A470 DOLWYDDELAN TO PONT-YR-AFANC IMPROVEMENT

ARCHAEOLOGICAL WATCHING BRIEF AND RECORDING



REPORT No 531

Revision 1a, 29/11/2004

Ymddiriedolaeth Archaeolegol Gwynedd Gwynedd Archaeological Trust

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Prepared by David Hopewell for Arup 29/11/2004 Contents

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A470 DOLWYDDELAN TO PONT-YR-AFANC IMPROVEMENT ARCHAEOLOGICAL WATCHING BRIEF AND RECORDING (G1722)

1. INTRODUCTION

Gwynedd Archaeological Trust was contracted by Arup to carry out a program of archaeological monitoring and recording in areas affected by improvements to the A470 between Pont-yr-Afanc and Dolwyddelan. An environmental statement was prepared in advance of the works 1992 (Sir William Halcrow and Partners Ltd, 1992).

The route of the road was assessed for archaeological potential in 1992 and recommendations for further assessment and mitigation were made. Further assessment was carried out for the site compound at Pont yr Afanc but no archaeology was identified. A total of 19 sites that were likely to be affected by the road improvements were identified. These are indicated on Figs 1-3 (from Hopewell 1999), along with other unaffected and discounted sites in the area. Recommendations were made for either basic or detailed recording and further mitigatory measures. The results of the archaeological recording were presented in GAT report 345 (Hopewell 1999). A revision the road improvement scheme resulted in a further recording and a watching brief in advance of, and during works on the revetment wall and an associated quarry tramway on the eastern side of the road opposite the Prince Llewelyn slate quarry (Kenney 2000 and 2001). A further watching brief was kept during tree clearance in advance of the present works (Kenney 2002). One further archaeological site (100) was identified during this process.

The 20 sites identified as being likely to be affected by the road improvements are indicated in table 1, along with the mitigatory measures still outstanding at the beginning of the present phase of the works. The site locations are shown on Figs 1, 2 and 3 at the end of this report. It should be noted that a partial watching brief was stipulated for the whole route. This comprises a general monitoring of the works by an archaeologist, with a watching brief being carried out when appropriate. The sites in table 1 with no specific further mitigatory measures would be monitored during this procedure along with any areas of previously unidentified interest along the route.

TABLE 1. SU	UMMARY OF ARCHAEOLOGICAL SI	FES AND MITIGATORY MEASURES
SITE No	SITE DESCRIPTION	FURTHER MITIGATORY MEASURES
73	Tip – Prince Llewelyn Quarry	None
74	Tramway, now footpath	None (Watching brief carried out in August
		2001)
79	Remains of possible culvert or bridge	Watching brief
81	Sarn Helen – Roman Road	Watching brief in order to record any buried
		remains of the Roman road.
83	Pont-y-Pant	None
84	Old stone wall	None
85	Raised area of possible interest	None
86	Ruined buildings or sheep pens and	Watching brief on platform to the north-west
	enclosure	of compartment C.
87	Old stone wall	None
88	Track	None
89	Ruined buildings	Watching brief
90	Terracing	None
91	Four stone piers	None
93	Culvert	Avoidance of damage to culvert under the
		embankment. Reinstatement of wing and head
		walls
94	Buildings	None
95	Rocky patch	None
96	Track	None
97	Remains of sheep pen or building	None
99	Pont-ar-Lledr Grade II listed bridge	Reinstatement of wing wall
101	Small building east of Caedu	Avoidance or detailed recording

2. METHODOLOGY

Monitoring procedures were set up at the beginning of the project. The project archaeologist at Gwynedd Archaeological Trust was informed of the commencement of all relevant works by a series of Request for Witness or Approval (RWA) forms. The RWA forms ensured that the archaeologist had the option of witnessing (i.e. carrying out a watching brief) all clearance, ground disturbance and demolition during the road improvements. All reports generated by the project have been submitted for archiving at the Gwynedd Sites and Monuments Record.

3. RESULTS

No new sites were discovered during the watching brief. Works on most sites listed in table 1 were monitored and watching briefs carried out where appropriate. Interim reports were produced for sites 86 and 99 (Hopewell 2003 i and ii). This information has been incorporated into the present document along with reports on the other sites.

Site 73. Tip - Prince Llewelyn Quarry SH74505281.

Description

The waste tips associated with Prince Llewelyn Quarry extended as far as the road at this point and had been partially landscaped to form the grounds of a garage and filling station. The area affected by the road improvements consisted of a rough slate revetment wall with levelled slate waste above it (Fig 4). The wall stood to a height of 2.2m. The lower 1.6m was standing close to vertical and the upper part was battered back. The masonry was irregular and had not been built to a good face. An 8m length of wall and tip adjacent to the road had been landscaped, probably when the filling station was built, but the wall to the north was in woodland and appeared to be untouched. There was a major collapse in the revetment wall within the woodland at a point 18m from the road. The site was photographed and the photographs have been retained in the archive held at Gwynedd Archaeological Trust.

Results of the watching brief

The direct impact by the road improvements was minimal but a considerable amount of material was removed from the quarry tip for use elsewhere in the present scheme. An occasional watching brief was kept and liaison was maintained with the Laing Engineers allowing appropriate monitoring. No further structural features were uncovered. The tips consisted entirely of waste slate down to the original ground surface. It was noted that there were extant building foundations and other features to the north of the extraction area but these remained undisturbed. The site was landscaped after works were completed.

Site 74. Tramway, now footpath SH74505272C

Description

A section of the well-preserved raised tramway running across the river from Prince Llewelyn Slate Quarry was affected by an early phase of the road improvements (The Prince Llewelyn Terrace Retaining Wall Works in March 2001). The tramway is a linear raised feature running for approximately 200m across the valley bottom linking Chwarel y Fedw to Prince Llewelyn Quarry. Slate piers carry the tramway across the floodplain of the Afon Lledr thus avoiding both flooding and steep gradients. The river crossing itself has been replaced by a modern metal bridge. The tramway has now been converted to a footpath and a narrow tarmac path runs along its centre.

The tramway adjacent to the road (Fig. 4) was revetted on both sides by a 1.0m high wall constructed from poor quality slate, much of which had decayed into a very soft product. The road revetment to the north-east was of a similar construction and no definite straight joint or discontinuity could be seen between the two walls. There was however, a semi-collapsed area of facing close to the road where the wall changed direction somewhat abruptly which may have marked the point where the two walls meet. The raised area of the tramway was 2.6m wide. A modern field access had been constructed at a

point 21m from the road by slightly reducing the height of the revetment walls and adding rough ramps to both sides of the tramway. A detailed photographic record and measured survey was made of the revetment wall below the road (Kenny 2000) in advance of the works and various constructional details were recorded.

Results of the watching brief

A watching brief was carried out on this feature during The Prince Llewelyn Terrace Retaining Wall Works in March 2001. The following summary and discussion is taken from the report produced at the time (Kenny 2001).

The excavation of the northern end of the tramway clearly demonstrated that it was built up against the pre-existing revetment. The road, which at present runs along the top of the revetment, appears on the map evidence to have been constructed along its present route between 1863 and 1889 (CRO: X/Plans/RD/17; 25" map). It was suggested by Kenney (2000) that the tramway merged with the road, and may have run along it. The watching brief demonstrated that this apparent merging was an illusion caused by the revetment being aligned at a slight angle to the road. In fact, it seems more likely that the tramway continued straight on, across the revetment. The 1889 map (OS 25") shows a bank continuing the line of the tramway west of the road. This interpretation would suggest that the tramway pre-dated the road and went out of use when the road was constructed.

The information revealed in the watching brief has, therefore, led to a reinterpretation of the sequence of development of the site. The revetment wall is the earliest feature, the tramway was constructed against and over it, and finally the road was built along the top of the revetment, presumably causing the tramway to go out of use. As the revetment wall was not originally constructed to carry the road it must have had another function. This seems most likely to have been as a revetment to the eastern edge of the Prince Llewelyn Quarry tips and yards. The revetment was built when the road still continued around the western side of the quarry, and when the road was moved to its present line it was constructed over the revetment wall.

It is likely that the tramway was constructed around 1865, when Samuel Clift and Company leased the quarry of Chwarel y Fedw (CRO: XD38/279). The revetment wall therefore pre-dates this, and the road post-dates it. The revetment wall was, therefore, probably built in the early 1860s or before.

Vertical joints

The construction of the revetment wall is of some interest because of the vertical joints that characterise it. The south-western faces of these joints were rough and were not built to be seen, and the individual sections of wall were not constructed to stand alone. It is probable that the revetment wall was built sequentially from north-east to south-west, each section being finished with well-built corner and rough south-western face. Probably, the next section was then, immediately, built up against the face of the last.

This was a deliberate, planned construction technique, rather than haphazard extension of the length of the wall, as there were 12 of these vertical joints, spaced at fairly regular intervals. The purpose of this technique is unclear. As the revetment originally contained the slate heaps of the quarry, it might be suggested that this construction technique was designed to limit wall collapse in case of a slippage of the spoil heap. Just one section of wall would collapse, and it would not pull down a longer section of wall with it.

Summary

The watching brief clarified the problems of the relationship between the road, tramway and revetment. The revetment was the first of these structures to be built, probably in the early 1860s or before as a revetment to the quarry tips. The tramway was constructed over and against the revetment, probably around 1865. Finally, the road was built over the top at some time before 1889.

Site 79 Remains of culvert and bridge SH75205360.

Description

A watercourse or leat runs from the remains of Rhiw Gôch slate quarry to the Afon Lledr and passes under the road via a culvert (Plate 1 and Fig. 5). The majority of the edge of the leat is flanked by drystone revetment walls suggesting that it is entirely artificial as opposed to a modified natural stream. The culvert under the road had been replaced by a recent pre-cast concrete construction. The leat walls adjacent to the culvert appeared to have been rebuilt when the culvert was constructed. A concrete slab and the remains of a gabion were also visible in the bed of the leat in this area. Elsewhere the original masonry could be seen to stand to a height of around 0.9m. The area to the north-west of the road had been extensively landscaped and an incline from Rhiw Goch quarry had been converted into a track.

The leat walls to the south-east of the road had been badly eroded in places resulting in several serious collapses. Part of a raised slate pathway can be seen adjacent to the leat 24m to the east of the road. This is standing to a height of 0.5m and is 1.6m wide. It is flagged with large slate slabs running the entire width of the path. This can be traced for 16m at which point it appears that the path was carried towards and presumably over the river on stone piers. A bridge called Pont Carreg-y-bŵch (Fig. 6), leading to Pont-y-pant railway station, is shown on the OS 1:2500 map of 1913 (Carnarvonshire XXIII.7)

A well-defined circular hollow, 5m in diameter, was also recorded in the field to the south of the leat. This appeared to be modern but its function remains unclear.

Results of the watching brief and revised mitigatory recommendations

General monitoring works were carried out on this site. Works on the modern culvert entailed the removal of the mainly modern leat wall adjacent to the road and the addition of a second culvert beneath the road. Exceptionally heavy rain in February 2004 resulted in extensive flooding of the valley floor. Serious erosion occurred to the southern side of the leat, immediately to the east of the culvert (Plate 2). A length of approximately 10m of the leat wall was lost and the soil behind it was eroded back to the fence line. A collapse was recorded in the wall in 1999 at the point where the flood damage occurred and this point of weakness may have precipitated the collapse. It is not known if any of the original slate path was extant but buried in the eroded area.

The southern leat wall was reinstated using slate masonry. Its line was slightly modified in order to lessen the scouring effect of the discharge from the culvert. The wing wall (i.e. the leat wall running at 90 degrees to the road) was lengthened, thus dissipating some of the energy from the outfall. The leat wall connecting the wing wall and the original masonry was reconstructed at a slightly different angle to its original line in order to tie in with the new wing wall. The modern leat walls adjacent to the roadside revetment were rebuilt and re-aligned in order accommodate the new culvert.

The area to the south of the leat was landscaped in order to provide higher ground for livestock during flooding. This entailed the disturbance of the circular hollow and a watching brief was therefore carried out. The turf and topsoil were stripped using a mechanical excavator with a toothless bucket, under archaeological supervision. The topsoil was found to be between 0.1 and 0.2m deep, overlying river gravels and silt. The feature was found to be a simple rounded hollow in the subsoil with no other features present. There was nothing to suggest any industrial function or connection with the nearby Rhiw-Bach quarry. It is probably best interpreted as a small modern quarry pit, possibly associated with an earlier phase of road improvements.

Site 81 Sarn Helen - Roman Road. SH75375384

Description

The minor road leaving the A470 at SH75375384 is thought to follow the line of Sarn Helen Roman road (Margary, 1967). The Ordnance Survey reviewed the route in the 1970s and thought that it was the possible course of the road but identified no extant remains (OS linear file RR69a). The present day road and its environs were examined in detail during the pre-works recording and no earlier

features could be seen. The surface is clearly modern and all of the adjoining walls etc appear to be of 19th century date.

Results of the watching brief

A watching brief was carried out during topsoil stripping to the south of the A470 near Pont-y-Pant (Fig. 7). The area comprised a 5-10m wide strip stretching 160m to the west of Pont-y-Pant and directly to the south of the road.

About 20cm of humic topsoil was mechanically removed using a toothed bucket revealing an apparently undisturbed context of brownish-grey silt, probably of fluvial origin. This extended across all but the slightly higher central part of the area examined. Test pits revealed that the silt was typically 0.8m deep and was overlying hard grey subsoil. The higher central area consisted of brownish yellow natural silt overlying bedrock or large boulders and containing large stones. A pile of slag and cinders was uncovered immediately adjacent to the road. This was 4m across and up to 0.5m deep. Minor excavations were made into the heap demonstrating that it was sitting on clean yellow subsoil. The slag deposit extended beneath the roadside wall and possibly beneath the road itself. No associated structures were identified and it seems likely that the slag was either simply dumped beside the road or was used as hardcore in the road base. No other archaeological features were identified.

A further 270m x 20m area on the Lledr floodplain to the east of the minor road junction adjacent to Church House was inspected after topsoil stripping (Fig. 7). Sarn Helen Roman road is traditionally supposed to cross the Afon Lledr in this area. This area was excavated down to a depth of about 0.5m in order to lay sub-base for the road. An area about 4.0m wide was excavated revealing some previous disturbance caused by a water main running parallel to the A470. Clean river silts and gravel could be seen to either side of the pipe trench suggesting that either Sarn Helen did not cross the Afon Lledr at this point or that all traces of the road have been lost. The rest of the cleared area had been driven over by plant in many places before inspection but had not been seriously disturbed because the soil was fairly dry. No archaeological features were visible in this area.

Conclusions

Sarn Helen is commonly supposed to cross the river in this area. The findings of the watching brief failed to find any evidence to support this hypothesis. It should, however, be noted that the course of the river may have changed considerably over the last two millennia thus erasing or burying any evidence of the early road system.

Site 83 Pont-y-Pant SH75565388.

Description

This bridge was formerly a listed building but was later removed from the list presumably because the original structure has largely been replaced by two steel girders and a reinforced concrete roadway (Plate 2). The stone piers are all that remain of the earlier bridge and these have not been affected by the road improvements.

Site 84 Old stone walls SH75845395

Description

Two drystone boundary walls run up to the road at this point. As it was thought to be likely that both walls would be affected by the road improvements, a photographic and written record was made. No further mitigatory recommendations were made. The wall on the north of the road ran to within 14m of the road and terminated at SH75845395. This wall was 0.9m thick and stood to a height of 3.0m on a very steep slope (Plate 3). The end of the wall was battered back. The wall continued up the slope for close to 40m but had completely collapsed in several places. The masonry consisted of large slate slabs built to a good face. Two trees and a barely perceptible bank may have marked a continuation of

the line of the wall to the road. The stone from this section may have been reused in the present road wall.

The southern wall stood on a 45° slope above the river and ran for 6.5m in a southerly direction before terminating above a close to vertical drop. It stood to a height of 0.9m, is 0.6m wide and as such could be seen as a fairly typical 19th century field wall. The masonry consisted of large slabs of slate forming substantial stretchers with more irregular blocks utilised as through stones. Some upright coping stones survived on the central part of the wall.

Results of the watching brief

The are was inspected during a site visit in May 2004 and it was noted that the lower half of the northern wall had collapsed (Plate 4). This appears to have been caused by a wind-blown tree and was probably not a direct result of the improvement works.

Site 85 Raised area of possible interest. SH75935397

Description

About 50% of this area was covered in bracken and gorse making detailed assessment difficult. The clear areas consisted of bedrock with a thin covering of turf and lichens. No archaeological features were present here. Several paths were cut through the overgrown areas and these and the area visible beneath the bracken fronds were examined. No archaeological features were detected. Further assessment was beyond the scope of this project, as this would have entailed a programme of complete clearance of the bracken. This limited assessment should however have identified any significant archaeology. General photographs were taken of the area and retained in the archive.

Results of the watching brief

A watching brief was carried out during the topsoil strip but no archaeological features were identified.

Site 86 Ruined buildings or sheep pens and enclosure. SH76005400

Description

A complex of sheepfolds, centred around an earlier agricultural building, was standing on the north side of the A470 opposite Caedu (Plate 5 and Fig. 8). A detailed survey was undertaken before works commenced. The results are shown on Fig. 9. Each of the six compartments was allocated a separate letter in order to simplify the descriptions and photographic records.

Compartment A was a former agricultural building with internal dimensions of 5.5m x 4.4m and a 0.95m wide and 1.65m high entrance in the north-eastern wall. The masonry in this building was much more substantial than in the other sheepfolds. The walls were standing to a height of close to 2.0m and were constructed from large blocks of stone interspersed with smaller slate slabs. The end walls were 0.9m thick and the side walls 0.7m thick. The southern corner of the building had been partially destroyed, probably by a road traffic accident.

Compartment B was a somewhat irregular enclosure with dimensions of 4.6m x 5.6m and walls standing to a height of 1.4m to 1.6m. The south-eastern wall abutted the outer face of building A. There were two openings in the north-eastern wall separated by a block of masonry added to the end of a field wall. A narrow 0.6m wide entrance led into compartment C. The masonry style was similar to that of compartments C and F, i.e.; the walls were 0.7m thick and constructed from small, flat, irregular pieces of slate. A small niche or alcove (dimensions: width 0.72m, height 0.5m, depth 0.5m) standing 0.75m above ground level was visible in the north-western wall.

Compartment C was a rectangular structure with dimensions of 6.0m x 4.2m and walls standing to a height of 1.6m. The south-western wall abutted building A. A blocked and partially collapsed sheep

run (width 0.85, height 1.05) and a blocked doorway (width 0.85m) could be seen as straight joints in the masonry of the north-eastern wall.

Compartment D was an irregular enclosure formed by a steep natural slope at the west and the outer face of compartments A, C and E to the south-east. A curving wall with a 1.1m wide entrance formed the north-eastern wall.

Compartment E was a three sided enclosure or yard with dimensions of 9.4 m x 6.5 m. The walls were 0.5m thick, standing to a height of 1.5m and were capped by upright coping stones.

Compartment F was a small rectangular enclosure or pen with dimensions of 2.2m x 1.6m built into the western corner of compartment E. The entrance was in the north-eastern wall and was 0.8m wide.

A 3m wide irregular platform was identified to the north-west of compartment C. It was suggested that this could be the remains of an earlier phase of building. A detailed watching brief was recommended on this area.

Results of the watching brief

A watching brief was kept during the demolition of the sheep pens and the topsoil stripping around them. No further constructional details were uncovered.

The area around the building platform adjacent to compartment C was then stripped using a tracked excavator with a toothless bucket under archaeological supervision. Between 10cm and 15cm of humic topsoil with numerous bracken rhizomes was removed by the mechanical excavator. An area of 6.0m x 3.5m was then excavated by hand and appropriate written, photographic and drawn records were made of the archaeological features that were identified. Working conditions were occasionally problematic with hail, snowfall and strong winds between periods of more settled weather. The work was undertaken between 3/02/03 and 6/02/03.

The excavated area (see Figs 10 and 11) was originally bounded to the west by the side of a sheep pen and to the south by a field wall. Both of these structures had been demolished during initial site clearance. The building platform identified in the assessment only extended about 2m into the easement of the road corridor as defined by the fence line indicated on Fig.11. Further archaeological remains were, however, uncovered during topsoil stripping between the platform and the line of the field wall to the south. The archaeological features in this area are described below.

Rectangular structure (Contexts 02 and 03). A 2.8m length of drystone revetment was recorded, surviving to a height of 0.2m. This clearly marks the front of the building platform identified during archaeological recording in advance of the road scheme (Hopewell 1999, site 86). Both the top of the revetment wall and the context behind it (03 redeposited subsoil) showed signs of 19th century disturbance, with occasional sherds of Bulkley ware and clay pipe stem recovered from between displaced small stones around wall top. This disturbance can presumably be attributed to stone robbing during the construction of the sheep pens. The revetment could not be traced across the entire 4.5m width of the front of the platform but this could again be the result of stone robbing, with the larger stones commonly used at the corner of a structure being most likely to be reused in other structures. The unexcavated portion of the platform could be seen to extend to the north where it had been cut into the steep south-facing slope. The overall dimensions of the platform are 7.5m x 4.5m.

Interpretation. The dimensions and orientation of this platform (i.e. with its longest axis cut into the slope) suggest that it is a small medieval or early post-medieval long hut. Stone robbing has apparently caused a fair amount of damage to the structure. The site should thus be classified as a category B site (of regional importance), as opposed to category A (of national importance).

Trampled surface (Context 04). The area around the front of platform 02 was found to consist of a mixed context of humic soil and disturbed subsoil with occasional flat stones, perhaps the remains of a rough surface, alongside the sheep pen wall to the west. Frequent 19th century potsherds were recovered from this context.

Interpretation. The general mixed nature of the context is probably the result of animal trampling. The rough surface remains undated.

Linear feature (Context 05.) A 0.7m wide band of very loose humic soil containing occasional stones up to 0.35m in length was recorded running diagonally, south-west to north-east, across the centre of the excavated area.

Interpretation. The 1919 Caernarfonshire XXIII.8 1:2500 OS map (Fig. 1) shows the field wall running on this orientation up to the sheep pens. This was subsequently rebuilt on a different orientation, about 2m to the south as shown on Fig. 2. This feature can thus be interpreted as the robbed out remains of the earlier wall.

Stone surface (Contexts 06 and 07). The area between robbed wall 05 and the more recent wall 08 consisted of a 0.2m deep context of very stony humic soil (07) incorporating 5 substantial rough stone slabs (06) up to 1.2m in length. This was clearly the remains of a flagged surface. It was bounded by robbed wall 05 to the north-west and cut by the later wall to the south. The stony soil (07) contained sherds of 19th century pottery. Two of the slabs were lifted and were found to be set onto clean subsoil. A piece of 19th century clay pipe stem was found beneath one of the slabs. No bounding wall was identified at the eastern side of the surface suggesting that this was not the interior of a building.

Interpretation. The 19th century finds and lack of bounding wall suggest that this was most likely to have been a roughly flagged yard between wall 05 and the road associated with Lledr Cottage (see Fig. 1). The 19th century flagged yard and robbed wall were fully excavated and were subsequently destroyed by the road improvements.

Revised mitigatory recommendations

A revised area of archaeological constraint (Fig. 10) was recommended in view of the excavation results. This was defined as a rectangular area of 6.5m x 9.5m set back 5.5m from the edge of the present A470 and bounded to the south-west by the remains of the north-eastern side of the sheep pens where no ground disturbance could take place without archaeological consultation and supervision. It was recommended that the possible medieval long hut should be preserved *in situ*. It stands just to the north-west of the new carriageway and associated drainage works. The site stands to the outside of the fence-line alongside the new road and will thus be within National Trust land. The shallow excavation was backfilled with topsoil and was re-seeded thus stabilising the site.

The National Trust, Cadw and the Development Control Archaeologist were informed of the existence of these archaeological features.

Site 87 Old stone wall. SH76255402

Description

A substantial drystone boundary wall ran from the south side of the A470 at SH76125403. It could be seen to run downslope in a south-easterly direction for 60m before turning towards the east and north and following the 107m contour along the valley bottom for 120m. The wall typically stands to a height of around 1.6m and is 0.6m wide and is built to a rough face from large sub-rounded stones.

Results of the watching brief

The western portion of the wall, running downhill from the original A470 to the lower slopes of the valley has, as expected, been destroyed by the construction of a new retaining wall. The works come close to the wall along the valley bottom but it remains largely unaffected.

Sites 88 and 89 Track and Ruined quarry structures SH76515411/SH76595410

Description

Sites 88 and 89 formed part of a larger complex of quarry workings and buildings (Fig. 12). There are no known written records of this quarry and it is not known what was extracted. There are however large amounts of quartz around the workings. It is unlikely that quartz extraction would be financially viable so it can be assumed that a mineral associated with the quartz veins was being extracted. The quarry itself stands 200m north of the road. An incline, terminating in a large stone chute, stand beneath the quarry. One or possibly two trackways run from this point to site 88 and a raised barrow run runs to the south. The above features are all set-back from the road and should not be affected by the works.

Site 88 is a track running from the A470 to the structures immediately beneath the quarry. Its orientation suggests that it runs to a level area immediately below the chute. The track is terraced into and built out onto the hillside to a width of 3m to 3.5m. The lower side retains a few traces of revetment walling. A further length of revetment walling 3m to the north-west of the track may represent the lower side of a further narrow trackway, possibly running to the trackway identified below the quarry. This is in poor condition making interpretation difficult.

A small $(5m \times 5m)$ revetted platform adjoins the southern side of the trackway. This may have originally contained a building as the top of the platform is entirely obscured by rubble. A large orthostatic stone in excess of 2m in length stands at the south-western end of the platform.

The raised barrow run led to site 89, a drystone ramp or small incline (Plate 6). This structure stood to a height of 2.0m at its northern end with dimensions of $9.3m \times 2.9m$. The northern half of the structure originally formed a level platform. This had been subsequently partially dismantled in order to build a rectangular shelter (Plate 7). The southern half of the structure formed a steep ramp running down towards the road at an angle of about 40°. The end of the ramp ran into a 13m long, grassed over, chute.

A loading bay with dimensions of 4.9m x 5.9m had been cut into the slope below the ramp (Plate 8). A drystone revetment wall standing to a height of 1.6m formed the back wall of the bay.

Three grassed over hollows could be seen at the eastern side of the ramp (Plate 6). The northernmost was circular with a diameter of 3.25m and is cut 0.6m into the ground. The sides of the feature were close to vertical retaining possible remnants of stone facing. A subrectangular platform with dimensions of $3.6m \ge 3.4m$ had been cut into the slope just to the south of this. A further 1.6m diameter hollow could be seen in front of the platform.

This sequence of hollows was tentatively interpreted as the remains of processing floors or other structures where products from the quarry were crushed and separated. Another 1.9m diameter hollow was identified just to the west of the ramp. A further, larger hollow, adjacent to the loading bay could have been a natural depression partially modified by material forming the western side of the bay.

The later shelter cut into the stone ramp presumably post-dated the other structures, as the ramp and therefore the barrow run, chute and loading bay would have been rendered inoperative by its construction. The shelter was rectangular with internal dimensions of 3.5 m x 2.5 m The walls were drystone, standing to a height of 1.5m and were 0.7m thick. This feature was probably a sheep pen.

It was anticipated that Site 88 would not be substantially damaged by the road but site 89 would be entirely destroyed. Both sites were planned using a total station and all inner and outer elevations were photographed in detail. The photographs were catalogued and have been retained in the archive.

A watching brief was recommended for site 89.

Results of the Watching brief

The ramp/incline and later shelter were dismantled using a mechanical excavator. The incline was shown to be entirely of dry stone and incorporating both natural boulders and flat stone slabs. Several of the slabs contained blasting holes and probably originated in the nearby quarry. The barrow run was constructed entirely from quarry waste and soil.

The topsoil around the incline was partially stripped by mechanical excavator and partly by hand. Seven features were examined (Fig 13):

Feature 1 was an 1.2m long alignment of three flat stones. No further associated masonry was identified. It is likely that this was a fragment of a shelter or other structure that had been robbed of stone to build the later sheep pen.

Feature 2 was a 1.0m diameter, 0.25 deep circular hollow cut into natural subsoil and filled with humus and bracken rhizomes.

Feature 3 was an irregular hollow, probably formed by the roots of a wind blown tree.

Feature 4 was visible as a 2.4m x 1.8m oval hollow, cut into a moderate slope to the west of the foot of the incline (Fig 14). It had a semi mature birch tree growing in its eastern side. The feature was a maximum of 0.7m deep. It was half sectioned and found to contain a humic fill, about 0.2m deep. The feature was cut into natural subsoil.

Feature 5 (Fig 14) was a roughly square (3.2m x 3.0m) platform or embayment cut into the slope to the east of the incline. It was sectioned and found to be filled with a 0.2m deep layer of humus and roots. The base was of hard-packed subsoil with occasional large stones embedded in it.

Feature 6 was a 3m diameter, circular hollow. It was examined and appeared to be very similar to the other circular features. It was not excavated as it was expected to be outside the affected area. It was however destroyed during grading of the slope above the road.

Feature 7 was a shallow 0.7m diameter hollow and appeared to be natural.

All but one of the hollows were very regularly shaped suggesting that they were deliberately made. None, however, produced any evidence suggesting that they were used in the processing of material from the quarry. There was no processing debris and none were stone lined. It could be argued that any free stone in the area would have been reused in the sheep shelter but the lack of any debris in either the hollows or the surrounding area suggests that an industrial origin is unlikely. Unfortunately, no evidence was forthcoming to suggest an alternative.

Site 89 has now been entirely destroyed although much of the barrow run and all of the quarry have been unaffected. Site 88 has been unaffected. The small platform/building now stands close to the edge of the road batter.

Site 90 Terracing. SH76815405

Description

The terracing on the hillside adjacent to Maes-y-Coed was examined in some detail in the pre-works recording. It was found to be entirely natural. A dilapidated, modern corrugated iron sheep pen stands about halfway down the field. General photographs were taken of the area and retained in the archive. No further action was taken.

Site 91 Four stone piers SH77515403

Description

Four stone piers were recorded standing on a rocky outcrop just to the south of the A470 (Plate 9 and Fig. 8). Three were rectangular in plan and one subrectangular. All were constructed from a mixture of roughly mortared late, rhyolite and other stone. Each pier was capped with very coarse unshuttered concrete. The piers formed a roughly semicircular alignment. At the time of the initial recording, they were interpreted as being of possible industrial origin. Subsequent research suggests that they are almost certainly World War Two anti tank defences. Further very similar defences can be seen at the head of the Nant Ffrancon Valley (NPRN 270450).

Results of the watching brief

Two of the four piers were demolished to make way for the road improvements. They were found to be uniformly constructed throughout and made of mortared rough local stone.

Site 93 Culvert. SH78205385

Description

A very well constructed brick and stone culvert carries a stream beneath the railway embankment and then beneath the A470, at a point 35m to the east of Gethin's Bridge, a Grade II Listed viaduct. The culvert appears to be contemporary with the viaduct, as the masonry styles are similar and has always been deemed to be a part of the listed structure. The culvert beneath the embankment is 1.20m wide and 1.64 m high. The culvert bed is constructed from pitched stones laid crossways and retained at the entrance by a large stone slab. The walls consist of roughly shaped stone supporting an arching brick roof. The arch is level, in contrast to the sloping floor, and runs into the culvert for 1.8m before stepping up by 0.45m. This is followed by another 2.1m level section. The stepped roof continues throughout the entire 17m length of the culvert. The slope behind the culvert is revetted by 4.5m long wing-walls running at 45° to the ends of the arch.

The water is carried beneath the road in a rectangular stone built culvert, roofed and floored with stone slabs. The opening to the south of the road is 0.85m wide and 1.25m high. The principal mitigatory recommendation was avoidance of damage to the culvert under the embankment.

Results of the watching brief

The wingwall and headwall of the culvert alongside the road were constructed in the same distinctive masonry style as the viaduct (Plate 7). The new road carriageway impinges on this masonry as well as the roadside wall. The wingwall and headwall were therefore moved back by a small amount to accommodate the new road. All of the major stones were numbered and the wall was dismantled. New concrete footings were laid and the walls were reconstructed with the stones being replaced as close to their original arrangement as possible (Plate 8).

Site 94 Buildings SH78255384C

Description

Two 19^{th} century agricultural buildings were standing on the south side of the road at Tan-yr-Allt. One building was located almost opposite Tan-yr-Allt farmhouse. This building, cut lengthways into the slope, had dimensions of 5.7m x 4.7m with a small extension on the southern side. There were steps leading up to a door in the northern gable end with a further door and small window in the eastern wall. The walls were constructed from roughly mortared stone beneath a modern slate roof.

The other building was standing 70m to the west of Tan-yr-Allt and was cut sideways into the slope parallel to the road. Its external dimensions were 9.2 x 5.2m and two windows, at the level of the road could be seen in the northern wall. A modern 'up and over' garage door had also been inserted in this wall. The walls were constructed from roughly mortared stone beneath a modern corrugated iron roof. The remains of a recent pigsty abutted the southern wall.

Another pigsty was standing in the woodland to the south of the road but this could not be located due to heavy undergrowth.

Results of the watching brief

No further works were carried out here and the buildings were demolished as part of the road improvements.

Site 95 Rocky patch. SH78405381

Description

The landowner reported that a rocky patch in the field to the south of the road was all that remained of a sight terrace and field bank that was cleared around the time that the present road was constructed. A few possible facing stones could be seen amongst the rubble. General photographs were taken and have been retained in the archive.

Results of the watching brief

No further action was taken here

Site 96 Track SH78955403C

Description

An overgrown roughly cobbled track runs from the A470 at SH79155401 following an alignment slightly to the north of the road for about 250m before turning uphill into the woods to the north.

Results of the watching brief

The only part of the track directly affected by the road improvements is at the point where it joined the A470. The junction was reinstated and landscaped, thus preserving the integrity of the feature.

Site 97 Remains of sheep pen or building. SH78955399

Description

The very overgrown remains of a two compartment sheep pen marked on the 1913 OS 1:2500 map (Carnarvonshire XXIV.5) were standing to the south of the road. The easternmost enclosure had internal dimensions of 5.5m x 3.2m and appeared to be a reused agricultural building. The walls stood to a height of 1.2m and were 0.8m thick. The drystone masonry consisted of large blocks of straight-edged local stone, laid to a good face. There was a 1m wide entrance in the eastern wall. A later, curving wall linked the south-eastern corner of the enclosure to a large 4.3m long boulder. The westernmost enclosure abutted the reused building and has internal dimensions of 5.5m x 3.0m. The walls here were less well built and somewhat narrower. The northern walls of both enclosures had been largely destroyed by previous road improvements.

Results of the watching brief

The sheep pen was demolished as part of the present improvements and no further information was uncovered during the works.

Site 99 Pont-ar-Lledr Grade II Listed Bridge. SH79675418

Description

The bridge consists of two elliptical arches one larger than the other, with a cutwater between them. It is thought to date from the late 18th century (RCAHMW 1959). Only the outer wing walls were affected by the road improvements. These were recorded in detail before the works commenced and the catalogued photographs retained in the archive.

The north-eastern wing wall was in good condition but showing evidence of several repairs. The inner face was standing to a height of 0.8m and consisted of mortared stone with a coping of large flat slabs. The wing wall joined the later road wall at a point 1.3m beyond a post box set back from the side of the bridge. The end of the opposite wing wall had been destroyed, probably by traffic using the bridge, and was marked by a line of rubble.

Results of the watching brief

The outer face (i.e. facing away from the road) of the wing wall had not been recorded during the preworks archaeological recording because of dense vegetation. The wall was therefore photographed and the photographs annotated where necessary (Plates 9 and 10). A watching brief was kept during the dismantling of the wall in order to record any constructional details that were uncovered. The wall was dismantled using a JCB to loosen the masonry and then by hand.

Description

There were clearly two phases of masonry here. The end of the bridge wing wall had partially collapsed but could be seen to differ in several respects from the adjacent roadside wall although both phases were superficially of a similar construction. The wing wall was found to be of rough local slate slabs and retained traces of lime mortar. The outer face was standing between 1.4 and 1.6m from the current ground level. The basal courses were of local field stone (not slate). The wall was capped with flat slate coping stones with dimensions of 1.4m x 0.5m x 0.2m. Part of the upper part of the wall had been rebuilt using cement mortar presumably after being damaged by traffic. Two openings in the lower part of the outer face (indicated on Plate 9) acted as drains from the road. The drain on the right hand side was carefully constructed with a slate base and cap. The drain on the left was roughly built and could possibly be the result of a stone falling out of the wall facing. It was however still channelling water. It was noted that much of the eastern wing wall and bridge parapet was in a poor condition. The roadside wall contained some reused local slate but also contained field stone and quarried Anglesey black limestone. This was roughly bound using a coarse cement mortar. Flat coping was also used but the stones were irregular and smaller. This phase of the wall probably dates from the last time the road was upgraded, possibly in the 1970s. The flat coping stones and use of some slate suggests that this was a previous attempt to reconstruct the end of the wing wall.

Reinstatement

A 3.2m length of the wing wall was dismantled, plate 11 shows the wall before works commenced. The two flat coping stones and the rest of slate from the wall was stored by the side of the road on the eastern side of the bridge. The stone from the roadside wall was also stored here but was kept separate.

The wing wall was rebuilt on a different alignment in order to tie in with the new retaining wall (Plate 12). As much of the original stone was reused as possible but it was noted that some of the slate had degraded and was very friable and would have to be discarded. Irregular slate blocks were used as a replacement. The original masonry style was emulated in all but the last metre of the original wingwall but the roadside wall was constructed with a shuttered reinforced concrete core with slate cladding. A straight joint was incorporated in the masonry marking the junction between the reconstructed wing wall and the reconstructed roadside wall in order to indicate the position of the original different phases of masonry. The flat coping stones were reused on both the wing wall and the roadside wall. It should be noted that it was necessary to raise the height of the end of the wingwall from 0.7m to 1.0m in order to tie it in with the roadside wall.

Site 101 Small building east of Caedu SH76075400

One previously unrecognised site was found just east of Caedu during tree felling (Kenny 2002). This is the ruined remains of a small structure, composed of two rooms. The remains of a slate roof were present in the western room, but there was no trace of a roof to the eastern room, suggesting only the western part was roofed and in use recently. The structure is built against a natural rock outcrop, which forms the northern wall. The structure seems to be too small to be a cottage, and is probably an outbuilding related to Caedu. This site was unaffected by the road improvements.

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Plate 1 Site 79 from the east, in 1999



Plate 2 Site 79 from the north showing erosion



Plate 3 Site 84, in 1999



Plate 4 Site 84 in 2004 after collapse



Plate 5 Site 86, sheep pens in 1999



Plate 6 Site 89 in 1999, features 5 and 6 in the foreground and incline in the background



Plate 7 Site 93, culvert in 1999



Plate 8 Site 93 culvert in 2004 after rebulding of wing and headwalls



Plate 9 Site 99 Pont-ar-Lledr wing wall, outer face



Plate 10 Site 99 Pont-ar-Lledr wing wall, outer face and adjacent roadside wall



Plate 11 Site 99, Pont-ar-Lledr wing wall, inner face, 1999



Plate 12 Site 99, Pont-ar-Lledr wing wall, inner face 2004

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Fig. 4 Site 74, Tramway converted to footpath and location of site 73



Fig. 5 Site 79, remains of culvert and bridge



Fig. 6 Site 79, Pont Carreg-y-bwch OS 1:2500 1913



Fig. 7 Site 81, Sarn Helen Roman road, location of watching brief



Fig.8 Sheep pens and Lledr Cottage (OS 1919 XXIII.8)



Fig. 9 Site 86, ruined building and sheep pens



Fig. 10 Site 86, location and area of archaeological constraint



Fig. 11 Site 86 after excavation





Fig. 13 Site 89 showing location of features



Feature 4



Feature 5

Fig. 14 Site 89, features 4 and 5





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