

AFON GAIN, GANLLWYD, GWYNEDD  
ARCHAEOLOGICAL ASSESSMENT

G1439.05

REPORT 228 (DRAFT)

Prepared for Shawater Limited

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## HYDRO-ELECTRIC SCHEME

### AFON GAIN, GANLLWYD, GWYNEDD

### ARCHAEOLOGICAL ASSESSMENT (G1439)

## INTRODUCTION

The proposed hydro-electric scheme will extract water from the Afon Gain at SH 7298 2782 and return it to the Afon Mawddach at SH 7368 2708. Gwynedd Archaeological Trust (Contracts Section) has been asked by Shawater Ltd to carry out an archaeological evaluation of the proposed scheme, to form part of an Environmental Assessment, leading to an Environmental Statement which is to accompany the proposal.

## 2. ASSESSMENT BRIEF

An initial report was requested from Gwynedd Archaeological Trust, assessing the likely archaeological impact of the scheme and suggesting mitigatory measures.

The basic requirement was for a desk-top survey and field search of the proposed area in order to assess the impact of the proposals on the archaeological and heritage features within the area concerned. The importance and condition of known archaeological remains were to be assessed and areas of archaeological potential and new sites to be identified. Measures to mitigate the effects of the proposed scheme on the archaeological resource were to be suggested.

Gwynedd Archaeological Trust's proposals for fulfilling these requirements were, briefly, as follows:

- a) to identify and record the cultural heritage of the area to be affected by the proposals;
- b) to evaluate the importance of what was identified (both as a cultural landscape and as the individual items which make up that landscape); and
- c) to recommend ways in which damage to the cultural heritage can be avoided or minimised.

This report covers the work done under the first two stages of assessment, documentary research and walking the area, and includes recommendations for later stages.

## 3. METHODS AND TECHNIQUES

### 3.1 Desk-top Study

This involved consultation of maps, computer records, written records and reference works, which make up the Sites and Monuments Record at Gwynedd Archaeological Trust. Records (including early Ordnance Survey maps, tithe maps, schedules, and reference works - see bibliography) were consulted in the Merioneth Record Office, Dolgellau and other records in the Gwynedd Archives, Caernarfon and the University of Wales Archives, Bangor.

### 3.2 Field Search

This was undertaken on the 26th of September 1996, when the whole of the proposed route of the pipeline was walked. Conditions were fair for fieldwork, but rain and poor light in the forest plantation hindered a good photographic record.

Sites identified were marked on copies of 1:10,000 OS maps as accurately as possible without surveying. Each site was described and assessed. Detailed notes, sketch plans and photographs were made of the more important features.

### 3.3 Report

All available information was collated, and transferred onto a map at a scale of 1:5,000. The sites were then assessed and allocated to the categories listed below. These are intended to give an idea of the importance of the site and the level of response likely to be required; descriptions of the sites and specific recommendations for further evaluation or mitigatory measures, as appropriate, are given in the relevant sections of this report.

The criteria used for allocating sites to categories are based on those used by the Secretary of State when considering ancient monuments for scheduling; these are set out in Annex 3 to Planning Policy Guidance 16 (Wales): Archaeology and Planning.

### 3.4 Categories

The following categories were used to define the importance of the archaeological resource.

#### *Category A - Sites of national importance.*

Scheduled Ancient Monuments, Listed Buildings and sites of schedulable or listable quality, i.e. those which would meet the requirements for scheduling (ancient monuments) or listing (buildings) or both.

Sites which 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.*

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 which are of minor importance or 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 whose importance 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. By the end of the assessment there should be no sites remaining in this category.

### Definition of Impact

The impact has been defined as none, slight, likely, considerable or unknown as follows:

None:

There is no construction impact on this particular site. (Sites identified as of particular importance are, where possible, avoided by the improvement proposals. Such sites have been identified in the tables.

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 feature, eg a track or field boundary.

Likely:

In some instances the site in question would not fall within the direct line of the proposed development but could be affected by construction works and therefore may, subject to its nature be removed or damaged.

Considerable:

The total removal of a feature or its partial removal which would effectively destroy the remainder of the site.

Unknown

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

### **Definition of Mitigatory Recommendations**

None:

No impact so no requirement for mitigation measures.

Detailed recording:

Requiring a photographic record, surveying and the production of a measured drawing 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.

Watching brief:

Requiring observation of particular identified features or areas during works in their vicinity. This may be supplemented by detailed or basic recording of exposed layers, structures or sections.

Avoidance:

Features need not be affected but their position should be noted and avoided by all works.

Reinstatement:

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

### **PRELIMINARY TOPOGRAPHIC ASSESSMENT**

Most of the pipe-line route runs along rocky, medium to medium-steep sloping valley sides. This type of ground is not one where domestic settlement or agricultural use of any period would be expected. The route can be seen as of three topographic areas:

a. The northernmost section of the route follows close to the river, on generally gentle slopes, and partly through an old meadow river terrace. This is an area of recently felled plantation but with some native deciduous woodland.



b. To the south the route runs into forestry plantation for c. 350m to the junction with the Pont Gwynfynydd road. The northern half of this section is on medium-steep slopes, too steep for forest ploughing but planted nevertheless. The southern half of this section is on medium slopes with peaty soil cover and this section has been deeply ploughed before planting, effectively destroying any archaeological remains which might have been present.

c. The southern two thirds of the route, from the Pont Gwynfynydd road crossing, follows the line of an existing forest track. This was constructed by digging into the slope and creating a dumped terrace. The area comprising the track and the margins, from c. 2m to 5m from the track edge, has been effectively erased in archaeological terms and any interest here resides in any closely adjoining features which might be affected by construction works, for instance by spoil dumping and retrieval.

In terms of potential for archaeological remains of any human settlement or agricultural activity, area a is of medium potential while areas b and c are of low potential. However, the whole area must rate as of high potential for industrial remains because of the presence of minerals and the known evidence of mining. In fact the industrial remains are the only known archaeological features within 0.5km of the route.

## ARCHAEOLOGICAL AND HISTORIC BACKGROUND

In the medieval period as part of the kingdom of Gwynedd the land here was part of the township of Trawsfynydd in the commote of Ardudwy, itself originally part of the former cantref of Dunoding. The latter is regarded as deriving from the proper name Dunawdd, a son of Cunedda which thus suggests fifth century origins (Lloyd, 1911, 238). The eastern boundary of the commote was the Afon Mawddach and the area between the Afon Gain and the Mawddach was granted to the Cistercians of Cymer Abbey by Llewellyn Fawr in the Cymer Abbey Charter of 1209 (Williams-Jones, 1976). This area formed a grange (outlying property) called Cwm Cedryn and within it Gwynfynydd was specifically mentioned. It seems likely that from the medieval period the west side of the Gain and Mawddach was in the hands of two estates, those of Cors-y-gedol and Nannau, which were still holding the land in the mid-19th century (Mostyn 8624), the area covered by the present survey being all in Cors-y-gedol land. The extensive estates of Cors-y-gedol (the home farm of which was at Tal-y-bont, Ardudwy) derived from grants of land by Llewellyn Fawr to a favoured supporter at arms, Osborn 'Wyddel' ('the Irishman'), a descendant of one of the Norman leaders during the conquest of Ireland (Lloyd, 1977, 27). The lands passed into the Mostyn family by marriage in 1791 (ibid, 30) and in 1849 the lands near the Afon Gain were sold at auction (Mostyn 8624).

These lands were relatively remote with little agricultural potential and likely to be only scantily settled. However, the presence of minerals gave another reason for activity and lead mining at Gwynfynydd was noted by Edward Lhuwyd c. 1700 (Williams, 1957, 72) although it seems that the chief early mines were those at east and west Cwm Heisian on the east bank of the Mawddach (Hall, 1988, 47). However, Tyddyn Gwladys, within the survey area was a lead mine in the 1840's when it was worked for silver-lead and in later years was worked unsuccessfully for gold (ibid, 76-7). The Tyddyn Gwladys gunpowder works, also lying within the survey area, were established in 1887 in connection with the gold mining at Gwynfynydd but were wound up in 1892. It consisted of seven buildings (Crocker and Crocker, forthcoming) of which at least two were water-powered from a leat running from the Pistyll Cain, along the valley side above the works buildings and just below the route of the proposed pipeline.

There appear to be no early records of the farm of Tyddyn Gwladys itself, the first being that of a Mostyn estate map of c. 1806 (Mostyn 8634) although as a settlement it may have had medieval origins. In c. 1806 the plough lands of the farm were confined to the more level lands on the hill-top around the farm while the Gain and Mawddach valley slopes were all

wooded. This was also the case at the time of the tithe map of c. 1841 although north-west of Tyddyn Gwladys the land was open to the riverside, presumably for pasture. At the north of the survey area was one large area of probable pasture within which was a large sub-oval enclosure with a building, both of which have survived into the modern landscape. This enclosure includes a more favoured area of somewhat gentler slopes where the river is fringed by small meadows and so is likely to be a pastoral enclosure with a dairy or winter cattle shed. This enclosure, and the rest of Tyddyn Gwladys became redundant, relic parts of the landscape after acquisition by the Forestry Commission.

## THE EXISTING ARCHEOLOGICAL RECORD

The only known sites of archeological interest on, or close to the proposed pipeline route are the industrial remains of Tyddyn Gwladys mine and gunpowder works together with the mines of Gwynfynydd and Cwm Heisian east of the river. However, along the ridge, about 500m west of the Afon Gain are a number of mounds and a charcoal platform, resulting from iron smelting (GAT PRN 5496). It has been suggested that these may result from medieval smelting associated with Cymer Abbey (Crew, 1984, 83). These mounds lie within a large enclosure which is also crossed by the pipeline route, named Llwyn Du (Black Grove) on the Trawsfynydd tithe map of c. 1841. The name 'black' here may be used in the same sense as that in the 'Blackdown Hills', Somerset, the name of which derives from the previous extensive charcoal making and iron working there. Remains of such activities might therefore be expected in this area.

## THE ARCHAEOLOGICAL SURVEY

This includes the pipeline route and its immediate borders, within c. 50m on each side. All features of human activity are recorded except those deriving only from current land-use. Features are numbered in sequence from the northern, uphill end of the route downwards. The location of all the features is shown on the accompanying map (fig. 1).

### 1. Island knoll

Category E Impact: Slight

This small area constitutes an island at times of flooding. As a well drained area close to the river it would be a favoured site for early post glacial settlement in the mesolithic or neolithic period. It bears no signs of human activity but none would be expected for this period for which only the hearths and artefact scatters of a temporary camp site would be likely to survive and which might be revealed by the pipe trench excavation.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Watching brief.

### 2, 3 and 4. Trial mining adits and pit.

Category C Impact: Likely

These trial diggings include two shallow horizontal cuts or levels into the hillside about 7m above the river bed and, higher up the slope, a pit from which the upcast is mostly quartz, suggesting that this resulted from gold prospecting. These features have some value in the context of the historic mining in the area.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Avoidance or detailed recording.

### 5. Linear clearance cairn

Category D Impact: None

This cairn lies upslope from the route. It consists of a heap of rubble c. 30m long and may have been created by machine prior to the forest plantation.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: None.

#### 6. Iron riverbank fixings

Category D Impact: None

At the point where the valley broadens into a small meadow the river runs through a deep, narrow, natural channel. On either side of this channel are long iron pegs driven into drilled holes. These are no earlier than the 19th century since one peg has an iron strap with a threaded bolt for fixing to a timber. As this is the narrowest crossing of the river for some way this may be the site of a small footbridge, perhaps related to the nearby mining works.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: None.

#### 7. River terrace

Category E Impact: Likely

This is a small natural terrace, possibly an old hay meadow, suggested by its demarcation by a low wall, c. 0.3m high, at the east, river side. Like feature 1 this would be a favoured site for early settlement.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: Watching brief.

#### 8. Enclosure

Category C Impact: Slight

A large sub-oval enclosure defined by a ruinous wall c. 1m wide and surviving up to 0.6m high of a mixture of angular and sub-angular laid stones and traces of a quarry ditch at the south, outer side. Probably a medieval or post-medieval enclosed pasture, present on the earliest map of c. 1806.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: None.

#### 9. Wall

Category D Impact: Slight

Ruinous wall, c. 1m wide and surviving up to 0.7m high. Neatly laid of angular stones, faced up with larger blocks with a fill of smaller material. This is the outer boundary of Tyddyn Gwladys farm identifiable on the earliest map of c. 1806.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: None.

#### 10. Wall

Category D Impact: Slight

A neatly laid wall of angular and sub-angular stones, c. 0.8m wide and 0.7m high, still standing to its full height in places. This is a sub-division of Tyddyn Gwladys farm land, not identified on the estate map of c. 1806 but shown on the tithe map of c. 1841. Its good survival is probably to be accounted for because being on a steep slope it was avoided by forestry works.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: None.

#### 11. Linear stone dump

Category D Impact: None

Dumps of stone lying along the contour c. 30m west and uphill of the forest track. Mostly of small stones c. 0.1-0.2m diam. max but up to c. 0.4m diam.. Wall 13 (see below) ends as it



approaches dump 11 suggesting that the dump was raw material for an unfinished continuation of the wall.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: None.

#### 12. Trackway

Category D Impact: Slight

A few metres upslope from the present forest track and running parallel to it is an older track. In places it is fairly broad and terraced but in others narrows to a hollow-way less than 2m wide so it may be a cart or pack-horse way pre-dating the forestry plantation.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Basic recording.

#### 13. Wall

Category D Impact: None

Very ruinous but in one place it is shown to have been well constructed of angular blocks. The wall lies approximately along the contour, parallel to the old track 12, but ends, presumably unfinished, as it approaches dump 11.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: None.

#### 14. Wall

Category D Impact: Slight

A very ruinous wall consisting of masses of angular and sub-angular rubble, well spread. Its material was possibly dug from an adjoining quarry ditch. It lies both downslope and upslope of the forest track and continues uphill to the west. Its exact position is difficult to plot without measured survey but it can probably be identified as a wall recorded on existing OS maps, forming an internal boundary of Tyddyn Gwladys farm, shown also on the estate map of c. 1806.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: None.

#### 15. Building

Category B Impact: None

A rectangular building lying approximately south-west to north-east and terraced into the slope on a small natural terrace c. 30m west of the forest track. Now roofless. Consists of a single room, c. 5.5 by 7m internally with no windows or fireplace. One doorway, central at the downhill end with oak lintel still in situ only 1.3m above the threshold. The wall is c. 1m wide, built on wider footings or plinth and of neatly laid angular, probably quarried, stone and still standing up to 2.2m high although at the uphill end the roof is level with the ground surface. There are no associated enclosure walls, terraces etc. The building does not appear on the maps of the first half of the nineteenth century but does appear on the first edition of the OS 6 inch map and may have been a store associated with the later mining or gunpowder works and so is of some historic value.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Avoidance.

#### 16. Wall

Category D Impact: None

A laid stone wall c. 0.7m wide, still standing in places to its full height of c. 1.7m. Built of sub-angular stone of all sizes, many quite small and clearly different in character from the larger squarer blocks in walls 13 and 14. This is probably an estate built wall surrounding the formerly open strip of woodland shown alongside the river on the map of c. 1806 but enclosed

on the tithe map of c. 1841.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: None.

#### 17. Leat

Category D Impact: Slight

A small leat lying about 4m west of and above the present forest track. It originally took water from a small stream which has now been culverted under the track. Its function is unknown although it can be assumed that it is associated with the gunpowder mills which lie close by, downslope. It can be traced for about 40m downhill to the south before it vanishes where it has been removed by the line of the present forest track.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Basic recording.

#### 18. Track

Category D Impact: Slight

A stony hollow-way, c. 2m wide which runs at a steep angle up the slope. An old footpath or pack-horse way.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Basic recording.

#### 19. Gunpowder works

Category A Impact: None

The remains consist of several ruined buildings which lie at the foot of the slope below the forest track. The buildings are in quite good condition and have been described elsewhere (Crocker and Crocker, forthcoming). They should not be affected by the pipeline construction but care should be taken that spoil does not roll down the steep slope onto the buildings.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Avoidance.

#### 20. Terrace

Category D Impact: None

Just downslope of the forestry track is a laid stone terrace lying at an angle to the slope. It is probably a quite recent construction carrying the footpath between upper and lower forest tracks.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Watching brief.

#### 21. Quarry

Category C Impact: Slight

A rock-cut area just uphill of the forestry track. Neatly cut, c. 15m square with some curtain walling at the downhill edge, close to the track. It has little value on its own but is a part of the whole mining complex, perhaps a stone source for the former mine buildings and barracks at Ferndale.

Recommendation for further assessment: None.

Recommendation for mitigatory measures: Avoidance.

#### 22. Leat

Category B Impact: None

A subsidiary part of the Tyddyn Gwladys mine. The leat presumably provided the water power to the works at Ferndale and has value as part of the whole complex. It need not be affected if care is taken to avoid spoil rolling down the steep slope onto the leat.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: Avoidance.

#### 23. Mine adit

Category B Impact: Likely

A mine adit lying just uphill of the forestry track. It has value as part of the Tyddyn Gwladys mining complex. The entrance passage has wall facing which lies as close as 2m from the forestry track edge and could easily be damaged by machine movement or spoil dumping but can be avoided if the easement is narrowed and no spoil dumped near it.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: Avoidance.

#### 24. Track

Category C Impact: Slight

A trackway running diagonally, south-west to north-east, across the slope, uphill of the forestry track. Terraced into and built up above the slope. Part of the fairly extensive mining works on this hillside, beyond the survey area.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: Basic recording.

#### 25. Track

Category D Impact: Slight.

A short, discontinuous remnant of earlier trackway, approximately parallel to and just uphill of the forestry track where it approaches the junction with the Gwynfynydd track. Possibly a continuation of 24 or even an earlier route of the forestry track.

Recommendation for further assessment: None.  
Recommendation for mitigatory measures: None.

### SUMMARY OF RECOMMENDATIONS FOR MITIGATORY MEASURES

This lists the sites according to their perceived value as suggested in the 'Design manual for Roads and Bridges', Vol. II, Section 3, Part 2.

#### Category A - National importance

19. Gunpowder works. Avoid accidental damage or disturbance.

#### Category B - Regional importance

15. Building. Avoid accidental damage or disturbance.  
22. Leat. Avoid accidental damage or disturbance.  
23. Mine adit. Avoid accidental damage or disturbance.

#### Category C - Local importance

2, 3. Trial adits. Avoidance or detailed recording.  
4. Trial pit. Avoidance.  
8. Enclosure. No action required.  
21. Quarry. Avoid accidental damage or disturbance.  
24. Track. Basic recording.

#### Category D - Minor or damaged sites

*Handwritten:* Ricki Mams

5, 6, 9, 10, 11, 13, 14, 16, 25. No action required.  
12, 17, 18. Basic recording.  
20. Watching brief.

#### Category E - Sites of potential value

1. Island knoll. Watching brief.
7. River terrace. Watching brief.

### GENERAL RECOMMENDATIONS

#### 1. The construction requirements

The pipeline would require a minimum working easement of c. 5m which could be as little as 4m in places. For the greatest part the pipe trench could lie entirely within the confines of the existing forestry track which, because it is constructed on a slope has been cut into and built up above the hillside, has created a corridor considerably wider than the track itself in which any archaeological value has been removed.

#### 2. Archaeological recommendations

A total of 25 features were noted within the general area of the route. Of these, one was assessed as of probable Grade A - National Importance. This was the Tyddyn Gwladys gunpowder works. This, along with most of the other features assessed as of significant value, can be avoided by suitable fencing of the easement and care during the construction and reinstatement. Two features (trial mining adits, nos. 2 and 3) require design of the route to avoid them or else detailed recording. Most of the minor sites were disused post-medieval walls and require no action while there were two areas of potential archaeological value which require a watching brief. The following recommendations are also made:

##### A. Before construction

1. There should be an archaeologist present during the marking out and fencing of the easement to advise on the exact route. This would seek to minimise the easement width at the points where it adjoins significant features.
2. Archaeological advice should be sought before and during the creation of any temporary topsoil dumping areas.

##### B. During construction

1. There should be a general watching brief to allow close monitoring of works near to specified features in order to avoid damage.

##### C. After construction

1. Reinstatement of ground levels should be monitored.
2. There should be allowance for production of a proper level of archiving and production of a report and drawings with a summary for publication, if the resulting information is suitable.

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## Maps

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1:10,000 1886, 1920, 1976 (6")  
1:2,500 1886, 1900

Tithe maps and schedules c. 1841

John Evans Map of North Wales of 1797

Mostyn estate map c. 1806 (Mostyn 8634)

Mostyn estate map of part of Cors-y-gedol estate for auction, 1849 (Mostyn 8624)

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## NON-TECHNICAL SUMMARY

An archaeological assessment was carried out of the route of the proposed pipeline. This work involved a desktop study of existing records followed by a field walkover. The desktop study included examination of records which make up Gwynedd Sites and Monuments Record held at Gwynedd Archaeological Trust and searches of other records and maps held in archives at Aberystwyth, Dolgellau, and Bangor as well as early OS maps and printed literature. The fieldwork involved walking all of the c. 1.8km of the route with observation of an area c. 50m on either side and brief recording and assessment of every feature except those which were clearly modern.

A total of 25 features were noted within the corridor of the route. The single most significant feature was that of the Tyddyn Gwladys gunpowder works which lies some way from the proposed route. The most significant group of features were those relating to 18th/19th century mining such as trial levels and an adit. These have regional and local value as the mining in this valley, particularly that for gold, is well documented. There were also a number of minor features, mainly post-medieval field walls relating to the abandoned Tyddyn Gwladys farm and two areas of potential value for early settlement.

The pipeline follows mainly along an existing forestry track and most of the features recorded can be simply avoided. However, it was recommended that the easement be confined in a few places to avoid damage to features close to the construction works and to avoid spoil rolling down the slope onto other features. A few features require basic recording and a watching brief is recommended to observe the pipe trench excavation where it cuts through two small areas of potential archaeological value.



