

Balmachie Road, Carnoustie: Archaeological Mitigation

Report



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contributions by Diane Alldritt

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on behalf of Gardyne Homes

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Quality Assurance

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Signed Thomas Rees Date28th June 2018....

In keeping with the procedure of Rathmell Archaeology Limited this document and its findings have been reviewed and agreed by an appropriate colleague:

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Introduction

1. This Report has been prepared for Gardyne Homes in support of the erection of 9 dwelling houses on land at Balmachie Road, Carnoustie, DD7 6GL (Planning Ref: 17/01050/FULL). The archaeological works were designed to mitigate any adverse impact on the archaeological remains within the development site.
2. An initial archaeological evaluation (Klemen 2017b) was undertaken in September 2017, carried out in keeping with the methods agreed in the Written Scheme of Investigation (Klemen 2017a). The evaluation consisted of the excavation of a series of intrusive trenches to expose a 10% sample of the development site. Two pit or posthole features were recorded demonstrating that there was the potential for archaeological features associated with prehistoric activity, although in a lower density than that recorded to the west (Hunter Blair 2017).
3. It was agreed with the client and Aberdeenshire Council Archaeology Service that archaeological monitoring would be carried out on any ground breaking within the western portion of the development site. This archaeological monitoring was carried out on an episodic basis during January and March 2018 (Klemen 2018).
4. Subsequently a remit for post-excavation analytical and reporting work was agreed that was undertaken during May to June 2018. This report summarises the findings of the two stages of on-site works and presents this analytical work.
5. All works were conducted in accordance with Aberdeenshire Council Archaeology Service fieldwork standards and complied with the Chartered Institute for Archaeologists' Standards and Policy Statements and Code of Conduct and Historic Environment Scotland Policy Statements.

Archaeological and Historical Background

6. The development site is located on the northwestern edge of Carnoustie and forms a triangular area of land with Shanwell Road bordering the southern side, David Moyes Road to the west and Balmachie Road to the east. The area prior to development was broadly level with rough vegetation, predominantly grasses, covering it.

Historic Mapping

7. Early mapping depicts the area in which the proposed development area is located, but shows little detail. Roy's *Military Survey of Scotland* (Highlands 1747-52; Figure 1a) is the earliest map to provide a clear depiction of the ground. It is broadly depicted as being under cultivation, with two small settlements in the surrounding area.
8. The 1st edition Ordnance Survey (1865) (Figure 1b) that the surrounding fields and area for the proposed development, are depicted. The area in which the proposed development area is located corresponds with a localised enclosed field system and possibly linked with Carnoustie House. The form of the roads is much as it is today apart from the introduction of David Moyes Road which forms the triangular shape of the proposed development area.

Known Archaeological Sites

9. The development site lies within an area that has a high archaeological potential with prehistoric, medieval and post-medieval sites and artefacts nearby. This has predominantly been evidenced by two programmes of archaeological investigation and excavation at, the first at *David Moyes Road* the second at *Clayholes and Newton Farm*.
10. *David Moyes Road* - Lying adjacent to the western side of Balmachie Road the large recently discovered Neolithic and Bronze Age site at David Moyes Road was excavated by Guard Archaeology Ltd. These mitigation works supported the creation of two new grass football pitches near Carnoustie High School (Hunter Blair 2017 and see feature location information on Figure 2).
11. During these works a significant number of archaeological features and artefacts were recovered. These included a significant Late Bronze Age hoard of metalwork that is a

major addition to Scottish Late Bronze Age archaeology. These included a bronze spearhead decorated with gold was found alongside a bronze sword, pin and scabbard fittings in a pit. A leather and wooden scabbard encased the Carnoustie sword and is probably the best preserved Late Bronze Age sword scabbard ever found in Britain. Fur skin survived around the spearhead, and textile around the pin and scabbard. Such organic remains rarely survive on dryland sites.

12. The wooden scabbard were identified by Ramsay as *Corylus* (hazel) and radiocarbon dated at 1118–924BC at 95.4% (SUERC), giving a rare absolute date for this kind of material (Carnoustie Hoard Blog, Guard 2018).
13. The hoard was not an isolated find but was buried within a Bronze Age settlement providing an archaeological context for the hoard. In total approximately 1000 archaeological features, among them the remains of up to 12 sub-circular houses that probably date to the Bronze Age along with the remains of two rectilinear halls that likely date to the Neolithic period were recorded.
14. One of these Neolithic halls is the largest so far found in Scotland. Other archaeological features consisted clusters of large pits containing ceramic and lithic artefacts. It is reasonable to infer, in advance of full analysis that is ongoing, that the activity investigated at David Moyes Road constitutes intense if episodic settlement across at least three millennia.
15. *Clayholes and Newton Farm* - An archaeological evaluation at Clayholes and Newton Farm in May 2004 in advance of a housing development informed an open area excavation (Areas 1 and 3) conducted in June and July 2004 (Suddaby and White 2004). Within Area 1 the remains of medieval or post-medieval D-shaped ditch-defined enclosure and possible associated field boundaries were recorded. Also exposed was one pit containing prehistoric pottery.
16. Excavation of Area 3 area investigated a rectilinear enclosure and pits containing prehistoric pottery identified during the evaluation. The enclosure's ditch yielded small sherds of prehistoric pottery and a piece of worked flint. Within the enclosure were 19 internal features, all pits of varying sizes, with few artefacts and no evidence to relate these features to the enclosure. Two pits within the enclosure were radiocarbon dated to 3700–3520 BC and 2200–1970 BC.
17. To the east was what appeared to be a separate spread of 78 pits, many containing quantities of prehistoric pottery. The majority of pottery recovered is of early Neolithic date. A pit cut by the enclosure ditch on the east side comprised the largest single assemblage of prehistoric pottery (Late Neolithic Grooved Ware) from the site as well as 11 pieces of worked stone including a fragment of a stone axe head.
18. A total of 20 lithic artefacts of various raw materials were recovered by the excavation, including 15 pieces of debitage, three cores and two tools and would appear to date from the later Neolithic/Bronze Age. Additionally, two rubbers (or grinding stones) and a hammerstone cannot be firmly dated.
19. At least three phases of prehistoric activity have been identified on the site: the early Neolithic represented by pits dug across the area, later Neolithic indicated by Grooved Ware pottery in some of the pits in Pit Group A, and Early Bronze Age also indicated by material recovered from some of the pits.
20. The enclosure seems to have been constructed sometime after the late Neolithic and it is thought likely to relate to the medieval or later field system. Other features recorded indicating later activity on the site included two broad rigs running northeast to southwest across the site, two parallel gullies, a stone-lined culvert, and part of the field systems identified in the earlier phase of excavation.

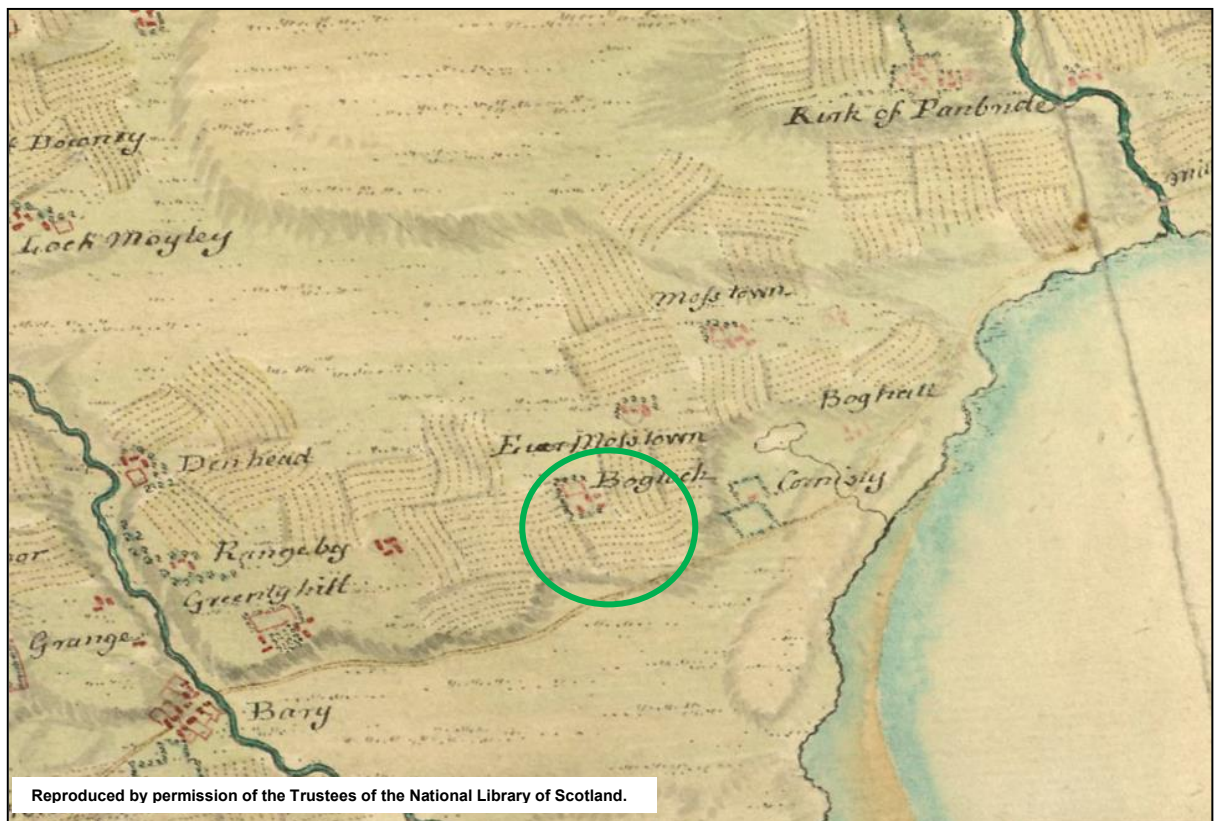


Figure 1a: Extract from Roy's *Military Survey of Scotland: Highlands* (1747-52).

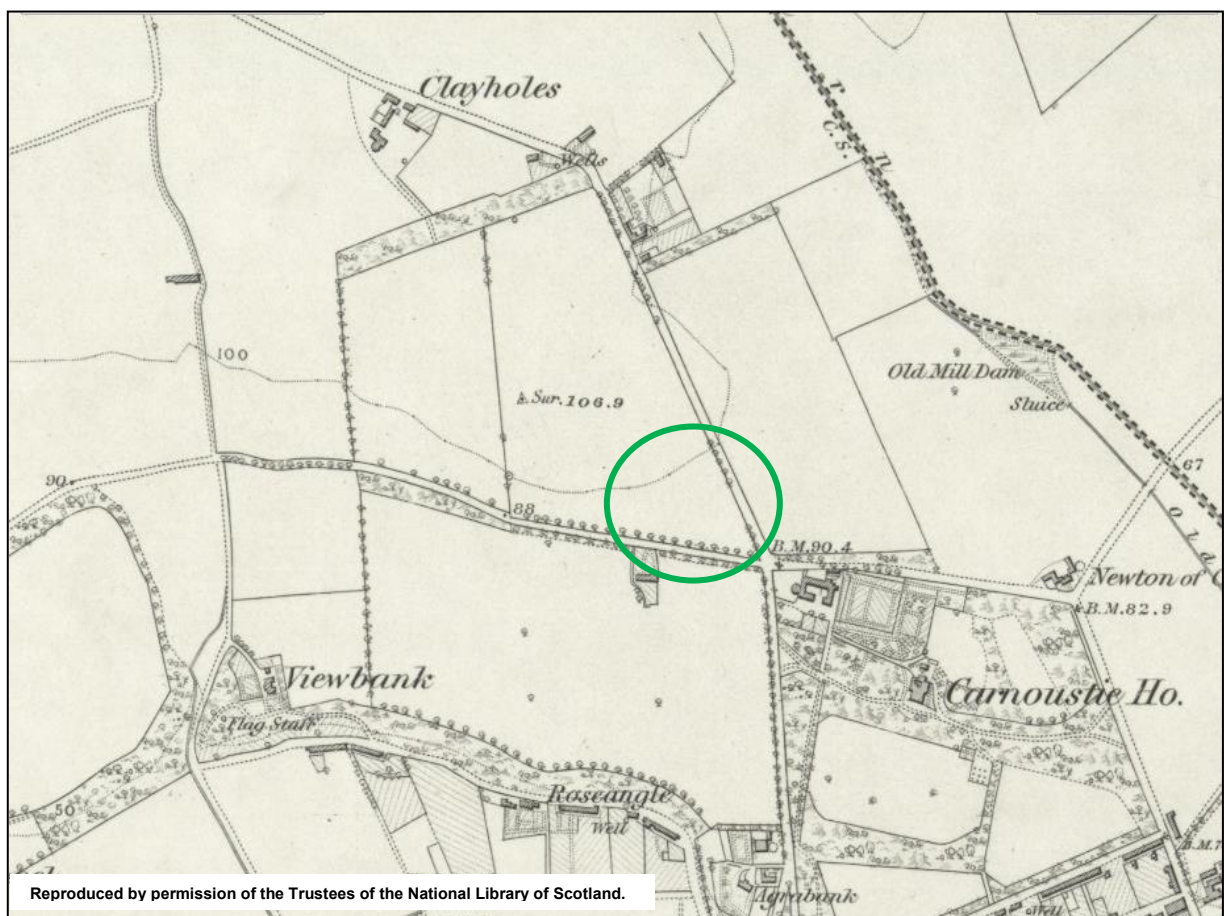


Figure 1b: Extract from 6-inch 1st edition Ordnance Survey Forfarshire, Sheet LI (includes: Barry; Monikie; Panbride) (1865).

Fieldwork Findings

Evaluation

21. Thirteen trenches were excavated each roughly 25m long and 1.6m broad providing slightly more than the agreed 10% sample of the development site (see Klemen 2017b).
22. Topsoil consisted of a moderately compacted mid-brown silt and sand with frequent roots and rootlets in the top 100mm. Throughout was modern ceramic in the form of white-glazed earthenware and other modern material including crisp packets, plastic and metal drinks bottles/cans. The topsoil ranged in depth from a maximum of 800mm in the south of the monitored area to a minimum of 400mm in the north of the monitored area.
23. All of the trenches revealed natural subsoil which in the majority of the trenches was a sand with frequent stone inclusions. Modern activity in the form of modern tile field drains and plough marks were recorded. Two anthropic features were recorded, a posthole E[007] and a pit E[009] in Trench 6. While these were devoid of artefacts, they were considered significant as their character suggested significant antiquity.
24. Table 1: Evaluation Features

Feature	Dimensions in Plan	Depth	Comment	Interpretation
E[007]	150mm by 200mm	90mm	-	Possible post-hole
E[009]	800mm by 430mm	200mm	-	Possible pit

25. Although there was a lack of the intensive prehistoric activity within the development site compared to that recorded at David Moyes Road to the west, there was the potential for further archaeological features, even if in a low density. Hence additional stages of archaeological mitigation were agreed.

Monitoring

26. In total twenty one additional features were recorded during the monitoring works of which nineteen were considered to be evidence of anthropic activity (Klemen 2018). Sherds of ceramic from the same vessel were recovered from feature [038].
27. Located in the north of the monitored area (Figure 2) there was a discrete concentration of eight post-hole or stakehole (for one) features that appeared to form a coherent structure. These features (see Table 2 for dimensions) formed a rectangular grouping orientated roughly northwest-southeast and defining an 'internal' area measuring approximately 3.5m by 2.5m (Figures 5b & 6a). Their distribution suggested any entrance was on the axis of this alignment.

Table 2: Features in Structure

Feature	Diameter	Depth	Comment	Interpretation
[003]	420mm	220mm	Packing stones	Post-hole, S Row
[005]	360mm	130mm	-	Post-hole, S Row
[007]	440mm	160mm	Packing stone	Post-hole, S Row
[036]	180mm	100mm	-	Stakehole, S Row
[015]	270mm	130mm	-	Post-hole, N Row
[027]	350mm	140mm	-	Post-hole, N Row
[013]	(E) 280mm (W) 250mm	140mm 40mm	-	Double post-hole, N Row

28. The remaining eleven anthropic features were dispersed across the balance of the monitoring area (Figure 2). While an attempt has been made to differentiate based on form and characteristics between stakehole (for a driven post, typically narrow), post-hole (for a set post) and pit (for a larger feature) this should be viewed given the severely truncated nature of the landscape (as a consequence of historic agricultural activity) and the absence of coherent structures or inclusions within the fills as highly subjective.

Table 3: Other Features

Feature	Dimensions in Plan	Depth	Comment	Interpretation
[009]	660mm (dia)	70mm	-	Possible pit
[011]	150mm (dia)	70mm	Occasional small rounded stones in fill (012)	Stakehole
[017]	470mm (dia)	160mm	-	Natural - Possible animal burrow
[017a]	100mm (dia)	50mm	-	Stakehole
[019]	2.8m long upto 450mm broad	260mm	-	Curvilinear gully
[021]	380mm by 380mm	170mm	-	Possible post-hole
[023]	330mm (N-S) by 360mm (E-W)	100mm	-	Possible post-hole
[025]	260mm (dia)	140mm	-	Possible post-hole
[029]	1.50m (dia)	240mm	Occasional rounded stone	Probable pit
[031]	400mm	150mm	Possible organic material	Possible pit
[033]	1m (dia)	230mm	-	Probable pit
[035]	450mm by 550mm	-	-	Natural - Degraded Stone
[038]	400mm (dia)	280mm	Five sherds of ceramic in fill (039). Occasional rounded and sub-rounded stones.	Pit

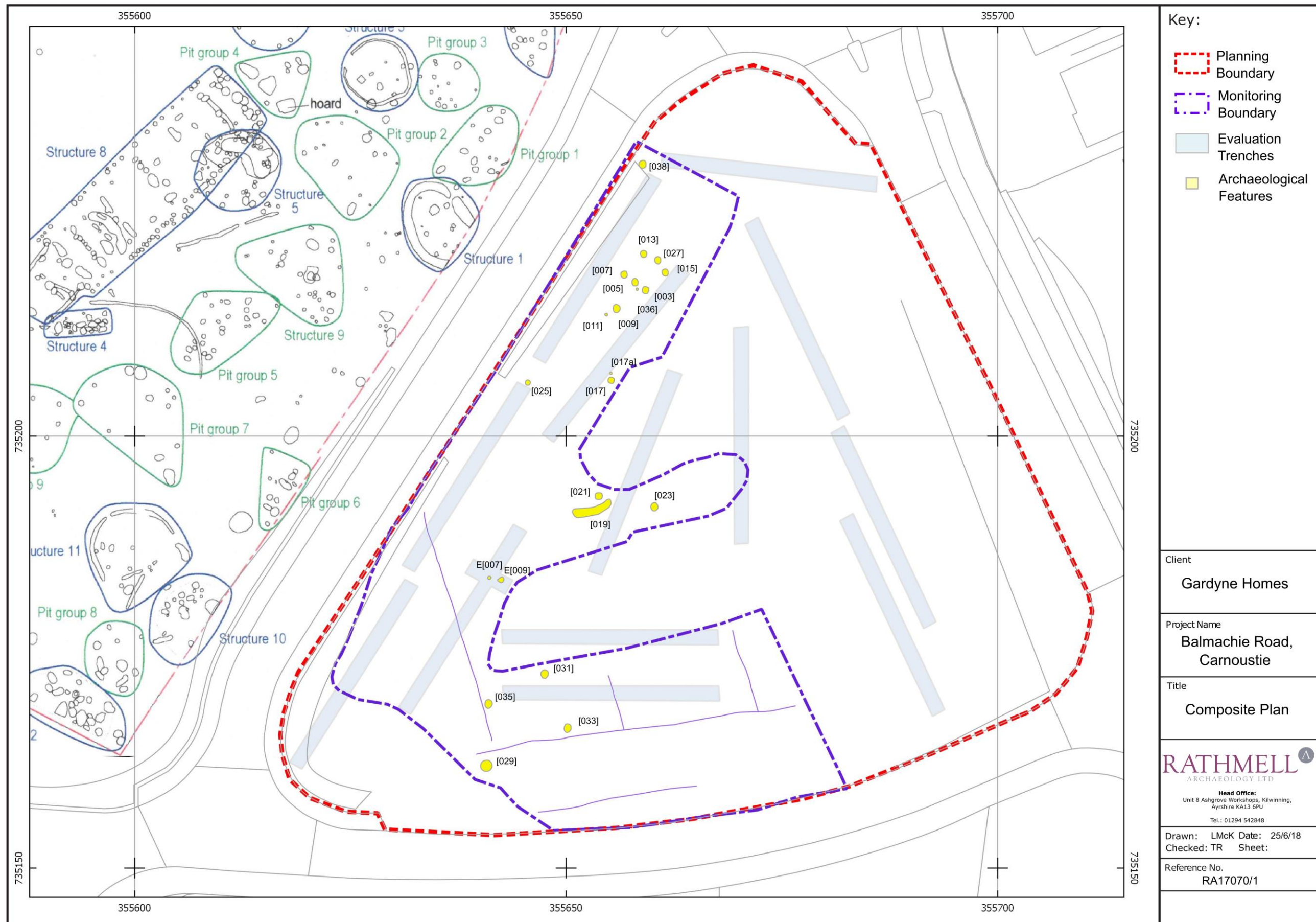


Figure 2: Plan of Archaeological Features relative to evaluation trenches and monitoring area showing provisional plan from David Moyes Road excavation to west (after Blair 2017).



Figure 3a: Rectangular structure from southwest



Figure 3b: Context [013], possible double post-hole from northeast

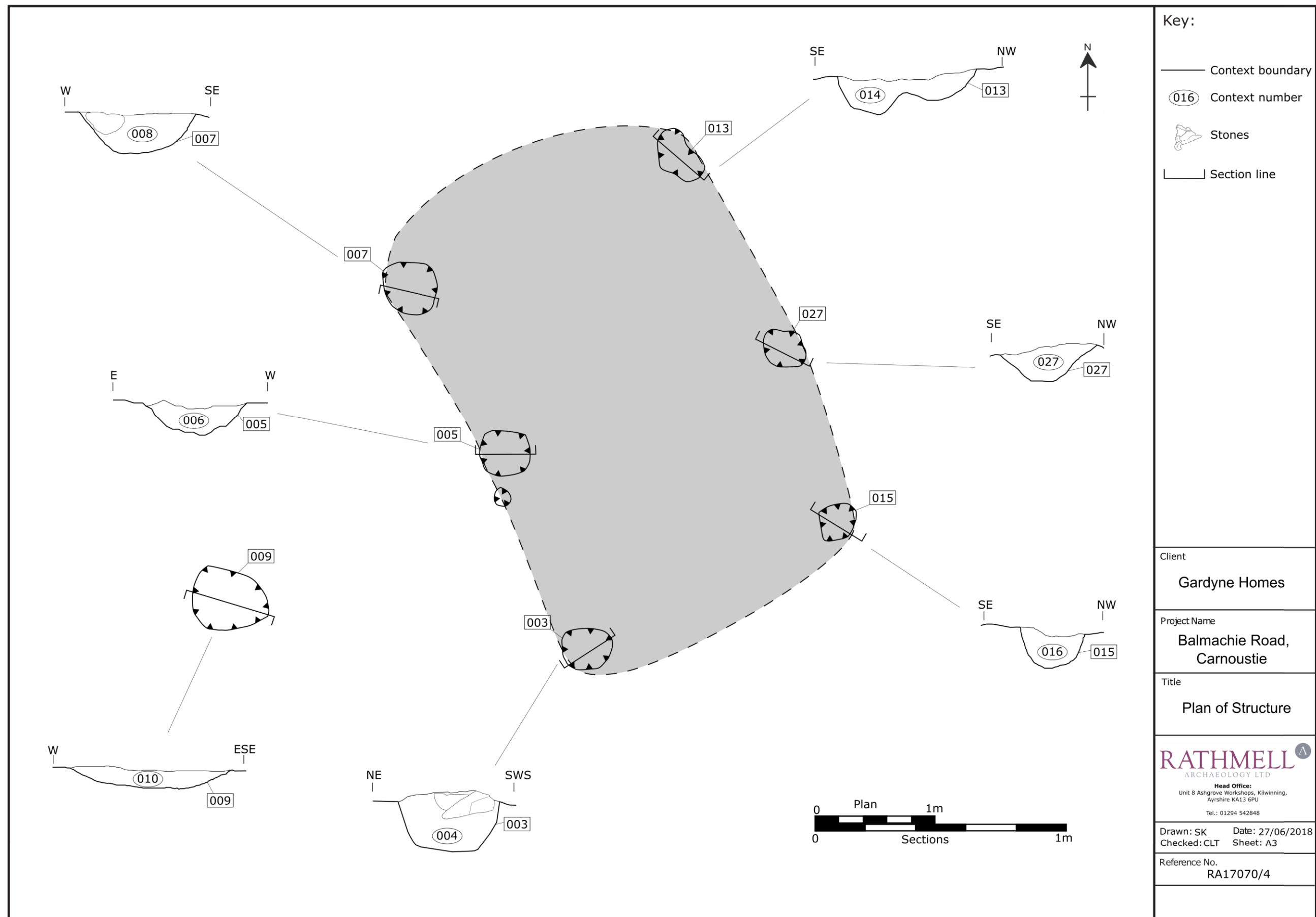


Figure 4: Plan of rectangular structure



Figure 5a: Gully [019] and post-hole [021] pre-excavation from north.



Figure 5b: Context [033], pit

Analysis

29. The analysis stage encompassed artefact analysis of the recovered pottery, palaeo-environmental assessment informed by processing soil samples and securing two radiocarbon dates.

Environmental Assessment by Diane Alldritt

30. A total of five environmental samples were examined for carbonised plant macrofossils and charcoal. Charred remains and other material sorted from the retent portions of each sample were also analysed for identifiable fragments.
31. The bulk environmental samples were processed using a Siraf style water flotation system (French 1971). The flots were dried before examination under a low power binocular microscope typically at x10 magnification. All identified plant remains including charcoal were removed and bagged separately by type.
32. Wood charcoal was examined using a high powered Vickers M10 metallurgical microscope at magnifications up to x200. The reference photographs of Schweingruber (1990) were consulted for charcoal identification. Plant nomenclature utilised in the text follows Stace (1997) for all vascular plants apart from cereals, which follow Zohary and Hopf (2000).
33. The environmental samples produced quite low volumes of carbonised material consisting of <2.5ml up to 5ml of charcoal fragments, burnt peat, heather stems and rhizomes in amongst crushed charred detritus. No cereal grain or weed seeds were present in the samples. Charcoal fragments were generally quite small at 0.5cm in size with occasional pieces 1.0cm to 1.5cm recovered. The pit features produced the best preserved material and possibly contained remains burnt in situ or not moved far from source of burning, whilst the postholes tended to contain smaller crushed fragments of material suggesting perhaps some later intrusion or trampled deposits. Modern material was fairly scarce at <2.5ml to 10ml and consisted mainly of modern roots, with occasional finds of modern seeds and earthworm egg capsules suggesting a low degree of bioturbation was possible through the soil. Crushed fragments of coal and clinker were present in small amounts and were probably mixed through the deposits from Post-Medieval activity and ploughing in the vicinity.
34. *Pit Features* - Three samples were examined from pit features with all producing small quantities of carbonised material.
 - ❖ Pit [029] (030) contained trace remains with a single Calluna (heather) stem and two very poorly preserved fragments of charcoal which were not identifiable. These remains are probably not particularly significant and possibly residual in the feature.
 - ❖ Pit [033] (034) held a nicely preserved 1.5cm piece of Betula (birch) which proved suitable for radiocarbon dating. A single fragment of thick and twisted Calluna (heather) stem and a piece of rhizome were also recovered, and probably originated from peat being cut and burnt as fuel. These remains are probably mixed fuel waste from nearby burning activity being deposited as rubbish in the pit feature. A few highly crushed fragments of coal and clinker were also present in this deposit and probably intrusive from bioturbation or ploughing action.
 - ❖ Pit [038] (039) produced similarly mixed burnt fuel waste, with a single very small 0.5cm fragment of Quercus (oak) and two thin slivers of Alnus (alder) identified in amongst highly crushed burnt detritus. A 1.2cm flat fragment of burnt peat was also present in (039) providing direct evidence for the use of peat as fuel. Crushed slivers of coal and clinker were recorded in small amounts from this pit.
 - ❖ Both pits [033] and [038] provided evidence for the deposition of mixed fuel hearth waste consisting of various charcoal types and peat remains.
35. *Posthole Features* - Two samples were examined from posthole features with small

amounts of charred material recovered from both.

- ❖ Post-hole [007] (008) contained single fragments of *Corylus* (hazel) and *Alnus* (alder) along with two thin pieces of *Calluna* (heather) stem.
 - ❖ Posthole [003] (004) had a mixture of *Corylus* (hazel) and *Betula* (birch) in small trace amounts, along with a few fragments of rhizome and heather stem.
36. Given the general mix of charcoal types in both posthole [007] and [003] taken together with remains suggesting peat fuel waste, the carbonised material in the postholes could reflect intrusive material trickled in from later Bronze Age burning activity in the vicinity and may not be contemporary with the use of the post-built structure.
37. The environmental samples contained small amounts of carbonised plant remains and charcoal indicative of Bronze Age or later burning activity occurring in the vicinity of the deposits. Pit features [033] (034) and [038] (039) produced evidence for the use of mixed fuel resources including birch, alder and oak charcoal together with peat, and were probably deposits of general domestic hearth waste and other rubbish from nearby Bronze Age or later settlement. Postholes [003] (004) and [007] (008) possibly belonging to a structure produced similar mixtures of material and these fills probably contained traces of intrusive material gone in after the posts were removed or decayed.

Radiocarbon Dating

38. Radiocarbon dating of the birch charcoal from pit [033] (034) and the alder charcoal from pit [038] (039) was undertaken to enable the pit features to be seen in the wider context of later Bronze Age settlement in the area. While dating of material from the two post-holes from the structure was considered, the view was taken that the character of the inclusions were such that the risk was too high that this was material unrelated to the utilisation of the structure.
39. Even with this caution, there remained the risk with the samples selected that should there be a general mantle of fuel hearth waste in this locale then this would have been progressively included into all cut features on-site. Hence in part these dates would test whether a mantle of debris does extend across the area that is being so included.
40. All material for dating was drawn from material recovered as a result of the environmental processing. Single entity Atomic Mass Spectrometer dating was carried out by Scottish Universities Environmental Research Centre. Calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal v4.2.4, using IntCal13). The results are presented in Table 4.

Table 4: Summary of Radiocarbon Dates

Laboratory Code	Sample Material	Context	Radiocarbon age (BP)	$\delta^{13}\text{C}(\text{‰})$	2 sigma Calibrated Date (95.4%)
SUERC-80249 (GU48242)	Wood Charcoal : <i>Betula</i> (Birch)	(034)	2482 +/-28	-25.6 ‰	774 (94.3%) 507 cal BC 502 (1.1%) 490 cal BC
SUERC-80250 (GU48243)	Wood Charcoal : <i>Alnus</i> (Alder)	(039)	3045 +/-28	-27.3 ‰	1396 (95.4%) 1222 cal BC

Prehistoric Ceramics

41. Five sherds and one fragment derived from one (potentially two) pottery vessels were recovered, during the excavations themselves and the subsequent post-excavation works. All were small in size, with the largest sherd measuring approximately 40 x 30mm in extent. The combined weight of the pottery component of the assemblage was 33g in total. Two sherds were adjoining, with a recent break evident.
42. At least one, and potentially two, vessels were represented:

- ❖ **V1** – Represented by four body sherds (two adjoining) and one fragment this vessel was composed of a fabric which was friable in character with a hackly fracture. The interior surface was dark grey to black in colour, the exterior buff over a pink-orange core, indicating that the vessel was initially fired in an inverted position. The inclusions comprised sub-angular and rounded rock fragments, poorly sorted, and varying between 20-30%. Despite the presence of prominent grits within the fabric, these were not exposed on the exterior of the pot, although they were visible. They were obscured instead beneath a thin layer of clay, probably an external slip. The sherds are undecorated, and no diagnostic features are present. Wall thickness varies between 10 and 12mm, and the interior is encrusted with a black burnt residue.

Find No. 1, Context (039). 3 sherds and 1 fragment, comprising: i) 1 body sherd. Dimensions: 41 x 34mm (maximum). Thickness: 10mm. Weight: 17g. Adjoins ii); ii) 1 small body sherd. Dimensions: 17 x 12mm. Thickness: 10mm. Weight: 5g. Adjoins i); iii) 1 fragment from outer surface of body. Dimensions: 25 x 16mm. Weight: 4g; 1 small body sherd. Dimensions: 19 x 14mm. Thickness: 12mm. Weight: 3g.

- ❖ **V2?** - This vessel was represented by a single sherd, recovered from amongst retent following flotation. It is similar in character to those described in V1, above, but there are subtle differences. The exterior is buff, with a dark grey core and interior surface. No burnt residue is present. The composition of the inclusions is similar to V1: 20-30% large rounded and subangular grits (rock fragments) which measure up to 7mm in length. The fabric is friable, with a hackly fracture. What differentiates this particular sherd from those described in V1 is the fact that it has a slightly thinner wall thickness (9mm), with the grits visible on the exterior of the vessel. However, the variation in wall thickness and colour may however reflect differences occurring throughout the balance of the same vessel, with the protruding grits are now more prominent as a result of the flotation process. Hence the attribution of this sherd to a second vessel must remain tenuous.

Find No. 2, Context (039). Dimensions: 28 x 16mm. Thickness: 9mm. Weight: 4g.

43. With no distinguishing features present, it was difficult to establish a possible date range on the basis of the sherds alone. Wall thickness, fabric and the plain, featureless, character of the sherds suggests a consistency with vessels which lie within the group known as Late Bronze Age plainwares, i.e. the so-called 'flat-rimmed wares'. A radiocarbon date obtained from alder charcoal recovered within feature [038], which produced the pottery, did however give a date range which predated the Late Bronze Age (c. 1390 to c. 1220 cal BC), placing the feature, and potentially the sherds, in the Middle Bronze Age. This does not necessarily exclude these sherds from the plainware tradition, as some authorities have cited examples of these 'flat-rimmed wares' from contexts which may be as early as the 13th century bc in date, in particular a vessel from Duff House, Aberdeenshire (Sheridan 2005). It should also be noted that sherds of very similar character to those from Balmachie Road were recovered from a Middle Bronze Age unenclosed settlement at Clifton Road, Arbroath, Angus, from a feature which was broadly contemporary with the Middle Bronze Age date cited here. It is therefore appropriate to conclude, from the levels of information available, that these sherds are consistent with the 'flat-rimmed ware' tradition and therefore very likely to represent the fragmentary remains of a similar vessel or perhaps vessels.
44. There were, in addition, two further items of Other Ceramics recovered. The first was a very tiny fragment of what appears to be a pale grey, vesicular, highly fired and vitrified ceramic recovered from (008) (Find No. 3) and a tiny fragment of lightly fired clay or daub, recovered from (039) (Find No. 4).

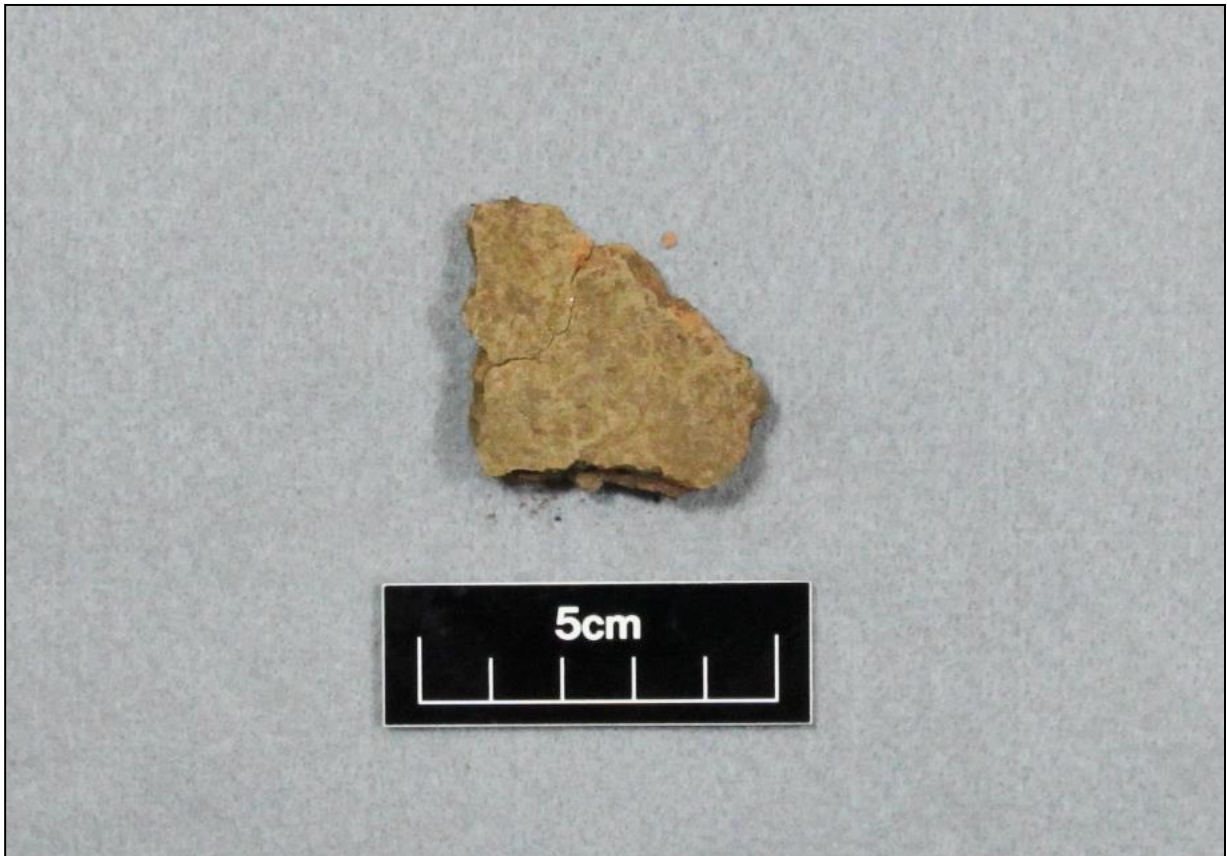


Figure 6: Two adjoining sherds from V1 recovered from [038](039)

Discussion

45. The features investigated at Balmachie Road represent a small spread of activity characterised by an array of pits and postholes which are distributed across the site and which in general terms display no clear form or pattern.
46. Viewed in isolation, these features are of little more than passing interest, but their importance changes when they are viewed in their wider context. Viewed in conjunction with the adjacent excavations at David Moyes Road, their potential importance increases exponentially; here they can be seen as outliers to the dense concentration of prehistoric features and structural remains and which were, at the time of writing, undergoing post-excavation analysis. The preliminary findings of this work have been summarised in the form of a data structure report which gives a broad overview of the various elements which were uncovered and how they relate to each other chronologically (Hunter Blair, 2017), but there is as yet insufficient detailed analysis available in published form to be able to obtain a true understanding of the relationship between the two sites.
47. Within our monitoring area there is a suggestion, constrained by the subjective nature of the differentiation between our pit and post-hole attribution, that the southern third of is typified by pits. In contrast the central third appears to have post-holes and the short gully [019] while the northern third revert again to pits, including our post-built structure. Given that we cannot have confidence that these are contemporary features, this broad patterning may be fortuitous.
48. Artefacts were largely absent with the exception of the sherds of prehistoric ceramic recovered from the fill of pit [038], with almost every other feature proving artefactually sterile. The only other exception being a tiny fragment of vitrified ceramic from the fill of posthole [007].
49. Standing apart from this uncertainty is the post-built structure formed of seven postholes and one stakehole at the north end of the site (Figure 4) which forms a rectangular post-

built structure. Measuring 3.5m by 2.5m (minimum) internal extent, the structure was aligned northwest-southeast. There was no evidence to inform on the character of the superstructure, such as whether it had ever been roofed, but some evidence for longevity of use is suggested.

50. Post-hole [013] was a double posthole, which suggests that either a structural post was replaced by another or, given that a second abutting post-hole was formed, that a second post was introduced to enable the original to be strapped. It is credible that the stakehole [036] adjacent to post-hole [005] may have served a similar function. Both these features suggest prolonged use of the structure to the point that repairs were necessary to maintain the structure, which in turn shows a desire to repair rather than replace the structure.
51. While eight features are present, the structure in summary form is of six posts in two paired rows of three post-holes. Examining the plan and image of the structure (Figure 4 & 3a respectively) it is apparent that the two paired rows are not parallel, though they are set a common distance apart. The south-eastern post-hole on each row is set slightly off alignment, in common to the southwest, when compared to other posts within their row. This may suggest that the south-eastern posts are an extension of the structure. In this context, it may be relevant to note that the repaired or replaced posts ([013] and [005]) are not in this putative extension.
52. It was unfortunately not possible to obtain dates for the structure itself: although the small quantities of carbonised plant material was present within its component post-holes, this did not provide suitable candidates for secure dating. Similar carbonised material was widely distributed throughout various features occurring across the site: at the very least, it was inferred that it would be possible to establish whether this material resulted from a single episode of occupation or whether it represented multiple phases of use.
53. From the composition of this burnt material, it was suggested (see Aldritt, above) that the carbonised plant matter derived from the use of mixed fuel resources in a domestic setting, with the carbonised deposits representing dumps of spent hearth debris and other rubbish from the Bronze Age or later. This included charcoal derived from a variety of tree species including birch, alder, and hazel. Also occurring amongst this material was heather, the presence of which implied the use of peat as a fuel which was confirmed by a small fragment of burnt peat. While this is not unexpected in a Bronze Age context, the presence of burnt peat on this particular site does raise further questions: located in an area of fluvial/glacial soils, the site lies at a considerable distance from peat deposits, and the local availability of this resource must have been even more restricted during the Bronze Age, which saw the expansion of peat in many upland locations towards its end. We cannot, unfortunately, establish from the information available whether the use of peat on this particular site involved the exploitation of small quantities of locally-obtained, small-scale peat sources, or whether this material was brought back to the site from more extensive sources located further afield.
54. The association between the carbonised material and prehistoric pottery within the fill of [038], characterised as being of potential later Bronze Age date, suggested a potential for there to have been a single phase of Late Bronze Age activity on the site. Radiocarbon dates were thus obtained from two samples – recovered from pits [033] and [038], located at the south end and the north end of the excavated area respectively – with a view to establishing whether or not this was the case. Obtaining a date from [038] was particularly useful, as this feature had also produced the sherds of prehistoric pottery which were otherwise undiagnostic.
55. The ensuing dates demonstrated that – despite the apparent homogeneity of the carbonised material in terms of its character and distribution – at least two distinct phases of occupation could be evidenced. The earliest gave a 2 sigma calibrated date range of 1396-1222 cal BC (SUERC-80250), which placed it in the second half of the Middle Bronze Age, while the later gave a date range of 774-490 cal BC (SUERC-80249), which spans the closing stages of the Late Bronze Age and the earlier part of the Iron Age.

56. With no dates available for the 6-post structure, any understanding must be achieved through analogy. In this respect, a Middle to Late Bronze Age does not seem unlikely. The first obvious source for comparison must be the site located immediately adjacent: David Moyes Road. Though dominated by two large, putatively Neolithic, rectangular timber buildings and a number of probable Bronze Age timber roundhouse structures, it is evident that there are, in addition, a number of much smaller pit groups which form discrete clusters which could, potentially, include structural elements. In general, these pit groups appear larger than the compact structure suggested by the Balmachie Road. However, their presence supports the possibility that there is the potential for ancillary structures to be present across the wider area, with these structural elements potentially linked with occupation during the later Bronze Age.
57. Excavations at Pitlethie Road, near Leuchars in Fife, revealed a similar concentration of Bronze Age occupation which included 8 roundhouse structures in association with less coherent groups of pits and postholes which could not be so easily categorised in terms of their structural form. Also found in association with both the roundhouses and the more ambiguous structural remains were sherds of later Bronze Age pottery, consistent with Late Bronze Age plainware/'flat-rimmed ware.' Bearing a closer resemblance to our 6-post structure are the rectangular 8-post and 4-post structures of Late Bronze Age date excavated at Powmyre Quarry, in Angus (Bailey and Smith 2012), but again, there is nothing directly comparable with the Balmachie Road 6-post structure. Isolated pit groups were also noted in the environs of our site at Newton Road, Carnoustie: these were, however, of Early Bronze Age date and they are therefore not directly comparable (White *et al.* 2009).
58. While it was difficult to pinpoint a date range on the basis of the ceramic sherds alone, the recovery of a radiocarbon date obtained from alder charcoal recovered from within the same feature helped narrow this down to the Middle Bronze Age. Funerary contexts of the Middle Bronze Age are associated with characteristic and often highly decorated forms such as collared and cordoned urns; these contrast with the plain undecorated form traditionally termed 'flat-rimmed ware' but which is known alternatively as 'Late Bronze Age plainware' by Sheridan (Sheridan 2005, 35).
59. The attribution of this pottery to the Late Bronze Age suggests that the recovery of such material from a Middle Bronze Age feature may be viewed as problematic. However, Sheridan cites an example of this pottery recovered from Duff House, Aberdeenshire, which has been dated through associated gold metalwork to the 13th century BC, which would be contemporary with the dates recovered for pit fill (039) and its associated pottery. Certainly, the wall thickness, quality of the fabric and in particular the nature and distribution of the inclusions and the generally plain character of the ware would not be inconsistent with known assemblages from Angus, Fife and Aberdeenshire. More importantly, there are aspects of the prehistoric ceramic finds from Balmachie Road which are strongly reminiscent of those described by MacSween in the ceramic assemblage from the unenclosed Middle Bronze Age settlement at Clifftown Road, Arbroath, Angus: here, MacSween notes a slipped exterior and a high percentage of rock temper in sherds derived from flat based, bucket-shaped vessels in a 'later prehistoric, flat-rimmed domestic assemblage' (MacSween 2012, 18). The sherds derived from a pit which gave a date (from birch charcoal) of c. 1430-1290 BC, which largely overlaps the date range from the fill of [039] and thus suggests a potential for contemporaneity.

Conclusion

60. A programme of archaeological works was required by Gardyne Homes in support of the erection of 9 dwelling houses on land at Balmachie Road, Carnoustie, DD7 6GL. These archaeological works are designed to mitigate any adverse impact on the archaeological remains within the development area.
61. In total twenty-one anthropic features were recorded during the evaluation and monitoring works weighted in distribution to the western side of the development area. These features were a mixture of post-holes and pits distributed across the area with minimal artefacts present. The main exception was a pit at the northern end of the site

which contained five sherds and one fragment from two prehistoric vessels of a Late Bronze Age plainwares, the so-called 'flat-rimmed wares'. A low density spread of wood charcoal and burnt peat (including heather) fragments was found throughout the features, characterised as domestic hearth waste. Two dates recovered from this material suggest the activity within the area includes Middle Bronze Age as well as Late Bronze Age to Early Iron Age activity. Neither date is incompatible with the identification of the flat-rimmed pottery which has been identified in the Middle Bronze Age.

62. Towards the northern end of the site a rectangular 6-post structure was identified, orientated northwest to southeast defining a minimum interior 3.5m by 2.5m in plan. The date of the structure remains uncertain though it sits comfortably within the dated range of activity on the site. There is the potential that this structure started as a 4-post structure that was in use long enough to warrant repairs to be needed to two of the posts. Certainly the structure appears to have ended its life as a 6-post structure, possibly through a later extension. In combination with the plainware pottery and the domestic hearth waste there is the appearance of a peripheral, domestic area linked to the much larger Bronze Age settlement to the west at David Moyes Road.
63. The archaeological mitigation works undertaken for Gardyne Homes has ensured the timeous identification of archaeological remains on this site, their excavation and subsequent analysis as offset mitigation for the effect of the development. This has been delivered in a manner compliant with the Local Development Plan and in co-operation with the planning authority and their archaeological advisors, Aberdeenshire Council Archaeology Service.

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