

# Maentwrog to Trawsfynydd Powerlines

## REVISED CULTURAL HERITAGE ASSESSMENT



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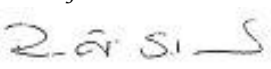
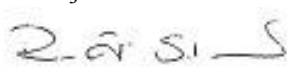
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## Contents

Summary.....	2
1 Introduction.....	3
2 Sources of Information and Guidance .....	4
3 Assessment Methodology.....	5
4 Cultural Heritage History of the Area .....	6
5 The Baseline Assessment.....	7
6 Assessment of Impacts .....	10
7 Detailed Mitigation Measures.....	11
8 Sources .....	12
APPENDIX 1: Undesignated Heritage Assets within 100m of the proposed underground cables.....	14
APPENDIX 2: The categorisation and conservation of the cultural heritage resource....	17
APPENDIX 3: The Assessment Framework.....	19

## Summary

An assessment has been conducted to determine the potential impacts on the cultural heritage resource which may result from the installation of two new underground electricity cables between the existing substations at Maentwrog and Trawsfynydd in Gwynedd. The scheme comprises a 132kV cable leading west from Trawsfynydd (SH 6902 3850) and a 33kV leading east from Maentwrog (SH 6544 3946), together with minor refurbishment works to an existing overhead powerline at the points where the new cables are due to connect.

The assessment consisted of a desk-based study followed by a field survey, both of which examined the entire length of the scheme, and included potential access routes, site compounds and ancillary works, while limited geophysical survey was also conducted along the predicted line of a Roman road.

A previous assessment was completed in June 2013, with subsequent revisions, although in September 2014 the proposed route for the new 33kV underground cable was altered completely; the present report presents a cultural heritage assessment for this and the original 132kV route.

The assessment has identified a small number of heritage assets within 100m of the proposed routes, including a number of listed buildings, although these will not be affected by the works. Summary information on the undesignated assets is given in this report, a small number of which could potentially be affected by the construction works.

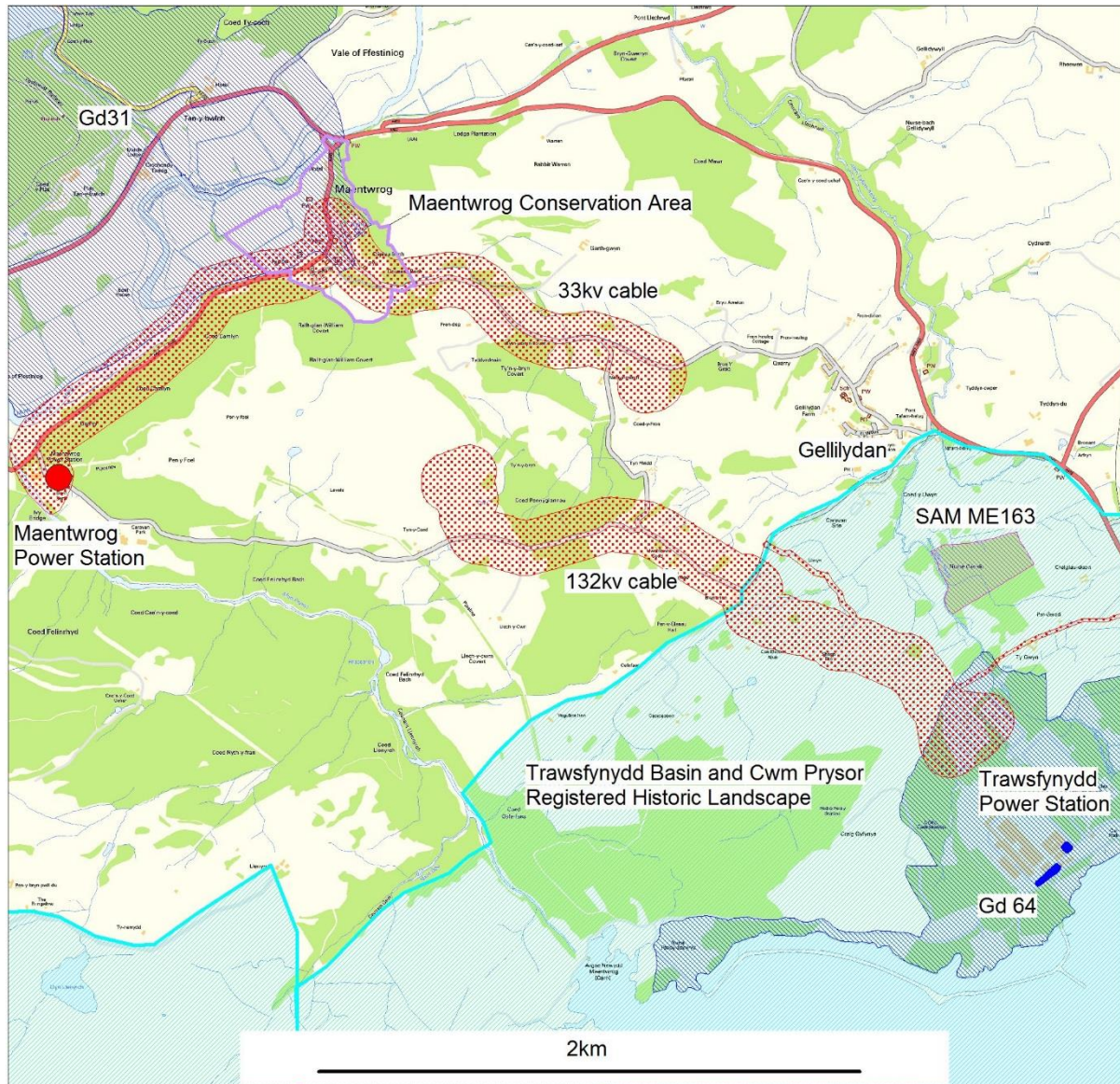
A mitigation strategy has been suggested which encompasses these assets, together with the potential for unrecorded, buried assets, which may be summarised as follows:

- Demarcate and avoid footbridge (site 33) during site access
- Watching brief during soil stripping and/or cable trench excavation adjacent to Site 6 (PRN 3886)
- Watching brief during soil stripping within any 5m wayleave through pasture
- Watching brief during soil stripping for compound and any drainage works
- Use existing breaks in stone boundary walls or rebuild in same style with original stone
- Care must be taken to avoid accidental damage to standing buildings and structures adjacent to the routes, particularly within the village of Maentwrog, where there are numerous listed buildings



## 1 Introduction

- 1.1 This report describes the results of a cultural heritage assessment undertaken by the Field Services Section of the Clwyd-Powys Archaeological Trust (CPAT) on the routes of two new underground electricity cables between Maentwrog (SH 6544 3946) and Trawsfynydd (SH 6902 3850) in Gwynedd (Fig. 1), lying entirely within the Snowdonia National Park. The scheme comprises a 132kV cable leading west from Trawsfynydd and a 33kV cable leading east from Maentwrog, together with minor refurbishment works to an existing overhead powerline at the points where the new cables are due to connect.



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Fig. 1 Scheme location

- 1.2 The powerlines have been designed to provide a revised link between the Maentwrog hydroelectric power station, the Trawsfynydd nuclear power station (now disused and in the course of being decommissioned) and the various overhead power transmission lines in the locality. The 33kV cable will extend from the substation at Maentwrog (SH 6544 3946) and the route will be laid beneath the carriageway of public roads through

the village of Maentwrog and beyond as far as an existing powerline at SH 67650 39870, with only the final 85m crossing pasture fields. The 132kV cable commences at an existing powerline (SH 66935 39503) and follows a farm track and then a road, also with diversions into adjacent fields, as far as SH 6804 3902. The remaining section to Trawsfynydd (SH 6902 3850) is partly through fields and partly along a cycle track and other tracks through woodland. Site access to the eastern section of the scheme will follow one or perhaps two existing trackways.

- 1.3 A previous assessment was completed in June 2013, with revisions in October 2013, February 2014, and May 2014 (Jones and Hankinson 2014). In September 2014 the proposed route for the new 33kV underground cable was completely altered and the present report presents a cultural heritage assessment for this and the original 132kV route. Any subsequent changes to the scheme would need to be considered in a revised report.

- 1.4 It is understood that there are no elements of the scheme which require planning permission, but the works are subject to the Electricity Act of 1989 which makes provision for the supply, generation and transmission of electricity. Schedule 9 of the Act details the preservation of amenity and fisheries, stating that:

‘In formulating any relevant proposals, a licence holder or a person authorised by exemption to generate or supply electricity:

- (a) shall have regard to the desirability of ... protecting sites, buildings and objects of architectural, historical or archaeological interest; and
- (b) shall do what he reasonably can to mitigate any effects which the proposals would have on ... any such flora, fauna, features, sites, buildings or objects.’

## **2 Sources of Information and Guidance**

- 2.1 Cultural heritage is deemed to include the complete range of man-made features that have been introduced into the landscape from the Palaeolithic, more than two hundred and fifty thousand years ago, to the 20<sup>th</sup> century. Some of these features will be visible as upstanding remains on the ground; others will be buried and only become apparent during ground disturbance, whilst others may be objects that have been discarded, lost or deliberately deposited. Some will have an archaeological interest and importance; others will be more historical in their origin. In addition, some natural features will be relevant because of the information they contain; peat bogs, for instance, hold pollen that can throw light on past human activity in the area. Collectively, all these features are known as heritage assets – as for instance defined in the Highways Agency’s Design Manual for Roads and Bridges (DMRB 2007). Appendix 2 contains information on the categorisation and conservation of the cultural heritage resource
- 2.2 The Design Manual for Roads and Bridges (DMRB), Volume 11 Section 3 Part 2, HA 208/07 (August 2007) provides a suitable, general framework for assessing the cultural heritage, and for Wales currently offers the most explicit and detailed, government-endorsed methodology that we are aware of. The approach to the cultural heritage which it promotes, although designed for road developments, is relevant as a methodology for the proposed development and has been adopted here. All sites can be

classified according to a system devised for the assessment of cultural heritage assets in the DRMB, which is summarised in Appendix 3.

- 2.3 The baseline survey of the assessment was undertaken with reference to the principles and methods for assessing archaeological and cultural heritage assets laid out in a) the *Standard and Guidance for Archaeological Desk-based Assessments* (August 2014) and b) the *Standard and Guidance for Archaeological Field Evaluation* (November 2013), both produced by the Institute for Archaeologists, the regulatory body for the profession.
- 2.4 It is a general tenet in relevant conservation strategies that cultural heritage assets represent a non-renewable resource, and should be avoided wherever this is feasible in order to avoid damage or destruction.

### **Consultations**

- 2.5 The assessment has included consultation with John Roberts, Archaeologist for the Snowdonia National Park Authority.

## **3 Assessment Methodology**

### **General**

- 3.1 The primary aim of the assessment is to identify the heritage assets within 100m of the powerlines, and to provide sufficient information on them to enable the reader to appreciate their level of importance, whether national, regional or local, to identify the significance of the impact that the development might have upon them, and to recommend mitigation to limit the impact of the development on them. Later modifications to the scheme have resulted in further phases of desk-based study and field survey to ensure that all areas were assessed.

### **Desk-top Methodology**

- 3.2 The desk-based study, which formed the basis for the baseline assessment of the area, involved the examination of readily available written, cartographic, and aerial photographic sources held in the following repositories:

a) The National Monuments Record, Aberystwyth.

b) The National Library of Wales, Aberystwyth.

c) The regional Historic Environment Record maintained by Gwynedd Archaeological Trust in Bangor.

d) The Gwynedd Archives Service (for the old county of Merionethshire), Dolgellau.

### **Field survey**

- 3.3 Following the completion of the desk-top study, a field survey was undertaken for the entire route, including potential compounds and access routes, in order to verify the location and extent of known assets as well as prospecting for previously unrecorded

assets. The survey for the 132kV cable was conducted in April 2013, while that for the new 33kV cable was undertaken in October 2014.

### **Geophysical survey**

- 3.4 The survey was conducted by ArchaeoPhysica in early December 2013 along the predicted line of the Roman road from Segontium to Tomen-y-mur (site 8; PRN 17821) using an array of Geometrics G858 Magmapper caesium magnetometers, the survey having a spatial resolution of 1.0m between lines and reading at 0.25m intervals (Fry 2014). The survey provided no evidence for the presence of the postulated Roman road within the area for the 132kV cable (Fig. 2).

### **Impacts and Effects**

- 3.5 This report considers potential direct impacts on statutorily protected assets and undesignated assets during all phases of the scheme.
- 3.6 Direct impacts are most likely to result from:
- a) a programme of test pit excavations
  - b) the construction of works compounds
  - c) the excavation of the trenches in which the cables are to be placed
  - d) the need to gain vehicular access to the route during all phases of work
  - e) works associated with the links to existing overhead lines
- 3.7 Appropriate mitigation for all phases is recommended in Table 5.

## **4 Cultural Heritage History of the Area**

- 4.1 The wider landscape surrounding the study area contains visible remains of human activity from the prehistoric period to the present day. The earliest indications of settlement are provided by a number of prehistoric hut circles, some lying within enclosures, such as that near Nurse Cae Du, which is a scheduled ancient monument (ME163). Finds, too, provide an indication of early activity, including a knife or dagger found within the study area near Penyglannau.
- 4.2 The exceptionally well-preserved earthworks of the Roman fort at Tomen-y-mur, 1.5km from the eastern end of the study area are surrounded by a complex of contemporary features which is unparalleled in Wales and includes the fort itself, a bath house, an amphitheatre, a parade ground, and a civilian settlement. Part of the associated road system remains visible, while other sections, including one which crosses the study area, have yet to be located with certainty.
- 4.3 Tomen-y-mur is also cited as one of the royal courts in the early Welsh Mabinogi tale of Math fab Mathonwy and its military significance continued into the medieval period with the construction of a motte on the surviving earthworks of the fort.
- 4.4 The modern landscape, which is heavily wooded, is characterised by small, irregular fields defined by rubble stone walling, the stone having been largely derived from field clearance. Small farmsteads were once scattered throughout the area, some of which



could have their origins in the medieval period, although the visible remains appear to be largely later. Many of these farmsteads have since been abandoned and their ruins stand in various stages of decay, including several within the study area. The wider area also contains the remains of industrial activity in the form of a now-abandoned gold mine at Felenrhyd Fach and some mining trials.

- 4.5 The modern history of the area is dominated by the generation of electricity, initially with the construction of the hydro-electric power station at Maentwrog, which was opened in 1928 and is fed by a substantial pipe which forms a prominent feature in the landscape from its source taking at Trawsfynydd reservoir. The nuclear power station at Trawsfynydd was built between 1959 and 1965, closing 26 years later, and is currently in the process of being decommissioned.

## 5 The Baseline Assessment

### Designated Heritage Assets within 100m of the overhead line

- 5.1 The identification of designated assets within 100m of the overhead line is based on official information provided by Cadw. All assets designated as nationally important are automatically considered to be of high value (see Appendix 3 Table 1).
- 5.2 Each of these designated assets has been assessed to establish whether there is likely to be any direct impact as a result of the proposed development.

### World Heritage Sites

- 5.3 There are no world heritage sites within 100m of the proposed powerlines and access routes.

### Scheduled Ancient Monuments

- 5.4 There are no scheduled ancient monuments within 100m of the proposed powerlines and access routes. The closest scheduled asset is an enclosed hut group at Nurse Cae Du (ME163) at a distance of 200m.

### Listed Buildings

- 5.5 There are thirty-seven listed buildings within 100m of the proposed underground cables and access routes, all of which are designated as grade II. These are summarised below; all will remain unaffected by the works.

Table 1: Listed Buildings within 100m of the 33kV and 132kV cable routes

LB No	Name	LB Grade	NGR
4771; 83466	Pont Felinrhyd Fawr Bridge, Maentwrog	II	SH65343956
4793; 83453	Ivy Bridge	II	SH65423942
4820	Glan Dwyrdd, Maentwrog	II	SH6646740544
4821	Neuadd Llewelyn, Maentwrog	II	SH6646540536
4822	Bwlch y Maen - Former Co-operative shop	II	SH66474055
4825	Tan-lan, Maentwrog	II	SH6648540547
4826	Pen-lan and attached cottage, Maentwrog	II	SH6650240523
4828	Argraig, Maentwrog	II	SH6651440506

4829	Old School House, Maentwrog	II	SH6652240436
4830	Dolydd, Maentwrog	II	SH6653040427
4831	Cartref, Maentwrog	II	SH6647040483
4832	Llys Twrog, Former Bank, Maentwrog	II	SH6646540492
4833	Bron y Wern, Maentwrog	II	SH6645840503
4835	Pen-y-bryn, Maentwrog	II	SH6646140522
83967	1 Dolwaen	II	SH6615940220
83968	1 Fron Fair Terrace	II	SH6655540434
83969	1 Fron Goch Terrace	II	SH6655240383
83971	1 Glandwr Cottages including garden wall and gates	II	SH6650140368
83973	2 Dolwaen	II	SH6615440219
83974	2 Fron Fair Terrace	II	SH6655740429
83975	2 Fron Goch Terrace	II	SH6655240376
83977	2 Glandwr Cottages including garden wall and gates	II	SH6650040362
83979	3 Fron Fair Terrace	II	SH6655940423
83980	3 Fron Goch Terrace	II	SH6655340370
83982	3 Glandwr Cottages including garden wall and gates	II	SH6649240346
83983	4 Fron Fair Terrace	II	SH6656240417
83984	4 Fron Goch Terrace	II	SH6655540365
83985	4 Glandwr Cottages including garden wall and gates	II	SH6649040340
83986	5 Fron Fair Terrace	II	SH6656440408
83987	5 Fron Goch Terrace	II	SH6655640358
83990	Penlan, Maentwrog	II	SH66514049
83996	Derlwyn	II	SH6632740261
84003	Haybarn opposite Derlwyn	II	SH66324027
84004	Hen Ysgol	II	SH6650640391
84008	Lychgate to Church of St Twrog	II	SH6646740528
84010	Milepost 300m NE of Pont Felinrhyd-fawr	II	SH65603980
84021	Steps up to Penlan, with flanking walls	II	SH6648640504

### Registered Historic Parks and Gardens

- 5.6 There are no Registered Historic Parks and Gardens within 100m of the proposed powerlines and access routes, although sections of the scheme lie within the area defined as the essential setting for two such designated assets (Fig. 1). The proposed 132kV cable lies partly within the essential setting of the Dragon Square and Dame Sylvia Crowe Garden (Gd64), which itself lies on the south-east side of the former nuclear power station at Trawsfynydd. The registered gardens at Plas Tan-y-bwlch (Gd31) lie outside the study area to the north-west, although a short section of the proposed 33kV cable runs within the essential setting for the garden, within the village of Maentwrog.

Table 2: Registered Historic Parks and Gardens (essential setting) within 100m of the two cable routes

PGW No	Name	Grade	NGR
Gd 64	Former Nuclear Power Station at Trawsfynydd: Dragon Square and Dame Sylvia Crowe Garden	II*	SH692382
Gd 31	Plas Tan y Bwlch	II*	SH65544088

### Registered Historic Landscapes

- 5.7 The powerline passes through one registered historic landscape:

Table 3: Registered Historic Landscapes within 100m of the route

No	Name
HLW (Gw) 11	Trawsfynydd Basin and Cwm Prysor

### Conservation Areas

- 5.8 The only Conservation Areas within 100m of the proposed cable routes is that surrounding the village of Maentwrog (Fig. 1).

### Undesignated Heritage Assets within 100m of the powerline

- 5.9 At the commencement of the study, a total of 20 undesignated assets were identified from consultation of the regional HER. An additional 28 previously unrecorded assets were identified by the desk-based study, while the field survey identified one further asset. Therefore a total of 49 undesignated heritage assets have now been identified within 100m of the proposed underground cables and access routes, a full list of which is provided in Appendix 1, that includes an assessment of their perceived value. The majority are of low (26 assets) or negligible value (14 assets), but there are also 7 of medium value and two whose value is currently unknown. However, the results from a geophysical survey provided no evidence for the presence of these unknowns, a Roman road, within the corridor and it is therefore likely to remain unaffected.
- 5.10 It is worth noting that while some of these assets are individually of low or medium value, they may occasionally have a collective value which is greater, particularly with respect to their contribution to the character of the Trawsfynydd Basin and Cwm Prysor Registered Historic Landscape through which the eastern part of the scheme runs. This is also true of the many stone walls which both flank and cross the route along much of its length and collectively form a significant element in the understanding and appreciation the historic landscape.

## 6 Assessment of Impacts

### Potential Direct Impacts on designated heritage assets

- 6.1 No direct impacts are predicted for any scheduled ancient monuments, listed buildings, or registered parks and gardens.

### Potential Direct Impacts on Registered Historic Landscapes

- 6.2 The route runs through the Trawsfynydd Basin and Cwm Prysor Registered Historic Landscape and while the undergrounding of the cables, once complete, presents no obvious visual intrusion in itself, there is the potential for an impact on surviving historic boundaries, which form an integral part of the character of the landscape, since short sections of stone wall may be demolished during the construction phase.

### Potential Direct Impacts on Registered Historic Parks and Gardens

- 6.3 The eastern end of the 132kV route extends into the essential setting of the registered Dragon Square and Dame Sylvia Crowe Garden, while a short section of the 33kV cable route passes through the essential setting for Plas Tan y Bwlch. There will be no direct impacts on either garden, and no visual impact on their setting since the cables will be laid underground.

### Potential Direct Impacts on Undesignated Heritage Assets

- 6.4 Potential direct impacts have been identified for only two undesignated heritage assets along the route of the 132kV cable and these are listed in Table 4, which has been compiled using the DRMB criteria for assessment impacts (see Appendix 3). In the table, the magnitude of impact before mitigation is an assessment of the impact that could occur if a site were damaged during the construction process, either through the cable installation process itself or through gaining access. The 33kV cable will be laid almost entirely within the carriageway of public roads and no impacts are predicted for any of the undesignated assets identified within 100m of the route.

Table 4: Potential direct impacts on undesignated heritage assets along the route of the proposed 132kV cable and access route

Site no (PRN)	Type	NGR	Type of Impact	Value	Magnitude of impact before mitigation	Significance of impact
o6 (3886)	Trackway	SH67043930	cable trench	Low	Minor	Slight
33	Bridge	SH6893538790	vehicular access	Low	Major	Slight/Moderate

### Summary

- 6.5 To summarise, within 100m of the 132kV cable route there are two undesignated assets where there is the potential for a direct impact, the potential magnitude of which is considered in the table above, based on Table 3 in Appendix 3. There are no predicted impacts on undesignated assets along the route of the 33kV cable.
- 6.6 There is also the potential for direct impacts on unrecorded, buried assets as part of the construction process, through the excavation of the cable trench and the construction of the site compound for the 132kV cable route.

## 7 Detailed Mitigation Measures

- 7.1 A small number of heritage assets have been identified within the assessment area which could be subject to direct impacts from the proposed work. In the light of the assessment above, this section provides a description of the measures adopted to mitigate the identified impacts on heritage assets, together with a consideration of the residual effects of the development on heritage assets.
- 7.2 Heritage assets represent a non-renewable resource, and should be avoided wherever this is feasible in order to avoid damage or destruction. The purpose of mitigation is to avoid or reduce any adverse impacts that might result from the proposed scheme on the cultural heritage resource. The main strategy for minimising impacts from the scheme is avoidance through careful planning, design and demarcation of sensitive assets. Where an impact is unavoidable, the reduction of that impact on the heritage asset necessitates detailed consideration of the site characteristics and the introduction of specific measures designed to limit the impact. These are addressed in the section that follows.
- 7.3 The client will be provided with digital data identifying the location of all heritage assets which should be included on all constraints mapping for the project.
- 7.4 Table 5 provides detailed mitigation options for those assets for which there may be a direct impact from the proposed refurbishment works.

Table 5: Mitigation Measures

Site no (PRN)	Type	Value of asset	Type of Impact	Mitigation
o6 (3886)	Trackway	low	Excavation of cable trench	Watching brief
33	Bridge	low	Site access	Avoid / demarcate
	Stone boundary walls	medium	Excavation of cable trench	Use existing breaks or rebuild in same style with original stone
	Unrecorded, buried assets	unknown	Soil strip within wayleave, construction of site compound and drainage works	Watching brief
	Standing buildings and structures	high / medium	Site access, construction traffic	Care must be taken to avoid accidental damage to standing buildings and structures adjacent to the routes, particularly within the village of Maentwrog

### Test pits

- 7.5 A number of test pits are proposed along the route of the 132kV cable, though none are planned for the 33kV route. The locations of proposed test pits have been checked



against known heritage assets, none of which is likely to be affected and consequently no mitigation is recommended.

#### **Site Access, compounds etc**

- 7.6 Ground disturbance is likely to occur within a sizeable area associated with the construction of the site compound and related drainage works along the route of the 132kV cable. A watching brief should be undertaken during soil-stripping operations in order to ensure that an appropriate record is made of any buried assets which may be revealed. The 33kV cable will utilise a roadside layby as the site compound, which will not have an impact on known heritage assets.
- 7.7 One of the potential access routes to the eastern end of the 132kV cable follows an existing track alongside which there is a stone, slab-built footbridge (site 33) which should be clearly demarcated to ensure avoidance.

#### **Underground cable installation**

- 7.8 The exact construction details are not available at the time of writing, although it is understood the majority of the 33kV cable will be along public roads, while much of the route of the new 132kV underground cable will follow existing roads and trackways, the cable trench in both cases being around 0.5m in width. There is, however, an 85m-long section at the eastern end of the 33kV cable, as well as a number of sections along the 132kV cable, where the route deviates into adjoining fields and soil stripping may be conducted within a 5m-wide wayleave. A watching brief is recommended during soil stripping operations with the facility for an appropriate level of excavation for the recording of any significant archaeological features which may be revealed.
- 7.9 The nature of the terrain along the 132kV cable route is such that in general there is considered to be a low potential for any disturbance to buried assets. Although there is the potential for an impact on the predicted line of the Roman road from Segontium to Tomen-y-mur (site 8; PRN 17821) between SH 6739 3930 and SH 6801 3910 geophysical survey has provided no evidence for the presence of the road within the corridor and it is therefore likely to remain unaffected.
- 7.10 This section also includes the crossing of a trackway (site 6; PRN 3886) and passes close to the place where a prehistoric knife or dagger was found (site 7; PRN 4348); a watching brief is recommended during groundworks along this section.
- 7.11 Where the cable route deviates from existing roads and tracks there will be a need to breach a number of stone boundary walls which form an integral part of the historic landscape. Where possible the route should utilise existing breaks and elsewhere the walls should be rebuilt in a similar style, using the original stone.

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- Ordnance Survey 98-501 Nos 025-033, taken on 1/5/1998

## APPENDIX 1: Undesignated Heritage Assets within 100m of the proposed underground cables

NB some assets within the sequence have been omitted from the tables since they relate to previous versions of cable routes

### Undesignated heritage assets within 100m of the 132kV route

Site no (PRN)	Name	Type	Grid ref	Value	Magnitude of impact before mitigation
2 (1813)	Hut Group (Enclosed), Penyglannau	Hut circle settlement	SH67563925	Medium	No change
3 (1816)	Settlement, NW of Trawsfynydd Power Station	Settlement	SH68693865	Medium	No change
5 (28573)	Sheepfold, E of Caersaeson	Sheep fold	SH6841538825	Low	No change
6 (3886)	Trackway: Gellilydan to Felinrhyd	Trackway	SH67043930	Low	Minor
7 (4348)	Knife-Dagger – Findspot, Penyglannau	Find	SH67803920	Negligible	No change
8 (17821)	Segontium to Tomen y Mur Roman road	Road	SH67543935	Unknown	No change
12	Ty'n-y-coed reservoir	Reservoir	SH6693539256	Low	No change
13	Coed-y-trwyn house	House	SH6684539443	Low	No change
14	Pen-y-glanau sheepfold	Sheep fold	SH6756539377	Low	No change
15	Pen-y-glanau well	Well	SH6786239195	Negligible	No change
16	Bryntirion sheep fold	Sheep fold	SH6802539019	Low	No change
18	Building SE of Bryntirion	House	SH6807038989	Medium	No change
19	Pant-yr-onen house	House	SH6820938927	Low	No change
20	Pant-yr-onen sheep fold	Sheep fold	SH6827038872	Low	No change
21	Llwyn fold	Fold	SH6835439001	Low	No change
22	Gwylan sheep fold I	Sheep fold	SH6871038735	Low	No change
23	Gwylan sheep fold II	Sheep fold	SH6876938685	Negligible	No change
24	Gwylan sheep fold III	Sheep fold	SH6868638503	Low	No change
25	Gwylan farmstead	Farmstead	SH6881238727	Low	No change
26	Gwylan building	Barn ?	SH6884938617	Low	No change
27	Gwylan fold	Fold ?	SH6888338633	Low	No change
28	Bryntirion walled garden	Walled garden	SH6794539093	Low	No change
32	Ty'n-y-coed sheep dipping bath	Sheep dip	SH6692739274	Low	No change
33	Pandy-gwylan footbridge	Bridge	SH6893538790	Low	Major

**Undesignated heritage assets within 100m of the 33kV route**

<b>Site no (PRN)</b>	<b>Name</b>	<b>Type</b>	<b>Grid ref</b>	<b>Value</b>	<b>Magnitude of impact before mitigation</b>
9	Ivy Bridge stepping stones	Stepping stones	SH6539739455	Negligible	No change
17	Pen-y-bont/Ivy Bridge cottage	House	SH6543339447	Negligible	No change
29	Felinrhyd Fawr limekiln	Limekiln	SH65373947	Negligible	No change
30	Felinrhyd Mill	Mill	SH65423946	Negligible	No change
41 (28756)	Tan-lan	House	SH6648540547	Medium	No change
42 (28760)	Tan-y-ffordd	House	SH66464048	Medium	No change
43 (33605)	Maentwrog Hydro-electric Power Satation	Hydro-electric Power Station	SH65413952	Medium	No change
44 (40921)	Maentwrog – Old woollen mill	Woollen Mill	SH6640	Negligible	No change
45 (41223)	Maentwrog Tannery	Tannery	SH6685940276	Low	No change
46 (91425)	Cemlyn Quay, Dwyrdd River Navigation, Maentwrog	Quay	SH65994011	Low	No change
47 (91427)	Cemlyn Canal, Dwyrdd River Navigation, Maentwrog	Canal	SH6617740252	Low	No change
48	Cemlyn Canal Bridge	Bridge	SH6613040242	Low	No change
49	Stone building near Cemlyn canal	Building	SH6617040248	Low	No change
50	Felenrhyd Quay	Quay	SH6534939516	Low	No change
51	Felenrhyd Fawr building	Building	SH6544839724	Unknown	No change
52 (3903)	Bronze Tool, Findspot, Nr. Maentwrog	Findspot	SH66004000	Negligible	No change
53 (18218)	Maentwrog Landscape	Landscape	SH66494041	Negligible	No change
54 (20779)	Lead Level, Twll Mein	Level	SH66704020	Unknown	No change
55 (9839)	Maentwrog Medieval Township	Township	SH66504050	Negligible	No change
56 (9865)	Rhiwerfa Medieval Township	Township	SH66500650	Negligible	No change

57 (8549)	Gilgal Welsh Independent Chapel, Maentwrog	Chapel	SH66614029	Low	No change
58 (8555)	Seion Methodist Chapel (Wesleyan), Tan-y-ffordd, Maentwrog	Chapel	SH6647640466	Low	No change
59	Ceunant Bach reservoir	Reservoir	SH6698240296	Low	No change
60	Twll Maen lead mine	Lead mine	SH6677640217	Medium	No change
61	Cemlyn well	Well	SH6607840200	Negligible	No change



## **APPENDIX 2: The categorisation and conservation of the cultural heritage resource**

The cultural heritage resource is not a single body of equally significant assets, but an infinitely complex set of individual assets, the number of which increases and alters in form and relationships on a continuous basis. They range in importance from internationally significant sites to features of minor and even negligible value, with those perceived to be of more importance being categorised by designation (statutory) or registration (non-statutory).

*World Heritage Sites.* This is the only statutorily recognised category of international importance. No World Heritage Site has been designated within or adjacent to the corridor.

*Scheduled Ancient Monuments.* SAMs are protected under the Ancient Monuments and Areas of Archaeological Importance Act, 1979, and their settings are also protected. Setting is not defined within the Act, but is typically taken to refer to the immediate area around a protected site, for example the curtilage of a building. As a concept, it is covered in Planning Policy Wales (4<sup>th</sup> edition; 2011), and in more detail in a supporting Welsh Office Circular on Planning and the Historic Environment: Archaeology (60/96)

*Listed Buildings.* These are protected under the Planning (Listed Buildings and Conservation Areas) Act 1990, and are usually classed in diminishing importance as Grades I, II\* and II. The Act requires local planning authorities to have special regard to the desirability of preserving the setting of a listed building, and it also requires planning proposals to meet the test of determining the extent to which a development affects views to and from a listed building. Further guidance comes in Welsh Office Circular on Planning and the Historic Environment: Historic Buildings and Conservation Areas (61/96).

*Conservation Areas.* These are protected under the Planning (Listed Buildings and Conservation Areas) Act 1990. This Act requires local planning authorities to have special regard to the desirability of preserving the setting of a conservation area, and it also requires planning proposals to meet the test of determining the extent to which a development affects views to and from such an area. The setting of a conservation area is covered in the same set of publications as those for scheduled ancient monuments, above.

*Parks and Gardens.* In Wales parks and gardens of significance appear in the non-statutory Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales, the register for Powys appearing in 1999. Parks and gardens are graded using the same categories as listed buildings. Being non-statutory, parks and gardens are thus classed as registered rather than designated assets, though for practical purposes this distinction appears to be of limited importance. Planning Policy Wales (2011) states that local authorities should protect registered parks and gardens and their settings, and that Cadw should be consulted on developments affecting grade I and II\* sites.

*Historic Landscapes.* In Wales significant landscapes appear in the two-volume non-statutory Register of Landscapes, Parks and Gardens of Special Historic Interest in Wales (1998 & 2001). Unlike parks and gardens, registered landscapes are not graded, but are classified as either 'outstanding' or 'special'. Though registered rather than designated, historic landscapes are treated in the same way as parks and gardens, as indicated in Planning Policy Wales (2011). All the larger registered landscapes have been the subject of historic landscape characterisation in recent years.

*Battlefields.* England has a Battlefields Register, but there is at present nothing equivalent for Wales, though one is now in preparation.

*Undesignated assets.* There are a large number of undesignated heritage assets within the route corridors, both above ground where they are still visible and buried beneath the surface. These range in date from the prehistoric era through to the 20<sup>th</sup> century.

Planning Policy Wales (5<sup>th</sup> edition, 2012) sets out the land-use planning policies of the Welsh Government, including the conservation of the historic environment. This states that ‘it is important that the historic environment - encompassing archaeology and ancient monuments, listed buildings, conservation areas and historic parks, gardens and landscapes - is protected’, with the following objectives:

- preserve or enhance the historic environment, recognising its contribution to economic vitality and culture, civic pride and the quality of life, and its importance as a resource for future generations; and specifically to
- protect archaeological remains, which are a finite and non-renewable resource, part of the historical and cultural identity of Wales, and valuable both for their own sake and for their role in education, leisure and the economy, particularly tourism;
- ensure that the character of historic buildings is safeguarded from alterations, extensions or demolition that would compromise a building’s special architectural and historic interest; and to
- ensure that conservation areas are protected or enhanced, while at the same time remaining alive and prosperous, avoiding unnecessarily detailed controls over businesses and householders.

### APPENDIX 3: The Assessment Framework

The classification of designated and registered assets is laid out in DMRB (2007) (as in Table 1). The classification of undesignated assets is based on the collective professional judgement and expertise of the field staff of CPAT.

**Table 1 Factors for Assessing the Value of Cultural Heritage Assets**

<b>Factors for Assessing the Value of Cultural Heritage Assets</b>	
<b>Very High</b>	World Heritage Sites (including those nominated). Assets of acknowledged international importance. Assets that can contribute significantly to acknowledged international research objectives.
<b>High</b>	Scheduled Monuments (including those proposed). Undesignated monuments of which could potentially be worthy of scheduling. Grade I and Grade II* Listed Buildings. Assets that can contribute significantly to acknowledged national research objectives.
<b>Medium</b>	Grade II Listed Buildings. Conservation Areas. Designated or undesignated assets that contribute to regional research objectives.
<b>Low</b>	Designated and undesignated assets of local importance. Assets compromised by poor preservation and/or poor survival of contextual associations. Assets of limited value, but with the potential to contribute to local research objectives.
<b>Negligible</b>	Assets with very little or no surviving cultural heritage interest.
<b>Unknown</b>	The importance of the resource has not been ascertained.

Factors to be considered in assessing the magnitude (or scale) of the impact are given in Table 2, based on the DMRB (2007).

**Table 2 Factors in the Assessment of the Magnitude of Impacts**

<b>Factors in the Assessment of Magnitude of Direct Impacts</b>	
Major	Change to most or all key cultural heritage elements, such that the resource is totally altered.
Moderate	Changes to many key cultural heritage elements, such that the resource is clearly modified.
Minor	Changes to key cultural heritage elements, such that the asset is slightly altered or different.
Negligible	Very minor changes to cultural heritage elements.
No Change	No change.

The significance of the impact of a development on a particular cultural heritage asset is then established from the matrix (Table 3) taken from the DMRB (2007).

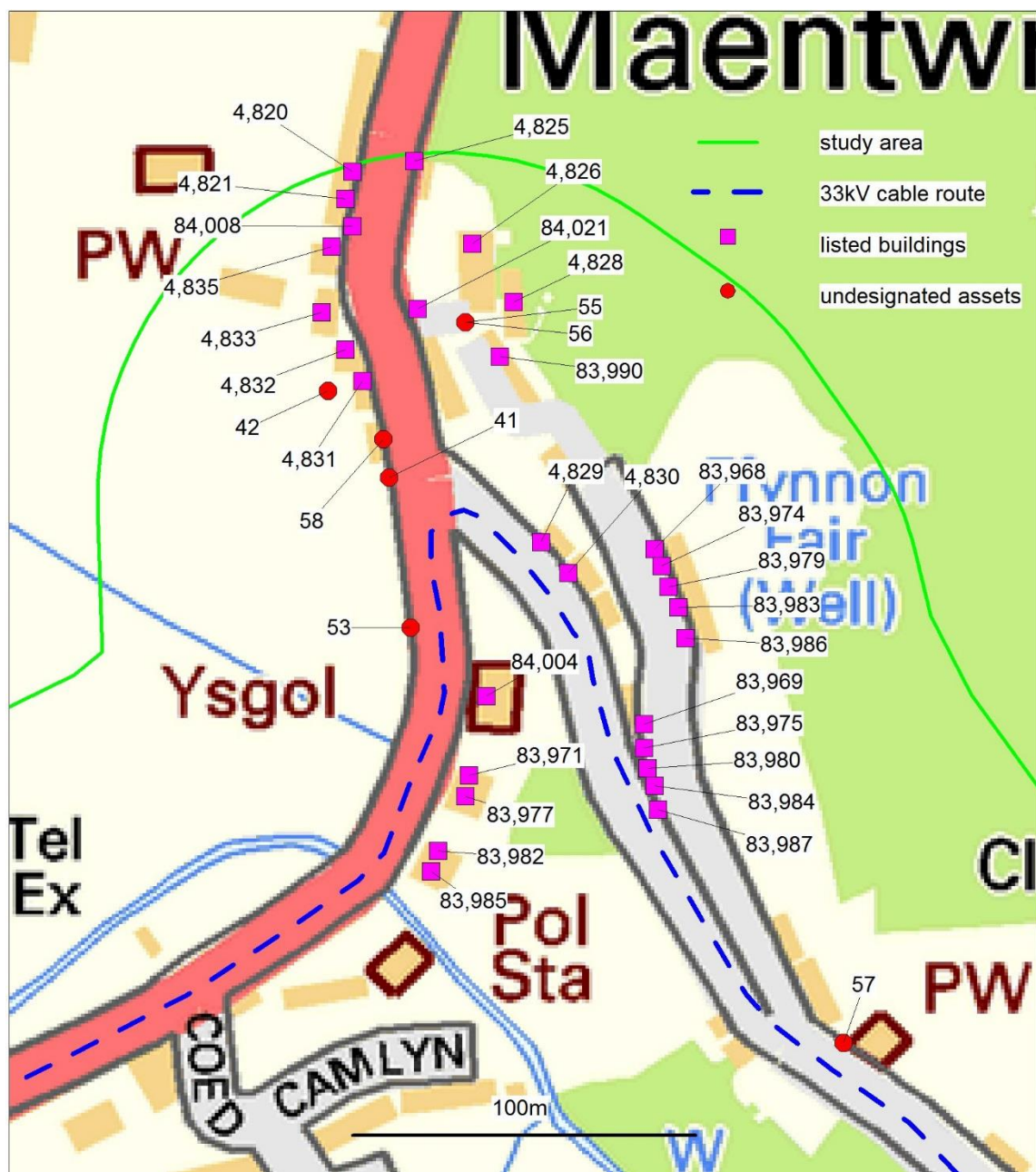
**Table 3 Matrix for Assessing the 'Significance' of Direct Impacts of the Proposed Development upon Cultural Heritage Assets**

<b>Magnitude of Impact</b>	<b>Value/Sensitivity of Cultural Heritage Asset</b>				
	<b>Very High</b>	<b>High</b>	<b>Medium</b>	<b>Low</b>	<b>Negligible</b>
Major	Very Large	Large/ Very Large	Moderate/ Large	Slight/ Moderate	Slight
Moderate	Large/Very Large	Moderate/ Large	Moderate	Slight	Neutral/ Slight
Minor	Moderate/ Large	Moderate/ Slight	Slight	Neutral/ Slight	Neutral/ Slight
Negligible	Slight	Slight	Neutral/ Slight	Neutral/ Slight	Neutral
No change	Neutral	Neutral	Neutral	Neutral	Neutral



Fig. 2 Geophysical Survey results (see Fry 2014 for full results)

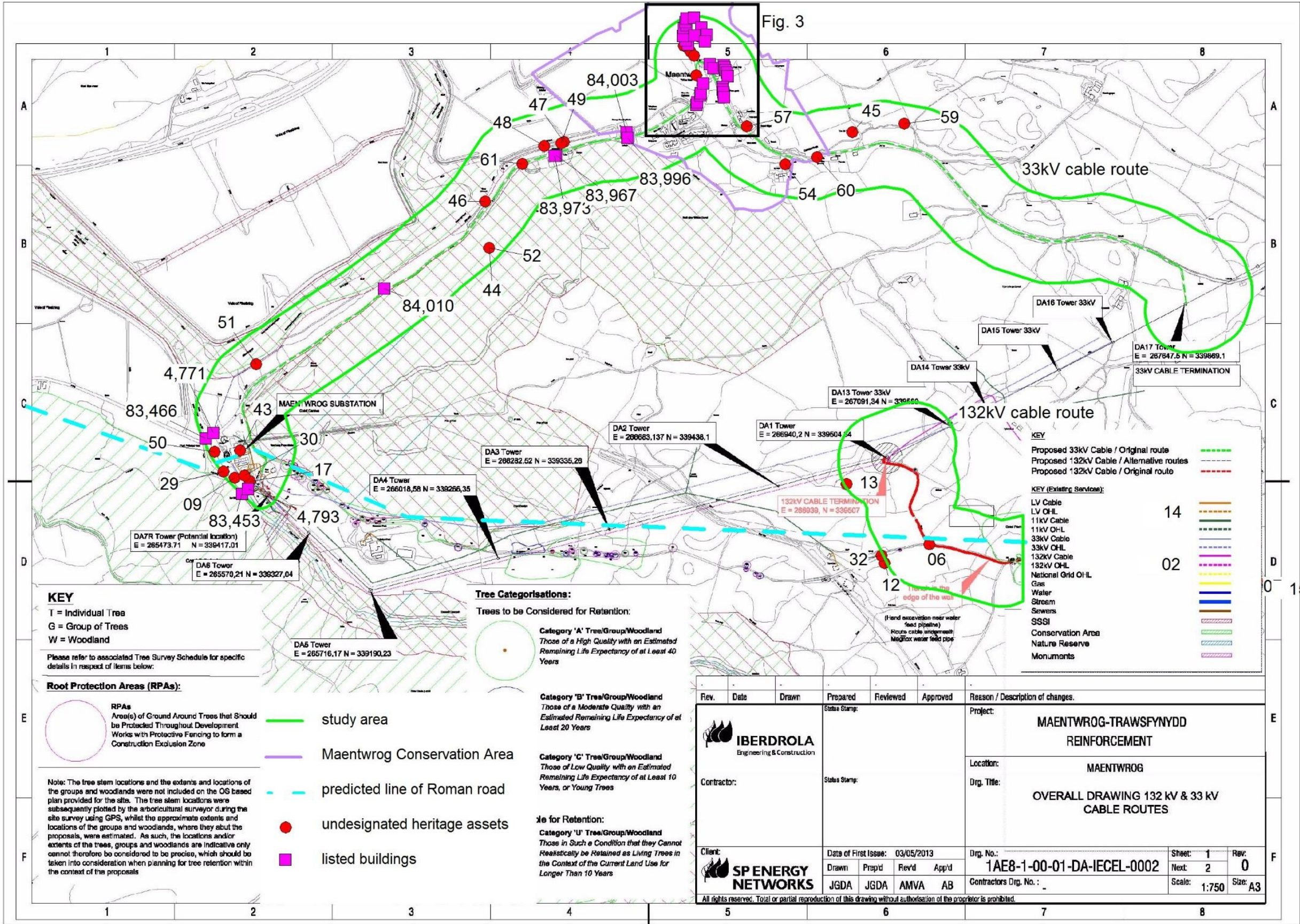




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Fig. 3 Heritage assets within the village of Maentwrog





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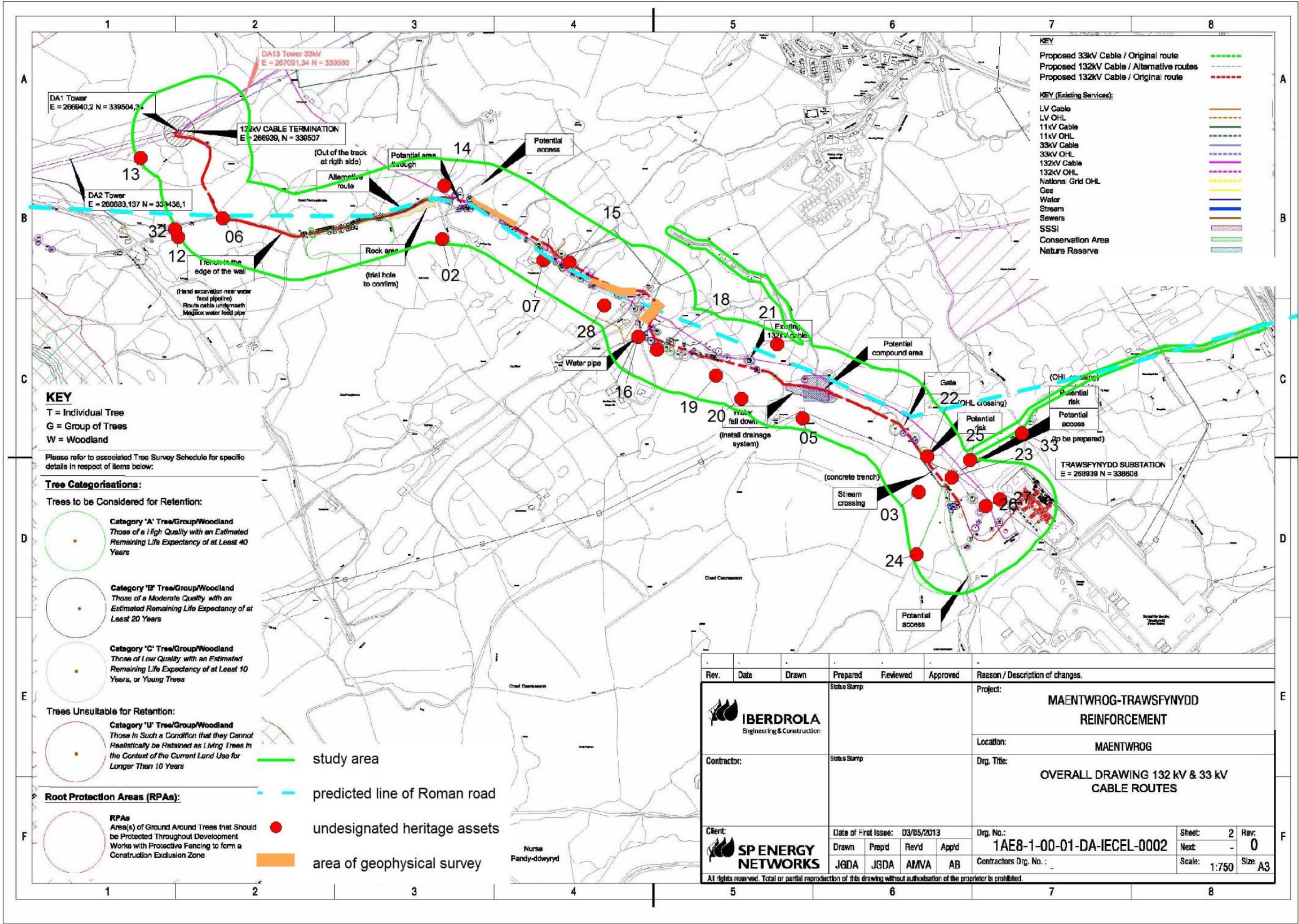


Fig. 5 Heritage assets along the route of the 132kV cable