

**Ardvorlich Estate
Hydro Scheme**

**Report on
Archaeological Work
Desk Study, Survey, Standing Building
Recording and Watching Briefs**

for

**Ardvorlich Estate and
Hydroplan UK**

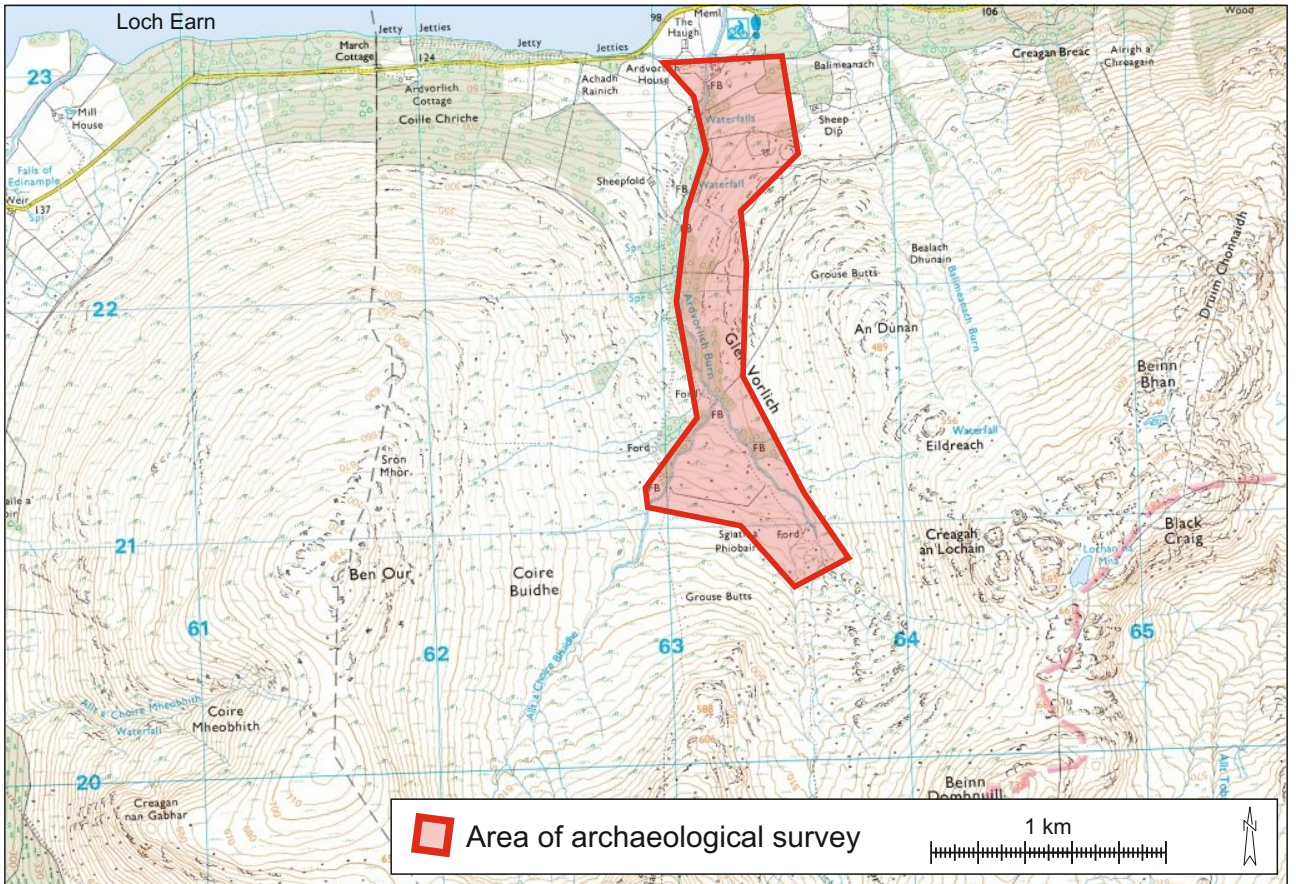
February 2011



ARDVORLICH SHIELING SETTLEMENT

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Ardvorlich Estate Hydro Scheme, Lochearnhead, Perthshire



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Figure No. 1: Site Location Map

Introduction

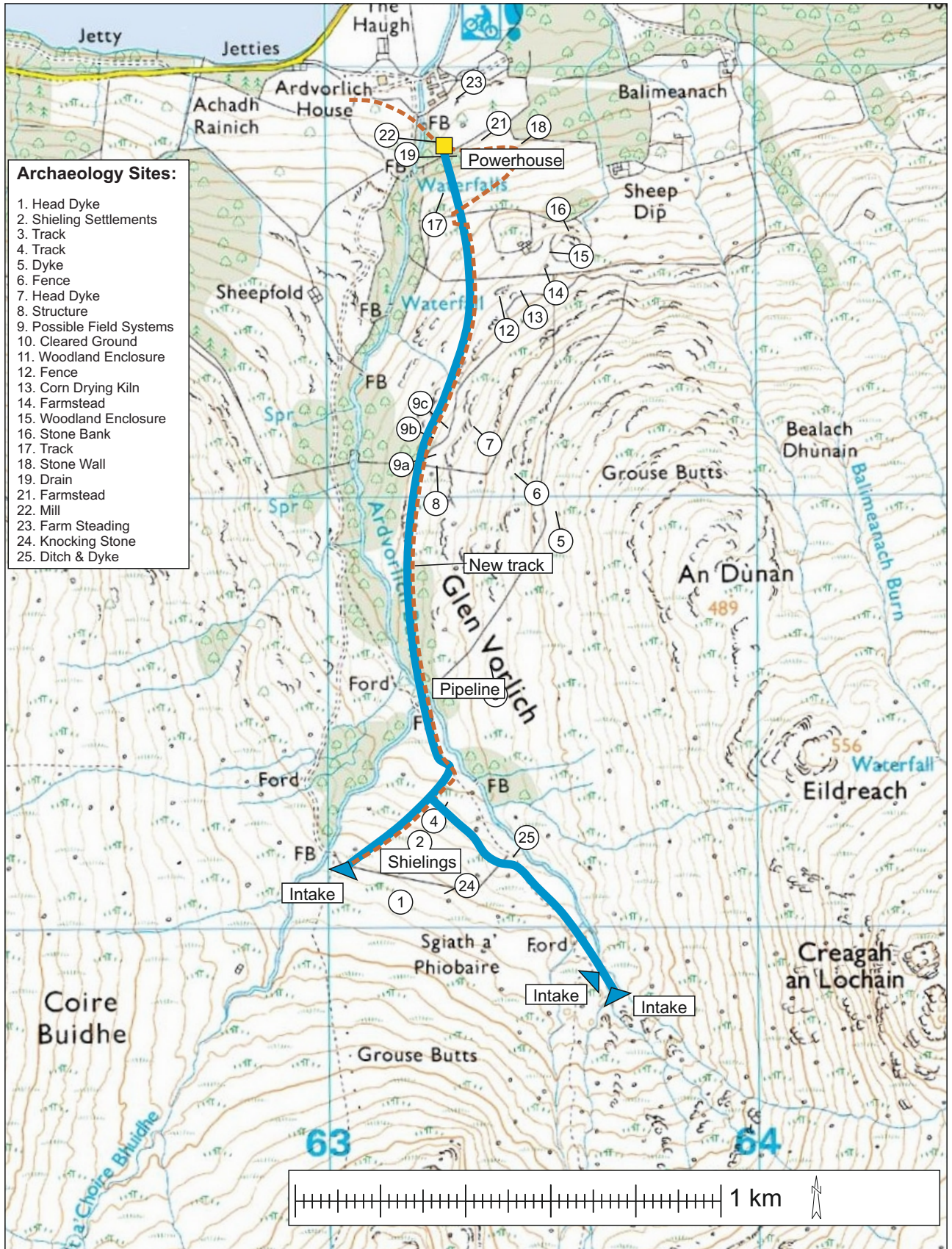
Hydroplan UK have constructed a hydroelectric scheme which should generate 750kw per hour at Ardvorlich Estate, Loch Earn, Perthshire. An archaeological desk based study and field survey of the proposed route was undertaken in advance of submission of the planning application by Jennifer Robertson and is reported in **An Archaeological Survey of Glen Vorlich, Ardvorlich Estate, Lochearnhead, Perthshire** by Jennifer Robertson for Hydroplan UK, June 2008.

Planning permission for the development was granted, with archaeological conditions attached, following the June 2008 archaeological report.

Subsequent to Robertson's survey, Hydroplan proposed a deviation to the route in the area of the shieling ground Site 2 so that the identified archaeological sites could be avoided. Fiona Baker of Firat Archaeological Services walked the proposed deviation to the route and monitored test pit excavations along its length on 28 July 2009. This archaeological work recorded five new archaeological sites, reported on the excavation of the test pits and made recommendations for an archaeological watching brief during development.

The results of the archaeological survey work undertaken in July 2009 were incorporated into an updated version of Robertson's report and a new report dated October 2009 superseded the earlier June 2008 report. This report is entitled **An Archaeological Survey of Glen Vorlich, Ardvorlich Estate, Lochearnhead, Perthshire** by Jennifer Robertson and Fiona Baker for Hydroplan UK, October 2009.

This report is the final report on the archaeological work undertaken during development of the Ardvorlich hydro scheme. It reports on the standing building recording of the saw mill, the results of the archaeological watching brief, the recording of the culverts and additional field survey work at the shieling site, Site 2. For easy access to all of the archaeological information the majority of Robertson's 2008 report and Robertson and Baker's 2009 report have been included in this final report.



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Figure No. 2: Location of archaeological sites, pipe route and access tracks

Planning Conditions

Planning permission has been granted for this development by Loch Lomond and The Trossachs National Park (Application NO. LT/2008/0287/DET/P). Three planning conditions relate to archaeology, namely:

17. ***Monitoring and recording of Archaeological Sites Affected by the Development:*** *The developer shall arrange and afford access at all reasonable times to an archaeological organisation deemed acceptable to the Local Planning Authority and Perth and Kinross Heritage Trust, allowing them to observe work in progress and record items of interest and finds. Notification of the commencement date and details of the archaeological contractor retained by the developer shall be made available to the Planning Authority and Perth and Kinross Heritage Trust not less than 14 days before the development commences. The archaeological contractor retained by the developer shall deposit copies of the results of the monitoring in the National Monuments Record for Scotland and the Perth and Kinross Heritage Trust upon completion or commissioning of the scheme.*

Reason: To ensure that any items of archaeological interest that might be damaged or disturbed by the development are recorded and recovered as necessary for the benefit of the nation to reflect the first aim of the National Park.

18. ***Protection of Archaeological Sites to Avoid Accidental Damage:*** *No development shall take place until fencing has been erected, in a manner to be submitted to, and approved in writing by, the Local Planning Authority in consultation with Perth and Kinross Heritage Trust, about Sites 2,5,7,8,9,10 and 11 as outlined in the Terms of Reference (to be provided by Perth and Kinross Heritage Trust). Also, no works shall take place, or material deposited, within the area inside that fencing without the prior agreement of the Planning Authority and Perth and Kinross Heritage Trust.*

Reason: To safeguard the archaeological value of the site and to reflect the first aim of the National Park

19. ***Standing Building Survey of Sites 19 and 22:*** *No development shall be commenced until; an archaeological standing building survey of the extant structures has been carried out by an archaeological organisation, approved by the Local Planning Authority. The scope of the archaeological standing building survey will be set by Perth and Kinross Heritage Trust on behalf of the Local Planning Authority. The name of the archaeological organisation retained by the developer shall be given to the planning authority and to the Perth and Kinross Heritage Trust in writing not less than 14 days before development commences. Copies of the resulting survey shall be deposited in the National Monuments Record for Scotland and with Perth and Kinross Heritage Trust prior to the*

proposed development being brought into use or such alternative phasing which has the prior written approval of the Local Planning Authority.

Reason: To ensure that any items of archaeological interest that might be damaged or disturbed by the development are recorded as necessary for the benefit of the nation to reflect the first aim of the National Park

Terms of Reference for archaeological monitoring and standing building recording (Conditions 18 and 19) were supplied by Perth and Kinross Heritage Trust *Terms of Reference for a Programme of Archaeological Works (Fencing-off of archaeological sites; archaeological monitoring in sensitive areas; standing building recording; reinstatement of features) Ardvorlich Estate, Lochearnhead Hydro Scheme. Date of Issue 27/10/2009* (actually dated 27/10/2008 but this is an error).

In addition a *Written Scheme of Investigation for Ardvorlich Hydro Scheme, Loch Earn, prepared for Hydroplan UK by Firat Archaeological Services, 3 November 2009* was submitted and accepted by Perth and Kinross Heritage Trust on behalf of Loch Lomond and The Trossachs National Park planning authority as an appropriate archaeological response to development.

Archaeological Assessment Report Recommendations and Terms of Reference

The survey reports by Robertson and Baker and the Terms of Reference by PKHT identified a number of areas where archaeological mitigation was required. The areas where mitigation work was required and what mitigation work was done are detailed below.

Site No.	Mitigation
Site 2 Field of shieling huts	Temporary fencing was erected around Sites 2a (2.1), 2i (2.9), 2q (2.17), 2r (2.18), 2aa (2.21), 2bb (2.27) and 2cc (2.28). A watching brief was maintained during the excavation of the pipe trench in the vicinity of the above sites. In addition a watching brief was maintained at sites 2w (2.23), 2x (2.24), 2y (2.25) and 2z (2.26) adjacent to the existing track (Site 4). All archaeological sites were avoided by the development works.
Site 3 Track	No monitoring required, this track was not affected by the development
Site 5 Dyke	The dyke was avoided by the development.
Site 7 Head Dyke	Working corridor narrowed to minimise disturbance, cut where already cut by existing track (Site 4). This dyke was cut through over a 15m long stretch at NN

	63138 22018 to accommodate the pipe and new track.
Site 8 Structure	Fenced off to avoid damage. This site was avoided and was not disturbed by the development.
Site 9b Earth and stone bank	Working corridor narrowed to minimise disruption, fencing of edges of working corridor and flagging along line of bank to demarcate it. The dyke was cut through for the new track (5m wide) and the pipe trench (8m wide). The dyke has been reinstated over the backfilled pipe trench.
Site 10 Clearance Cairns	Fenced off and avoided.
Site 11 Woodland enclosure	Fenced off and avoided and unaffected by the development.
Site 16 Stone bank	Working corridor narrowed to minimise disruption, fencing of edges of working corridor and flagging along line of bank to demarcate it. The dyke was cut through for a length of 10m at NN 63301 22635 by the development.
Site 17 Track	The track was avoided.
Site 18 Wall	Working corridor narrowed to minimise disruption, fencing of edges of working corridor and flagging along line of bank to demarcate it. Reinstatement wall after backfilling pipe trench. The wall was taken down and then rebuilt where the pipe route crossed it. The new access road cuts the wall for a distance of 3.5m at NN 63389 22834.
Site 19 Culvert / Drain	Photographic record, written description and measured sketches (additional to existing record). Reinstatement. Recorded but unaffected by development.
Site 22 Mill	Standing building recording comprising of EDM survey to produce ground plan and elevations which will then be marked up and annotated by hand. Full photographic record tied to the drawings and written description. Monitoring of demolition if appropriate. Revised approach stated in the WSI was that the standing building record will consist of an annotated measured survey plan and elevations, photographic recording tied to the drawings and a written description. EDM survey carried out by Hydroplan, scale plan, elevations, photographic

	record and written description carried out by FAS. Health and safety considerations prevented EDM survey of elevations.
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Mitigation

Objectives and Methods

The objective of the archaeological mitigation work was to ensure that the identified archaeological sites were not damaged by the development. This was successfully achieved by clear identification and marking / fencing off of sites with the main contractor's project manager, Stephen Kennedy of DA MacDonald, to protect them from possible damage. An archaeological watching brief was maintained where the access track and pipe routes passed within 20m or less of archaeological sites. Where damage was possible, for example at the cutting of dykes, the working area was reduced to the minimum width. Only minimal damage occurred to linear boundaries and existing cuts were used, all of the linear boundaries and tracks have been reinstated where necessary on completion of the development.

Watching Brief and Reinstatement

The excavation of the pipe trench was generally undertaken with a toothed bucket as due to the nature of the excavations a ditching bucket was not suitable for the job. However, a toothless ditching bucket was used where possible, for example on the upgrading of the existing track Site 4. The machine operator worked under direct archaeological supervision in the vicinity (at least 20m) of all of the identified archaeological sites where a watching brief was required.

On completion of the excavations all linear boundary features have been reinstated where applicable. Where the dykes have been cut by the new road (Site 7, 9b, 16 and 18) they have not been reinstated as the road remains as a permanent feature. Only minimal disturbance to linear boundaries took place and they were largely avoided and existing cuts through them were utilised by the pipe and access routes wherever possible. Drystone wall Site 9b has been rebuilt where it was disturbed by the pipe route. It is standard practice for Hydroplan to reinstate all boundaries and tracks on completion of the development.

Desk Study and Historical Background by Jennifer Robertson

An archaeological survey was undertaken on behalf of Hydroplan UK, in Glen Vorlich, Ardvorlich Estate, Lochearnhead, Perthshire (OS 1:10.000 Sheet NN62SW), prior to the proposed construction of a hydro scheme.



Figure 3: Location Map from OS Explorer 368 (© Crown copyright 2007. All rights reserved. Licence number 10044103)

The area is situated on the South shore of Loch Earn on the lower slopes of Ben Vorlich, within the Loch Lomond and Trossachs National Park. The survey area consists of a strip of land, 50m either side of the proposed pipeline along the East bank of the Ardvorlich Burn, from the proposed powerhouse at NN 6322 2287 to Intakes 3 and 4, just below the confluence of the Ardvorlich Burn and its tributary, Allt a' Choire Bhuidhe. Further pipelines extend along the SE bank of the Allt a' Choire Bhuidhe to Intake 5 at NN 6301 2118 and along the SW bank of the Ardvorlich Burn to Intake 6 at NN 6362 2100. A 100m radius around the powerhouse and a 50m radius around the intakes were also investigated.

The survey area lies on the lower slopes of Ben Vorlich, a Munro, which reaches a height of 985m OD. The Ardvorlich Burn and the Allt a' Choire Bhuidhe course down the East and West sides of a spur, which projects northwards from the mountain. A track leads to the summit along the West bank of the Ardvorlich Burn.

The survey area lies on a mix of metamorphic rocks including quartz – mica – schist, grit, slate and phyllite of the Upper Dalridian succession. The topography consists of sloping ground and rises from a height of 130m OD to a maximum of 360m OD.

Working Methods.

The survey consisted of desk-based research, followed by a walkover survey.

A preliminary phase of desk-based research assessed the potential for archaeology in the area. The following sources were consulted:

Sites and Monuments Registers.

a) The National Monuments Record of Scotland (NMRS), held by RCAHMS, John Sinclair House, 16 Bernard Terrace, Edinburgh EH8 9NX, available on www.rcahms.gov.uk

b) The Sites and Monuments Register, held by the Perth and Kinross Heritage Trust (PKHT), The Lodge, 4, York Place, Perth, PH2 8EP, available on www.pkht.org.uk

Two sites had been recorded within the survey area:

NN62SW.6 (part of) (PKHT MPK145) Ardvorlich Stables and Farm (Listed C(S))
NN62SW.20 (PKHT MPK8619) Building

Maps.

Roy's Military Survey of Scotland, 1747-55.

James Dorret: A general map of Scotland and islands thereto belonging, 1750.

James Stobie: The Counties of Perth and Clackmannan, London, 1783.

John Ainslie: Scotland 1789.

John Thomson: Atlas of Scotland: Perthshire with Clackmannan, 1832.

OS 1st Ed. 6" Map Sheet Perthshire xciii, surveyed 1861, published 1867.

Sir John Murray and Laurence Pullar: Bathymetrical Survey of the Fresh Water Lochs of Scotland ... during the years 1897 and 1909, vol. 3 Plate 22 Loch Earn, surveyed 1902, published 1908.

OS 1:10,000 Sheet NN62W, 1982.

OS 1:25,000 Explorer 368 Crieff, Comrie and Glen Artney, 2007.

Aerial Photographs.

Aerial photographs, held by the Air Photo Unit, RCAHMS, Edinburgh, were consulted.

a) 106G/SCOT/UK37; Date 29.4.46; Scale 1:10,000; Frames 4015 - 4017

b) CPE/SCOT/UK262; Date 14.8.47; Scale 1:10,000; Frames 4059 - 4057; 3059 - 3057

c) OS/99/930; Date 27.7.99; Scale 1:17,000; frames 1496 - 1498; 1444 - 1446

Published Sources.

The following contained information relevant to the survey area:

Bain, Elizabeth: A Short Introduction to the Study of Deserted Settlements, n.d Strathearn Archaeology Society.

Baxter, Rev. Mr. Colin: "Parish of Comrie" in The (Old) Statistical Account of Scotland, Vol. XI, 1792-3, pp. 178-188.

Hunter, John: Chronicles of Strathearn, 1896, Crieff

MacKenzie, Rev. William: "Parish of Comrie" in The New Statistical Account of Scotland, 1834-45, vol. 10, 578-596 (June 1838)

McNaughton, David: Upper Strathearn from Earliest Times to Today, 1989.

MacPherson, Rev. John: "At the Head of Strathearn" in Hunter (ed.), Chronicles of Strathearn, 1896, 157-182

Mayall, Colin: The Story of Strathearn, Crieff, 2001

Stewart, James: The Settlements of Western Perthshire: land and society North of the Highland Line 1480-1851, Haddington, 1990.

Fieldwork.

A walkover survey was undertaken by Jennifer Robertson on 9th May 2008 in dry, mostly sunny conditions. The entire survey area was walked and investigated. The archaeological sites, **Sites 1, 2a-z (renumbered as 2.1 – 2.26), 3-23**, were recorded, measured and photographed. Their locations were established with a GPS receiver and marked on a map.

A further walkover survey was undertaken by Fiona Baker of Firat Archaeological Services on 28th July 2009 in mixed sunshine and showers to investigate an alternative route for pipelines in the area of the shieling settlement, **Site 2**. Five new archaeological sites were recorded, **Sites 2aa, 2bb and 2cc (renumbered as 2.21, 2.27-2.28), 24 and 25**. The excavation of a series of test pits along the new pipeline route was also monitored. Further field survey was undertaken during the watching brief and an additional day of surveying was carried out by Baker and Robertson on 15th April 2010 in dry, overcast and sunny conditions as it had become clear that Site 2 was in fact much larger and more complex than originally recognised and altogether sixty five structures were recorded at Site 2 (see Gazetteer of Sites below)

Historical Background.

A hill was now before the travellers, covered with an ancient forest of Scottish firs, the topmost of which flinging their scathed branches across the western horizon, gleamed ruddy in the setting sun. In the centre of this wood rose the towers, or rather the chimneys, of the house, or castle, as it was called, destined for the end of their journey.

(A description of Darnlinvarach, based on Ardvorlich, in A Legend of Montrose by Sir Walter Scott)

No evidence has yet been found of prehistoric remains in the survey area or immediate vicinity of Ardvorlich, though numerous cup marked stones and boulders attest to some prehistoric presence on the north side and eastern end of Loch Earn.¹ A scatter of prehistoric implements found around the shores of the loch further suggests some contemporary occupation.² The fort at Dundurn and the crannog on Neish Island may also have prehistoric origins, though the extant remains date to a later period.

Dundurn fort, possibly originating in the Iron Age, seems to have been a Pictish stronghold and is presumed to be the place mentioned in the Annals of Ulster as under siege in 683. (NMRS NN72SW.3) Limited excavations in the 1970's identified a few finds of probably 7th century date. An early historic origin is also attributed to St Fillan's chapel at NN 7038 2357. (NMRS NN 72SW.2) The present chapel, now roofless, was constructed some time before the Reformation on the site of an earlier chapel, dedicated to St Fillan, who died c. 520 AD. Since 1586, it has been used as the burial place for the Stewarts of Ardvorlich.

¹ At Ardveich (NMRS NN62SW.29-30); at Wester Glentarken (NMRS NN62SE.19-21); at Dun Caoch (NMRS NN62NE.14-16) and at St Fillans (NMRS NN62SE.22)

² A stone cup, quern and carved stone ball at Lochearnhead (NMRS NN52SE.4, 8 & 9); stone implements at Kindrochet and Easter Dundurn (NMRS NN72SW.7-8); a flat bronze axehead at Glen Boltachan (NMRS NN72SW.4) and a polished stone axehead at St Fillans (NMRS NN62SE.3)

The Stewarts of Ardvorlich have also used Neish Island at the East end of Loch Earn as an occasional residence and granary, though the island was formerly associated with the Clan Neish from c. 1250. (NMRS NN62SE.2) While the steep-sided mound appears to be a man-made crannog, no timbers or organic deposits of the earliest construction were identified in a recent underwater survey, though a well-defined boat noost was recorded. (Dixon, 2004,100) The substantial stone buildings, still extant, probably date to a later period. The crannog was the site of a massacre in the early 17th century, when Smooth John McNab and his brothers wiped out the Neishes in retaliation for the theft of their Christmas provisions. Believing themselves to be safe on their island stronghold, as they had the only boat on Loch Earn, the Neishes were then surprised by the McNabs, who had carried a boat over the hill from Loch Tay. (Mackenzie, 1838, 580; Mayall, 2001, 90-1)

The survey area has also seen its share of clan rivalries. The area has been in the hands of the Stewarts of Ardvorlich, descendants of Robert II, since c.1582. (McNaughton, 1989, 89) Surrounded by powerful neighbours, such as the Campbells of Argyll and Breadalbane, the Drummonds of Perth, the MacNabs of Glendochart and the landless MacGregors, “they were still united and strong enough to fend off their foes, and on their own part make predatory incursions into the richer Lowlands, when they felt the need to pay off old scores against those who had preyed upon their lands”. (*op. cit.* 90) Thus, in 1695, the Stewarts of Ardvorlich raided the Lennox and carried off three hundred sheep, 196 cattle and 66 horses. (Stewart, 1990, 71) Earlier, in 1620, the Stewarts had killed seven MacDonalds of Glencoe when the latter were “attempting to harry Ardvorlich”. Their bodies were buried by the roadside and later commemorated with a memorial stone, situated just outside the survey area. (NMRS NN62SW.5)³

An archaeological site within the survey area was the scene of another notorious incident, dating back to 1589. In reprisal for a previous incident, a band of MacGregors killed a royal forester named Drummond-Ernock. On their way home, they demanded hospitality from Mrs Stewart of Ardvorlich, sister of the murdered man. While she was making arrangements, “the barbarians placed the head of her brother on the table, filling the mouth with bread and cheese, and bidding him eat, for many a merry meal he had eaten in that house.” (Scott, 1819, Introduction) The unfortunate lady fled into the woods, where she remained in a deranged state until noticed by the women milking cows at the summer grazings. As described by Sir Walter Scott in The Legend of Montrose:

“It is the custom in summer --- to send the cows to the upland pasture to have the benefit of the grass; and the maids of the village, and of the family, go there to milk them in the morning and evening. While thus employed, the females of this family, to their great terror, perceived that their motions were watched at a distance by a pale, thin, meagre figure, bearing a strong resemblance to their deceased mistress, and passing, of course, for her apparition.” The ghost turned out to be Mrs Stewart, later rescued by her husband and slowly restored to health.

³ The inscription reads: “Near this spot were interred the bodies of 7 Mcdonalds of Glencoe killed when attempting to harry Ardvorlich Anno Domini 1620”.

These summer grazings may well have been the shieling site, **Site 2**, at the confluence of the Ardvorlich Burn and the Allt a' Choire Bhuidhe. This shieling site was presumably associated with permanent dwellings around the foot of Ardvorlich Burn. Roy's map, dated 1747-55, shows a cluster of buildings at "Advourlich" on either side of the burn, surrounded by arable ground, near the shore of Loch Earn.



Figure 4: Extract from Roy's Military Survey of Scotland, 1747-55 (National Library of Scotland)

The building on the West side of the burn is presumably a predecessor of the present Ardvorlich House, which was built in 1790 and incorporates fabric from an earlier castle. (NMRS NN62SW.6) The buildings on the East side of the burn may have been occupied by farm workers or tenants, on the site of the present stables and farm buildings, which were probably constructed in the 19th century. (**Site 23**; NMRS NN62SW.6 (part of)) A "much-altered stone building" on the South side of the farm steading, may be the remains of an old cottage. (*ibid.*)



Figure 5: Extract from James Stobie: The Counties of Perth and Clackmannan, 1783 (National Library of Scotland)

The mansion house is clearly marked on James Stobie's plan of 1783, but the ancillary buildings are also on the West side as well as a mill downstream from Ardvorlich House.

By 1861, the farm steading had been constructed on the east bank of the burn along with a walled garden but a previously unrecorded building within the survey area, **Site 21**, was already roofless and abandoned (OS 1st Ed. 1867).



Figure 6: Extract from OS 1st Ed. 6" map Perthshire xciii, surv. 1861, publ. 1867.

The OS 1st Ed 6” map generally shows buildings deserted within a generation, so that another farmstead in the survey area, **Site 14**, not marked on the map, was presumably abandoned some time earlier. Ardvorlich may have experienced some depopulation along with the rest of Comrie parish. In 1838, the minister noted that many had emigrated to Canada in the preceding 20 or 30 years; “the system of enlarging farms and introducing sheep greatly diminished the agricultural population at the beginning of this century”. (Mackenzie, 1838, 585) The farmsteads, **Sites 14** and **21** and the shieling huts, **Site 2**, may all have been abandoned around this time.

The OS 1st Ed. Map also illustrates an interest in woodland expansion in the 19th century. Ardvorlich was already famed for its woods; timber was brought from Ardvorlich for the superstructure of a bridge, constructed in Balquidder in 1705-6 and an ash in Wester Finglen to the East of the survey area was particularly noteworthy in 1838, said to be 17 ft 9 inches in circumference. (Stewart, 1990, 89; Mackenzie, 1838, 582) The 18th century maps depict some woodland along the shore of Loch Earn and up Ardvorlich Burn but by 1861, several areas had been enclosed for the protection and expansion of woodland. (See Figs. 2, 3 and 4) The remains of these enclosures are still extant within the survey area, **Sites 11 and 15**, as are numerous examples of pollarded trees.

Background Information on Agricultural Practices and Shielings ***By Fiona Baker***

General overview of agricultural practices

Prior to the 18th century improvements in agriculture had been carried out at a largely subsistence level by tenant farmers feud to the local laird. Ecclesiastical settlements led the way in agricultural improvements and the Abbeys of Medieval Scotland were extremely wealthy on the back of their agricultural activity.

By the 12th century the system of infield and outfield utilising the rig and furrow and rotational system was established. The infield was kept manured and planted with crops on a three year or six year rotation before being left fallow for one or two years depending on the quality of the ground and the outfield was largely given over to pasture though it was also planted with crops at regular intervals. Cattle and to a lesser degree sheep and goats and horses were grazed on communal pastures and in woods and at shielings further up the hillsides during the summer months. The main crops were barley or bere, oats, followed by peas, kale and flax. By the 1770s potatoes and turnips were also grown.

Black kyloe cattle were the main stock and Highland sheep, which required greater care, were kept to a much lesser degree and often kept in sheep cots in the winter. The main settlements were clachans or ferm touns and often consisted of no more than four or five families. The main food was oats made into porridge or oatcakes, beer, milk, cheese, barley broth and fish or meat, often salted, as and when it was available. Thatch for the houses was made from turf cut from the densest part of the bog, bracken and straw.

In years of bad weather the crops would fail and there would be famine closely followed by disease. Famines are recorded in Scotland in 1314, 1424, 1440, 1482, 1680-81, 1740-41 and 1782. In such hard times the farmers had to resort to nettle broth and blood-letting of the cattle.

Cattle were valuable and they were a continual source of dispute, blackmail, theft and of course trade. Great herds of cattle, sometimes over a hundred at a time, were moved along the network of drove roads to market. The drove roads of Scotland have been mapped by Haldane and many old drove roads are still in use with a good number of these in Argyll. The cattle were traded at weekly markets in burghs such as Perth and Dumbarton and elsewhere and at annual fairs. These annual fairs were also great social events and some have quite ancient origins.

Tenants largely paid their rent to the Laird in kind - butter, cheese, oatmeal, kain hens or whatever they produced in surplus and often some money too. The goods in kind were known as "kain" or "can" or "cunveth" and reflect ancient traditions. The services of tenants, horses and oxen were also due to the Laird at his request. The tack or lease would be renewed at regular intervals and a payment made to the laird of "grassum" which often financially crippled the tenant.

On the death of a tenant it was a traditional Celtic custom that the best horse, cow or possession of the deceased's family would be presented to the laird and this continued well into the 18th century.

Corn was ground at a number of mills throughout the district which were usually owned by the lairds and to which the tenants were bound by a system of "thirlage" which required them to pay as much as one tenth of their annual production. This system was a frequent cause of discontent.

Until the late 17th century this way of life altered very slowly and not to any great degree. The 17th century had seen a decline in farming standards as the country was almost always embroiled in war and dispute and landowners were taxed highly by the Crown, which in turn affected their tenants many of whom were impoverished. However, the Agricultural Improvement Movement, Industrial Revolution, and Clearances saw the 18th century alter the face of the Scottish landscape to a greater degree than ever before.

Soon after the 1745 Jacobite Rebellion many parishes were settled with graziers from the south and the native Highland sheep was replaced by black-faced Linton type sheep. The ancient Highland black cattle or kyloes were also displaced by the black-face sheep and their numbers dropped dramatically. Red deer were also driven out by the sheep and the vegetation of the sheep pastures changed from heather and rough grass to short, fine green grass within about 30 years of their introduction. Sheep farming was introduced in the mid 18th century and made a dramatic impact on agricultural practices. For example, by the end of the century there were 10,600 sheep in Arrochar parish and only 460 cows, the population had also dropped from 466 to 379 within 40 years. Sheep were the main reason for the depopulation of the Highlands to a greater degree than the forfeitures and clearances that followed the Jacobite rebellions.

It is interesting to note in many of the 1790s Statistical Accounts that the people still living in clachans and fattening cattle at their steadings and at summer shielings were considered amongst the poorest of the parish.

From about 1750 onwards the land was enclosed or fielded by turf and stone dykes, drystone walls and hedges. Plantations were established for commercial coppicing and felling and active game management was introduced. The enclosed woodland plantations of the late 17th and early 18th century also altered the landscape. These enclosed plantations were to protect the trees from livestock and also to provide sanctuary for deer.

Major drainage works were also undertaken from the mid 18th century to improve the land. New farming equipment was also introduced, notably the swing plough which replaced the traditional Scot's plough during the early 1800s.

The improvements also introduced the practice of lime spreading to improve the fertility and lessen the acidity of the soil. Spreading lime on the fields greatly improved the fertility of the soil, particularly for oats, and fields that would have been cropped for only three or six years could be cropped for up to 20 years at a time. The ground was also improved by other fertilisation practises.

Shielings

Gaelic - 'airigh' (singular), 'bothan airigh' (plural)

A shieling is a small, simple hut where people would spend several months every summer grazing their cattle, milking and making butter and cheese. The Shielings are located in the high pastures and although some were perhaps only 2 or three miles from the main township at the edge of the outfield others were up to 10 or 12 miles away and it may have taken several days to move the stock and equipment up to the higher ground from the lower lying townships. The shieling inhabitants would return to the main townships at the end of the summer for the beginning of the harvest. It is likely that the people who used the shielings at Site 2 lived in the permanent settlement at Ardvorlich although there are several elements at Site 2 that suggests it may have had a more permanent occupation, such as the possible corn during kilns Site 2.48.

A shieling hut is not always of the same plan or design, some are constructed entirely of turf whereas others are constructed of stone or a combination of stone and turf and timber would have been used depending on availability. The construction technique would have been largely determined by the construction materials to hand and they could be described as an organic construction. Shieling huts tend to be either circular or oval chambers, small stone cells or rectangular structures. All the three main types are often found on artificial mounds or with artificial mounds created around them, probably from collapsed turf construction and roofing thatch collapsing or being discarded around the building. The rectangular huts, which would have required more roofing materials than the small circular cell huts and often appear more substantial constructions, may be later in date but not enough research has been done to determine if this impression can actually be proven. It is recorded in Caithness and in

Glenlyon, Perthshire in 1725 that some of the shieling huts remained occupied by herdsmen looking after young cattle not yet producing milk or horses in the winter. The more permanent looking structures may have been occupied for longer periods rather than being later in date. However the sheiling system was in use for centuries and one would expect some change in building style over time.

The shieling sites, which generally went out of use in the 18th century, although some may have survived into the early 19th century, are all in a ruined state and very little is known about how they were roofed. The huts, being simple and temporary constructions would have decayed over the winter and would have needed refurbishment every summer. There are 18th century records of the men going up to the shieling huts in the spring to repair the roofs and refurbish them. It seems likely that the timber roofing beams were taken up to the shieling every year and a new roof built of turf and / or bracken, heather or rush thatch each season and the roof dismantled and the precious roof crucks and beams taken back down to the main settlement for storage over the winter. This practice has been recorded throughout the Highlands and the Hebrides. The stone cell type of shielings may have had corbelled stone roofs similar to beehive huts such as those on St Kilda and the Isle of Lewis.

Shieling huts may be in groups of just two or three or up to as many as 15, the concentration of 63 structures at Ardvorlich Site 2 is exceptional. Generally small groups of five or so huts are more common than large groups of ten or more. They are generally located in a sheltered spot next to a water course and adjacent to good pasture land for the cattle and few sheep and horses that were taken up to the high pastures. The generally sheltered locations of shieling groups may also have helped provide security from raiders as it would be easier to conceal the precious cattle, a main source of wealth and Scotland's major export to England in the late 17th century, in a sheltered glen as opposed to on open and exposed ground. It is possible that the families moved between different shieling huts over the course of a summer or used different sites in different years. Certainly the milk cows would have moved further and further upslope to the outfield and beyond as the year progressed and the weather improved before the 'big flitting' to the shielings. The shielings were often located on the upper reaches of streams that flowed down to the main settlement and were often on estate boundaries, which were often delineated by water courses. Shielings also demarcated the extent of hill grazing that a township laid claim to.

It was the women and children that took the stock up to the shielings in the summer and the men tended to stay at the main fermtoun settlement. The main activity was dairying and making butter and cheese, although it is possible some distilling also took place (e.g. Site 2.37). Spinning and knitting were also main activities at the shielings and some time would have been spent collecting the lichens, roots and plants (such as alder bark) needed for making dyes. There were often two phases of moving up to the shielings. The 'small flitting' in late Spring when the young men would go up and repair the sheiling huts, re-thatch them and prepare heather beds and gather peat for fuel. The milk cows came with the women a few weeks later in the 'big flitting' when everything had been prepared.

In 1772 Thomas Pennant visited some shieling huts on the Isle of Jura. He describes the huts 'formed a grotesque group; some oblong, many conic, and so low that entrance is forbidden without creeping through the little opening, which has no other

door than a faggot of birch twigs, placed there occasionally. They are constructed of branches of trees, covered with sods; the furniture is a bed of heath, placed on a bank of sod; two blankets and a rug; some dairy vessels; and above, certain pendant shelves, made of basket work, to hold the cheese, the produce of summer’.

Although Pennant makes life at the shielings sound miserable, and in wet weather (the 17th century was noted for damp and cool summers whereas the 18th century generally had warmer and drier summers) it must have been uncomfortable, there are many accounts recalling how idyllic shieling life could be. It was considered almost a holiday from life at the main settlement with only milking and dairy production work to be done. In the 1880s there are records of people speaking with great nostalgia about the sheiling days. In the 17th century in particular when cattle raiding and disrespect for property was rife the sheilings may have afforded a respite from clan raiding although the shieling settlements, or ‘summer towns’ were perhaps larger at this time to provide safety in numbers.

Shieling huts were often re-used and upgraded to provide more permanent accommodation for shepherds and foresters. Foresters in particular often lived at estate boundaries to keep an eye on the movement of game. Some sheiling sites have later constructions in them, often shooting butts or small sheep pens. Some of the shieling mounds have quite substantial stone foundations built on them, which may be later in date and represent later adaptation for use as bothys or shepherds huts.

Shielings were such a common and normal part of Scottish country life that little was written about them during their period of use and they are often not even marked on Estate maps and plans. They were so common place and the shieling system so much a part of life as to be unremarkable. Several factors, beginning with agricultural improvements in the late 18th and early 19th century led to the demise of the shieling system but the main reason for the end of shieling system was the massive expansion of commercial sheep farming in the 19th century.

As an archaeological site shielings are rarely excavated. While thousands have been identified all over Scotland they are rarely threatened by major development and forestry, wind farms, hydroelectricity pipelines and power lines located in upland areas usually manage to avoid them altogether.

On the few occasions where shielings have been excavated in recent years it has turned out not to be unusual to find earlier settlement underneath the obvious shieling hut. Not only were the shieling huts themselves rebuilt several times over during their years of use, the huts may have deliberately selected existing mounds for better drainage. The existing mound on which the shieling hut would have been built may represent a natural landscape feature or it may represent an earlier archaeological site. A shieling excavated by the author at Allt Fearn, Douglas Water by Inveraray was found to overlie a prehistoric burnt mound and although separated by around 3500 years a small hillock affording better drainage had been selected by both sets of occupants.

Place Names

Ardvorlich	Promontory or height of Vorlich
Allt a Coire Bhuidhe	Burn of the yellow corrie
Allt a' Bhealaich Gliogarsnaich	Burn of the pass or gap of the clinking or clanging

Field Survey Results

The following Site Gazetteer lists all of the sites identified by the original survey by Robertson and all additional sites identified by Baker and Baker and Robertson. The Impact Assessment and Mitigation recommendations are still included in the site description. Where archaeological mitigation work was carried out this is noted along with the final result under 'Actual Impact and Mitigation'.

1. Head Dyke.

**NGR W end NN 6301 2118
at track NN 6343 2120
at E end NN 63427 21168**

A well-built but dilapidated wall runs to the SE from the Allt a' Choire Bhuidhe, near the foot bridge, to NN 6333 2109, where it turns to the NE towards the Ardvorlich Burn. It may have been designed to mark the limit of the shieling ground, **Site 2**, though several structures, **Sites 2.23 – 2.25**, lie beyond it, to the SE. It consists of coursed masonry and turf, 1m in width and 0.70m in height, and is crossed by the track, **Site 4** at NN 63409 21137.

Refs: OS 1st Ed. 6" Map Sheet Perthshire xciii, 1867.

OS 1:25,000 Explorer Map 368, 2007.

Impact Assessment: The proposed pipeline crosses the dyke where it is already crossed, and damaged, by the track.

Mitigation: No action is required if the pipeline follows the route of the track.

Actual Impact and Mitigation: The dyke was cut by the pipe route for a distance of 2m to the W of the existing track due to deep peat up to 3m deep making it impossible to lay the pipe on the line of the existing track Site 4 where it crosses the dyke. The 2m long section of dyke was removed under watching brief conditions and a plank lined stone filled field drain was located along side the dyke.



Cutting of dyke Site 1 by the upgrading track Site 4. View to the N.



Machine cut section through dyke, Site 1, view to the W.

2. Shieling Settlement.

A large group of 63 shieling huts and associated structures is distributed over the uneven ground in the triangular area between the Ardvorlich Burn and its tributary, Allt a' Choire Bhuidhe. Almost every knoll is occupied by rudimentary structures, which range in size from 3m to 9m. This exceptionally large group may suggest a more permanent settlement, a site occupied over many centuries and different functions for different types of structure.

The shielings were initially identified as Sites 2a, 2b etc. However, this system became unwieldy when we had identified over 50 structures and the monikers of 2aaa etc made the map rather cluttered. Accordingly the shieling sites have been renumbered as 2.1, 2.2 etc starting from 2a through to what was 2nnn.

Grid references have been revised for some sites during additional recording. Some errors were noted in the original GPS points taken in June 2008 and all grid references have subsequently been checked.

Refs: Elizabeth Bain, n.d.

Impact Assessment: Two converging pipelines are to be constructed through the shieling ground. The route of the pipelines, originally proposed, ran close to some of the shieling structures, especially **Sites 2.11, 2.12, 2.13, 2.16, 2.17, 2.19, 2.20, 2.21 and 2.22**. A new route was proposed in 2009 to avoid these structures and they are no longer at risk, apart from **Site 2.17**, which remains at risk, along with **Sites 2.1, 2.9, 2.18, 2.21, 2.22, 2.27 and 2.28**.

Mitigation: **Sites 2.1, 2.9, 2.16, 2.17, 2.21, 2.27 and 2.28** should be marked by temporary fencing/flagging prior to any works and a watching brief is required during excavation, pipe installation and backfilling in the immediate vicinity of these sites.

Sites 2.21, 2.23, 2.24, 2.25 and 2.26 require a watching brief for heavy machinery if the track, **Site 4**, is used. **Sites 2.11, 2.12, 2.13, 2.16, 2.19 and 2.20** are no longer at risk and they, along with **Sites 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.10, 2.14, and 2.15** do not require fencing.

Actual Impact and Mitigation: Watching briefs were maintained where the pipe routes and tracks passed close to the shieling huts. All shieling huts were avoided by the development and remain undisturbed.

2.1) Shieling Hut

NGR NN 63062 21210

A relatively large rectangular structure, 8.8m E-W by 3.5m, is situated at the SW side of the shieling settlement. It is defined in the North side by a well-built double-faced wall with rubble fill, 0.75m in width and 0.75m in height, and elsewhere by roughly piled up boulders. A well-defined entrance opens in the North side.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.1 view to the W.

2.2) Shieling Hut.

NGR NN 63103 21206

A dilapidated structure, 5.5m N-S by 4m, is one of a cluster of three huts, **Sites 2.2 – 2.4**, situated on a small knoll. It is defined by a wall, 0.80m in width and 0.40m in height.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.2, view to the NW.

2.3) Shieling Hut.

NGR NN 63106 21199

A small structure, 4m E-W by 2.70m, is one of a cluster of three huts, **Sites 2.2 – 2.4**, situated on a small knoll. It is defined by a wall, 0.70m in width and 0.90m in height.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.3, view to the W.

2.4) Shieling Hut.

NGR NN 63111 21203

A structure, 9m E-W by 2.5m (internally), is one of a cluster of three huts, **Sites 2.2 – 2.4**, situated on a small knoll. It is defined by a roughly coursed drystone wall, abutting a natural outcrop on the South side and a large boulder on the north.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.4, view to the W.

2.5) Shieling Hut.

NGR NN 63189 21138

A relatively large rectangular structure, 8m E-W by 3.5m, is one of a group of three huts, **Sites 2.5 – 2.7**, situated at the South end of the shieling ground. It is defined by a wall, 0.80m in width and 0.40m in height. An annexe, 4m by 3m, abuts the western end.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.5, view to the NE.

2.6) Shieling Hut.

NGR NN 63210 21138

A structure, 8m E-W by 6m, is one of a group of three huts, **Sites 2.5 - 2.7**, situated at the South end of the shieling ground. It is defined by a wall, 0.80m in width and 0.40m in height, and abuts a large boulder.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.6, view to the NE.

2.7) Shieling Hut.

NGR NN 63243 21132

A small structure, 3m E-W by 1.5m, is one of a group of three huts, **Sites 2.5 – 2.7**, situated at the South end of the shieling ground. It is defined by a wall, 0.70m in width and 0.30m in height.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.7, view to the N.

2.8) Shieling Hut.

NGR NN 63050 21292

A well-defined rectangular structure, 7.70m E-W by 4.10m, is situated on a small knoll, on the East bank of the Allt a' Choire Bhuidhe. It is defined by a wall of coursed drystone masonry on the South side and of roughly piled up boulders elsewhere. A well-defined entrance opens in the North side.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.8, view to the NE.

2.9) Shieling Hut.

NGR NN 63147 21282

A small circular structure, 3m in diameter, is defined by a wall, 0.60m in width and 0.40m in height.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.9, view to the WSW.

2.10) Shieling Hut.

NGR NN 63232 21247

A small circular structure, 3m in diameter, consists of a roughly built wall of piled up stones, 0.70m in width and 0.40m in height.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.10, view to the S.

2.11) Shieling Hut.

NGR NN 63156 21342

A long narrow, rectangular structure, 8.50m N-S by 3.70m, is situated on the West side of the shieling ground. It consists of a wall of roughly piled up stones, 1m in width and 0.60m in height.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.11, view to the N.

2.12) Stone Setting.

NGR NN 63169 21358

A sub-circular stone setting, 2.80m N-S by 2.50m externally and 1.50m by 1.20m internally, is situated on the West side of the shieling ground. The perimeter is defined by single boulders.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut / stone setting Site 2.12, view to the S.

2.13) Shieling Hut.

NGR NN 63190 21389

A small structure, 4.90m N-S by 3.30m, is situated on a level spur to the South of a cluster of shieling huts, **Sites 2.14 – 2.16**. It is defined by a low turf bank, 0.60m in width and 0.20m in height, from which occasional stones protrude.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.13, view to the N.

2.14) Shieling Hut.

NGR NN 63175 21434

A small dilapidated rectangular structure, 5.20m N-S and 3.70m, is the westernmost of a group of three shieling huts, **Sites 2.14 – 2.16**, on a natural terrace at the North end of the shieling ground. It is defined by up to three courses of roughly coursed stone, 0.80m in width and 0.70m in height. The SW part is infilled with stone and overgrown with heather. The E side wall appears to have been remodelled more recently, perhaps for use as a shooting butt.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.14, view to the N.

2.15) Shieling Hut.

NGR NN 63194 21432

A round-angled rectangular structure, 6.50m N-S by 4.20m, is the central of a group of three shieling huts, **Sites 2.14 – 2.16**, on a natural terrace at the North end of the shieling ground. It is defined by a low earth and stone bank, 0.90m in width and 0.30m in height.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.15, view to the N.

2.16) Shieling Hut.

NGR NN 63224 21427

A round-angled rectangular structure, 8.20m N-S by 3.90m, is the easternmost of a group of three shieling huts, **Sites 2.14 – 2.16**, on a natural terrace at the North end of the shieling ground. The South side consists of an earthen bank, faced with stones internally; elsewhere it is defined by a wall of piled up stones, 1m in width and 0.70m in height. A well-defined entrance opens in the North side. The structure is situated just to the West of the proposed pipeline.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.16, view to the E.

2.17) Shieling Hut

NGR NN 63231 21404

A sub-circular, moss covered hut foundation, 5m in diameter and 0.40m in height, is situated near the proposed pipeline at the North end of the shieling ground. The stone and turf walls are 0.80m wide and stand up to 0.60m high. The interior of the N wall

is well defined. The entrance is located on the E side where there are also the possible remains of a smaller 2.5m diameter circular structure, possibly an earlier much denuded shieling hut.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.17.

2.18) Shieling Hut.

NGR NN 63228 21352

A stone setting, 4m NE-SW by 3m and sub-oval in plan is situated on the North side of the shieling ground. This dilapidated and collapsed structure stands to a maximum height of 0.40m and the stone and turf walls are 0.60m thick. There is a possible platform extending for 3m on the NE side which, although a raised area is lumpy ground. This bumpy ground, which is also present to a lesser extent on the S side, suggests collapsed material.

Actual Impact and Mitigation: Watching brief maintained during excavation of the pipe route. The site was avoided and is undisturbed.



Shieling hut Site 2.18, view to the NW.

2.19) Shieling Hut.

NGR NN 63270 21336

A round-angled rectangular structure, 7m NW-SE by 4.50m, is situated very close to the eastern pipeline. It is defined by a stone wall, 0.70m in width and 0.50m in height. A pile of stones at the NW end may be the remains of another compartment.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.19, view to the NW.

2.20) Shieling Hut.

NGR NN 63339 21300

A substantial round-angled rectangular structure, 9m N-S by 4m, is situated immediately East of the track, **Site 4**, and West of the proposed eastern pipeline. It is defined by a stone wall, 0.80m in width and 0.50m in height.

Actual Impact and Mitigation: Watching brief maintained during excavation of the track **Site 4** which was upgraded in this area. The site was avoided and is undisturbed.



Shieling hut Site 2.20, view to the NE.

2.21) Shieling Huts.

NGR NN 63354 21278

Two structures, a sub-rectangular turf and stone building measuring 7.50m NNW – SSE x 4m and at 336° and a smaller sub-circular structure at its S end. The larger building is up to 0.7m high and the walls are slumped to a width of 1m. The visible interior space is quite narrow and only 1.4m wide. The smaller circular structure at the S end is c. 4m diameter and is separated from the larger structure, which is probably the earlier of the two, by a 0.60m wide gap. The track **Site 4** runs along the W side of this site.

Actual Impact and Mitigation: Watching brief maintained during excavation of the track **Site 4** which was upgraded in this area. The site was avoided and is undisturbed.



Shieling hut Site 2.21, view to the W.

Site 2.22 Shieling Hut

NGR NN 63344 21238 (c. 301m)

A shieling hut measuring c. 7m x 6m and aligned WNW-ESE at 298° is located approximately 5m to the west of the established track. The site consists of two buildings, a sub-rectangular / sub-oval foundation of stone boulders and turf measuring 0.70m wide and standing up to 0.6m high and a smaller circular foundation 3m in diameter at the E side of the larger building. This smaller circular structure may be an earlier shieling hut that has been built over, the west wall of the smaller structure is shared with the larger sub-oval structure. The circular structure is also on a low mound suggesting collapsed turf walls or a turf mound and cell construction style.

Impact Assessment: The pipe route runs close to the S side of this site and care should be taken to avoid the site, which has already been indicted by flagging. A watching brief is required to ensure no damage occurs. The test pit at NN 63340 21221 is on the most appropriate line to avoid both this site and the watercourses and boggy ground on the hillside to the west.

Mitigation: The site should be indicated by temporary fencing / flagging and an archaeological watching brief should be undertaken during excavation, pipe installation and backfilling in the immediate vicinity of the archaeological site.

Actual Impact and Mitigation: A watching brief was maintained during development; the site was avoided by the development and remains undisturbed.



Shieling hut Site 2.22, view to the W.

2.23) Possible Shieling Hut.

NGR NN 63518 21034

Fragmentary walls may be the remains of a shieling hut, disturbed by construction or repair of the track, **Site 4**. It is one of a group of four structures, **Sites 2.23 – 2.26**, situated above the head dyke, **Site 1**, which partially encloses the shieling ground. The North and West sides consist of single rows of stones.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.

2.24) Shieling Hut.

NGR NN 63505 21020

A sub-circular structure, 4.80m E-W by 4.40m, abuts a large earthfast boulder. It is one of a group of four structures, **Sites 2.23 – 2.26**, situated above the head dyke, **Site 1**, which partially encloses the shieling ground. The circular plan suggests a prehistoric date but the construction of coursed boulders, 0.70m in width and 0.60m in height, is more likely to be contemporary with the other shieling huts in the area.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.24, view to the W.

2.25) Shieling Hut.

NGR NN 63522 21020

A sub-circular structure, 4.70m E-W by 4.60m, is one of a group of four structures, **Sites 2.23 – 2.26**, situated above the head dyke, **Site 1**, which partially encloses the shieling ground. It is defined by a wall of single boulders, 0.60m in width and 0.50m in height. The circular plan suggests a prehistoric date but it seems more likely to be contemporary with the other shieling huts in the area.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.25, view to the NW.

2.26) Shieling Hut.

NGR NN 63556 21004

A rectangular, heather-covered structure, 6m N-S by 0.60m, is situated immediately East of the track, **Site 4**. It is defined by a wall of roughly-coursed stone, 0.90m in width and 0.60m in height.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.26, view to the SE.

2.27) Shieling Hut.

NGR NN 63306 21256

A sub-oval shieling hut measuring c. 5m diameter with turf and stone walls and with a large glacial erratic boulder in the centre of the structure. This site appears as a slight

mound with a central depression and is very overgrown. It is not obvious to the inexperienced eye, especially compared to some of the other shieling huts. Located up slope is a spring indicated by shrubby vegetation. Shieling hut **Site 2.28** is located c. 20 metres away and the pipe route runs between the two sites.

Actual Impact and Mitigation: A watching brief was maintained during development; the site was avoided by the development and remains undisturbed.



Shieling hut Site 2.27, view to the NNE.

2.28) Shieling Hut.

NGR NN 63306 21273

A 3.5m diameter turf and stone walled shieling hut with a 0.6m wide wall standing up to 0.5m high enclosing a space only 2m in diameter. Located an area of good pasture grass, no other structures were visible but the vegetation indicates a well used shieling site. Sites **2.27** and **2.28** are located less than 20m apart and the pipe route runs between them.

Actual Impact and Mitigation: A watching brief was maintained during development; the site was avoided by the development and remains undisturbed.



Shieling hut Site 2.28, view to the W.

2.29) Shieling Hut.

NGR NN 63203 21436

A sub-oval turf structure measuring 5.5m x 3.90m and aligned NNE-SSW at 30° on top of the ridge overlooking the Allt a' Coire Bhuidhe. The banks have spread up to

1.60m wide so that only a narrow channel is visible in the interior space, the banks are up to 0.40m high. A narrow gap at the S end may represent the entrance. Located 0.5m to the SW is a small sub-rectangular stone setting measuring 2.60m NNE-SSW x 2m. This stone setting consist of single stones forming a foundation 0.40m wide and 0.10m high and is covered with vegetation. It may represent a storage room, perhaps associated with dairying.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.29, view to the NE.

2.30) Dyke 11.2m long from the SW end at NGR NN 63211 21434

A line of six boulders forming a rough wall. Three of the boulders are in situ natural boulders. The wall is 11.20m long, 0.80m wide and 0.40m high and although largely natural it has been enhanced to form a retaining wall, perhaps to create a small vegetable plot or level area.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Wall of some natural and some placed boulders, Site 30, view to the NW.

2.31) Shieling Hut.

NGR NN 63210 21452

A very denuded and collapsed sub-circular turf and stone structure located on the ridge above the Allt a' Coire Bhuidhe. The structure measures 4.00m E-W x 3.80m.

The banks are 1.20m wide and up to 0.40m high. No entrance is visible and it has eroded and collapsed down the steep slope on its W side.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.31, view to the W.

2.32) Shieling Hut.

NGR NN 63248 21458

A sub-rectangular stone structure on the E side of track **Site 4**. A sub-rectangular foundation measuring 7.40m x 4.60m overall and aligned N-S at 340° on an obvious turf mound which may represent slumped turf walls / roof material. The structure is slumped on the N and W sides. The interior measures 4.20m N-S x 2.20m and it stands to 0.90m high on the exterior and 0.30m high on the interior. The turf and stone walls are well defined and the walls are 1.00m wide and double faced. The entrance is probably on the E side, facing the river. There is a possible annexe at the S end which may also be associated with **Site 2.33** which is located immediately to the S. There is a fairly level knoll about 5m to the N of this site with some stones and humps on it but no structure could be determined. Bank **Site 2.34** probably abuts the SW corner of this building.

Actual Impact and Mitigation: Watching brief maintained during excavation to upgrade the track **Site 4**. The site was avoided and is undisturbed.



Shieling hut Site 2.32, view to the E.

2.33) Shieling Hut.

NGR NN 63250 21453

A denuded building adjacent to **Site 2.32**. This poorly defined structure measures a maximum of 6.00m N-S x 5.50m and stands to a maximum height of 0.50m. There is a 0.80m wide turf and stone wall along its E side and two large boulders at the W end of the S wall. There is a small depression in the interior. The bank and ditch **Site 2.34** runs along the W side of the structure and there is an earthwork at the N end of it, which appears to abut the well defined hut **Site 2.32**. **Site 2.33** is poorly defined and is perhaps best described as earthworks rather than a shieling hut although a shieling hut is what it is most likely to represent.

Actual Impact and Mitigation: Watching brief maintained during excavation to upgrade the track **Site 4**. The site was avoided and is undisturbed.



Shieling hut Site 2.33, view to the ENE.

2.34) Dyke

from NGR NN 63247 21457 to NN 63248 21458

A dyke constructed of stone boulders and turf running along the E side of the track **Site 4** and along the W side of structures **2.32**, **2.33** and **2.41**. It appears to abut building **2.32** at the SW corner of the building. The dyke has a drainage ditch along its W side and boulders upcast from this are lying on the earth and stone dyke. The dyke is slightly meandering is quite denuded and does not have clearly defined edges. The dyke's S end terminates at the track **Site 4** and it does not appear to have been truncated. The dyke is probably associated with drainage along the edge of the track and created by upcast spoil from the excavation of the ditch. The ditch is 1.20m wide and the dyke is 1m wide and 0.50m high. There is a short offshoot of the dyke leading to **Site 2.41** and also a causeway across the ditch at this point (see **Site 2.41**).

Actual Impact and Mitigation: Watching brief maintained during excavation to upgrade the track **Site 4**. The site was avoided and is undisturbed.

2.35) Shieling Hut.

NGR NN 63173 21509

Sites **2.35** and **2.36** are associated and both located on a low natural knoll, the slope rises to the west and the Allt a Coire Bhuidhe runs along the south side of the site and an unnamed burn runs along the N side. The track **Site 4** is on the east. Heavily overgrown with bracken. These two huts take advantage of a well sheltered spot on a natural knoll with good drainage. They are quite substantial structures and are

separated by a 1.50m gap suggesting they may be contemporary and both occupied at the same time. The still site **Site 2.37** may be associated with them.

A sub-rectangular structure with rounded corners measuring 6.50m N-S x 5.10m and aligned N-S at 350°. The entrance is centrally placed in the N end and is 0.50m wide. The walls are 0.80m thick and stand to a maximum external height of 0.80m. The walls are constructed of turf and stone but there was no evidence of coursing visible and the structure is overgrown, there is a depression in the interior.

Actual Impact and Mitigation: A watching brief was maintained during development; the site was avoided by the development and remains undisturbed.



Shieling huts Sites 2.35 (left) and 2.36 (right). View to the NE, Jennifer Robertson is standing in between the two huts.

2.36) Shieling Hut.

NGR NN 63175 21502

Sites **2.35** and **2.36** are associated and both located on a low natural knoll, the slope rises to the west and the Allt a Coire Bhuidhe runs along the south side of the site and an unnamed burn runs along the N side. The track **Site 4** is on the east. Heavily overgrown with bracken. These two huts take advantage of a well sheltered spot on a natural knoll with good drainage. They are quite substantial structures and are separated by a 1.50m gap suggesting they may be contemporary and both occupied at the same time. The still site **Site 2.37** may be associated with them.

This sub-rectangular structure with rounded corners, located to the S of **2.35** is the better preserved of the two huts and measures 8.00m x 5.50m and is aligned N-S at 350°. The overgrown stone and turf walls are 1.20m wide and it stands up to 1m high at the SE corner where it utilises the bedrock knoll, making it stand 5m higher than the line of the track for the ford on Allt a Coire Bhuidhe. The entrance is located in the middle of the N end and it is 0.60m wide. There is only 1.50m distance between the S wall of hut **2.35** and the entrance to hut **2.36**. There is a flat stone visible in the

centre of the building's interior, which is an obvious depression, which may have supported a central post to support the roof.

Actual Impact and Mitigation: A watching brief was maintained during development; the site was avoided by the development and remains undisturbed.

2.37) Still site.

NGR NN 63165 21538

Located approximately 25m N of the two huts Sites **2.35** and **2.36** is a small circular structure on the bank of the un-named burn. The structure measures 3.60m E-W including a small platform x 2.90m N-S. It is located only 1.6m from the edge of the burn and the flood channel of the burn indicates it will be flooded when the burn is in spate. The structure is constructed of boulders and stones measuring up to 0.5m x 0.4m x 0.05m in size and is up to 0.50m wide and stands up to 0.60m high. There are possibly two courses of stone at the NE corner. There is a 0.80m wide entrance on the N side at the burn and a larger boulder measuring 0.75m x 0.40m x 0.25m has been set on its edge to form the E jamb of the entrance. In the interior the wall is a well defined edge and there is a central depression. A small platform constructed of stones is present at the NW corner of the structure. This measures 1.40m N-S x 1.00m E-W. This structure is interpreted as a still. Its location so close to the burn in a flood channel is one indication for this and also the small platform which could have been used during the distilling process. Presumably the main hearth for the mash tun would have been in the interior.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Whisky still Site 2.37, view to the W. Note the small platform at the W side and the proximity of the Allt a Choire Bhuidhe to the N.

2.38) Shieling Hut.

NGR NN 63198 21546

A small rectangular structure represented by a single course of flat stones. The west side is overgrown and not visible but probing suggests it is present under the turf. The building measures 2.90m NW-SE x 2.30m and is aligned at 310°. The walls are 0.40m wide and 0.20m high and the building has square corners. It is located on the E side of the track **Site 4** at the edge of the steep bank down to the Ardvorlich burn. It is probably associated with **Site 2.39** which is located only 3m to the south of it. There is also a 4m long, 0.40m wide and 0.30m high line of stones located about 3m

to the NNW which probably also represents a wall associated with these structures. They were all avoided by the development works.

Actual Impact and Mitigation: A watching brief was maintained during development; the site was avoided by the development and remains undisturbed.



Site 2.38, stone foundations, view to the NW.

2.39) Shieling Hut.

NGR NN 63199 21543

A rectangular structure measuring 4.10m x 2.85m aligned NE-SW at 227°. The walls are 0.40m wide and 0.20m high and are defined by a single course of boulders, it is overgrown and visibility is poor. There is no sign of an entrance and the NE end is most clearly defined. The building has square corners and is located on a slight slope running from SW to NE in a level area on top of the steep bank down to the Ardvorlich Burn. It is probably associated with **Site 2.38** and a short stretch of wall c.5m to the NNW.

Actual Impact and Mitigation: A watching brief was maintained during development; the site was avoided by the development and remains undisturbed.



Site 2.39, rectangular building foundations, view to the SW. Shieling huts Sites 2.35 and 2.36 are on the low knoll in the background and track Site 4 runs between them.

2.40) Track.

NGR NN 63209 21484

A raised (causewayed) track that is a deviation from the main track **Site 4** to a ford over the Allt a Choire Bhuidhe. There are two fords over the burn and the eastern one (marked FB on the OS map although there is no longer a bridge) on the line of track **Site 4** is in current use. The track associated with this causewayed track and the ford continues on the N side of the burn running along the S side of **Site 2.36** to rejoin the main track **Site 4**. The wall along the N side of the causewayed track is 0.75m high and 0.70m wide. The boulders in its construction measure up to 0.8m x 0.7m x 0.7m and this retaining wall is 17m long. The track itself is 2m wide and is constructed of gravel and cobbles, the surface was originally metalled but is now loose. The track curves around the base of the contour and was built up to create a level track over rocky ground on the flood plain of the burn. This track was probably of more recent date based on the size of boulders used in its construction. This area has been infilled during the hydro development.

Actual Impact and Mitigation: This track has been covered over by spoil and is in effect preserved under upfill.



Raised or causewayed track Site 40 with retaining wall, view to the S.

2.41) Shieling Hut.

NGR NN 63254 21436

A sub-circular turf and stone hut foundation measuring 3.80m diameter located on a knoll at the top of the steep bank down to the Ardvorlich Burn. On the N side of the well defined circular foundation, which has an entrance on its W side, is a possible further turf and stone curvilinear bank which may represent an earlier hut or an annexe. It is poorly defined and has a possible entrance on its W side and extends for 2.40m to the N of the main foundation. The wall / bank that forms the main hut is 0.90m wide and up to 0.35m high and encloses a small interior space. At the NW side of the foundation is a 4m long stretch of stone wall which runs NW towards the bank and ditch **Site 2.34**, this wall has a possible return for a short distance to the NE. The bank and the ditch **Site 2.34** has a break in it directly opposite the entrance to **Site 2.41** which is in fact a causeway crossing point over the ditch to access **Site 2.41**. It seems likely that this causeway over the ditch and bank and the stretch of wall are associated with the control of livestock.

Actual Impact and Mitigation: Watching brief maintained during excavation to upgrade the track **Site 4**. The site was avoided and is undisturbed.



Shieling hut Site 2.41 with Sites 2.32 and 2.33 in the background. View to N.

2.42) Shieling Hut.

NGR NN 63188 21428

A circular moss and turf covered hut, more accurately described as a donut shaped mound with a central depression. It measures 3.30m NW-SE x 3.70m and stands to an external height of 0.60m and an internal height of 0.40m. The collapsed walls have spread to 1m wide. Largely a turf construction only a few small stones were located by probing. No entrance is apparent.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.42, view to the NW.

2.43) Shieling Hut.

NGR NN 63165 21403

A sub-circular hut foundation overgrown with heather and with very poor visibility. The structure measures 2.70m NW-SE x 3.00m and has a distinct curve on its SW side. It is located on top of the steep ridge down to the burn. There is a possible entrance on the SEW side. The bank is 0.80m wide and the maximum height is 0.40m. Some stone was located in the foundation on probing.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.43, view to the NW.

2.44) Shieling Hut.

NGR NN 63142 21387

A very denuded and overgrown sub-rectangular foundation located on top of the steep bank down to the Allt a Choire Bhuidhe. The building is aligned NNE-SSW at 26° and measures 4.00m x 2.60m and stands to a maximum height of 0.20m. The W wall is the most convincing although stones were located on probing along the other indistinct wall lines.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.44, view to the NW.

2.45) Shieling Hut.

NGR NN 63149 21383

A well preserved rectangular structure measuring 6.20m x 3.80m overall. It is aligned NNW-SSE at 340°. The walls are 0.80m thick and stand to 0.60m high on the interior. The interior space measures 2.95m x 2.20m and the building is slumped on its N, W and NE sides suggesting the upper courses of the wall were constructed of turf. The entrance is located in the E wall and is 0.70m wide. Four courses of stone wall survive and the interior face is visible on the N and W walls.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.45, view to the S.

2.46) Shieling Hut.

NGR NN 63127 21377

A rectangular stone foundation measuring 3.90m x 2.90m overall and aligned E-W at 248°. Although overgrown with bracken a well defined single course of stone is visible at the W end and the walls measure 0.70m thick and stand to 0.50m high. The E end of the structure is more dispersed and the entrance was located at the eastern end. The building is located on the ridge line above the steep bank down to Allt a Choire Bhuidhe. It is located approximately 10m E of **Site 2.48**.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.

2.47) Shieling Hut.

NGR NN 63138 21367

Foundations of a rectangular building on an artificially levelled terrace set into the N facing slope above Allt a Choire Bhuidhe. The stone foundations of a single course of stones are 0.70m wide and stand to a maximum height of 0.60m. The structure measures 4.20m x 3.00m and is aligned E-W at 277°. The S wall is slumped and overgrown with moss. There is a possible entrance at the E end. There is no obvious sign of stone collapse suggesting it may have had turf walls.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.47, view to the N.

2.48) Shieling Huts/ Possible corn drying kilns.

NGR NN 63129 21359

A rather confusing structural complex located at the top of a steep bank above the Allt a Choire Bhuidhe. It appears to consist of two rooms and an external partially enclosed yard. The main structure is aligned NW-SE and measures 5.60m x 4.00m. There are two rooms within this sub-rectangular building with very narrow entrances opening to the SE which may in fact be flues. The southern room is oval and has a very distinct curved wall 0.60m high around its SW end and the interior space measures 2.90m NW-SE x 1.10m. An entrance measuring 0.45m long and 0.30m wide with a distinct step into the interior is present set centrally in the NE wall. The room to the NW is sub-circular measuring 2m x 1.70m and has a very narrow blocked entrance at the E side on a rather odd angle if it represents access to a room used for occupation. The walls surrounding the two rooms vary from 0.80m thick to 1.30m thick and are rather irregular. An L shaped wall of drystone boulders abuts the NE corner of the structure and runs for a distance of 4m to the N before returning to the SSE for 7m. This wall forms a partially enclosed yard on the E side of the building. A number of natural large boulders are also present in the vicinity which may have been incorporated into the overall enclosure. It is also of note that the structures immediately in the vicinity, **Sites 2.44, 2.46 and 2.47** are rather out of character compared to the other shieling huts suggesting they may be associated with this site **2.48** and that an activity other than shieling occupation took place here. Our interpretation of this structure is that it most likely represents a double corn drying kiln although excavation would be required to confirm this.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Site 2.48, possible corn drying kiln, view to the WNW.



Site 2.48, entrance to SW room, possible flue to corn drying kiln with bowl in background, view to the S.

2.49) Shieling Hut.

NGR NN 63485 21086

A square structure constructed of stone and overgrown with bracken. It measures 4.70m x 4.20m and is aligned NW-SE at 324°. There is a smaller structure best described as an annexe at the NE end which measures 3.10m NW-SE x 2.50m. Although overgrown with bracken the structure is well defined and the stone walls, of which two courses are visible, are 0.90m wide and stand up to 0.50m high. There is a possible entrance on the S side. Two other sites are associated with this structure, **Sites 2.50 and 2.51**, although these are of a completely different character and probably earlier in date. **Site 2.49** is later than **Site 2.51** and partially overlies it.

Actual Impact and Mitigation: Watching brief maintained during excavation of the pipe route. The site was avoided and is undisturbed.



Shieling hut Site 2.49, view to the NW.

2.50) Platform.

NGR NN 63488 21088

Located immediately to the SE of **Site 2.49** is a sub circular platform measuring 9m N-S x 8m. It has a level top and stands to a height of 0.60m and is overgrown with

bracken. There was no sign of stones and none were located on probing with a ranging rod though any stones might have been robbed to build **Site 2.49** which appears to be the latest structure in this group of three sites (**Sites 2.49, 2.50** and **2.51**). This raised platform is only 1m from the SE corner of **Site 2.49**. The function and date of this platform is unknown. It might be prehistoric in date or perhaps a dry storage area for fuel or grain or even a house platform

Actual Impact and Mitigation: Watching brief maintained during excavation of the pipe route. The site was avoided and is undisturbed.



Platform Site 2.50 with Jennifer Robertson, platform Site 2.51 covered with bracken in the foreground and stone foundation shieling hut Site 2.49 at left. View to the E.

2.51) Platform.

NGR NN 63484 21080

At the SW corner of Site 2.49 and overlain by the stone building is another circular platform of c. 7m diameter. This platform is hardly perceptible and would have been easily missed if it were not for the more obvious platform **Site 2.50** immediately to the east. This platform shows as a change in vegetation as a circular patch of bracken although a slight bank can be traced at the edges. No stone was visible or could be located on probing. Although about the size of a hut circle there were no structural remains to indicate its date or function. The track **Site 4** is located about 15m west of this site and the pipe route runs within 10m.

Actual Impact and Mitigation: Watching brief maintained during excavation of the pipe route. The site was avoided and is undisturbed.

2.52) Shieling Hut.

NGR NN 63472 21105

A rectangular turf structure that tapers (narrows) towards its E end. The building is 8.20m long x 3.80m wide at the W end and 3.20m wide at the E end. It is aligned ENE-WSW at 60°. The walls are turf although some stone was noted on probing, and measure 0.80m wide and stand to 0.30m high. There is possibly an interior partition but the structure is overgrown with bracken and moss and it was impossible to be certain of this.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.52, view to the ENE.

2.53) Shieling Hut.

NGR NN 63293 21369

A small oval structure measuring 3.60m NE-SW x 2.50m, aligned at 46°. The building is well defined by an arc of small boulders on its NW side. The walls are 0.60m wide and stand to 0.40m high and there is an entrance on the SW side. **Site 2.54** is very similar and is located 5m to the N.

Actual Impact and Mitigation: Watching brief maintained during excavation of the track **Site 4** which was upgraded in this area. The site was avoided and is undisturbed.



Structure Site 2.53, view to the NE.

2.54) Shieling Hut.

NGR NN 63291 21380

A small irregular oval structure measuring 3.30m NE-SW x 2.40m. The interior is level and there are three courses of boulders in the wall at the N end. The wall is 0.60m wide and stands to 0.60m high on the exterior and 0.40m high in the interior. This structure is quite similar to **Site 2.53** and the two may be associated. They are possibly associated with dairying activities as they are within 5m of the river where it is cooler.

Actual Impact and Mitigation: Watching brief maintained during excavation of the track **Site 4** which was upgraded in this area. The site was avoided and is undisturbed.



Structure Site 2.54, view to the E.

2.55) Shieling Hut.

NGR NN 63190 21256

A substantial rectangular structure with rounded corners, measuring 7.50m E-W x 4.60m over walls 1m thick. Aligned E-W at 270° and with a well defined entrance 0.75 m wide located at the E end of the N wall. The walls are constructed of tightly packed stones and stand to 1m high maximum and four courses are visible. This building has the appearance of a more permanent structure rather than a temporary shieling hut. It is in a prominent position and has excellent views to the N over Loch Earn and to the W and the E. Although the walls are collapsed and slumped it is well defined. There is a break in the S wall which may represent a collapsed aperture. The ground slopes way to the S and W and it has possibly been dug into the slope on its S side.

Part of a group of huts comprising **Sites 2.55, 2.56, 2.57 and 2.58** located on a grassy knoll indicating an area of enriched (manured) and well drained land.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.55, view to the W.

2.56) Shieling Hut.

NGR NN 63200 21234

A sub-square structure defined by a setting of boulders which is overgrown with heather on its SW side and is poorly defined. The building measures 2.50m E-W x 2.20m N-S. The wall of boulders is one course high, 0.40m wide and stands to 0.25m in height. It is collapsed on the N side and there is no clear indication of an entrance. Part of a group of huts comprising **Sites 2.55, 2.56, 2.57 and 2.58** located on a grassy knoll indicating an area of enriched (manured) and well drained land.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.56, view to the S.

2.57) Shieling Hut.

NGR NN 63207 21260

A well defined sub rectangular structure measuring 3.80m x 2.30m and aligned NW-SE at 325°. The walls consist of one course of boulders and are 0.60m thick and 0.25m high. There is a possible entrance centrally placed in the NE wall. Part of a group of huts comprising **Sites 2.55, 2.56, 2.57 and 2.58** located on a grassy knoll indicating an area of enriched (manured) and well drained land.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.57, view to the SE.

2.58) Shieling Hut.

NGR NN 63204 21274

A well defined site, two individual shieling huts probably of two phases. The larger hut is oval in shape and measures 5m x 4m and is aligned N-S at 20°. It is in good condition and has a well defined entrance at the SW end which is 0.45m wide. The walls are 0.70m wide and stand up to 0.60m high, three courses of stone are visible. The stones are quite tightly packed and the construction style is similar to **Site 2.55**. The smaller circular hut is located at the SE corner of the larger hut. It measures 2.5m diameter and is overgrown with turf but some stones are visible especially on its NE side. The walls are 0.70m wide and stand to 0.30m high. It is quite collapsed and poorly defined in comparison to the larger oval hut. The smaller hut's N side may have been incorporated into the wall of the larger hut or it has been built over by the larger oval hut. The smaller hut is at a higher ground level and stands 0.50m above the present ground surface level in the larger hut. The junction between the two huts is quite tumbled down and it is not possible to determine if they were in use at the same time and if the smaller hut was accessed from the larger hut. The ground outside the huts slopes away to the NE and E.

Part of a group of huts comprising **Sites 2.55, 2.56, 2.57 and 2.58** located on a grassy knoll indicating an area of enriched (manured) and well drained land.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.58, view to NE of entrance to larger hut and smaller structure is on the right of the photograph.

2.59) Shieling Hut.

NGR NN 63165 21342

A low oval donut mound with a slight central depression measuring 3.60m N-S x 2.60m E-W. The turf and stone walls are 0.70m wide and stand to c. 0.25m high. There is a possible entrance on the NNW side. This site is much denuded and visibility is poor.

Actual Impact and Mitigation: Watching brief maintained during excavation of the track **Site 4** which was upgraded in this area. The site was avoided and is undisturbed.



Shieling hut Site 2.59, view to the N.

2.60) Shieling Hut.

NGR NN 63311 21333

A poorly defined low turf covered mound with an irregular sub circle of boulders incorporating bedrock outcropping on its E side. Measuring 3.50m diameter and located immediately to the E of the track **Site 4**. There is also a rough track down to a ford over the Ardvorlich Burn along the S side of this site.

Actual Impact and Mitigation: Watching brief maintained during excavation of the track **Site 4** which was upgraded in this area. The site was avoided and is undisturbed.



Shieling hut Site 2.60, view to the SE.

2.61) Shieling Hut.

NGR NN 63264 21353

A rectangular structure measuring 5m x 3m aligned NW-SE at 314°. The structure is overgrown with turf and only a few stones are visible in the N and W walls. It stands to a maximum height of 0.40m at the SW corner but generally is very low, collapsed and overgrown. The collapsed and spread walls are 1m thick. No entrance could be determined. It is located 6m N of **Site 2.19** and 3m S of **Site 2.63** and 4m W of **Site 2.64**.

Part of a group of shieling huts including **2.19, 2.61, 2.62, 2.63, 2.64** and **2.65**.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.61, view to the SSW.

2.62) Shieling Hut.

NGR NN 63270 21336

A circular turf structure measuring 4m diameter and with the bank spread and collapsed to 1m wide and standing to 0.25m high. Poorly defined it appears to be an earlier structure at the NE corner of the most substantial hut in this group **Site 2.19**, which appears to have been built on top of it.

Part of a group of shieling huts including **2.19, 2.61, 2.62, 2.63, 2.64** and **2.65**.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.62, view to the SW.

2.63) Shieling Hut.

NGR NN 63267 21359

A very collapsed and spread sub-rectangular turf and stone building measuring approximately 5m x 5m overall. It is overgrown with turf, no entrance is apparent and there may be a wall running parallel to the exterior of the S wall suggesting it may be of more than one phase. However, this building is in poor condition and its plan is not easily be interpreted.

Part of a group of shieling huts including **2.19, 2.61, 2.62, 2.63, 2.64** and **2.65**.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.63, view to the W towards route to Intake 5 and working compound.

2.64) Shieling Hut.

NGR NN 63278 21352

A well defined sub-circular hut with a turf and stone wall and a central interior depression. The structure measures 4m diameter and the walls are 1m wide and up to 0.40m high.

Part of a group of shieling huts including **2.19, 2.61, 2.62, 2.63, 2.64** and **2.65**.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Shieling hut Site 2.64, view to SSE and upgraded track Site 4 in the background.

2.65) Shieling Hut.

NGR NN 63264 21328

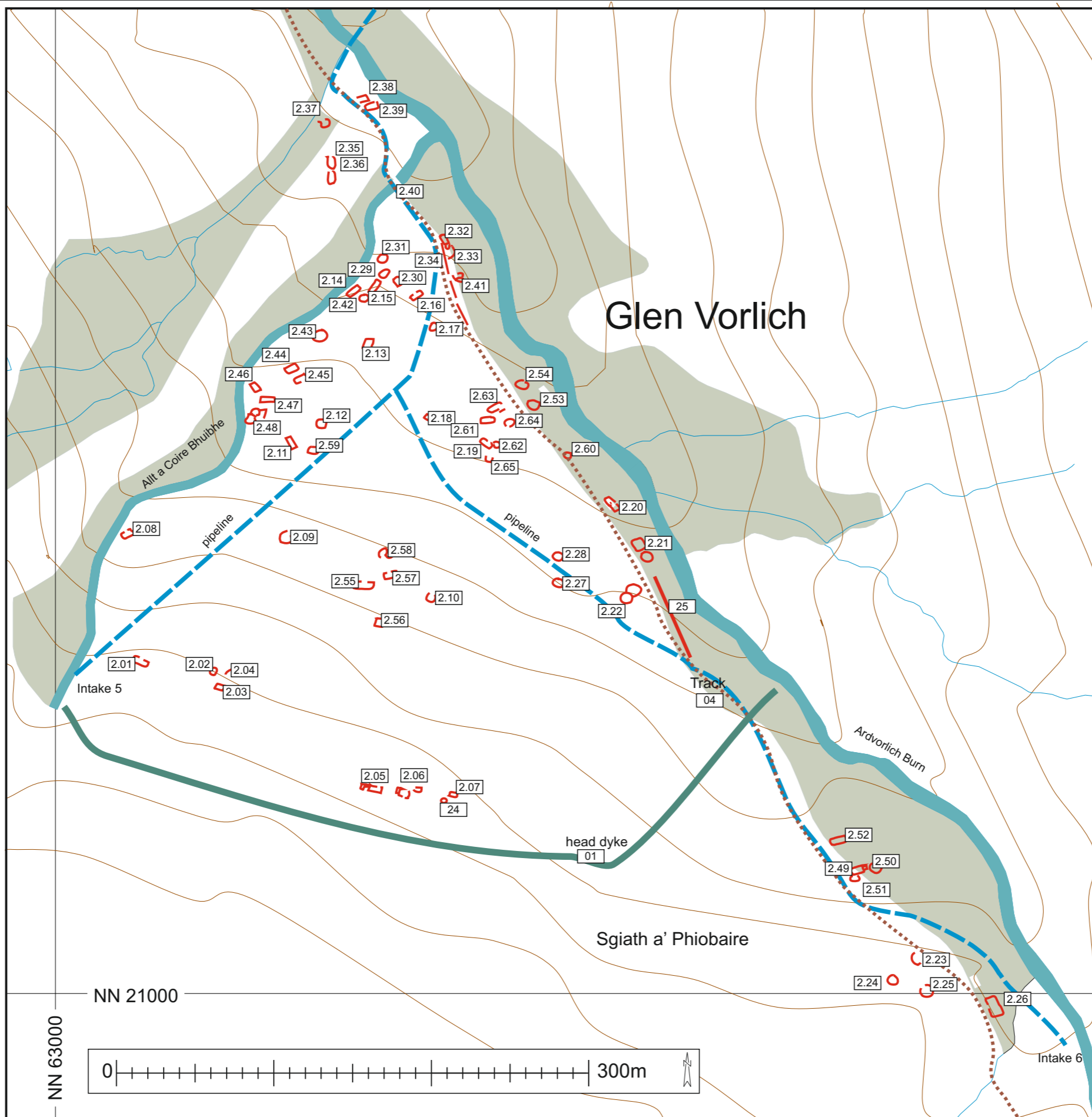
A rather ephemeral possible building represented as a sub rectangular turf hump measuring a maximum of 4m diameter. A possible wall line is suggested by a slight bank of turf on the S and E sides but nothing can be defined on the N and W sides

Part of a group of shieling huts including **2.19, 2.61, 2.62, 2.63, 2.64** and **2.65**.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



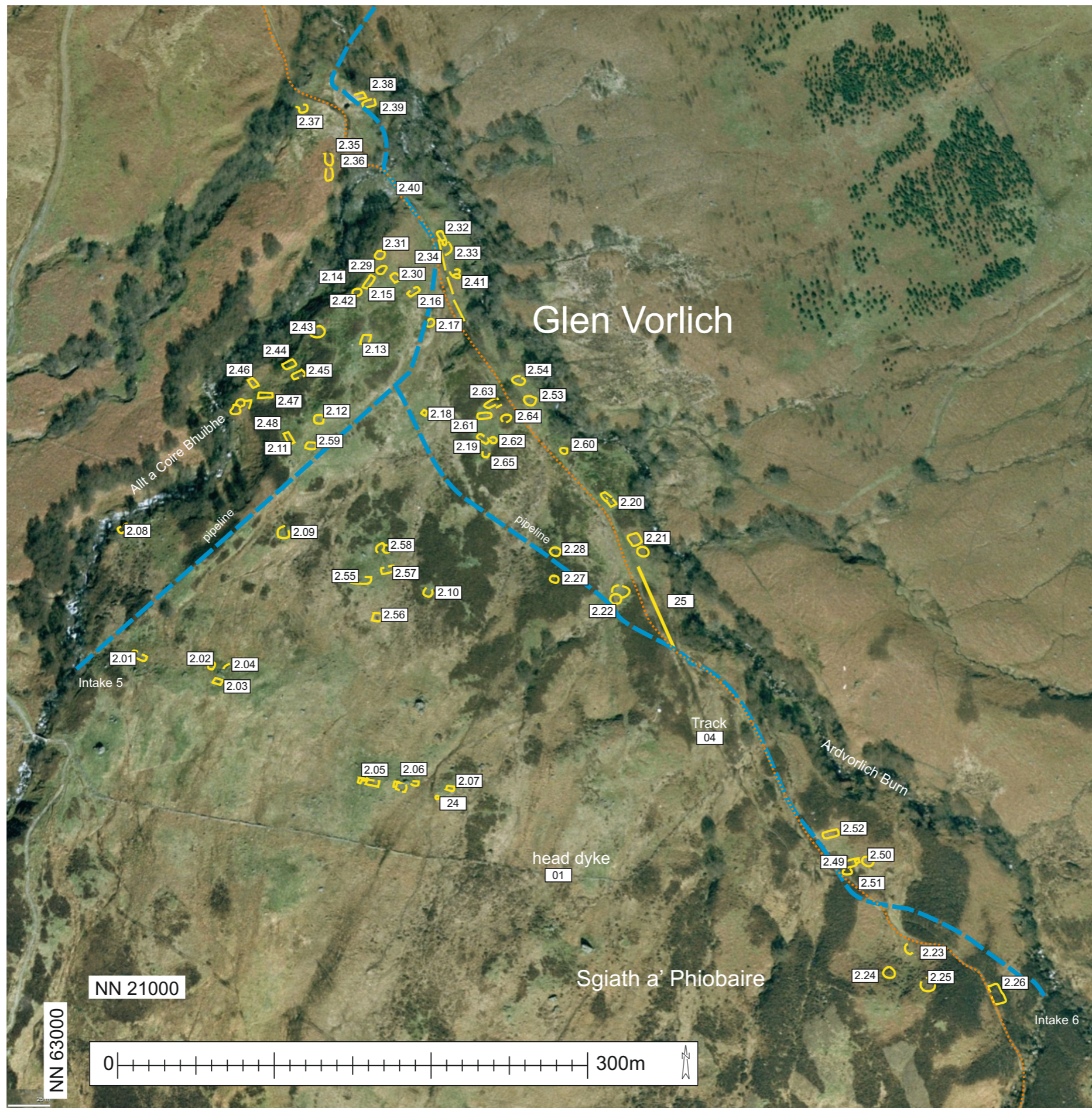
Possible shieling hut Site 2.65, view to the S with pipe across the shieling ground in the background.



■ Trees

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Figure No. 7: Location of shielings



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Figure No. 8: Location of shielings

3. Track. NGR SW end in survey area NN 6300 2118

A track runs along the West bank of the Ardvorlich Burn ultimately to the top of Ben Vorlich. This track is well used and well-maintained. The lower part, running southwards from Ardvorlich House to an unnamed tributary at NN 6303 2176 is on the route of an old track, depicted on the OS 1st Ed. Map. This originally continued up the Ardvorlich Burn (See Site 4) along the East side of Ben Vorlich beside the Allt a' Bhealaich Gliogarsnaiche. At some stage the new track was constructed further West.

Refs: OS 1st Ed. 6" Map Sheet Perthshire xciii, 1867.

OS 1:25,000 Explorer Map 368, 2007.

Impact Assessment: The track will not be affected by the scheme.

Mitigation: No action is required.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.

4. Track. NGR SE end in survey area NN 6356 2100

A track runs along the West side of the Ardvorlich Burn from Ardvorlich House through Glen Vorlich to the Allt a' Bhealaich Gliogarsnaich and beyond. This track is of some antiquity and is depicted on the OS 1st Ed. Map. The lower part has been refurbished in the construction of a path, further West, to the top of Ben Vorlich, **Site 3**. The old track, **Site 4**, is still visible, South of an unnamed tributary at NN 6303 2176 and is the track that runs through the E side of the shieling ground **Site 2**.

Refs: OS 1st Ed. 6" Map Sheet Perthshire xciii, 1867.

OS 1:25,000 Explorer Map 368, 2007.

Impact Assessment: The proposed pipeline will cut through the track.

Mitigation: The track should be preserved as a feature in the landscape: it should be re-instated after the pipeline has been constructed.

Actual Impact and Mitigation: A watching brief was maintained on sections of the track where it was upgraded and all archaeological sites adjacent to it were avoided and remain undisturbed. The track itself has been regraded and compacted between its junction with the Intake 6 pipe routes and the new bridge crossing over Ardvorlich Burn. It is preserved in an improved condition.

5. Dyke. SW end NN 6325 2158

A substantial stone dyke runs north-eastwards from the Ardvorlich Burn, at its confluence with the Allt a' Choire Bhuidhe, to the head dyke, **Site 7**. It consists of roughly coursed stone, 0.80m in width and 0.70m in height.

Refs: OS 1st Ed. 6" Map Sheet Perthshire xciii, 1867.

OS 1:25,000 Explorer Map 368, 2007.

Impact Assessment: The dyke approaches the Ardvorlich Burn at a point where the proposed pipeline will cross the river. It is at risk from damage from construction of a pipe bridge.

Mitigation: The dyke should be avoided by the construction works. As part of the planning conditions, this site should be marked by temporary fencing.

Actual Impact and Mitigation: The dyke was slightly damaged over a 2m section during test hole work but otherwise it remains undisturbed.

6. Fence.

NGR (at gate) NN 6323 2206

A fence, originally for stock, but later extended to exclude deer runs East and NE from the Ardvorlich Burn to the fence, **Site 12**. It is situated roughly parallel and between the dykes, **Site 7** and **Site 5**.

Refs: OS 1:25,000 Explorer Map 368, 2007.

Impact Assessment: This feature is of no great archaeological significance.

Mitigation: No action is required.

Actual Impact and Mitigation: Not applicable.

7. Head Dyke.

NGR SW end NN 6306 2202

A substantial earth and boulder dyke, 1.50m in width and 0.60m in height, runs East and NE from the Ardvorlich Burn to the fence, **Site 12**. It encloses the wood pasture and cleared ground, **Site 10**. (See Fig. 7)

Refs: OS 1:25,000 Explorer Map 368, 2007.

Impact Assessment: The proposed pipeline cuts through the dyke at NN 6313 2202.

Mitigation: An existing gap should be chosen if possible. The dyke could be reinstated after construction. As part of the planning conditions, the dyke should be marked by temporary fencing on either side of the pipe cut.

Actual Impact and Mitigation: The dyke was cut through for a 15m wide section at NN 63138 22018 to accommodate the new track and pipe route. The rest of the dyke is undisturbed.

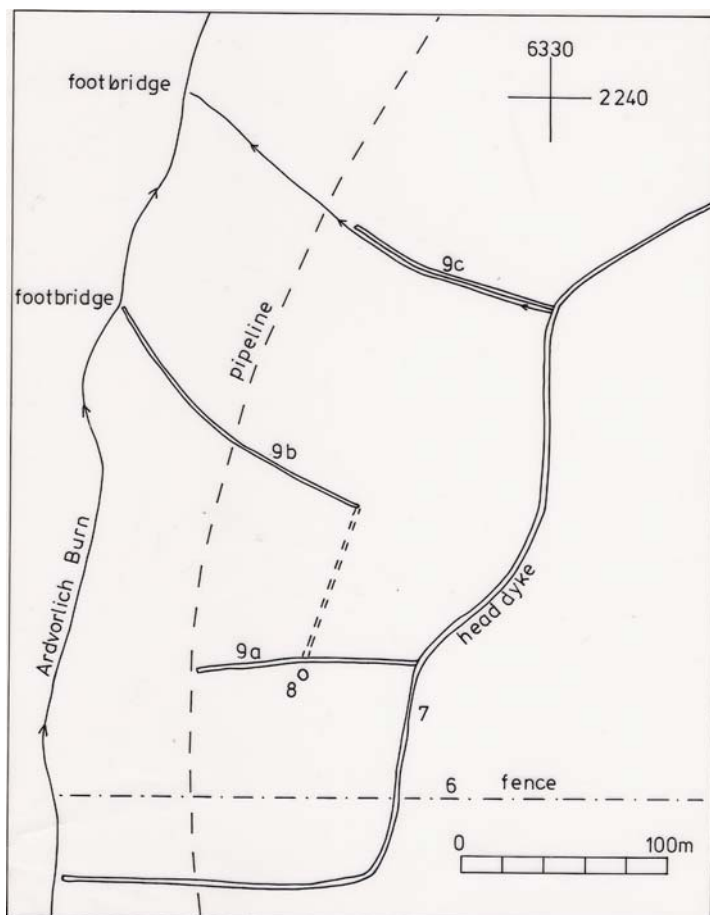


Figure 9: Plan of the head dyke, Site 7, structure, Site 8 and field system, Site 9.

8. Structure.

NGR NN 6318 2212

A small oval structure, 3m by 2m, is situated on the South side of the field wall, **Site 9a**. It is defined by edge-set stones and was later filled with field clearance. (See Fig. 7)

Impact Assessment: This feature should be far enough away from the proposed pipeline.

Mitigation: As part of the planning conditions, this site should be marked by temporary fencing.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.

9. Possible field system.

NGR N end NN 6320 2234

S end NN 6313 2212

Three approximately parallel walls, situated within the head dyke, **Site 7**, may be the remains of a small field system. The northernmost wall, **Site 9c**, is defined by an earthen bank, faced with stone on the South side, while the southern walls, **Sites 9a** and **b**, are earth and stone banks. (See Fig. 7)

Impact Assessment: The northern and southern walls, **Sites 9a** and **9c**, stop just to the East of the proposed pipeline but **Site 9b** will be cut at NN 6315 2223.

Mitigation: There are no existing gaps in **Site 9b** to be used for the pipeline. The wall could be re-instated after construction. As part of the planning conditions, the working area should be minimised and the site should be marked by temporary fencing.

Actual Impact and Mitigation: Dyke 9b was cut through for the new road and the pipe trench. The dyke was cut at NN 63165 22227 for a distance of 5m for the road, an 8m long section remained intact and then it was cut through for 8m for the pipe trench. The dyke has been rebuilt and reinstated over the 8m long stretch where the pipe trench cut it.

10. Cleared Ground.

The area within the head dyke, **Site 7**, is an old wood pasture, featuring several pollarded trees. (See Fig. 5) A number of cairns of cleared stone suggest that some areas may have been cleared for the purpose of cultivation on the moderately-sloping ground, though no evidence of rig and furrow was visible on the ground or from the air. Clearance cairns may be found throughout this area but the following were recorded adjacent to the proposed pipeline:

a) small heap of stones atop a natural outcrop.

NGR NN 6336 2247

b) clearance cairn.

NGR NN 6328 2238

c) clearance cairn.

NGR NN 6318 2232

d) clearance cairn.

NGR NN 6314 2217

Impact Assessment: a) and b) are situated above, and to the East of, the proposed pipeline and not at risk. c) lies just below (West) and d) just above (East) the pipeline.

Mitigation: c) and d) are very close to the pipeline. It should be possible to avoid them. They should be marked on the ground to avoid damage during construction.

Actual Impact and Mitigation: The clearance cairns were avoided by the development and remain undisturbed.

11. Woodland Enclosure.

NGR S end NN 6313 2237

N end NN 6311 2275

A narrow strip of ground along the East bank of the Ardvorlich Burn was enclosed some time before 1861, for the protection of woodland, probably the Scots Pines, which are extant today (See Fig. 4). The enclosure is defined by a wall of roughly piled up stones, 1.20m in width and 0.50m in height. A new deer fence encloses much of this area for a woodland grant scheme. An old track, **Site 17**, flanks the East side of the enclosure at its northern end.

Refs: OS 1st Ed. 6" Map Sheet Perthshire xciii, 1867.

Impact Assessment: The proposed pipeline passes to the East of this feature. Presumably the WGS area will be avoided during construction.

Mitigation: Care should be taken during construction, particularly along the track adjacent to the enclosure. As part of the planning conditions, this site should be marked by temporary fencing.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.

12. Fence.

NGR W end 6318 2256

A fence runs eastwards from the woodland enclosure, **Site 11**, across the slope, to the South of the stone bank, **Site 16**, and the farmstead, **Site 14**. The fence is still in use.

Impact Assessment: The proposed pipeline crosses this feature but it has no great archaeological significance.

Mitigation: No action is required.

Actual Impact and Mitigation: Not applicable.

13. Corn drying kiln.

NGR NN6340 2252

A well-built and well-preserved previously unrecorded corn drying kiln is situated on gently sloping ground, to the West of, and presumably associated with, the farmstead, **Site 14**. A stone lined tapering bowl, measuring 2.80m in diameter NW-SE by 2.30m is contained within a free-standing stone structure, measuring 9.10m in diameter NW-SE by 8m externally. The depth of the bowl, which is filled with rubble, cannot be ascertained. The flue, also now blocked, was presumably in the downslope, northern sector.

Impact Assessment: This feature is far enough away from the proposed pipeline and is not at risk.

Mitigation: It may still be advisable to mark this site on the ground during construction to avoid any accidental damage.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



General view of the corn drying kiln Site 13, to the E.



The bowl of the corn drying kiln Site 13, view to the N.

14. Farmstead.

NGR NN 6349 2257

A farmstead, consisting of at least four buildings and an enclosed yard is situated in a sheltered position between a small knoll, occupied by the woodland enclosure, **Site 15**, to the North and a steep slope to the South. This site has not been previously recorded and may be of some antiquity. It is not marked on the OS 1st Ed. 6" map, which usually depicts buildings, which had been abandoned within a generation, so that it may have been abandoned before c. 1835. It is abutted by the woodland enclosure wall, **Site 15**. It is associated with a well-preserved corn drying kiln, **Site 13**.

Impact Assessment: This feature is far enough away from the proposed pipeline and is not at risk.

Mitigation: No action is required.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Farm steading Site 14, view to the S.



Farm steading Site 14, view to the NE.

15. Woodland Enclosure.

NGR (centre) NN 6343 2262

A sub-circular area is surrounded by a dilapidated coursed wall of medium sized stones, 0.90m in height and tapering from a width of 0.80m at the base to 0.60m at the top. Constructed some time before 1861, the wall was intended for the protection of woodland and may have partly incorporated an earlier stone bank, **Site 16**, along part of its route. (See Fig. 4) The southern sector also incorporated the remains of a farmstead, **Site 14**. Not many trees remain within the enclosure today.

Refs: OS 1st Ed. 6" Map Sheet Perthshire xciii, 1867.

Impact Assessment: This feature is far enough away from the proposed pipeline and is not at risk.

Mitigation: No action is required.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.

16. Stone Bank.

NGR (at pipeline) NN 6330 2263

A substantial stone bank, 1.80m in width and 0.80m in height, runs eastwards from the Ardvorlich Burn and the woodland enclosure, **Site 11**, to another woodland enclosure, **Site 15**. The bank was constructed some time before 1861 and probably

pre-dates both enclosures, which have incorporated it. (See Fig. 4) The bank, consisting of stones roughly piled up rather than coursed, is cut by a drain at NN 6331 2263.

Refs: OS 1st Ed. 6" Map Sheet Perthshire xciii, 1867.
OS 1:25,000 Explorer Map 368, 2007.

Impact Assessment: The proposed pipeline crosses this feature.

Mitigation: If possible, existing gaps should be used, either the gap for the drain at NN 6331 2262 or another gap, further West at NN 6330 2263. If neither of these are possible, the bank could be reinstated after construction.

Actual Impact and Mitigation: The dyke was cut through for a distance of 10m at NN 63301 22635 to accommodate the new road.

17. Track.

NGR NN 6326 2273

An old track leads southwards from the gate through the stone wall, **Site 18**, at NN 6327 2277. Measuring 1.80m in width, it follows the eastern side of an enclosed woodland, **Site 11**.

Impact Assessment: This track is close to the pipeline but is presumably to be renovated for access.

Mitigation: The track should be retained as a feature in the landscape.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.

18. Stone Wall.

NGR (at pipeline) NN 6328 2277

A well-built and well-preserved wall encloses a large field to the South of the Ardvorlich farm buildings, **Site 23**. It was constructed some time before 1861. (See Fig. 4) It consists of coursed drystone masonry with a coping layer, topped with an iron post-and-wire fence. It has a slight batter, tapering from a width of 0.70m at the base to 0.50m at the top. The drain, **Site 19**, flows under it in a culvert. The proposed pipeline will cross the wall to the West of a gateway at NN 6327 2277.

Refs: OS 1st Ed. 6" Map Sheet Perthshire xciii, 1867.
OS 1:25,000 Explorer Map 368, 2007.

Impact Assessment: It is likely that the wall will need to be breached for the construction of the pipeline. There are no existing gaps apart from the gateway, which presumably needs to be retained.

Mitigation: The wall should be reinstated when the construction of the pipeline has been completed.

Actual Impact and Mitigation: The wall was cut through for a distance of 3.5m at NN 63389 22834 for the new road. The wall was taken down for the pipe route and has been rebuilt. Two culverts through the wall, Sites 18A and 18B were recorded in detail and these were undisturbed.

19. Drain.

NGR S end NN 6327 2278

A stone-lined drain, 0.40m in width and 0.50m in depth, runs down northwards through the field towards the farm buildings, **Site 23**. Its purpose may have been to supply water to the farm. The drain collects water from the slopes above the stone wall, **Site 18**, and crosses under the wall in a well-defined culvert at NN 6328 2277.

The drain runs to the NE, flanked by a substantial stony bank, to NN 6330 2284, where it turns to the North and runs straight downhill towards the farm buildings.

Refs: AP 106G/SCOTUK37; Scale 1:10,000; Date 29.4.46; Frame 4016

Impact Assessment: The main part of the drain is probably far enough away from the proposed pipeline but the culvert through the wall, **Site 18**, may be at risk.

Mitigation: A photographic record should be taken of the culvert and the wall re-instated after construction.

Actual Impact and Mitigation: The drain was generally avoided by the development and a new plastic pipe was put into the section which runs under the existing track, which was upgraded, to ensure it was not damaged by heavy machinery.

20. Woodland Enclosure

NGR (centre) NN 6336 2289

An enclosure containing woodland is depicted on the OS 1st Ed 6" map, in the field to the South of the farm buildings, **Site 23**. (See Fig. 4) There is now no trace of any enclosure; it may have been a fence, which was removed once the trees were mature. A stand of Scots Pines still occupies this knoll.

Refs: OS 1st Ed. 6" Map Sheet Perthshire, xciii, 1867.

Impact Assessment: This feature is no longer extant.

Mitigation: No action is required.

Actual Impact and Mitigation: Not applicable.

21. Farmstead.

A farmstead consisting of two buildings, possibly a house and byre or barn, is situated in the field above and to the South of the Ardvorlich farm buildings, **Site 23**. The farmstead may have been part of the 18th century settlement depicted on Roy's map of 1747-55. (See Fig. 2) One roofless building, probably **Site 21a**, was depicted on the OS 1st Ed. 6 map (See Fig. 4), which suggests that it was abandoned up to around 25 years before 1861.

a) Possible byre or barn.

NGR NN 6332 2285

The remains of a very long rectangular building, 26.10m E-W by 5.90m, are situated in a sheltered location between a low knoll to the North and a steep slope to the South. It consists of the base of a substantial wall, 1.20m in width and presently 0.50m in height. An entrance opens in the South side, flanked by a large upright slab. A ridge to the West of the door may be the remains of a partition.

b) House.

NGR NN 6333 2284

The remains of a rectangular building, 11.50m E-W by 5.50m, are situated on a wooded knoll, to the East of the building, **Site 21a**. It is defined by substantial walls of roughly coursed stone and boulders, 1.20m in width and surviving up to 0.90m in height. The South side is open, possibly removed at a later date. An old Scots Pine is growing in the interior.

Refs: NMRS NN62SW.20

PKHT MPK 8619

OS 1st Ed. 6" Perthshire Sheet xciii, 1867

OS 1:25,000 Explorer Map 368, 2007.

Impact Assessment: The farmstead is not at risk from the construction of the pipeline. There will be some visual impact during construction.

Mitigation: A programme of works could be established to keep this to a minimum.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.

22. Mill.

NGR NN 6323 2287

The remains of a mill are situated on the East bank of the Ardvorlich Burn just upstream from the bridge leading to the South side of the farm buildings, **Site 23**. The dilapidated outer walls of the building are still extant. The mill was built in the late 19th century and never used, after the death of a child playing on the water wheel. (Mrs Stewart, pers. comm.) It may have been intended to replace an earlier mill, marked near the shore of Loch Earn on James Stobie's map of Perth, 1783.

Impact Assessment: The mill is to be demolished and the stone to be re-used in the construction of the power house on the same site.

Mitigation: A standing building survey is to be carried out to record the building. This should include a photographic survey, cross-referenced to a plan and elevation drawings. The power house could be constructed in a design in keeping with the mill and other 19th century buildings on the farm. (See **Site 23**)

Actual Impact and Mitigation: Standing building recording of the saw mill was carried out prior to its demolition. See full description below.

23. Farm Steading.

NGR NN 6325 2293

A cluster of buildings, situated on the East bank of Ardvorlich Burn, comprises the 19th century farm buildings pertaining to Ardvorlich Estate. The principal component is a stable/barn with separate access to the hayloft from the rear. The range is built of the site of the 18th century farm and some old structures may have been reused.

Refs: NMRS NN62SW.6 (part of)

PKHT MPK145 (part of)

HB Number 50368 Listed C(S)

Impact Assessment: The buildings are still in use and listed. They are not at risk from the construction of the pipeline or power house, though there will be some visual impact.

Mitigation: The power house could be constructed in a design in keeping with the existing structures on the site.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.

24. Knocking Stone.

NGR NN 63240 21126 (c.350m)

An earthfast glacial erratic boulder measuring 1.8m E-W x 1.2m N-S and c. 0.5m high above ground. Eight obvious sub-circular depressions are visible on its surface and at least three of them show signs of wear suggesting a knocking stone (or mortar for grinding oats). The deep cups may have initially been created by glacial scarring or grinding of pebbles against the surface but the depth and signs of wear indicate the stone has been utilised. The deepest cups measure 0.14m diameter and are up to 0.16m deep and would have been used as mortars for grinding oats and/or other substances. There was no sign of prehistoric cup and ring marks on the boulder.

Impact Assessment: This site is not affected by the development.

Mitigation: No action is required.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Site 24 Knocking Stone viewed to the NW. This cups in this stone are up to 0.16m deep and would have been used as mortars for grinding oats and /or other substances.

Site 25 Ditch and Dyke

S end at NN 63381 21211 313m

N end at NN 63371 21251

On the east side of the established track is a turf and stone dyke overgrown with bracken. It is aligned N-S at 348° and is 0.80m wide and 0.50m high with a 2m wide and 1.50m deep ditch running along its W side.

Impact Assessment: This site is not affected by the development.

Mitigation: No action is required.

Actual Impact and Mitigation: The site was avoided by the development and remains undisturbed.



Site 25 Turf and stone dyke and ditch, 1m ranging pole is on the top of the dyke, viewed to the NE.

Standing Building Recording of the Saw Mill Site 22

The late 19th century saw mill was recorded by Fiona Baker and Jennifer Robertson on 13 November 2009 in dry and overcast conditions. The structure is located on the E bank of the Ardvorlich Burn, which runs from S to N through a steep sided gorge at this point. The burn narrows into a chasm just to the S of the mill and pours into a pool adjacent to the mill where the wheel pit is located. Access to the burn was difficult and the photographs are of rather poor quality due to trees obscuring the views of the building. The building was recorded initially by an EDM survey undertaken by Hydroplan, and then by a scale plan, sketch elevations, photographs and a written description by the archaeologists.

The saw mill building has been entirely demolished so that the new powerhouse can be built on its location. However, the stones for the original saw mill have been retained for cladding the new building which will be of a similar design to the demolished saw mill.

The saw mill basically consists of a rectangular building with a wheel pit located on its W side. There is no obvious lade and a wooden launder fed the wheel pit from the S. Towards the end of the day Mrs Stewart showed us a painting of the saw mill, *The Saw Mill, Ardvorlich* painted by Roberts 1878, which concurred with the details observed and interpretations made by the standing building recording. This painting is the best representation of what the mill actually looked like. The saw mill was in a dilapidated state at the time of recording. Its roof had been removed, the wooden launder that fed the wheel was no longer present and the walls of the main rectangular structure were in various states of decay. However, small trees and saplings had been removed from the masonry in the last few years and there had been some modern repointing of the wall Element 10 indicating that efforts had been made to preserve the structure.

The mill building measures approximately 11.5m x 3.5m and is constructed of coursed roughly squared and dressed masonry and schist rubble bonded in lime mortar. The quoins are not particularly well defined but the two pillars (Elements 3 and 19) that form the edges of the 4m wide aperture to the wheel pit are built of well squared blocks with smaller rectangular packing stones. These two pillars are the only examples of where special cut masonry has been used. The lintels and sills of the two windows in the wall Element 10 are not matching and the most suitable stones to hand have been used. With the exception of the two pillars it appears that the mill was constructed of the stone that was available and stone was not specially quarried or dressed for the building. It is of note that the lower storey of wall Element 10 is constructed of more regularly coursed masonry and also that the mortar here is more scored out, presumably from water erosion when the river was in spate. The upper storey of wall Element 10 is constructed of smaller stones with rougher coursing and lots of snecking. The sills and lintels of both windows are on the same level.

The mill was accessed from the NNE by a metalled track leading from the steading buildings, Site 23. The structure is built into the bank on its E side and very little of the E wall, which was severely bowed, was visible due to collapse. However, it is clear that there is a constructed platform of c.11.5m x 4m built of earth, stone and lime mortar on the E side of the mill building, which was presumably used for storing

wood. The S end of the structure is also obscured by collapsed stone and no clear wall line could be determined along the S end of the structure suggesting that Element 3 might have been a free standing pillar and the S end was also open or constructed of wood.

There was no sign of fittings or apertures to take the wheel in walls Elements 7 and 9.



The Saw Mill Site 22 general view to the East showing the wheel pit Element 7, the bedrock shelf where the launder entered the wheel pit at the S (right) end of the structure and the outflow from the wheel pit into the river (Elements 14 and 18). Two storeys of different builds are the W wall of the actual mill building and the pillar (Element 3) at the right indicates the S side of the aperture between the mill building into the wheel pit.



General view of the saw mill Site 22 towards the NE with the Ardvorlich Burn in the foreground.



Figure 10: Painting of the saw mill painted by Roberts and dated 1878. Owned by Mr and Mrs Stewart of Ardvorlich Estate.

The structure was divided into numbered elements for ease of description. Please refer to the annotated drawings for details of the various elements.

Element 1

A natural bedrock shelf at the S end of the wheel pit on the bank of the burn. The bedrock is a flat slab of bedrock. The S end wall of the wheel pit and mill building have been founded on this bedrock. The bedrock appears entirely natural and shows no sign of quarrying or alteration. No sign of any post holes or setting to hold the posts that would have supported the wooden launder that fed the wheel pit were located.

Element 2

Drystone rubble walling which forms a retaining wall for the steep bank of the burn on the E side of the location of the launder.

Element 3

A pillar of mortared squared masonry which forms the SW corner of the mill building and which is apparently free-standing and is 0.80m x 0.60m and 2.10m high. There is a 4m wide gap between it and Element 19 a similar pillar that forms the S end of wall Element 10. The wall between the two pillars and walls Elements 10 and 9 is only one storey high, the same height as Element 7. The mill wheel was located in the slot Element 8 between walls 7 and 9 and would have been visible and accessible from the interior of the mill building Element 16. The pillar Element 3 is built onto wall Element 4 which is equivalent to Element 9. Pillar Element 3 is the same construction as pillar Element 19 which forms the other side of the access aperture to the mill wheel. There is a cut back recess at the base of the pillar on the NW corner which corresponds to the step up at the W end of wall Element 5 where it abuts the outer wheel pit wall Element 7. The fittings for the wheel would have been inserted into this recess.

Element 4 = Element 9

The lower part of the S part of the W wall of the mill building which also forms the E wall of the wheel pit. 4.80m long, 0.60m wide and stands 1.56m above the bottom of the wheel pit Element 8. This one storey wall is the same height as Element 7 which is the outer burn side wall of the wheel pit. This lower storey of the mill building runs the entire length of the W side of the mill building to the NW corner Element 11. There is a scarcement or ledge projecting all along the length of W side of this wall at the same height as the outer wall of the wheel pit Element 7 and which also represents the clear building break between the lower storey of the mill building's wall Element 4 / 9 and the upper storey of the mill building Element 10. Element 4 = 9 is the lower part of the W wall of the mill building associated with the wheel pit and the upper part of the mill building wall associated with the enclosed mill structure is Element 10. There is a water stain at the N end of this wall that appears to correspond with where the water wheel turned.

Element 5

The wall that forms the S end of the wheel pit. 2.2m long and 0.60m wide at the top and 1.40m wide at the bottom, 0.25m lower than wall Element 9 and 0.30m lower than wall Element 7. It is battered on its N side, inside the wheel pit and vertical on

its S external side. There is lower step in the middle of the wall which is Element 20, the shute where the water was fed in from the launder to the wheel.



View to the S of the S wall of the wheel pit Element 5 and the wheel pit with wall Element 7 on the right of the photograph. The pillar, Element 3, on the left of the photograph forms the S side of the aperture between the mill building and the wheel pit. The stone slab capping on top of the wall Element 9 is just visible.

Element 6

A possible socket located at the S end of the W side of wheel pit wall Element 7 next to the burn. This possible socket measures approximately by eye 0.5m x 0.5m x 0.5m but was inaccessible. The possible socket is 3 courses above the base of the wall. It has a curved top suggesting it might be a feature rather than erosion where a stone has become dislodged. There is an obvious building break in wall Element 7 just above it and the mortar on the lowest 6 courses of wall Element 7 is much heavier, to guard against erosion from the river.

Element 7

The W outer wall of the wheel pit. 5.30m long and 0.60m wide and approx 1.60m high. The top level of this wall is at the same height as the top of wall Element 4–9 which forms the lower part of the mill building and the E side of the wheel pit. There is an obvious building break in this wall located 6 courses up from its base and it is of

note that the mortar on the lower courses is much heavier and thicker which would have been to guard against erosion from the flow of the river. Six possible dook holes or slots are visible on the line of this building break but it was not possible to access this wall and determine if these were real features or simply a result of erosion. The upper part of the wall above the building break is rather obscured by moss and ferns but it is possible other dooks might be present. The water flow of the burn runs up against this wall and then curves back to the W where it is deflected off the stones Element 14 that form a dam and this has created a deeper scoured out pond beside the wall Element 7. The wall Element 7 continues N as a lower wall, Element 18, but it is collapsed and obscured by collapsed stones. However it is clear that it continues parallel to wall Element 10, probably as far as the quartz boulder retaining wall Element 11 and again it is clear that natural rock outcropping has been utilised. Wall Element 7 is standing to its full height and is capped with flat stone slabs. There are no signs of any fittings set into the top of the wall but it is obscured by moss.



Element 7 the W wall of the wheel pit. Note the possible socket Element 6 at the bottom of the wall and the distinct building break towards the bottom of the wall. In the background the aperture between the mill building and wheel pit defined by pillar Element 3 on the right and pillar Element 19 on the left. View to the E.

Element 8

The wheel pit between walls Element 4=9 on its E side and wall Elements 7 and 18 on its W side and the south end is formed by wall Element 5. The wheel pit measures 5m x 2.2m and is c. 1.6m lower than the tops of walls Elements 7 and 9. The water to drive the wheel entered the wheel pit from the S from a wooden launder over the shoot Element 20 in battered wall Element 5.

Element 9 =Element 4.

See description for Element 4.

Element 10

This is the N section of the N-S wall that forms the W side of the mill building. It is located to the N of the wheel pit Element 8 and it incorporates large natural boulder Element 11 into it at its NW corner. It measures 6.50m long and is 0.60m wide and stands to a height of 2.60m above the interior and 3.56m above the bottom of the wheel pit. This wall, Element 10, is a different build to the southern part of the wall Element 4=9 that is adjacent to the actual wheel pit. Wall Element 10 steps out slightly to the W towards the river and it is the actual mill building whereas wall 4=9 is associated with the wheel pit and opening from the mill building to the wheel pit from the interior of the mill building. Wall Element 10 is the second storey that forms the W wall of the mill building. The S end of this wall is a pillar Element 19.

Two windows are present in the wall and the height of upstanding masonry above them suggests there may have been another third storey to the structure. This makes sense when considering the height of the ground to the E of the mill building where it appears a yard had been built up against the E side to the same height as the top of the second storey. However, the 1878 painting indicates that it was simply a high upper storey as opposed to two separate upper storeys. It is of note that one window had a re-used sandstone sill which was a smooth dressed sandstone block with a hole for a window bar drilled in it. This was the only piece of re-used masonry observed in the structure.



The interior elevation of the W wall of the mill building, Element 10 and Jennifer Robertson. Note the collapsed stones in the interior. View to the W.

Element 11

A large white quartz boulder in its natural position that was incorporated into the mill structure to form a retaining wall along the E bank of the burn

Element 12

Drystone rubble revetment of the river bank to prevent erosion of the river bank on the N side of the mill. No mortar is apparent in this wall constructed of boulders. This revetment formed the edge of a level platform outside the front N side of the mill shed where timber could be stored and carts manoeuvred.

Element 13

A berm or level terrace between wall Elements 10 and 18 and the river at the N end of the wheel pit. The water outflow from the wheel pit ran over this small terrace.

Element 14

A dam of boulders. No clear wall lines are present but it appears natural boulders have been enhanced to form a dam that channels the water out of the wheel pit and back into the river. It forms a retaining wall for the pool Element 15.

Element 15

The pool located on the W side of the mill. This pool is natural in origin and formed where the water was naturally channelled through a chasm in the rocky gorge to the south. The natural topography and river formation at this point made it suitable for a mill. The pond has probably been scoured out by the water being channelled back in from the outflow of the wheel pit. The stones Element 14 which forms a small dam have enhanced the pool and the water depth is deepest adjacent to wall Element 7 which forms the W side of the wheel pit.

Element 16

The interior of the mill building was rough uneven ground with frequent collapsed stones, fragments of wooden planks and broken red tile fragments. One 0.20m x 0.20m square wooden beam fragment in the interior might have been part of the wheel's structure. The interior stands c. 0.6m higher than the top of wall Element 9 though it is likely the floor level would originally have been flush with this wall head and this build up of material in the interior is collapse. The interior measures 11.5m x c.3.2m.



View to the S of the interior of the saw mill building showing the interior of the W wall Element 10 and aperture to the wheel pit. On the left side of the photograph the collapsed E wall and exterior platform are visible.



View of the mill building's interior from the S. Pillar Element 19 is at the left of the photograph.

Element 17

The N side of the mill building. No wall was present and this side of the building stood entirely open to the track that leads to the N side of the mill.

Element 18

The northern lower part of wall Element 7 that forms the W riverside wall of the wheel pit. There is not enough collapse to indicate that the wall stood to the same height as the southern part wall Element 7

Element 19

A pillar measuring 0.6m x 0.6m and standing to a maximum height of 2m, constructed of squared stone masonry which forms the S end of wall Element 10, the upper storey of the W side of the mill building. It is the same construction as pillar Element 3 and between them is a 4m wide aperture opening from the interior of the mill building to the wheel pit.

Element 20

A schist slab on top of wall Element 5, the S wall of the wheel pit.

The 1878 painting of the saw mill by Roberts shows several details which agree with the information retrieved from the standing building recording. The mill building is shown as entirely open on its N side and there was no sign of a wall or foundations along the N side of the structure. The aperture between the pillars Elements 3 and 19 between the mill building and the wheel pit is shown as covered with wood. The building break in the W wall of the mill building, described as the lower (Element 4=9) and upper (Element 10) storeys in the above description shows clearly on the painting. The wooden launder that fed water to the mill wheel is shown in the background of the painting. The outer wall of the wheel pit, Element 7, is shown as decreasing in height towards its N end, Element 18, and the stones Element 14 that form a kind of dam are shown as lining the outflow from the mill wheel. It is also of note that the lowermost part of the outer wheel pit wall, Element 7, are shown as a more irregular construction, perhaps represented by Element 6.

The red tile roof of the structure was evidenced by a few broken tile fragments found in the interior. Mrs Stewart was able to tell us that the tiles were removed from the structure in c. 1960 and re-used to tile the dairy, where they are still in place.

The saw mill was supposedly never used as a child was killed on the wheel on the day it was brought into use. However, the 1878 painting shows it with timber stacked outside waiting to be sawn and sawn wood inside it.



View of the saw mill Site 22 following demolition, note the S and W walls of the wheel pit (Elements 5 and 7) have been retained.

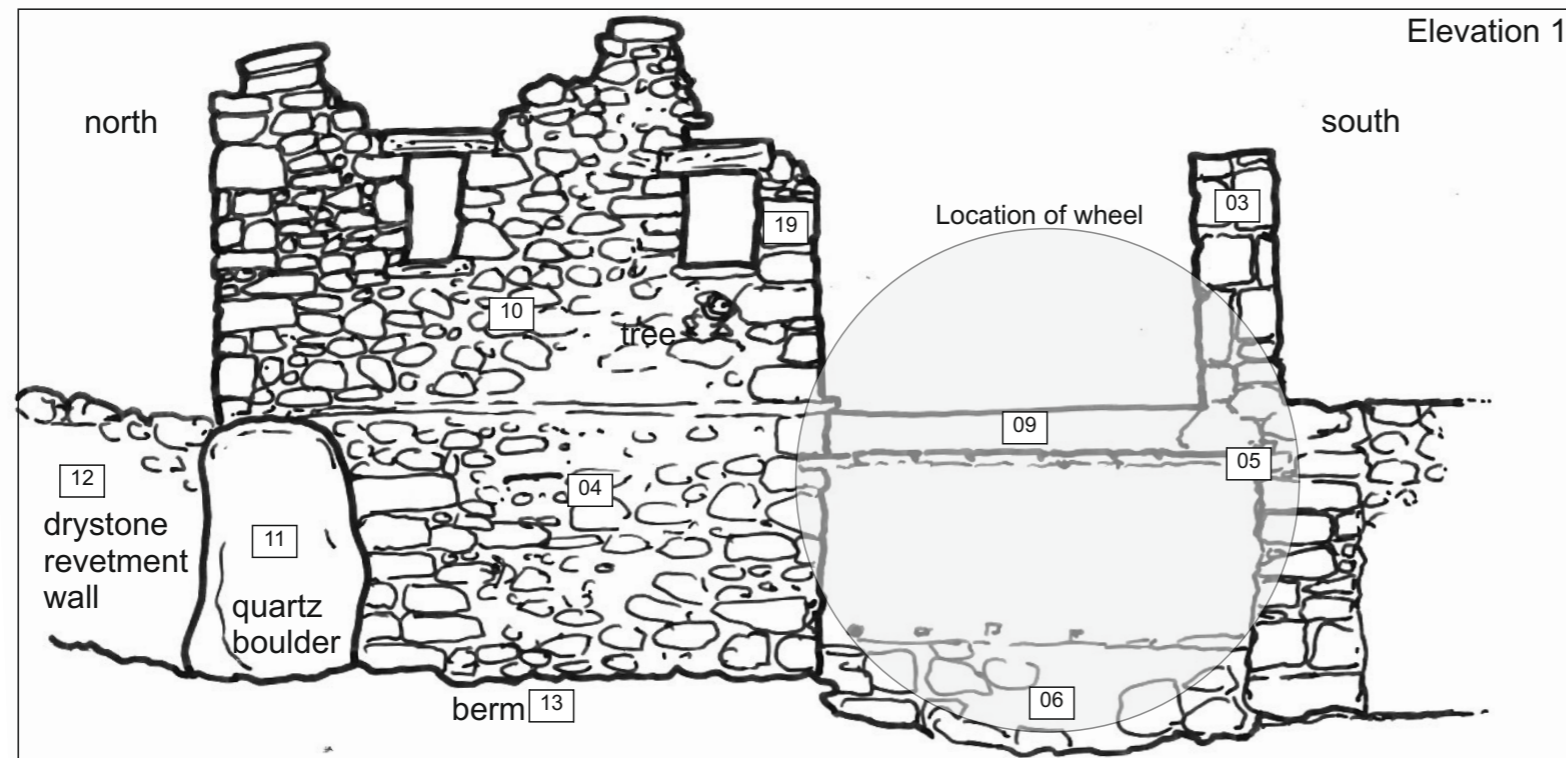
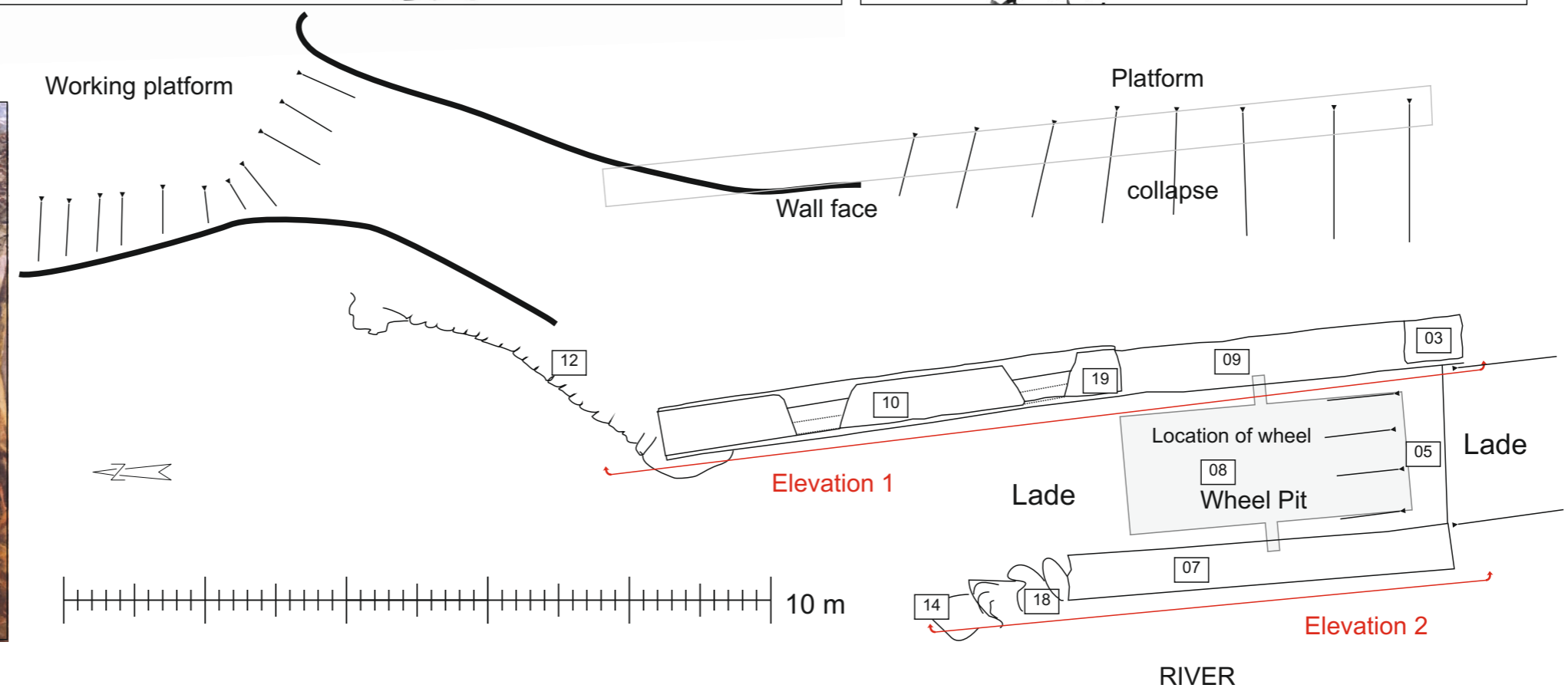
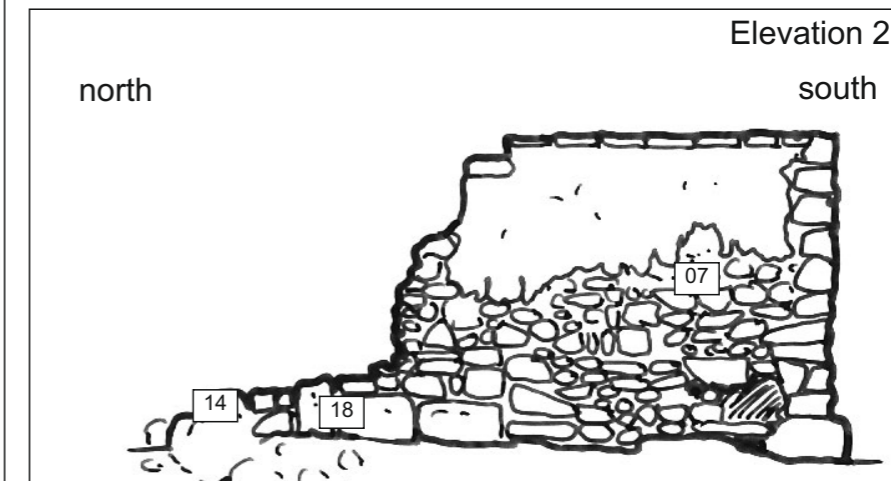


Figure 11 : Plan and elevations of saw-mill (Site 22)



IF IN DOUBT - ASK



TOPOGRAPHIC SURVEY - OLD MILL AREA



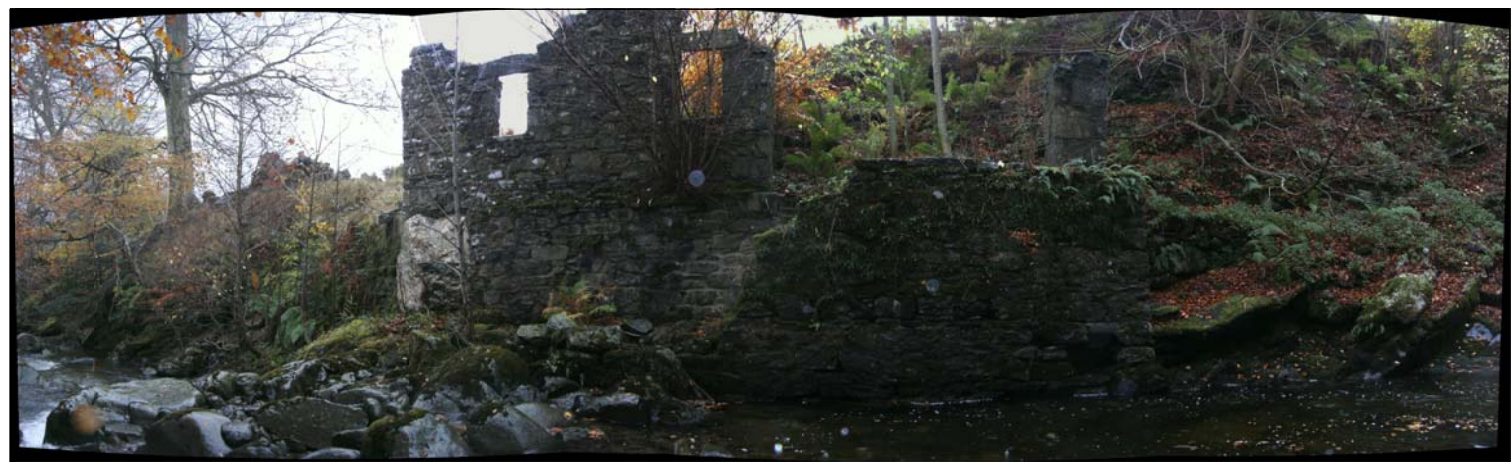
VIEW B - BACK ELEVATION



VIEW C - WHEEL PIT



VIEW D - DOWNSTREAM ELEVATION



VIEW A - FRONT ELEVATION

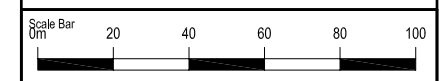
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0	Original Drawing Issue	AJV	CC	12.11.09
Iss	Description	Drawn	Chk'd	Date

Client
 ARDVORLICH ESTATE

Project Title
 ARDVORLICH

Drawing Title
 OLD MILL SURVEY



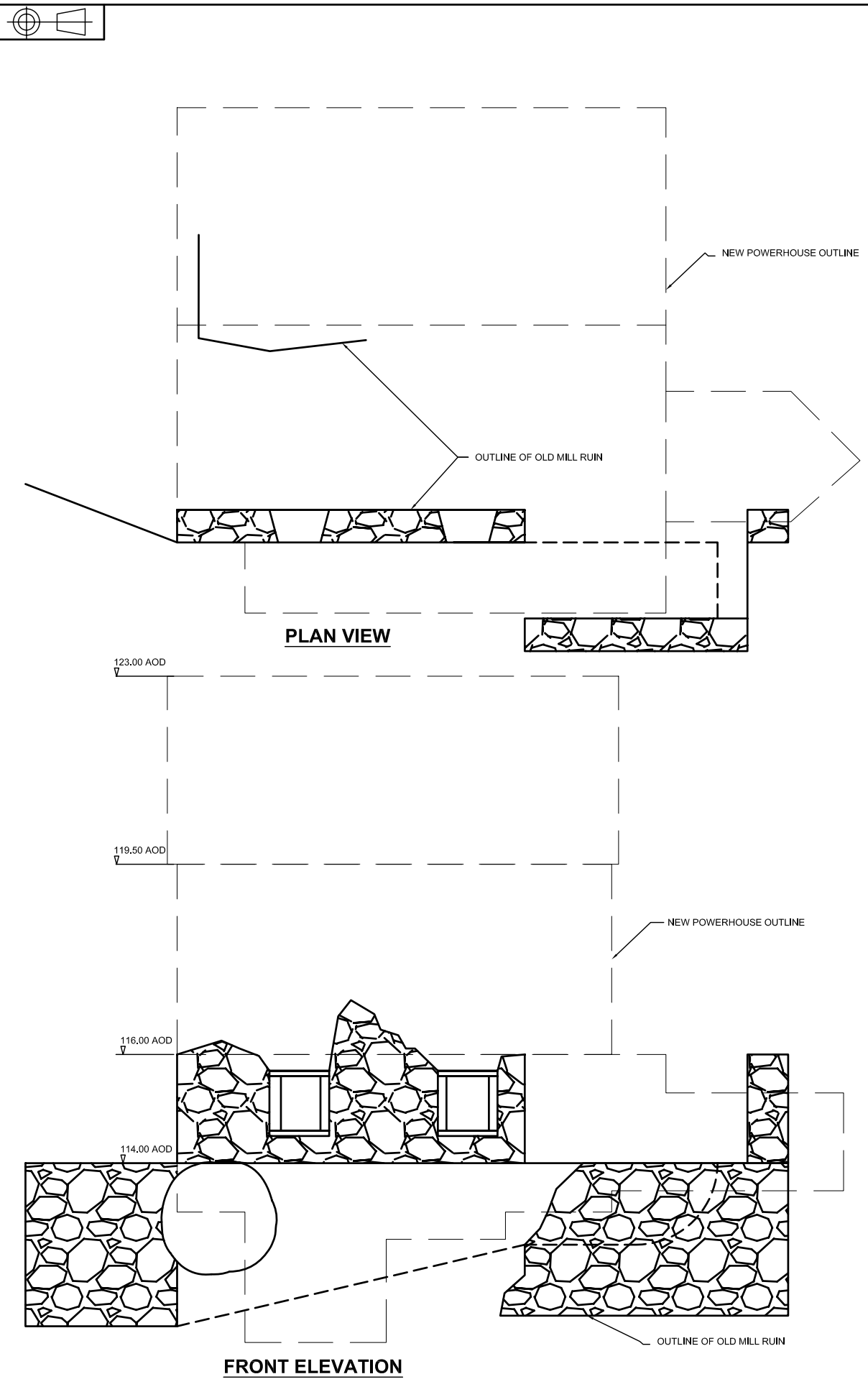
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Scale	Zip Disk No	Original Size
1:2000		A3
Project No	Drawing No	Issue
P515	700	0



METHOD STATEMENT

1. CONSTRUCT ACCESS FROM BR4 TO POWERHOUSE
2. MARK, REMOVE & STORE KEY BUILDING STONES ON PALLETS (SEE BELOW PHOTO)
3. DEMOLISH & EXCAVATE STRUCTURE TO 14mAOD. ALL STONE MASONRY FROM STRUCTURE & EXCAVATION TO BE COLLECTED AND STORED FOR INTERGRATION INTO THE NEW POWERHOUSE
4. SEDIMENT PROTECTION & DRY WORKING AREA TO BE ESTABLISHED ACCORDING TO BEST PRACTICE
5. FOUNDATION WORKS & TAILRACE CONSTRUCTION
6. SUPERSTRUCTURE CONSTRUCTION
7. STORED STONE MASONRY RETURNED TO SITE AND USED TO STONE CLAD BUILDING. KEY BUILDING STONES TO BE RE-INTERGRATED IN SAME FORMAT.
8. POWERHOUSE AREA TO BE LANDSCAPED.



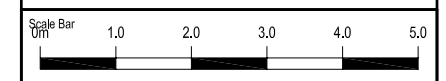
PHOTO DETAILING KEY BUILDING STONES (RED)

1	Method Statement Detailed	AJV	KPH	25.01.10
0	Original Drawing Issue	GC	AJV	22.01.10
Iss	Description	Drawn	Chk'd	Date

Client
ARDVORLICH ESTATE

Project Title
ARDVORLICH HYDRO

Drawing Title
METHOD FOR MILL DEMOLITION



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1:50		A3
Project No	Drawing No	Issue
P515	402	1

VIEW AS APPROACHING POWERHOUSE



VIEW FROM UPSTREAM



VIEW FROM DOWNSTREAM



VIEW FROM OPPOSING BANK



THE OLD MILL
WATERCOLOUR PAINTING (1878) OF OLD MILL IN OPERATION

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0	Original Drawing Issue	AJV	KPH	27.01.10
Iss	Description	Drawn	Chk'd	Date

Client
ARDVORLICH ESTATE

Project Title
ARDVORLICH

Drawing Title
POWERHOUSE VISUALISATION

Scale Bar



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Scale	Zip Disk No	Original Size
NTS		A1
Project No	Drawing No	Issue
P515	405	0

Culverts associated with Sites 18 and 19

The original survey by Robertson recorded a culvert through the stone wall **Site 18** at NN 63275 22781 which is the start and S end of a major stone lined drain **Site 19**. This culvert has been allocated the site number of **Site 18A**. A second culvert was located to the east at NN 63332 22813 and this has been allocated site number **Site 18B**. Both culverts were recorded by photography, measurements and sketches on 18.3.10.

Culvert **18A** is on the originally proposed line of the pipe route and would have been destroyed. Culvert **18B**, further to the east will not be affected by the development. In the final event both culverts were undisturbed by the development.

Culvert **18A** at NN 63275 22781 drains water off the hill slope and track to the south into the stone lined drain **Site 19**. This culvert consists of a large boulder, 1.00m long x 0.60m high set at the base of the drystone wall **Site 18** which stands for four courses above the large boulder for a height of 0.60m making the wall a total height of 1.20m. The water drains through a gap 0.17m high and 0.45m wide at the base of the large rectangular boulder. There is a void on the east side of the large boulder indicating that the total width of the water channel is 0.70m. The east side of the culvert is formed of drystone walling. The ground on the south side of the boulder is at a higher level than on the north side and the entrance to the culvert is completely silted up and the water flow is restricted to a trickle through this culvert.



Culvert 18A, on the N side of Wall Site 18, start of drain Site 19. View to SSE.



Culvert 18A, badly silted up, on the south side of Wall 18, View to NW.

Between Culvert **18A** and Culvert **18B** are several drainage channels that feed into the main drain **Site 19**.

Culvert **18B** at NN 63332 22815 drains a small burn through the wall and it flows into drain **Site 19** in a natural small burn without any stone bank indicating it is a natural watercourse as opposed to a man made drain. This culvert is 0.40m wide and 0.50m high and is constructed of large boulders set to form a rectangular opening at the bottom of the wall. The wall stands for 6 courses of drystone field stones above the culvert opening. A fallen lintel stone partially blocks the outflow on the N side of the wall.



Culvert 18A in wall Site 18, view to the SSE.



Culvert 18A in wall Site 18, view to the NNW.

To the north the new access road, which is an upgrade of an existing track, crosses over the stone lined drain **Site 19**. A plastic pipe culvert has been placed on the line of the drain where the road crosses it. The disturbance to the stone lined drain is minimal, its flow has not been altered and it continues to the north of the new road.



Site 19 drain showing new pipe under built up upgraded track and farm buildings Site 23 in the background.

Fieldwork and Additional Survey Information

28 July 2009

A walk over survey was undertaken on 28 June 2009 by Fiona Baker on a generally showery day with spells of warm sunshine and heavy showers. The area surveyed extends between J1 and J2 and Intake 5 but not all of the ground between these points was walked. The route walked started at Intake 5 and cut across the Shieling Ground Site 2 to join the track, **Site 4**, leading from J1 to J2. The track was walked from Site 2.26 to NN 63368 21215 where the proposed new pipe route crosses the established track and then across open rough pasture along the proposed new route up to Intake 5. The new route was mapped by plotting the test pit grid references.

The proposed new route was more or less determined by the archaeologist and machine driver digging the test pits (Mike Robertson of M A Melville) on the basis of finding a fairly straight route without any sharp bends that avoids any archaeological sites and areas of very boggy ground. The test pits were located at varying intervals between 20m – 50m apart wherever the topography and attendant ground conditions changed.

Five new sites were recorded, shieling huts **Sites 2.22, 2.27 and 2.28** and **Site 24** a knocking stone in the shieling ground Site 2 and a stone and earth dyke **Site 25** also in the shieling ground Site 2.

13 November 2009

Standing building recording of the saw mill **Site 22** carried out by Fiona Baker and Jennifer Robertson.

18 March 2010

A site visit was made on 18 March 2010 by Fiona Baker of Firat Archaeological Services and Stephen Kennedy of DA MacDonald (site contractors) in overcast and wet conditions. The purpose of the visit was to mark out the archaeological sites in the sheiling ground **Site 2** so that they could be properly fenced off to protect them during the construction work. The pipe route was walked from **Site 2** to the powerhouse at **Site 22**. Visibility of sites (e.g. Site 25) was better than in July 2009 as the bracken is not in growth. Given the purpose of the visit was to mark off the sites that will be affected by the pipe route archaeological recording of new sites was not undertaken on this occasion.

At **Site 2** the grid references for **Sites 2.20 and 2.21** were checked by GPS reading. The site plan in the October 2009 report shows these sites further to the east than they are actually located and they are located immediately to the east of the track.

Site 2.20 is at NN 63339 21300 (301m) and is a rectangular stone structure as described.

Site 2.21 is at NN 63354 21278 (306m) and the description needs to be amended to include the rectangular foundation immediately to the north of the sub-circular stone and turf structure.

It is likely that there may be further structural remains between Sites 2.20 and 2.21 and the river but this area was not explored.

It was also noted that the ditch and dyke **Site 25** is of more substance and longer than previously recorded.

Six additional sites forming part of **Site 2** were noted and require full recording by description, photography and field sketches. This work was undertaken during the watching brief of the pipe route excavations in this area and none of the new sites were affected by the development works.

The new sites are:

Site 2.29 - NN 63203 21436 oval turf structure on the ridge above the burn, c. 6m x 4m aligned NE-SW.

Site 2.30 – line of boulders forming a wall / terrace edge located between 2.29 and 2.16.

Site 2.31 – turf structure to E of 2.29 on ridge above the burn, stone and turf wall on E side, denuded.

2.32 – NN 63250 21464 rectangular stone structure on E side of track

2.33 – denuded structure next to 2.32 on E side of track.

2.34 – turf and boulder dyke running along E side of track.

Sites 8, 9 and 10.

These sites are identified as a structure, field system and cleared ground respectively. It was noted that the clearance cairn at NN 6314 2217 (**Site 10d**) also has a good possibly walled edge and may be a structure later utilised for clearance although there is a large boulder in the middle of it suggesting it may all be clearance. A little upslope of this on the line of the pipe route is a sub circular collection of boulders that has already been damaged by a machine track. This was considered as a possible structure but on balance it was decided this was probably a natural feature given the arrangement of stones and the number of large natural boulders on the hillside. On the N side of dyke **Site 9a** opposite **Site 8** linear alignments in the bracken were visible indicating probable rig and furrow.

15 April 2010

Field survey carried out by Fiona Baker and Jennifer Robertson in dry weather, overcast with some sunny spells. Additional survey required to identify all sites within the shieling ground area **Site 2**. **Sites 2.35** to **2.54** identified and recorded and **Sites 2.29** – **2.34** inclusive recorded in detail.

29 April 2010

A watching brief was carried out by Fiona Baker in generally dry and overcast weather with a few light showers. This watching brief covered the crossing into the shieling ground **Site 2** over the Ardvorlich Burn and the new pipe track route from the existing track **Site 4** up to Intake 5 on the Allt a Coire Bhuidhe. The area under observation started on the W bank of the Ardvorlich Burn at the new bridge and the watching brief commenced at the deer fence at NN 63182 21543 and ran to the existing track **Site 4** at NN 63187 21538. The watching brief in this area was to ensure that **Sites 2.38** and **2.39** and also **Sites 2.35**, **2.36** and **2.37** were avoided. All of these sites were avoided and are undisturbed by the development.

The excavations were carried out by a 30 ton machine fitted with a toothed bucket. The topsoil was removed to subsoil level and the vegetations and large boulders on the existing track **Site 4** were removed. The pipe is located on the W side of the existing track **Site 4**. In the 15m long stretch between the deer fence and the existing track **Site 4** the peat topsoil was 0.30m deep and overlay orange sandy clay subsoil. The depth of excavation was 0.40m and the width of the excavation trench was 3.30m. The upcast from the excavation was placed on the W side of the excavation so that it could be easily backfilled without impacting on any of the archaeological sites. There were frequent boulders in the excavation area but all were natural and no archaeological remains were present or disturbed by the excavation.

The excavations now continued on the line of the existing track **Site 4** on the S side of the Allt a Coire Bhuidhe. The excavations in this area are to upgrade the existing track, which had been cut to subsoil level when it was originally built. The new excavations to upgrade the track removed 0.10m of silt and regraded the track. On the S side of the Allt a Coire Bhuidhe burn the ground rises up and turns a slight corner around the edge of knoll at NN 63234 21478.. The edge of this knoll was removed to straighten the track and line of the pipe which will be in the track or just to the W of it at this point. No archaeological sites were affected. The spoil from the removal of the end of this knoll was infilled into a natural depression at the bottom of the slope on the E side of the track.



Excavation of existing track Site 4 to upgrade it and install pipe and knoll that was cut back on the right of the picture. View to the S, machine is at the turn to the W to Intake 5. Individual spoil heaps utilised to avoid dumping on shieling sites.

The watching brief continued along the line of the existing track **Site 4** which has been upgraded by the development to the junction with the new pipe track route that runs W to Intake 5. The junction of the new pipe route track to Intake 5 on the Allt a Coire Bhuidhe and the existing track **Site 4** is at NN 63243 21435.



View over excavations of pipe route to Intake 5, view to the N from Site 2.55.

The new pipe route track W to Intake 5 from the existing track **Site 4** is between 3.50m and 3.60m wide and the depth of excavation varied between 0.30m and 0.50m deep. Basically the peaty topsoil and natural boulders were removed to compact subsoil level. In better drained areas the topsoil was grey-brown silty clay with some orange mottling and was 0.20m or less deep underlying 0.05m of peaty humic soil. The subsoil was orange sandy clay with frequent sub-rounded and sub-angular cobbles and boulders. Once the subsoil has been reached it is spread and compacted as the track surface. The minimum of excavation was undertaken to create the new pipe route track to Intake 5. GPS points were taken along the line of the existing track and new pipe route track where excavations were monitored and have been plotted on the plan of the shieling ground **Site 2**. The new pipe route track runs to the N of **Site 2.17** and the S of **Sites 2.16, 2.11, 2.12 and 2.13**. **Sites 2.1, 2.2, 2.3, 2.4 and 2.9** are located on the S side of the new pipe track. A small works compound area measuring 13m x 13m was cleared of topsoil to the NW of **Site 2.18** at NN 63191 21360, NN 63198 21352, NN 63199 21268 and NN 63209 21360 (corners). All of the archaeological sites were avoided and undisturbed by the development. The Intake 5 pipe track will be entirely backfilled and return to vegetation.



View to NNE along pipe route for Intake 5 as excavated.



View to SW along pipe route to Intake 5 as excavated from the junction with existing track Site 4.

3 May 2010

A watching brief was carried out by Fiona Baker on a dry and sunny day. **Sites 2.55 – 2.58** were located and recorded and upgrading of the existing track **Site 4** was monitored in the vicinity of **Site 1** and **Sites 2.20, 2.21** and **2.60**. A slight variation to the route to Intake 6B was also walked over and it was confirmed that no archaeological sites would be affected. The existing track **Site 4** was grassy in this area and 0.15m of turf and topsoil was removed with a toothless ditching bucket to expose the natural subsoil. The topsoil was pale brown slightly clayey sand with moderate inclusions of angular cobbles and small boulders. In the vicinity of **Sites 2.20** and **2.21** there were more frequent small boulders, which had probably been added to the track over the years to fill potholes and keep it compact and drained. However, there was no sign of the track being metalled or having a laid surface. The subsoil was stony orange clayey sand. Where the existing track **Site 4** cuts through the major dyke **Site 1** there was c.3m depth of peat in this lower lying boggy area. The new pipe track was located slightly further W to avoid the deep and wet peat deposits over a distance of c. 40m between NN 63411 21122 and NN 63397 21158

where it again rejoins the line of the existing track but still utilised a collapsed part of the dyke and 2m of the length of the dyke was removed for the new track which cuts through it at NN 63403 21136. The dyke **Site 1** is a stone boulder and turf construction 1m wide at the base and 0.75m high with the lowermost 0.35m obscured by peat and humic earth build up. A stone filled field drain was located adjacent to the S side of the dyke. This drain was lined with sawn wooden planks which were probably a later repair and upgrading of the drain in this very wet and boggy area.

5 May 2010

A watching brief was carried out by Fiona Baker in dry, overcast conditions with some sunny spells of the new pipe route between Intakes 6 and the existing track **Site 4**. The identified sites in this area, **Sites 2.49, 2.50 and 2.51** and the whole length of the track were subjected to archaeological monitoring. All archaeological sites were avoided by the development and remain undisturbed. The existing track **Site 4** remains undisturbed to the S from the junction of the new pipe route from Intake 6B with **Site 4** at NN 63440 21090. The new pipe route is between 3.50m and 4m wide and the average depth of excavation was 0.50m but in places was up to 2m deep where it cut through knolls. The excavation area monitored is between NN 63563 21012 and NN 63411 21122. The trench for the pipe will be excavated to approximately 1.5m wide and 1.2m deep in this track but this was not observed as the absence of archaeological remains was confirmed by the monitoring of the main track.



General view to the E over the pipe route to Intake 6B.



General view to the NW over the pipe route to Intake 6B.

The soil conditions varied depending on topography. On the higher and drier knolls the subsoil was orange clayey sand. In the lower lying area peat on pale brown stony clay was present. The excavations were shallower on the higher and drier areas of orange clayey sand and deeper in the areas where peat had formed. The spoil for the excavations was cast to the S side in the vicinity of **Sites 2.49, 2.50 and 2.51** to ensure the sites were not disturbed during backfilling and to the N side of the pipe track along the rest of the route. The overall width of disturbance along the new pipe track was between 6m and 8m.



General view to the N of upgraded track Site 4 as excavated.

17 and 18 November 2010

A watching brief was carried out by Fiona Baker of the pipeline branch that crosses over the shieling ground between **Sites 2.22 and 2.18**. The weather was very poor and dark with wind, rain and sleet. Snow was lying further up on the hills. The pipe trench is generally 1.50m wide and on average 1m deep although it was necessary to

dig as deep as 3m in places due to crossing over a knoll so that there would be sufficient fall for the flow of water in the pipe. Wet ground, peat and collapsing baulks made the machine excavations difficult at times. The excavations were undertaken with a toothed bucket under archaeological supervision. The excavations commenced at the small compound located at NN 63232 21354 to the N of **Site 2.18** and the pipe route runs 5m to the NW of **Site 2.18**. **Site 2.18** was avoided and undisturbed by the excavation work. The pipe route passes in between **Sites 2.27** and **2.28**, where the pipe trench is 2m deep, and both sites were avoided and undisturbed. The pipe trench passes to the W side of **Site 2.22** and again the archaeological site was avoided and is undisturbed by the development.



General view to the NW of the pipe route across the shieling ground.

Summary and Conclusions

The desk study and field survey has recorded a predominantly late and post medieval agricultural landscape associated with the long established settlement at Ardvorlich. Field systems (Sites 9 and 10), tracks (Sites 3, 4 and 17), dykes (Sites 1, 5, 7, 16 and 18), drain (Site 19) and woodland enclosures (Sites 11, 15 and 20) indicate land management practices extending back several hundred years. The farmstead Site 14 and associated corn drying kiln Site 13 and farmstead Site 21 indicate post-medieval settlement and these sites were probably abandoned in the 19th century during the agricultural improvement movement when large numbers of people left Comrie parish for a life in the New World.

With the exception of the saw mill Site 22 and cuts through dykes Sites 1, 7 and 9b and 16 the archaeological sites were avoided and have remained undisturbed. The cuts through the dykes were minimised as much as possible and the vast majority of these features have remained undisturbed. Where the dykes were cut by the new track it was not possible to reinstate them but they have been reinstated where they were cut by the pipe trench. The saw mill Site 22 was demolished after standing building recording has taken place and the powerhouse has been constructed at this location.

The design of the new powerhouse is sympathetic to the saw mill and re-uses the stone from the demolished building and the wheel pit has been retained.

The shieling ground Site 2 is one of the most extensive shieling grounds recorded in Scotland and it is possible that this site also represents more permanent or semi-permanent settlement. The shieling huts range from simple circular turf huts (e.g. Site 2.42) measuring only 3m diameter up to larger substantial stone foundations of rectangular buildings with rounded corners as big as 9m x 6m (e.g. Site 2.6). The presence of the dykes Site 1 and Site 25 suggest the settlement area may have been enclosed which suggests more permanent settlement rather than a shieling site. However, in general the nature of the buildings are more similar to shieling huts although the variation in styles suggests it perhaps started life as a shieling ground and developed into a permanent settlement. The smaller circular huts and turf structures appear more denuded than the stone foundations but this is probably just a result of the construction technique with mainly turf construction slumping and collapsing to a greater degree than stone structures. There is however also evidence of at least two phases of construction and occupation and Sites 2.19/2.62 and 2.58 for example suggest earlier simple turf structures were built over with more substantial buildings with stone foundations.

Site 2.48 might be a corn drying kiln. This is suggested by the circular walled interior of the SW room and the narrow entrance that has the appearance of a flue. Although excavation would be required to confirm this identification the presence of a corn drying kiln indicates permanent settlement and not temporary summer occupation. It also indicates that cereal crops could be grown in the immediate vicinity although no fields were identified in this part of the survey area.

Other structures of interest include Site 2.37 a small stone building with a platform adjacent to the Allt a Choire Bhuidhe. The location of this site is what gives its probable use as a whisky still site away. Two other small stone structures Sites 2.53 and 2.54 close to Ardvorlich Burn may be associated with dairying activities such as storage of milk, butter and cheese. Their location so close to the burn means that they would have remained relatively cool compared to the other huts. There are also two platforms Sites 2.50 and 2.51, which are distinct from the other hut foundations but their date is uncertain.

Although there is variation in the shapes and sizes of the shieling huts and obvious evidence of rebuilding and remodelling it is difficult to date any of the structures based on its plan. Very little excavation work has taken place at shieling sites and even when they are excavated there is often very little dating evidence. Excavations on Ben Lawers have revealed that the more substantial rectangular foundations may be 13th or 14th century in date and circular mainly turf huts are known to have been occupied into the 19th century. The more substantial foundations might also represent later occupation by cattle drovers and the dyke Site 1 may also be associated with the use of the site by drovers. There are several references for shieling grounds being let to cattle drovers for over wintering cattle in the early 18th century (Stewart, 1990, 107). It is possible the more substantial structures and head dyke Site 1 are associated with this later use or they may also reflect the adoption of shieling sites for more permanent occupation and cultivation in the later 18th century.

Discovery and Excavation in Scotland entry

LOCAL AUTHORITY:	Perth and Kinross
PROJECT TITLE/SITE NAME:	Ardvorlich Estate
PROJECT CODE:	AE10
PARISH:	Comrie
NAME OF CONTRIBUTOR:	Fiona Baker
NAME OF ORGANISATION:	Firat Archaeological Services Ltd
TYPE(S) OF PROJECT:	Walk over survey and watching briefs during hydro scheme development
NMRS NO(S):	NN62SW.6 (Ardvorlich stables and farm) and NN62SW.20 (building)
SITE/MONUMENT TYPE(S):	Extensive shieling ground site 2; field systems, dykes and clearance cairns; saw mill, farm stead and corn drying kiln.
SIGNIFICANT FINDS:	Saw mill Site 22; Shieling Ground Site 2; farmstead and corn drying kiln Sites 14 and 13.
NGR (2 letters, 8 or 10 figures)	NN 6362 2100 to NN 6322 2287 along course of Ardvorlich Burn and a branch to NN 6301 2118
START DATE (this season)	May 2008
END DATE (this season)	November 2010
PREVIOUS WORK (incl. DES ref.)	None
MAIN (NARRATIVE) DESCRIPTION: (May include information from other fields)	A walk over survey and desk study was carried out by Fiona Baker and Jennifer Robertson in advance of a hydro electricity scheme development on the Ardvorlich Burn, Loch Earn. The pipe route and tracks were located to avoid the archaeological remains and archaeological watching briefs were maintained in sensitive areas. One site, a late 19 th century saw mill was demolished, following standing building recording. Apart from this the only disturbance to archaeological remains was the cutting through of a few field dykes. 25 sites were recorded along the route including a farmstead Site 14 at NN 6349 2257 and an associated corn drying kiln Site 13 at NN 6340 2252; farmstead Site 21 (NN62SW.20) at NN 6333 2284; a field system Site 9 at NN 6320 2234 ; a woodland enclosure with pollarded trees Site 11 at NN 6313 2237; a woodland enclosure Site 15 at NN 6343 2262 and three old tracks. The most significant and extensive site is Site 2, a shieling ground or semi-permanent settlement centred at NN 6320 2127. A total of 68 individual site were recorded here including 4 dykes, a still site (2.37), 2 platforms (2.50 and 2.51) and 61 shieling hut foundations ranging from small circular turf huts to more substantial sub rectangular stone foundations. A possible corn drying kiln, Site 2.48, suggests this settlement may have had a more permanent nature although excavation would be required to confirm the identification of Site 2.48 as a corn drying kiln. A few of the huts had clearly been built on top of earlier huts (e.g. Sites 2.19, 2.58) The Estate proposes erecting a notice board with the survey map of the shieling ground at the site which is crossed by the well used walking track up Ben Vorlich.
PROPOSED FUTURE WORK:	None
CAPTION(S) FOR ILLUSTRS:	Ardvorlich Estate Shieling Ground
SPONSOR OR FUNDING BODY:	Ardvorlich Estate
ADDRESS OF MAIN CONTRIBUTOR:	Firat Archaeological Services, Hillcroft, Station Road, Rhu, by Helensburgh, G84 8LW
EMAIL ADDRESS:	Fiona@scottish-archaeology.com
ARCHIVE LOCATION (intended/deposited)	Held by FAS until deposited in RCAHMS

Acknowledgements

The initial walk over survey and desk study was undertaken by Jennifer Robertson in 2008. Additional survey work was undertaken by Fiona Baker and by Fiona Baker and Jennifer Robertson in 2009. The standing building recording of the mill site was undertaken by Fiona Baker and Jennifer Robertson. All watching brief work was undertaken by Fiona Baker. The final drawn up elevations and plan of the saw mill, the map of the shieling ground Site 2 and the general site location plan were prepared by David Connolly. The EDM survey of the saw mill was undertaken by Hydroplan UK and the general site map showing archaeological sites, method for mill demolition and visualisation of the powerhouse are all by Hydroplan UK. The final report has been written and produced by Fiona Baker.

The work was commissioned by Hydroplan UK and the project has been funded by Mr and Mrs Stewart of Ardvorlich Estate. The main site contractors were DA MacDonald of Inveraray and we are grateful to the project manager Stephen Kennedy and all of the works team for their unfailing assistance and consideration for the archaeology throughout the project. The archaeological work was monitored by Perth and Kinross Heritage Trust (Sarah Winlow) on behalf of Loch Lomond and The Trossachs National Park planning authority.

Report Distribution

Copies of this report have been supplied to:

- Ardvorlich Estate (2 hard copies and digital copy)
- Hydroplan UK (hard copy and digital copy)
- Perth and Kinross Heritage Trust (hard copy and digital copy)
- Dr Jennifer Robertson (hard copy and digital copy)
- Firat Archaeological Services (hard copy and digital copy)
- Royal Commission on Ancient and Historic Monuments of Scotland (NMRS) (hard copy, digital copy and full project archive).

Bibliography

Maps.

Roy's Military Survey of Scotland, 1747-55.

James Dorret: A general map of Scotland and islands thereto belonging, 1750.

James Stobie: The Counties of Perth and Clackmannan, London, 1783.

John Ainslie: Scotland 1789.

John Thomson: Atlas of Scotland: Perthshire with Clackmannan, 1832.

OS 1st Ed. 6" Map Sheet Perthshire xciii, surveyed 1861, published 1867.

Sir John Murray and Laurence Pullar: Bathymetrical Survey of the Fresh Water Lochs of Scotland ... during the years 1897 and 1909, vol. 3 Plate 22 Loch Earn, surveyed 1902, published 1908.

OS 1:10,000 Sheet NN62W, 1982.

OS 1:25,000 Explorer 368 Crieff, Comrie and Glen Artney, 2007.

Aerial Photographs

Aerial photographs, held by the Air Photo Unit, RCAHMS, Edinburgh, were consulted.

a) 106G/SCOT/UK37; Date 29.4.46; Scale 1:10,000; Frames 4015 - 4017

b) CPE/SCOT/UK262; Date 14.8.47; Scale 1:10,000; Frames 4059 – 4057; 3059 – 3057

c) OS/99/930; Date 27.7.99; Scale 1:17,000; frames 1496 – 1498; 1444 - 1446

Published Sources

The following contained information relevant to the survey area:

Bain, Elizabeth: A Short Introduction to the Study of Deserted Settlements, n.d Strathearn Archaeology Society.

Baxter, Rev. Mr. Colin: "Parish of Comrie" in The (Old) Statistical Account of Scotland, Vol. XI, 1792-3, pp. 178-188.

Hunter, John: Chronicles of Strathearn, 1896, Crieff

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McNaughton, David: Upper Strathearn from Earliest Times to Today, 1989.

MacPherson, Rev. John: "At the Head of Strathearn" in Hunter (ed.), Chronicles of Strathearn, 1896, 157-182

Mayall, Colin: The Story of Strathearn, Crieff, 2001

Stewart, James: The Settlements of Western Perthshire: land and society North of the Highland Line 1480-1851, Pentland Press, Haddington, 1990.

Contents and Location of the Archive

- One field notebook with additional waterproof notebook sheets inserted
- Nine pages of pencil sketches of the Site 2 shieling huts
- One sheet of permatrace with 1.50 scale plan of the saw mill Site 22
- Digital copy of Jennifer Robertson's 2008 report
- Digital copy of Jennifer Robertson and Fiona Baker October 2009 report
- Digital copy of this report
- All photographs as listed on disk and paper copy of photograph list
- 2 paper copies and digital copy of the Discovery and Excavation in Scotland entry.
- Digital and hard copies of Hydroplan archaeological sites map, Method for Mill Demolition, Visualisation of the Power House and Mill Survey.
- Digital copy of the map of the shieling ground Site 2.
- Copy of the PKHT Terms of Reference
- Copy of the Written Scheme of Investigation by Firat Archaeological Services

Photograph List

No.	Direction to	Description
13.11.09	Site 22 The Saw Mill	
1+2	SE	W elevation
3	E	W elevation
4+5	E	W elevation general
6	E	W elevation, outer riverside wall of wheel pit
7	E	W elevation general
8	E	W elevation, detail of missing stone hole
9-12	NE	General views of whole mill and W elevation
13-16	SE	Felling of beech tree to SE of mill
17-20	-	1878 painting of saw mill by Roberts (in possession of Stewart Family)
21+22	S	Interior of mill
23	W	Mill interior N window
24	W	West interior wall of mill
25	W	Mill interior S window
26	W	West interior wall of mill
27	SSW	View to river over wheel pit
28-29	S	F3 S pillar and F5 launder entrance / wall (see drawing)
30	S	Wheel pit and launder entrance
31-32	N	Mill interior from pillar F3 at south end
33	N	South side of the launder entrance to wheel pit
34-35	N	South wall of mill (F5 and F20)
36	W	N window detail of sandstone sill
37	S	E wall of mill and entrance on N side, note bowed E wall and collapsed corner

38-39 SSW Platform on E of mill (horizontal 2m scale) and entrance to mill
(vertical 2m scale)

18.3.10 Recording of Sites 18 / 19 culverts

40-42 SSE Culvert 18B (in wall Site 18)
43-45 NNW Culvert 18B (in wall Site 18)
46-48 SSE Culvert 18A, north side of wall, start of drain Site 19
49-50 NW Culvert 18A, south side of wall, silted up
51 NE New plastic culvert in drain Site 19 under new road
52 SW New plastic culvert in drain Site 19 under new road
53-54 S Site 22 saw mill as dismantled
55-57 E Site 22 saw mill as dismantled

15.4.10 Survey of Shieling Ground Site 2

58-59 S Sites 2.35 and 2.36, shieling huts
60-61 S Sites 2.35 and 2.36 with 2.35 in foreground
62-64 NE Sites 2.35 and 2.36
65 NE Site 2.36, shieling hut
66 NE Site 2.35 shieling hut
67 E Site 2.37 still site with platform
68-69 N Site 2.37, still
70-71 W Site 2.37 still
72 NW Site 2.38 structure
73 NE Site 2.38 structure
74 SW Site 2.39 structure
75 NE Site 2.39 structure
76-77 S Site 2.40 track and retaining wall
78-80 N Site 2.32 shieling hut
81 S Site 2.32 shieling hut
82-83 ENE Site 2.33 shieling hut
84-85 N Site 2.41 shieling hut with 2.32 and 2.33 in the background
86-87 E Site 2.32 shieling hut
88-89 NE Site 2.29 shieling hut
90 NW Site 2.29 ancillary structure
91 NW Site 2.30 wall
92 W Site 2.31 circular shieling hut
93 NW Site 2.42 circular shieling hut
94 NW Site 2.43 heather covered circular shieling hut
95 NW Site 2.44 rectangular shieling hut
96 W Site 2.45 stone shieling hut foundations
97-98 S Site 2.45 stone shieling hut foundations
99 N Site 2.47 rectangular shieling hut foundations
100 N Site 2.47 rectangular shieling hut foundations
101-102 WNW Site 2.48 whole structure, possible corn drying kilns
103 NNW Site 2.48 west part of structure
104-105 S Site 2.48 SW room entrance, possible flue
106 vert Site 2.48 SW room entrance or flue
107 S Site 2.48 SW room viewed along entrance passage or flue
108 W Site 2.48 NW room viewed from its entrance (?flue)

109-110	NW	Site 2.21, both structures
111-112	NW	Site 2.49
113	E	Sites 2.49, 2.50 and 2.51
114	E	Site 2.50 platform
115	E	Site 2.51 platform
116	ENE	Site 2.52 structure
117	NW	Site 2.52 structure
118	NE	Site 2.53 small structure
119	E	Site 2.54 small structure

29.4.10 Watching brief of pipe route from new bridge across the Ardvorlich Burn to Intake 5 on Allt a Choire Bhuidhe

120	S	Deer fence area and sites 2.38 and 2.39
121-122	S	Existing track Site 4, knoll that is cut back on S side of Allt a Choire Bhuidhe towards turn to W to Intake 5
123	NNE	view along pipe track route for Intake 5
124	N	Site 2.59 shieling hut
125	E	Site 2.59 shieling hut
126	N	View over excavation route for Intake 5 from Site 2.55
127	SW	View along route to Intake 5
128-129	NNE	View over pipe route for Intake 5 as excavated from Intake 5's location.
130-131	NE	View over pipe route for Intake 5 as excavated viewed from location of Intake 5
132	SW	View over pipe route to Intake 5 from junction with existing track Site 4.

3.5.10 Surveying and watching brief of upgrading to track Site 4

133-134	SE	Site 2.60
135	S	Site 2.10
136	NW	Sites 2.55 and 2.56 viewed from Site 2.10
137	S	Site 2.55 through entrance to interior
138	W	Site 2.55 structure
139	E	Site 2.55 structure
140	S	Site 2.56 structure
141	W	Site 2.56 structure
142	SE	Site 2.57 oval stone setting
143	NE	Site 2.57 oval stone setting
144-145	NE	Site 2.58 larger hut view through entrance
146	SE	Site 2.58 with smaller hut at rear
147	NW	Site 2.58 view over small hut to larger hut
148	N	Site 2.58

5.5.10 Watching brief of excavation of new pipe route to Intakes 6 and upgrading of track Site 4

149	E	General view over new pipe route track to Intakes 6
150	NW	General view over new Intake 6 pipe route
151	N	Cutting of dyke Site 1 by new track
152	W	Dyke Site 1 in section

153 N View of upgraded track Site 4 as excavated, Sites 2.20 and 2.21 on right (E)

17.11.10 Watching brief of pipe route through shieling ground Site 2

154 NNW N end of the pipe route at the small working compound on Intake 5 route just N of Site 2.18
155-156 SSE Route of the pipe trench, pre –excavation
157 S Site 2.65 possible shieling hut
158 SW Site 2.62 shieling hut
159-160 SSW Site 2.61 shieling hut
161 W Site 2.63 shieling hut
162 SSE Site 2.64 shieling hut

18.11.10 Watching brief of pipe route through shieling ground Site 2

163 NW General view of pipe route across the shieling ground as excavated from the S end
164-165 W General view over pipe route across the shieling ground with Site 2.28 in the foreground and machine stuck in peat.

28.7.09 monitoring of test pits / additional survey

166 S Site 18A culvert
167 SSE Site 18B culvert
168 NW Site 24 knocking stone in shieling ground Site 2
169 NE Site 25 dyke
170 NE Site 2.22 shieling hut
171 WNW Site 2.22 shieling hut
172 NNE Site 2.27 shieling hut
173 W Site 2.28 shieling hut

June 2008 survey by Jennifer Robertson, photographs 174-203 by Jennifer Robertson

174 W Shieling hut Site 2.1
175 NW Shieling hut Site 2.2
176 W Shieling hut Site 2.3
177 W Shieling hut Site 2.4
178 NE Shieling hut Site 2.5
179 NE Shieling hut Site 2.6
180 N Shieling hut Site 2.7
181 NE Shieling hut Site 2.8
182 WSW Shieling hut Site 2.9
183 S Shieling hut Site 2.10
184 N Shieling hut Site 2.11
185 S Shieling hut Site 2.12
186 N Shieling hut Site 2.13
187 N Shieling hut Site 2.14
188 E Shieling hut Site 2.15
189 - Shieling hut Site 2.16
190 NW Shieling hut Site 2.17
191 NW Shieling hut Site 2.18
192 NE Shieling hut Site 2.19

193	W	Shieling hut Site 2.20
194	W	Shieling hut Site 2.21
195	W	Shieling hut Site 2.22
196	NW	Shieling hut Site 2.24
197	SE	Shieling hut Site 2.25
198	E	Site 13 corn drying kiln
199	N	Site 13 corn drying kiln
200	E	Site 13 corn drying kiln
201	S	Site 14 farmstead
202	NE	Site 14 farmstead

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