

Gelli Gain Reservoir, Gwynedd

Archaeological Assessment



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

Gelli Gain Reservoir, Gwynedd

Archaeological Assessment

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Front cover image: General view of reservoir dam (archive reference number: G2579_004)

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CRYNODEB ANNHECHNEGOL

Comisiynwyd Ymddiriedolaeth Archaeolegol Gwynedd gan Stillwater Associates Limited ar ran Dŵr Cymru i ymgymryd ag asesiad archaeolegol fel rhan o ymchwiliad mewn i ddichonoldeb posibl o ddileu argae concrid sydd yn bodoli yn Llyn Gelli Gain, ger Bronaber, Gwynedd. Nodwyd bod y gronfa ddŵr yn llyn naturiol a gafodd ei adnewid. Nodwyd bod llwybr mynediad y safle o'r de-orllewin yn addas i gerbydau oddi ar y lon i gyrraedd yr argae, a bod y llwybr wedi ei addasu drwy fewnosod gwasanaethau cysylltiedig â rheoli dŵr ar ei hyd.

Nodwyd bod yr ardal astudio ehangach gyda chyfoeth o archaeoleg cynhanesyddol ag Rhufeinig. Cyfyngwyd gweithgarwch canoloesol a diweddarach, i borfa ucheldirol defaid gyda phori yn cael ei wneud dros y rhan fwyaf o'r ardal. Ym mlynnyddoedd cynnar yr ugeinfed ganrif, cafodd yr ardal ei drosglwyddo gan yr arfog ar gyfer gwersyll a safle artilleri Bronaber, a roddwyd argae yn Llyn Gelli Gain er mwyn eu cynorthwyo mewn darparu cyflenwad dŵr ar gyfer y gwersyll a'r ardal leol.

Fe nodwyd un ar bymtheg o safleoedd o fewn 200m o'r gronfa ddŵr a'r llwybr mynediad. Roedd tri o'r safleoedd hyn o ddyddiad cynhanesyddol, tri o ddyddiad Rhufeinig, a deg o ddyddiad ôl-ganoloesol.

Mae'n debygol y bydd y tir ar gyffiniau'r argae yn cael ei aflonyddu'n sylweddol gan seilwaith sydd yn gysylltiedig â'r gronfa dŵr. Ystyrir felly, lle bo'n ymarferol, y dylid cynnal briff gwylio rhannol yn ystod addasiad strwythur yr argae ei hun i gofnodi manylion yr adeiladu. Ystyrir bod y llwybr ei hun wedi'i addasu ormod i fynnu lliniaru archeolegol pellach.

Gan fod yr ardal ehangach gyda chyfoeth o actifedd archaeolegol bydd angen rhoi ystyriaeth i seilwaith y gwaith os byddai yn cwmpasu ardal ehangach na'r llwybr a chyffiniau'r gronfa gyfagos. Byddai'r ymyriadau hyn yn debygol o gael effaith ar y dirwedd archeolegol, a argymhellir methodoleg anymwithiol er mwyn sicrhau osgoi hyn os o bosib. Os nad yw hyn yn bosib, yna efallai bydd angen gwerthusiad archaeolegol ymlaen llaw gan ddefnyddio ffos treil, neu lliniaru fel strip dan reolaeth ar gyfer unrhyw ardaloedd a fyddai'n eu heffeithio.

NON-TECHNICAL SUMMARY

Gwynedd Archaeological Trust was commissioned by Stillwater Associates Limited on behalf of Dŵr Cymru to undertake an archaeological assessment as part of a feasibility study looking into the possible removal of the existing concrete dam at Llyn Gelli Gain, near Bronaber, Gwynedd. The reservoir was noted to be a modified natural lake. The access track from the south-west was noted to be suitable for off-road vehicular access to the dam, and to have been modified by the insertion of water management related services along its length.

The wider study area was noted to be very rich in prehistoric and Roman archaeology. Medieval and later activity was limited to upland sheep pasture, with common grazing being carried out over much of the area. In the early years of the 20th century the area was taken over by the military for the Bronaber artillery range and camp, and Llyn Gelli Gain was dammed to assist in the provision of a water supply for the camp and local area.

Sixteen sites were identified within 200m of the reservoir and access trackway. Three of these latter sites were of prehistoric date, three of Roman date, and ten of post-medieval date.

The area immediately surrounding the dam is likely to be significantly disturbed with reservoir related infrastructure. It is therefore considered that where practicable a partial watching brief should be carried out during the modification of the dam structure itself to record constructional details. The bed of the trackway itself is considered too modified to require further archaeological mitigation.

As the wider area is rich in archaeological activity, consideration would need to be given to the works' infrastructure if it covered a wider area than the track and the immediate vicinity of the reservoir. These interventions would be likely to have an impact upon the archaeological landscape, and a low impact methodology to ensure avoidance is to be recommended if this is a possibility. If this is not possible then either an archaeological evaluation in advance using trial trenching, or mitigation such as a controlled strip, might be required for any impacted areas.

1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) was commissioned by Stillwater Associates Limited on behalf of Dŵr Cymru to undertake an archaeological assessment as part of a feasibility study looking into the possible removal of the existing concrete dam (reservoir discontinuance) at Llyn Gelli Gain, near Bronaber, Gwynedd (NGR SH73353278; Figure 01). The reservoir was located within an upland area east of Trawsfynydd and Bronaber, within the Snowdonia National Park. As specified in data supplied by Stillwater Associates Limited, Llyn Gelli Gain is a raised natural lake, impounded by a small gravity dam. The dam is a mass concrete stepped wall gravity structure 1.6m high and 27m long, with boulders placed on the downstream side (Plates 1-2). The spillway is constructed of concrete and comprises a broad-crested weir and a small downstream chute. The chute comprises wing walls and a base slab (Plate 3). The Stillwater Associates Limited data also states that a “small linear concrete structure exists within the reservoir some 50m upstream of the dam, the purpose of which is unknown”. The removal strategy has not been confirmed, but may include removing all concrete parts above ground (possibly leaving in concrete foundations/cut-off walls), with smaller infrastructure possibly also left behind, such as a small weir to control future water levels. The water body would return to a natural lake on its original footprint. The existing 1.78km long access road runs from a local road to the dam and may be improved as part of the discontinuance works to allow for site traffic. The access road was included in the assessment.

The assessment was undertaken in accordance with the guidelines specified in the Chartered Institute for Archaeologists *Standard and Guidance for Historic Environment Desk-Based Assessment* (Chartered Institute for Archaeologists, 2014), MoRPHE (English Heritage 2015) and MAP2 (English Heritage, 1991, *Management of Archaeological Projects*).

The Historic Environment Record Enquiry Reference Number for this project is GATHER1005 and the Event Primary Reference Number (PRN) is 45326.

GAT is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/B/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists and a member of the Federation of Archaeological Managers and Employers (FAME).

2 METHODOLOGY

2.1 Assessment (Desktop Study)

A desk-based assessment is defined as “a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage....Significance is to be judged in a local, regional, national or international context as appropriate” (ClfA 2014, 4).

The desk-based assessment included the study of the following resources:

1. The regional Historic Environment Register ((HER) Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT) was examined for information concerning the study area, defined as Llyn Gelli Gain, immediate environs and the access road, as detailed on Figure 01. This included an examination of the core HER, the 1:2500 County Series Ordnance Survey maps and any secondary information held within the HER. All identified assets were mapped, described and added to a gazetteer of sites and the relative importance of any assets defined;
2. The National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, Plas Crug, Aberystwyth SY23 1NJ) was checked for assets additional to the HER. A survey of the Cwm Prysor Area, carried out for RCAHMW as part of the Uplands Archaeology initiative 2012-2013 was consulted (May 2013);
3. Aerial photographs from the National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, National Monuments Record of Wales, Plas Crug, Aberystwyth SY23 1NJ) were examined for potential assets;
4. An on-line catalogue search of the National Library of Wales (Penglais Rd, Aberystwyth SY23 3BU) was completed;
5. Archive data, including primary and secondary sources, historic maps and estate maps were examined at the regional archives (Meirionnydd Record Office & Public Library, Bala Rd, Dolgellau LL40 2YF) and included historic mapping including the local tithe map and schedule; and

6. If available for the assessment area, Light Detection and Ranging (LiDAR) data will be examined from the Lle Geo-Portal at <http://lle.gov.wales/home> for information on potential surface features using digital terrain modelling and digital surface modelling.

2.2 Walkover Survey

A walkover survey was undertaken on the 16th October 2018 of Llyn Gelli Gain, the immediate environs and the access road, as detailed on Figure 01. The weather was characterised by low cloud and wet conditions that reduced long range visibility.

All known and new archaeological features on the ground were located and described on GAT pro-formas; the sites were then added to the overall gazetteer and their relative importance defined. The potential for sub-surface archaeology was estimated and defined. A photographic record was maintained in RAW format using a digital SLR (Nikon D5100) camera set to maximum resolution (4,928 × 3,264; 16.2 effective megapixels) and were converted to TIFF format for archiving using Adobe Photoshop; the photographic record was digitised in *Microsoft Access* using archive numbering system G2579_001 to G2579_030 ([Appendix II](#)).

2.3 Gazetteer

A gazetteer was compiled for all identified sites within and within proximity to the assessment based on information sourced from the regional HER; the gazetteer included the following:

1. Feature Number
2. Site name
3. PRN number
4. Grid reference
5. Period
6. Site type
7. Assessment category
8. Description
9. Impact
10. Recommendation for further assessment/evaluation
11. Recommendation for mitigatory measures

The following categories will be used to define the assessment category of the archaeological asset:

Category A - Sites of National Importance.

Scheduled Monuments, Listed Buildings of grade II* and above, as well as those that would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both. Sites that are scheduled or listed have legal protection, and it is recommended that all Category A sites remain preserved and protected *in situ*.

Category B - Sites of regional or county importance.

Grade II listed buildings and sites which would not fulfil the criteria for scheduling or listing, but which are nevertheless of particular importance within the region. Preservation *in situ* is the preferred option for Category B sites, but if damage or destruction cannot be avoided, appropriate detailed recording might be an acceptable alternative.

Category C - Sites of district or local importance.

Sites which are not of sufficient importance to justify a recommendation for preservation if threatened. Category C sites nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and damaged sites.

Sites that are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category. For Category D sites, rapid recording, either in advance of or during destruction, should be sufficient.

Category E - Sites needing further investigation.

Sites, the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A - D are temporarily placed in this category, with specific recommendations for further evaluation. In this report several sites of unknown potential have been allocated to this category.

The impact of the proposed works on any asset will be identified using the following impact criteria, defined either as *none, slight, unlikely, likely, significant, considerable or unknown* as follows:

None:

There is no construction impact on this asset.

Slight:

This has generally been used where the impact is marginal and would not by the nature of the site cause irreversible damage to the remainder of the asset, e.g. part of a trackway or field bank.

Unlikely:

This category indicates sites that fall within the band of interest but are unlikely to be directly affected. This includes sites such as standing and occupied buildings at the margins of the band of interest.

Likely:

Sites towards the edges of the study area, which may not be directly affected, but are likely to be damaged in some way by the construction activity.

Significant:

The partial removal of an asset affecting its overall integrity. Assets falling into this category may be linear features such as roads or tramways where the removal of part of the feature could make overall interpretation problematic.

Considerable:

The total removal of an asset or its partial removal which would effectively destroy the remainder of the site.

Unknown:

This is used when the location of the asset is unknown, but thought to be in the vicinity of the proposed works.

Definition of field evaluation techniques

Field evaluation is necessary to fully understand and assess most class E sites and to allow the evaluation of areas of land where there are no visible features but for which there is potential for sites to exist. Two principal techniques can be used for carrying out the evaluation: geophysical survey and trial trenching. Topographic survey may also be employed where sites are thought to survive as earthworks.

Geophysical survey most often involves the use of a magnetometer, which allows detection of some underground features, depending on their composition and the nature of the subsoil. Other forms of geophysical survey, including resistivity survey and ground penetrating radar might also be of use.

Trial trenching allows a representative sample of the development area to be investigated at depth. Trenches of appropriate size can also be excavated to evaluate category E sites. Trenching is typically carried out with trenches of between 20 to 30m length and 2m width. The topsoil is removed by machine and the resulting surface is cleaned by hand, recording features. Depending on the stratigraphy encountered the machine may be used to remove stratigraphy to deeper levels.

Definition of Mitigatory Recommendations

None:

No impact so no requirement for mitigatory measures.

Detailed recording:

This requires a full photographic record and measured survey prior to commencement of works.

Archaeological excavation may also be required depending on the particular feature and the extent and effect of the impact.

Basic recording:

Requiring a photographic record and full description prior to commencement of works.

Controlled Strip (Strip/Map/Sample):

The technique of Controlled Strip (Strip/Map/Sample) involves the examination of machine-stripped surfaces to identify archaeological remains. The stripping is undertaken under the supervision of an archaeologist. Stripping and removal of the overburden is undertaken in such a manner as to ensure damage does not take place to surfaces that have already been stripped, nor to archaeological surfaces that have not yet been revealed.

Stripping is undertaken in as careful a manner as possible, to allow for good identification of archaeological features. A small team of archaeologists will be responsible for subsequently further cleaning defined areas where necessary. Complex sites which cannot be avoided will need to be fully excavated.

Watching brief:

This is a formal programme of observation and investigation conducted during any operation carried out for non-archaeological reasons. This will be within a specified area or site on land, inter-tidal zone or underwater, where there is a possibility that archaeological deposits may be disturbed or destroyed. The programme will result in the preparation of a report and ordered archive.

Avoidance:

Features, which may be affected directly by the scheme, or during the construction, should be avoided. Occasionally a minor change to the proposed plan is recommended, but more usually it refers to the need for care to be taken during construction to avoid accidental damage to a feature. This is often best achieved by clearly marking features prior to the start of work.

Reinstatement:

The feature should be re-instated with archaeological advice and supervision.

3 RESULTS

3.1 Desk based assessment

3.1.1 Location and geological summary

Llyn Gelli Gain, near Bronaber, Gwynedd (NGR SH73353278; Figure 01) is a reservoir located within an upland area east of Trawsfynydd and Bronaber, within the Snowdonia National Park. It is located to the east of Bronaber along a minor road off the A470 and then on an upland track. It is a raised natural lake, impounded by a small gravity dam (Plates 4-5). The dam is a mass concrete stepped wall gravity structure 1.6m high and 27m long, with boulders placed on the downstream side.

The wider landscape area occupies an inland, largely marginal situation, stretching from the lower eastern slopes of the Rhinogau mountains (at a height of up to 450m OD) eastwards across the low-lying valley through which the Afon Eden slowly flows (at around 200m OD) and up to the top of Moel Oernant and Moel Ddu (a maximum of 500m OD): the eastern extent of the area is the top of Cwm Prysor.

The soils consist of typical brown Podzolic soils of the Manod Association with some of the Malvern Association close by (BGS 1980). These overlie exposed Cambrian Rhiniog grits, which are fractured in the exposed conditions (Smith and George 1961, 16-18).

3.1.2 Statutory and non-statutory designations

Llyn Gelli Gain is located within the Snowdonia National Park and within the Trawsfynydd Historic Landscape Characterisation area, specifically, *Area 19 Unenclosed mountain – Moel Ddu and Moel Oernant* (PRN 18285) and *Trawsfynydd Basin and Cwm Prysor*. This area is characterised by its “open, unenclosed nature which contains two (scheduled) important prehistoric and Roman sites, and served as a firing range for artillery in the early 20th century” (source: <http://www.heneb.co.uk/hlc/trawsfynydd/traws19.html>). There are no known archaeological assets or Listed Buildings within the reservoir or the immediate environs. The closest Scheduled Monuments are the Roman Kilns (Ref: ME071; PRNS 1601 and 2893; SH72753192) about 70m to the north of the trackway and 1km south of the reservoir (Figure 01), and the closest Listed Building is the former 17th century house at Rhiw Goch located 1.6km to the south-west at SH71993175 (PRN 12462; LB Grade II Ref: 4848).

The study area lies partly within the *Bro Trawsfynydd a Chwm Prysor HLW (Gw) 11* Landscape of Outstanding Historic Interest in Wales (Cadw/ICOMOS 1998, 109-112). The boundary lies about 310m west of the reservoir itself and includes the lower third of the access track and the Roman Road (Sarn Helen). The area is described as ‘a natural upland basin and tributary valley, adjoining the east side of the Rhinog Mountains to the south of Snowdonia, containing well-preserved evidence of communications and recurrent military use from Roman to recent times. The area includes: ‘an unique and extensive Roman military complex and other features; medieval defensive sites and their territories; First and Second World War artillery training ranges; Trawsfynydd nuclear power station and artificial lake; historic legendary and literary associations’ (Cadw/ICOMOS 1998, 112).

3.1.3 Environmental remains and soil morphology

The area around Llyn Gelli Gain consists of upland landscape of shallow soils over bedrock, with deeper patches of waterlogged deposits, and numerous watercourses (Plates 7, 9-10). There was also much exposed bedrock and scree. The banks of the reservoir were covered in low lying juncus, reeds and some small patches of grass, along with outcrops of bedrock and loose rock. Waterlogged deposits survive in the vicinity of the reservoirs, which mean that the potential for survival of organic deposits is significantly increased. However in places these deposits may be already significantly disturbed as part of the reservoir modification.

The trackway itself runs along ground that appears to have been significantly affected by the insertion of pipes and infrastructure relating to the water management systems (Plates 11-12). It is not thought likely that significant environmental remains are likely to be present here, so no specific mitigation will be required here unless wider areas than the trackway and the immediate vicinity of the dam will be disturbed.

3.1.4 Historical and archaeological background

3.1.4.1 Prehistoric and Roman

The upland nature of the landscape around the Gelli Gain Reservoir means that it has only been moderately exploited in more recent times. It therefore preserves a relict palimpsest of ancient and historic landscapes, resulting in the survival of a wealth of historic remains within and around the study area from prehistoric and Roman times.

Two possible stone circles have been identified to the 1.6km south of the study area (PRN 1603; SH72553125), and (PRN 2894; SH72603150), the latter being 10m in diameter. These are probably late Neolithic in date. A prehistoric standing stone is also noted at SH73113108 (PRN 1602). This is a Scheduled Monument (Ref: ME072) and lies 1.55km south of the reservoir.

The archaeological assets closest to the reservoir include three prehistoric cairns (PRN 1653, 1690 and 1691), located 140m to the northwest at NGR SH73193295, 190m to the northeast at NGR SH73703310, and 270m to the northeast at NGR SH73763317, respectively. A number of small low cairns form an alignment down the slope and an outcrop on the skyline on the bwlch above Llyn Gelli Gain. Both PRNs 1653 and 1690 appear to have been disturbed. The westernmost is approximately round with a hole in the centre, indicating digging into the mound in historic times. The East may have originally been round but is now spread downslope (Smith 2001, 25).

Later prehistoric sites in the form of hut circle settlements and field systems are known from the upland area to the north of Llyn Gelli Gain. The hut circle and field system at Craiglaseithin in 830m north northwest of the reservoir at SH73203370; PRN 1649) and the enclosed hut circle settlement at Fridd Bodyfyddau (PRN 1604; SH73003420) is 1.45km to the north west. These sites represent settlement activity and exploitation of the uplands in the centuries before the Roman conquest, and are both Scheduled Monuments (Ref: ME 169 and ME168 respectively).

A portion of the Tomen y Mur to Brithdir Roman Road (PRN 17758 and 17,853) is located 910m to the west of the dam at NGR SH72383255 (Hopewell 2013, 60-62). It is a finely preserved piece of proper Roman road formed by two parallel ditches with the agger still

visible, although this is not so clear close to the reservoir access track. The line runs between 90m and 170m south and southwest of the track (Bowen and Gresham 1967, 251). A number of Roman Kilns also survive in this area (PRN 1601 and 2893; SM ME071; SH 72753192), between 70m and 110m north east of the access track (*ibid.*, 262-263). These consist of grass mounds up to 10.9m diameter, 0.29m high composed of burnt and fused material including tiles and bricks of the same type found at the roman fort of 'Tomen Y Mur'. It is situated at the side of the Roman road near 'Pen y Stryd.' Pennant (1779) describes one of the mounds as a tumulus, and says that five urns were found in it, protected from damage by fragments of brick placed around them. A further mound (PRN 1600, SH72693189) has been interpreted as a Roman cremation burial mound, but it may in fact be another kiln owing to the similarity of its contents. A well preserved Roman tile kiln was excavated at SH73103120, 25m north of the Llech Idris Standing Stone (PRN 29,507).

3.1.4.2 Medieval

The early medieval stone memorial known as Bedd Porus carries the inscription: 'Porus lies here in the grave' [in Latin] and is located at SH73293136 (PRN 1615). It is thought to be of 5th-6th century date. The stone was moved from its original site by 1773, and c.1830 set in this location, and was later removed to the National Museum of Wales, with a replica erected within a railed enclosure on the site. Although not in its original location, this stone represents evidence of early medieval activity in the area.

Trawsfynydd lay within the medieval commote of Ardudwy Uwch Artro and was largely an upland parish (Beverley-Smith and Beverley Smith 2001, 722). It was described as one of the poorest in the county in the lay subsidy roll of 1292-3, due to the lack of ability for intensive agriculture (Williams-Jones 1976). The Afon Gain formed the western part of the boundary of the monastic grange of Cwm Cedryn, an estate farm of Cymer Abbey (Williams 1990, 42). Whilst much of the isolated holdings were probably used as *ffriddoedd* (sheepwalks), Cymer is said to have held the pastures at Y Feidiog (SH780230) where 60 cows could be grazed (*ibid.*). The study area, north of the fields of Gelli Gain farm, is shown as 'Llechwedd Cain Common' on the 1840 tithe map (Figure 02), and it is likely that the use of this area was mainly upland pasture in medieval times, and that the upland part of the monastic grange land became common after the reformation.

Much of the uplands had been cleared of woodland in prehistoric times with further clearance in medieval times (Casteldine 2006, 143). Following this clearance activity changes in the palaeoenvironmental record for the wider area have been attributed to grazing. The landscape of the uplands was modified subsequently through continued seasons of summer grazing, based on temporary summer settlements or *hafodau* sited in the valleys and along the edges of the moor (Longley 2006). Within the study area a possible *hafod* farmstead has been identified, although this may be a site of earlier date (Feature 13; PRN 5268; SH73603215), which whilst of post-medieval date, may have earlier origins as the site of a former *hafod*. Documentary evidence indicates that permanent farms with associated fields had been established in a number of instances by a least the middle of the 16th century (Alfrey 2006, 158-159) replacing the earlier more transhumance agriculture. Farms such as Gelli Gain are likely to originate around this time, and whilst it is possible that some of the field systems may be medieval in date this is thought to be unlikely.

3.1.4.3 Post-Medieval

A former post-medieval gold mine (PRN 20939) is located 180m east of the reservoir at NGR SH73803280 and a post-medieval sheepfold (39199) is located 200m to the south at SH73483254. There is also evidence of slate quarrying in the area at Bedd Porus (PRN 20,332; SH73203170) and Gelli Gain (PRN 20,327; SH72803180). These indicate the presence of significant industrial and agricultural activity in the area from the 18th and 19th centuries. The field system around the southern part of the access track formed part of the in-fields of Gelli Gain farm (Features 02-05) and these would have been active in post-medieval times (Plates 15-18). The valley of the Afon Gain contains the remains of a number of post-medieval farmsteads located in relatively close proximity to each other and sheepfolds scattered across the region. This suggests that pastoral practices largely revolved around sheep, probably since the landscape could not support large numbers of cattle (May 2013, 4). Many of these were subsequently lost when the army took over the area from 1906.

Bronaber camp with its extensive firing range is probably the best known and most visible of the training camps, and probably the largest and most complete military landscape in north west Wales. The range is the subject of on-going research by the University of Sheffield (Johnston, R. *pers. comm.*), and the study area is located within the perimeter of the former range.

The range at Trawsfynydd (PRN 58761) was established in the Military Manoeuvres Bill 1900 (Kenney and Hopewell 2015, 14-16). By 1913, Trawsfynydd was identified as one of the Royal Artillery's main practice ranges together with Lark Hill, West Down, Okehampton. It is said that the landscape played a role in determining the location of the range at Trawsfynydd. The low rolling hills and the hidden valley of Cwm Cain formed perfect training for the new tactics of long-range artillery barrage beyond line of site. Its remoteness, low density population and close access to the railway, must also have played a part. The extent of the range initially covered just over 8000 acres, before being extended slightly to the south by 1923, and then extended to over 13,000 acres in the early 1950s.

The camp serving the ranges was first located near the train station at Bryn Goleu, to the north. In 1905 the camp moved to Bronaber, on the land below Rhiw Goch, with the seventeenth-century house (PRN 12462; SH71993175; LB Grade II Ref: 4848) used as the officers' mess.

There was a proposal to extend the range by 5,000 acres in 1948, which led to a public inquiry held in Dolgellau in November 1949. Some protests against the extension followed in 1951, although they did not prevent training in the extended area. The ranges were closed in 1957/8, the land was returned to the original owners and some was purchased by the Forestry Commission. Numerous structures relating to military infrastructure are located over the former ranges, although none, with the possible exception of the reservoir itself (PRN 74, 586), are located within the study area.

Although a date for the construction of the reservoir has not been found, it would appear that the natural lake of Gelli Gain was dammed in the early 20th century to provide an additional water supply for Trawsfynydd and the substantial army camp at Bronaber.

3.1.5 Cartographic evidence

Much of the study area is shown as ‘Llechwedd Cain Common’ on the 1840 tithe map of Trawsfynydd parish (Figure 02). This indicated that the area was used for common grazing, and with no private landowner, no earlier estate or other maps are known or expected to exist covering this area. The lower portions of the access track route are shown as being part of Gelli Gain farm. The apportionment shows Gelli Gain to have been the property of Lord Mostyn in 1840, and to have been occupied by Robert Roberts. Some of the fields were, however, part of Brynlllyn Fawr holding and were owned by Sir Robert Williams Vaughan Bart. and occupied by Lowry Hughes. These were major landowners and it is possible that further information relating to these farms is located in their respective estate archives. The details on the apportionment of the fields through which the trackway passes are given below. The numbers refer to the fields shown on the map (Figure 02):

Landowners	Occupiers	Numbers referring to the plan	Name and Description of Land and Premesis	Quantities in Statute Measure A R P
		Gelli Gain		
The Hon. Edward Mostyn Lloyd Mostyn	Robert Roberts	2315	One Moiety of Ffriddgiffd (sic)	12 2 15
		2325	Cae'r Graig	26 - 33
		2329	Ffridd Fach	8 - 15
		Brynlllyn Fawr		
Sir Robert Williams Vaughan Bart.	Lowry Hughes	2513	Rallt Isaf	25 - 27
		2514	Wern y Felin	24 3 -

As an upland area, the Ordnance Survey did not produce 25 inch scale County Series maps for the study area, so reliance has to be placed on the 6 inch scale maps. This is due to the limited detail available and limited changes to be expected. An examination of the First to Third Edition six-inch to 1 mile Ordnance Survey maps of the area (Sheet XX SE) shows no noticeable change within the local upland area during the successive editions, with Llyn Gelli

Gain extant in general as present (cf. Figure 03). Whilst there are military structures from Bronaber camp located further afield than the study area, the military training area would appear to have had a limited impact on the study area itself, and the field systems of 19th century and earlier dates in the intermediate zone below the uplands remains intact (Plate 19).

3.1.6 Artefact potential

The evidence from the site suggests a landscape that has not been intensively occupied, but has survival of archaeological remains from the prehistoric times up to post-medieval times. This suggests that there is a moderate potential for the recovery of archaeological artefacts over the wider study area. However, in the vicinity of the reservoir dam itself the ground is likely to have been heavily disturbed, and the likelihood of the recovery of significant artefacts must be considered to be low. Also, there is evidence of pipes and services relating to the water management system from the reservoir along the trackway to it, in the form of infrastructure (Plate 12). It is likely therefore that the trackway itself has been previously disturbed and therefore the potential for the recovery of artefacts must also be considered to be low.

3.1.7 *Aerial photographs and LiDAR*

Composite dataset DSM and DTM 1m LiDAR was examined at <http://lle.gov.wales/home>. As the data was mainly collected for hydrological purposes it is only available from the lower slopes around the former fields of Gelli Gain farm through which the trackway passes, covering about 60% of the track route and not the reservoir area itself (Figure 04). The location of the culvert is also covered.

The access road crosses the Roman Road, Sarn Helen (PRNs 17,853; 17,758), close to where the access track heads north eastwards off the minor road. The agger (raised carriageway) and road-side ditches of the Roman road are shown clearly on the data running north northwest – south southeast. The clarity of the road is however much reduced at the track crossing point, suggesting significant disturbance of this around the trackway. Much of the length of the road is clearly well preserved. The Roman kilns (PRNs 1600-1601, 2893) were also clearly visible, as they survive as earthwork mounds. Some evidence of the field boundaries was also visible.

No previously unidentified sites were visible on the LiDAR data that had not been identified, although the local topography and watercourses are clearly shown. At the location of the culvert at SH 74673248 the watercourse from the higher ground is shown debouching into the Afon Gain under the road, but no additional information was obtained.

Vertical aerial photographs 543 RAF2889 F62, frames 0312 and 0314 taken on 27th May 1964 were examined, which covered the entire study area. These were clear images that showed the topography of the area well. The fields around Gelli Gain farm (Features 01-05) were clearly shown, and were more complete, closer to that shown on the late 19th century Ordnance Survey maps than is the case now, and the interface with the uplands beyond was very clear. Some evidence of the known archaeological features, such as the Roman Road Sarn Helen (PRNs 17,853; 17,758), can be seen on the aerial photograph, along with the sheepfold features. However the area is known to be rich in archaeological remains and no additional sites were identified within the study area that had not been previously identified.

A 1990 aerial photograph, which covered the entire study area, was examined (ADAS Aerial Photography Unit, Cambridge Film 450 Frame 187 taken on 1st May 1990). The Roman Road (PRNs 17,853; 17,758) was also clearly visible, however little clear detail or additional information was observed.

3.2 Walkover survey

3.2.1 Gelli Gain Reservoir and Access Track

The reservoir was located within an upland area of open moorland. The reservoir was accessed via a 1.78km long rough field track, which varied between 3m and 8m in width and ran from a local road to the southern end of the reservoir, where the dam and weir were located. At this point a 14m wide and 17m long trapezoidal shaped parking area/turning circle was located for 4x4 vehicles, which comprised a flattened but uneven open area that also included an inspection manhole (Plate 12).

The banks of the reservoir were covered in low lying juncus, reeds and some small patches of grass, along with outcrops of bedrock and loose rock (Plates 7 and 9). No additional structural activity associated with the reservoir was noted beyond the dam/weir and access area (Plate 8).

The access track was walked from the local road to the reservoir and five assets were identified in close proximity to the track in addition to the known archaeological assets, the reservoir dam/weir and the access track:

- Feature 01: Drystone wall/clawdd that ran parallel to the track (NGR SH73553263);
- Feature 02: Drystone wall (NGR SH73453214);
- Feature 03: Drystone wall (NGR SH73283197);
- Feature 04: Denuded wall (NGR SH73163179); and
- Feature 05: Drystone wall (NGR SH72883173).

The drystone walls form part of a complex field system that surrounds the out-fields relating to Gelli Gain farm, bounded to the north by the interface with the upland slopes of Pig Idris (Feature 02). They are bounded to the south by the minor road, and include a number of former enclosures within the (Figures 01-03). They are shown on the tithe map of Trawsfynydd parish of 1840 (Figure 02).

Ten additional sites that had been previously been identified and are noted on the Gwynedd HER are also included in the gazetteer as they lie within a buffer of 200m from the access track and the reservoir itself (Features 06-15). These include one Scheduled Monument

(Roman Kilns PRN 1601, 2893; ME 071), and consist of 3 possible prehistoric sites and 4 post-medieval sites.

3.2.2 Culvert

The walkover survey also included the location of a culvert under the minor road to Bala at NGR SH 74673248 through which the water run-off from Gelli Gain Reservoir flowed into the Afon Gain. It was located 1.77km (1.1 miles) east of the entrance to the Gelli Gain access track. At the upstream end of the culvert the water debouched into a chamber from a yellow uPVC 5 inch (12.7cm) wide pipe surrounded by a concrete support into an open chamber (Plate 20). The water flowed under the road through a stone edged with a stone lintel and a central supporting pier opening (Plate 21). This opening was 0.7m wide and 0.6m high, and on the downstream side the opening was noted to have a 10 inch (25.4 cm) diameter ceramic pipe, surrounded by stonework, from where the water debouched southwards (Plate 22).

3.3 Gazetteer of features

Feature Number:	01 (Plate 13)
Site name:	Drystone wall/clawdd
PRN number:	74, 581
Grid reference:	SH73553263
Period:	Post-medieval
Site type:	Wall
Assessment category:	C
Description:	A drystone wall and clawdd 1m wide and 0.6m high, running parallel to the access track for about 40m
Impact:	Slight
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Avoidance

Feature Number:	02 (Plate 15)
Site name:	Drystone wall
PRN number:	74, 582
Grid reference:	SH73453214
Period:	Post-medieval
Site type:	Wall
Assessment category:	C
Description:	A drystone wall 1.5m high of local fieldstone of medium to large stones
Impact:	Possible
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Basic Recording if any breaches made through the wall for access purposes, and subsequent reinstatement.

Feature Number:	03 (Plates 16-17)
Site name:	Drystone wall
PRN number:	74,583
Grid reference:	SH73283197
Period:	Post-medieval
Site type:	Wall
Assessment category:	C
Description:	A much denuded drystone wall, up to 1.8m high and constructed of local fieldstone
Impact:	Possible
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Basic Recording if any breaches made through the wall for access purposes, and subsequent reinstatement

Feature Number:	04 (Plate 17)
Site name:	Denuded wall
PRN number:	74,584
Grid reference:	SH73163179
Period:	Post-medieval
Site type:	Wall
Assessment category:	C
Description:	A much denuded wall reduced almost to foundation level in places.
Impact:	Possible
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Basic Recording if any breaches made through the wall for access purposes

Feature Number:	05 (Plate 18)
Site name:	Drystone wall
PRN number:	74,585
Grid reference:	SH72883173
Period:	Post-medieval
Site type:	Wall
Assessment category:	C
Description:	A substantial drystone wall in good repair, which could still be used for stock control. It is up to 1.8m high and constructed of medium to large field stones.
Impact:	Possible
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Basic Recording if any breaches made through the wall for access purposes, and subsequent reinstatement

Feature Number:	06
Site name:	Sarn Helen –Roman Road
PRN number:	17,853; 17,758
Grid reference:	SH72883173 – SH 72843165
Period:	Roman
Site type:	Road
Assessment category:	A
Description:	The line of the Roman Road between Tomen y Mur and Brithdir passes this point. It is a finely preserved piece of proper Roman road formed by two parallel ditches. The line runs between 90m and 170m south and southwest of the reservoir access track.
Impact:	None
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Avoidance

Feature Number:	07
Site name:	Burial Mound or Kiln
PRN number:	1600
Grid reference:	SH72693189
Period:	Roman
Site type:	Burial or Kiln
Assessment category:	B
Description:	A grass mound noted to contain burnt material 1.2m in diameter. It is located 50m north-northeast of the reservoir access track. It has been suggested that this may also be a kiln rather than a burial mound.
Impact:	None
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Avoidance

Feature Number:	08
Site name:	Possible Bronze Age Cairns
PRN number:	1690
Grid reference:	SH73703310 C
Period:	Bronze Age
Site type:	Burial
Assessment category:	B
Description:	Two small low cairns forming an alignment down the slope from PRN 1691 and an outcrop on the skyline on the bwlch above Llyn Gelli Gain. Both appear to have been disturbed. The westernmost is approximately round with a hole in the centre. The East may have originally been round but is now spread downslope (Smith 2001).The cairns are 200m NE of the reservoir
Impact:	None
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Avoidance

Feature Number:	09
Site name:	Roman Kilns SE of Pen y Stryd
PRN number:	1601 and 2893 [Scheduled Monument ME 071]
Grid reference:	SH72753192
Period:	Roman
Site type:	Kiln
Assessment category:	A
Description:	Roman kilns surviving as earthen mounds 3-4m high. Located 70m and 110m NE of the reservoir access track. They were found to be composed of burnt and fused material including tiles and bricks of the same type found at the roman fort of 'Tomen Y Mur'. It is situated at the side of the Roman road near 'Pen y Stryd.' Pennant (1779) describes one of the mounds as a tumulus, and says that five urns were found in it, protected from damage by fragments of brick placed around them.
Impact:	None
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	As this site is a Scheduled Monument it must be avoided

Feature Number:	10
Site name:	Gold Mine, Gelli gain
PRN number:	20,939
Grid reference:	SH72883173
Period:	Post-medieval
Site type:	Mine
Assessment category:	B
Description:	The mine is located 190m east of the reservoir
Impact:	None
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Avoidance

Feature Number:	11
Site name:	Slate Quarry, Gelli Gain
PRN number:	20,327
Grid reference:	SH72803180
Period:	Post-medieval
Site type:	Industrial
Assessment category:	C
Description:	The very small slate quarry is located 20m NE of the access track.
Impact:	Probable
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Avoidance or Basic Recording

Feature Number:	12
Site name:	Slate Quarry, Bedd Porus
PRN number:	SH20,332
Grid reference:	SH73203170
Period:	Post-medieval
Site type:	Industrial
Assessment category:	C
Description:	The quarry is located 90m SE of the reservoir access track
Impact:	None
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Avoidance

Feature Number:	13
Site name:	Walls and Possible Huts
PRN number:	5268
Grid reference:	SH73603215 C
Period:	Unknown
Site type:	Settlement
Assessment category:	E
Description:	An area of walling and possible huts that may represent the site of a former settlement.
Impact:	None
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Avoidance

Feature Number:	14
Site name:	Cairn, Llyn Gelli Gain
PRN number:	1653
Grid reference:	SH73193295
Period:	Prehistoric
Site type:	Burial
Assessment category:	B
Description:	A prehistoric cairn, located 150m NW of the reservoir
Impact:	None
Recommendation for further assessment/evaluation:	Avoidance
Recommendation for mitigatory measures:	None

Feature Number:	15
Site name:	Sheepfold, south of Llyn Gelli Gain
PRN number:	39,199
Grid reference:	SH7348032540
Period:	Post-medieval
Site type:	Sheepfold
Assessment category:	C
Description:	The sheepfold is located 60m west of the access track
Impact:	None
Recommendation for further assessment/evaluation:	Avoidance
Recommendation for mitigatory measures:	None

Feature Number:	16 (Plates 1-10)
Site name:	Gelli Gain Reservoir
PRN number:	74,586
Grid reference:	SH7335327
Period:	Post-medieval
Site type:	Reservoir
Assessment category:	C
Description:	The reservoir consists of a raised natural lake, impounded by a small gravity dam. The dam is a mass concrete stepped wall gravity structure 1.6m high and 27m long, with boulders placed on the downstream side (Plates 1-2). The spillway is constructed of concrete and comprises a broad-crested weir and a small downstream chute. The chute comprises wing walls and a base slab (Plate 3).
Impact:	Considerable
Recommendation for further assessment/evaluation:	None
Recommendation for mitigatory measures:	Watching brief during demolition to record the structure

4 CONCLUSION & RECOMMENDATIONS

4.1 Conclusion

The reservoir and dam at Gelli Gain, Bronaber, along with the access track was examined with a walk-over survey, along with historical background research. The reservoir was noted to be a modified natural lake. The dam is a mass concrete stepped wall gravity structure 1.6m high and 27m long, with boulders placed on the downstream side (Plates 1-2). The spillway is constructed of concrete and comprises a broad-crested weir and a small downstream chute. The chute comprises wing walls and a base slab (Plate 3). The access track from the south-west was noted to be suitable for off-road vehicular access to the dam, and to have been modified by the insertion of water management related services along its length.

The wider study area was noted to be very rich in prehistoric and Roman archaeology. This is thought to be because exploitation in medieval and later times of this upland area was less intense leaving significant elements of a prehistoric funerary and ritual relict landscape intact, and also lay close to an important Roman road, with the adjacent area being used for industrial production and possible funerary activity. Medieval and later activity was limited to upland sheep pasture, with common grazing being carried out over much of the area. Relict remains of the field systems associated with Gelli Gain and Brynlllyn Fawr farms located on the lower slopes around the southern end of the access track. In the early years of the 20th century the area was taken over by the military for the Bronaber artillery range and camp, and Llyn Gelli Gain was dammed to assist in the provision of a water supply for the camp and town.

4.2 Recommendations

Fifteen sites were identified within 200m of the reservoir and access trackway, of which 5 were identified on the walk-over survey (Feature 1-6), and the remaining 11 were known sites that had previously been recorded on the Gwynedd HER and the dam itself (Features 6-16). Three of these latter sites were of prehistoric date, three of Roman date, and five of post-medieval or modern date. The five sites identified on the walk-over were all of post-medieval date. Avoidance of 10 of these sites is recommended, a watching brief for the reservoir dam itself (Feature 16), and basic recording followed by reinstatement for the remaining five if the boundary walls are breached.

The area immediately surrounding the dam and rocks area is likely to be significantly disturbed is likely to be heavily disturbed with reservoir related infrastructure. Modern services are also noted along the track itself. It is therefore considered that where practicable a **partial watching brief** should be carried out during the modification of the dam structure itself to record constructional details. The trackway itself is considered too modified to require further archaeological mitigation.

The wider area surrounding the track and reservoir is rich in archaeological sites from prehistoric to modern times. Consideration would need to be given to the works infrastructure, such as any track widening, laying down of site compound areas or new access routes other than in previously disturbed areas, as there is a moderate potential for the presence of archaeological remains. These interventions would be likely to have an impact upon the archaeological landscape, and a low impact methodology to ensure avoidance is to be recommended if this is a possibility. The fact that the area lies partly within a Landscape of Outstanding Historic Interest is also likely to be a significant consideration here (Cadw/ICOMOS 1998, 109-112). If this is not possible then significant archaeological mitigation might be required, either in the form of evaluation **trial trenching**, or a **controlled strip (strip, map and sample)** of any impacted areas. If significant archaeology was found, this could lead onto full archaeological excavation.

5 SOURCES CONSULTED

5.1 Primary Sources

Aerial Photography Unit, Welsh Government, Cardiff

ADAS Aerial Photography Unit, Cambridge. Film 450, Frame 187, taken on 1st May 1990

543 RAF 2889 F62 Frames 0314 and 0312 taken 27th may 1964

National Library of Wales

Tithe map and Apportionment of the Parish of Trawsfynydd 1840

5.2 Secondary Sources

1. Alfrey, J. 2006 'Deserted Rural Settlement: the Architectural Evidence, in K. Roberts (ed.) *Lost Farmsteads, Deserted Rural Settlements in Wales*, 155-168
2. Beverley-Smith, J. and Beverley-Smith, LI. 2001 *The History of Merioneth Volume 2*
3. Bowen, E.G. and Gresham, C. 1961 *History of Merioneth Volume 1* (Dolgellau)
4. British Geological Survey 1980 *Soil Survey of England and Wales, Soils of Wales Sheet 2*
5. Cadw/ICOMOS 1998 *Landscapes of Historic Interest in Wales Part 2.1: Landscapes of Outstanding Historic Interest*
6. Casteldine, A. 2006 'The Environment and Deserted Rural Settlements in Wales: Potential and Possibilities for Palaeoenvironmental Studies', in K. Roberts (ed.) *Lost Farmsteads, Deserted Rural Settlements in Wales*, 133-154
7. English Heritage, 1991, *Management of Archaeological Projects*
8. English Heritage, 2015, *Management of Research Projects in the Historic Environment (MoRPHE)*.

9. *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1.1)
10. Gwynedd Archaeological Trust Historic Environment Record
11. Hopewell, D. 2013 *Roman Roads in North-West Wales*
12. <http://www.heneb.co.uk/hlc/trawsfynydd/traws19.html>
13. <http://lle.gov.wales/home>
14. Kenney, J. and Hopewell, D. 2015 *First World War Military Sites, Military Landscapes Part 1: Report and Gazetteer*. Unpublished GAT Report No. **1248**
15. Longley, D. 2006 'Deserted Rural Settlements in North-West Wales', in K. Roberts (ed.) *Lost Farmsteads, Deserted Rural Settlements in Wales*, 61-82
16. May, R. 2013 *Uplands Archaeology Initiative Project 2012-2013: Cwm Prysor Survey Area*. Unpublished ArchHeritage Report No: **2013/8**
17. Ordnance Survey First Edition six-inch to 1-mile Merionethshire County Series Map Sheet XXSE, published 1873-1888
18. Pennant, T. 1779 *Tours in Wales Volume II*
19. Royal Commission on Ancient and Historic Monuments of Wales 2015 *Guidelines for digital archives*
20. Smith, G.H. 2001 *Prehistoric Funerary and Ritual Sites Survey: Meirionnydd*. Unpublished GAT Report No. **415**
21. Smith, B. and George, T.N. 1961 *British Regional Geology, North Wales* (HMSO)
22. Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists, 2014).
23. Williams, D.H. 1990 *Atlas of Cistercian Lands in Wales* (Cardiff)
24. Williams-Jones, K. (ed.) 1976 *Merioneth Lay Subsidy Roll 1292-3* (University of Wales Press)

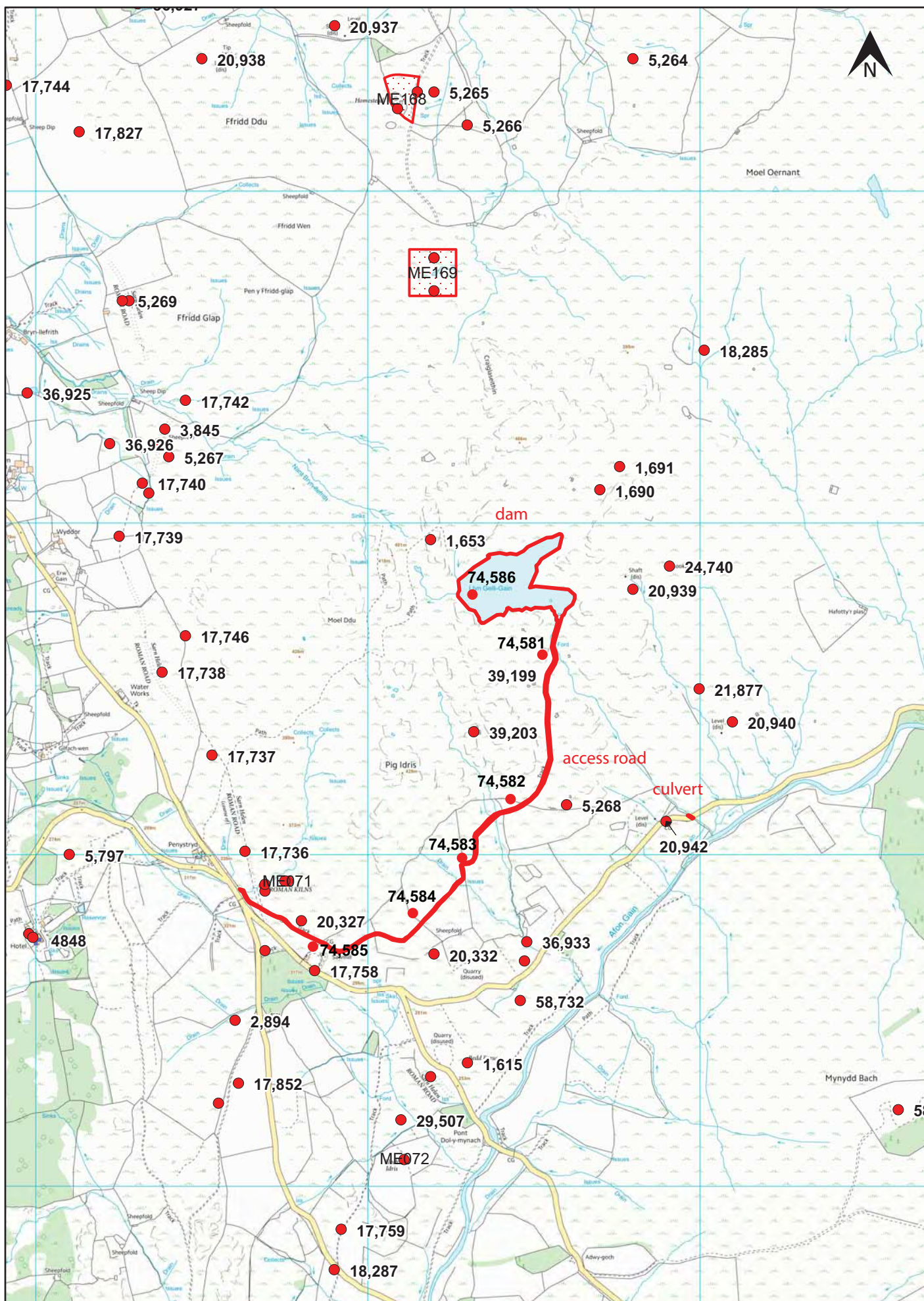


Figure 01: Location of assessment area (outlined red) and local archaeological assets. Based on Ordnance Survey 1:10000 County Series Map Sheet SH73SW. Scale 1:10000 @ A4. © Crown Copyright. All Rights Reserved. License Number AI100020895

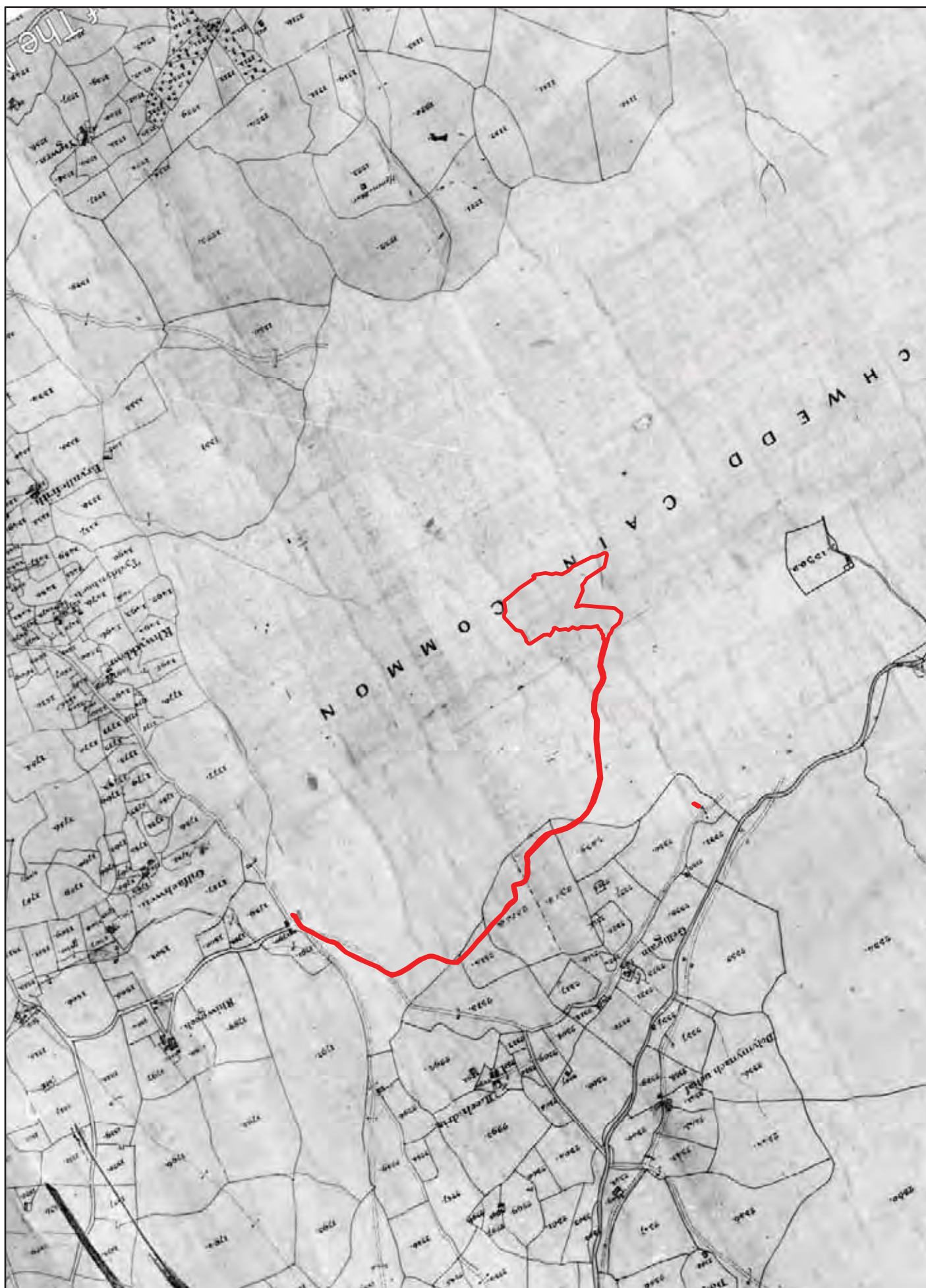


Figure 02: Reproduction of Trawsfynydd Parish Tithe Map, published 1840. Not to scale (Source: NLW)

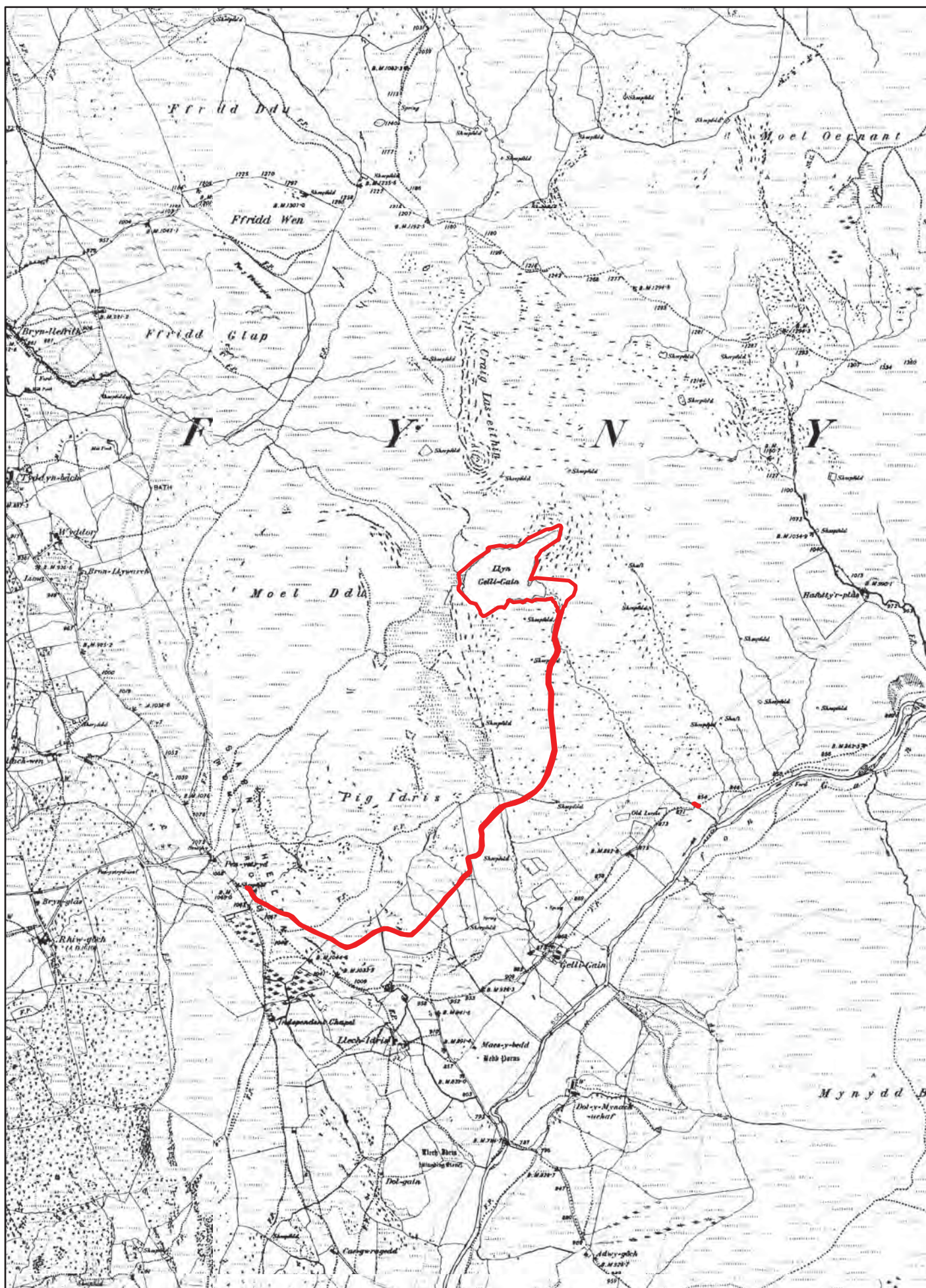


Figure 03: Reproduction of Ordnance Survey First Edition six-inch to 1-mile Meirionethshire County Series Map Sheet XXSE, published 1873-1888. Scale 1:15000@A4

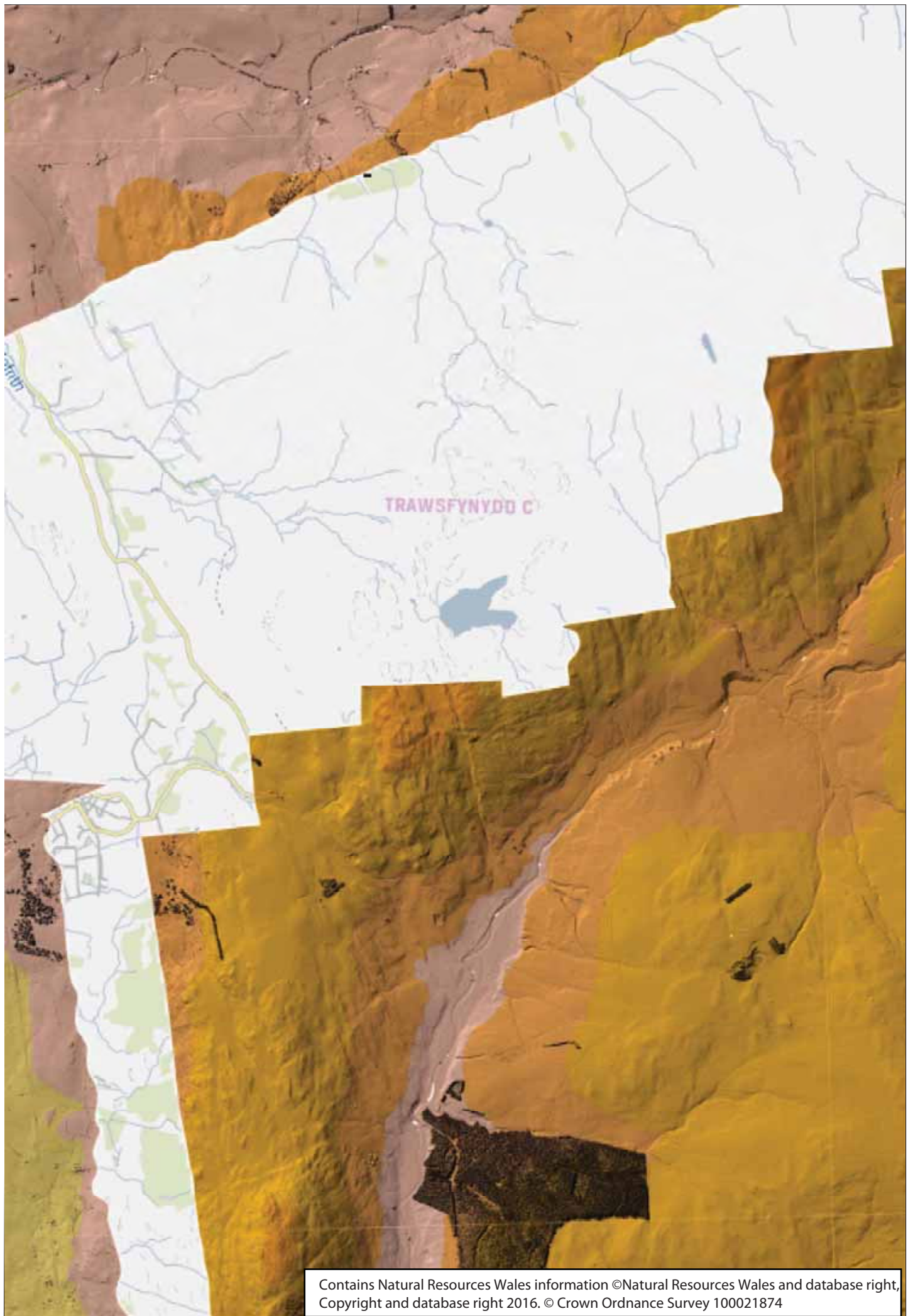


Figure 04: Composite DSM and DTM 1m Lidar Data showing the southern part of the study area, with no coverage around the Reservoir



Plate 1: General view of reservoir dam; scale: 1x1m (archive reference: G2579_001).



Plate 2: General view of reservoir dam; scale: 1x1m (archive reference: G2579_002).



Plate 3: View of weir in dam wall; scale: 1x1m (archive reference: G2579_003).



Plate 4: General view of reservoir dam; scale: 1x1m (archive reference: G2579_004).



Plate 5: Detailed view of central inspection chamber structure; scale: not used (archive reference: G2579_006).



Plate 6: View of reservoir from the dam wall; scale: not used (archive reference: G2579_005).



Plate 7: View of reservoir bank; scale: 1x1m (archive reference: G2579_007).



Plate 8: View of reservoir; scale: 1x1m (archive reference: G2579_008).



Plate 9: View of reservoir bank; scale: 1x1m (archive reference: G2579_010).



Plate 10: View of stony reservoir bank; scale: 1x1m (archive reference: G2579_011).



Plate 11: View of track approaching dam; scale: 1x1m (archive reference: G2579_013).



Plate 12: View of modern water infrastructure along the path; scale: 1x1m (archive reference: G2579_014).



Plate 13: Feature 1: View of relict clawdd 0.6m high and 1m wide on the western side of the access track; scale: 1x1m (archive reference: G2579_015).



Plate 14: Sheepfold (Primary Reference Number 39203); scale: 1x1m (archive reference: G2579_016).



Plate 15: Feature 2: view of drystone wall; scale: 1x1m (archive reference: G2579_017).



Plate 16: Feature 3: view of drystone wall crossing the track; scale: 1x1m (archive reference: G2579_018).



**Plate 17: Feature 4: View of denuded wall; scale: 1x1m
(archive reference: G2579_021).**



**Plate 18: Feature 5: View of drystone wall; scale: 1x1m
(archive reference: G2579_022).**



Plate 19: View of field system between Afon Gain and the reservoir access track; scale: not used (archive reference: G2579_020).



Plate 20: View upstream end of culvert debouching into the chamber before entering the culvert under the road on the upstream side; scale: 1x1m (archive reference: G2579_023).



Plate 21: General view of downstream 10-inch pipe at the culvert; scale: not used
(archive reference: G2579_028).



Plate 22: View of culvert under the road on the downstream end; scale: 1x1m
(archive reference: G2579_025).

APPENDIX I

Gwynedd Archaeological Trust written scheme of investigation, October 2018.


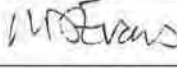

LLYN GELLI GAIN
(G2579)

WRITTEN SCHEME OF INVESTIGATION FOR
ARCHAEOLOGICAL ASSESSMENT

Prepared for Stillwater Associates Limited
October 2018



Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

Approvals Table				
	Role	Printed Name	Signature	Date
Originated by	Document Author	JOHN ROBERTS		10/10/18
Reviewed by	Document Reviewer	ROBERT EVANS		10/10/18
Approved by	Principal Archaeologist	JOHN ROBERTS		10/10/18

Revision History			
Rev No.	Summary of Changes	Ref Section	Purpose of Issue

All GAT staff should sign their copy to confirm the project specification is read and understood and retain a copy of the specification for the duration of their involvement with the project. On completion, the specification should be retained with the project archive:

Name

Signature

Date

LLYN GELLI GAIN (G2579)

WRITTEN SCHEME OF INVESTIGATION FOR ARCHAEOLOGICAL ASSESSMENT

Prepared for *Stillwater Associates Limited*, October 2018

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1 INTRODUCTION

Gwynedd Archaeological Trust (GAT) has been asked by Stillwater Associates Limited on behalf of Dŵr Cymru to prepare a written scheme of investigation for an archaeological assessment as part of a feasibility study looking into the possible removal of the existing concrete dam (reservoir discontinuance) at Llyn Gelli Gain, near Bronaber, Gwynedd (NGR SH73353278; Figure 01). The reservoir is located within an upland area east of Trawsfynydd and Bronaber, within the Snowdonia National Park. As specified in data supplied by Stillwater Associates Limited, Llyn Gelli Gain is a raised natural lake, impounded by a small gravity dam. The dam is a mass concrete stepped wall gravity structure 1.6m high and 27m long, with boulders placed on the downstream side. The spillway is constructed of concrete and comprises a broad-crested weir and a small downstream chute. The chute comprises wing walls and a base slab. The Stillwater Associates Limited data also states that a “small linear concrete structure exists within the reservoir some 50m upstream of the dam, the purpose of which is unknown”. The removal strategy has not been confirmed, but may include removing all concrete parts above ground (possibly leaving in concrete foundations/cut-off walls), with smaller infrastructure possibly also left behind, such as a small weir to control future water levels. The water body would return to a natural lake on its original footprint. The existing 2.5km long access road runs from a local road to the dam and may be improved as part of the discontinuance works to allow for site traffic.

The assessment will conform to the guidelines specified in the Chartered Institute for Archaeologists *Standard and Guidance for Historic Environment Desk-Based Assessment* (Chartered Institute for Archaeologists, 2014). The format of this written scheme of investigation corresponds to the requirements of section 2.3 of MoRPHE (English Heritage 2015) and to MAP2 (English Heritage, 1991, *Management of Archaeological Projects*). The assessment is scheduled to be completed in October 2018.

The assessment will be monitored by Gwynedd Archaeological Planning Services (GAPS) on behalf of the Snowdonia National Park Authority; the content of this written scheme of investigation and all subsequent reporting by GAT must be approved by GAPS prior to final issue.

The Historic Environment Record Enquiry Reference Number for this project is GATHER1005 and the Event Primary Reference Number (PRN) is 45326.

GAT is certified to ISO 9001:2015 and ISO 14001:2015 (Cert. No. 74180/B/0001/UK/En) and is a Registered Organisation with the Chartered Institute for Archaeologists and a member of the Federation of Archaeological Managers and Employers (FAME).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Llyn Gelli Gain is located within the Trawsfynydd Historic Landscape Characterisation area, specifically, *Area 19 Unenclosed mountain – Moel Ddu and Moel Oernant* (PRN 18285). This area is characterised by its “open, unenclosed nature which contains two (scheduled) important prehistoric and Roman sites, and served as a firing range for artillery in the early 20th century” (source: <http://www.heneb.co.uk/hlc/trawsfynydd/traws19.html>). There are no known archaeological assets or Listed Buildings within the reservoir or the immediate environs. The closest Scheduled Monument is a prehistoric unenclosed hut circle (Me169; PRN 1649), located 860m to the north at NGR SH73203380 (Figure 01). The archaeological assets closest to the reservoir include three prehistoric cairns (PRN 1653, 1690 and 1691), located 140m to the northwest at NGR SH73193295, 190m to the northeast at NGR SH73703310, and 270m to the northeast at NGR SH73763317, respectively. A former post-medieval gold mine (PRN 20939) is located 180m east of the reservoir at NGR SH73803280 and a post-medieval sheepfold (39199) is located 200m to the south at SH73483254 (Figure 01). A portion of the Tomen y Mur to Brithdir Roman Road (PRN 17738) is located 910m to the west of the dam at NGR SH72383255. The Historic Landscape Characterisation entry for Area 19 also states that the area is shown as ‘Llechwedd Cain Common’ on the 1840 tithe map, whilst a map drawn up in 1948 (Dolgellau Archives, ZP/12/10) shows the extent of the ‘Trawsfynydd Artillery Range’ (*ibid.*).

A brief examination of the First to Third Edition six-inch to 1 mile Ordnance Survey maps of the area shows no noticeable change within the local area during the successive editions, with Llyn Gelli Gain extant in general as present (cf. Figure 01 and Figure 02).

3 METHODOLOGY

3.1 Assessment (Desktop Study)

A desk-based assessment is defined as “a programme of study of the historic environment within a specified area or site on land, the inter-tidal zone or underwater that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage....Significance is to be judged in a local, regional, national or international context as appropriate” (ClfA 2014, 4).

The desk-based assessment will involve a study of the following resources:

1. The regional Historic Environment Register ((HER) Gwynedd Archaeological Trust, Craig Beuno, Ffordd y Garth, Bangor, Gwynedd LL57 2RT) will be examined for information concerning the study area, defined as the Llyn Gelli Gain, immediate environs and the access road, as detailed on Figure 01. This will include an examination of the core HER, the 1:2500 County Series Ordnance Survey maps and any secondary information held within the HER. All identified assets will be mapped, described and added to a gazetteer of sites and the relative importance of any assets defined;
2. The National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, Plas Crug, Aberystwyth SY23 1NJ) will be checked for assets additional to the HER;
3. Aerial photographs from the National Monuments Record of Wales (Royal Commission on the Ancient and Historical Monuments of Wales, National Monuments Record of Wales, Plas Crug, Aberystwyth SY23 1NJ) will be examined for potential assets;
4. An on-line catalogue search of the National Library of Wales (Penglais Rd, Aberystwyth SY23 3BU) will be completed;
5. Archive data, including primary and secondary sources, historic maps and estate maps will be examined at the regional archives (Meirionnydd Record Office & Public Library, Bala Rd, Dolgellau LL40 2YF). The examination of the archive data will include historic mapping including the local tithe map and schedule;

6. If available for the assessment area, Light Detection and Ranging (LiDAR) data will be examined from the Lle Geo-Portal at <http://lle.gov.wales/home> for information on potential surface features using digital terrain modelling and digital surface modelling.

3.2 Walkover Survey

A walkover survey will be undertaken that will incorporate the reservoir area as located on Figure 01. All known and new archaeological assets identified within close proximity to the reservoir will be located and described on GAT pro-formas and a written description and photographic record of the visible reservoir infrastructure will be completed. Any recorded assets, as well as the reservoir, will then be added to the overall gazetteer and their relative importance defined. The potential for sub-surface archaeology will be estimated and defined.

A photographic record will be maintained in RAW format using a digital SLR set to maximum resolution (Nikon D3000; resolution: 3,872 × 2,592 [10.2 effective megapixels]) and a photographic metadata table will be completed and included in the report. Photographic images will be archived in TIFF format; the archive numbering system will start from **G2579_001**. A handheld GPS unit will also be used during the walkover survey

3.3 Gazetteer

A gazetteer will be compiled for any identified sites within and within proximity to the specified route based on information sourced from the regional HER; the gazetteer will include:

1. Feature Number
2. Site name
3. PRN number
4. Grid reference
5. Period
6. Site type
7. Assessment category
8. Description
9. Impact
10. Recommendation for further assessment/evaluation
11. Recommendation for mitigatory measures.

The following categories will be used to define the assessment category of the archaeological asset:

Category A - Sites of National Importance.

Scheduled AMonuments, Listed Buildings of grade II* and above, as well as those that would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both. Sites that are scheduled or listed have legal protection, and it is recommended that all Category A sites remain preserved and protected *in situ*.

Category B - Sites of regional or county importance.

Grade II listed buildings and sites which would not fulfil the criteria for scheduling or listing, but which are nevertheless of particular importance within the region. Preservation *in situ* is the preferred option for Category B sites, but if damage or destruction cannot be avoided, appropriate detailed recording might be an acceptable alternative.

Category C - Sites of district or local importance.

Sites which are not of sufficient importance to justify a recommendation for preservation if threatened. Category C sites nevertheless merit adequate recording in advance of damage or destruction.

Category D - Minor and damaged sites.

Sites that are of minor importance or are so badly damaged that too little remains to justify their inclusion in a higher category. For Category D sites, rapid recording, either in advance of or during destruction, should be sufficient.

Category E - Sites needing further investigation.

Sites, the importance of which is as yet undetermined and which will require further work before they can be allocated to categories A - D are temporarily placed in this category, with specific recommendations for further evaluation. In this report several sites of unknown potential have been allocated to this category.

The impact of the proposed works on any asset will be identified using the following impact criteria, defined either as *none*, *slight*, *unlikely*, *likely*, *significant*, *considerable* or *unknown* as follows:

None:

There is no construction impact on this asset.

Slight:

This has generally been used where the impact is marginal and would not by the nature of the site cause irreversible damage to the remainder of the asset, e.g. part of a trackway or field bank.

Unlikely:

This category indicates sites that fall within the band of interest but are unlikely to be directly affected. This includes sites such as standing and occupied buildings at the margins of the band of interest.

Likely:

Sites towards the edges of the study area, which may not be directly affected, but are likely to be damaged in some way by the construction activity.

Significant:

The partial removal of an asset affecting its overall integrity. Assets falling into this category may be linear features such as roads or tramways where the removal of part of the feature could make overall interpretation problematic.

Considerable:

The total removal of an asset or its partial removal which would effectively destroy the remainder of the site.

Unknown:

This is used when the location of the asset is unknown, but thought to be in the vicinity of the proposed works.

3.4 Data processing and report compilation

Following completion of the stages outlined above, a report will be produced incorporating the following:

1. Front cover;
2. Inner cover;
3. Figures and Plates List
4. Non-technical summary;
5. Introduction;
6. Methodology
 - a. Desk-based assessment
7. Results
 - a. Desk based assessment
 - i. Location and geological summary
 - ii. Statutory and non-statutory designations
 - iii. Environmental remains and soil morphology
 - iv. Historical and archaeological background
 - v. Cartographic evidence
 - vi. Artefact potential
 - vii. Aerial photographs and LiDAR;
 - b. Gazetteer of features
8. Conclusions and recommendations
 - a. Conclusion
 - b. Table of sites and recommendations
9. Acknowledgements
10. Bibliography
 - a. Primary sources
 - b. Secondary sources
11. Figures; inc.:
 - location plan;
 - historic mapping;
 - location plan with identified features
12. Appendix I (approved written scheme of investigation)
13. Appendix II (Sites listed on GAT Historic Environment Record)
14. Appendix III (Definition of mitigation terms)
15. Appendix IV Photographic metadata (walkover survey)

16. Back cover

Illustrations will include plans of the location of the study area and archaeological sites. Historical maps, when appropriate and if copyright permissions allow, will be included.

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. The archaeological assessment outlined in this written scheme of investigation will be submitted in draft format in October 2018; a final report will be submitted to the Historic Environment within six months of submitting the draft report (April 2019).

The following dissemination will apply:

- A paper report(s) plus digital report(s) will be provided to the client/consultant and GAPS (draft report then final report);
- A paper report plus a digital report will be provided to the regional Historic Environment Record, Gwynedd Archaeological Trust; this will be submitted within six months of project completion (final report only), along with any relevant, digital information such as the project database, GIS table(s) and photographs. All digital datasets submitted will conform to the required standards set out in *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1);
- A digital report and archive (including photographic and drawn) data will be provided to Royal Commission on Ancient and Historic Monuments, Wales (final report only), in accordance with the *RCAHMW Guidelines for Digital Archives Version 1*. Digital information will include the photographic archive and associated metadata;

4 PERSONNEL

The project will be managed by John Roberts, Principal Archaeologist GAT Contracts Section. The assessment will be completed by a project archaeologist who will have responsibility for completing the desk based assessment, maintaining the site archive, liaising with GAPS and *Stillwater Associates Limited* and submitting the draft report and final report. The project manager will be responsible for reviewing and approving the report prior to submission.

5 INSURANCE

5.1 Public/Products Liability

Limit of Indemnity- £5,000,000 any one event in respect of Public Liability

INSURER Aviva Insurance Limited

POLICY TYPE Public Liability

POLICY NUMBER 24765101CHC/UN/000375

EXPIRY DATE 21/06/2019

5.2 Employers Liability

Limit of Indemnity- £10,000,000 any one occurrence.

The cover has been issued on the insurers standard policy form and is subject to their usual terms and conditions. A copy of the policy wording is available on request.

INSURER Aviva Insurance Limited

POLICY TYPE Employers Liability

POLICY NUMBER 24765101 CHC / UN/000375

EXPIRY DATE 21/06/2019

5.3 Professional Indemnity

Limit of Indemnity- £5,000,000 in respect of each and every claim

INSURER Hiscox Insurance Company Limited

POLICY TYPE Professional Indemnity

POLICY NUMBER 9446015

EXPIRY DATE 22/07/2019

6 SOURCES CONSULTED

1. English Heritage, 1991, Management of Archaeological Projects
2. English Heritage, 2015, Management of Research Projects in the Historic Environment (MoRPHE).
3. *Guidance for the Submission of Data to the Welsh Historic Environment Records (HERs)* (Version 1)
4. Gwynedd Archaeological Trust Historic Environment Record
5. <http://www.heneb.co.uk/hlc/trawsfynydd/traws19.html>
6. Ordnance Survey First Edition six-inch to 1-mile Meirionethshire County Series Map Sheet XXSE, published 1873-1888
7. Royal Commission on Ancient and Historic Monuments of Wales 2015 *Guidelines for digital archives*
8. Standard and Guidance for Historic Environment Desk-Based Assessment (Chartered Institute for Archaeologists, 2014).

FIGURE 01

Location of assessment area (outlined red) and local archaeological assets. Based on Ordnance Survey 1:10000 County Series Map Sheet SH73SW. Scale 1:10000 @ A4. © Crown Copyright. All Rights Reserved. License Number AI100020895.

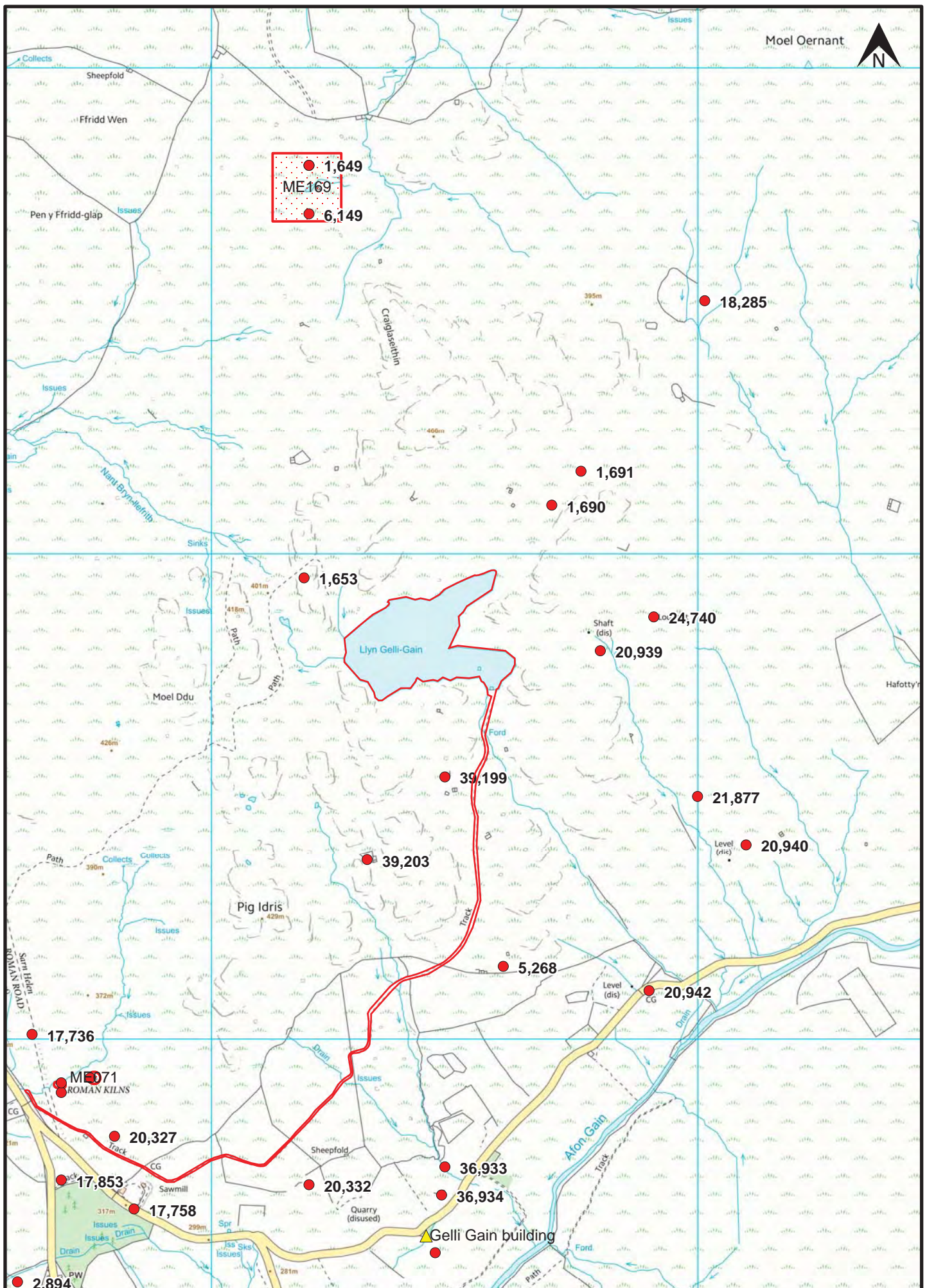


Figure 01: Location of assessment area (outlined red) and local archaeological assets. Based on Ordnance Survey 1:10000 County Series Map Sheet SH73SW. Scale 1:10000 @ A4. © Crown Copyright. All Rights Reserved. License Number AI100020895.

FIGURE 02

**Reproduction of Ordnance Survey First Edition six-inch to 1-mile
Meirionethshire County Series Map Sheet XXSE, published 1873-1888.
Scale 1:10000 @A4**

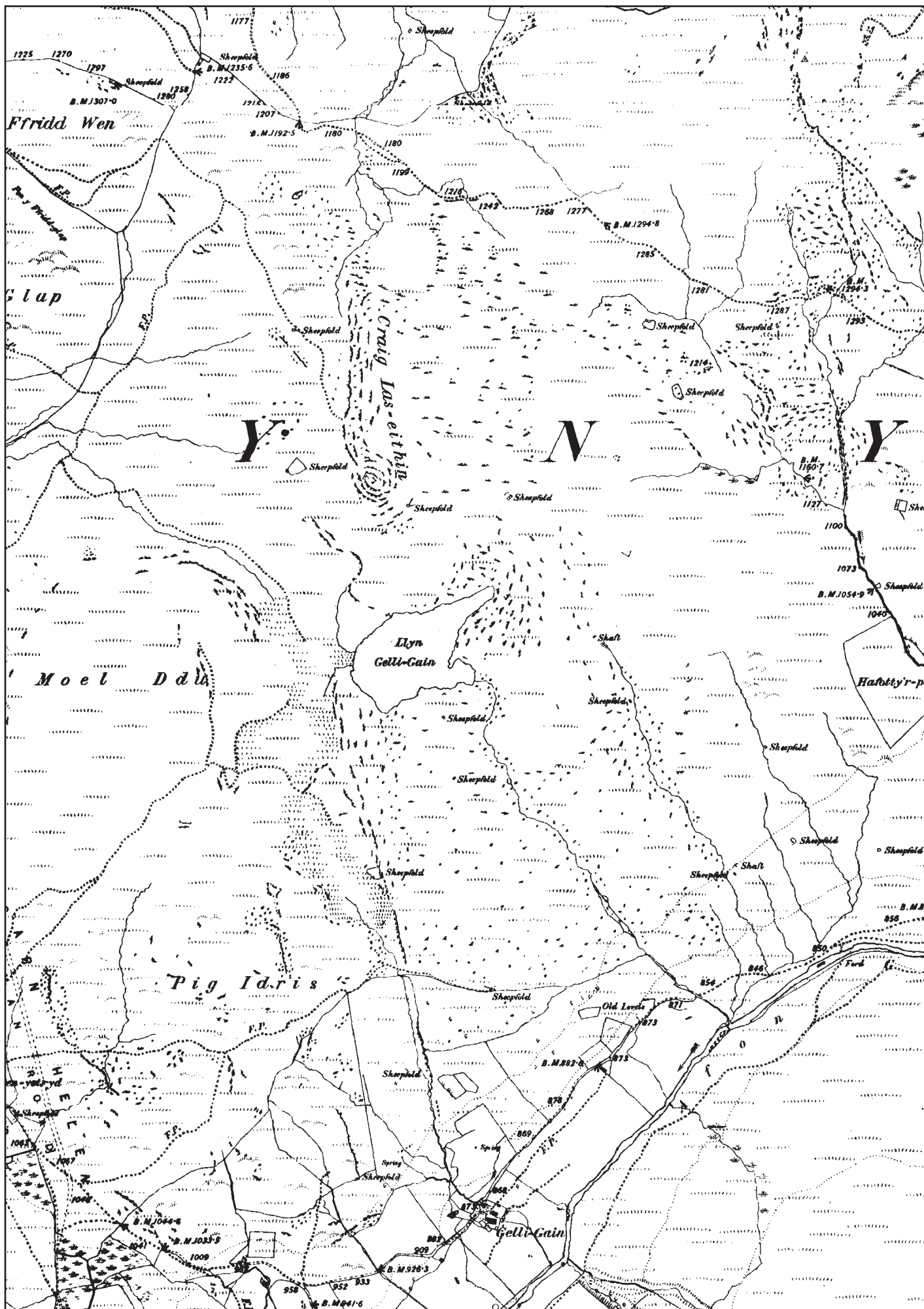


Figure 02: Reproduction of Ordnance Survey First Edition six-inch to 1-mile Meirionethshire County Series Map Sheet XXSE, published 1873-1888. Scale 1:10000@A4

APPENDIX II

Gwynedd Archaeological Trust Photographic Metadata

PHOTO RECORD NUMBER*	SITE SUB- DIVISION	NGR*	DESCRIPTION*	VIEW FROM	SCALE(S)	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	ORIGINATING ORGANISATION	PLATE
G2579_001		SH73353278	General view of reservoir dam	E	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	1
G2579_002		SH73353278	General view of reservoir dam	SSE	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	2
G2579_003		SH73353278	View of weir in dam wall	SSE	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	3
G2579_004		SH73353278	General view of reservoir dam	W	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	4
G2579_005		SH73353278	View of reservoir from the dam wall	SSE	not used	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	6
G2579_006		SH73353278	Detailed view of central inspection chamber structure	E	not used	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	5
G2579_007		SH73353278	View of reservoir bank	SE	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	7
G2579_008		SH73353278	View of reservoir	N	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	8
G2579_009		SH73353278	View of reservoir bank	N	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	
G2579_010		SH73353278	View of reservoir bank	S	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	9
G2579_011		SH73353278	View of stony reservoir bank	S	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	10
G2579_012		SH73353278	View of reservoir dam	E	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	
G2579_013		SH73353278	View of track approaching dam	S	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	11

PHOTO RECORD NUMBER*	SITE SUB- DIVISION	NGR*	DESCRIPTION*	VIEW FROM	SCALE(S)	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	ORIGINATING ORGANISATION	PLATE
G2579_014		SH73353278	View of modern water infrastructure along the path	E	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	12
G2579_015		SH73353278	Feature 1: View of relict clawdd 0.6m high and 1m wide on the western side of the access track	N	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	13
G2579_016		SH73353278	Sheepfold (Primary Reference Number 39203)	S	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	14
G2579_017	Feature 2	SH73353278	Feature 2: view of drystone wall	S	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	15
G2579_018	Feature 3	SH73353278	Feature 3: view of drystone wall crossing the track	ENE	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	16
G2579_019	Feature 3	SH73353278	Feature 4: view of north-south drystone wall	N	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	
G2579_020		SH73353278	View of field system between Afon Gain and the reservoir access track	NNW	not used	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	19
G2579_021	Feature 4	SH73353278	Feature 4: View of denuded wall	E	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	17
G2579_022	Feature 5	SH73353278	Feature 5: View of drystone wall	E	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	18
G2579_023		SH73963211	View upstream end of culvert debouching into the chamber before entering the culvert under the road on the upstream side	SE	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	20

PHOTO RECORD NUMBER*	SITE SUB- DIVISION	NGR*	DESCRIPTION*	VIEW FROM	SCALE(S)	CREATOR OF DIGITAL PHOTO*	DATE OF CREATION OF DIGITAL PHOTO*	ORIGINATING ORGANISATION	PLATE
G2579_024		SH73963211	View of culvert under the road on the downstream end	S	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	
G2579_025		SH73963211	View of culvert under the road on the downstream end	S	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	22
G2579_026		SH73963211	View of culvert under the road on the downstream end	SE	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	
G2579_027		SH73963211	View upstream end of culvert debouching into the chamber before entering the culvert under the road on the upstream side	SE	1x1m	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	
G2579_028		SH73963211	General view of downstream 10-inch pipe at the culvert	SE	not used	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	21
G2579_029		SH73963211	General view of culvert 0.7m along the road from the parking place	NW	not used	Robert Evans	16/10/2018	Gwynedd Archaeological Trust	



Gwynedd Archaeological Trust
Ymddiriedolaeth Archaeolegol Gwynedd

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