

**Report of Radiocarbon Dating &
Report on Analysis of Samples
From Archaeological Evaluation at
Cullicudden, Black Isle.
NH 6688 / 6516 (centred)**

Client: Highland Council.

Planning Application No: 03/01063/OUTRC.

**By
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1. Introduction

This report is for the post-excavation results for a radiocarbon date from a possible kiln and analysis thereof recovered during an archaeological evaluation conducted by the author at Cullicudden, Black Isle per planning application 03/01063/OUTRC.

2. Acknowledgements

I would like to thank the following for their help during the work:

- Dr. G Cook, of the Scottish Universities Research and Reactor Centre;
- Ms M Haistie, of Headland Archaeology Ltd.

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Figure 1 – General Location
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Figure 2 – Site Location and Area.
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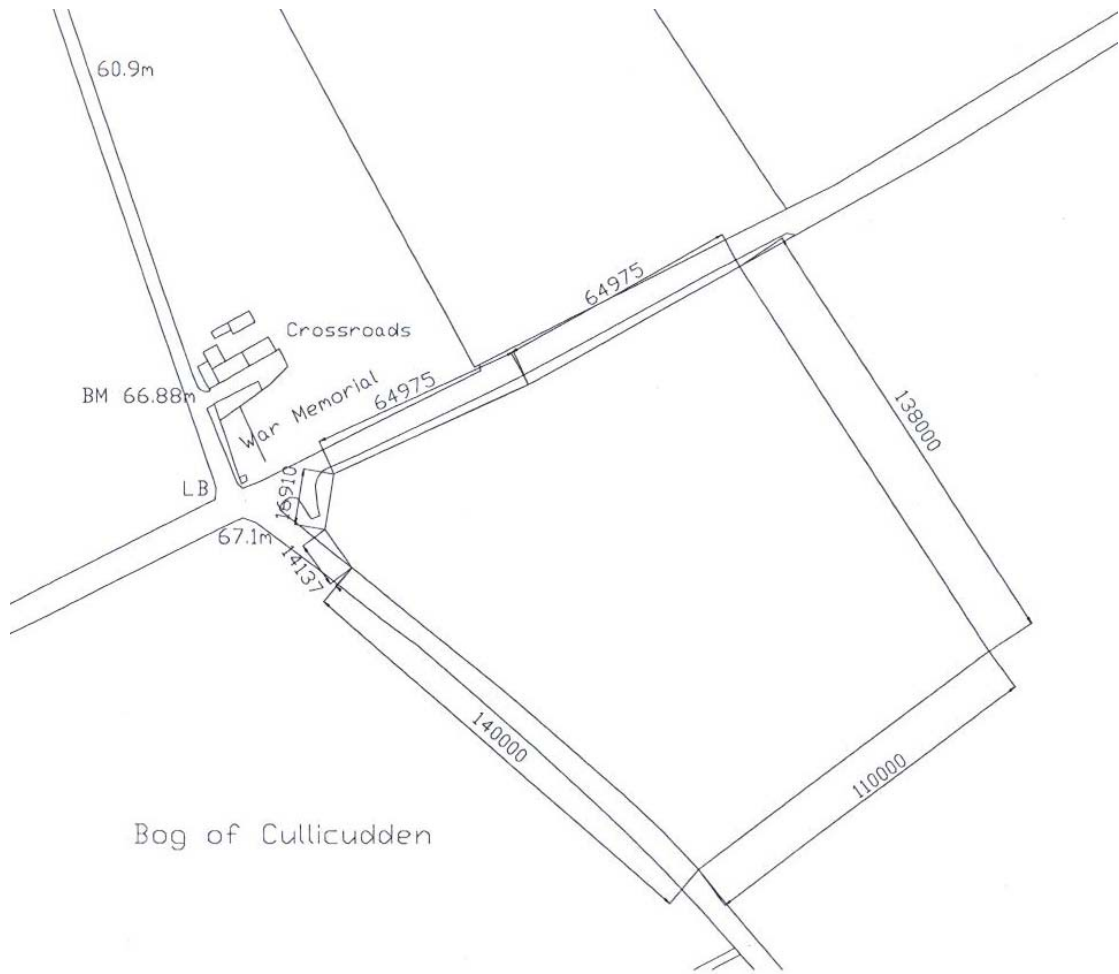
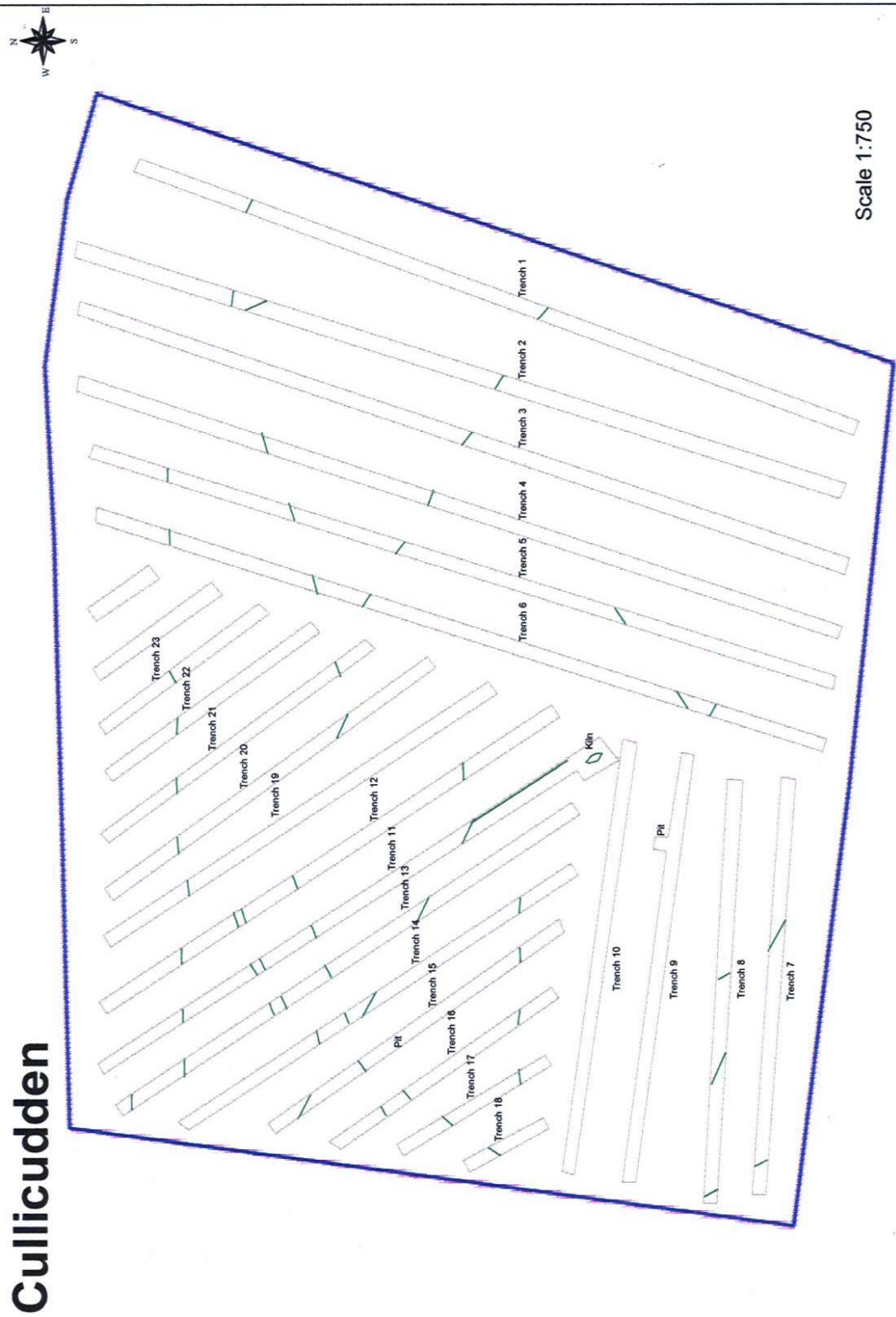


Figure 3 – Location of Features.



Background

An archaeological evaluation conducted for a new school at Cullicudden in May 2005 (Farrell, 2005) had revealed 3 archaeological features were samples were taken, with one having charcoal submitted for a C14 date. These feature were as follows:

Trench **9** – A possible truncated pit of burnt charcoal (part of deposit was visible in section in ploughed soil). The edge of the feature was not well defined and only 40mm in depth, oval in plan 0.9m x 0.7m. Heavy with charcoal but no finds made. Function unknown, though may be deposit only possibly related to the feature found in trench 11.

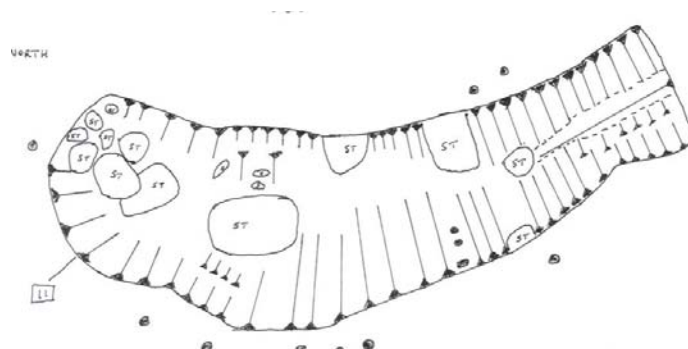
Below: View of feature – scale 1m.



Analysis of the fill of this feature revealed at least 50% of the fill was of oak (*Quercus* sp.) and was possibly burnt in situ possibly small scale charcoal production or the remains on an earth oven. As feature was ploughed through its true function could not be determined.

Trench **11** – One feature revealed of a possible corn-drying kiln. The kiln was almost 'banana' shaped being rounded at N end with a flat base but narrowing to the south, forming a shallow gully. Around the steep sloped cut was a series of 9 stakeholes, and 3 within. Stones to the N end formed part of the general structure.

Below: Plan of kiln (reduced from 1:20).



Analysis of the fill of this feature revealed no palaeo-environmental evidence for it to be a kiln as no grain fragments were found to the 3 samples made. Its function remains unknown, though possibly still may be domestic or industrial.

Below: View of kiln upon part excavation facing E – scale 2m.



Trench **15** – Aligned NE-SW - 54m in length - 3 field drains revealed (1 rubble, 2 clay). One feature was revealed of a pit of irregular sides and base 0.6m in diameter and 150mm deep. Fill was of fine washed silt but no finds were made. Fill was sampled for analysis.

Below: View of feature – scale 0.5m.



Analysis of the fill of this feature revealed this to not a primary fill and may only be a dump of material.

C14 Dating

The C14 date of a sample of charcoal from the possible kiln submitted to the Scottish Universities Research Reactor Centre was uncalibrated at 6065 ± 35 BP which in conventional years is 4115 ± 35 giving a date range of 4150 to 4080 BC giving an early Neolithic date.

Discussion

The C14 date of 6065 ± 35 BP is earlier than those of the nearby settlement at Kinbeachie (Barclay, 2001) which was given a Neolithic date. To how this site relates to other settlements of this period is currently unknown, though as other

'banana' shaped features are visible in the rest of the field (Farrell, 2005) the feature may form part of a larger settlement.

Recommendations

No recommendations with regard any further post-excavation work for this project is to be proposed.

References

Barclay, G J et al (2001) A possible Neolithic settlement at Kinbeachie, Black Isle, Highland. *Proceedings of the Society of Antiquaries of Scotland*, 131, 57-85.

Farrell, S (2005) Report of Archaeological Evaluation May 10th – 14th 2005 Cullicudden, Black Isle. Unpublished report – copy held by HSMR.

Hastie, M (2005) Assessment of Samples from Cullicudden, Black Isle. Headland Archaeology Ltd. Edinburgh. Project code:CCF05.

Assessment of samples from Cullicudden, Black Isle by Mhairi Hastie. Headland Archaeology Ltd.

INTRODUCTION

Five bulk soil samples were taken from two pits and a possible corn-drying kiln during excavations at Cullicudden, Black Isle, Highland. The samples were submitted to Headland Archaeology for processing and assessment.

METHODOLOGY

The soil samples were subjected to a system of flotation in a Siraf style flotation tank. The floating debris (flot) was collected in a 250 μm sieve and, once dry, scanned using a binocular microscope. Any material remaining in the flotation tank (retent) was wet-sieved through a 1mm mesh and air-dried. This was then sorted and material of archaeological significance removed.

RESULTS

Context number	Sample number	Context description	Charcoal		Cinders	Peat	Comments
			Qty	AMS			
2	1	Basal fill of pit	++++	*			Oak
4	2	Fill of pit	+		+	+	Oak
6	3	Upper fill of corn-drying kiln	+++	*			Oak and softwood fragments
8	4	Central fill of corn-drying kiln	+++	*		++	
10	5	Basal fill of corn-drying kiln	+++	*			Oak – friable and slightly iron impregnated

Key: + = rare, ++ = occasional, +++ = common and ++++ = abundant

Table 1. Composition of samples

Wood charcoal: All samples contained varying amount of wood charcoal with large amounts of oak charcoal being present in the fills of the possible corn-drying kiln, Samples 3-5. Occasional fragments of soft wood were also present particularly in Sample 3.

Uncharred peat: Low quantities of unburnt peat fragments were recovered from the fill of one pit (Sample 2) and the central fill of the possible corn-drying kiln (Sample 4). No other palaeoenvironmental remains or finds were recovered from the samples.

Uncharred plant remains: All samples contained fragments of uncharred plant remains. This material included leaf debris, root fragments, small fragments of wood and uncharred weed seeds. The plant remains were well preserved and the leaf fragments were still green in colour suggesting that they are modern contaminants.

DISCUSSION

Pit fills – Samples 1 and 2

A large quantity of charcoal was recovered from the basal fill of a pit (Sample 1). No other carbonised remains, bone or small finds were present. Initial scanning of the charcoal suggests that only one species, oak (*Quercus* sp.), was present. The high concentration of charcoal within the feature, approx 50% of the sample by volume suggests that the material may have been burnt in situ. The exact use or function of the pit is unclear, although it is possible that it may have been used for small-scale charcoal production or be the remnants of an earth oven.

Sample 2 (pit fill) contained only very low quantities of charcoal and occasional fragments of cinder and uncharred well-humified peat. The material recovered from this pit is unlikely to relate to the original function of the feature and probably represent material reworked from other contexts.

Possible corn-drying kiln – Samples 3, 4 & 5

During the excavation, the remains of an oven or kiln were uncovered and are believed to be the remnants of a corn-drying kiln. Three samples were taken from the feature and these contained high concentrations of charcoal. The central fill of the kiln/oven also contained uncharred fragments of well-humified peat. No other finds or palaeoenvironmental remains were recovered from the samples.

Of note is the lack of any charred cereal grain or weed seeds that would be expected in the fill of a corn-drying kiln. Corn-drying kilns were notorious for burning down. Legislation during the medieval period specified the distance that such kilns were to be placed from the main settlement building. While ethnohistorical records (Fenton, 1978) indicate that kilns were constantly watched during use in case of conflagration. It was also common for a proportion of the grain to fall through the drying platform and become charred in the kiln bowl. The lack of any charred grain in the kiln/oven would therefore imply that the feature was being used for some other purpose rather than to dry grain.

There was no evidence during the excavation that the kiln/oven had been destroyed by fire (Farrell pers comm.) therefore the oak charcoal is unlikely to be structural. The presence of oak in such large quantities, in both the kiln/oven and pit, suggest that it was being deliberately selected. Oak burns with a hot flame and may have been specifically collected for the use in industrial activities.

RECOMMENDATIONS

Sufficient charcoal for AMS dating was recovered from Samples 1, 3, 4 and 5 if this is required. The large quantity of oak charcoal from Sample 1 would also be suitable for conventional radiocarbon dating although the ambiguity over the possible long-life of the oak timber could result in a large date range for the feature.

Detailed analysis of the charcoal would add little to that noted above and no further work is recommended.

REFERENCE

Fenton, 1978 **The Northern Isles: Orkney and Shetland** John Donald Publishers Ltd: Edinburgh.



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RADIOCARBON DATING CERTIFICATE

22 August 2005

Laboratory Code	SUERC-6888 (GU-13167)
Submitter	Stuart Farrell 39A Park Street Nairn Highland IV12 4PP
Site Reference Sample Reference	Cullicudden CUL 05 - Trench 11 Context 8
Material	Charcoal : No species identification
$\delta^{13}\text{C}$ relative to VPDB	-24.7 ‰
Radiocarbon Age BP	6065 \pm 35

- N.B.**
1. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.
 2. The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal3).
 3. Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code.

Conventional age and calibration age ranges calculated by :- R. Anderson Date :- 22-8-05

Checked and signed off by :- P. Naysmith Date :- 22-08-05

Calibration Plot

