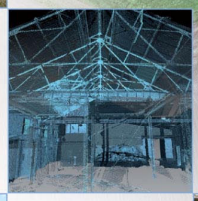
Loch Coille-Bharr Crannog

Condition Survey

AOC 21248

27th January 2009






AOC Archaeology Group

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Loch Coille-Bharr Crannog

Condition Survey

On Behalf of:	**Historic Scotland** Longmore House Salisbury Place Edinburgh EH9 1SH
National Grid Reference (NGR):	**NR 7789 8950**
AOC Project No:	**21248**
Prepared by:	**Graeme Cavers**
Illustration by:	**Graeme Cavers/Graeme Carruthers**
Date of Fieldwork:	**10th-12th January 2009**
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This document has been prepared in accordance with AOC standard operating procedures.

Author:	**Date:**
Approved by:	**Date:**
Draft/Final Report Stage:	**Date:**

Enquiries to: AOC Archaeology Group
Edgefield Industrial Estate
Edgefield Road
Loanhead
EH20 9SY

Tel. 0131 440 3593
Fax. 0131 440 3422
e-mail. edinburgh@aocarchaeology.com

AOC Archaeology Group

www.aocarchaeology.com

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Abstract

A condition survey of the crannog in Loch Coille Bharr, Crinan, Argyll was required in advance of the reintroduction of beavers into the area. An underwater survey was carried out comprising a visual inspection, photography and a detailed terrain model and topographic survey. Samples of all aquatic flora identified on and around the crannog site were also collected and identified.

Loch Coille Bharr: Condition Survey

Introduction

1. Prior to the proposed reintroduction of the European beaver (*Castor fiber*) to Knapdale in Argyll, a condition survey was required by Historic Scotland of the crannog located at NR 7789 8950 (NMRS: NR78NE 8). Although the crannog is fully submerged, the potential impact on the site of dam and lodge construction by beavers is unknown, and as such a baseline condition survey was required prior to their release.

1.1 European beavers construct smaller and less intrusive dams than American beavers, though the impact on local trees can be significant, with substantial trees felled for food and construction material (Reynolds 2000:2-3). As such, exposed timbers on the crannog could potentially be at risk from disturbance. This condition survey aimed to locate and record all archaeological features on the crannog site for the purposes of monitoring any impact over the course of several years.

Loch Coille Bharr

2. Loch Coille Bharr (also known as Loch Kielziebar) is an oligo-mesotrophic loch of medium size in local terms, centred on NR 778 894, and comprising a surface area of 33.5 Ha and a perimeter of 4.5 Km. The loch was not included in the *Bathymetrical Survey of the Freshwater Lochs of Scotland*, carried out by Murray and Pullar (1897-1909), but the loch is thought to be relatively shallow, averaging less than 20m in depth.

2.1 The crannog in the loch first came to light after it was inspected by Mapleton (1868), who had noted the presence of a stone 'cairn' used by anglers in the small bay in the SE corner of the loch. With the assistance of divers working on the Crinan canal Mapleton recorded the presence of areas of walling filling the gaps in the bedrock foundation of the site; 'very beautiful and well-made walling, varying in height from 4 to 8 feet and slightly rounded in outline, to suit the circular form of the platform' (1868:322). The divers also encountered numerous timbers- including the remains of a possible canoe paddle- and several fragments of deer bone. These organic remains were apparently retrieved from some considerable depth of mud in the areas surrounding the crannog, and none were kept.

2.2 In 2003, the crannog was inspected as part of a doctoral research project (Cavers 2005). At this time the presence of two stretches of walling resembling those described by Mapleton was noted. It was also found that the national grid reference for the site held by the National Monuments Record for Scotland (i.e. NR 7796 8946) was incorrect, and that the reed patches and modern fence posts noted by previous surveyors did not mark anything of archaeological significance (Cavers 2003, 2005).

Condition Survey Methodology

3. The site and surrounding loch bed were inspected between the 10th and 12th January using SCUBA equipment. Photographs were taken using a digital camera in underwater housing and the wall faces were drawn onto drafting film by hand.

3.1 The topographic and DTM survey was carried out using a Trimble S6 robotic total station, referenced to survey control points on the shore. These control points were georeferenced to the Ordnance Survey national grid using a Trimble R6 differential GPS system and post porcessed using the Trimble Geomatics Office package. All coordinates and levels in the survey are therefore in Ordnance Survey coordinates. The station coordinates are listed in table 1 in the appendices.

3.2 Samples of all of the aquatic flora observed on and around the crannog were collected for identification by the *Centre for Ecology and Hydrology*. The locations of these samples are shown on the survey and the identification report is provided below.

Results of the survey

4. The crannog is located at NR 7788 8949, 30m NE of the southernmost promontory extending into the bay in the SE corner of the loch. The site rests on a bedrock reef, itself an extension of the promontory seperated from the shore by a depression in the bedrock, where the water depth reaches 2.5m. The bedrock reef runs NE/SW and drops down into water reaching 7m in depth to the NE. Surrounding the bedrock reef are thick lake silts.

4.1 The crannog itself is completely submerged, with no evidence of the site visible above water, and comprises a stone mound, roughly circular in plan and measuring 9m in diameter. The top of the mound was c.1.0m below the surface of the water at the time of survey. The site is visible as a mound of boulders, averaging 0.4-0.5m in diameter and, for the most part, showing no evidence of deliberate placement or construction. Around the edges of the site, however, the 'well-built walling' referred to by Mapleton is visible in two places (referred to as elevation 1, to the west, and elevation 2, to the south), on the shore side of the site, where it appears to act as a revetment, filling clefts in the bedrock, retaining the main boulder mound and creating a stable platform on the bedrock foundation. The walling is well made, standing to four courses, in the case of elevation 1, and five courses in the case of elevation 2. The boulders used to construct the revetment walls are well placed sub-angular stones averaging 0.3- 0.4m in diameter.

4.2 The boulder mound is otherwise featureless, although around the edges of the site to the north and east several larger boulders may represent the ruinous remains of further retention walling. To the N area of the site, several large boulders have slipped down the sloping bedrock into deeper water, suggesting that portions of the site may have been lost to collapse. Although several large boulder were observed around the base of the bedrock reef while diving, there was no evidence of any further stone structure around the crannog itself; if this exists, it is buried by lake silts.

4.3 An inspection was carried out by diving the areas surrounding the bedrock reef. These areas are featureless expanses of thick lacustrine silts, and no evidence of structures, stone or timber, were visible. It should be noted however, that no attempt was made to uncover structures in the silt. If the timbers and other material referred to by Mapleton still exist, these are buried by thick silt deposits.

4.4 At the end of the headland to the south west of the site, a short section of boulder construction may represent the remains of a pier, though the antiquity of this feature could not be easily demonstrated; the site is still used frequently by local anglers.

4.5 No timbers of any form were noted on or around the crannog. If organic deposits exist on the site, these are buried beneath the boulder layer, and are not visible externally.

4.6 *Aquatic vegetation*

4.7 Several species of aquatic plant were noted growing on and around the crannog, though these were all superficial in nature and did not have extensive root systems. Samples of each species were collected for identification and future monitoring purposes, and are discussed below.

Condition of the crannog and potential impacts

5. The crannog is generally well preserved. The survival of stone construction in submerged areas of a crannog site is unusual (see discussion below), and the quality of construction of the revetment walls at Loch Coille-Bharr goes some way to explaining their survival. Wave damage has been observed to be one of the fastest causes of erosion on crannog sites (Henderson et al 2004, 2006); located on the lee side of the site from the longest wave fetch direction, these wall faces are unlikely to be at risk of collapse.

5.1 The survival of organic deposits on the site could only be confirmed by excavation. If these deposits do survive on the interior of the mound, they are likely to be shallow in comparison with other crannog sites, since the depth between the top of the mound and the bedrock reef is less than 1m.

5.2 If timbers and other organic deposits are preserved in the loch bed silts around the site (which seems probable if the site was occupied as a dwelling), it is likely that this is where archaeological materials are most likely to be damaged. It should, however, be noted that there is no obvious current threat to these deposits. Although aquatic plants have been noted as a potential threat to submerged waterlogged wood (Barber and Crone 1993), the plant coverage around the site does not appear extensive enough to warrant concern.

The Aquatic Flora

Iain David Macadam Gunn (Centre for Ecology and Hydrology, Edinburgh)

6.0 Six samples of aquatic plants were collected from on and around the crannog site (see survey plan). Samples 1 to 3 were collected from the crannog itself, while the samples 4 to 6 came from the loch bed to the E of the crannog site. 13 plant species were identified, and are summarised in table 1.

6.1 Loch Coillle Bharr is one of the lochs mentioned specifically in the Knapdales Woods SSSI citation - the loch is of interest because of its rich assemblage of Potamogeton species, and is part of The Taynish and Knapdale Woods SAC site because it is a good example of an oligo-mesotrophic standing water feature. A CEH survey team surveyed Loch Coille Bharr in 2004 and found similar species to the above although they did not record the *Juncus* & the *Chara* (although these were almost certainly present). The NCC also surveyed the loch in 1989 for its aquatic plants. Using the 2004 data Loch Coille Bharr keyed out as a Group E mesotrophic type loch, i.e. northern, often large, low- altitude and coastal above neutral lakes with a high diversity of plant species, including *Littorella uniflora, Myriophyllum alterniflorum, Potamogeton perfoliatus* and *Chara sp*. The presence of *Elodea canadensis*, from three of the samples is a concern as it is an alien invasive species which was not recorded in the loch in 1989, but which was recorded in 2004, albeit at a low frequency of occurence.

Sample	Names	Common names
1	*Myriophyllum alterniflorum* *Elodea canadensis*	Water-milfoil Canadian Waterweed
2	*Elodea Canadensis* *Fontinalis antipyretica* *Potamogeton praelongus*	Canadian Waterweed Willow Moss Long-stalked Pondweed
3	*Elodea canadensis* *Chara virgata* *Fontinalis antipyretica*	Canadian Waterweed Delicate Stonewort Willow Moss
4	*Equisetum fluviatile* *Nymphaea alba* *Potamogeton sp.*	Water Horsetail White Water-lily (A Pondweed maybe natans but no leaves left on specimen so identification uncertain)
5	*Juncus bulbosus* *Chara virgata*	Bulbous rush Delicate Stonewort
6	*Lobelia dortmanna* *Littorella uniflora* *Isoetes lacustris* *Nitella transluscens*	Water Lobelia Shoreweed Quillwort Transluscent Stonewort

Table 1: *Identification of plant species on and around the crannog site.*

Archaeological Significance of the Site

7.0 The Loch Coille Bharr crannog is an unusual site in having well preserved evidence for stone construction. The majority of 'highland' type stone and timber crannogs are ruinous, with no evidence of the deliberate placement of boulders apparent on surface examination. Recent survey work however, has demonstrated that artificial islet structures apparently built entirely in stone are a reality in mainland Argyll, with the stone revetted mounds in Loch Coille Bharr, Loch Leathan and Loch Seil particularly good examples (Cavers 2005; Cavers 2006:245). The implications for the internal structure of these stone islets is unknown; it is unclear whether organic deposits of the type encountered during underwater excavations of 'highland' type crannogs (e.g. Cavers and Henderson 2005; Dixon 2004, 2005) should be expected survive on an otherwise entirely stone mound. This has implications for the management of potential threats to sites like Loch Coille Bharr.

7.1 Sites like Loch Coille Bharr raise question marks over the applicability of the term 'crannog'. Leaving aside the semantic issue of whether a 'true crannog' should be composed substantially of wood, there are practical reasons for questioning the function of the site as an island dwelling during its original use. In order for the stone revetments to have been constructed, the water level in the loch must, at one point, have been at least 1.5m lower than at present; such a reduction in the water level would leave the reef very nearly connected to the headland to the south, so that the site may rather have been a sited on a promontory. Sites such as Coille-Bharr further blur the distinction between crannogs, island duns and stone built enclosures of the later prehistoric and early historic periods in Western Scotland.

Appendix: Station Coordinates

A.1 Survey stations were left on site (wooden posts) at the locations detailed in the table below. Any future surveys should make use of these reference points. Should this not be possible, the current survey data is registered to Ordnance Survey coordinates for the purposes of future comparison.

Name	Local X	Local Y	Local Z	OS X	OS Y	OS Z
STN1	1000.000	2000.000	100.000	177917.547	689368.812	34.547
STN2	1101.924	2198.710	100.229	178007.553	689573.201	34.773
STN3	1032.781	2009.461	100.289	177949.715	689380.194	34.835
STN4	990.615	2028.683	99.757	177906.484	689396.890	34.304

Table 2: Station table for survey of Loch Coille-Bharr crannog. Station locations are given in local grid and Ordnance Survey coordinates .

References

Barber, J W & Crone, B A 1993 'Crannogs; a diminishing resource? A survey of the crannogs of South West Scotland and excavations at Buiston Crannog', *Antiquity* 67, 520-533

Cavers, M.G. 2003 'The Argyll Crannog Survey', *Discovery and Excavation in Scotland, Vol.4*, pp27-8

Cavers, M.G. 2005 *Crannogs and Later Prehistoric Settlement in Western Scotland;* Unpublished PhD Thesis, University of Nottingham

Cavers M.G. 2005 'The complexity of crannog taphonomy: old and new evidence', in Green, C. (ed.), *Archaeology from the Wetlands: Recent Perspectives*; Edinburgh: Society Antiquaries Scotland

Henderson, J C , Crone, B A & Cavers, M G 2003 'A condition survey of selected crannog sites in Dumfries and Galloway', *Trans Dumfries & Galloway Natur Hist & Antiq Soc 77*, 79-102.

Henderson, J C, Cavers, M G & Crone, B A 2006 'The south-west crannog survey: recent work on the lake dwellings of Dumfries & Galloway', *Trans Dumfries & Galloway Natur Hist & Antiq Soc 80*.

Mapleton, R.J. 1870 'Notice of an artificial island in Loch Kielziebar, in a letter to Mr Stuart, secretary', *Proc. Soc. Antiq. Scot.;* vol7. Pp.322-4

Munro, R. 1882 *Ancient Scottish Lake Dwellings, or crannogs;* David Douglas, Edinburgh

Reynolds, P. 2000 'European beaver and woodland habitats: a review', *Scottish Natural Heritage Review,* No.126

Loch Coille Bharr

Condition Survey

Section 2: Plates, Maps and Survey

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Plate 1: Location of the crannog, seen from the loch shore to the E. The site is located off the headland, beyond the reeds.

Plate 2: Location of the crannog, seen from the opposite headland, looking south.

Plate 3: Revetment walling of elevation 1.

Plate 4: Revetment walling of elevation 1, from above.

Plate 5: Revetment of elevation 2.

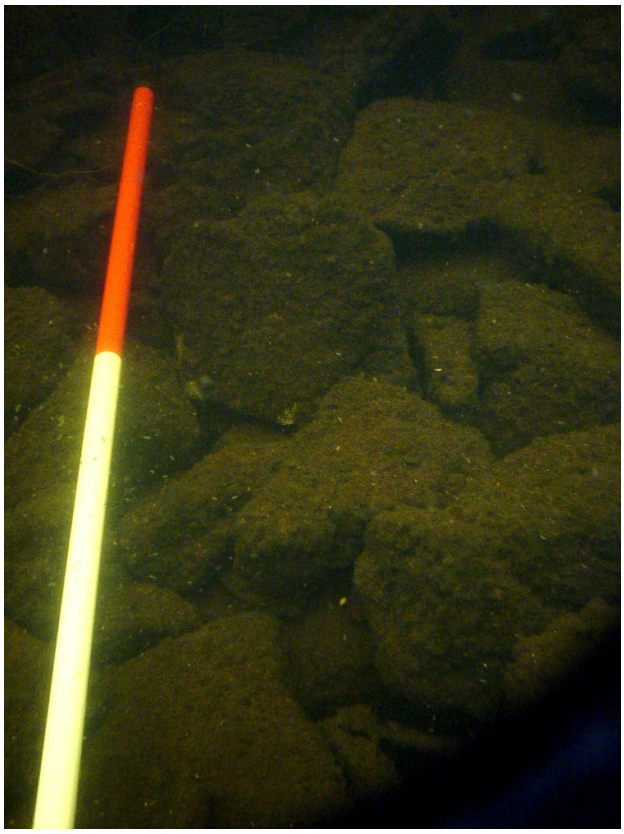

Plate 6: General view of boulders of the main mound.

Plate 7: Large boulder near the edge of the mound, to the N.

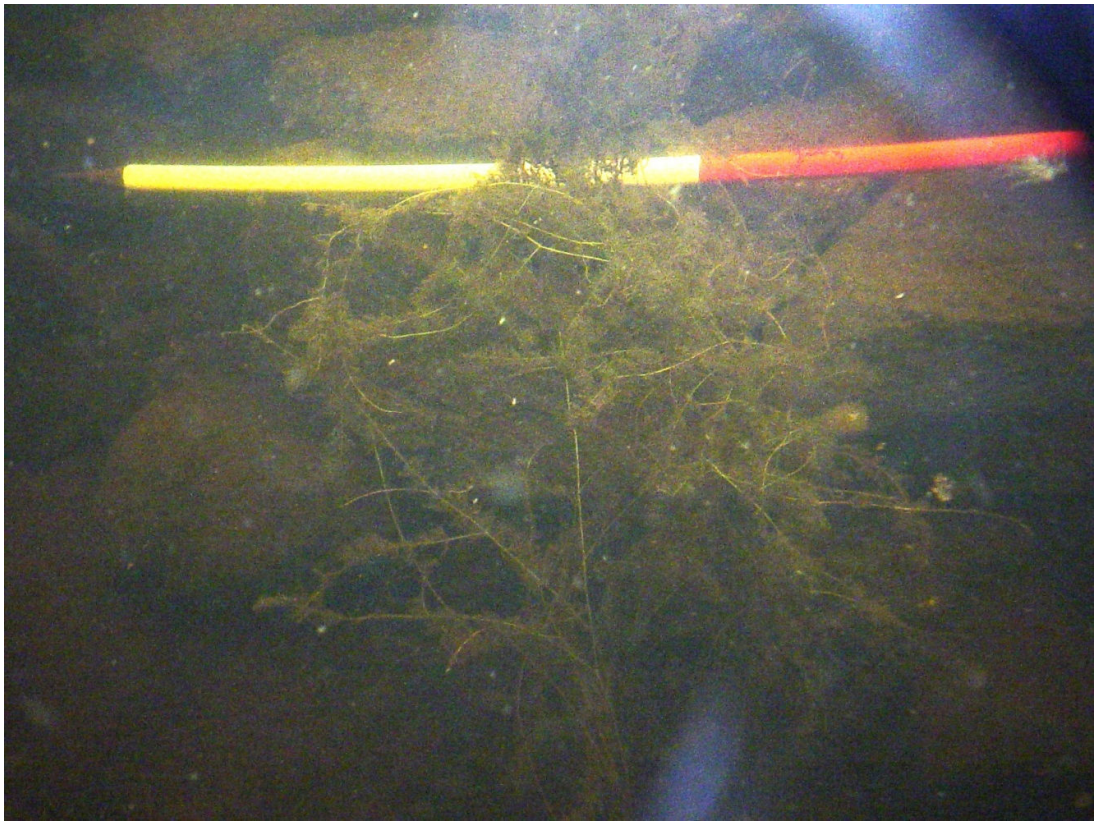

Plate 8: Water milfoil and other aquatic plants growing on the crannog.

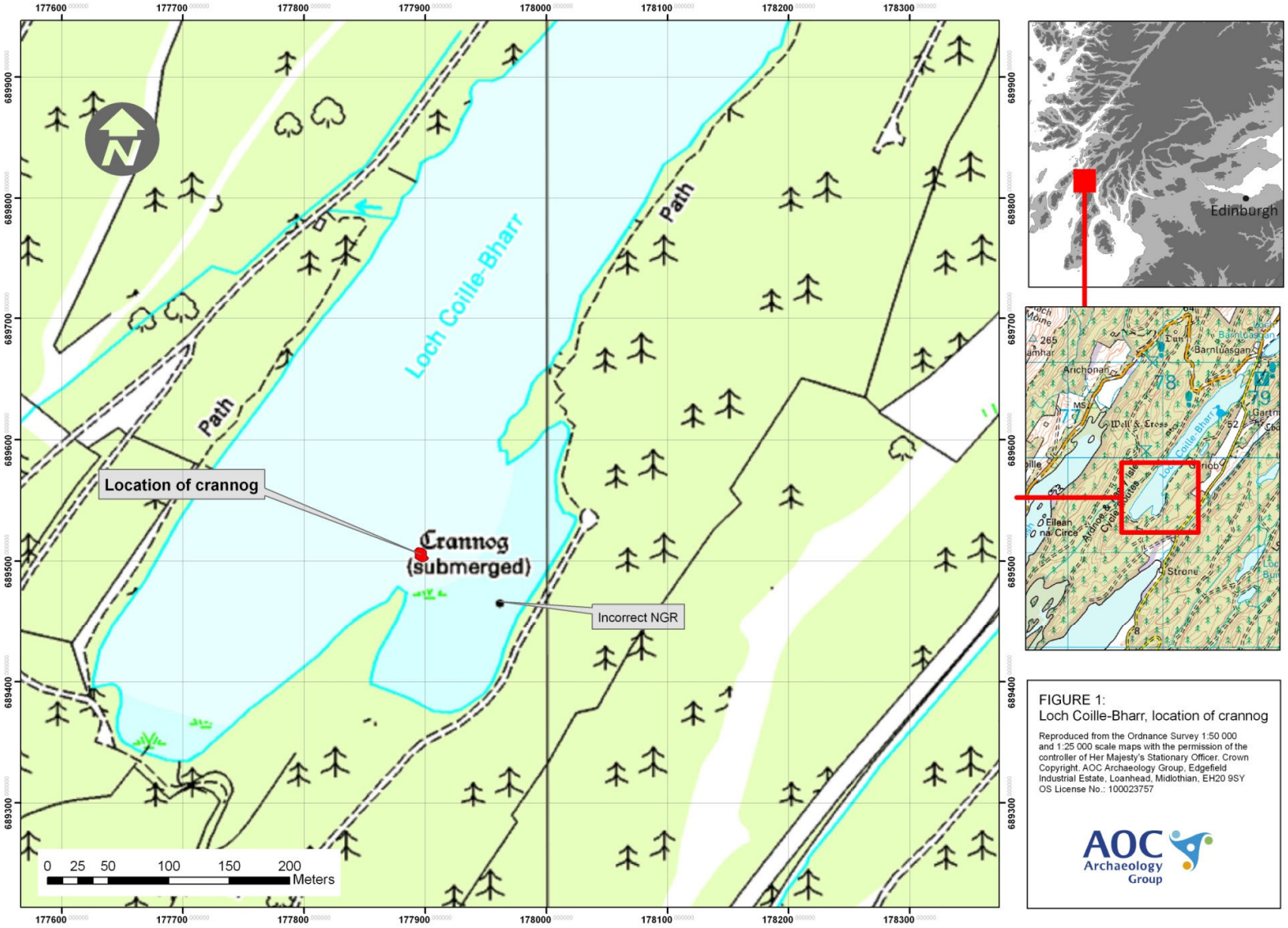

FIGURE 1:
Loch Coille-Bharr, location of crannog

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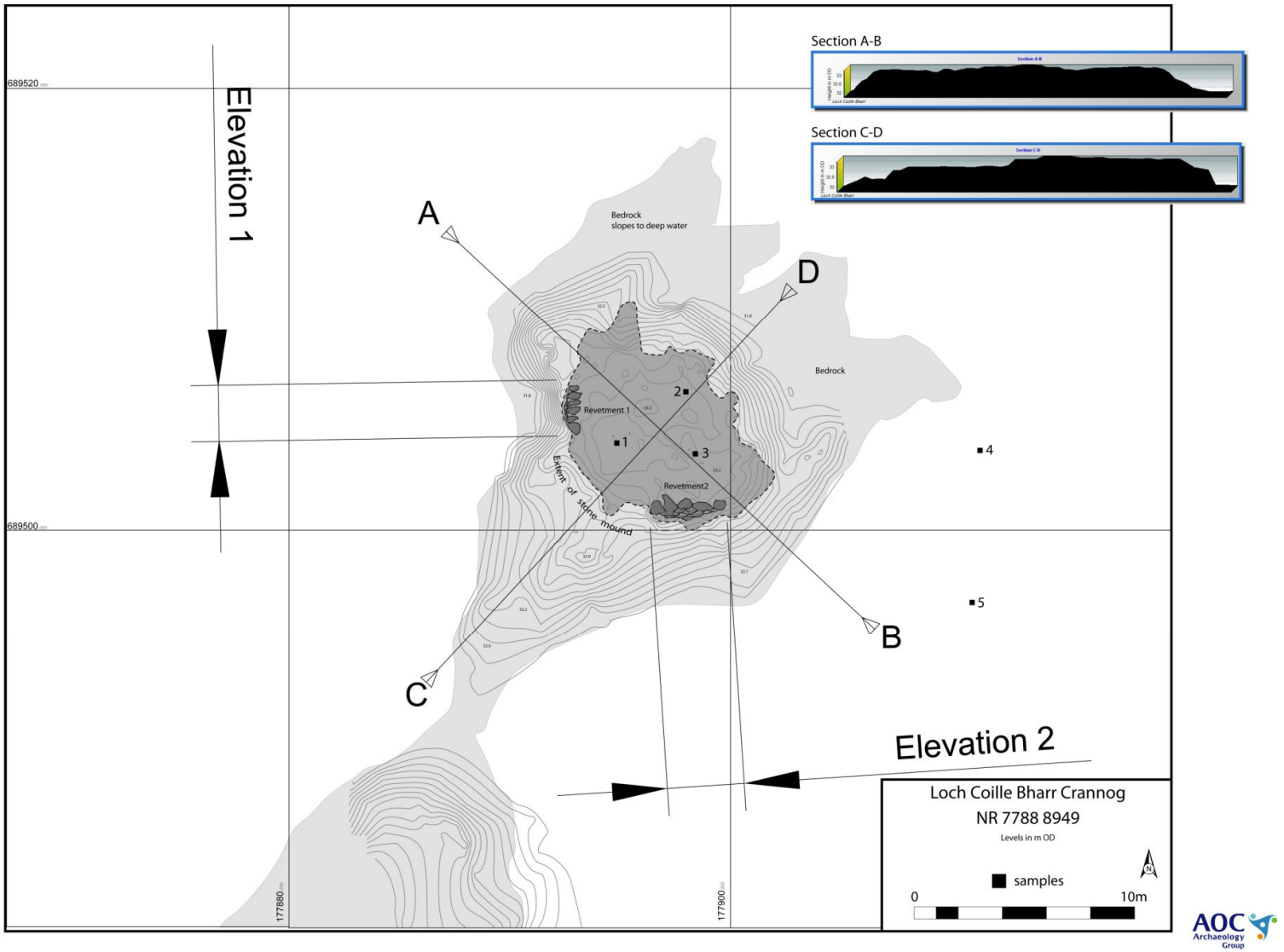
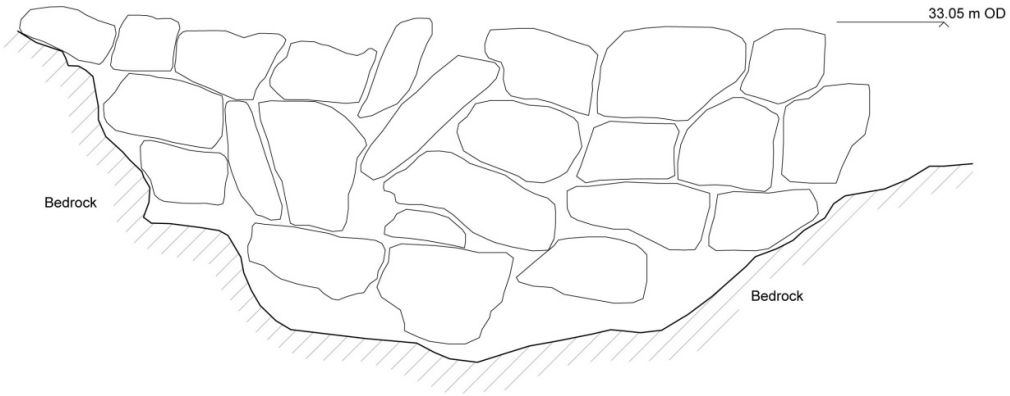
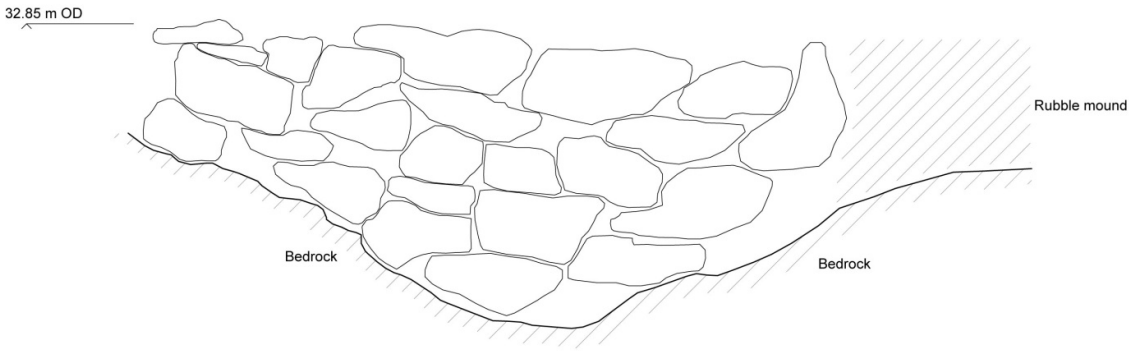


Figure 2: Loch Coille Bharr crannog, contour survey and sample locations (contours in 0.1m increments).



Elevation 1



Elevation 2

Figure 3: Elevations 1 and 2 showing the revetment walling.









AOC Archaeology Group, Edgefield Industrial Estate, Edgefield Road, Loanhead EH20 9SY

tel: 0131 440 3593 | **fax:** 0131 440 3422 | **e-mail:** edinburgh@aocarchaeology.com