

A470 BLAENAU FFESTINIOG
TO CANCOED IMPROVEMENT
ARCHAEOLOGICAL RECORDING REPORT
G1874

Report number : 621 part 1



Prepared for
White Young Green plc and Gwynedd Consultancy Environment Directorate
December 2005

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust

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By

David Hopewell

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A470 BLAENAU FFESTINIOG TO CANCOED IMPROVEMENT (G1874)

ARCHAEOLOGICAL RECORDING

Summary

This report contains the results of the first phase of archaeological recording along the road scheme. This consists of field evaluation, basic recording and detailed recording of the sites previously identified in the July 2003 Environmental Statement.

1. INTRODUCTION

Gwynedd archaeological Trust was contracted by White Young Green on behalf of Gwynedd Council to carry out a programme of archaeological mitigation in advance of improvement works on the A470 between Blaenau Ffestiniog and Cancoed.

An initial survey of the proposed improvements was undertaken in 1992 (GAT project G1070), as part of a wider assessment that examined the proposed improvements from Blaenau Ffestiniog to Betws y Coed. The assessment was updated in 1995 to take into account minor changes to the improvements, changes in site condition, and to ensure conformity with *Design Manual for Roads and Bridges, Volume 11, Section 3, Part 2* (GAT Project G1286). Subsequent field visits were made in 1996, 1999 and 2000 (GAT Projects G1413 and G1614). The results of the final assessment formed Technical Appendix B *Cultural Heritage* of Volume 2 of the Environmental Statement (July 2003). Additional detailed reports were produced for the Public Enquiry comprising a Conservation Management Plan for the Pant yr Afon Site (Govannon Consultancy, 2005) and a report on sites 3(10) and 3(25), the two girder bridges at Pant-yr Afon (Fitzgerald c.2005).

The northern part of the road scheme runs across bleak moorland a variety of mainly minor sites were identified here. It then drops down towards Blaenau Ffestiniog and passes through a complex industrial landscape. Of particular importance is Llechwedd Exchange sidings and hydroelectric power station. These are part of a nationally important complex of industrial structures and transport systems. The Power Station is Grade II* listed and the girder bridges Grade II. The area is included in the Cadw, ICOMOS & CCW Register of Landscapes of Special Historic Interest in Wales. The general location of the sites is shown on Figs 1 and 2, taken from the July 2003 Environmental Statement Technical Appendix B - Cultural Heritage. More detailed location plans are shown on Figs 3 to 8.

Within the original assessment report sites were classified into four categories of importance labelled A to D (National, Regional, Local and Other). Recommendations for mitigation were made for each of these sites, depending upon the importance and nature of the remains and the level of impact.

The information available for some sites, however, was insufficient to allow classification, and they were therefore placed into another category (E) until field evaluation work could be undertaken to ascertain their status. Appropriate mitigation recommendations can only be made for these sites following the completion of field evaluation. During construction of the scheme a watching brief is to be maintained to ensure archaeological sites not previously recorded are investigated and recorded in an appropriate manner.

The work within this report comprises the pre-construction work involving both the investigation of Category E sites and the recording of features to a basic or detailed standard. The second phase, consisting mostly of watching briefs, is to be undertaken during construction.

2. METHODOLOGY

2.1 Introduction

The following phases of work have been undertaken: field evaluation, detailed recording and basic recording. Revised mitigatory recommendations have been produced for each site.

2.2 Field evaluation

This phase of the work involves the examination of six sites identified during the archaeological assessment as being of high archaeological potential, but which require further work before appropriate mitigatory responses can be recommended. This statement will conform to the guidelines specified in IFA Standards and Guidance: Field Evaluation (1994, rev. 1999), where field evaluation is defined as “a limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate”.

Field evaluation was undertaken on the following six sites:

17	Sub-rectangular scoop
25	Small circular feature
33a	Embanked curvilinear enclosure
33b	Possible cairn
39a	Possible settlement
39b	Track

2.3 Photographic recording and measured survey

The mitigation response takes into account the importance of the site and the level of impact. The following mitigation measures have been recommended for sites affected by the construction:

None - No impact, therefore there is no requirement for mitigation measures.

Detailed recording - Detailed recording requires a photographic record, surveying and the production of a measured drawing prior to the commencement of the works on site. Plans and elevation drawings will be completed for standing structures, though these will not consist of a stone-by-stone record, though specific features will be noted. Archaeological excavation works may also be required depending upon the particular feature and the extent and effect of the impact. Some of the sites would require additional recording if they are to be subsequently dismantled by hand, to provide a detailed record of the method of construction and in the case of a listed structure, for re-use and re-building.

Basic Recording - Recording by photograph and description requires a photographic record and written description, and limited measured survey, or sketch survey, where applicable.

Watching brief - At the commencement of the improvement works on site, all sites affected by the works would need to be observed at relevant stages of construction.

2.4 Detailed recording

Detailed recording was carried out at the following sites,

3	Llechwedd Exchange Sidings	This site contains over 30 individual elements to record. Detailed drawings are required of the crane (3-13) and elevation of the weighbridge house (Detailed records and drawings will be produced as an addendum to this report). Drawings have been completed of the two bridges (3-10 and 3-25) and the revetment wall supporting the A470 (both sides 3-32, and details of the bridges passing through 3-2, 3-7 and 3-5). A detailed plan of the sidings and Pant yr Afon has also been produced including drawings of bridges 3-3 and 3-8.
5	Road revetment at Exchange Sidings	See site 3-32 above.
10	Field barn, Tal y Waenydd	Plan and elevation drawings, photographic record and description. (Field work complete, drawings will be produced as an addendum to this report)
26	Track south of Crimea Inn	Plan survey and photographic record.
27	Peat cutting	Plan survey and photographic record.
30	Possible trackway west of A470	Plan survey and photographic record.

2.5 Basic recording

Basic recording was carried out at the following sites,

4	Footpath (Llechwedd Quarry)
5	Road revetment wall north of exchange sidings
5b	Area east of railway tunnel entrance
6	Afon Barlwyd culvert
7	Slate tip, Llechwedd Quarry
8	Revetting/walls along stream
9	Graffiti stones, Tal y Waenydd
11	Retaining wall – entrance to the Oakeley Complex
12	Tip south of Bryn Tirion
13	Dry stone field boundary, Bryntirion
14	Roadside quarry scoops
15	Track to Ffridd y Bwlch Reservoir
16	Short length of track east of A470
18	Small quarry
19	Slate dump
20	Tip or dump, Esgidiau Meirw
21	Stone wall
22	Rectangular enclosure
23	Field boundary
24	Roadside quarries
28	Revetted trackway to Chwarel Gethin
29	Small slate dump
32	Slate turnpike milestone
34	Trackway (pre-turnpike route?)
35	Trackway
36	Roadside quarry scoops
37	Drystone field boundary
38	Track

40	Small quarry and sheepfold
41	Fieldwall/bank
43	Slate tips, Oakeley complex
62	St Mihangel's Stone and Well

It was noted that sites 16, 26, 30, 39, 34, 35 and 38 are in fact all elements of the pre-turnpike route and were all subjected to detailed recording as a single linear feature. Site 62 was added to the basic recording list.

2.6 Archive

A full archive including plans, photographs, written material and any other material resulting from the project will be prepared. All plans, photographs and descriptions will be labelled and cross-referenced, and lodged in an appropriate place (to be decided in consultation with the regional Sites and Monuments Record) within six months of the completion of the project. All digital data will be written to CD-ROM and stored with the paper archive.

3. RESULTS OF THE FIELD EVALUATION

Six sites were designated for field evaluation. All were small sites and all but one was inaccessible to machinery. The specification in the original method statement was therefore modified to suit the individual sites. Trenches were entirely hand-dug and designed to sample a significant portion of each site. In each case the overburden or topsoil was removed down to the first significant archaeological horizon. The trench was then hand cleaned and any archaeological levels were investigated by hand. Discrete features and archaeological horizons were sectioned. The trenches and features were recorded by hand-drawn plans and photographs. A written record was kept of all excavations.

Site 17 – Sub-rectangular scoop (Fig. 6) SH69704818

Site description

A poorly defined 10m x 5m sub-rectangular hollow stands 2.4m to the north-east of the A470 (Fig. 9 and Plate 1). A low bank that forms one side of the hollow separates it from the road. There is a 0.4m wide break in the bank half way along the feature.

Excavation

A 5m x 1m trench was hand dug along the northern half of the feature (Fig. 10 and Plate 2). The turf and topsoil was 0.15m deep and contained frequent modern finds including broken glass, tin cans and plastic wrapping. One sherd of 19th century Buckley ware was also recovered from the same context. The finds were distributed throughout the context indicating modern disturbance. This was overlying typical subsoil of the area: mid-reddish-brown silt containing slate fragments. Shattered bedrock was visible on the north-western end of the trench along with one larger stone that had been partially dragged from the subsoil, leaving a hole. The subsoil level dropped gradually to the south-eastern end where bedrock was exposed.

Conclusions

The finds indicate that this feature is modern. It appears to be part of a level area cut into the subsoil on a corner of the A470, some of which has been adopted as an informal lay-by. The roadside bank that forms one side of the sub-rectangular hollow is a separate feature designed to keep cars off a boggy piece of land. The break in the bank, described as a possible entrance in the assessment report appears to correspond to the end of a drain.

It seems likely that this area was cut back during one of the later 20th-century programmes of road improvements. The single 19th-century find was almost certainly re-deposited from a nearby location. The lay-by is a sheltered location that has probably been used as a stopping point for many years. This site can now be reallocated to Category D - Minor and damaged sites.

Further mitigatory recommendations

None

Site 25 – Small circular feature (Fig. 5) SH70014863

Site description

A well-defined circular hollow (Fig. 11 and Plate 3) lies on the edge of a terrace above the A470. The hollow is 3.4m in diameter and terraced into the slope. A 1m wide stony bank defines the north-western side. The hollow appears to cut one or two courses of the pre-turnpike road and both are truncated by the cutting for the present A470.

Excavation

A 5.8m x 1m trench was excavated across the centre of the feature (Fig. 12 and Plate 4). The turf and peaty topsoil were removed revealing stones and peat at the north-western end of the trench and subsoil and bedrock at the south-east. A mixture of gravel, peat and stones filled the central part of the hollow. Upon further excavation it was found that the earliest feature was a turf and peat bank covered by a buried peaty topsoil. There was no dating evidence from this feature but it seems likely that it was a continuation of the low bank that runs along the lower side of the pre-turnpike road.

This was truncated by a vertical cut (009) that marked the edge of the gravel, small stones and peat deposits and defined the edge of the hollow. The gravel and other fills appeared to be a mixture of tipped horizons. The gravel was very well sorted and, in places, very clean, suggesting that it was from a quarry. The remains of a small fire of brushwood were found low down in the gravel. Some un-burnt wood was still extant. The deposits were not waterlogged so this confirms that the feature is of no great antiquity. A long, slate slab was sitting close to the bottom of the feature. No other finds were recovered from the feature. A jumble of stones, on peaty topsoil on top of the bank at the north-west of the feature, appears to be up-cast from the hollow.

Conclusions

The lack of datable finds from the feature makes accurate dating impossible. It cuts the pre-turnpike road and contains quarried gravel and extant wood, so a 20th-century date is likely. Its rather inaccessible position and the lack of modern plastic rubbish suggest a date from earlier in the century and it seems that it was used for shelter at least once, the slate slab could have formed a crude seat. There is an iron hook in the rock face beside the A470, directly opposite the hollow, which could be related to its function.

It is possible that the feature is associated with an early mid-20th-century phase of road improvements. Alternatively, its position at a 'pinch point' on the pass could suggest a simple emplacement from the Second World War. This site can now be reallocated to Category C – Sites of district or local importance.

Further mitigatory measures

This site has not been fully interpreted. Because of its small size and awkward position, a watching brief would probably entail the destruction of the site without the production of much new evidence. The site only covers a small area so full excavation is the preferred option. This will entail the destruction of the site so a watching brief will not be required.

Site 33a Embanked curvilinear enclosure (Fig. 4) SH70154909

Site description

This was described in the original assessment report as 'An embanked semicircular shallow ditch-like feature, possibly part of a pre-turnpike trackway or relatively recent drainage feature. Its exact nature is unknown.'

The feature is no longer visible. A level working platform of compacted slate waste was built over it during repairs to the A470 revetment wall during the last 5 years (Fig. 13). Plates 5 and 6 show the site in 1992 and 2005.

Excavation

A 4m x 1m trench was excavated across the estimated position of the ditch and bank (Fig. 14 and Plate 7). Up to 0.4m of compacted slate waste was removed, revealing a partly decomposed turf line with a linear depression corresponding to the ditch. The ground level was 0.2m higher on the eastern side, confirming that the feature was slightly raised. The trench was excavated down to subsoil, revealing a

0.4m deep ditch with an irregular shallow profile. The ditch was cut through the topsoil and into the subsoil and had mostly silted up. There was a possible re-cut on the western side. The ground surface and topsoil profiles on either side of the ditch were similar, thus discounting the hypothesis that this was part of a pre-turnpike track.

Conclusions

The feature appears to be a shallow, silted-up ditch. There are many similar ditches in the vicinity and this appears to be part of the same drainage system. This site can now be reallocated to Category D - Minor and damaged sites

Further mitigatory recommendations

None

Site 33b Possible cairn (Fig. 4) SH70124907

Site description

A possible small cairn was identified just to the west of site 33a during the assessment. It is 2.2m in diameter, 0.4m high, flat-topped and roughly circular in plan (Fig. 13 and Plate 8).

Excavation

A 0.5m wide trench was excavated across the centre of the mound (Plate 9). An eroded boss of bedrock was discovered under the turf. There was some broken stone giving the impression of a cairn but this was clearly a natural feature. This site can now be reallocated to Category D - Minor and damaged sites

Further mitigatory recommendations

None

Site 39a Settlement (Fig. 3) SH70454980C

Site description

A 4.5m diameter circular hollow (Fig. 15) is cut into the slope alongside a disused track (Site 39b) (Plate 10). This was interpreted in the assessment report as a small hut scoop possibly forming part of a settlement.

Excavation

A 6m x 1m trench was excavated across the centre of the feature (Fig. 16 and Plate 11). This was designed to identify any traces of a central hearth.

About 0.25m of humic topsoil was removed revealing clean, gravelly, subsoil. No finds were recovered, apart from a modern glass bottle in the topsoil. There was no hearth or post-holes to indicate that this had been a dwelling. The feature is almost certainly a quarry scoop associated with the adjacent road. The surrounding area is very wet due to the presence of several small springs. The material from the quarry scoop was probably used to raise the roadbed above the surrounding marsh. This site can now be reallocated to Category D - Minor and damaged sites

Further mitigatory recommendations

None

Site 39b Road (Fig. 3) SH70454980C

Site description

A disused trackway runs parallel to, and 50m to the west of, the current A470 (Fig. 5 and Plate 10). This is part of the pre-turnpike road that can be traced across much of the pass (see below for further details). The form of the road is quite variable but in this location it is between 2 and 3m wide and is terraced into the slope. The roadbed is slightly raised in places. The road runs just above a much

marshy area and a stream that is fed by several springs. There has been some water erosion caused by water running either side of the raised roadbed.

Excavation

A 5m x 1m trench was excavated across the feature (Fig. 17 and Plate 12). A 2m wide road surface was found to lie directly beneath the shallow topsoil. This was slightly cambered and 0.2m thick in the centre. The metalling consisted of compact gravelly silt containing occasional larger stones and was almost certainly derived from the local subsoil. This site can now be reallocated to Category C – Sites of district or local importance. The road is discussed in a wider context below.

Further mitigatory recommendations

A watching brief is required, if the feature is to be disturbed, in order to recover any further constructional details.

4. RESULTS OF THE DETAILED RECORDING

Site 3 Llechwedd Exchange Sidings (Fig. 18) SH69704685C

The Llechwedd Exchange Sidings contain over 30 different elements. This area is part of a nationally important complex of industrial structures and transport systems. The exchange siding is one of only two surviving examples of a system for exchanging goods from a narrow gauge to a standard gauge railway. All other examples have now been destroyed, except that at Minffordd on the Ffestiniog Railway, which has been considerably altered. This is the only example to retain the narrow gauge rails, a crane and weighing machine.

The Power Station, site 3(1), is Grade II* listed and the girder bridges, sites 3(10) and (25), Grade II. The area is included in the Cadw, ICOMOS & CCW Register of Landscapes of Special Historic Interest. The Llechwedd quarry incline forms part of the Ffestiniog Railway feeder system. The Ffestiniog Railway is of great importance in the development of narrow gauge railways in both Britain and abroad.

Cadw required that a “condition survey of key structures is undertaken in this area before the contractor adopts the site. This will record features through photographs and with measured surveys”. Specific detailed recording is required of the crane (3 (13)) the road revetment and three tunnels (3(32), 3(2), 3(7) and 3(5) and the girder bridge superstructures (3(10) and 3(25)).

A detailed plan has been produced of the general area of the sidings. This was mostly carried out using a Total Station with details added by hand. This was supplemented by details taken from Gwynedd Council plan 192/DIV/1 in order to allow outlying features to be incorporated into the plan. A photographic record has been produced of all of the features. Photographs of all but the features that are likely to be affected have been retained in the archive at Gwynedd Archaeological Trust

Further general mitigatory recommendations

Given the importance and complex multiphase structure of the site a watching brief is required during all ground disturbance and disturbance to structures.

Site 3(13) The Crane Listed Grade II

Description

A hand-operated single-jib goods-yard crane, in good condition (Plates 13 and 14). It is constructed from cast iron and wood. On site recording is completed. A detailed record and drawings will be produced as an addendum to this report.

Further mitigatory recommendations

The crane will have to be dismantled and stored before re-erection on completion of the scheme. A detailed method statement will have to be submitted to Cadw. For further details see Environmental Statement Vol. 2.

Site 3(25) Bridge 67 (Figs 19 to 21)

Methodology

A plan was produced using a total station with additional details added by hand (Figs 18 and 19). A photographic and hand drawn record was made of all accessible elevations. Written descriptions were produced. A specialist report describing the two girder bridges had been produced by Dr Ron Fitzgerald of Structural Perspectives as part of the preparation of the Conservation Management Plan for the Pant yr Afon Site (Govannon Consultancy 2005). This has informed the descriptions of the two bridges that follow. Specific details quoted from the report are referenced accordingly.

Description

Bridge 67 (Plate 15) crosses the tramway cutting. The sides of the tramway cutting are revetted with dry slate walls. The abutment masonry of the bridge is of a similar type. The span of the bridge is 3.43m and it crosses at an angle of 43°30' to the normal (Fitzgerald, c.2005). It is 4.57m wide (deck width). Parapet turrets of mortared, roughly dressed slate stand above the abutments

The bridge consists of six cast iron girders. The outer two girders are 7.01m long with an inverted T cross-section. The upper flange is 0.23m wide and 0.025m deep and the lower is 0.25m wide and 0.038m deep. The total depth of each girder is 0.42m. The outer face is divided into four equal sized, decorative panels, emulating wooden panel-work (Plate 16). Each panel is 1.52m long and they are divided by vertical stiffener ribs. Two further, smaller, panels project into the parapet turret masonry and are thus largely obscured. The girders support a parapet railing consisting of three cast iron stanchions (0.92m high) on the south-western side and five on the north-eastern. All are bolted onto the girder with the base straddling the stiffener ribs. Three railings run through holes in the stanchions. On the north-eastern side they terminate in the holes in the turrets and on the south-east they are free. Three of the turrets are hexagonal in plan along with an irregular pentagonal turret that is shared with the former LNWR line bridge. All have their longest side parallel to the track bed. They stand to a height of about 1.05m above the top of the girders and are typically 1.23m wide (Plates 17 and 18). They are built from roughly dressed slate blocks with distinctive chisel cut corners and a large capstone with chamfered upper corners. The turret adjacent to the former LNWR line is 1.6m long and stands above the girders of both bridge 67 and the LNWR line bridge.

The four central cast iron girders are the live load bearing elements of the superstructure. Each girder is 7.01m long and 0.42m deep. The lower flange is 0.31m wide and 0.076m deep and the upper 0.079m wide and 0.025m deep. This inverted T shape is termed a Hodgkinson Section (Fitzgerald, c.2005 and Tower 1874). The upper flange is extended down to the lower at the ends of the girders producing a distinctive chamfered termination (Plate 19). Most of the rest of the superstructure is of wood, much of which is now in a poor condition (Plate 11). This does however allow further constructional details to be seen. A single track passed across the bridge and each rail was laid on a continuous longitudinal timber baulk (Fitzgerald, c.2005) set between each pair of main load bearing girders and resting on the lower flange. Each girder/baulk assembly is held together by three transverse tie bars running through the girder web and the timber baulk. The rest of the width of the bridge is infilled with three plank walkways supported by transverse timber joists. The central walkway has now largely collapsed.

Further mitigatory recommendations

Avoidance

Site 3(10) Bridge 68 (Figs 22 to 24)

Methodology

As Site 3(25), bridge 67

Description

The Afon Barlwyd is 5.18m wide and runs between dry-slate rubble walls, until a point about 3m to the south of bridge 68. The bridge abutments are earlier than the slate walls and are constructed from roughly dressed slate blocks intermixed with slate rubble. The walls are mortared. Chisel cut corners are again a feature of the construction. The upper course of the abutment is of more precisely dressed slate. The bridge span stands 2.29m above the river bed. The width of the deck is 6.48m and the bridge is skewed across the river at an angle of 55°00'

The superstructure (Plate 20) is more substantial than that of bridge 67 although they share many constructional details such as the presence of 6 cast iron girders. Bridge 68 is in much better condition and details of the 4 central girders carrying the line load are not visible due to the presence of crushed slate ballast above and brickwork below.

The outer pair of girders have a visible length of 6.91m (south-eastern side) and 7.17 (north-western side) and both extend into the masonry of the superstructure for an unknown distance. The upper flange of the girder is 0.2 wide and 0.04m deep and the lower flange 0.38m wide and 0.05 deep. The total depth of each girder is 0.72m. The outer faces of the girders are divided into five 1.67m wide decorative panels simulating wooden panel-work and are divided by vertical stiffener ribs (Plate 8).

Only the bottoms of the inner 4 girders are visible (Plate 9). The lower flange is 0.46m wide and 0.05 deep indicating that the main load bearing girders are, as in bridge 67, of a different design to the outer. The 6 girders are equally spaced and are linked by brick arches springing from their lower flanges. The rise of the arch is probably 6 inches (0.15m) (Fitzgerald, c.2005).

The outer girders are again surmounted by iron parapet railings. The railings are similar to those on bridge 67 but are 1.06m tall, the lower section having been extended in order to reach above a timber baulk laid on top of the outer girders. This retains the trackbed ballast. The current timbers are re-used sleepers but this arrangement dates back to when the siding was operational; an identical layout can be seen on Bleasdale's photograph of 1879 (Fig. 10 from Spooner Album plate 38).

The upper part of the parapet turrets are hexagonal and similar to those on Bridge 67. Below this level, however, the turrets step out by 0.08m at the height of the trackbed and again to form one side of the bridge abutment. A consistent masonry style is used throughout consisting of roughly dressed slate blocks with more ornate chiselled edges marking the corners of the various changes in width of masonry. The masonry is mortared although most of the joints have separated in the turrets of both bridges.

Three wooden sleepers are still present on the top of the bridge. It is not clear whether if these are *in situ*. Two concrete gate posts standing between bridges 67 and 68 mark the former boundary of LNWR and Greaves' property.

Further mitigatory recommendations Avoidance

Sites 3 (32, 5, 7 and 2) The revetment wall and associated tunnels (Fig. 25)

Methodology

A total station survey was produced for these features with additional details taken from Gwynedd Council drawing 192/52/1. Details were added by hand. A photographic record was made of all accessible elevations and written descriptions were made of all details of the elevation and tunnels. The individual features are described below followed by a discussion and further mitigatory recommendations.

Site 3 (32) The revetment wall

Description

The current A470 is carried through Pont yr Afon on a raised embankment standing to a maximum of 7.3m in height (Plates 13 and 14). The walls of the embankment contain two basic masonry styles (Plate 15) with later modifications. The lower 2 to 3 metres consists of large irregular blocks of mixed stone (mainly low-grade slate) built to a rough face. This is only visible on the western side because a later dwarf wall obscures the lower part of the eastern elevation. The upper part of the wall, up to the level of the roadbed consists of irregular slate slab masonry built to a good face but incorporating fairly regularly spaced, protruding stones that are probably long headers tying the face to the core of the structure. The roadside parapet is of dry-laid slate slab masonry but without the protruding stones (Plate 16). The coping varies between large flat slabs, edge-set blocks and irregular edge-set rough slabs. The parapet is a drystone construction but all of the rest of the masonry is either pointed or

rendered with spray concrete (Plate 17). A part of the eastern elevation was, until recently obscured by slate spoil. This has been eroded away during recent floods revealing dry-slate-slab masonry with obvious signs of modern pointing above (Plate 18). The currently visible pointing is clearly not a feature of the original masonry and it is possible that the entire embankment was originally drystone and that it has been pointed and rendered fairly recently. The facing walls are built to a fairly pronounced batter. The top of the western side is estimated to be set back about 0.5m from the base. There are two pairs of shallow rectangular piers (see Plate 13) extending from the face of the embankment. These appear to mark straight unbonded joints in the facing and clearly extend into the body of the viaduct. These may indicate that the embankment, or at least its facing, was constructed in series of sections. A series of six narrow (0.22m wide) strips of un-rendered facing (see Plate 14) on the eastern side of the embankment seem to indicate that structures or timbers were formerly attached to this face. Nothing remains to indicate their form or function.

Three tunnels run under the base of the embankment. The incline and Ffestiniog Railway/Llechwedd connecting link tunnel is at the north, the Afon Barlwyd tunnel in the centre and the tunnel carrying the 1' 11½" railway from the incline to the sidings is at the south. The latter also contains the pipeline running to the power house.

Further mitigatory recommendations

Watching brief, see below.

Site 3(5) The incline tunnel

Description

This stands close to the base of the incline from the Llechwedd quarry and carried the 1'11½" railway to a link with the Ffestiniog Railway. The arch on the western side is still open (Plate 19). This consists of very rough uncut slate voussoirs (stones forming the arch) with an equally rough uncut keystone. The arch is set at a slight angle to the embankment wall, the southern side undercuts some of the masonry and is set back by 0.9m. The arch springs from rough black masonry of the same style as the lower 2m of the embankment. The inside of the tunnel has been spray concrete rendered and partially blocked 3.0m from the tunnel mouth by a reinforced concrete deck. This reduces the height of the tunnel to 1.5m. There are several pieces of ironwork protruding through the deck at the centre of the tunnel but their function is unknown. The space above the deck is apparently infilled with stone (Plate 20).

The reduced tunnel can be followed until it emerges from beneath the dwarf wall (Plate 21). This end of the tunnel is 2m wide and mostly below the current ground level and is almost completely blocked with slate rubble. Only a small opening, level with the upper part the tunnel and the also the current ground surface is now present. The side-walls continue beyond the tunnel mouth but are now buried beneath slate waste. This indicates that access to the tunnel was through a cutting below the level of the current ground surface. The modification to the tunnel may have been a result of instability in the arch. A date of 1935 is painted on the tunnel roof close to the eastern end.

Further mitigatory recommendations

Watching brief, see below.

Site 3(7) The Afon Barlwyd Tunnel

Description

The tunnel carrying the Afon Barlwyd beneath the viaduct consists of two phases of masonry. The arch on the eastern side lies at an angle to the road embankment and protrudes by around 3.5m from the main embankment wall (Plate 22). The masonry has been spray rendered making it difficult to see details of the stonework. The most obvious element is a large protruding keystone. The arch is 5.5m wide and stands 2.95 above the river bed. The river bed consists of pitched slate blocks, presumable to minimise erosion. The interior of the tunnel has also been roughly rendered/pointed but a corresponding keystone and a straight joint in the masonry are clearly visible within the soffit 5.5m from the western mouth (Plate 23). The eastern half of the tunnel is clearly an earlier phase of building and the fact that the arch on the eastern side is not aligned to the embankment suggests that this may be

the remains of an earlier bridge, perhaps indicating the line and level of the road before the embankment was constructed. Several stubs of iron protruding from the roof indicate that gratings had been fixed across the tunnel.

The tunnel continues for a further 3.15m before exiting through an archway on the western side (Plate 24). This is of a different construction with prominent, regularly sized, either natural or roughly dressed, voussoirs and a smaller keystone than on the eastern side. The lower rough block masonry on the embankment face extends to above the archway. The embankment is not battered above the arch and is thus set back from the rest of the face by 0.5m at the base of the wall.

Further mitigatory recommendations

Watching brief, see below.

Site 3(2) The Llechwedd/sidings link tunnel

Description

This tunnel is of a markedly different construction to the other two. It consists of a segmented brick arch consisting of four unbonded courses, springing from stone piers (Plates 25 and 26). The tunnel runs at an angle through the embankment. Rectangular piers extend from the facing 0.45m to either side of the archways on both the east and west side and a series of slate slabs run above the brickwork on both sides. The tunnel is 2.02m high and 4.3m wide. The roof of the tunnel is showing signs of sagging in places.

Further mitigatory recommendations

Watching brief, see below.

Discussion (Sites 3(32, 5, 7 and 2), the revetment wall and tunnels)

The road embankment and associated tunnels has been shown to be a complex multiphase structure. The history of the road is outlined in the Conservation management plan (Govannon 2005). A roadway close to the present alignment is shown on the draft 2" to 1 mile Ordnance Survey map from 1818. An alignment that appears to match closely the present road is marked on a plan of 1863 and it is recorded that in 1854 J W Greaves paid towards the cost of a bridge for the road to cross the incline. It appears that the present embankment was engineered post-1863 under the auspices of the Porthmadoc and Beaver Pool Turnpike Trust although earlier phases of masonry are almost certainly present.

Further mitigatory recommendations for Sites 3(32, 5, 7 and 2), the revetment wall and tunnels

The new retaining walls will be stone faced in a manner that closely resembles the original. Cadw have expressed a wish to see the buttresses or piers recreated in the new masonry.

A watching brief is required if any of the masonry or tunnels are to be disturbed, in order to recover details of the phasing of these features. This is particularly important in the case of the dwarf wall and incline tunnel (3(5)). The latter is now largely below ground level and is full of slate and gravel, probably washed in by the river.

Site 3(1) Hydro-electric Powerhouse.

The Hydro-electric Powerhouse, built 1904, is a very rare survivor of a direct current generating station and is listed Grade II*.

Further mitigatory recommendations

Avoidance

Site 3(3) Railway bridge (Fig. 26)

A girder bridge with wooden decking carrying the 1' 11½" gauge railway (4) from the incline (6) to the exchange sidings (Plate 41). The span of the bridge is 8.2m running at an angle across the Afon Barlwyd. The load bearing elements are three H section girders 0.38m deep and 0.14m wide augmented with two 0.3m square-section timbers and a single smaller girder. The bridge retains two sets of rails for much of its length. The rails were laid on timber decking most of which has now rotted away.

Further mitigatory recommendations

Avoidance is recommended but this could be damaged or destroyed during the construction of the new retaining walls. If it is to be disturbed a watching brief is required in order to record details of its construction. A detailed plan (Fig. 26) has been produced as part of the current phase of recording.

Site 3(4) Railway

A length of 1' 11½" railway including points stands between bridge 3(3) and the Llechwedd / Sidings tunnel (Plate 42). Parts of this are buried beneath mud and slate waste. Elements of the railway also appear to survive on the north side of the bridge. This area is heavily overgrown with Rhododendron and features have been either eroded or buried by material deposited by the Afon Barlwyd which has is no longer contained by its culvert at the north of this area when in spate.

Further mitigatory recommendations

Avoidance is recommended but this could be damaged or destroyed during the construction of the new retaining walls. If it is to be disturbed, excavation and recording in advance of destruction is required. Clearance and disturbance of the area between the two bridges (3(3) and 3(8)) could expose further elements of the railway so a watching brief is required.

Site 3(6) Railway incline

The course of a counter-balance 1' 11½" gauge double track incline railway, from which the rails have been removed runs from Llechwedd Quarry to bridge 3(8).

Further mitigatory recommendations

Avoidance

Site 3 (8) Railway bridge

A girder bridge with wooden decking lies at the foot of the 1' 11½" gauge incline (6) to the exchange sidings. The western end has collapsed, the abutment having been eroded away by the Afon Barlwyd. Five girders and some wooden decking survive along with several lengths of displaced rail.

Further mitigatory recommendations

Avoidance

Site 3(9) Pipeline

This conducts water from the quarry's reservoir on Moel Bowydd to the turbines in the Powerhouse 3(1). It is thought to pass under the road through bridge 3 (2).

Further mitigatory recommendations

Avoidance or re-routing

Site 3(11) Weighbridge house

Listed Grade II. A rectangular plan structure, with a hipped roof from which most of the slates (which were trimmed to give a pointed lower end) are missing, and containing the remains of a weighing machine (Plate 43). The contiguous mono-pitch structure may have been a storehouse or privy. On site recording is complete and elevation drawings will be produced as an addendum to this report.

Further mitigatory recommendations

Avoidance

Site 3(12) Structure

Remains of a shed which was demolished in 2003.

Further mitigatory recommendations

Watching brief where disturbed

Site 3(14) Loading area

A wharf designed to maintain equal floor levels between standard and narrow-gauge wagons. The gate on the eastern side may have been to give lorry access.

Further mitigatory recommendations

Avoidance where possible

Site 3(15) Sidings

The site of standard-gauge sidings from the LNWR branch line (19) to give access to the loading wharf (14): a single line of rails is known to have bifurcated to form a run-round loop. The rails have now been removed and the site partly infilled at the southern end.

Further mitigatory recommendations

Avoidance where possible, watching brief where disturbed

Site 3(16) Railway

The course of a 1' 11½" gauge railway, the property of Llechwedd Quarry, connecting the incline (6) with the Ffestiniog Railway (22). For much of its course it runs in a slab-lined cutting, and the formation is overgrown.

Further mitigatory recommendations

Avoidance

Site 3(17) Slate retaining wall

A slate-built retaining wall to prevent the Oakeley Quarry tips from spilling on to LNWR property.

Further mitigatory recommendations

Avoidance and reinstatement of any disturbance during temporary diversion.

Site 3(18) Drainage adit

A drainage adit, which outfalls into the Afon Barlwyd the mouth of which is a slate-built corbelled structure.

Further mitigatory recommendations

Avoidance

Site 3(19) Railway

The course of the standard gauge railway from Llandudno Junction to Blaenau Ffestiniog, built by the LNWR in 1879. Currently in use.

Further mitigatory recommendations

Avoidance

Site 3(20) Tunnel mouth

Listed Grade II. An ornamented tunnel mouth constructed out of granite; a plaque on the pediment reads '1879 W. Smith'.

Further mitigatory recommendations

Avoidance

Site 3 (21) Oakeley complex exchange sidings

The site of exchange sidings for the Oakeley Complex between 1' 11½" wagons and standard gauge wagons. All rails have been removed.

Further mitigatory recommendations

Avoidance

Site 3(22) Railway

The site of the 1' 11½" gauge Ffestiniog Railway, making end-on junction with the quarry railway (16).

Further mitigatory recommendations
Avoidance

Site 3(23) Railway bridge

A skewed girder bridge on stone abutments carrying the branch line (19) over the Afon Barlwyd.

Further mitigatory recommendations
Avoidance

Site 3(24) Railway bridge

A bridge carrying the branch line 3(19) over the Llechwedd exit railway (16).

Further mitigatory recommendations
Avoidance

Site 3(26) Structure

Connected with the branch line 3 (19) – possibly a platelayer’s shelter. The site only survives.

Further mitigatory recommendations
Avoidance, watching brief if disturbed

Site 3(27) Gate

The site of the gate demarcating the end of LNWR (LMS, BR) property and Llechwedd Quarry property.

Further mitigatory recommendations
Avoidance

Site 3(28) Structure

Built of slate blocks, both sawn and unsawn; only the south-east corner now stands, approximately 2m high.

Further mitigatory recommendations
Avoidance

Site 3(29) Structure

No remains visible.

Further mitigatory recommendations
None, little remains of this site

Site 3(30) Tank

An iron tank on a plinth; an adjacent concrete plinth may have supported a second tank.

Further mitigatory recommendations
Avoidance

Site 3(31) Footpath

Steps and footpath access to Llechwedd Quarry; in good condition. This feature is described in Site 4 below.

Site 10 Field barn Tal-y-Waenydd (Fig. 7)

A 19th century hay barn and animal shelter stands to the east of the A470 opposite Oakeley Terrace (Plates 44 and 45). Its external dimensions are 12.1m x 7.6m and it is open to the east. It is constructed from rough quarried slate with occasional split field stone. It stands on a plinth of rounded field stone. There are three ventilation slits in the western wall and one in the north gable. The south gable holds

the entrance to the loft and a small window has been inserted on the ground floor. The open eastern side is supported by two pillars. The roof is recent corrugated iron replacing an earlier slate roof.

Internally the barn is divided into two bays. The southernmost is partially infilled on the eastern side with a haphazard construction of wood and breeze blocks. Internally it retains 6 concrete cattle feeding troughs. The loft area floor has largely been lost. This is divided from the northern two thirds of the barn by a rough wooden partition. The northern partition is open to the roof and closed to the east by two iron gates.

Further mitigatory recommendations

The barn has been recorded in detail and elevation drawings will be produced as an addendum to this report. A watching brief will be required when the barn is dismantled.

Site 27 Peat cutting (Fig. 3)

An area of shallow peat cutting runs from close to the A470 towards the disused level at Bwlch-y-Gorddian. The cuttings are on average 0.5m deep and are in the form of a series of conjoining rectangular areas making up a larger irregular depression with dimensions of 66m x 45m. The extent of the site has been surveyed and is shown on Fig. 3. A small dry-stone shelter just to the west is probably associated with the cuttings.

Further mitigatory recommendations

None

Sites 26 Track south of Crimea Inn and 30 Possible trackway west of A470

These two sites have been recorded in detail as part of an overall record of the pre-turnpike road included at the end of the results of the basic recording, below.

5. RESULTS OF THE BASIC RECORDING

Site 4 Footpath (Llechwedd Quarry) SH697 4682 to SH69894699 (Figs 8 and 27)

A slate-paved footpath (Plate 48) runs from the present A470, close to the Pant yr Afon works, to the Llechwedd Quarry Mill and worker dwellings. The path is steep and terraced into the slate tips. It is 2.4m wide and bounded on the south-east by a dry-stone wall and to the north-west by a modern fence, surmounting a 14m high dry-stone revetment. The path is stepped in places and surfaced with slate slabs laid lengthways into the slope. The slabs are rounded and worn from many years of foot traffic. The path dates from the latter half of the 19th century. Only the lower part will be affected by the road improvements.

Further mitigatory recommendations

A watching brief is required in order to record constructional details and phasing.

Site 5 Road Revetment Crimea Road (Figs 3 to 8)

The line of the existing A470 appears to date from the time of the Porthmadoc and Beaver Pool Turnpike Trust set up in 1804. The 1889 Ordnance Survey 25" shows the road running on its present alignment. The present road revetment thus appears to be a feature of the turnpike road. This is especially impressive in the area around Pont Pant yr Afon (see site 3 Llechwedd Exchange Sidings below). The revetment in other areas, most notably at SH69924854 (Plate 49) and SH70184923 (Plate 50) demonstrates the skill of the 19th-century engineers in overcoming the obstacles in this most difficult terrain. In both cases the revetment was originally dry-stone, probably utilising stone collected from the surrounding area. Various buttresses and more recent concrete reinforcements are visible along the line of the road but most of the 19th-century masonry appears to have survived.

Further mitigatory recommendations

A watching brief is required where the revetment is to be disturbed in order to record constructional details of the turnpike road.

Site 5b Area SH69724692 (Figs 8 and 28)

An area bounded by a stone revetment wall (Site 3(14)) and the Oakeley complex tips contains the footings of several buildings thought to be associated with the construction of the railway tunnel. The area is currently grassed over and partially obscured by Rhododendron. The footings of a building immediately adjacent to the tunnel are clearly visible. A further possible building base stands 25m to the west of the road (Plate 51) along with a stub of wall is visible running from the edge of the current A470.

Further mitigatory recommendations

The foundations adjacent to the tunnel should be avoided. Elsewhere ground disturbance should be minimised. All disturbance should be subject to a watching brief and adequate time should be allowed for the recording of any buried features.

Site 6 Afon Barlwyd culvert SH6977 4705 to SH6976 4696 (Figs 7, 8 and 29)

The Afon Barlwyd is carried in a culvert immediately to the east of the A470. The road revetment forms one side of the channel and the revetment to the slate tips the other. Both are a dry-slate construction. The culvert is on average, 3m deep and 2m wide and the base is of pitched slate. An 11m length just north of the centre is roofed with slate slabs. A discontinuity in the slate tip revetment and a blocked gate in the roadside wall indicate that more than one phase of construction is present. The 1889 OS 25" map shows a track running from the Llechwedd Quarry Mill to the gate. The northern part of the channel was not in place at this time and the river still followed its original course as far as the covered part of the culvert. Subsequent editions show the tips expanding. The track had been tipped over by 1918 but the culvert is still not depicted on the 1953 6" map.

These two different phases are still visible. The southern, earlier part of the culvert (Plate 52) is 1.4m wide and retains occasional remains of timber-bracing between the two walls. The braces are t shaped. The upright is against the tip revetment and the base of the timber is protected from erosion by a slate set at an angle to deflect the water flow around it. A single cross piece runs across to the roadside revetment. Most of the timbers have now rotted away and there is a serious collapse in the tip revetment close to the south of the culvert. The culvert turns to the south-east and away from the road, dropping steeply to a loop in the river running towards Pant yr Afon bridge.

The central covered part of the culvert is roofed with large slate slabs and is mostly grassed over (Plate 53). The northern part is 2m wide and retains many of its timber braces (Plate 54).

Further mitigatory recommendations

A watching brief is required during any disturbance to this feature in order to record constructional details and surviving elements from the earlier phases.

Site 7 Slate Tip Llechwedd Quarry (Figs 7, 8 and 29)

The tip standing above the culvert extends as far as the Llechwedd Quarry Mill and still retains clear tipping lines and runs (Plate 55). The tip is bounded by an incline to the south and the Afon Barlwyd to the north. A large V and the date 1945 are painted in white paint on a tipping cob commemorating VE day. The impact of the new road on this feature should be minimal.

Further mitigatory recommendations

A watching brief should be carried out in tandem with that on Site 6 in order that any early phases of activity can be recorded.

Site 8 Revetting walls along stream SH6977 4711 to SH6976 4721 (Figs 7 and 30)

Two parallel dry-stone walls act as revetting for a small sunken stream that runs through the grounds of Tal-y-Waenydd house. The walls are about 5m apart. It is not entirely clear if the walls were originally constructed to contain the stream. The 1889 map shows a track running into the northern end of the channel and a wall and a small structure blocking the southern end. It is currently difficult to assess the feature because it stands within dense woodland and it is very overgrown.

Further mitigatory recommendations

It has not been possible to produce a complete photographic or surveyed record of this feature due to the dense woodland. It is, therefore, recommended that further recording should take place after

clearance of trees from the site. A watching brief is also required if the feature is to be disturbed in order to recover information about its structure and function.

Site 9 Graffiti stones – Tal-y-Waenydd SH6966 4739 and SH69674738 (Fig. 7)

Two large rounded stones (Plates 56 and 57) bearing an overlapping series of crudely incised initials can be seen in the base of the roadside wall opposite Ty Mawr. They are both more rounded than the rest of the stones in the wall and appear to have been reused from another site. The southernmost has two holes in it, one of which is used to anchor an iron fence-stay.

Further mitigatory recommendations

Both stones should be retained in the roadside wall.

Site 11 Retaining wall-entrance to the Oakeley Complex SH69604769 (Figs 6 and 31)

A strongly battered retaining wall, delineating the edge of tips to the north, runs along one side of the entrance to the Oakeley Complex (Plate 58). The masonry is of dry-slate and consists of stretchers (stones laid along the line of the wall) built to a stepped face with protruding headers (stones laid length-wise into the wall) tying the facing into the tip behind. This masonry style is visible in many places along the roadside revetment (Site 5). The wall is not shown on 1920 OS maps but appears on the 1953 6" edition.

Further mitigatory recommendations

A watching brief to record construction of details is required if the feature is to be disturbed.

Site 12 Tip south of Bryntirion SH6958 4774 to SH 69584770 (Figs 6 and 31)

A 36m long 5m wide raised feature runs between the boundary of Bryntirion and the Oakeley Complex access road (Plate 59). This feature is about 1m high, flat topped and lies at the edge of an area of landscaped tips. It appears to be a tipping run but could be a later landscape feature. These tips are relatively modern and are not depicted on either the 1920 or 1953 edition OS maps although the Oakeley entrance was in place on the latter.

Further mitigatory recommendations

A watching brief is required if disturbance is planned, in order to ascertain the nature of the feature.

Site 13 Dry-stone field boundary Bryntirion SH695 4776 (Figs 6 and 31)

A dry-stone wall shown on a quarry map of 1870 ran from the main road to the rear of Bryntirion. The portion closest to the road has been almost entirely destroyed in recent years during alterations to the driveway (Plate 60). It appears to have been a simple dry-stone wall built from field clearance.

Further mitigatory recommendations

None

Site 14 Roadside quarry scoops SH69594778 (Figs 6 and 31)

A series of quarry scoops are visible alongside the eastern side of the A470 opposite Bryntirion. The southernmost is set back from the road and is a 35m long area of stone quarrying (Plate 61). A second 5m x 4m pit is dug into the roadside to a depth of 1m to the north of this (Plate 62). A further overgrown area of disturbance to the north probably represents additional quarrying. These small quarry scoops probably provided material for one of the several phases of road improvements that have occurred since the turnpike was first built.

Further mitigatory recommendations

None

Site 15 Track to Ffridd-y-Bwlch reservoir SH69614792 to SH69584801 (Fig. 6)

The reservoir appears on a Ffestiniog Railway map of c.1838 and the track is first shown on a quarry map of c.1870. The current track is mostly a modern construction connected with the current works on the Oakeley site (Plate 63). It is cut into a steep slope and revetted in places with dumped slate boulders. It is 2.5m wide and surfaced with crushed slate. Remnants of a stone revetment are visible along the south westerly edge along with the remains of a slate slab and wire fence. The latter is the only example of this locally common fencing style within the scheme.

Further mitigatory recommendations

None

Site 18 Small quarry SH69694823 (Fig. 6)

A small roadside quarry is shown on the 1889 to 1918 OS maps. It has since been somewhat truncated by road widening but is still clearly visible (Plate 64). It is 8m wide and has been cut 6m back into the bedrock. It is associated with either the original turnpike or its very early refurbishment and could have provided stone for the revetment walls or road surface.

Further mitigatory recommendations

None

Site 19 Slate dump SH69704839 (Figs 5 and 32)

A roughly rectangular 9x by 4m area of slate debris is visible as a low grassed-over mound to the north-west of the A470 (Plate 65). It should show signs of relatively recent disturbance and is probably a small tip that has been cleared away. A hollow at the north-east end of the dump is surrounded by iron fence posts with the remains of a substantial steel rope, suggesting that this was a trial shaft that has subsequently been backfilled with the material from the spoil heap.

Further mitigatory recommendations

Watching brief to record any further details

Site 20 Tip or dump, Esgidiau Meirw SH69924848 (Figs 5 and 32)

A low mound about 35m in diameter lies to the east of the A470 (Plate 66). Its earliest phase consists of slate waste from a shallow linear working shown on the 1889 OS 25" map. This is almost entirely covered by a dump of waste boots. The upper layer consists entirely of heel plates, eyelets, nails, screws, sole shanks and occasional sole plates (Plate 67). Beneath this is a thick layer of ash, also containing metal fittings. Until quite recently there was a grave slab with a pair of boots incised on it along with the inscription 'Esgidiau Meirw' (dead shoes). The stone now lies on the wall of Site 56 (Plate 68). It was probably moved by the land-owner for safe keeping after being daubed with paint.

The dump is known locally as 'Tomen Sgidiau' (boot dump) and dates from World War II. The boots are rejects from a factory that was set up in Blaenau Market Hall to recycle old boots and shoes for the army.

Further mitigatory recommendations

Avoidance. The grave slab should be stored and relocated in its original position.

Site 21 Remains of stone wall SH69904850 (Figs 5 and 32)

The denuded remains of a dry-stone wall run parallel to the A470 (Plate 69). The feature has probably been robbed of stone for the construction of the nearby enclosure (Site 22). It appears to form part of a boundary wall that has been incorporated into enclosure 22 and continues as Site 23 to the north-east and can also be traced on the west side of the road. The boundary appears to pre-date the A470/turnpike road and was probably associated with the former farm at Ffridd-y-bwlch Site 56, shown on the 1889 25" OS map.

Further mitigatory recommendations

None

Site 22 Rectangular Enclosure SH69914852 (Figs 5 and 32)

A roughly-built dry-stone rectangular enclosure abuts the road revetment (Plate 70). The eastern wall probably originated as part of the earlier field boundary (sites 21 and 22) and the western wall is the road revetment. There is an entrance at the eastern end of the north wall. The enclosure is 17m long and 6.6m wide. The walls stand to an average height of 1.4m, are 0.7m thick and built from field stone. The enclosure presumably functioned as a sheepfold associated with Ffridd-y-Bwlch.

Further mitigatory recommendations

None

Site 23 Field boundary SH69925855 (Figs 5 and 32)

The south-eastern wall of the rectangular enclosure continues as a dry-stone field boundary (Plate 71). It is initially 1.2m high and was probably rebuilt at the same time as the enclosure. The boundary continues to the north and then to the east as a low and meandering rubble bank. It again seems likely that the wall has been robbed of stone. Occasional surviving parts of the basal course suggest that it was originally double faced with a rubble core and about 1.2m wide. A possible gate was at the northern corner. This feature probably formed part of the enclosures associated with Ffridd-y-Bwlch.

Further mitigatory recommendations

None

Site 24 Small roadside quarries SH70004862 (Fig. 5)

The current A470 runs through a cutting at this point and small areas of quarrying are visible in the eastern side (Plate 72). It is likely that the cutting was part of the original turnpike, although the road has almost certainly been widened in more recent years. The quarries remain undated.

Further mitigatory recommendations

None

Site 28 Revetted trackway to Chwael Gethin SH70024868 (Fig. 5)

An impressively engineered trackway runs from the A470 to a quarry and one of the air shafts of the railway tunnel. The A470 improvements will have little impact on the feature as a whole. The affected part runs across level ground and is a 2m wide somewhat eroded track with a surface of packed slate chippings and gravel (Plate 73). This probably represents a modern resurfacing. The track continues and becomes a well-constructed road cut into the slope and revetted by slate blocks on the lower side. It runs along the contour maintaining a shallow and even gradient.

Further mitigatory recommendations

None. The impact on this feature will be minimal

Site 29 Small Slate dump SH70074879 (Fig. 5)

What appears to be a small slate dump stands immediately to the west of the road (Plate 74). The area is now overgrown with *Juncus* and no details are visible. It seems likely that the feature is just a deposit of slate waste used to infill a hollow during road widening.

Further mitigatory recommendations

None

Site 31 Remains of the Crimea Inn SH70154890 (Fig. 4)

The 1901 6" OS map shows the remains of two buildings in this position. These were the Crimea Inn and associated outbuildings. The northernmost building, probably the inn itself now lies beneath the current layby. The foundations of the other building, apparently L shaped within a rectangular compound are still visible. Much of the masonry is obscured by rubble but at least 0.5m of the walls appear to be upstanding. The edges of the compound walls lie 3.2m from the edge of the current blacktop (Plate 75). The Inn was built soon after the completion of the improved road of c. 1854 – 1857 gaining its name from the recently concluded Crimea War.

Further mitigatory recommendations

A basic record has been made of the site and avoidance is recommended.

Site 32 Slate turnpike milestone SH7014892 (Fig. 4)

A slate milestone is located on the west side of the road opposite the Crimea Inn (Plate 76). The stone dates from the days of the Portmadoc and Beaver Pool Turnpike Trust founded in 1864. The stone bears the inscription

	MILES
FFESTINIOG	5
DOLWYDDELEN	3½
BETTWSYCOED	9½
LLANRWST	13

The stone has cracked along the cleavage plane of the slate.

Further mitigatory recommendations

The milestone should be relocated to the roadside as close as possible to its current position. It should be noted that the stone is in poor condition and will require specialist conservation.

Site 37 Dry-stone field boundary SH70194926 (Fig. 4)

A dry-stone field boundary runs from the revetment on the west side of the road (Plate 77). This has mostly been rebuilt in the last few years. The lower courses of a 25m length of the wall adjacent to the road are still in place. The part of the wall appears to have been robbed to build a buttress to the road revetment. The base of the wall is 0.8m wide and stands to a height of 0.5m. It is double faced with a rubble core.

Further mitigatory recommendations

None

Site 40 Small quarry and sheepfold SH70554989 (Fig. 3)

A small, 20m x 10m, quarry lies immediately to the east of the A470 (Plate 78). It is not shown on any of the early maps and appears to be quite recent. A sheepfold (Plate 79) constructed from wire and a variety of recycled wooden objects stands above the quarry. This has four small compartments and stands within a larger field. It is still used for inoculation, worming, etc. This is also a recent structure.

Further mitigatory recommendations

None

Site 41 Field wall/bank SH7059 4998 – SH7057 4995 – SH7045 5001 (Fig. 3)

A low earth and stone field bank runs through a marshy and overgrown area to the west of the A570 opposite Crimea Plantation (Plate 80). The south-west side is roughly faced with stone and stands to a height of 0.7m. A 1.0m wide 0.4m deep drainage ditch runs along this side. The bank is 2.2m wide and acts as a slight revetment, standing only 0.4m high on the north-east side. This side is rounded with no trace of facing. A low wall adjoins the bank 7m to the north-east of the road forming a triangular enclosure. This is a single line of natural stones (41a) laid with their flat faces towards the south-east. Both walls are depicted on the 1889 25" OS map and Wall 41 is probably shown on the Dolwyddelan Tithe map of 1840.

Further mitigatory recommendations

None

Site 43 Slate tips, Oakeley Complex SH69734705 (Fig. 8)

The slate tips associated with Gloddfa Ganol Quarry stand on the west side of the A470. The tips are generally poorly preserved but retain several features from the working life of the quarry. The track that leads from the A470 to the top of a former incline dates from the 19th century. This has been

refurbished relatively recently and is a simple terrace in the tips (Plate 81). Two small dry-stone shelters stand beside the track (Plate 82).

Further mitigatory recommendations

The track should be reinstated in order to maintain the transport link. The two shelters should be retained if possible, but if disturbed as part of the works, detailed recording and a watching brief will be required.

Site 56 Ffridd-y-Bwlch SH69984849 (Figs 5 and 32)

The late 19th-century maps name the cluster of buildings as Ffridd-y-bwlch and it seems likely that this was a farm or hafod that went out of use shortly after the turnpike was built. The area between the buildings and the road contained field boundaries 20 and 23, an enclosure and a track (OS 1:10560 1891 edition) that has yet to be identified on the ground. A series of small slate quarries, marked as 'old slate quarries' on the 1891 map were also in the area. As such this area formed a focus for the early roads across the pass. The building of the road revetment appears to have adversely affected the drainage patterns and much of the area close to the road is now a bog. This probably led to the abandonment of Ffridd-y-Bwlch. The buildings were initially used as sheepfolds but the central swampy area became overgrown and fell out of use.

Further mitigatory recommendations

The site should be unaffected by the scheme but care should be taken to avoid disturbance during landscape and drainage works

Site 62 St. Mihangel's stone and well SH70324954 (Fig. 3)

Ffynnon Mihangel and its stone lie on the eastern edge of the A470. The well is in fact a small spring rising close to the road. The stone formerly stood above the well and is covered with incised graffiti reflecting the popularity of the well as a watering place for travellers and perhaps a belief in the properties of the water. The stone has now fallen across the well (Plate 83).

Further mitigatory recommendations

The site should be unaffected by the scheme but care should be taken to avoid disturbance during landscaping and drainage works

The pre-turnpike road and associated features. Sites 39, 16, 38, 35, 36, 61, 34, 30, 26, 26a, 26b and 26c (Figs 3 to 8)

The current A470 dates from the mid-19th century. Two attempts to build and maintain a road between Blaenau Ffestiniog and Dolwyddelan were made, probably both along the line of the current road. The first was between 1854 and 1857. An inn was erected after the road was completed, its name commemorating the recently concluded Crimean War. Contemporary accounts suggest that the road was poorly maintained and in 1864 the Portmadoc and Beaver Pool Turnpike Trust was set up to oversee the continued maintenance and construction of roads in the area.

It is clear that a trackway preceded this road. A route is shown on Evans' map of 1796 and on the OS 1" of 1841. Unfortunately these maps are not detailed enough to show its exact line. A recently published book 'The Roman Roads of North Wales: Recent Discoveries' by Edmund Waddelove (1999) claims to be able to trace a Roman road across the pass. His evidence has been reviewed during the current stage of the project and no convincing road of Roman military style has been identified. A length of road illustrated on Plate VII of the book as a good example of the route, is part of the pre-turnpike route (Site 26a see below) and also apparently runs straight up a 45 degree slope. There is also convincing evidence that the Roman road, known as Sarn Helen, passes along the neighbouring valley of Cwm Penamnen.

The trackway is traced from north to south in the following section of the report. The trackway can first be seen running 60m to the west of the A470 (Site 39b). Evans' 1796 map and the 1841 OS edition show this as the beginning of a major deviation to the west of the line of the turnpike. The trackway is shown on the 1887 OS 25" map and can still be traced on the ground. The northernmost part A-B is visible as a narrow hollow way, in places less than 1m wide, with occasional deviations to

avoid eroded or boggy areas. . The portion identified as Site 39b (B to C, Plate 10)) was sectioned (see above) and was shown to be a slightly raised roadway with a narrow surface of compacted gravel.

The trackway next turns abruptly to the west C-D to pass through a natural break in a low cliff. Section D-E passes through a boggy area and is difficult to trace before emerging as a well-defined terrace. It then turns to the east and splits into two (E-F, Site 38, Plate 84). The northernmost line is an eroded 0.7m wide hollow way, the southern a barely discernible terrace running up to the present road.

The pre-turnpike route follows the same line as the modern A470 between F and G before following the base of the slope to the east (G-H, Site 35, Plate 85). The northern part of this section is initially in the form of four narrow hollow ways. The uppermost, climbing steeply from the A470, runs along a mostly natural terrace with two small quarry pits (Site 36) above it. The trackway then becomes well defined running as a slight terrace around the bogs to the west. There are two small quarry pits above the trackway (Plate 86) along with a large, possibly later, quarry (Site 61, Plate 87). The trackway passes through a pinch point between a low cliff and a break of slope before crossing the A470. The edges of the road are delineated by lines of boulders, presumably cleared material as opposed to walls (Plate 88). A regular, 1.6m wide, flat bottomed hollow marks the line of the road on the west of the A470 (H to I, Site 37, Plate 89). This can be traced for 200m as it skirts bogs to the west and runs along the base of an outcrop to the east. It then turns to the south-west (I to J, Site 30) and is intermittently visible as a narrow path winding through the bogs and climbing as a poorly defined terrace (Plate 90) to cross the A470 to the south of the Crimea Inn.

The loop of trackway J to K (Site 26, Plate 91) is shown on the 1891 OS 6" map and is still well preserved. A 1.8m wide terrace is cut into the base of the slope. It continues for 210m before forming an elongated S running towards the A470. It is cut by both the A470 road cutting and Site 25. The hollow way K to L (Site 26a (Plate 92)) on the west side of the road is clearly a continuation of the pre-turnpike trackway and not a Roman road as described by Waddelove (1999). The road then turns abruptly to the west (Site 26a ctd), crossing the A470 and running to Ffridd-y-Bwlch. The line of the trackway to the south-west and south of Ffridd-y-Bwlch is now difficult to trace. The 1887 OS 25" map shows one route, probably the latest, running directly south-west to the line of the A470. This can no longer be traced through the bog (Site 26a ctd). A second alignment, presumably the pre-turnpike road (M – O, Site 26b) runs through bogs for around 200m and also cannot currently be traced. A different alignment N – O (Site 26b) is visible as a faint narrow path through the bogs. This probably joined another trackway that runs between the old quarries cut into the slopes to the west. The pre-turnpike road becomes clearly visible as a meandering hollow way as it runs through a natural break in a rock outcrop and down to the line of the A470 (O-P site 26b) Beyond this the pre-turnpike route runs close to the line of the A470. A well defined length of steep trackway (Q – R, Site 26c, Plate 93) presumably represents a deviation but runs into peat bogs and is soon lost. A short loop of eroded hollow way (S – T, Site 16, Plate 94) cut by a drain/quarry scoop is either part of the pre-turnpike route or an early phase of the turnpike. No further trackways can be traced. The pre-turnpike road is thought to have followed the same line as the A470 before turning to the south-east along the track to the south of Bryntirion.

Further mitigatory recommendations

The pre-turnpike road is the most significant archaeological site in the north part of the scheme and the sites should be reallocated to Category C – Sites of district or local importance.

The impact will mostly be minimal but a watching brief to record details of construction and dating evidence is required where disturbance will take place. The greatest impact will be on Site 26, adjacent to the Crimea Inn and Site 26a, and the area around Ffridd-y-Bwlch. The individual recommendations are summarised below.

Site 39b	Avoidance or watching brief if disturbed
Site 38	Watching brief where disturbed
Sites 36 and 61	Avoidance
Site 35	Minimise disturbance, watching brief if disturbed
Site 34	Watching brief
Site 30	Watching brief
Site 26	Disturbance to be kept to a minimum – Watching brief.

Site 26a	Watching brief
Site 26b	Watching brief
Site 26c	Watching brief
Site 16	Watching brief

6. CONCLUSIONS AND SUMMARY

All sites have now been fully evaluated and none remain in category E. Sites 17, 33a 33b and 39a have been reallocated to Category D - *Minor and damaged sites*. Sites 25 and 39b have been reallocated to Category C – *Sites of district or local importance*.

Evidence that emerged during the basic recording demonstrates that the fragments of trackway listed as separate sites are in fact all elements of the pre-turnstile road. These (39, 16, 38, 35, 34, 30, 26, 26a, 26b and 26c) have been reallocated to Category C.

A total of 20 sites now have no further mitigatory recommendations and avoidance is the preferred option for an additional 7. Excavation in advance of destruction is required for site 25 due to its small size. A watching brief is required for 21 sites (including two as a secondary recommendation if avoidance is not possible). Relocation is recommended for the milestone (32) and the Esgidiau Meirw “grave stone” (20). Further recording will be required at Site 8, (revetting walls along stream) after clearance of the woodland and at the shelters on the Oakley Tips (43) if they are to be destroyed.

In addition to the individual recommendations a continuous watching brief is required. This is defined in Volume 2 of the Environmental Statement (Technical Appendix B - Cultural Heritage).

A continuous watching brief will be maintained along the whole route during appropriate stages of the work, as some sites will not be evident until topsoil stripping reveals them, and sites identified in advance of the works may require further recording during construction

The individual recommendations are summarised below in Table 1.

Table 1 List of sites and Further mitigatory recommendations			
<i>Site number</i>	<i>Site name</i>	<i>Category</i>	<i>Further mitigatory recommendations</i>
2	Area of slate tips	D	None
3	Llechwedd Exchange Sidings	A	General watching brief and specific recommendations for individual features
4	Footpath (Llechwedd Quarry)	C	Watching brief
5	Road revetment wall north of exchange sidings	C	Watching brief
5b	Area east of railway tunnel entrance	C	Watching brief
6	Afon Barlwyd culvert	C	Watching brief
7	Slate tip, Llechwedd Quarry	C	Watching brief
8	Revetting/walls along stream	D	Recording after clearance and watching brief
9	Graffiti stones, Tal y Waenydd	C	Avoidance: retain <i>in situ</i>
10	Field barn, Tal y Waenydd	C	Watching brief
11	Retaining wall – entrance to the Oakeley Complex	D	Watching brief
12	Tip south of Bryn Tirion	D	Watching brief
13	Dry stone field boundary, Bryntirion	D	None
14	Roadside quarry scoops	D	None
15	Track to Ffridd y Bwlch Reservoir	D	None
16	Short length of track east of A470	D	Watching brief
17	Sub-rectangular scoop	D	None

18	Small quarry	D	None
19	Slate dump	D	None
20	Tip or dump, Esgidiau Meirw	D	Avoidance and relocation of stone
21	Stone wall	D	None
22	Rectangular enclosure	D	None
23	Field boundary	D	None
24	Roadside quarries	D	None
25	Small circular feature	C	Excavation in advance of destruction
26	Track south of Crimea Inn	D	Watching brief
26a	Trackways at Fridd-y-bwlch	C	Watching brief
26b	Trackway	C	Watching brief
26c	Trackway	C	Watching brief
27	Peat cutting	D	None
28	Revetted trackway to Chwarel Gethin	C	None
29	Small slate dump	D	None
30	Possible trackway west of A470	D	Watching brief
31	Remains of the Crimea Inn	C	Avoidance
32	Slate turnpike milestone	D	Relocation and conservation
33a	Embanked curvilinear enclosure	D	None
33b	Possible cairn	D	None
34	Trackway (pre-turnpike route?)	C	Watching brief
35	Trackway	C	Watching brief
36	Roadside quarry scoops	D	Avoidance
37	Drystone field boundary	D	None
38	Track	C	Watching brief
39a	Possible settlement	D	None
39b	Track	C	Avoidance or watching brief
40	Small quarry and sheepfold	D	None
41	Fieldwall/bank	D	None
43	Slate tips, Oakeley complex	C	Reinstatement of track. Avoidance of shelters or recording and watching brief if disturbed
56	Fridd-y-bwlch	C	Avoidance
62	St Mihangel's Stone and Well	C	Avoidance

Site 3 the Llechwedd Exchange Sidings contains 32 separate features. These are summarised in Table 2. Avoidance is the preferred mitigation for 27 of these features. Of these, two sites a girder bridge 3(3) and a length of surviving railway 3(4), may be affected by the scheme even though avoidance is the preferred option. A watching brief is required for the bridge if it is to be destroyed. The railway is partly buried by mud and slate waste. If this is to be disturbed excavation and full recording is required.

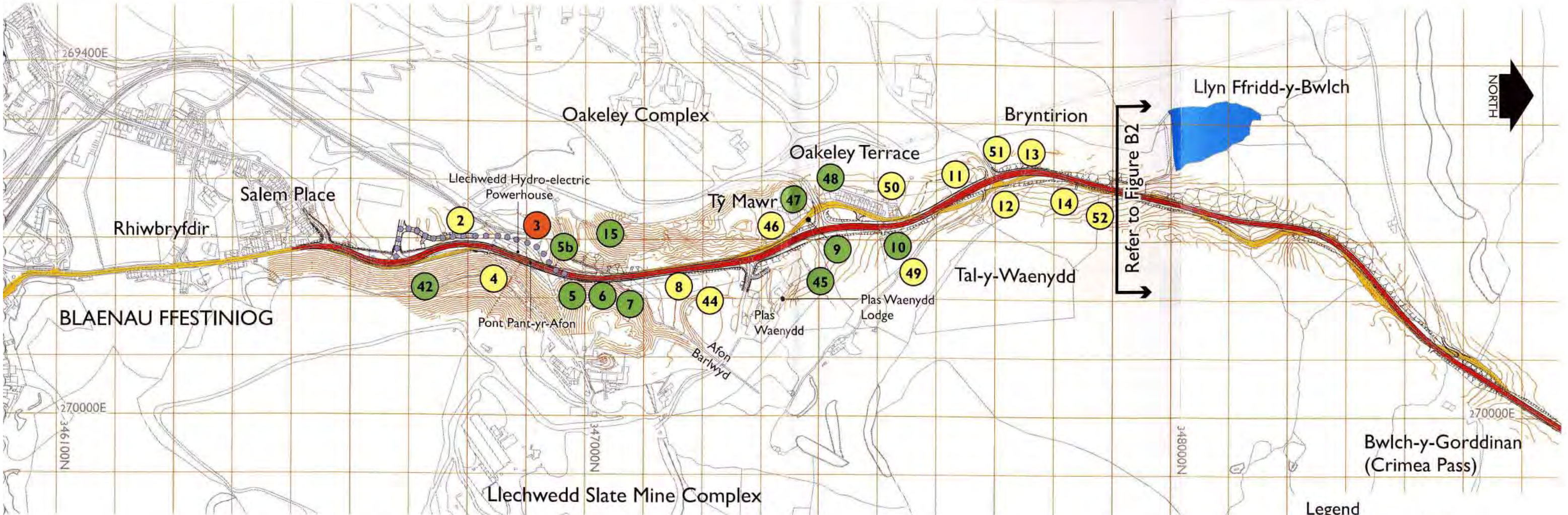
The crane (3(13)) has been recorded in detail and will be removed, conserved and replaced to specifications to be agreed with Cadw. The road causeway (3(32)) will be widened as part of the scheme and new concrete revetment walls will be built. These will be faced with stone emulating the style of the current walls. The three tunnels will be retained. These works will involve disturbance to some features close to the causeway, in particular the dwarf wall (part of 3(32)) and the incline tunnel 3(5). A detailed watching brief is required here and some excavation may be necessary.

A temporary diversion incorporating a bridge over the Exchange Sidings area will be built. A watching brief is required for any ground disturbance during the erection of this structure.

Table 2 List of Site 3 features and Further mitigatory recommendations		
Site number	Site name	Further mitigatory recommendations
3(1)	Hydro-electric Powerhouse.	Avoidance
3(2)	Road Bridge	Watching brief, new entrance to be similar style
3(3)	Railway bridge	Avoidance or watching brief
3(4)	Railway	Avoidance or excavation in advance of destruction
3(5)	Road Bridge	Watching brief, new entrance to be similar style
3(6)	Railway incline	Avoidance
3(7)	Road Bridge	Watching brief, new entrance to be similar style
3(8)	Railway bridge	Avoidance
3(9)	Pipeline	Avoidance
3(10)	Railway bridge	Avoidance
3(11)	Weighbridge house	Avoidance
3(12)	Structure	Avoidance
3(13)	Crane	Removal, conservation and reinstatement
3(14)	Loading area	Avoidance
3(15)	Sidings	Avoidance
3(16)	Railway	Avoidance
3(17)	Slate retaining wall	Avoidance
3(18)	Drainage adit	Avoidance
3(19)	Railway	Avoidance
3(20)	Tunnel mouth	Avoidance
3 (21)	Oakeley complex exchange sidings	Avoidance
3(22)	Railway	Avoidance
3(23)	Railway bridge	Avoidance
3(24)	Railway bridge	Avoidance
3(25)	Railway bridge	Avoidance
3(26)	Structure	Avoidance
3(27)	Gate	Avoidance
3(28)	Structure	Avoidance
3(29)	Structure	Avoidance
3(30)	Tank	Avoidance
3(31)	Footpath	Avoidance
3(32)	Roadway/causeway	Watching brief. New walls to be similar style

7. REFERENCES

Ffestiniog Railway Heritage Group, 2003. *The Spooner Album*
 Fitzgerald (undated c.2005), *Bridges 67 and 68, Llandudno Junction to Blaenau Ffestiniog line (London North Western Railway, B.R. Midland Region unpublished mss*
 Govannon Consultancy, 2005. *Conservation Management Plan for the Pant yr Afon Site Llechwedd Slate Mine* rep GC103
 Tower G B N, 1874. *Instructions on Modern Bridge Building* Boston
 Waddelove E, 1999. *The Roman Roads of North Wales Recent Discoveries*
 Welsh Assembly Government Transport Directorate, 2003. *A470(T) Blaenau Ffestiniog to Cancoed Improvement. Environmental Statement*



SUMMARY OF SITES AFFECTED BY IMPROVEMENT

SITE	DESCRIPTION	CATEGORY	IMPACT	PROPOSED MITIGATION AND RESCUE ARCHEOLOGICAL MEASURE
2	Linear tips	D	Slight	Watching brief
3	Llechwedd exchange sidings and power house	A	Considerable	Full recording by photograph and measured survey
4	Footpath	D	Slight	Record by photograph and description
5	Road revetment, Crimea Road	C	Considerable	Full recording by photograph with a watching brief
5b	Area	C	Slight	Basic recording
6	Afon Barlwyd culvert	C	Considerable	Record by photograph and description
7	Slate tip - Llechwedd Slate Mine Complex	C	Likely	Record by photograph and description
8	Revetting walls along stream - Tal-y-Waenydd	C	Slight	Record by photograph and description
9	Graffiti covered stones - Tal-y-Waenydd	C	Likely	Survey position, record by photograph and transcription, relocate
10	Field barn - Tal-y-Waenydd	C	Considerable	Survey, record by photograph and description
11	Retaining wall - entrance to Ffestiniog Slate Quarry	D	Considerable	Record by photograph and description
12	Linear tip - south of Bryntirion	D	Considerable	Record by photograph and description
13	Drystone field boundary Bryntirion	D	Slight	Record by photograph and description
14	Roadside quarry scoops	D	Considerable	Record by photograph and description
15	Slate tip, Ffestiniog Slate Quarry	C	Slight	Basic regrading

SUMMARY OF SITES NOT LIKELY TO BE AFFECTED BY IMPROVEMENT

Site	Description	Category
42	Slate tip, Llechwedd	C
44	Plas Waenydd Gardens	D
45	Plas Waenydd walled gardens	C
46	Infill Tal-y-Waenydd	D
47	Ty Mawr	C
48	Oakeley Terrace and Chapel	C
49	Old stone walls Tal-y-Waenydd	D
50	Small buildings	D
51	Bryntirion	D
52	Disused level and tip	D

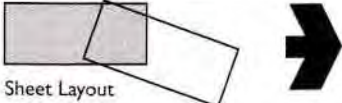
- Legend
- Existing A470(T)
 - A470(T) Proposed Improvement
 - Proposed temporary diversion
 - Category A Sites of National Importance
 - Category B Sites of Regional or County Importance
 - Category C Sites of District or Local Importance
 - Category D Minor and damaged sites
 - Category E Sites needing further investigation
 - 42 Site reference number referred to in cultural heritage report

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

A470(T) Blaenau Ffestiniog to Cancoed Improvement

Archaeological Assessment
Salem Place Blaenau Ffestiniog to Bryntirion

Figure: 1 Scale as shown July 2003



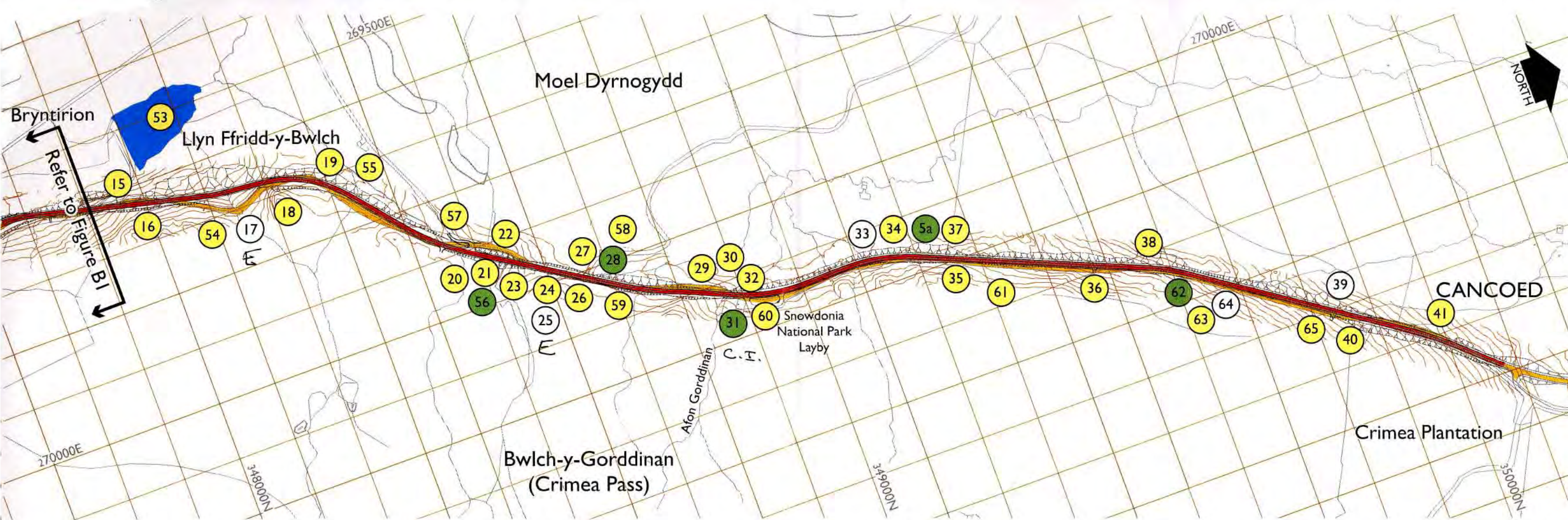
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Cyfarwyddwr Cyngor Gwynedd
WynThomasGordonLewis
Grŵp Halcrow
Ymddiriedolaeth Archaeolegol Gwynedd

Director Gwynedd Council
WynThomasGordonLewis
Halcrow Group
Gwynedd Archaeological Trust

WTGL / 4353 [F]



SUMMARY OF SITES AFFECTED BY IMPROVEMENT				
SITE	DESCRIPTION	CATEGORY	IMPACT	PROPOSED MITIGATION AND RESCUE ARCHAEOLOGY MEASURES
5a	Road revetment, Crimea Road	C	Considerable	Full recording by photograph with a watching brief
15	Track to Llyn Ffridd-y-Bwlch	D	Slight	Record by photograph and description
16	Short length of track	D	Considerable	Survey, record by photograph and description
17	Sub-rectangular scoop	E	Likely	Excavation to establish interest
18	Small quarry	D	Considerable	Record by photograph and description
19	Slate Dump	D	Considerable	Record by photograph and description
20	Tip or dump, Esgidiau Meirw	D	Considerable	Record by photograph and description, relocate stone
21	Remains of old stone wall	D	Considerable	Survey, record by photograph and description
22	Rectangular enclosure	D	Considerable	Record by photograph and description
23	Old Field boundary	D	Considerable	Record by photograph and description
24	Small roadside quarries	D	Considerable	Record by photograph and description
25	Small circular feature	E	Considerable	Excavation to establish interest
26	Track - south of Crimea Inn	D	Considerable	Survey, record by photograph and description
27	Peat cutting	D	Slight	Survey, record by photograph and description
28	Revetted trackway	C	Slight	Record by photograph and description
29	Small slate dump	D	Considerable	Record by photograph and description
30	Possible trackway	D	Slight	Survey, record by photograph and description
31	Remains of Crimea Inn	C	Slight	Survey, record by photograph and description
32	Slate turnpike milestone	D	Considerable	Record by photograph and description, relocate
33	Embankment curvilinear feature	E	Considerable	Excavation to establish interest
34	Trackway	D	Slight	Survey, record by photograph and description
35	Trackway	D	Slight	Record by photograph and description with a watching brief
36	Two small roadside quarry scoops	D	Likely	Record by photograph and description
37	Drystone field boundary	D	Slight	Record by photograph and description
38	Track	D	Slight	Record by photograph and description
39	Possible settlement and track	E	Likely	Geophysical trial excavation to establish interest
40	Small quarry and sheepfold	D	Slight	Record by photograph and description
41	Old field wall/bank	D	Slight	Survey, record by photograph and description

SUMMARY OF SITES NOT LIKELY TO BE AFFECTED BY IMPROVEMENT		
SITE	DESCRIPTION	CATEGORY
54	Possible track	D
55	Old boulder wall	D
56	Sheepfold and converted building	C
57	Revetted track	C
58	Disused level and structure	D
59	Peat cutting	D
60	Crimea Inn - L shape	D
61	Old quarry scoops	D
62	St. Mihangel's stone and well	C
63	Old drystone wall	D
64	Rectangular scoop	E
65	Small roadside quarries	D

Legend

Existing A470(T)

A470(T) Proposed Improvement

Category A Sites of National Importance

Category B Sites of Regional or County Importance

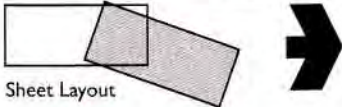
Category C Sites of District or Local Importance

Category D Minor and damaged sites

Category E Sites needing further investigation

42

Site reference number referred to in cultural



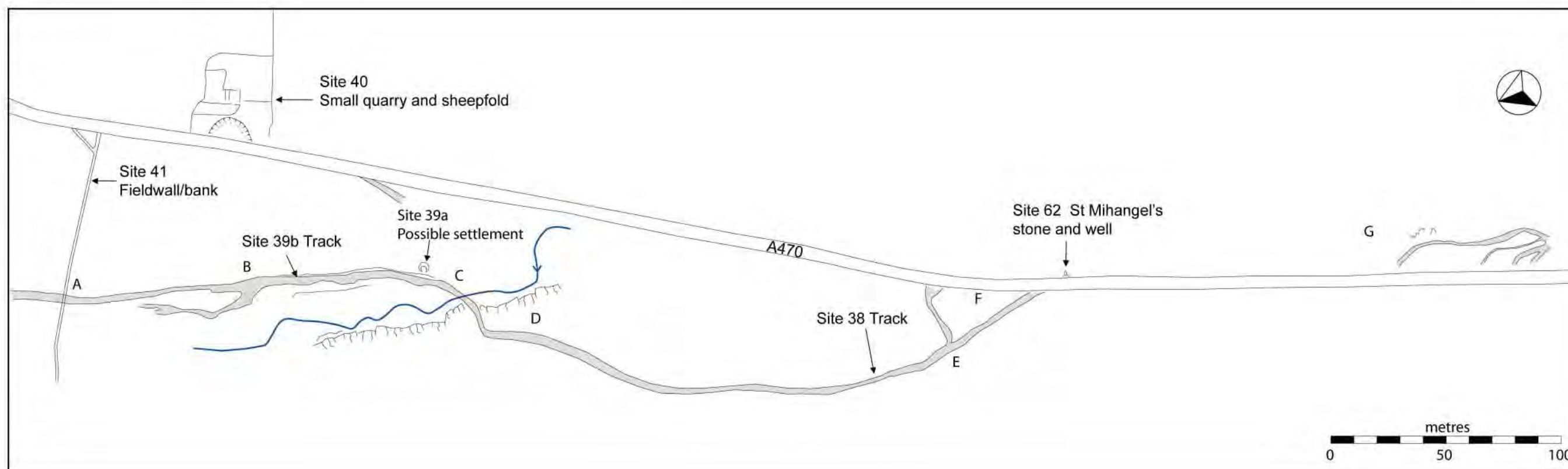


Fig. 3 Location of sites and detailed survey of pre-turnpike road part 1 of 6

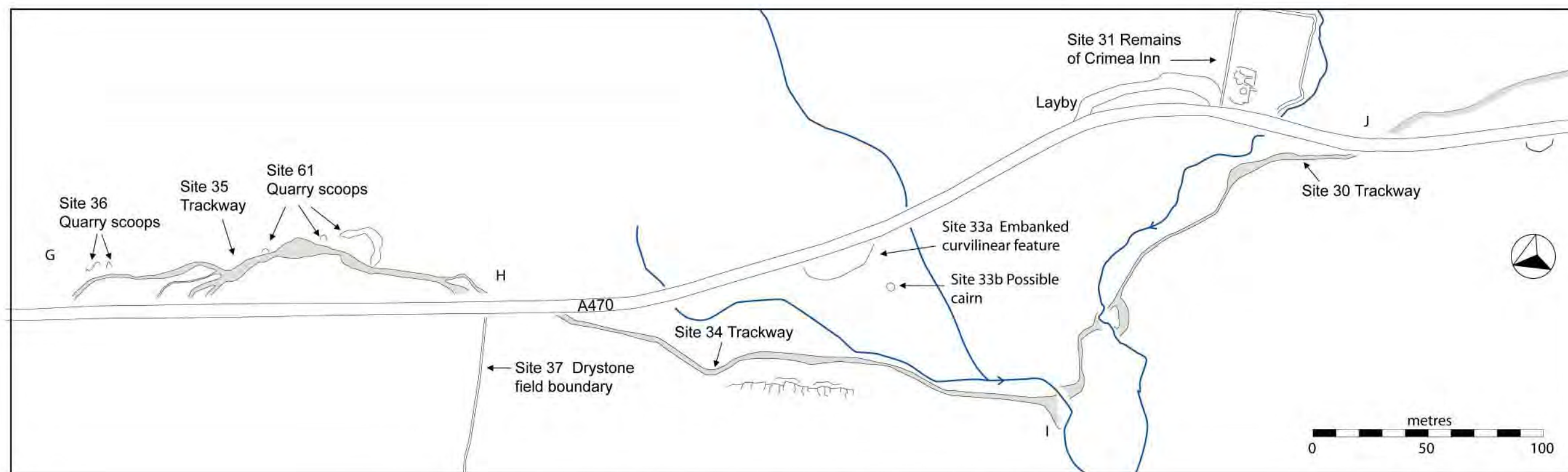


Fig. 4 Location of sites and detailed survey of pre-turnpike road part 2 of 6

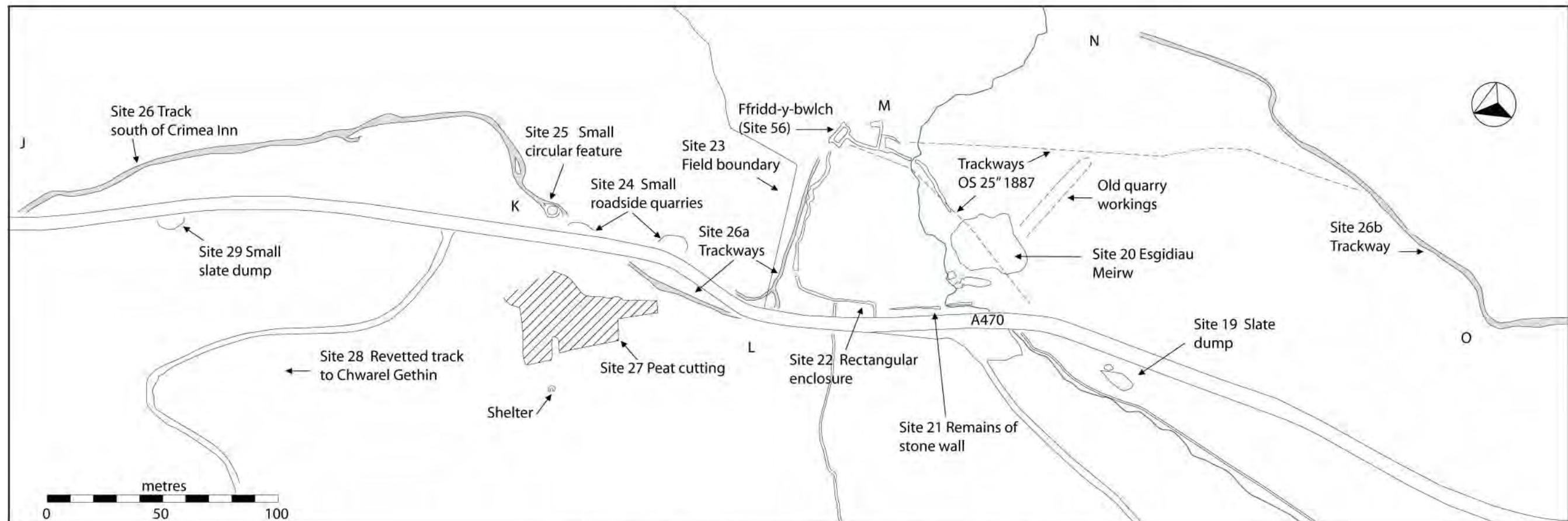


Fig.5 Location of sites and detailed survey of pre-turnpike road part 3 of 6

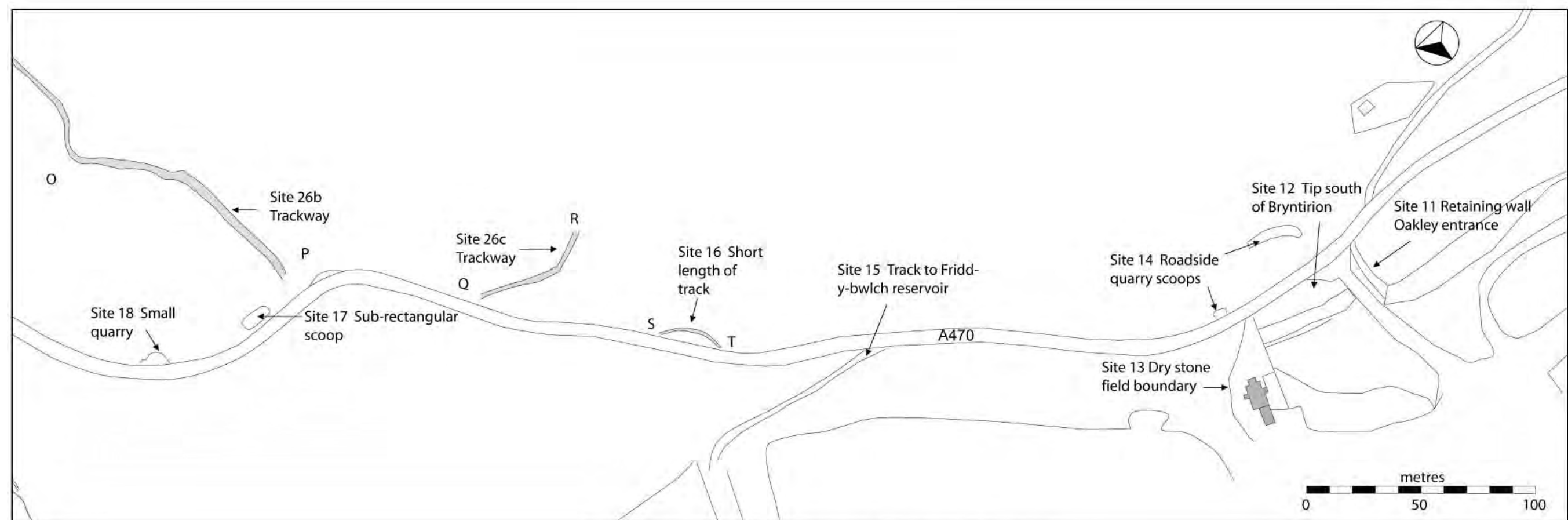


Fig.6 Location of sites and detailed survey of pre-turnpike road part 4 of 6

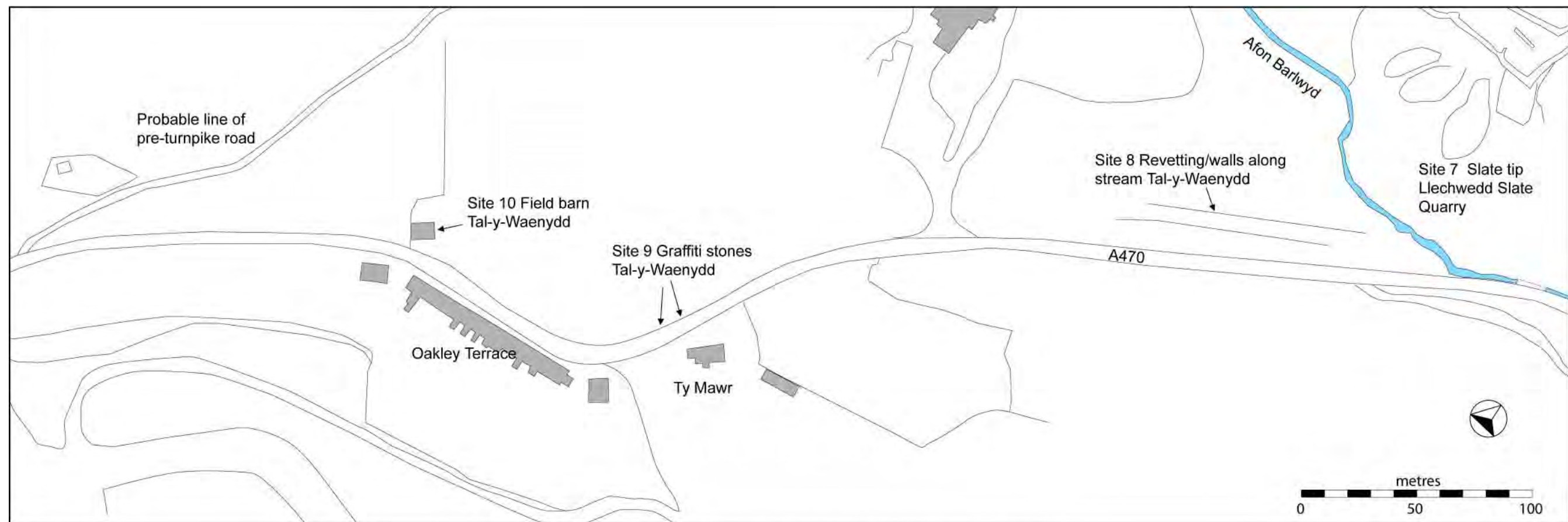


Fig. 7 Location of sites and detailed survey of pre-turnpike road part 5 of 6

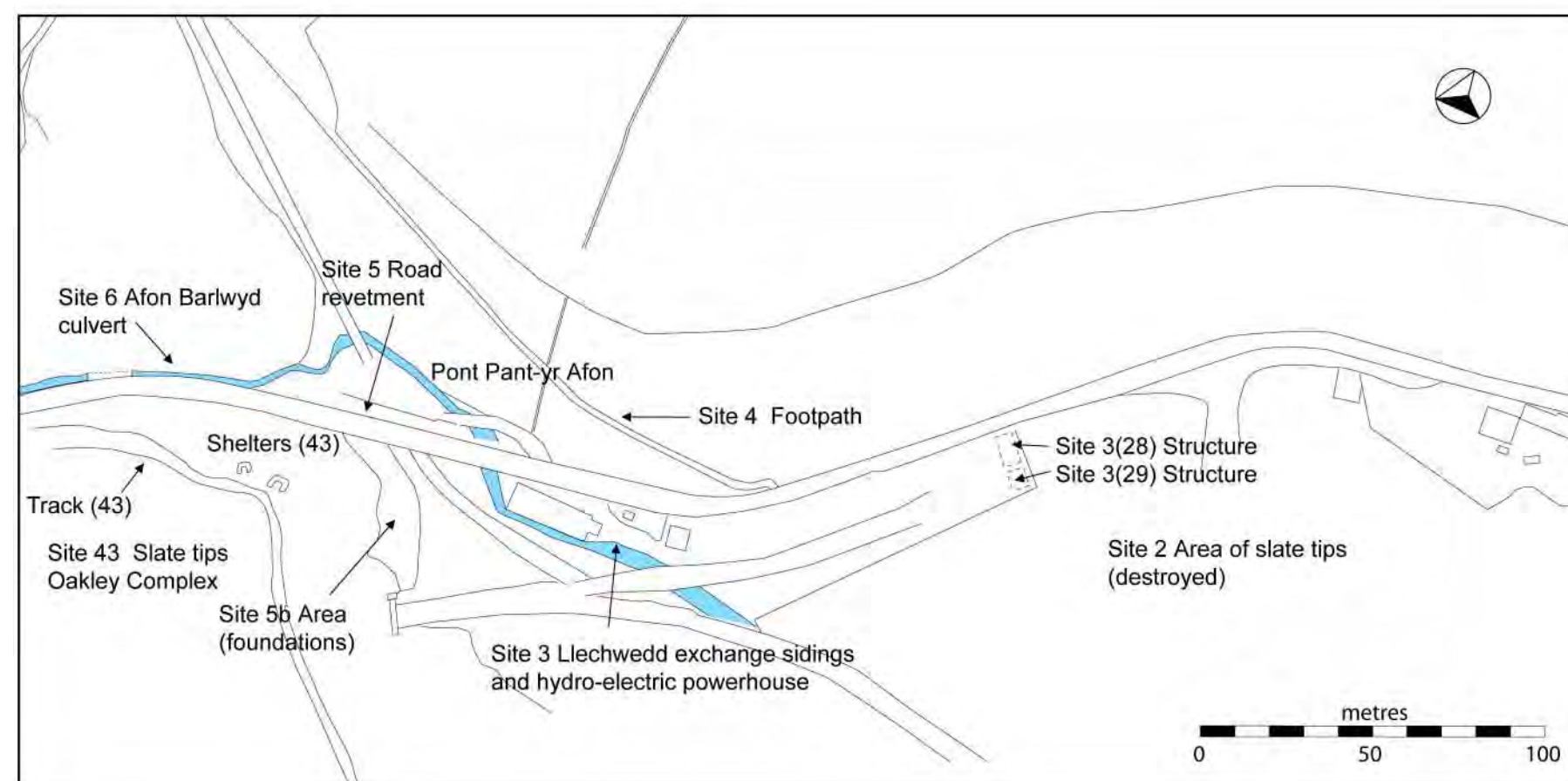


Fig. 8 Location of sites and detailed survey of pre-turnpike road part 6 of 6

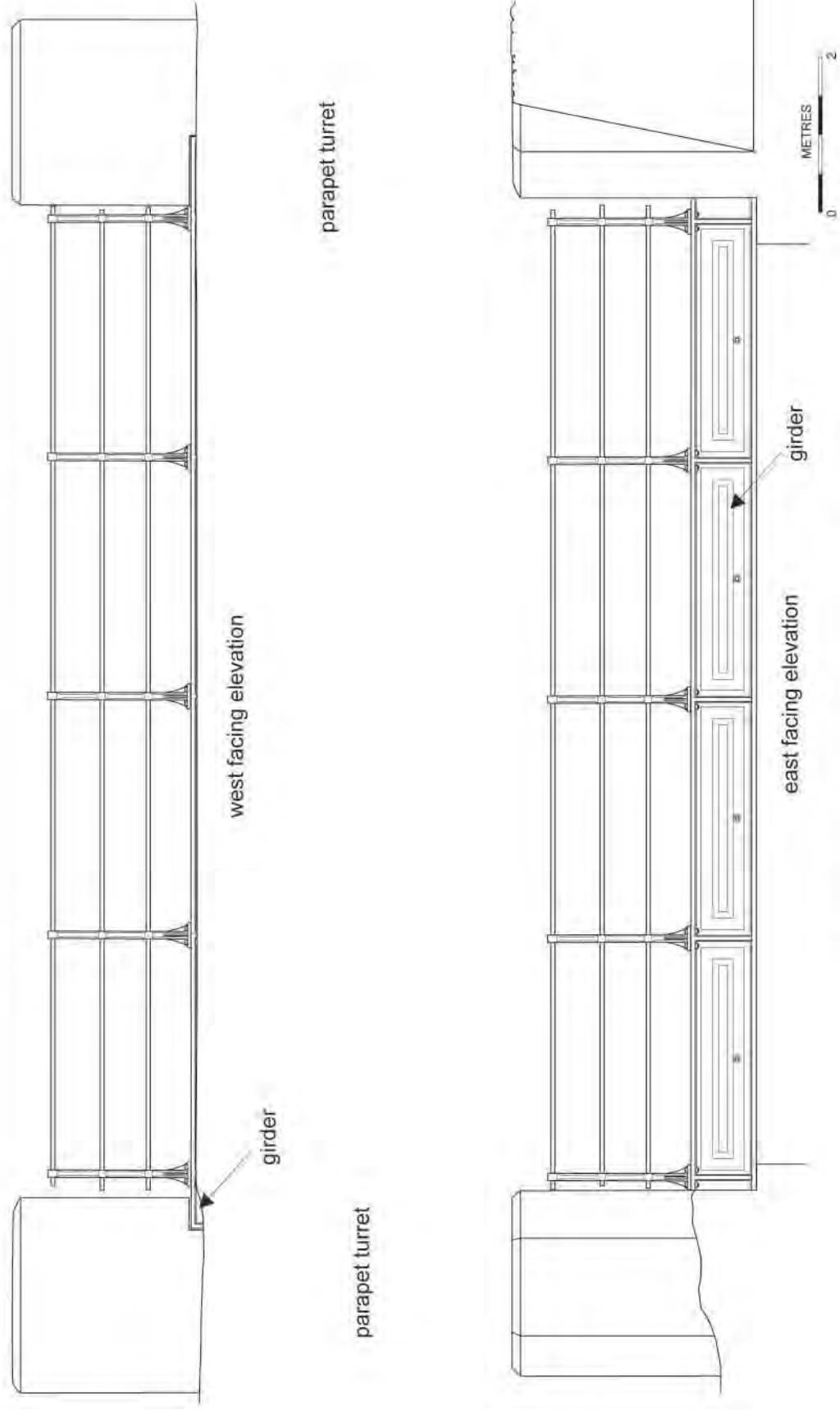


Fig. 21 Site 3(25) Girder Bridge 67, eastern side

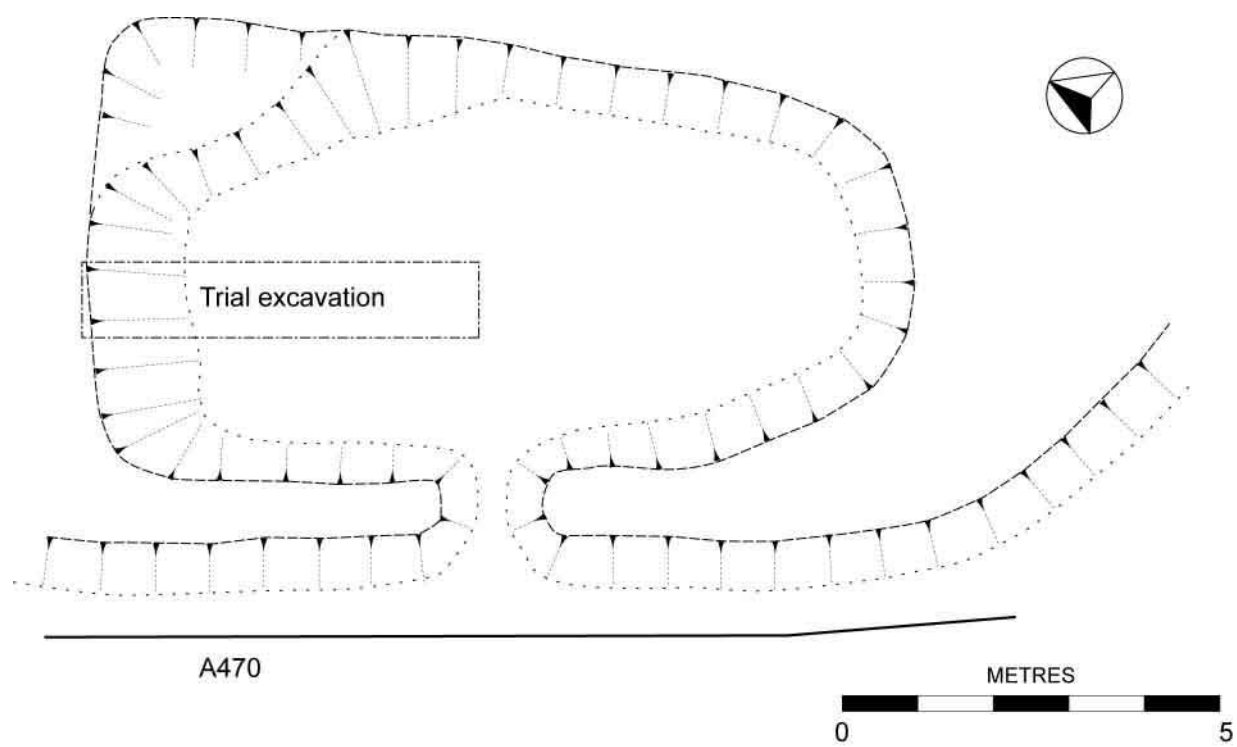


Fig. 9 Site 17 – Sub-rectangular scoop



Fig 10 Site 17, subrectangular scoop. Plan and north-east facing section

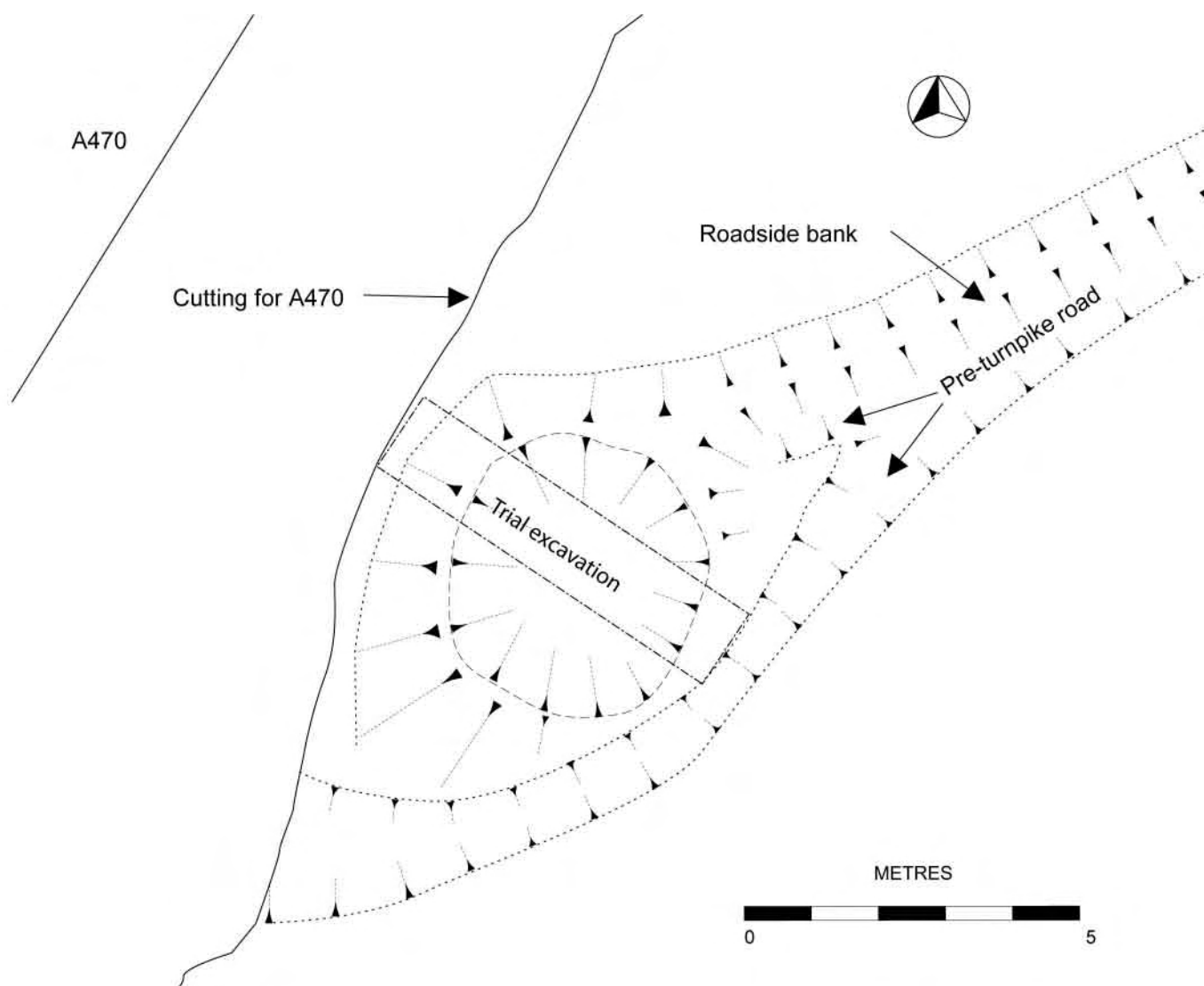


Fig. 11 Site 25 Small circular feature

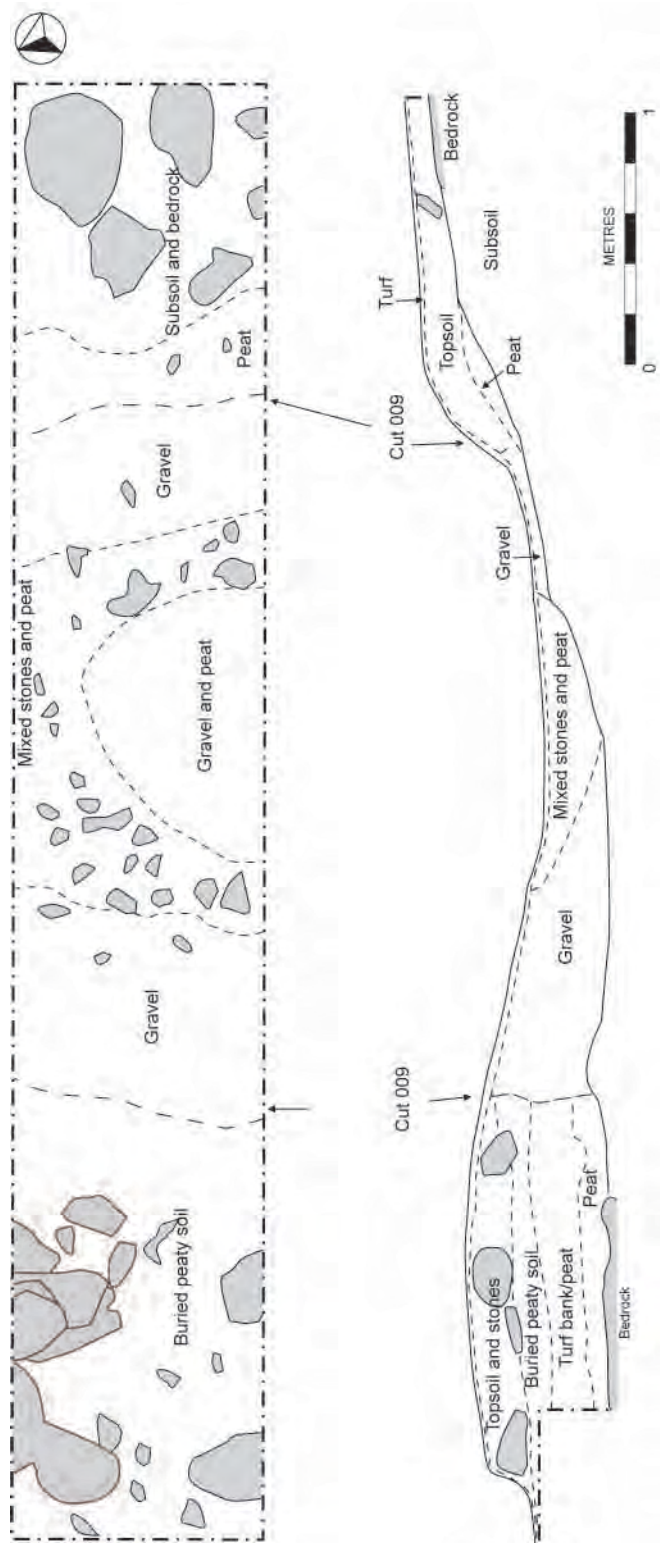


Fig. 12 Site 25 Small circular feature. Plan and south-west facing section

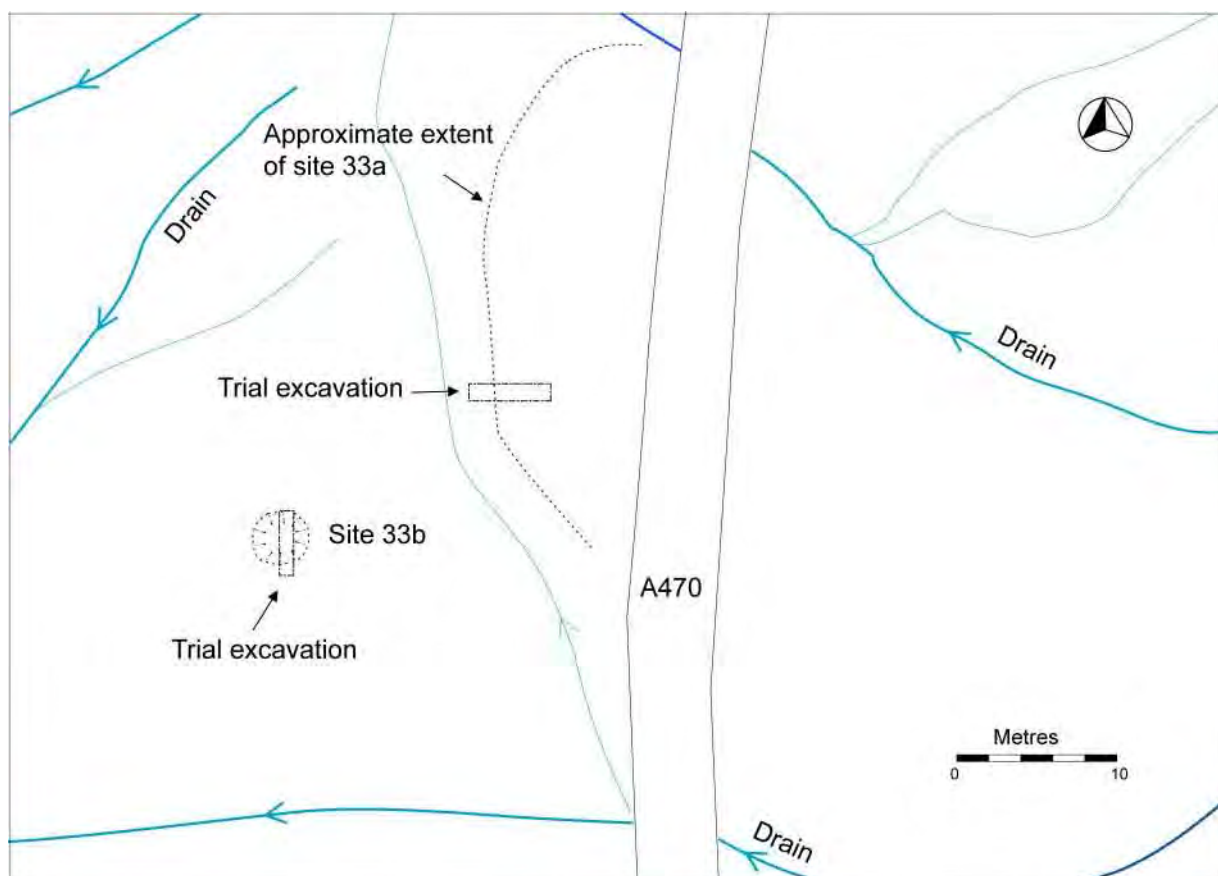


Fig. 13 Sites 33a and 33b, Embanked curvilinear feature and possible cairn

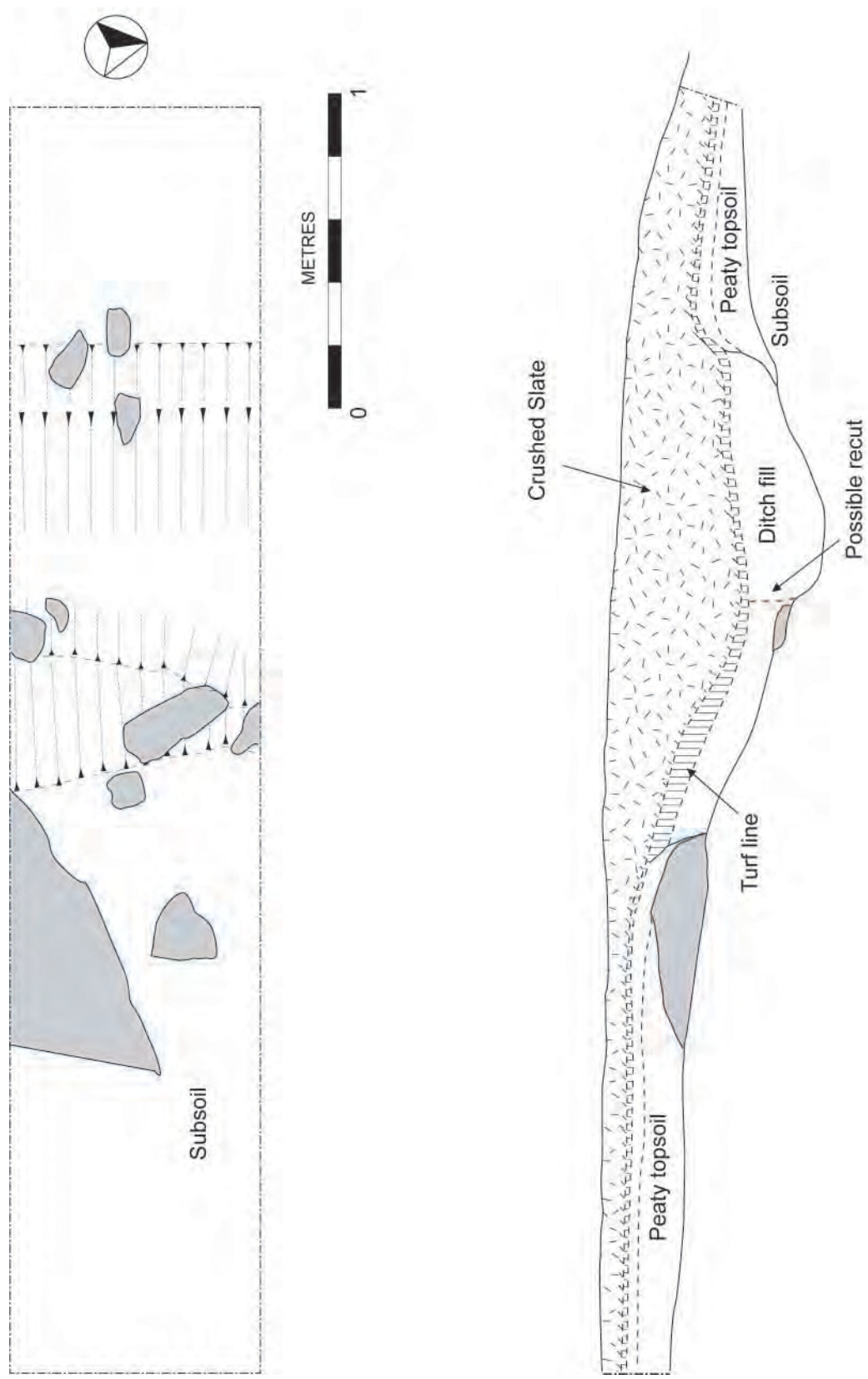


Fig 14 Site 33a Embanked curvilinear feature. Plan after excavation and north facing section

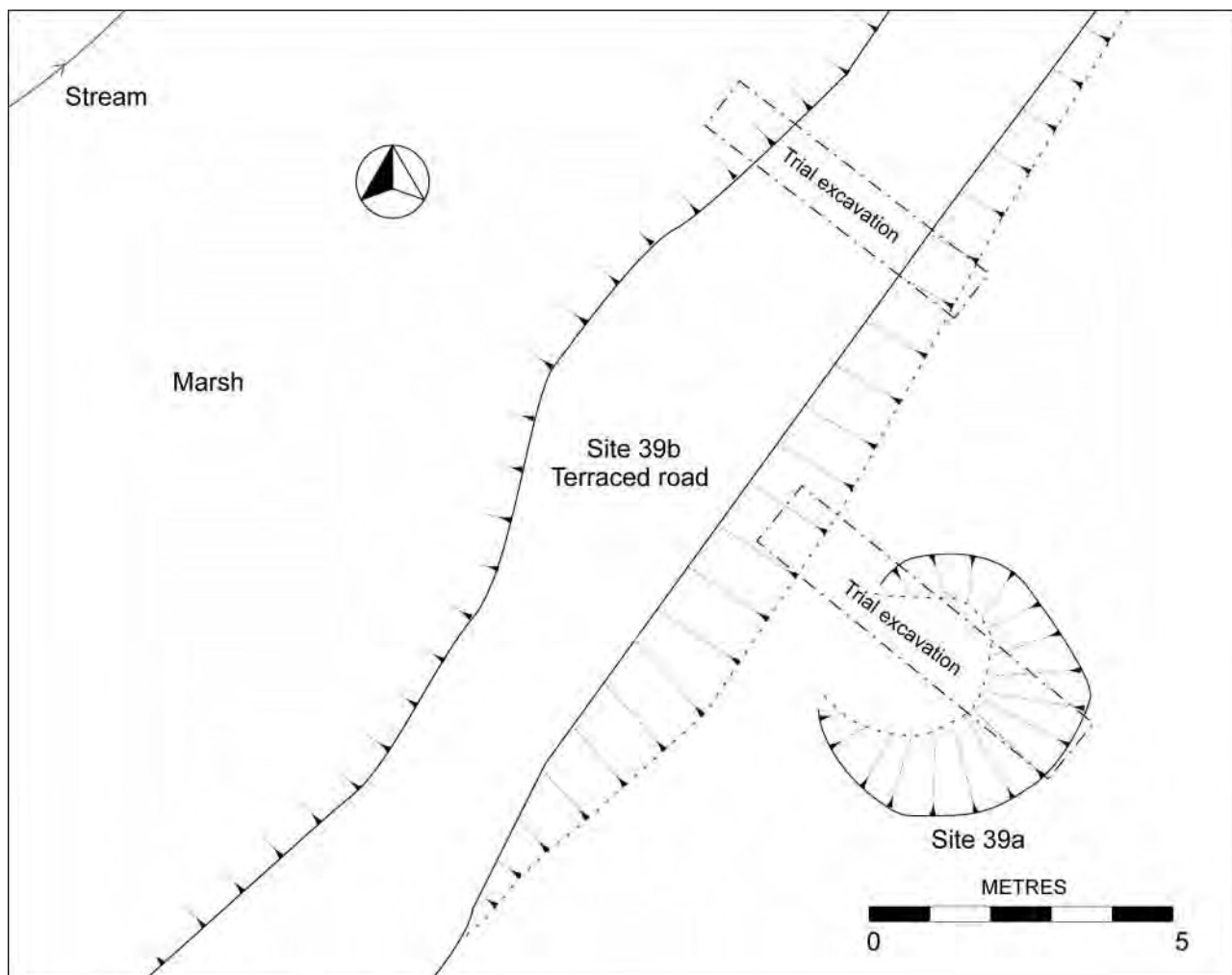


Fig. 15 Sites 39a and b. Possible settlement and track

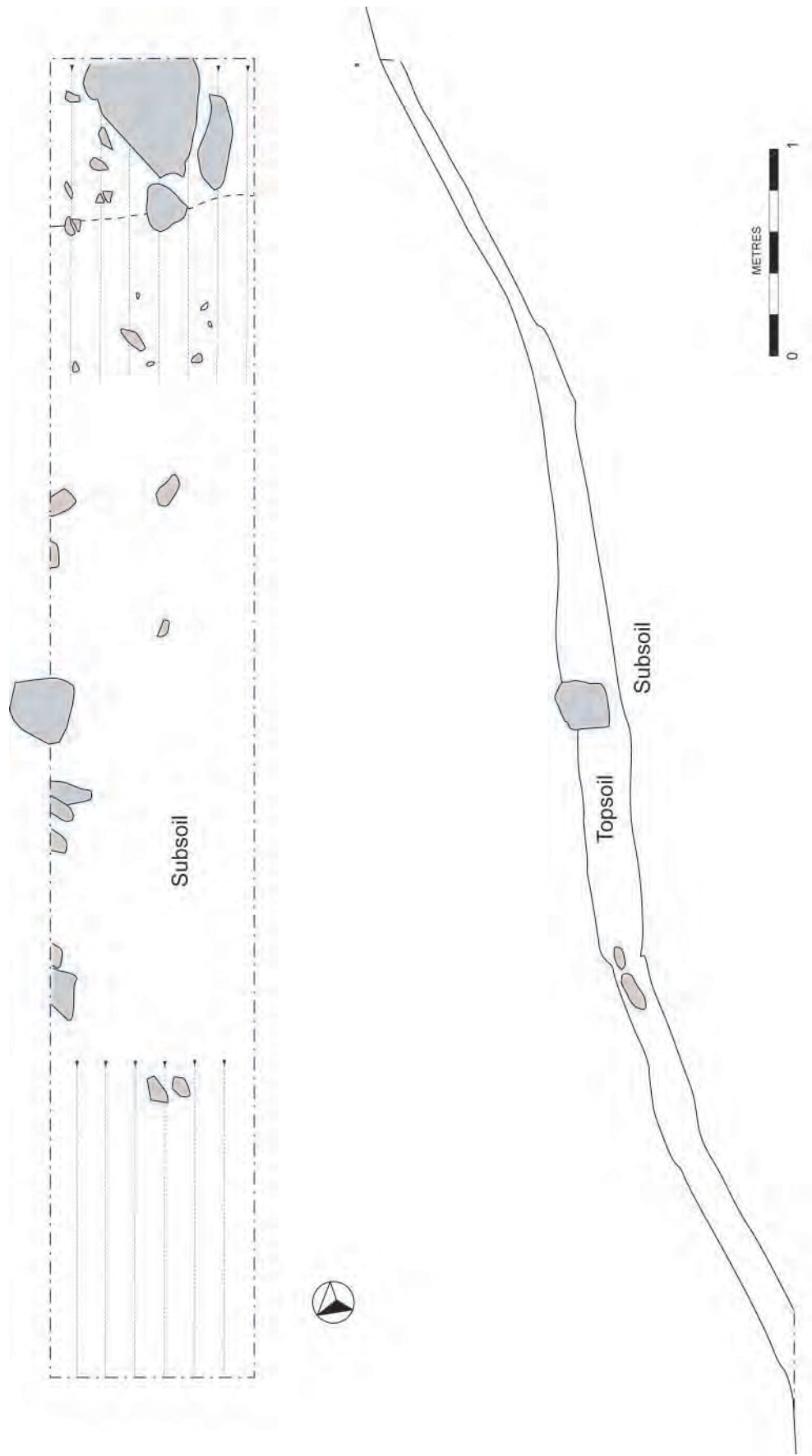


Fig. 16 Site 39a Possible settlement. Plan and south-west facing section

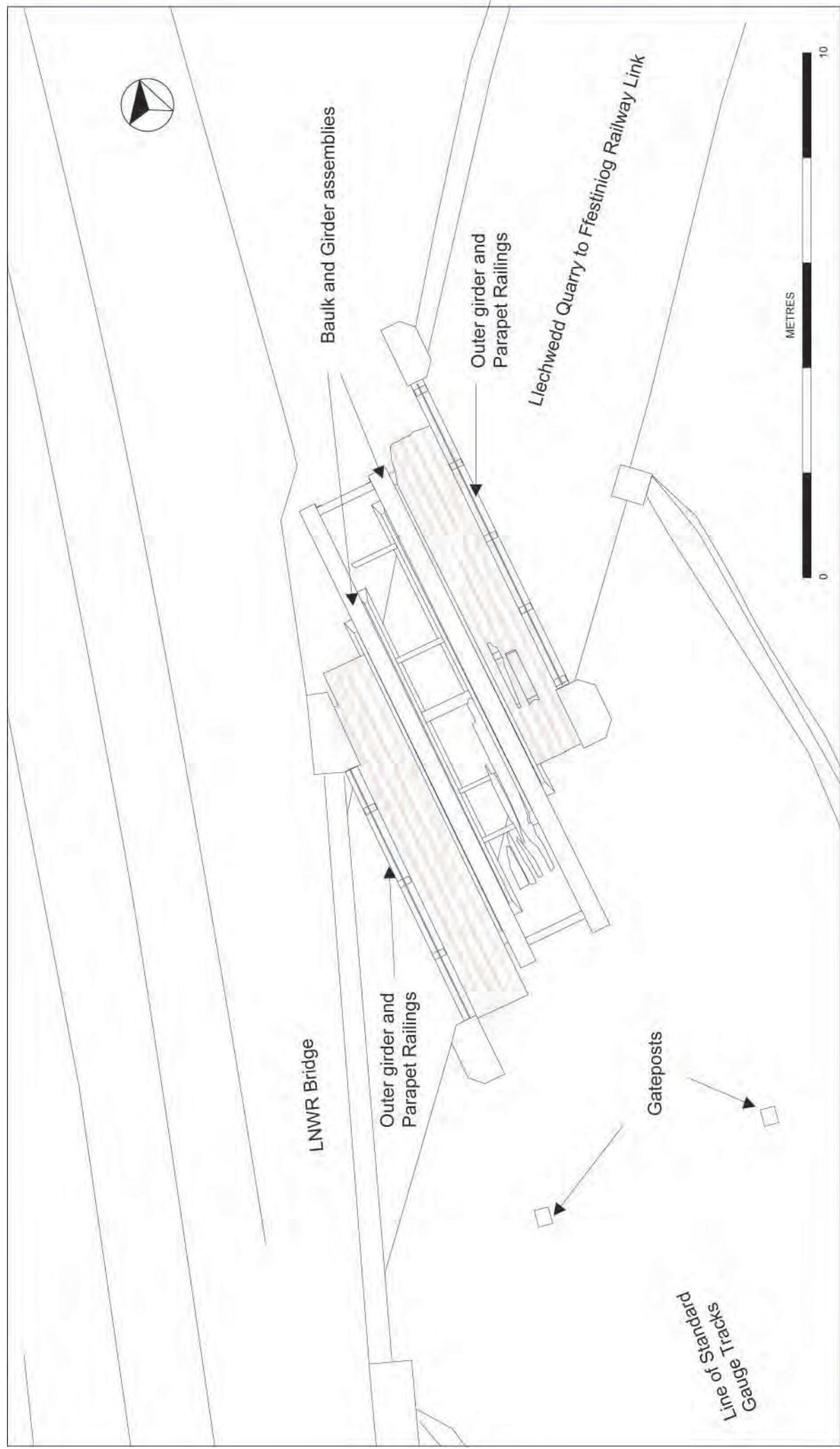


Fig. 19 Site 3(25) Plan of Girder Bridge 67

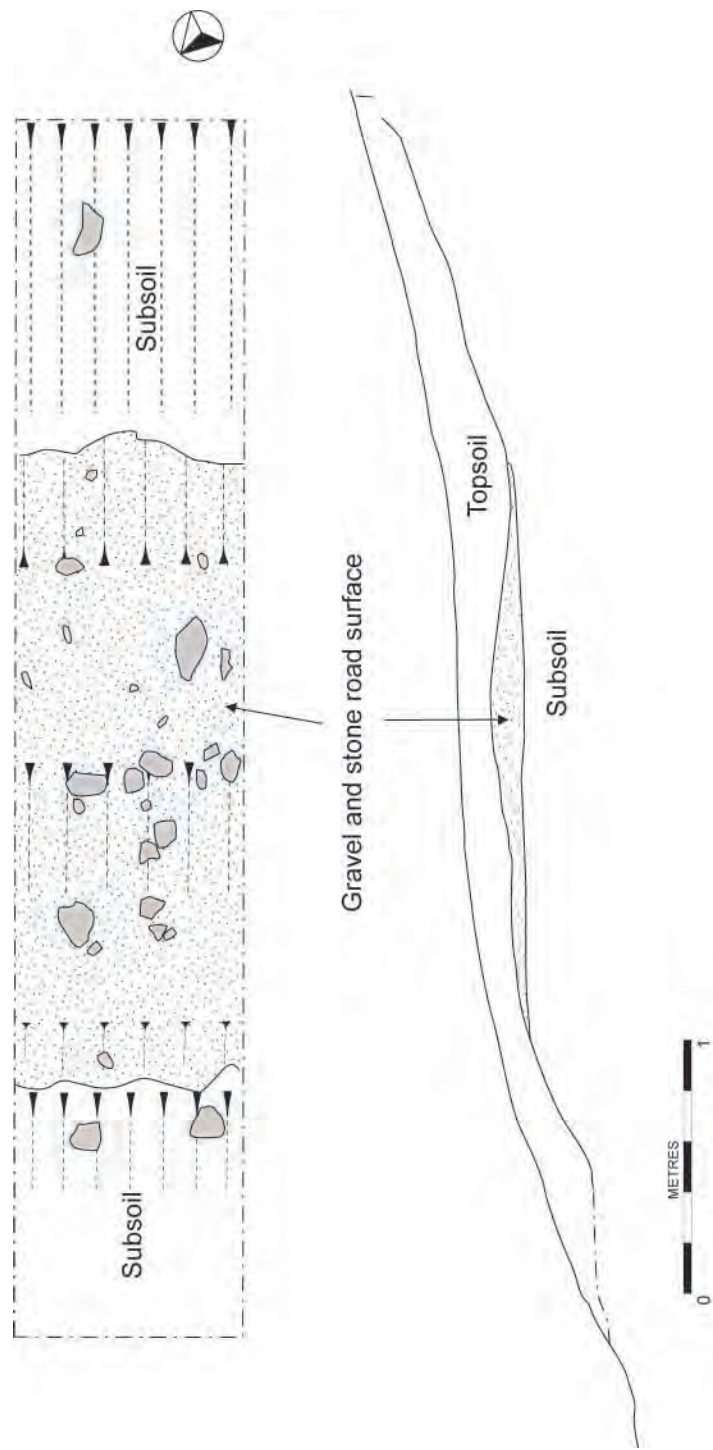


Fig. 17 Site 39b road. Plan and south-west facing section

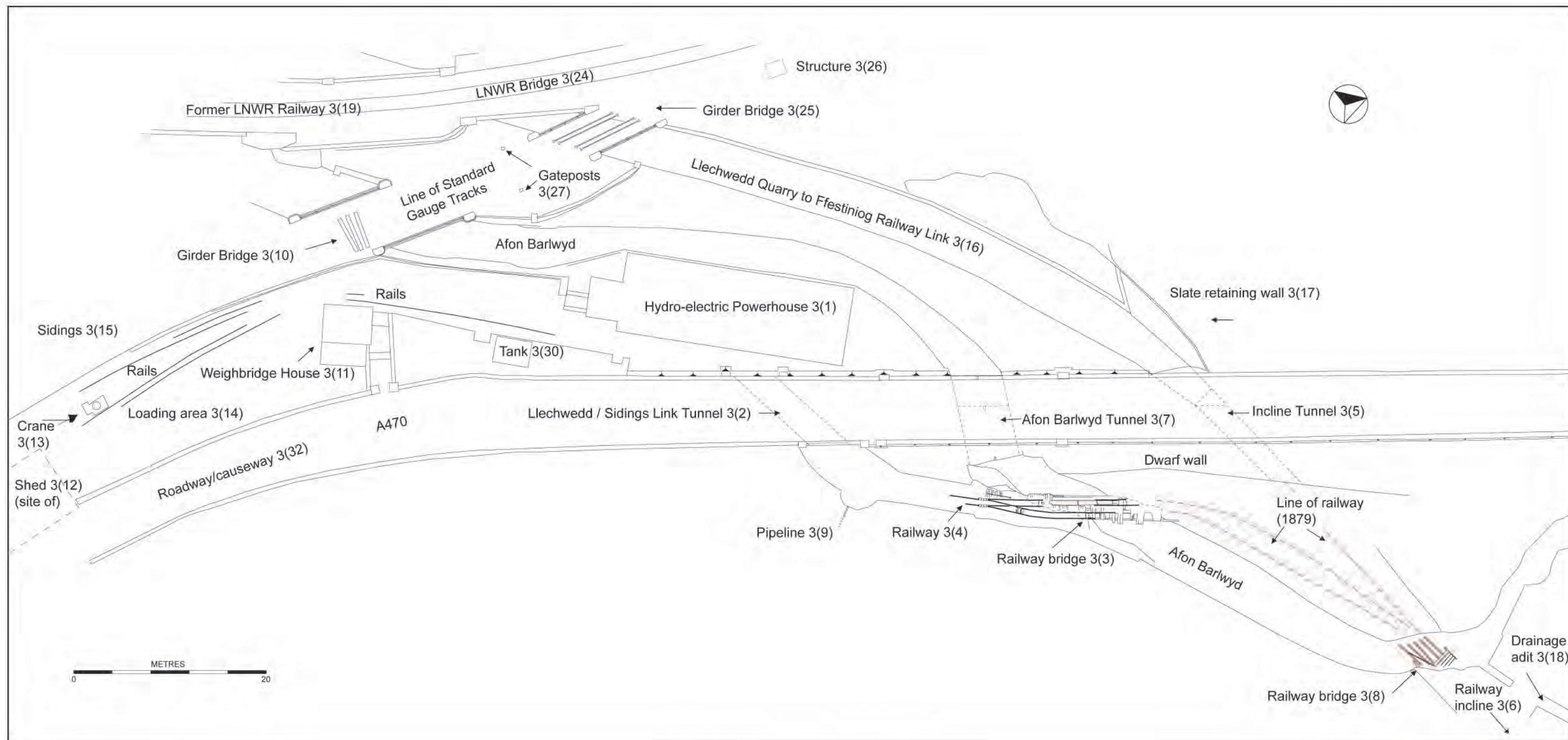


Fig. 18 Site 3 Llechwedd exchange sidings

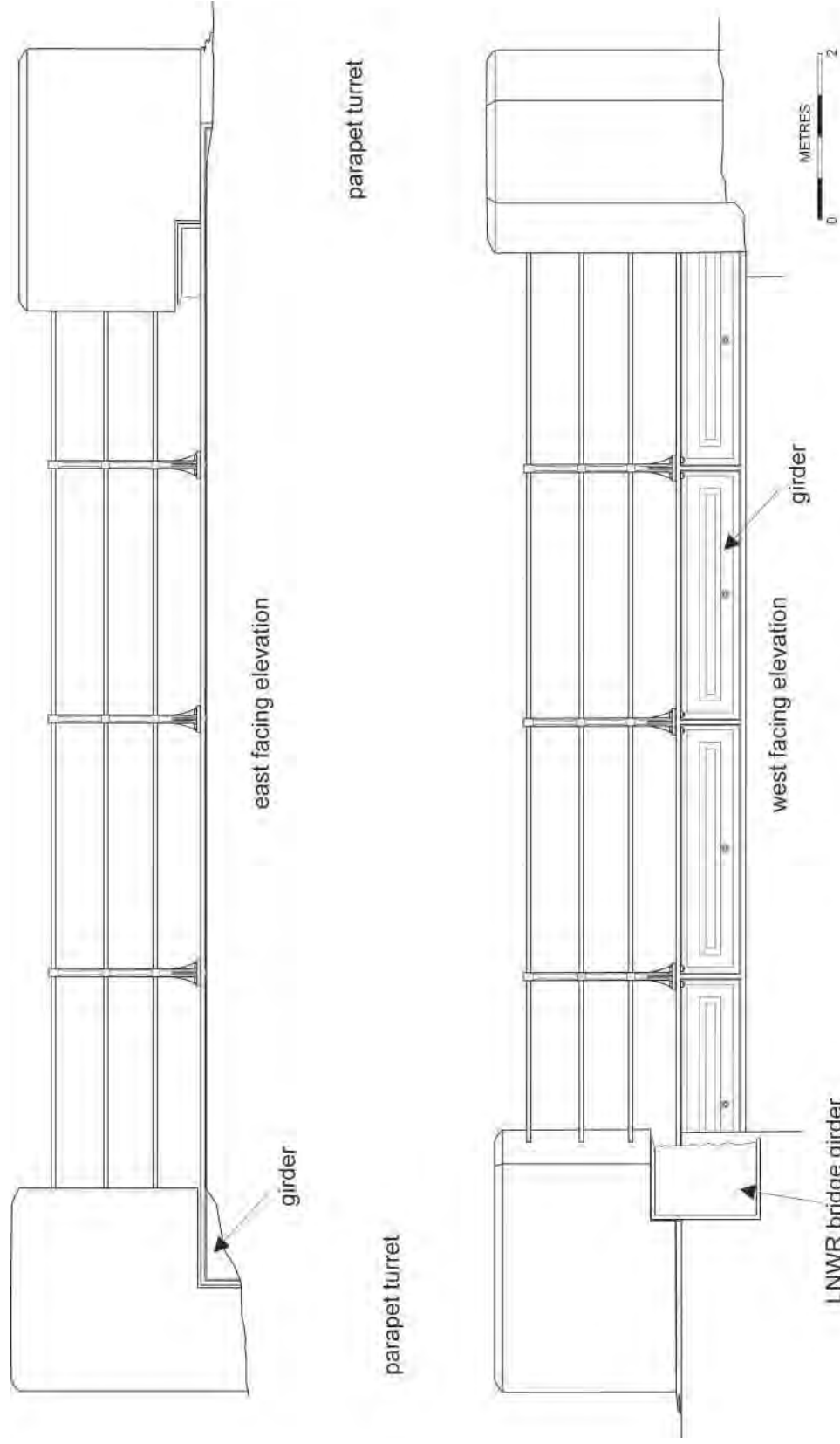


Fig. 20 Site 3(25) Girder Bridge 67, western side

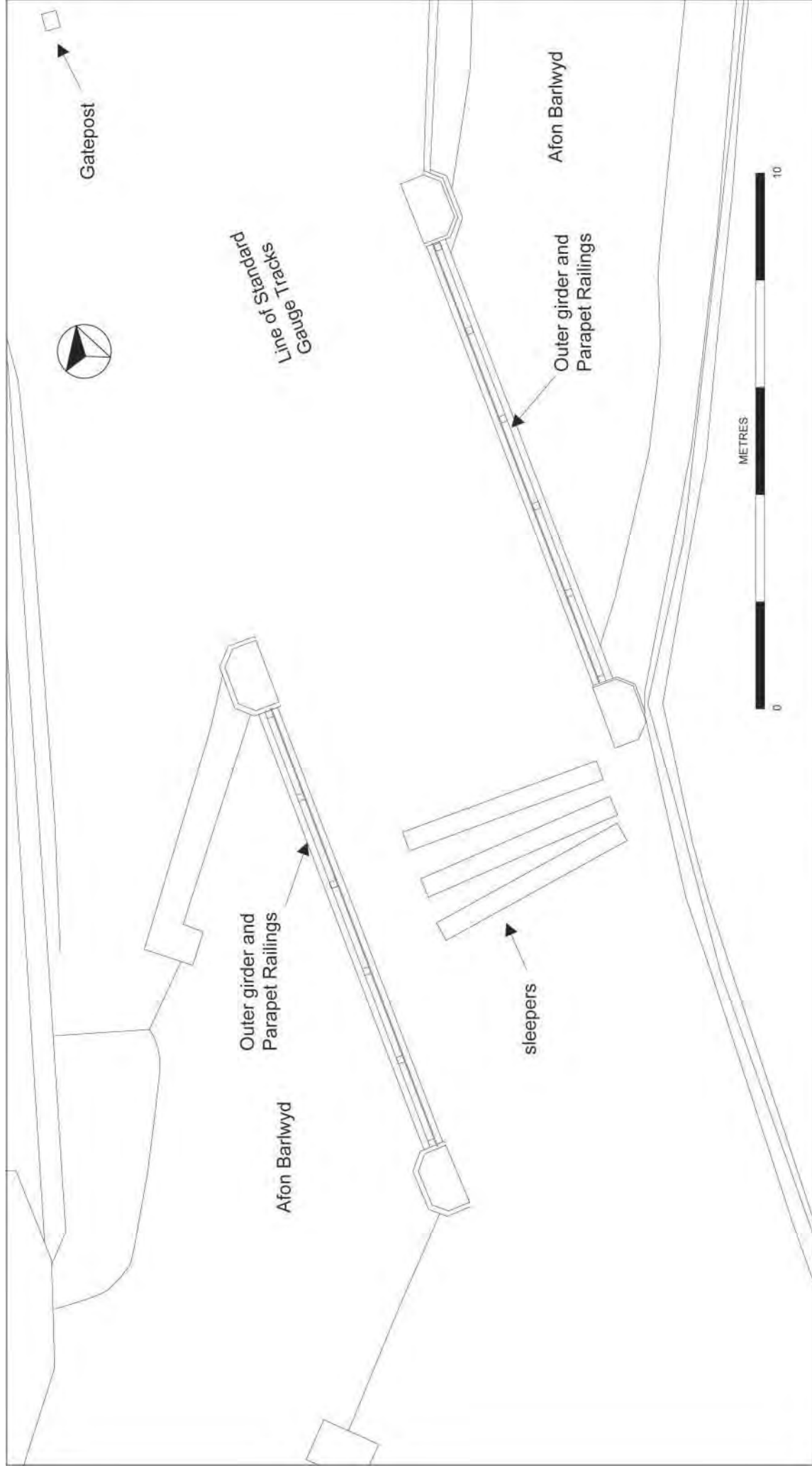


Fig. 22 Site 3(10) Plan of Girder Bridge 68

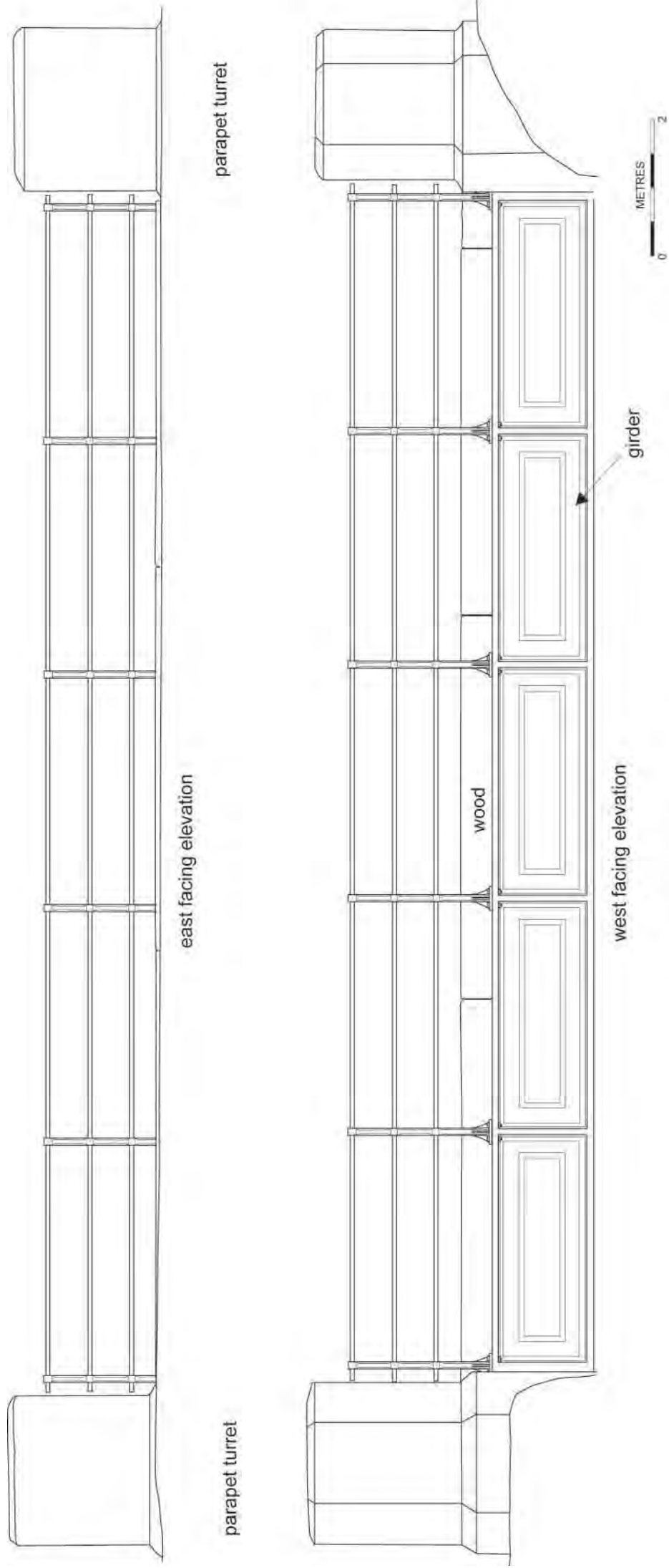


Fig. 23 Site 3(10) Girder Bridge 68, western side

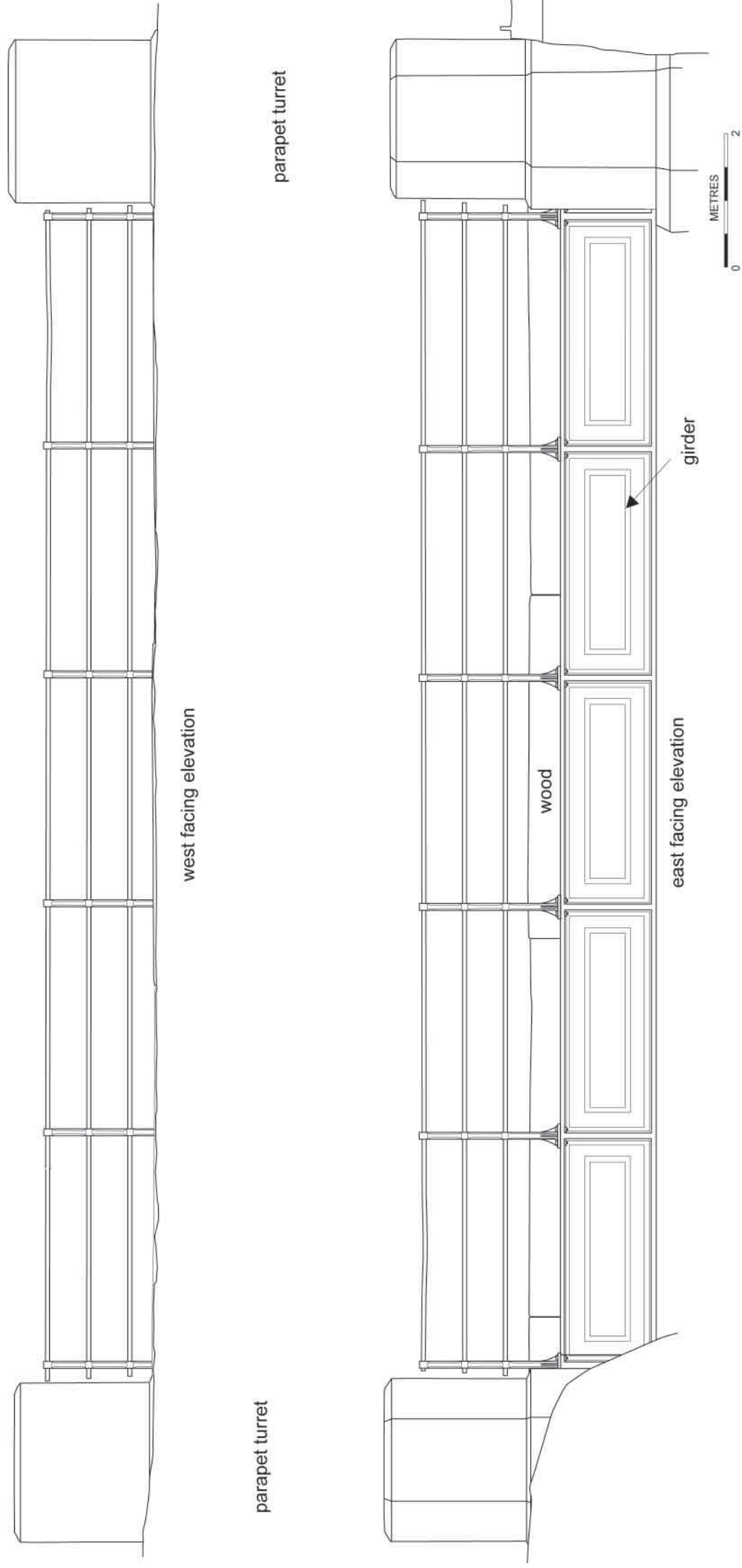
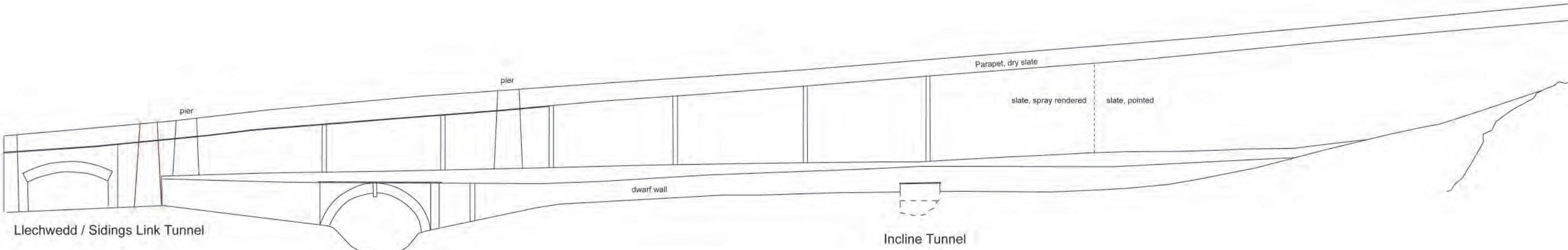


Fig. 24 Site 3(10) Girdler Bridge 68, eastern side

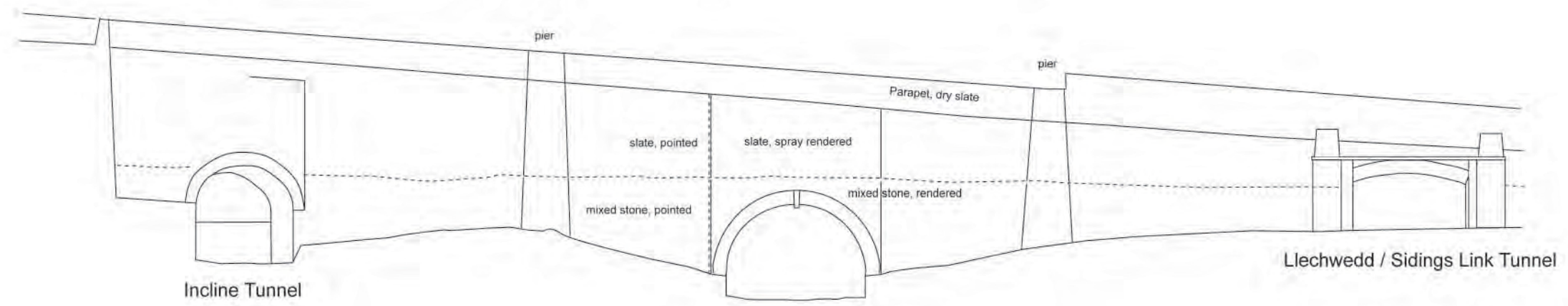


Llechwedd / Sidings Link Tunnel

Afon Barlwyd Tunnel

Incline Tunnel

East facing elevation



Incline Tunnel

Afon Barlwyd Tunnel

Llechwedd / Sidings Link Tunnel

West facing elevation



Fig. 25 Site 3(32) Road embankment elevations

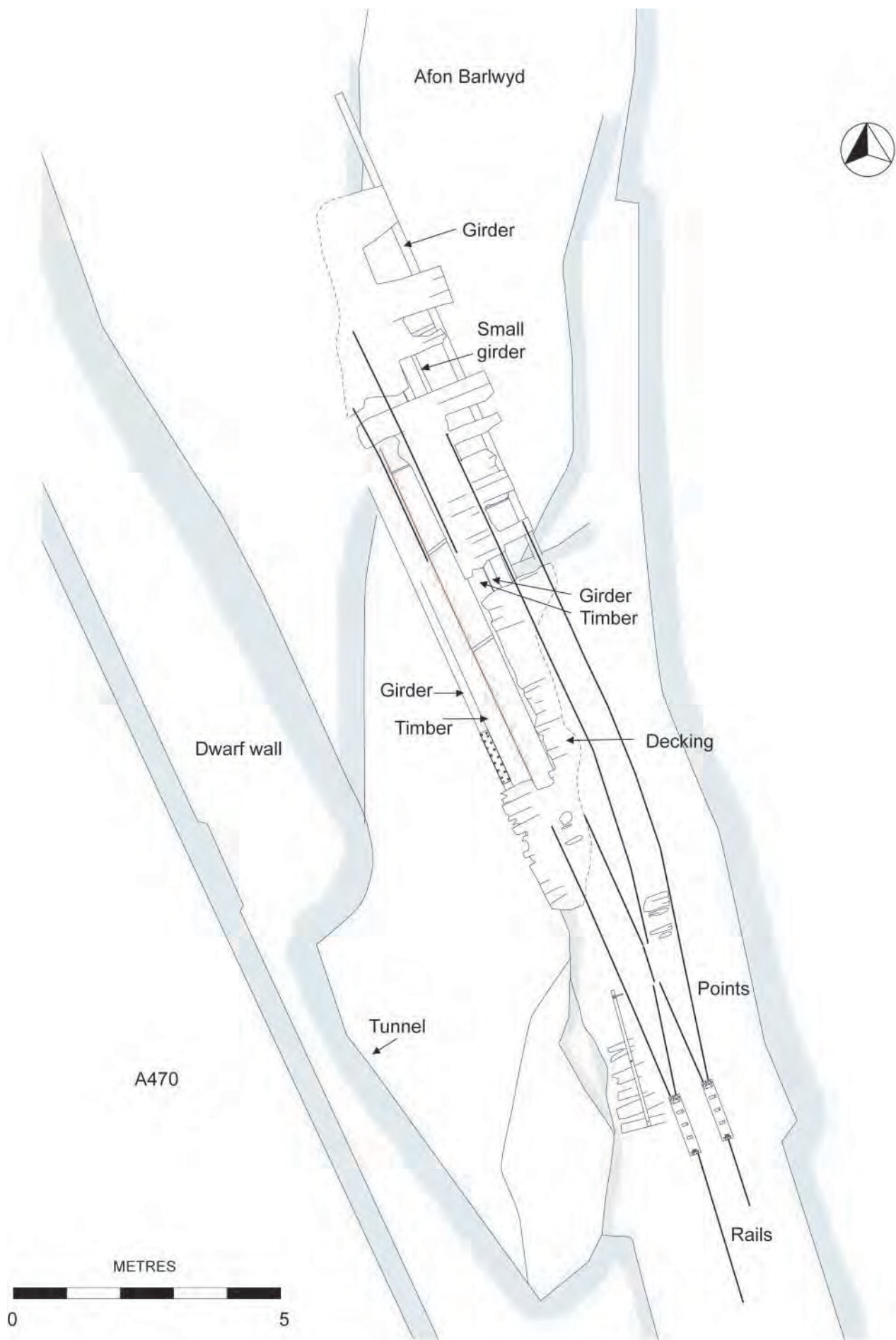


Fig. 26 Site 3(3) Railway bridge

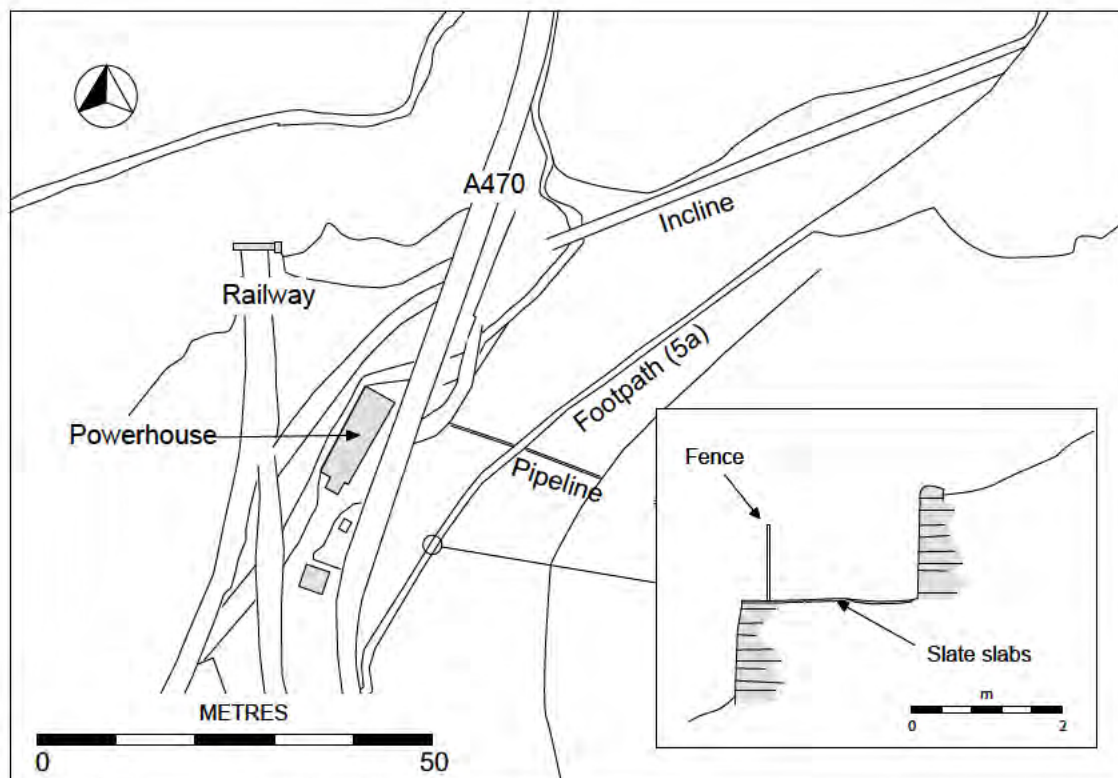


Fig. 27 Site 4 Footpath, plan and south-west facing section (inset)

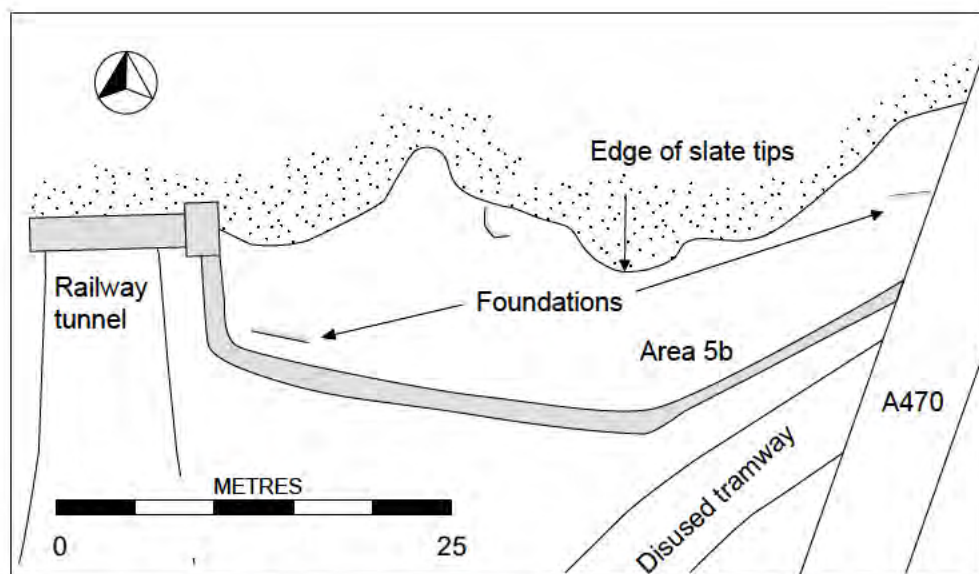


Fig. 28 Site 5b Area (SH69724692) measured sketch plan

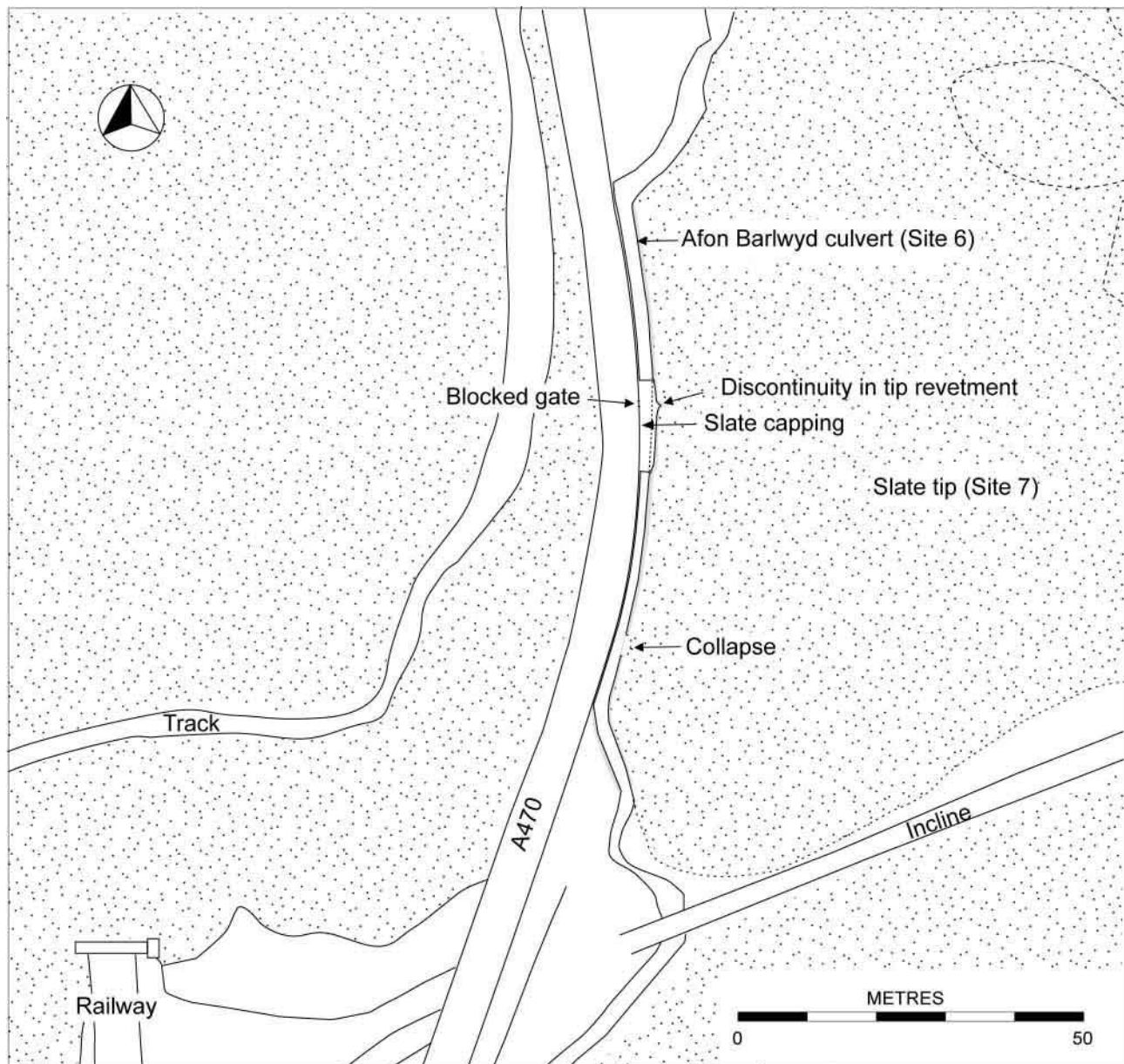


Fig. 29 Sites 6 Afon Barlwyd culvert and 7 Slate tip

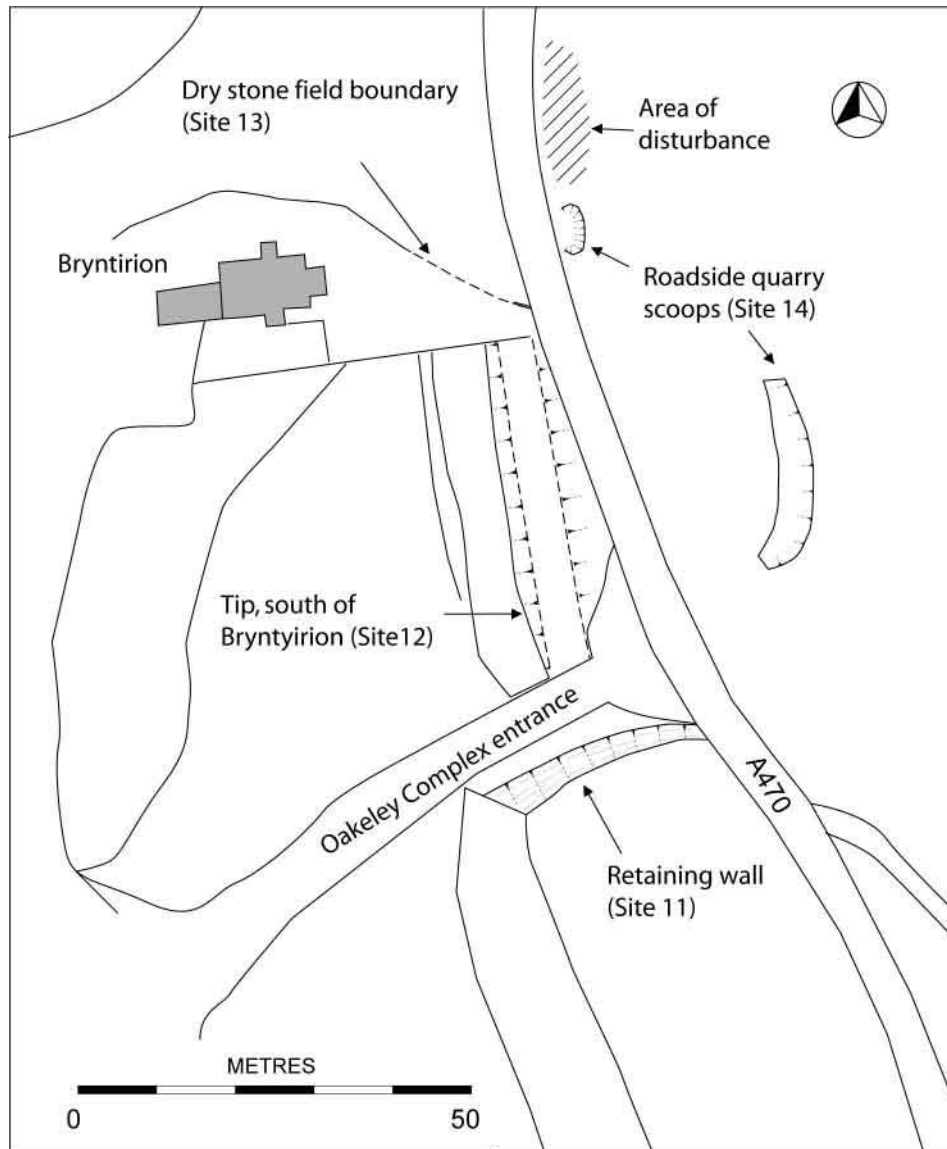


Fig.31 Sites 11 to 14

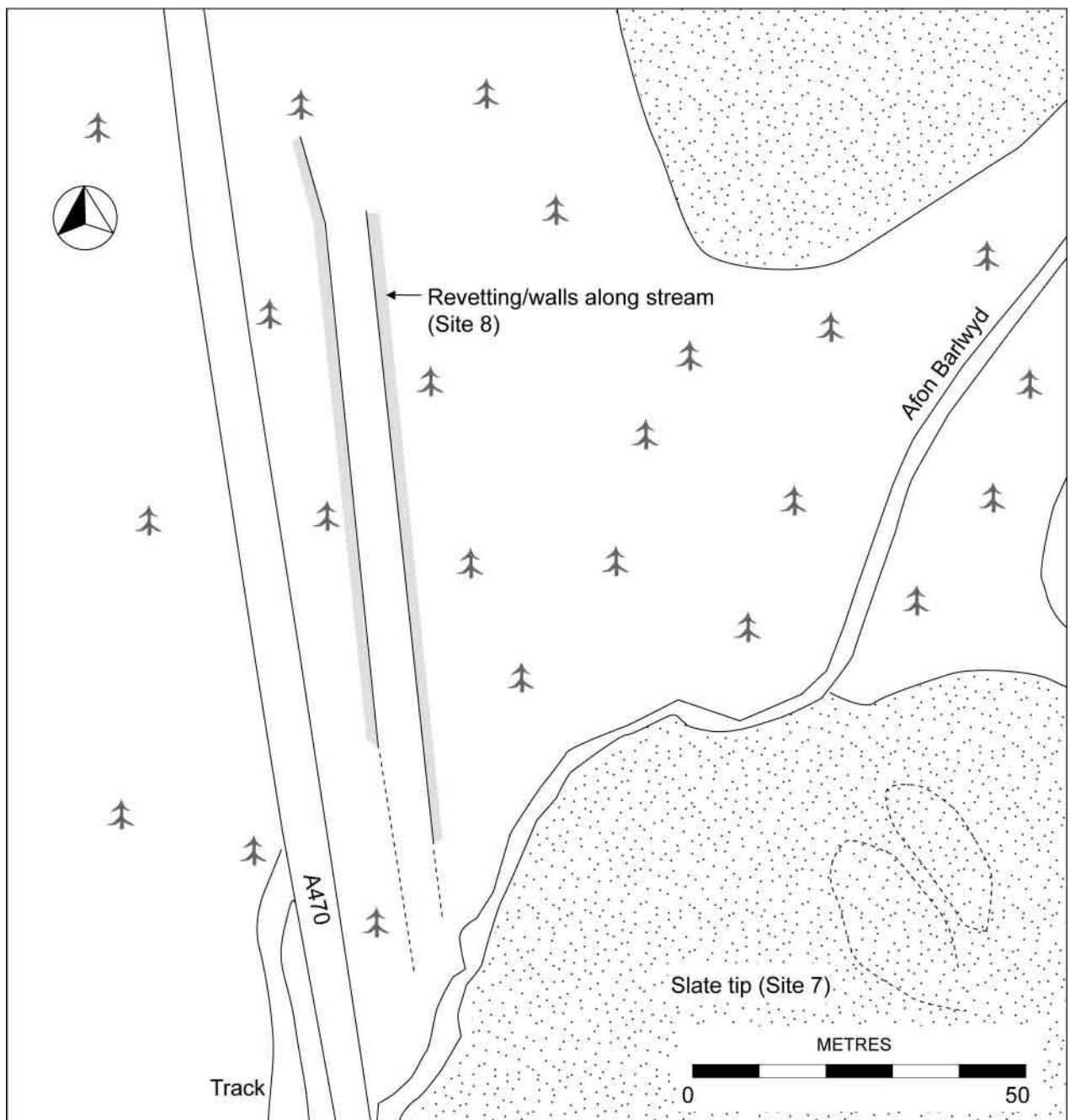


Fig. 30 Site 8 Revetting/walls along stream

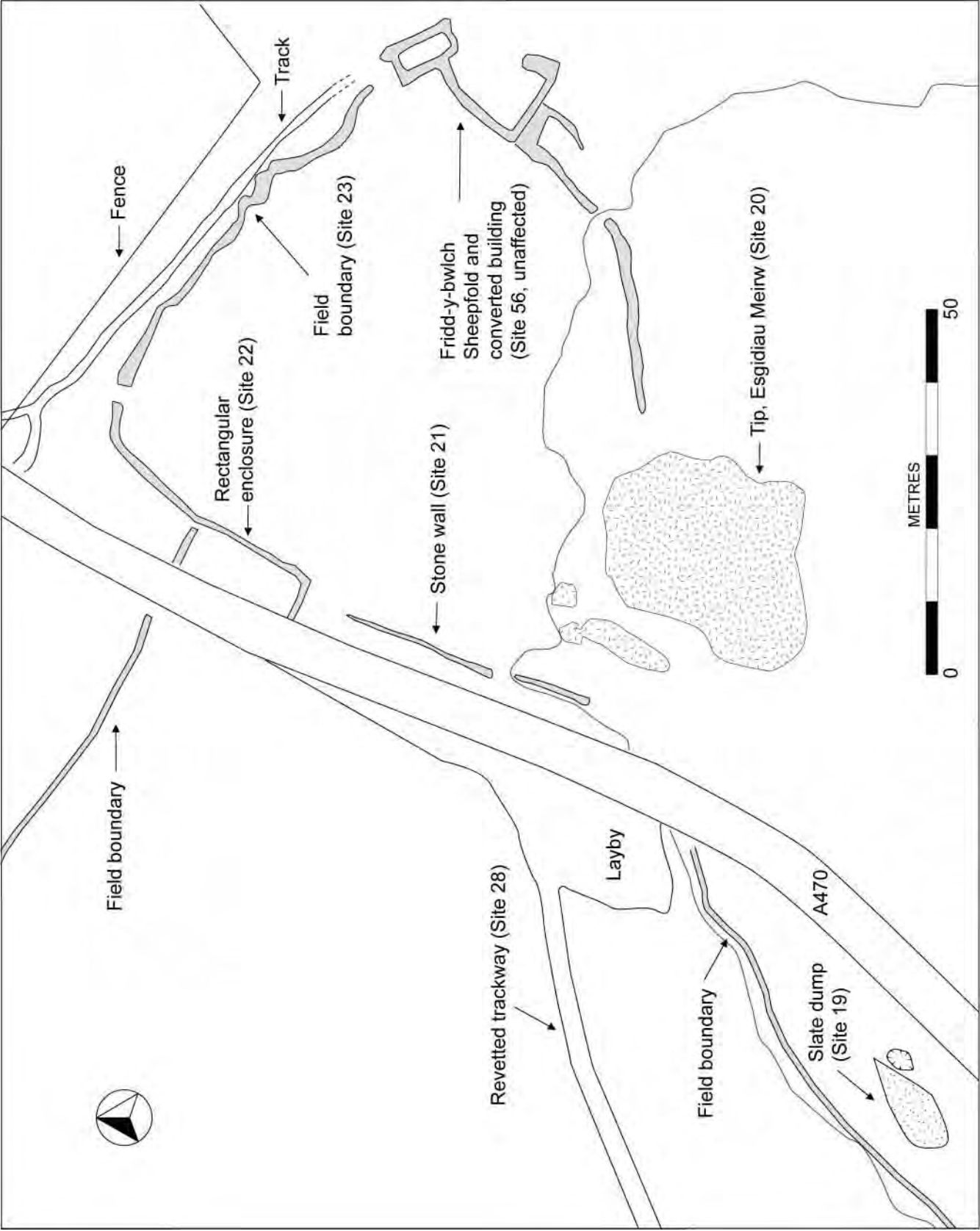


Fig. 32 Sites around Fridd-y-bwlch (19, 20, 21, 22, 23, 28 and 56)

A470 BLAENAU FFESTINIOG TO CANCOED
IMPROVEMENTS (G1874)

ARCHAEOLOGICAL RECORDING REPORT

REPORT 621

Part 2

Plates

Prepared for
White Young Green plc and
Gwynedd Consultancy Environment Directorate
December 2005

Ymddiriedolaeth Archaeolegol Gwynedd
Gwynedd Archaeological Trust



Plate 1 Site 17 Sub-rectangular scoop



Plate 2 Site 17 Sub-rectangular scoop, excavation trench



Plate 3 Site 25 Small circular feature



Plate 4 Site 25 Small circular feature, excavation trench



Plate 5 Site 33a Embanked curvilinear enclosure in 1992



Plate 6 Site 33a Embanked curvilinear enclosure in 2005



Plate 7 Site 33a Embanked curvilinear enclosure, excavation trench



Plate 8 Site 33b Possible cairn



Plate 9 Site 33b Possible cairn, excavation showing bedrock



Plate 10 Site 39 a and b Settlement and road



Plate 11 Site 39a Settlement, excavation trench



Plate 12 Site 39b Road, excavation trench



Plate 13 Site 3(13) Crane



Plate 14 Site 3(13) Crane



Plate 15 Bridge 67, general view



Plate 16 Bridge 67, girder panel E side



Plate 17 Bridge 67, parapet turret and railings E side, W facing



Plate 18 Bridge 67, parapet turret W side, E facing



Plate 19 Bridge 67, girder end fitted to baulk



Plate 20 Bridge 68, general view



Plate 21 Bridge 68, general view



Plate 22 Bridge 68, girder panel E side



Plate 23 Bridge 68, underside



Plate 24 Bridge 68, by Bleasdale 1879



Plate 25 Bridge 68, parapet turret E side , E facing



Plate 26 Bridge 68, parapet turret E side , W facing



Plate 27 Road embankment, W side



Plate 28 Road embankment, E side



Plate 29 Masonry styles; mixed stone below, slate above



Plate 30 Masonry styles; slate with spray concrete render and pointing



Plate 31 Masonry styles; roadside parapet, dry laid slate



Plate 32 Masonry styles; earlier drystone masonry exposed by erosion



Plate 33 Incline tunnel, W side



Plate 34 Incline tunnel, W side, partial blocking within tunnel



Plate 35 Incline tunnel, E side



Plate 36 Afon Barlwyd tunnel, E side



Plate 37 Afon Barlwyd tunnel, two phases of masonry within roof



Plate 38 Afon Barlwyd tunnel, W side



Plate 39 Llechwedd / sidings link tunnel, E side



Plate 40 Llechwedd / sidings link tunnel, W side



Plate 41 Site 3(3) Railway bridge



Plate 42 Site 3(4) Railway bridge



Plate 43 Site 3(11) Weighbridge house



Plate 44 Site 10 Field barn Tal-y-Waenydd



Plate 45 Site 10 Field barn Tal-y-Waenydd



Plate 46 Site 27 Peat cutting



Plate 47 Site 27 Peat cutting, associated shelter



Plate 48 Site 4 Footpath



Plate 49 Site 5 Road revetment Crimea Road



Plate 50 Site 5 Road revetment Crimea Road



Plate 51 Site 5b Area with stone footings



Plate 52 Site 6 Afon Barlwyd culvert, south end



Plate 53 Site 6 Afon Barlwyd culvert, central covered part



Plate 54 Site 6 Afon Barlwyd culvert, north end



Plate 55 Site 7 Slate tip Llechwedd quarry



Plate 56 Site 9 Graffiti stones



Plate 57 Site 9 Graffiti stones



Plate 58 Site 11 Retaining wall, entrance to Oakeley complex



Plate 59 Site 12 Tip south of Bryntirion



Plate 60 Site 13 Dry-stone field boundary, Bryntirion



Plate 61 Site 14 Roadside quarry scoops



Plate 62 Site 14 Roadside quarry scoops



Plate 63 Site 15 Track to Fridd-y-bwlch reservoir



Plate 64 Site 18 Small quarry



Plate 65 Site 19 Slate dump



Plate 66 Site 20 Esgidiau Meirw



Plate 67 Site 20 Esgidiau Meirw, detail



Plate 68 Site 20 Esgidiau Meirw, stone



Plate 69 Site 21 Remains of dry-stone wall



Plate 70 Site 22 Rectangular enclosure



Plate 71 Site 23 Field boundary



Plate 72 Site 24 Small roadside quarries



Plate 73 Site 28 Trackway to Chwarel Gethin



Plate 74 Site 29 Small slate dump



Plate 75 Site 31 Remains of the Crimea Inn



Plate 76 Site 32 Slate turnpike milestone



Plate 77 Site 37 Dry-stone field boundary



Plate 78 Site 40 Small quarry



Plate 79 Site 40 Sheepfold



Plate 80 Site 41 Field wall/bank



Plate 81 Site 43 Slate tips, Oakeley Complex (shelters)



Plate 82 Site 43 Slate tips, Oakeley Complex (track)



Plate 83 Site 62 St Mihangel's stone and well



Plate 84 Site 38 Pre-turnpike road



Plate 85 Site 35 Pre-turnpike road



Plate 86 Site 61 Pre-turnpike road quarry pit



Plate 87 Site 61 Pre-turnpike road quarry



Plate 88 Site 35 Pre-turnpike road, boulder edging



Plate 89 Site 37 Pre-turnpike road



Plate 90 Site 30 Pre-turnpike road



Plate 91 Site 26 Pre-turnpike road



Plate 92 Site 26a Pre-turnpike road



Plate 93 Site 26c Pre-turnpike road



Plate 94 Site 16 Pre-turnpike road



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