

**Final report
At Caherabbey Lower
N8 Cashel to Mitchelstown Road Improvement Scheme**

Ministerial Direction Scheme Reference No. A035/000
Registration Number E2266

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For
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N8 Cashel to Mitchelstown Road Improvement Scheme

Final Archaeological Excavation Report

Ministerial Direction No. A035/000

Excavation Number E2266

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Townland Caherabbey Lower

NGR E 204682.9 N 126469.1; E 204909.9 N 126606.6

Client: South Tipperary County Council

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Abstract

This report details the final results of excavation and post-excavation analysis of Site 189.I which was dug under ministerial direction number A0035, registration number E2266 in advance of the construction of the N8 improvement from Cashel to Mitchelstown. The site lay on a south-west facing slope in the townland of Caherabbey Lower. There was evidence for two phases of prehistoric activity on the site. Early Neolithic domestic occupation was characterised by a series of four pits. Finds from this phase of activity included Carinated bowl pottery and a small assemblage of lithics. The second phase of activity was characterised by what appears to have been a charcoal production pit. There were no finds from this feature but an Iron Age date was obtained by means of radiocarbon analysis.

1 Introduction

- 1.1 This report gives the final results of excavations carried out along a section of the N8 Cashel to Mitchelstown Road Improvement Scheme (Fig. 1). Two sites were excavated under Registration number E2266 (Site 121.1 and Site 189.1) (Fig. 2). These were both located in the townland of Caherabbey Lower in the parish of Caher, Co. Tipperary (Fig. 2).
- 1.2 The sites were first identified during a program of testing carried out by Margaret Gowen and Co. Ltd during August 2005 (McQuade 2005, Licence No. 05E0877).
- 1.3 The programme of archaeological excavation was conducted under Ministerial Direction No. A035/000, Registration No. E2266 by Melanie McQuade of Margaret Gowen & Co. Ltd. for McCarthy Hyder Carlbro. On behalf of South Tipperary Co. Council.
- 1.4 The sites were stripped of topsoil by mechanical excavator under archaeological supervision. Hand excavations of the sites were carried out between 12th May and 23rd May 2006.
- 1.5 The features identified on Site 121.1 NGR E 204682.9 N 126469.1 proved to be the result of burnt out vegetation and were not of archaeological significance. This report details the final results of excavation and post-excavation analysis of Site 189.1 E204909.9 N 126606.6 only. The area of excavation on this site was 750m².

2 Archaeological background

- 2.1 Site 189.1 lay in an area of known archaeological significance. Recorded sites in the area date from the Neolithic and include a portal tomb (TI075- 045) on the southern slopes of the Galtee Mountains approximately 2.35km to the southwest of the site under discussion. A Late Neolithic structure and several hut sites dating from the Middle and Late Bronze Age were excavated in Curraghtoor (TI087:007), near Cahir (Doody 2007). An enclosure (TI075:035) is recorded in Caherabbey Lower, the same townland in which Site 189.1 was located. Two more enclosures are recorded in the adjoining townland of Caherabbey Upper (TI075-060 and TI075-061).
- 2.2 The lands around the town of Cahir, which lies to the southwest of this site, show intensive settlement from early medieval times. A number of burials dated to the eighth century AD (TI041-075) were uncovered during quarrying in the townland of Caherabbey Lower (Cahill & Holland 1989). These burials appear to have been enclosed. An Early Christian holy well, known as *Tobar Iosa* (TI075:044) and a cross slab (TI075:04402) lie approximately 800m to the southwest of Site 189.1 in the townland of Caherabbey Upper. The cross slab is not in its original position but it is said to have come from this area. It is possible that an early Christian foundation was sited in this area, of which the burials and holy well are the only surviving remnants (Deery 2005).
- 2.3 The town of Cahir to the southwest of Site 189.1 (Fig. 2) was a planned urban settlement which developed from the Anglo-Norman period. The Augustinian Abbey in Cahir (TI075:048), gave its name to the aforementioned townlands of Caherabbey Upper and Lower (Deery 2005). The Irish name for the town of Cahir (*Cathair Dúin Iascaigh*) possibly refers to the building of a stone castle or fort on the island in the middle of the Suir, where the later Butler castle (TI075:048), now stands. There is no indication that the Anglo-Norman settlement here was ever walled, or that a bridge formed part of the original settlement. No charter for the town survives (Bradley 1995). The present castle is an impressive fifteenth/sixteenth century structure.
- 2.4 Conjoined ringforts were found in Lissava townland (TI081:001 and TI081:060) and there was a tower house (TI075:047) in the same townland 1.8km to the southwest of the site under discussion (Fig. 1).

- 2.5 Several previously unrecorded sites were identified during work carried out in advance of the N8 Cashel-Mitchelstown road improvement scheme (Fig. 1). Sites excavated in close proximity include a Neolithic settlement just 650m to the south at Site 185.1 (E2298; Molloy 2007a) and another settlement Site 185.5 which was occupied during the Final Neolithic/ Early Bronze Age, Middle Bronze Age and Iron Age (E2267; McQuade 2007a). Those sites lay down slope and to the south at distances of 650m and 400m respectively from Site 189.1 (Fig. 2). The three sites would have been inter-visible. There was another Middle Bronze Age settlement at Site 104.1 and evidence for Late Bronze Age activity at Site 103.1, which were 1.30km to the south (E2299; Molloy 2007b). Also in the vicinity was an Early Bronze Age settlement at Site 125.3 and a Middle Bronze Age settlement at Site 125.1, 1.90km to the northeast (E2273; Moriarty 2007a) (Fig. 1).

3 Excavation

3.1 General Information

This site was located on the southwest-facing slope of a small valley to the northwest of the Galtee Mountains and 700m south of the river Suir (Fig. 1). It lay on well drained land to the southeast of a gravel ridge. Sited at 70.21m – 68.73m O.D it commanded good views of the surrounding area, overlooking a small tributary of the River Suir and an adjoining area of wetland to the south.

The area of excavation measured 30m (east-west) by 25m (north-south). The soil profile comprised an average of 0.30m of topsoil overlying natural sub-soil. The latter was orange brown sandy clay with bands of gravel.

The site consisted of four pits F4, F6, F12, F14 and a possible kiln or charcoal production pit F10. All of the features were cut into natural sub-soil. Two phases of activity were identified on the basis of the pottery finds and radiocarbon analysis.

Phase 1	Early Neolithic settlement
Phase 2	Iron Age (235-393 AD) (UB-7385) industrial activity

3.2 Phase 1- Early Neolithic settlement

The first phase of settlement on this site was characterised by a series of four pits. These pits were set in pairs on the northern and southern ends of the site. They appear to have held domestic refuse. Dating of these features is based on finds of Early Neolithic pottery *c.* 4000–3700 BC.

3.2.1 Pits

There were two pairs of pits on the site, one on the northeast end and the other on the south end (Fig. 4). The northern pits F4 and F6 were similarly sized and oval in plan. They both had a gradual break in slope at the top, gradually sloping sides and a concave base, giving them u-shaped profiles. Pit F4 was 0.94m long (north-south), 0.63m wide and 0.24m deep (Pl. 1). There was a large (0.55m by 0.28m), flat stone at the base of the pit. The fill comprised black-brown silty sand with inclusions of

charcoal and small stones F3 (Fig. 4). Seventeen sherds of pottery (E2266:14-30) and two flint tools (E2266:12-13) were found in the pit (Appendices 2 and 3). The pottery sherds have been identified as coming from carinated Bowls which date to the Early Neolithic c. 4000–3700 BC (Appendix 3). The flints were a secondary bipolar core (E2266:12) and a tertiary scraper (E2266:13) (Pl. 7). The core had been modified for use as a scraper (Appendix 4). Charcoal from the pit fill F3 was identified as oak, alder and willow with oak dominating the identifications (Appendix 7). A single charred mustard/ cabbage (*Brassica* sp.) seed was recovered from a sample of the fill F3 (Appendix 8). The second pit F6 was located 0.48m northeast of F4. It was 1.06m long (north-south), 0.64m wide and 0.45m deep (Pl. 2). It had two fills F15 and F5 (Fig. 4). The lower fill was loosely compacted grey brown silty sand with very occasional inclusions of charcoal and sub-angular stones F15. It was 0.28m in depth and contained two sherds of carinated bowl (E2266:53-54) (Appendix 3). The upper fill F5 was confined to the centre (0.28m by 0.25m) of the pit and was 0.15m deep. It had occasional inclusions of charcoal and very occasional sub-angular stones. Seven sherds of carinated bowl pottery (E2266:33-39) (Appendix 3) and two flint tools (E2266:31-32) (Appendix 4) were recovered from this fill. The flint pieces were a retouched tertiary blade (E2266:31) and an incomplete unutilised tertiary flint flake (E2266:32) (Appendix 4).

The second pair of pits F12 and F14 was located 11.88m to the south of the northern pits. They were also oval in plan and were of a similar size. They both had u-shaped profiles. Pit F12 was 1.09m long (east-west), 0.70m wide and 0.27m deep. It had two fills F11 and F16 (Pl. 3). The main fill F11 was dark-grey sandy clay with frequent inclusions of charcoal. Charcoal from this fill was identified as oak, hazel and alder with the majority of pieces being of oak (Appendix 7). Plant remains identified within the fill include hazel nut shell (*Corylus avellana*) and seeds of fat hen (*Chenopodium album*) (Appendix 8). Fat-hen is a common weed of arable lands and is generally harvested with cereal crops. The identified plant remains suggest that the pit F12 contained domestic refuse. The second fill F16 was confined to the centre of the pit and was 0.27m in depth. It was circular in plan measuring 0.46m in diameter at the top and just 0.10m in diameter at the base (Fig. 4). The second pit F14 was 0.53m east of F12. It was 0.86m long (east-west), 0.77m wide and 0.34m deep (Fig. 4). The fill F13 comprised dark-brown sandy clay with inclusions of charcoal and stone (Pl. 4). Raspberry/blackberry (known collectively as brambles) (*Rubus* sp.) and docks

(*Rumex* sp.) were identified within the fill and there were a few fragments of hazelnut (*Corylus avellana*) shell (Appendix 8). Twelve sherds of carinated bowl pottery (E2266:41-52, Fig. 5), representing the remains of two vessels, and an incomplete unutilised tertiary flint flake (E2266:40) were found in the fill F13 (Appendices 2 and 3).

3.3 **Phase 2 - Iron Age**

3.3.1 *Possible kiln or charcoal production pit*

A large pit F10 was located on the southern part of the site, 1.10m southwest of the Phase 1 pit F12. It was key-hole shaped in plan and was characterised by a circular pit at the east and a smaller, possible rake out pit on the west. The entire feature measured 1.20m long. The circular pit was 0.68m in diameter and 0.42m deep (Pl. 5). The rake out pit was 0.50m long, 0.30m wide and 0.10m deep. The main fill throughout the feature was orange black clayey silt with frequent inclusions of fire heated stone, burnt clay and large chunks of charcoal F9, indicating that burning had taken place within the pit at the eastern end of the feature (Pl. 6). A sample of charcoal from the fill F9 was identified exclusively as oak. A few (c. 5%) of the pieces had insect holes indicating that the wood may have been stock piled prior to burning (Appendix 7). A sieved sample of F9 was scanned for macro plant remains but none were identified (Appendix 8). The upper fill F8 was confined to the bowl pit and was 0.18m deep (Fig. 4). It comprised mid-grey brown silty sand with inclusions of medium sized stones, some of which were fire-heated, and charcoal flecks. A sample of charcoal from the lower fill was dated to cal AD 235-393 (UB-7385) and indicates that the feature was in use during the Iron Age (Appendix 9)

4 Finds

- 4.1 The phase 1 features were relatively rich in finds. Thirty sherds of pottery were recovered which represent at least three Early Neolithic plain Carinated Bowls. This pottery is so named because of its hemispherical bowl shape and the presence of a distinct shoulder or carination. These vessels generally have a curved neck and a simple, often slightly out-turned, rounded rim. Vessels of this type represent the earliest Neolithic pottery in Ireland and are widely dated to c. 4000–3700 BC (Appendix 3). Burnt accretions on the inner surface of two of the vessels (Numbers 2 and 3) indicate that they had been used in a domestic context. The fragmentary remains of the vessels and the edge and surface wear on the pieces are also indicative of domestic use (Appendix 3).
- 4.2 The flint pieces derived from Phase 1 features include a secondary bipolar core which had been modified for use as a scraper (E2266:12), a tertiary scraper (E2266:13), a retouched tertiary blade (E2266:31) (Fig. 5) and two incomplete unutilised tertiary flint flakes (E2266:32, E2266:40). These pieces would have been used for domestic activity such as the preparation of foodstuffs or for craft work. Interestingly, the blade (E2266:31) had been retouched sometime after patination had occurred on it and this demonstrates that the piece had been modified some time after its initial manufacture.
- 4.3 No finds were recovered from the Phase 2 feature but a number of artefacts were recovered out of context while cleaning back the site in preparation for excavation. These include three flint tools (E2266:1-3) (Pl. 8), one chert flake (E2266:4), a hone stone (E2266:11) and a sherd of post-medieval earthen ware (E2266:5-10) (Appendices 3-5). The flints were identified as a complete retouched secondary flint end and side scraper (E2266:1; Fig. 5), an incomplete utilised secondary flint flake (E2266:2) and an incomplete utilised tertiary flint flake (E2266:3) (Pl. 18). The chert piece was a complete unutilised flake (E2266:4). The lithics would probably have been used for domestic activity and although none of the pieces are chronologically diagnostic, they probably date to the Neolithic or Early Bronze Age (Appendix 4) and were more than likely derived from Phase 1 activity on the site. Interestingly the scraper (E2266:1) had a white patina extending over its whole surface apart from one length of retouch along the distal indicating that the piece was modified on at least two separate occasions which were separated by some considerable length of time. The flake (E2266:3) also showed signs of

having been modified on at least two occasions. This evidence demonstrates the value and perhaps the rarity of flint as a raw material.

5 Discussion

- 5.1 The excavation of this site uncovered evidence for domestic occupation during the Early Neolithic and the Iron Age. The earlier phase of activity was represented by two paired pit features F4, F6 and F12, F14. The inclusions within the fills of these pits comprised charcoal, which together with finds of pottery sherds and lithics represent domestic refuse. There was no evidence for scorched earth within any of the four pits nor was there a hearth on the site and it is likely that the fire/fires from which the charcoal was derived burned somewhere outside the area of excavation. The pottery sherds from the pits were derived from at least three carinated bowls. Their condition and finds context indicate that they derived from vessels that were used for domestic purposes. This is further supported by the presence of accretions on some of the sherds. The pottery assemblage provides a date range of c. 4000–3700 BC for the refuse pits. The lithic artefacts also point to domestic activity such as food processing or craft activity. Three of the pieces (E2266:2; E2266:4; E2266:139) were unutilised flakes which were discarded during the production of tools. Their presence suggests that tools may have been manufactured on site or somewhere nearby. The dominance of flint is of interest, with only one chert flake (E2266:4) found. Flint was a preferred raw material because of its distinctive sharp properties. The pebble flint used for knapping the assemblage gathered from this site probably originated in the local glacial tills and the chert was probably sourced locally.
- 5.2 The identification of oak and to a lesser extent alder, hazel and willow charcoal suggests that these species were either collected specifically as material for burning or brought to the site for other purposes and subsequently used as fuel. The dominance of oak wood is noted and it is an obvious choice since wood from this species burns well and is an excellent fuel. The presence of alder is also of note since although this species is not a good fuel it does produce good quality charcoal. The wood was probably sourced nearby and the identified species indicate that the site was located near damp woodlands or close to a river or wetland area.
- 5.3 A small quantity of plant remains was identified from the samples taken on this site. The presence of arable weed, notably fat hen, suggest that the occupants may have been cultivating crops or that they had access to cereals grown nearby. The presence of hazel nut shells and the remains of other edible species suggest that the occupants supplemented their diet by gathering plant foods.

- 5.4 Despite the evidence for domestic occupation, no structural remains were identified on the site. However, it is likely that the people using the site lived somewhere nearby. An early Neolithic settlement was excavated at Site 185.1 in Caherabbey Upper just 650m to the south (Molloy 2007a). Evidence for early Neolithic occupation was also uncovered at Site 207.2 in Ballylegan 3.75 kilometres to the east-southeast (E2265; McQuade 2007b). Further evidence for Early Neolithic settlement in the wider area came from Carinated Bowl material identified in the Cashel area 17km to the north-northeast (Grogan and Roche 2006), and in the Funshion Valley 30km to the southwest (Grogan and Roche 2007b). These discoveries underline the probability of more extensive settlement in the area. It can be concluded that the Early Neolithic activity recorded on Site 189.1 was part of a wider settlement area. Continuity of settlement is indicated by the presence of a portal tomb in Lissava to the south, as well as the Late Neolithic structure in Curraghatoor (Doody 2007) and the Final Neolithic/Early Bronze Age settlement evidence uncovered nearby at Ballydrehid (E2267; McQuade 2007a; Fig. 2).
- 5.5 The second phase of activity on the site was characterised by the pit F10, which represents small-scale ‘industrial’ activity on the south end of the site. It was dated by radiocarbon analysis to the Iron Age cal AD 235-393 which is several millennia after the domestic activity evidenced by the Phase 1 Early Neolithic occupation on the site.
- 5.6 In plan form this pit feature resembles a cereal-drying kiln (Fig. 4) but its dimensions (0.68m by 0.42m for the bowl) were smaller than those recorded from the majority of excavated kilns (McQuade 2006). Furthermore, kiln fills often contain very large quantities of carbonised cereals and other crop and weed remains but no plant remains were recovered from a sieved sample of the fill F9 of this pit. A successfully fired kiln would result in very few cereal grains being burnt while it was in use and therefore there would have been very few, but at least some, charred cereal grains for the archaeobotanist to recover (Johnston 2003).
- 5.7 Given the absence of cereal grains another function seems likely for this pit F10. The high levels of charcoal within the pit and the evidence for burning having taken place within it suggest that it had an industrial function. The absence of metal slag makes it unlikely that the pit was used as a furnace for metal production and a more likely use would have been the production of charcoal. While some excavated examples of charcoal production pits

were rectangular or irregularly shaped in plan (Linnane 2002; O'Hara 2002; Elder 2000) the majority tend to be circular. At Mondaniel 1 and 2, Co. Cork charcoal production pits measured between 1m in diameter and 1.17m by 1.79m and ranged from 0.1m to 0.3m in depth (Cotter 2003a). Similar circular pits measuring between 0.6m and 1m in diameter and from 0.1m to 0.26m in depth were excavated at Kilbrien 2, Co. Cork (Cotter 2003b). All of these pits showed evidence of intense burning and contained layers of charcoal.

- 5.8 The balance of evidence would suggest that the pit F10 was used for charcoal production rather than as a cereal-drying kiln. It is likely that charcoal would have been used somewhere in the vicinity perhaps as fuel for the production of metal. No evidence of metal production during the Iron Age was uncovered during excavations on the road scheme but it is possible that such was undertaken outside the area of investigation.
- 5.9 In this respect it is noteworthy that oak was the dominant species of charcoal identified since it has higher calorific values than most European woods and is a good long-lasting fuel. However, it is difficult to ascertain whether the oak was gathered specifically to fuel F9 or whether it represents the re-use of timbers such as structural remains (Appendix 7).
- 5.10 The date obtained for this pit feature F10 is very close to that of Possible Structure 3 (240-392 cal BC) on nearby Site 185.5 (E2267; McQuade 2007a) (Fig. 2) and there is every likelihood that the pit and structure may have been used by the same group of people. The evidence for Iron Age activity on this site is an important discovery since very few sites of this period were recorded in the area prior to the excavations undertaken along the N8 road improvement scheme (A035/000). Further evidence for Iron Age activity was uncovered during several other excavations along the scheme. These include settlement evidence to the northwest at Site 207.2 in Ballylegan (E2266; McQuade 2007b) and a cremation burial to the north at Site 133.1 in Knockgraffon (E2270; Moriarty 2007b) (Fig. 2). The evidence from these sites adds to the scant record for Iron Age activity in the area and shows some degree of continuity of settlement from that time into the succeeding Early Medieval and Anglo-Norman periods, which are well represented in the Archaeological record of the area.

6 Conclusions

- 6.1 This report constitutes the final report on the excavation and post-excavation analysis of Site 189.1. The excavation was carried out under registration number E2266 as part of the resolution of archaeological sites along the N8 road improve scheme (Ministerial Direction No. A035/00).
- 6.2 Two phases of prehistoric activity were uncovered. During the Early Neolithic period there was evidence for domestic activity on the site and an assemblage of pottery and lithics were recovered from this phase. The second phase was dated by means of radiocarbon analysis to the Iron Age. At that time small scale industrial activity which seems to have involved the production of charcoal was being carried out on the site.
- 6.3 The evidence uncovered on this site has added important information to the archaeological record for prehistoric activity in the area and indicates that the wider area was probably also occupied throughout much of the prehistoric period.

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Appendices - Appendix 1 List of features

Feature No.	Phase	Description
F1		Topsoil
F2		Subsoil/natural
F3	Phase 1	Fill of F4
F4	Phase 1	Pit
F5	Phase 1	Fill of F6
F6	Phase 1	Pit
F7		Non-archaeological
F8	Phase 2	Fill of F10
F9	Phase 2	Lower fill of F10
F10	Phase 2	Possible kiln
F11	Phase 1	Fill of F12
F12	Phase 1	Pit
F13	Phase 1	Fill of F14
F14	Phase 1	Pit
F15	Phase 1	Fill of F6, below F5
F16	Phase 1	Fill of F12

Appendix 2 Finds Register

Finds no.	Site no.	Feature no.	Category	Description
E2266:1	189.1	F1	Flint	Flint scraper
E2266:2	189.1	F1	Flint	Flint flake
E2266:3	189.1	F1	Flint	Flint flake
E2266:4	189.1	F1	Chert	Chert debitage
E2266:5	189.1	F1	Pottery	Earthen ware, handle
E2267:6	189.1	F1	Pottery	Earthen ware, rim
E2266:7	189.1	F1	Pottery	Earthen ware, body sherd
E2266:8	189.1	F1	Pottery	Earthen ware, body sherd
E2266:9	189.1	F1	Pottery	Earthen ware, body sherd
E2266:10	189.1	F1	Pottery	Earthen ware, body sherd
E2266:11	189.1	F1	Stone	Worked stone, fragment
E2266:12	189.1	F3	Flint	Flint scraper
E2266:13	189.1	F3	Flint	Flint scraper
E2266:14	189.1	F3	Pottery	Small fragment
E2266:15	189.1	F3	Pottery	Small fragment
E2266:16	189.1	F3	Pottery	Small fragment
E2266:17	189.1	F3	Pottery	Small fragment
E2266:18	189.1	F3	Pottery	Small fragment
E2266:19	189.1	F3	Pottery	Small fragment
E2266:20	189.1	F3	Pottery	Small fragment
E2266:21	189.1	F3	Pottery	Small fragment
E2266:22	189.1	F3	Pottery	Small fragment

E2266:23	189.1	F3	Pottery	Small fragment
E2266:24	189.1	F3	Pottery	Small fragment
E2266:25	189.1	F3	Pottery	Small fragment
E2266:26	189.1	F3	Pottery	Small fragment
E2266:27	189.1	F3	Pottery	Small fragment
E2266:28	189.1	F3	Pottery	Small fragment
E2266:29	189.1	F3	Pottery	Small fragment
E2266:30	189.1	F3	Pottery	Small fragment
E2266:31	189.1	F5	Flint	Flint scraper
E2266:32	189.1	F5	Flint	Flint scraper
E2266:33	189.1	F5	Pottery	Small fragment
E2266:34	189.1	F5	Pottery	Small fragment
E2266:35	189.1	F5	Pottery	Small fragment
E2266:36	189.1	F5	Pottery	Small fragment
E2266:37	189.1	F5	Pottery	Small fragment
E2266:38	189.1	F5	Pottery	Small fragment
E2266:39	189.1	F5	Pottery	Small fragment
E2266:40	189.1	F13	Flint	Flint flake
E2266:41	189.1	F13	Pottery	Rim sherd
E2266:42	189.1	F13	Pottery	Rim sherd
E2266:43	189.1	F13	Pottery	Rim sherd
E2266:44	189.1	F13	Pottery	Rim sherd
E2266:45	189.1	F13	Pottery	Small fragment
E2266:46	189.1	F13	Pottery	Small fragment
E2266:47	189.1	F13	Pottery	Small fragment
E2266:48	189.1	F13	Pottery	Small fragment
E2266:49	189.1	F13	Pottery	Small fragment
E2266:50	189.1	F13	Pottery	Small fragment
E2266:51	189.1	F13	Pottery	Small fragment
E2266:52	189.1	F13	Pottery	Small fragment
E2266:53	189.1	F15	Pottery	Body sherd
E2266:54	189.1	F15	Pottery	Body sherd

Appendix 3 - The prehistoric pottery assemblages

By Eoin Grogan and Helen Roche

Summary

This site produced a small assemblage of 30 sherds from at least three early Neolithic Carinated Bowls (total weigh 50g). These are from the fills of three pits associated with settlement activity.

1 Context

- 1.1 The pottery came from the fills of three pits (F14, F4, F6).

2 The early Neolithic

- 2.1 The vessels are all well made and fine-walled with a thickness of generally less than 8mm. They appear to have everted rims and simple rounded, small step shoulders deeply rounded body profiles. The red-brown to dark brown-buff fabric contains mainly crushed quartzite inclusions ($\leq 2\text{mm}$ long). It is possible that wear has obscured the burnished finish on other vessels. Burnt accretions on the inner surface of Nos 2 and 3 indicate that they had been used in a domestic context and this is also suggested by the fragmentary remains of the vessels and both edge and surface wear.
- 2.2 The Caherabbey vessels have a wide variety of parallels on other Neolithic domestic sites, including those with characteristic early Neolithic rectangular houses, and early court tombs. The vessels are plain carinated bowls and this form consists of a hemispherical bowl above which there is a distinct shoulder or carination and a generally curved neck and a simple, often slightly out-turned, rounded rim. Vessels of this type usually have deep bowls and neutral or open profiles, *i.e.* where the shoulder diameter is equal to or less than that of the rim. These forms represent the earliest type of Neolithic pottery (Case 1961: ‘Dunmurry-Ballymarlagh styles’; Sheridan 1995: ‘classic’ carinated bowls) in Ireland and are widely dated to c. 4000–3700 BC.
- 2.3 Only a small amount of early Neolithic activity has been identified in the area. However, Carinated Bowl material has been identified at Ballylegan, on the N8 scheme 3.75km to the east-southeast (McQuade 2006; Grogan and Roche 2007a), in the Cashel area 17km to the north-northeast (Grogan and Roche 2006), and in the Funshion Valley 30km to the

southwest (Grogan and Roche 2007b); these discoveries further underline the probability of more extensive settlement in the area.

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CATALOGUE

Where the pottery is listed in the catalogue the find numbers are in bold: *e.g.*: **63** but the accession number E2266 is omitted throughout. Numbers in square brackets (*e.g.* [41–2]) indicate that the sherds are conjoined. The thickness refers to an average dimension; where relevant a thickness range is indicated. Vessel numbers have been allocated to pottery where some estimation of the form of the pot is possible, or where the detailed evidence of featured sherds (*e.g.* rims, shoulders) or fabric indicates separate vessels.

The early Neolithic

The site produced 30 sherds representing at least three early Neolithic Carinated Bowls (Nos 1–3, plus 4 fragments; total weight 50g).

F13 fill of pit F14 (0.86m EW x 0.77m x 0.34m) that is c. 12m south of pits F4 and F6

Vessel 1. There are 6 sherds (4 rimsherds: [41–2], 43–4; 1 necksherd: 45; 1 bodysherd: 46; 1 fragment: 47) from a medium sized vessel with a rounded everted rim and a gently curved neck. The worn red-brown to red-buff fabric has smooth surfaces but with protruding inclusions. There is a medium content of crushed quartzite inclusions ($\leq 2 \times 1\text{mm}$; up to $4 \times 3\text{mm}$). Neck thickness: 6.5mm; body: 8.7mm. Weight: 10g.

Vessel 2. There are 4 bodysherds (48–51; 1 fragment: 52) from a medium sized vessel with a deep rounded body profile. Sherd 48 is from immediately beneath the shoulder. The red-brown fabric has a dark grey core and smooth surfaces. There is a low to medium content of finely crushed quartzite inclusions ($\leq 1\text{mm}$, up to $2 \times 2\text{mm}$). A burnt accretion occurs on the inner surface of 49–50. Body thickness: 4.2mm. Weight: 10g.

F3 fill of pit F4 (0.94m NS x 0.63m x 0.24m)

Vessel 3. There are 13 sherds (3 necksherd: 18–20; 10 bodysherd: 21–30) from a medium sized vessel with a gently curved neck. The red- to red-buff fabric has a smooth dark brown-buff external surface. There is a very low content of finely crushed quartzite inclusions ($\leq 1\text{mm}$). A burnt accretion occurs on the inner body surface. Neck thickness: 5.5mm; body: 5.5mm. Weight: 15g.

Other material

There are 4 pieces of yellow- to red-buff fired clay (14–17) with inclusions of crushed quartzite up to $3 \times 2\text{mm}$; these are not pottery but may be wasters.

F15 is the lower, and F5 the upper, fill of pit F6 (1.06m NS x 0.64m x 0.45m) which is 0.48m NE of pit F4.

F15

There are 2 sherds (1 necksherd: 54; 1 worn bodysherd: 53) of red-brown to red-buff fabric with a low to medium content of crushed quartzite inclusions ($\leq 1\text{mm}$; up to $2 \times 2\text{mm}$). The inner surface of the body is blackened. Neck thickness: 5mm; body: 4.2mm. Weight: 5g. These are from Vessel 2 or one very similar to it.

F5

Necksherd (33) is of buff fabric with a very low content of crushed quartzite inclusions ($\leq 2 \times 1\text{mm}$); the external surface is smooth but with numerous cavities.

There are 4 bodysherds (34–5, [36–7]; 2 fragments: 38–9) of much worn pale red-buff fabric with a high content of crushed quartzite inclusions ($\leq 2 \times 1\text{mm}$, up to $5 \times 3\text{mm}$). Thickness: 8.8mm. Weight: 10g. These are from Vessel 1 or one very similar to it.

<i>Site</i>	<i>Vessel</i>	<i>Context/feature</i>	<i>No. of sherds</i>	<i>Rim</i>	<i>Shoulder</i>	<i>Neck</i>	<i>Body</i>	<i>Frgs</i>	<i>Inclusions</i>	<i>Vessel size</i>	<i>Decorated</i>	<i>Pottery type</i>	<i>Weight</i>
189.1	1	13	6	4	0	1	1	1	Q	M	-	ENCB	10
	2	13	4	0	0	0	4	1	Q	M	-	ENCB	10
	Other	15	2	0	0	1	1	0	Q	-	-	ENCB	5
	3	3	13	0	0	3	10	0	Q	-	-	ENCB	15
	Other	5	5	0	0	1	4	2	Q	-	-	ENCB	10
Total			30	4	0	6	20	4					50
Clay	Other	3											

Table 1. Details of vessels and sherds from Caherabbey Lower

<i>Vessel</i>	<i>Context</i>	<i>Sherds to draw</i>	<i>Sherds to section only</i>	<i>Photograph</i>	<i>Decorated</i>
1	13		R. E2266. [41-42]		

Table 2. Recommended sherds for illustration

Appendix 4 - Lithic Analysis

By Conor Brady PhD MIAI

1 Introduction

- 1.1 Nine lithic artefacts were recovered during the excavation of Site 189.1 in Caherabbeey Lower townland in Co. Tipperary under registration number E2266 on the N8 Cashel to Mitchelstown Road Improvement Scheme (Ministerial Direction Number A035/000). The site consisted of four pits and a possible kiln or charcoal production pit.
- 1.2 Four of the artefacts in the assemblage came from topsoil and are therefore of limited interpretative potential. Two lithics came from F3, the fill of one of the pits identified along with seventeen small pieces of unidentified pottery. Two further lithics came from F5 one of two fills of an adjacent pit. The other fill also contained further small sherds of pottery. The remaining artefact came from F13 the fill of one of another pair of pits located at the southern end of the site which also contained charcoal, charred hazelnut shell and stone.

2 Raw Material

- 2.1 Artefacts of both flint and chert are present in this assemblage. Eight of the artefacts are flint and one is chert, a complete unutilised flake (E2266:4).
- 2.2 Flint occurs naturally in chalk and has a range of colours from grey to black and caramel brown. The cortex or outer skin on a nodule of fresh or chalk flint is usually soft and white, or chalky. During times of glaciation, flint was extracted and transported by ice sheets to non-flint bearing areas where it was deposited as a constituent of the general glacial drift (Jackson 1991, 34; see also Woodman 1987; Woodman *et al.* 2006: 81-3, fig. 3.4). Once deposited, the colour of the material tends to be altered by the absorption of minerals from the local soil and colours vary widely, ranging from shades of grey to cream through to brown (Dillon 1997, 33). Due to the abrasion and erosion experienced during transportation, any cortex remaining is generally textured or smooth in character rather than being chalky. The size of nodules and pebbles found in glacial drift tends to be much smaller than nodules from in-situ chalk deposits because of the stresses to which the nodules were subject during transportation. The pebble flint used for knapping this

assemblage probably originated in the local glacial tills (Woodman *et al.* 2006, 81-3; Woodman 1987).

- 2.3 Chert is a loose term used to describe siliceous material from a range of carboniferous limestone deposits, available from primary in situ deposits in the form of seams or from secondary pebble sources. It is a commonly used raw material although frequently only accounting for a very small proportion of lithics assemblages (Woodman *et al.* 2006, 83-4). Chert was utilised as a raw material in the south-east at the Bally Lough Project sites (Green and Zvelebil 1990).

3 Artefact Dimensions

- 3.1 The longest piece in this assemblage is an incomplete utilised secondary flint flake (E2266:2) measuring 45mm. The next longest piece is a complete tertiary retouched flint blade (E2266:31) measuring 30mm and the third longest piece is a complete retouched bipolar flake (E2266:12) measuring 29mm. Although a small assemblage, the lengths of the artefacts in these assemblages, both complete and incomplete, indicate that along with some minor exploitation of chert, pebble flint with a glacial till origin was the raw material used.

4 Artefact Colour

- 4.1 The colour of all but one of the flint artefacts in this assemblage was discernible. The one piece where raw material colour could not be determined was a complete end and side scraper on a secondary flake (E2266:1) which was heavily patinated. A wide range of colours was noted in the nine flint artefacts examined including light grey, grey, light brownish grey, very pale brown, greyish brown and pale yellow. Again, the range and variation in the colours present is consistent with a glacial till source for the raw material.

5 Patination

- 5.1 The patination of flint artefacts is a little understood process (Schmalz 1960) but one that can shed some light on the sometimes complex life-cycles of certain artefacts. It is defined as surface discolouration of material owing to the loss of surface water; different soil conditions and mineral composition can affect the colour of flint. Patination often

forms a white layer on the surface of an artefact. This layer can be chalky in texture and is distinct from the original cortex surface. Differential patination may indicate the location of a haft and can also indicate reuse of a piece at a later date where the artefact has been reworked (Woodman *et al.* 2006: 97-8).

- 5.2 Three of the artefacts in this assemblage were patinated, all of which had differential patinas. The first of these pieces, a complete end and side scraper on a secondary flake (E2266:1) had a white patina extending over its whole surface apart from one length of retouch along the distal indicating that the piece was modified on at least two separate occasions which were separated by some considerable length of time. Also patinated is an incomplete tertiary flint flake (E2266:3) where one facet on the left side of the dorsal was heavily patinated indicating that the piece was probably struck from a larger piece of previously knapped flint. The third patinated piece in the assemblage is a complete tertiary retouched blade (E2266:31) where the retouch has broken through the patinated surface, again indicating that the piece was modified on at least two separate occasions which were separated by some considerable length of time.

6 Burning

- 6.1 None of the artefacts in the assemblage was recognised as having been burned. However, it should be noted that a number of studies have shown that exposure to heat and flame can produce no discernible changes on a proportion of pieces so that the visibly burnt proportion of an assemblage may be an indication only of the minimum amount that has been affected (Woodman *et al.* 2006, 98).

7 Behavioural Analysis

- 7.1 Although this is a small assemblage, the finds in this assemblage have been grouped according to their place in the production cycle. This method attempts to identify the behaviours involved in the production and maintenance of the assemblage (after Peterson 1990, Dillon 1997).

	<i>no.</i>	<i>tot.</i>	<i>%</i>
Selection of Material		0	0%
Production of Tools		0	0%
(retouched) bipolar core	1	(1)	
Discarded Material			
unutilised flakes	3	3	33%
Unmodified Tools			
utilised flakes	2	2	22%
Modified Tools			
scraper	1		
end and side scraper	1		
retouched blade	1		
retouched bipolar core	1	4	44%
Miscellaneous	0	0	0%
Total		9	100%

Table 1 - Behavioural analysis, Caherabbey Lower

- 7.2 No artefacts related to the selection of raw material are represented in this assemblage.
- 7.3 Finds falling into the *Production of Tools* category generally indicate the production of cores and associated waste flakes. One of the artefacts in this assemblage pointed to such activities: a retouched bipolar core (E2266:12). This artefact underwent further modification and was used as a tool so while it is indicated in the *Production of Tools* category in brackets it is only counted in the *Modified Tools* category.
- 7.4 *Discarded Material* includes flakes that show no signs of having been utilised and are by-products of the production of usable flakes and tool blanks. Three unutilised flakes (E2266:2; E2266:4; E2266:139) were identified in the assemblage.
- 7.5 The *Unmodified Tools* category includes all flakes that show signs of having been utilised, i.e., they display visible traces of edge damage. The assignation of pieces to either of these two categories is based solely on a visual inspection of the edges of each

piece. It is possible that for some activities the wear patterns produced are not discernible to the naked eye. It is also possible that some of the edge damage assumed to have been caused by the use of a tool was, in fact, caused by post depositional processes. Notwithstanding these limitations, the figures derived do give a useful impression of the proportion of utilised to unutilised flakes and the process is worthwhile. Two lithics from the assemblage were assigned to this category (E2266:2; E2266:3) representing 22% of the assemblage.

- 7.6 The *Modified Tools* category accounts for all formal tools that have been modified or retouched, i.e. the systematic removal of tiny flakes from the edge of a flake to create a tool of a particular form, a sharp edge, a steep edge suitable for scraping or for blunting an edge in order to facilitate hafting. Diagnostic pieces will normally belong to this category as flakes are sometimes modified according to culturally prescribed templates which tend to vary over time. Four lithics in the assemblage (an end and side scraper E2266:1; a retouched bipolar core E2266:12; a scraper E2266:13; and a retouched blade E2266:31) fell into this category representing 44% of the assemblage.
- 7.7 *Miscellanea* forms the final category in the analysis and includes waste pieces. While it is possible that waste is produced at any one of the preceding stages, it not assignable to any particular category because it does not occur in forms that can be associated with one or other of the categories. No artefacts from the assemblage were assigned to this category.
- 7.8 Bipolar or scalar reduction is a method which allows the knapping of smaller material that it is not possible to reduce using the more conventional hand-held knapping methods. It involves wedging a small pebble securely between two stones while it rests on top of an anvil stone and hammering directly down on top of it in order to split it. This technique is less predictable and controlled than normal knapping (Dillon 1997, 34). As mentioned above, one of the artefacts in the present assemblage displays the characteristics of having been struck using the bipolar technique – crushing at both ends of the flake as if it had been struck simultaneously from both ends. This is the retouched bipolar core (E2266:12).

8 Chronology

- 8.1 No chronologically diagnostic pieces were present in the assemblage. However, the general form of the artefacts is indicative of a broad Neolithic to Early Bronze Age date for the activity represented.

9 Conclusion

- 9.1 The number of lithics recovered this site is small limiting the possibility for detailed interpretation of the activities and processes involved in their production, use and discard. However, the presence of the lithics at the sites point broadly to small-scale activity perhaps directed towards processing of foodstuffs or other craft activities during the Neolithic or Bronze Age.

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Catalogue

All artefacts were measured to the nearest millimetre and weights were recorded for all flint pieces to the nearest gram. The colour of all flint pieces was recorded objectively using Munsell Soil Colour Charts where macroscopic assessment was not precluded by cortex, patination or burning (Woodman *et al.* 2006: 86).

Abbreviations:

L: Length

B: Breadth

Th: Thickness

Wt: Weight

Plat W: Platform Width

Plat D: Platform Depth

E2266:1 A complete retouched secondary flint end and side scraper. The piece has a plain platform and soft hammer percussion was used to strike the piece. There is a characteristic lip at the junction of the ventral face and the platform indicating this. The piece has an all-over white patina except for a section of retouch along the distal. The retouch on the piece is short stepped direct abrupt at the distal end and semi-abrupt at the right lateral, distal and right lateral. It has parallel flake scars on the dorsal face. The condition of the piece is fresh and the flint is opaque. The colour of the flint is indiscernible due to the degree of patination but small inclusions are visible on the surface of the piece. The piece has a textured grey cortex c. 1mm thick.

L: 34mm B: 33mm Th: 12mm Wt: 13g n/a

E2266:2 An incomplete utilised secondary flint flake with the medial section and right lateral missing. The piece has a cortical platform and soft hammer percussion was used to detach it. It has a feather termination and there are opposed flake scars on the dorsal face. The condition of the piece is fresh and the flint is opaque and very pale brown in colour. The piece has a smooth light brown cortex <0.5mm thick.

L: 45mm B: 20mm Th: 9mm Wt: 5g

Munsell No.: 10YR 8/2

E2266:3 An incomplete utilised tertiary flint flake with the distal tip missing. The piece has an irregular platform and soft hammer percussion was used to detach it. One facet on the left side of the dorsal is heavily patinated. It has a feather termination and there are multi-directional flake scars on the dorsal face. The condition of the piece is fresh and the flint is translucent and light grey in colour with small inclusions.

L: 24mm B: 22mm Th: 6mm Wt: 4g

Munsell No.: 7.5YR 7/1

E2266:4 A complete unutilised chert flake. The piece has a plain platform and the percussion used to detach the piece is unclear. It has a feather termination. The condition of the piece is abraded.

L: 21mm B: 12mm Th: 5mm Wt: 2g

E2266:12 A complete retouched secondary flint bipolar core. The piece has a crushed platform and the percussion used to detach the piece is unclear. There short stepped direct semi abrupt retouch along the right lateral. The condition of the piece is fresh and the flint is opaque and pale yellow in colour with small inclusions. The piece has a smooth light grey cortex <0.5mm thick.

L: 29mm B: 28mm Th: 6mm Wt: 6g

Munsell No.: 2.5Y 8/2

E2266:13 A complete retouched tertiary flint scraper. The piece has a reworked platform and soft hammer percussion was used to detach it. There is short sub-parallel direct retouch at the distal, alternate retouch at the proximal and semi abrupt retouch on left of the distal and along the right side of the

proximal. It has a hinge termination. The condition of the piece is fresh and the flint is translucent and grey in colour. The piece has a smooth cream cortex c. 1mm thick.

L: 20mm B: 18mm Th: 5mm Wt: 3g

Munsell No.: 10YR 6/2

E2266:31 A complete retouched tertiary flint retouched blade. The piece has a plain/crushed platform and soft hammer percussion was used to detach it. It has a white pre retouch patina. There is semi-invasive sub-parallel alternate semi-abrupt retouch along the left lateral. It has a hinge termination and there are parallel flake scars on the dorsal face. The condition of the piece is fresh and the flint is translucent and greyish brown in colour.

L: 30mm B: 10mm Th: 3mm Wt: 2g

Munsell No.: 10YR 5/2

E2266:32 An incomplete unutilised tertiary flint flake with the left lateral missing. The piece has a plain platform and soft hammer percussion was used to detach it. It has a hinge termination and there are parallel flake scars on the dorsal face. The condition of the piece is fresh and the flint is translucent and grey with small inclusions

L: 15mm B: 20mm Th: 2mm Wt: 1g

Munsell No.: 10YR 6//1

E2266:40 An incomplete unutilised tertiary flint flake with the left lateral missing. The piece has an irregular platform and soft hammer percussion was used to detach it. It has a feather termination and there are parallel flake scars on the dorsal face. The condition of the piece is fresh and the flint is opaque and light brownish grey in colour with small inclusions.

L: 14mm B: 8mm Th: 2mm Wt: 1g

Munsell No.: 10YR 6/2

Appendix 5 - Stone finds

By Siobhán Scully

A small fragment of a possible hone or whetstone was recovered from the topsoil (F1) at Caherabbey Lower, Co. Tipperary, Site 189.1. Hones were used for sharpening blades and were important not just in the manufacture of blades but also in their upkeep (Mainman & Rogers 2000, 2484). The fine-grained stone of the hone from Caherabbey Lower would suggest that it was used for sharpening small blades.

Catalogue

E2266:11 Possible fragment of hone/whetstone. Sandstone. Brown. Fine-grained. 35mm x 32mm x 10mm.

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Appendix 6 - Post Medieval Pottery from E2266, N8 Cashel-Mitchelstown

By Niamh Doyle MA MIAI

1 Methodology

- 1.1 These fragments were identified visually in accordance with existing typologies. A brief description of fabric and decoration is given. Clay pipe, artefact and pottery types were identified based on information from published excavations in Ireland and existing typologies.

2 Dating and Quantification

- 2.1 Date ranges for the pottery types are based on published dates for the production and distribution of pottery excavated from archaeological sites in Ireland, England and the United States of America. A sherd count and a count of the Minimum Number Represented (MNR) of each vessel type is included for the pottery.

Post-medieval Pottery from E2266, Site 189:1

Licence Number	Site number	Feature number	find number	Category	Description
E2266	189. 1	1	E2266:5	Ceramic	Pottery. North Devon gravel free ware storage jar. Rim fragment
E2266	189. 1	1	E2266:6	Ceramic	Pottery. Possibly Slip trailed earthenware. Dish. Body fragment
E2266	189. 1	1	E2266:7	Ceramic	Pottery. Glazed Red earthenware. Jug/ Pitcher. Handle fragment
E2266	189. 1	1	E2266:8	Ceramic	Pottery. Glazed red earthenware. Dish. Base fragment
E2266	189. 1	1	E2266:9	Ceramic	Pottery. Glazed red earthenware. Dish. Base fragment
E2266	189. 1	1	E2266:10	Ceramic	Pottery. Glazed red earthenware. Dish. Base fragment

- 2.2 The assemblage from site 189:1 contains seven fragments of post medieval pottery dating to the 17th-19th century. The assemblage represents MNR of four earthenware vessels. An internally glazed North Devon gravel free ware storage jar is represented by a squared rim fragment. A glazed red earthenware jug or pitcher is represented by a short strap handle fragment. A possible slip trailed red earthenware dish is represented by a single body fragment with a brown glaze speckled with yellow. Four small basal fragments represent at least one brown glazed earthenware dish.

Appendix 7 - Charcoal analysis

By Susan Lyons MSc MIAI

1 Introduction

- 1.1 Archaeological excavations at Site 189.1 [Registration No: E2266] along the N8 Cashel to Mitchelstown Road Improvement Scheme [Ministerial Direction Number A035/000] were carried out by *Margaret Gowen & Co. Ltd* in May 2006. The site was located in the townland of Caherabbey Lower in the parish of Cahir, Co. Tipperary (NGR E204909.9 N126606.6) on a southwest facing slope of a small valley to the northwest of the Galtee Mountains.
- 1.2 Two phases of activity were recorded at Site 189.1 using pottery typology and radiocarbon dating. Phase 1 contained evidence for a prehistoric settlement in the form of four pit features dating to the Early Neolithic period, while Phase 2, characterised by the possible kiln feature/ charcoal production pit, dated to the Iron Age. (McQuade, 2007).
- 1.3 The samples were taken on site as bulk soil and were processed by flotation, whereby a minimum of 5 litres of each sample was soaked in water in order to suspend the carbonised material; this was then poured off and trapped in a sieve (mesh size 300µm). This “flot” (i.e. the floated material) was dried and stored in sealed plastic bag. The samples were processed by Laoise Cronin, Christina Gomez and Alessandro Soggi (after O'Donnell, 2007).
- 1.4 Three flots from the site (F3, F9 and F11) were submitted to Susan Lyons by *Margaret Gowen & Co. Ltd.* in August 2007 to analyse the wood charcoal fragments within. The primary objective of this project was to identify the wood species of the charcoal. Charcoal identifications represent the collected wood species used as fuel and can help with interpreting the local woodland and flora assemblage that grew in the vicinity of the site or species collected from a wider area.

2 Methodology

- 2.1 Each sample was dry sieved through a bank of sieves (2mm, 1mm and 0.5mm) to separate the larger charcoal samples from the much smaller charcoal fibres, which would prove more difficult to fracture and identify.
- 2.2 The larger sized charcoal fragments (measuring a minimum of 2 mm across the transverse section) were fractured to view the three planes [transverse, radial and tangential sections] necessary for microscopic wood identification. The wood species identifications were conducted under a binocular microscope using dark ground light and viewed at magnifications of 100x, 200x and 400x where applicable. Where possible the age and growth pattern of the wood fragments were recorded by studying the transverse section at a magnification of up to 40x. Each fragment was measured and any notable features were recorded.
- 2.3 In the case of a very large charcoal sample, such as F9 (684 grams of charcoal), up to 200 charcoal fragments were randomly identified. This accounted for 364 grams of the assemblage.
- 2.4 Wood identifications were made using wood reference slides and wood keys devised by Schweingruber (1978) and the IAWA wood identification manuals (Wheeler, Bass & Gasson, 1989).

3 Results

3.1 *Charcoal Identifications*

Four wood species totalling 324 identifications were recorded from Site 189.1 (**Table 1**). While this material represents the wood types selected for burning it is also likely to reflect the flora that grew in the nearby hedges, scrub and woodland that surrounded the site.

Oak (*Quercus* sp.) was the dominant wood species type recorded from the site, making up 81% of the identified charcoal, with the highest incidences occurring in F9. A representative number of identifications were undertaken from F9 (Sample 1), whereby

200 fragments were randomly identified. This accounted for approximately 30% of the charcoal fragments from the sample. Oak was also the dominant wood type from F3 and F11, accounting for 62% and 52% respectively of the charcoal identified from these features.

Alder (*Alnus* sp.) made up 11% of the assemblage, with the highest values recorded from F11. Hazel (*Corylus avellana*) accounted for 7% of the charcoal identified and was recorded from F11 only, while just 1% of willow (*Salix* sp.) from F3 was recorded (Figure 1).

3.2 **Ring Growth and Form**

Many of the charcoal fragments identified from F9 were very large, with an average length of approximately 35mm along the radial section, while 10% of the charcoal identified from the sample measured over 50mm. The charcoal remains from F3 and F11 were much more fragmented with pieces averaging at 6mm in length.

The annual growth rings from the oak charcoal identified from F9 ranged from 5 to 37 rings. Approximately 7% of the assemblage identified contained more than 20 growth rings, with the average number recorded being between 10 and 15 rings. The general growth of the oak was relatively uniform, although approximately 5% of the material contained rings of up to 3mm in width.

The alder, hazel and willow charcoal fragments contained a similar ring count of between 2 to 5 annual growth rings and the general growth of the wood was relatively uniform throughout.

None of the material contained bark or sapwood. No root material was identified. Approximately 5% of the oak charcoal from F9 showed signs of insect borings, which suggests that the wood may have been lying exposed or stored prior to use.

4 Discussion

4.1 *Background and Origin of Wood Species*

Oak was the dominant species recorded from samples associated with Site 189.1. Oak is a tall deciduous woodland tree, often growing in association with hazel and ash. Most species prefer damp, non-calcareous soils on lowland or montane sites. Of the 27 European species, pedunculate oak (*Quercus robur*) and sessile oak (*Quercus petraea*) are native to Ireland. Pedunculate oak is common on heavy clay lowland soils whereas sessile oak thrives on the lighter loams characteristic of higher ground (Culter & Gale, 2000). The wood is easy to cleave both radially and tangentially and has provided one of the most important building materials since the prehistoric period (Gale & Culter, 2000). The heartwood timber is renowned for its durability but the paler sapwood is susceptible to beetle and fungal attack. The strength of the timber depends on the species and is influenced by climatic and edaphic factors (Edlin, 1951). When burnt, oak charcoal, particularly the dense heartwood, has higher calorific values than most European woods and this can make for good long-lasting fuel (Culter & Gale, 2000).

Alder accounted for 11% of the charcoal identified. This wood type is usually found growing close to running water, rivers or in damp woodland, in the latter often with oak. In marshland alder grows as a shrub frequently mixed with willow and alder buckthorn to form alder carr (Cutler & Gale, 2000). Alders commonly produce root nodules which contain nitrogen-fixing bacteria, known as *Frankia* (Milner, cited in Culter & Gale, 2000) and this enables the tree to survive in poorer soils. While alder makes for poor fuel, it produces good quality charcoal (Edlin, 1951).

Hazel was recorded from F11 and accounted for 7% of the charcoal identified. Hazel woodlands replaced birch in the early post-glacial forests and remains on some shallow limestone soils to the present day (Pilcher & Hall, 2001). Hazel grows on most soil types and forms a small deciduous tree or shrub. It commonly occurs in understorey of oak and/or ash woodlands, where it may grow to a height of 10m or more. In open areas or woodland glades hazel grows as a shrub. Hazel is a common species recorded from Irish archaeological sites and its widespread presence is highlighted in pollen diagrams from the Neolithic to the Medieval period (Caseldine, 1996).

Willow made up 1% of the charcoal identified from Site 189.1 (F3). Willow can grow in a wide range of habitats, and some species are particularly common on damp or marshy ground or beside rivers and streams. Some shrubby species are found growing with alder to form alder carr in waterlogged environments (Culter & Gale, 2000).

4.2 ***Distribution of Charcoal from Site 189.1***

The distribution of the charcoal identified from the Site 189.1 samples is presented in Figure 2.

Features F3 and F11 were both pit features dating to the Early Neolithic period and the charcoal recorded from these features were somewhat similar. Oak accounted for 62% of the assemblage from F3 and 51% from F11, while alder made up 23% of the charcoal from F3 and 28% from F11. While willow (15%) was identified from F3, it was hazel that made up the remaining wood charcoal composition in F11 (21%).

Since no obvious *in situ* burning was recorded from either feature, it is likely that the charcoal from here was the discarded debris from nearby firing/hearth activity. The presence of oak and alder in relatively equal quantities suggests that these species were growing in the vicinity and possibly components of damp woodland. The occurrence of willow would also imply that more waterlogged areas were located nearby and may even have grown along with the alder in such conditions. The recovery of a large concentration of carbonised hazelnut shell from F11 (Halwes, 2007) may relate to the hazel charcoal identified from here, where hazel wood may have been discarded with these foodstuffs or used as fuel or kindling. Hazel is also a woodland species found alongside oak and may have grown close to the site in marginal areas.

Feature F9 was dated to the Iron Age and contained a large concentration of oak charcoal (Sample 1), much of which represents mature trees in a very good state of preservation. The absence of any other wood species from this sample may suggest that oak was specifically chosen to be burnt here, especially if this feature was associated with industrial uses. It is also possible that oak may have been plentiful in the area and brought to the site for construction/building purposes. However based on one sample it is difficult to interpret if there was a selection process involved here.

5 Conclusions

The charcoal identifications from Site 189.1 primarily represent a variety of wood species that was selected for the use of fuel at the site. In the Early Neolithic period oak and to a lesser extent alder, hazel and willow suggests that the site was located near damp woodlands or close to a river or wetland area. These species were therefore either collected specifically as material for burning or brought to the site for other purposes and subsequently used as fuel.

During the Iron Age period the area surrounding the site may have still been quite wooded.

The large assemblage of oak from F9 implies that oak may have still been readily available to be used as a resource at the site. Whether it was gathered specifically to fuel F9 or whether it represents the re-use of structural remains as fuel is difficult to ascertain.

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Feature number	Sample number	Flot weight (grams)	Wood species	No. of fragments	Weight (grams)	Size of fragments (mm)	No. of growth rings	Comments
F3	4	18 grams	Salix sp. (willow)	2	0.1 grams	5mm	2 - 3 rings	
			Alnus sp. (alder)	3	0.1 grams	6mm - 8mm	3 - 4 rings	
			Quercus sp. (oak)	8	0.4 grams	4mm - 9mm	2 - 9 rings	
F9	1	684 grams	Quercus sp. (oak)	200	364 grams	8mm - 71mm	5 - 37 rings	5% - insect borings 7% - > 20 rings Average rings 10-15
F11	3	72 grams	Quercus sp. (oak)	56	1 gram	5mm - 12mm	1 - 7 rings	
			Corylus avellana (hazel)	23	0.5 gram	4mm - 8mm	2 - 5 rings	
			Alnus sp. (alder)	32	0.6grams	4mm - 7mm	2 - 5 rings	

Table 1. Charcoal Identifications from Site 189.1

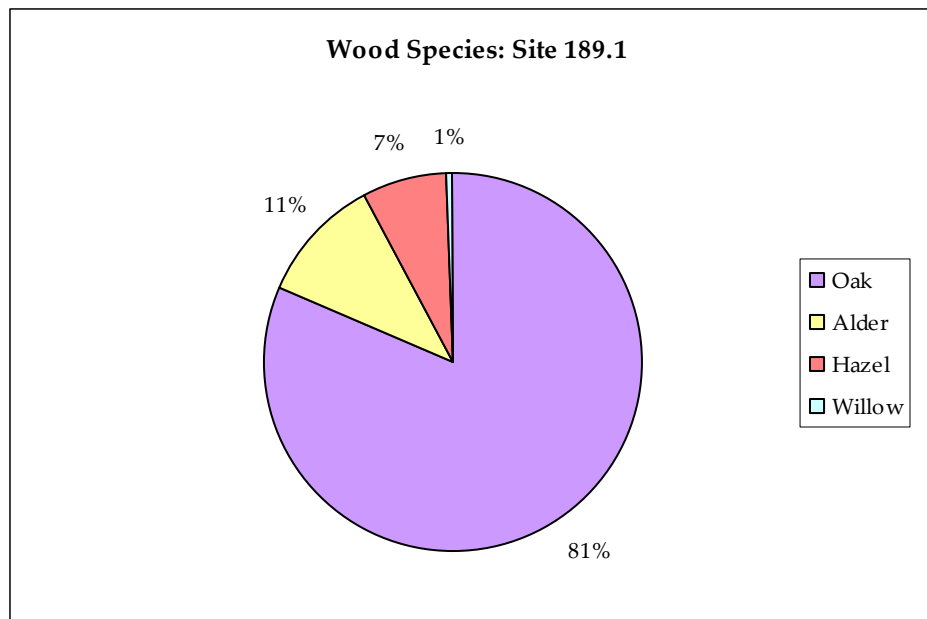


Figure 1. Percentage of Wood Charcoal Species from Site 189.1

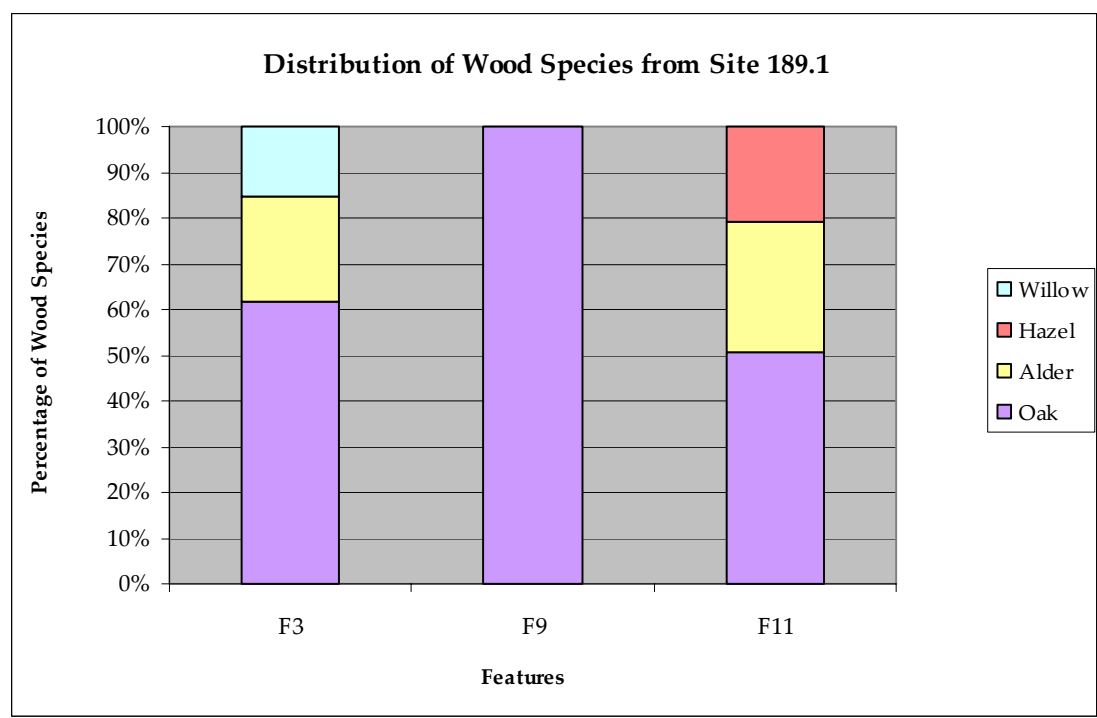


Figure 2. Distribution of the Wood Charcoal Species from the features at Site 189.1

Appendix 8 Analysis of plant remains

By Sara Halwas

1 Introduction

- 1.1 Samples from Site 189.1, directed by Melanie McQuade, were analyzed as part of the N8 Cashel-Mitchelstown roadway project which began in 2005. Site 189.1 comprised of a series of Early Bronze Age pits and a possible kiln or charcoal production pit dating from the Iron Age. Sediment samples were collected throughout the excavation and based on the previous plant assessment (Halwas 2006) all five samples submitted were analyzed. This report details the findings of these analyses and presents botanical information for the site.

2 Methodology

- 2.1 All plant remains identified from the recovered samples were preserved through carbonization. This is a process where high temperatures convert plant materials into inert carbon which is resistant to decay. Bulk samples were collected on site by Margaret Gowen & Co. Ltd. and processed by simple flotation. Generally five litres is sub-sampled from the bulk sample; if the sample is less than five litres, it is processed in its entirety. The sediment is placed in a bucket with water and gently agitated by hand to loosen the charred remains from the soil. The charred remains float to the surface of the water (known as the flot) and are poured off through a 250 µm sieve. This process is repeated until no remaining material floats to the surface. The remainder of the sample is washed through a 1mm sieve to collect any large charred plant remains, and lithic, faunal, and ceramic artifacts. This is referred to as the retent. Both the flot and retent are placed in trays on newspaper to dry.
- 2.2 Each sample is scanned under a low power binocular microscope (magnification x4.5 to x56). All materials are identified with a series of identification manuals (see Beijerinck 1976; Berggren 1981; Cappers, Bekker and Jans 2006; Martin and Barkley 2000; Montgomery 1978), and a modern reference collection, accessed through the National Botanic Gardens, in Glasnevin, Dublin.

Nomenclature generally follows Stace (1997); where nomenclature deviates from Stace, Preston, Pearman and Dines (2002) is followed. In order to facilitate easy reading of this report taxonomic order has been simplified into base categories including cereals, weeds

and fruits, which are listed in tables at the end of the report; the plants are named in English within the body of the text first with the scientific name (in Latin) following the first mention of the plant species.

3 Results

3.1 Five samples, from four pit fills and one from a kiln feature, were analyzed from this site. Barley, emmer wheat, charred hazelnut shell fragments and a number of common weed species were identified.

3.2 Sample 1 (F9)

This sample was collected from the fill of a kiln feature, contained various sizes of charcoal fragments and no macro plant remains.

3.3 Sample 2 (F13)

This sample contained modern seeds from a number of weed species commonly recovered from archaeological contexts and a few fragments of charred hazelnut (*Corylus avellana*) shell. Hazelnuts are a ubiquitous archaeological find because the shells are hard and resistant to decay, and because the inside nut is consumed while the shell was tossed into a fire or rubbish pit increasing its chances of preservation (Johnston 2003a). They are native to Ireland and were collected in large quantities because they contain high amounts of proteins, fats, minerals and vitamins and are easily stored for the winter (Kelly 1998).

Two charred raspberry/blackberry (known collectively as brambles) (*Rubus* sp.) seeds and a single charred dock (*Rumex* sp.) seed were recovered. Brambles are native to Ireland and grow in rough or disturbed areas, along hedgerows and also form thickets (Preston, Pearman and Dines 2002). They produce large quantities of edible fruits which were gathered and eaten fresh (Kelly 1998). Docks are weeds of arable lands and grow within cereal crops and are generally harvested along with the crop and brought onsite.

The sample was collected from the fill of an Early Bronze Age pit and the species recovered probably reflect seeds of local plants scattered on the ground around the pit which were incorporated into the fill.

3.4 **Sample 3 (F11)**

This sample contained primarily hazelnut shell fragments (97%). Four fat-hen seeds and a single indeterminate cereal grain were also identified. Cereal crops were widely grown during the Bronze Age; primarily barley (*Hordeum vulgare*) was grown with a little evidence for emmer wheat (*Triticum dicoccum*), einkorn (*T. monococcum*), and bread wheat (*T. aestivum*). Wild oats (*Avena fatua*) and rye (*Secale cereale*) may have been utilized as a free growing weed species found with other cereal crops (Monk 1985). Fat-hen is a common weed of arable lands and are generally harvested with cereal crops and brought on site. They are frequently recovered with cereal crops from various contexts.

Hazelnut shells are very hard are roasted or dried to facilitate in prolonging shelling, storage time, grinding the kernel, and increase flavor and palatability (MH 2004). Dried hazelnuts can last for longer than a year in a cool, dark and dry place. Hazelnut shells were also utilized as fuel source (MH 2004). The high number of hazelnut shell fragments does not reflect the same amount of whole shells utilized. Each shell would have fragmented into a number of pieces of various sizes. It is hard to estimate the minimum number of whole shells from the sample.

This sample was collected from the main fill of a pit feature and the plant remains were likely scattered on the ground in the area and were incorporated into the fill over time.

3.5 **Sample 4 (F3)**

A single charred mustard/ cabbage (*Brassica* sp.) seed was recovered from this sample collected from a pit fill. The mustard/cabbage genus contains a number of edible species including mustard, cabbage, and turnip found along roadsides and streams/river edges (Stace 1997). The seed was probably present in the matrix around the pit and was incorporated into the fill over time.

3.6 **Sample 5 (F5)**

This pit feature only produced only modern plant remains which have no archaeological significance.

4 **Comparison and Discussion**

- 4.1 The pit features sampled from this site contain similar plant remains. Weed seeds of arable lands, indeterminate cereal grains and hazelnut shell fragments are all commonly

recovered remains from Bronze Age settlements. It is probable that raspberry, blackberries and hazelnuts were gathered locally to supplement the diet. The paucity of charred remains is also similar to other sites associated with the Bronze Age. Site 185.5, located 400 meters from Site 189.1, also produced small amounts of charred seeds. Hazelnut shell fragments have been recovered from Neolithic and Bronze Age contexts around Europe (Zohary and Hopf 1993). They were recovered from a Bronze Age round house at Clonard Co. Dublin (02E0298) (Johnston 2003a) and Knockdomny, Co. Westmeath, as a part of the Gas pipeline to the west project (Johnston 2003b). Johnston (2003a) also lists a number of other sites intensively sampled as part of the same project which exhibited impoverished plant remains assemblages.

5 Summary

- 5.1 Very few plant macro remains were identified from this site; this corresponds to other Bronze Age sites where there is a distinct lack in charred plant remains. It remains unclear why these sites are under-represented florally even though extensive sampling of excavated sites is undertaken.

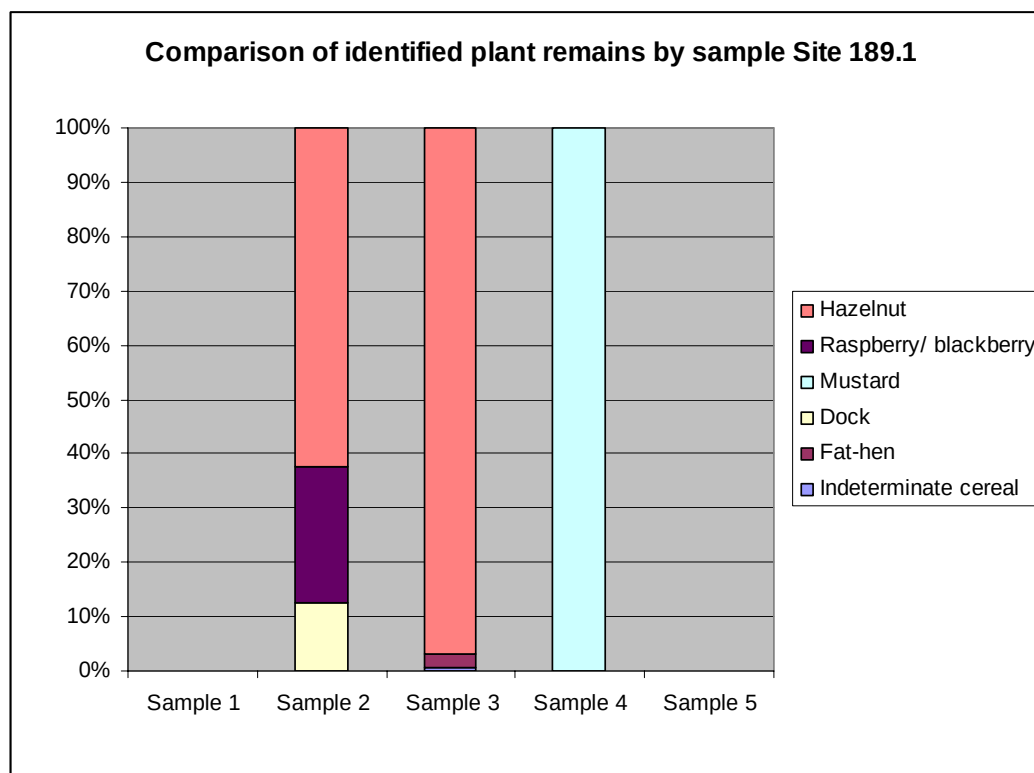
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Table 1: Identified plant remains of analyzed samples Site 189.1

Site 189.1	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
	F9	F13	F11	F3	F5
Wheat (<i>Triticum</i> sp.)					
Barley (<i>Hordeum vulgare</i>)					
Oat (<i>Avena</i> sp.)					
Indeterminate cereals			1		
Mustard (<i>Brassica</i> sp.)				1	
Fat-hen (<i>Chenopodium album</i>)			4		
Nettle				10 Modern	
Raspberry/ Blackberry (<i>Rubus</i> sp.)		2			
Raspberry/ Blackberry/Elder (<i>Rubus/Sambucus</i> sp.)				1 Modern	1 Modern
Dock (<i>Rumex</i> sp.)		1			
Knotweed (Polygonaceae)					
Daisy family (Asteraceae)		5 Modern*			
Possible Spurge (Euphorbiaceae)		1 Modern?			
Fumatory (<i>Fumaria</i> sp.)		9 Modern	3 Modern		1 Modern
Hazelnut (<i>Corylus avellana</i>)		5	156		
Total	0	9	161	1	0

(Modern seeds are marked with a 'M', all other seeds are charred)

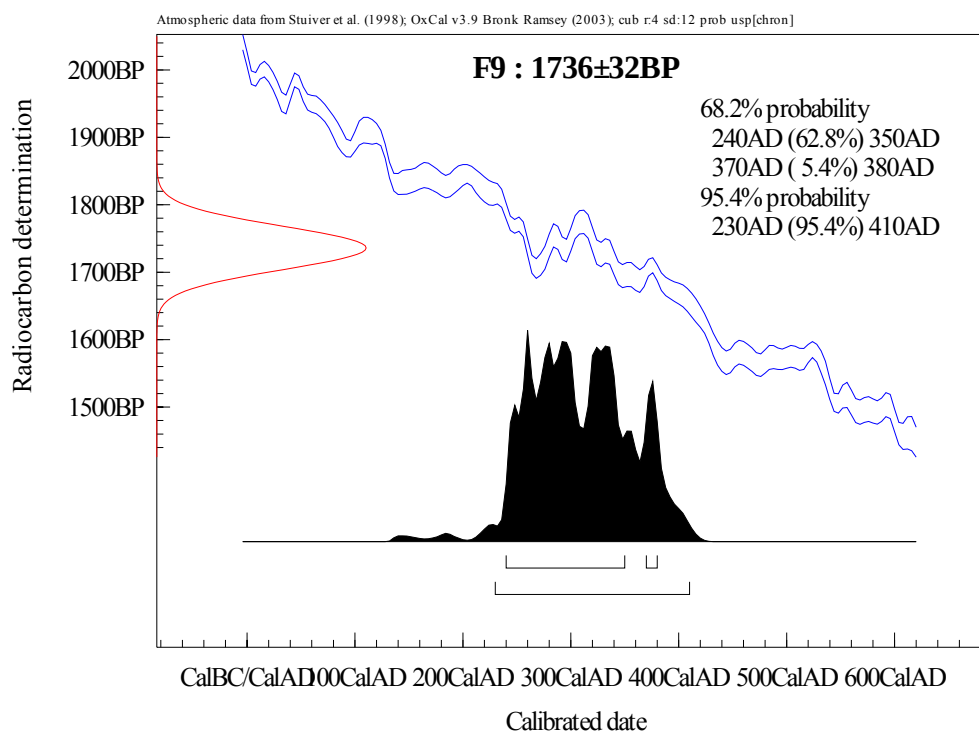
Figure 1: Comparison of plant remains from Site 189.1

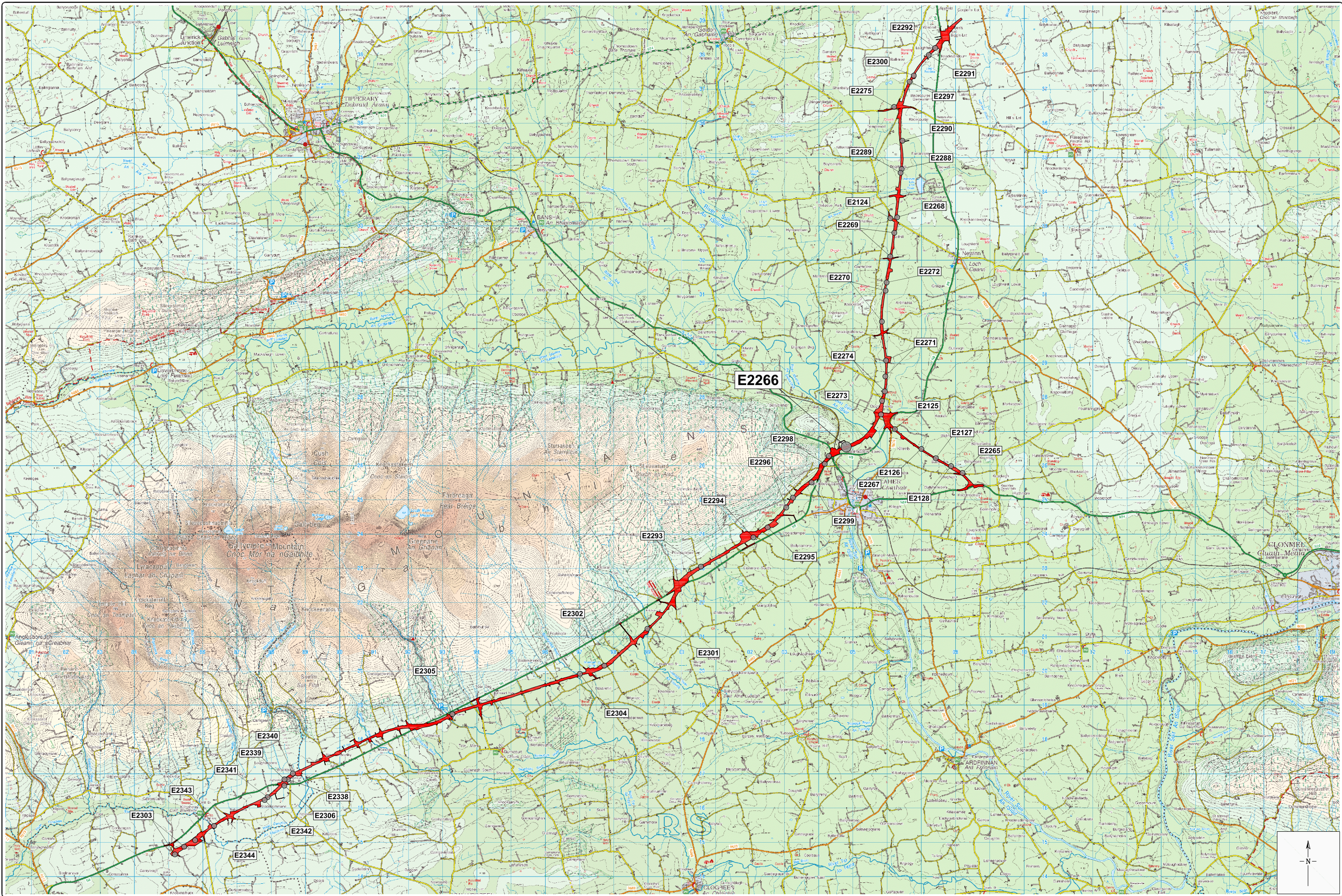
Appendix 9 Radiocarbon results

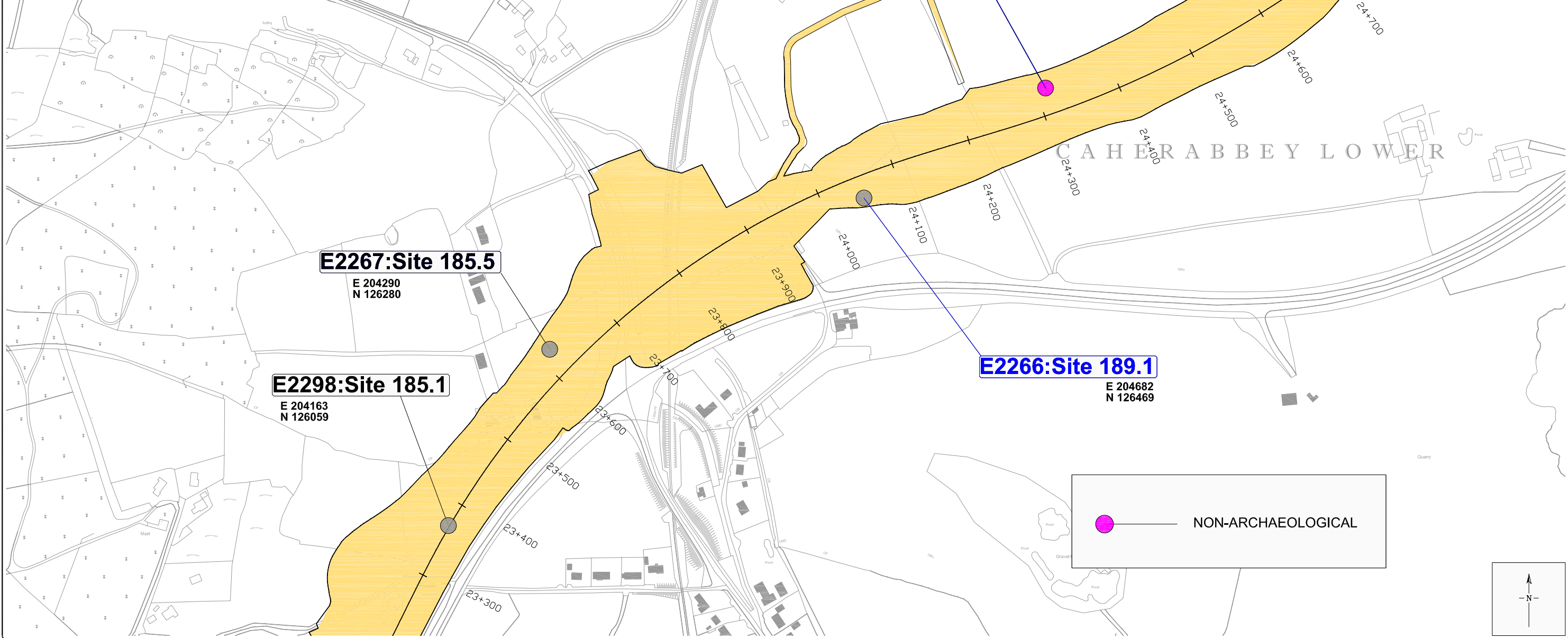
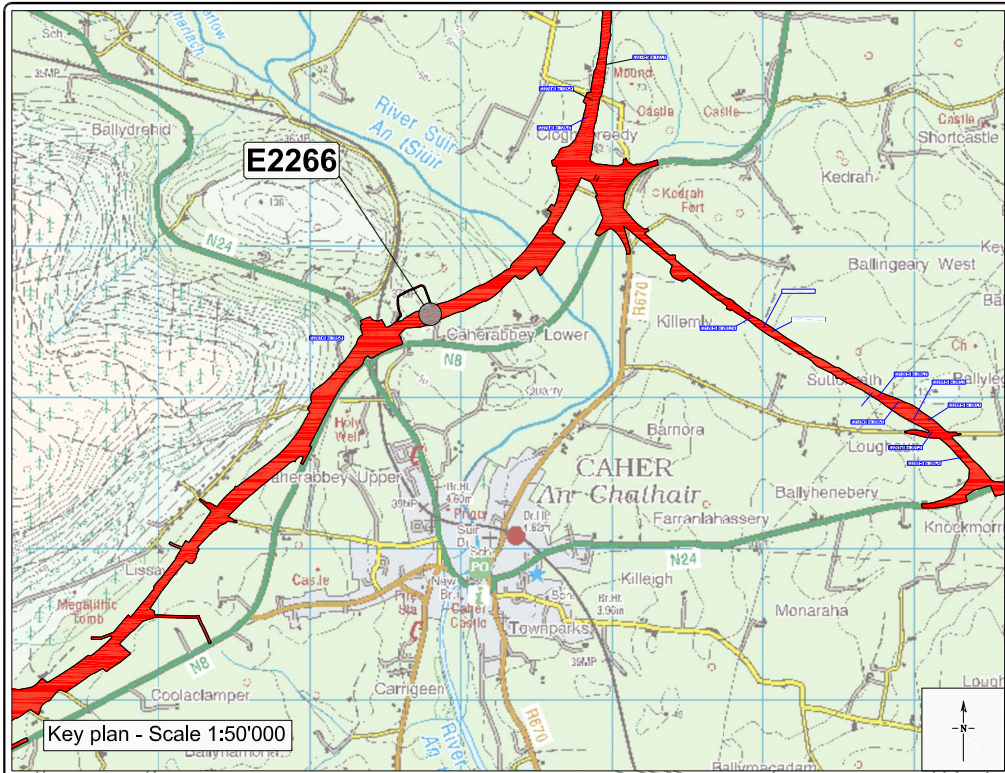
Context	Lab reference	Dated material	Measured Radiocarbon Age(BP)	Std Dev	13C/12C Ratio (0/00)	2Std Dev	2Sigma Calibration
F9	UB-7385	<i>Quercus</i> (oak charcoal)	1736	32	-24	64	cal AD 235-393 (95.4%)

Calibration curve generated by Oxcal 3

F9 fill of charcoal production pit F10







REVISIONS:	BY:	DATE:	REV:

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CHECKED BY: MMQ	DATE ISSUED: 11.09.06

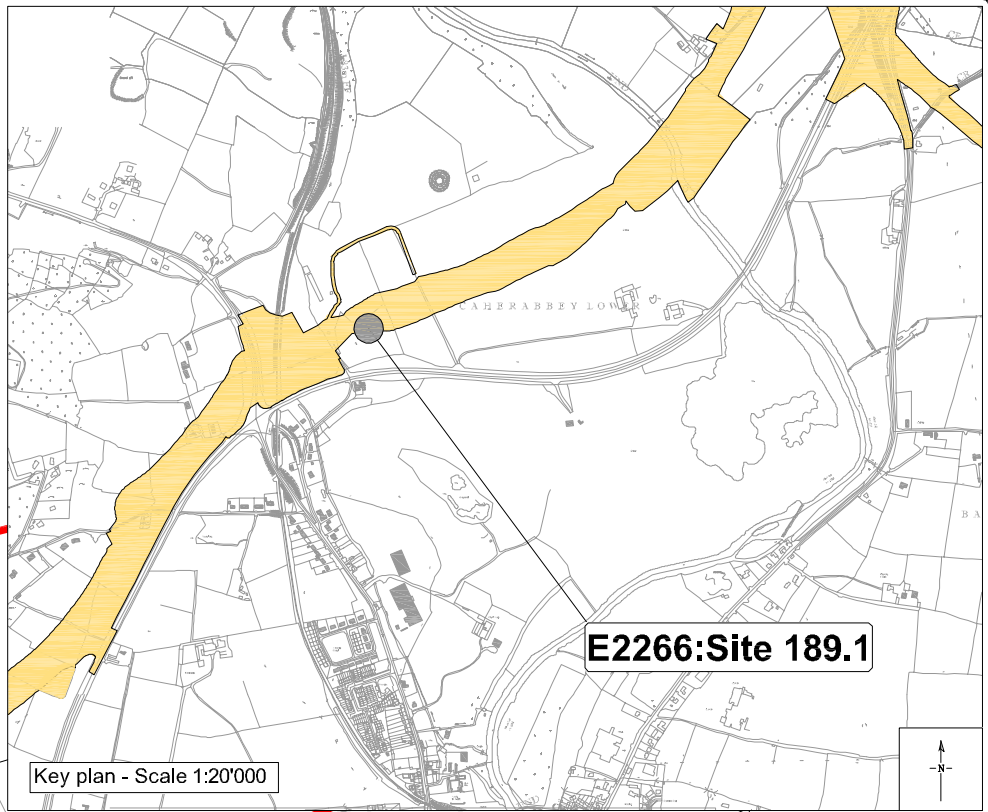
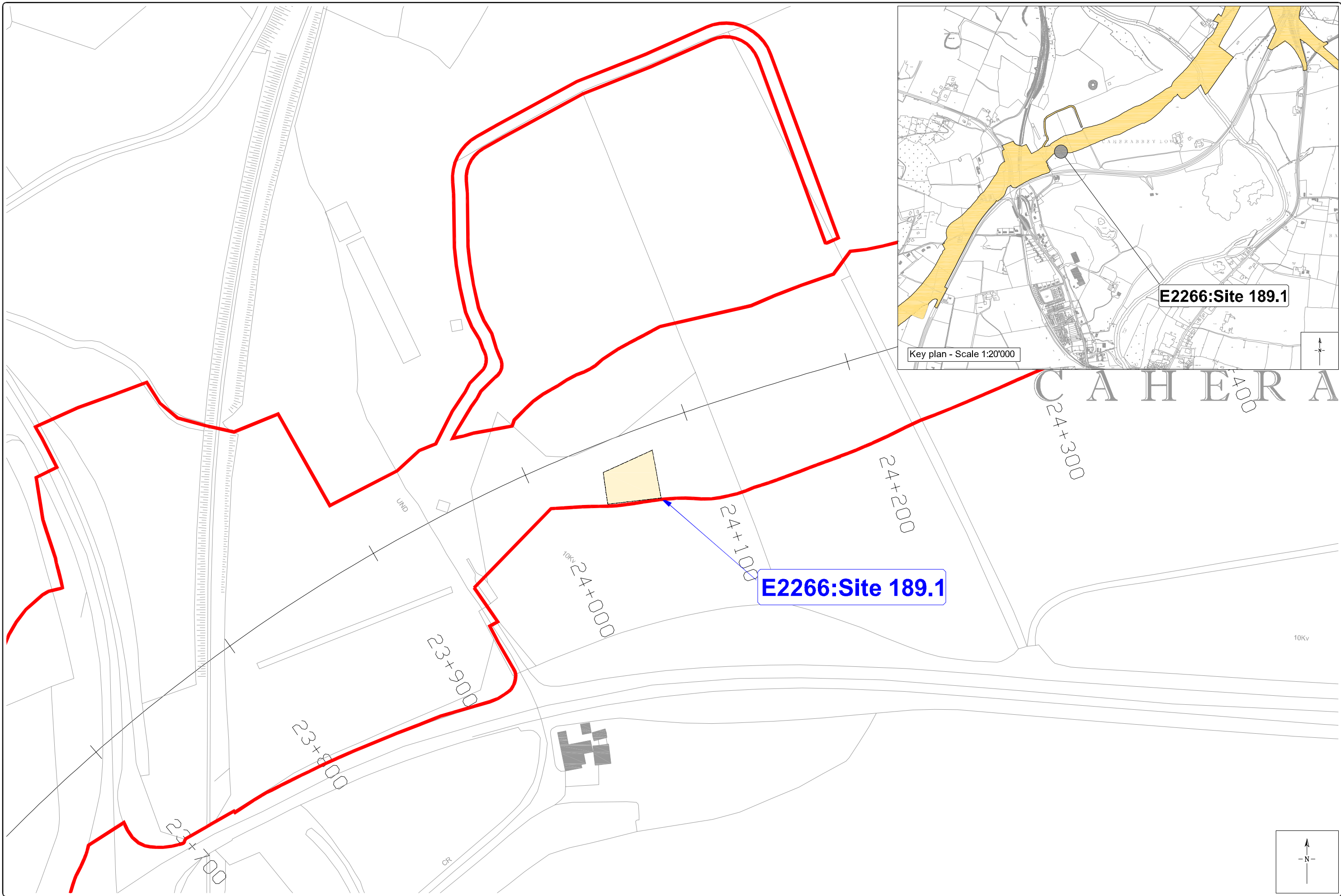
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FIG. NO.	2
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ARCHAEOLOGICAL LICENCE:			
Scheme No. A035 - E2266			
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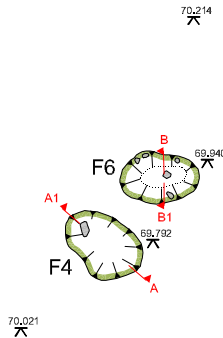
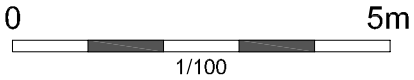
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Excavation No. 2266
Site: 189.1

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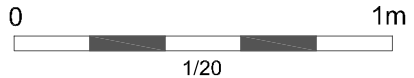
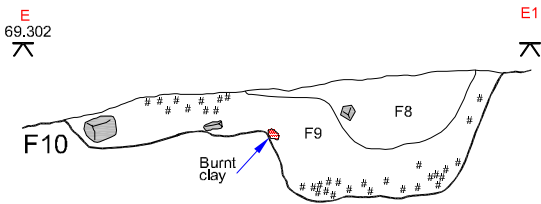
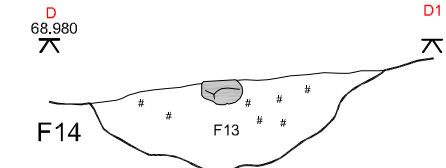
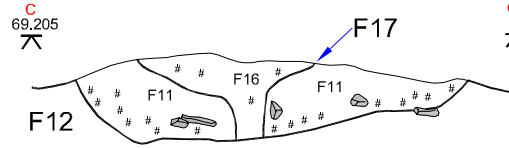
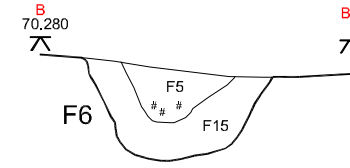
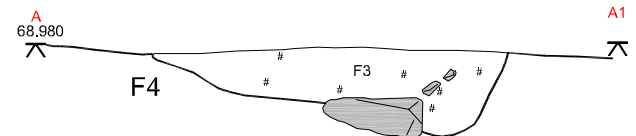
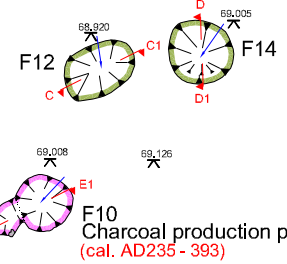
- Neolithic (4000 - 2500BC)
- Iron Age (800BC - AD400)



68,950

69,498

68,905



Edge of Excavation

CPO

CPO

Scale 1/750



REVISIONS:

BY:

DATE:

REV:

ARCHAEOLOGICAL LICENCE:

Scheme No. A035 - E2266

PRODUCED BY:

IE, EB, AA, JPR

DATE SURVEYED:

N/A

CHECKED BY:

MMQ

DATE ISSUED:

26.10.07

PROJECT:

N8 Cashel to Mitchelstown Road Improvement Scheme

TITLE:

Post-excavation plan, Site 189.1

CLIENT:

South Tipperary County Council

JOB NO:

06038-R62

DRAWING NO:

06038-159-R62

FIG. NO.

4

SCALE:

As Indicated



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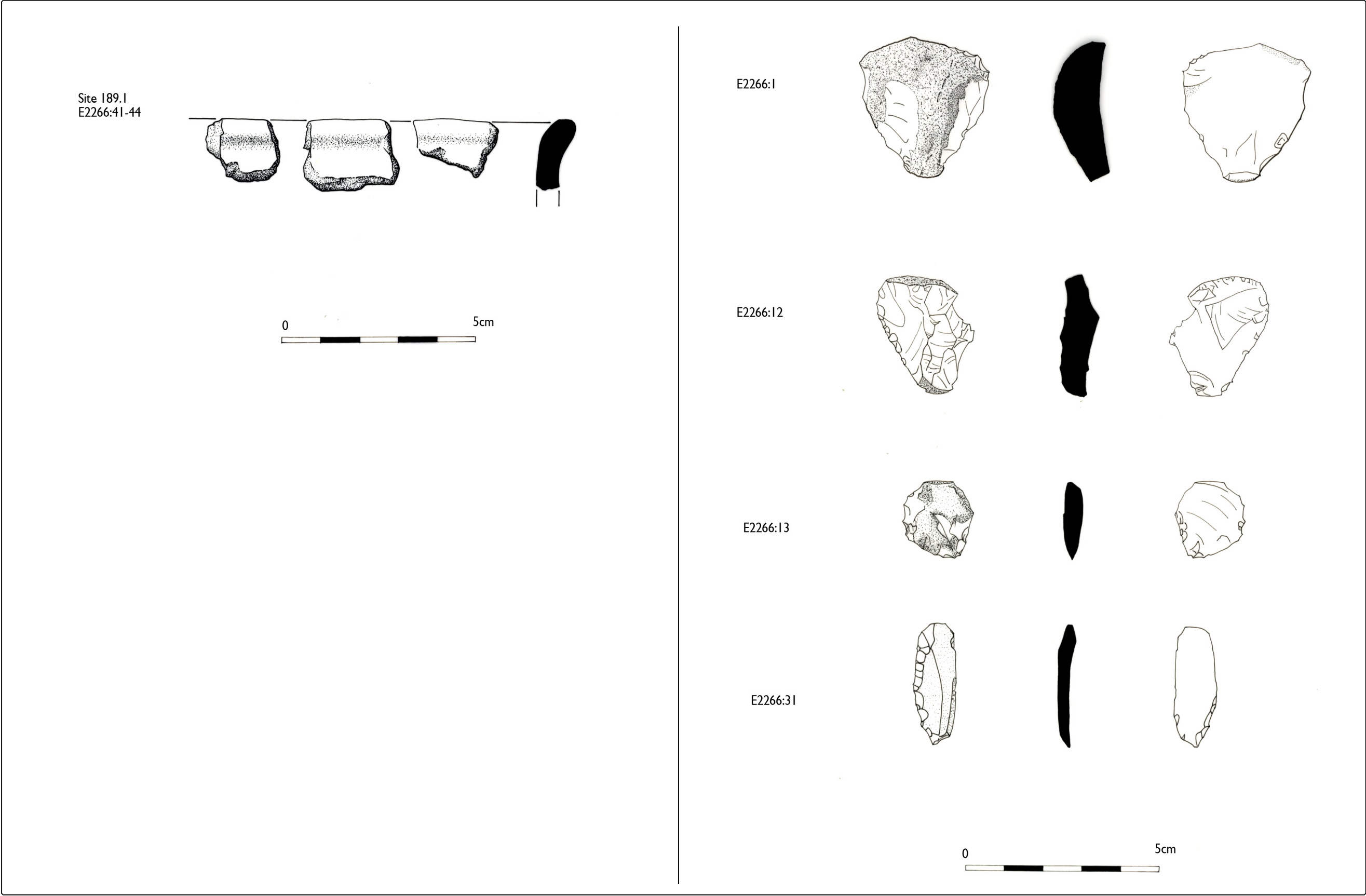


Fig. 5 Illustration of pottery E2266:41-44 and lithics E2266:1, E2266:12, E2266:13, E2266:31



Plate 1 Pit F4 post-ex from south.



Plate 2 Pit F6 post-ex from north



Plate 3 Pit F12 mid-ex from north

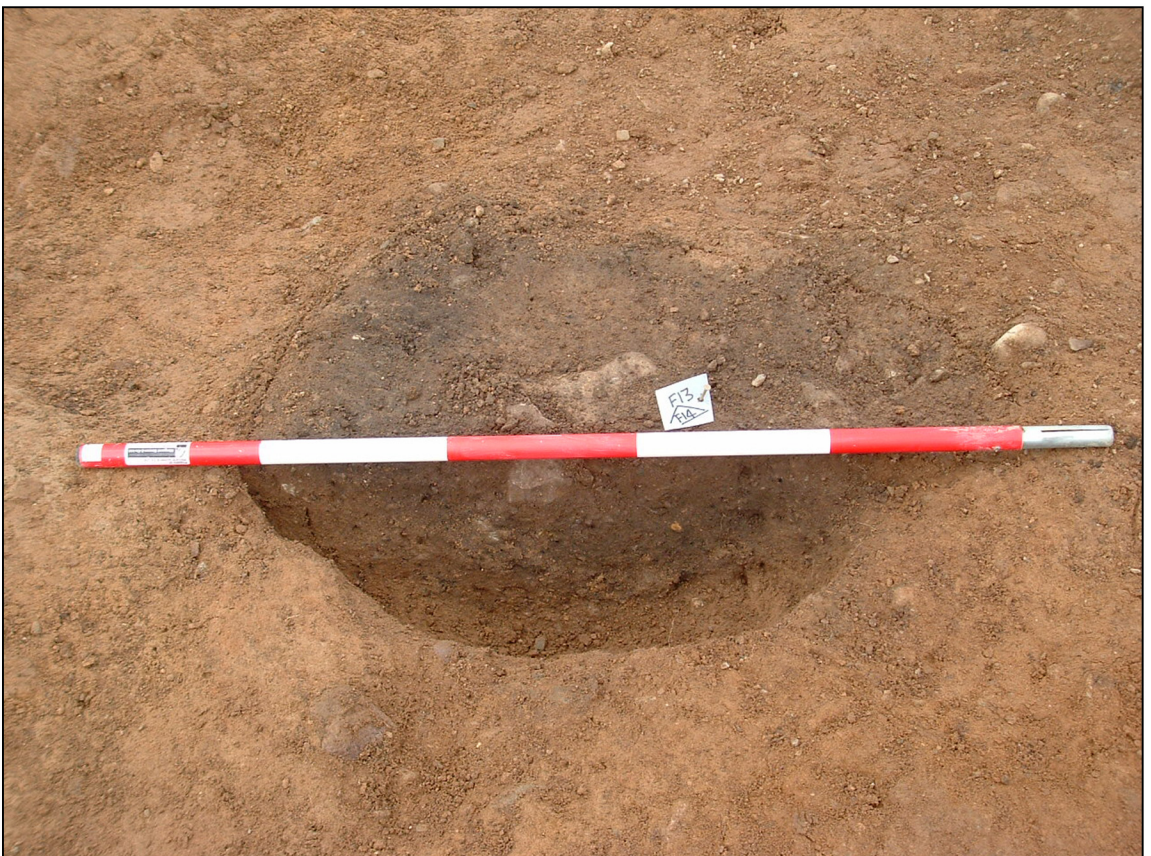


Plate 4 Pit F14 mid-ex from south



Plate 5 F10 post-ex from west



Plate 6 F10 mid-ex from south



Plate 7 Lithics E2266:12-13

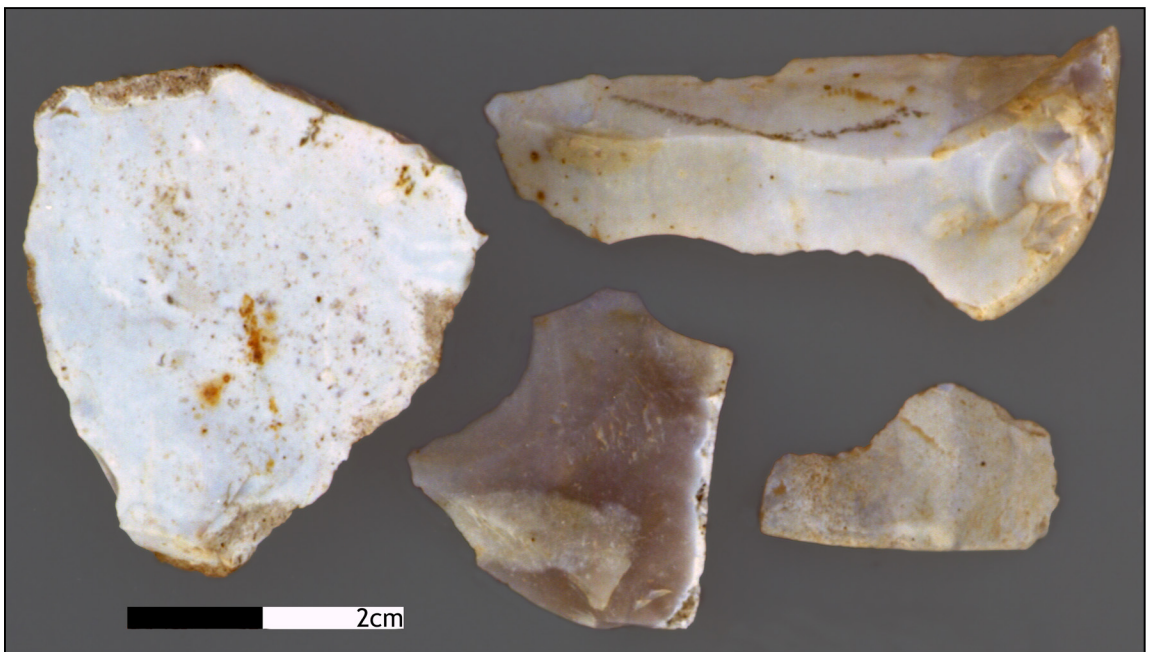


Plate 8 Lithics E2266:1-3