-excavation of kiln F14 from the south-west (04_01_Garretstown 2_CP14_09)

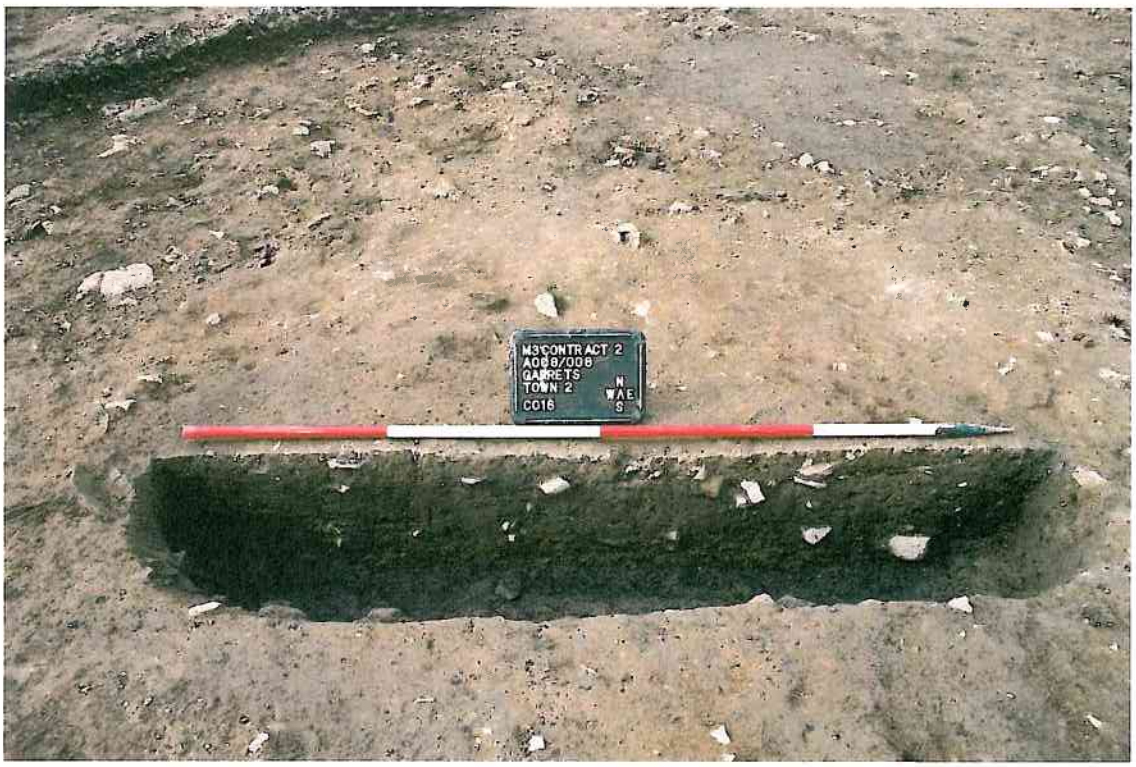


Plate 50: Section of kiln F16 from the south (04_01_Garretstown 2_CP02_20)

Plate 51: Post-excavation of kiln F16 from the north-west (04_01_Garretstown 2_CP14_06)

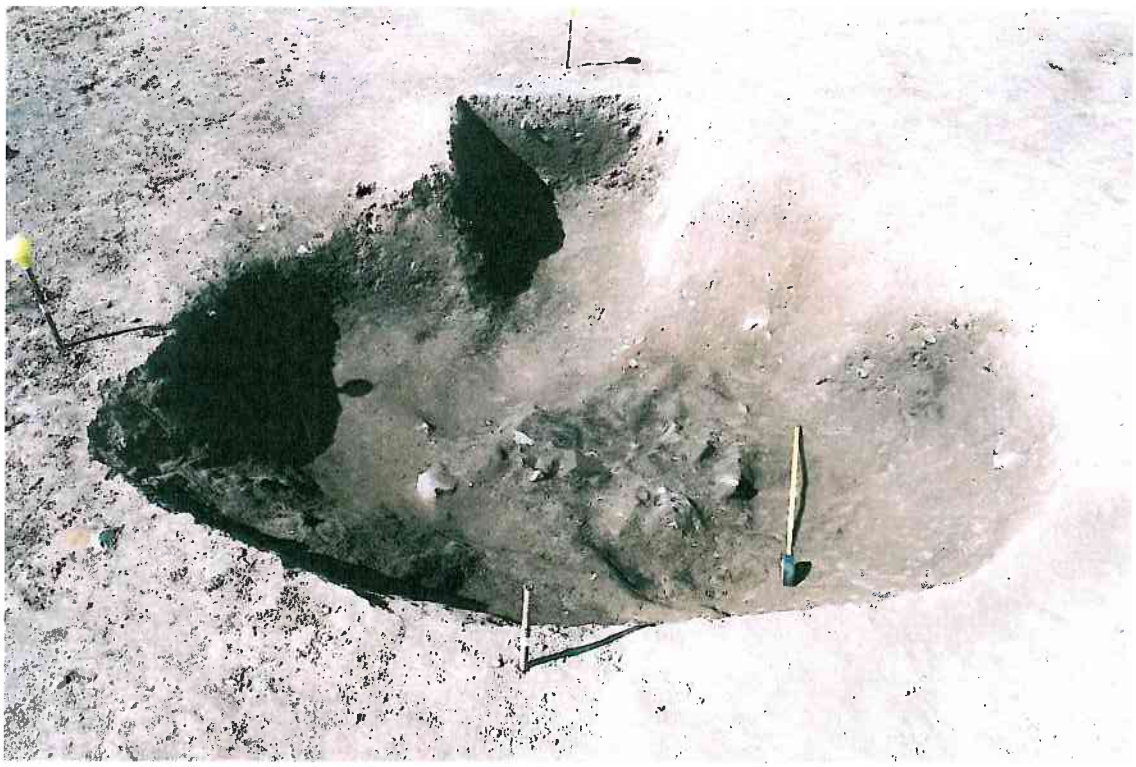


Plate 52: Mid-excavation of pit F52 from the north-east (04_01_Garretstown 2_CP08_24)

Plate 53: Mid-excavation of pit F52 from the south-west (04_01_Garretstown 2_CP17_17)

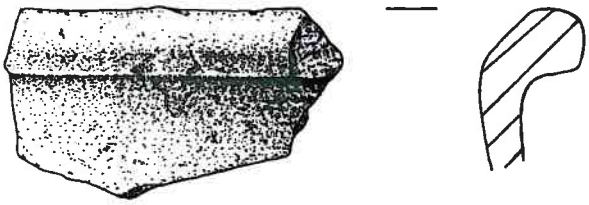
Plate 54: Mid-excavation of pit F52 from the south-west (04_01_Garretstown 2_CP17_10)

Plate 55: Mid-excavation of pit F52 from the west (04_01_Garretstown 2_CP19_04)

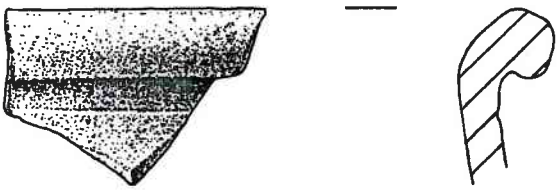
Plate 56: Post-excavation of kiln F70 from the east (04_01_Garretstown 2_CP12_23)

Plate 57: Section of kiln F202 from the east (04_01_Garretstown 2_CP09_12)

A008/008:217:4



A008/008:97:1



5 cm

Archaeological Consultancy Services Ltd. Unit 21, Boyne Business Park, Greenhills, Drogheda, Co. Louth	Site: M3 Clonee-North of Kells PPP Scheme Contract 2, Garretstown 2	Scale: 1:1 A4
		Date: Jul '08
	Issued for: Excavation Report	Origin: Client/ACS Ltd.
	Client: Meath County Council	Drawing no.: 04_01_C4500

Illustration 1: Pottery recovered from site