

CPAT Report No 1132.2

Scottish Power Energy Networks Dolgarrog to Pentir 132kV Overhead Powerline Refurbishment

CULTURAL HERITAGE ASSESSMENT



THE CLWYD-POWYS ARCHAEOLOGICAL TRUST

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Dolgarrog to Pentir 132kV Overhead Powerline
Refurbishment**

CULTURAL HERITAGE ASSESSMENT

N W Jones
October 2012

Report for Iberdrola Engineering and Construction




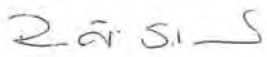
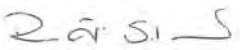
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Cover: Part of the field system on Cae'r Mynydd, west of Abergwynnegrn (PRN 34713)

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1 Introduction

- 1.1 This report describes the results of an assessment undertaken by the Field Services Section of the Clwyd-Powys Archaeological Trust (CPAT) of the potential direct impacts on cultural heritage assets along the route of an existing 132kv overhead powerline for which a scheme of refurbishment is proposed. The overhead line known as the AD line, runs from Dolgarrog, in Conwy, to Pentir, near Bangor, in Gwynedd. Originally completed in April 2012, this report was subsequently revised in May 2012, following a programme of field survey, and again in October of the same year in order to include a proposed underground cable connection to the substation at Pentir.
- 1.2 We are informed that the scheme will be conducted in three phases, commencing with the repainting of pylons along the route and followed by a programme of line refurbishment. The final element involves the installation of a new underground cable from the westernmost pylon at SH 5640 6817 to the substation at SH 6030 6780. It is understood that there are no elements of the scheme which require planning permission.
- 1.3 The information currently available to us indicates that the only part of the scheme which will involve any intentional ground disturbance is the underground cable connection to the substation, although there is the potential for some direct impact on cultural heritage assets as a result of vehicular access to the route.
- 1.4 For much of its length the powerline passes through the Snowdonia National Park, including a short section within the National Trust Carneddau and Glyderau Estate. Significant sections of the route lie within areas which has been subject to archaeological field survey as part of the Uplands Initiative, with funding from the Royal Commission on the Ancient and Historical Monuments in Wales (RCAHMW), including Eastern Snowdonia North and Central, conducted by Oxford Archaeology North between 2003-5 (Schofield 2004; 2005), as well as the National Trust Archaeological Survey of the Carneddau 1985 – 1997.

2 Nature of the Scheme

- 2.1 The proposed refurbishment to the existing 132kV overhead powerline extends for around 25km from SH 7843 6810 at Dolgarrog to SH 5603 6780 at Pentir. The works will be undertaken in three phases, commencing in April 2012 with the repainting of pylons. The potential for any direct impacts on cultural heritage assets during this phase is considered to be low. This will be followed from March 2013 by the replacement of the existing overhead cables. During this phase of the scheme there is greater potential for direct impacts which could result from the use of the puller/tensioner equipment and conductor drums. It is not known when the Phase 3 underground cable connection will be installed.

3 Sources of Information & Guidance

- 3.1 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 20th 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 cultural heritage

assets - as for instance defined in the Highways Agency's Design Manual for Roads and Bridges (DMRB 2007).

- 3.2 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. 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.
- 3.3 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 and b) the Standard and Guidance for Archaeological Field Evaluation (2001), both produced by the Institute for Archaeologists, the regulatory body for the profession.

Consultations

- 3.4 The following have been consulted as part of their assessment and the responses have been taken into account when developing a strategy for mitigation:
 - Ian Halfpenney, Cadw Regional Inspector of Ancient Monuments
 - John Roberts, Snowdonia National Park
 - Kathy Laws, National Trust Archaeologist
 - Ashley Batten, Gwynedd Archaeology Planning Service

The categorisation and conservation of the cultural heritage resource

- 3.5 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 (4th 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 20th century.

3.6 Planning Policy Wales (4th edition, February 2011) 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.

4 **Assessment Methodology**

General

- 4.1 The primary aim of the assessment is to identify the cultural heritage assets within 200m of the overhead line, 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 impact that the development might have upon them, and to recommend mitigation to limit the impact of the development on them.

Desk-top Methodology

- 4.2 The desk-based study, which forms the basis for the 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 GAT in Bangor
- 4.3 Data was also made available by the Royal Commission on the Ancient and Historical Monuments in Wales (RCAHMW) regarding the mapping of cultural heritage features from aerial photographs, although this only related to a small section of the route.

Field survey

- 4.4 Following the completion of the desk-top study a programme of carefully focussed field work was undertaken to verify the location and extent of assets within the unenclosed upland section of the route assets and further assess the potential impacts on them. Fieldwork was undertaken along the route where it crosses the upland areas between SH 6726 7173 and SH 6243 7110 and also between SH 6499 7094 and SH 6605 7137.

Impacts and Effects

- 4.5 The assessment considers only the potential for direct impacts on cultural heritage assets since the scheme involves the refurbishment of an existing line. Indirect visual and other impacts fall which are already in place fall outside the scope of this report.
- 4.6 The report considers statutorily protected assets and non-statutorily registered assets within 200m of the overhead line. It is also assess undesigned assets.
- 4.7 Direct impacts are most likely to result from:
- a) the need to gain vehicular access to the overhead line in both Phase 1 and Phase 2
 - b) potentially from the use of the puller/tensioner equipment and conductor drums in Phase 2.
 - c) the installation of the underground cable connection to the substation at Pentir in Phase 3.
- 4.8 It seems probable that direct physical impacts on the cultural heritage resource of the area are more likely to occur during Phases 2 and 3 of the scheme. Appropriate mitigation for all phases is recommended in Tables 9-11.

The Assessment Framework

- 4.9 It is a general tenet in 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. All sites can be classified according to a system devised for the assessment of cultural heritage assets in the DMRB (2007).

- 4.10 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

Factors for Assessing the Value of Cultural Heritage Assets	
Very High	World Heritage Sites (including those nominated). Assets of acknowledged international importance. Assets that can contribute significantly to acknowledged international research objectives.
High	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.
Medium	Grade II Listed Buildings. Conservation Areas. Designated or undesignated assets that contribute to regional research objectives.
Low	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.
Negligible	Assets with very little or no surviving cultural heritage interest.
Unknown	The importance of the resource has not been ascertained.

- 4.11 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

Factors in the Assessment of Magnitude of Direct Impacts	
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.

- 4.12 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

Magnitude of Impact	Value/Sensitivity of Cultural Heritage Asset				
	Very High	High	Medium	Low	Negligible
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

5 The Cultural Heritage History of the Area

- 5.1 The powerline passes through an area rich in cultural heritage assets and the significance of the landscape as a whole is demonstrated by the fact that only 3km at the western end of the route lie outside one of the three registered historic landscapes in this area.
- 5.2 The eastern part of the route, from Dolgarrog to Bwlch y Ddeufaen, lies within the Lower Conwy Valley historic landscape. This is a topographically diverse area ranging from the lower Conwy valley to the adjacent uplands on the north-eastern flanks of the Carneddau ridge. The area contains extensive and well-preserved relict evidence of land use, communications and defence from the prehistoric period onwards, including Neolithic chambered tombs, Bronze Age funerary and ritual monuments, Iron Age hillforts, settlements and field systems, a Roman fort and road, and a medieval motte, settlement and field systems (Cadw/ICOMOS 1998, 81-3).
- 5.3 The central section, from Bwlch y Ddeufaen to Crymlyn, south-west of Abergwyngregyn, lies within the North Arllechwedd historic landscape. This mainly upland area lies on the northern flanks of the Carneddau ridge and contains well-preserved relict evidence of recurrent land use and settlement from the prehistoric to medieval and later periods. The area includes the Neolithic axe factory at Graig Llwyd, a dense and remarkable concentration of Bronze Age funerary and ritual monuments, Iron Age hillforts, settlements and field systems, a Roman road, medieval settlements and field systems, as well as the remains of more recent mining and quarrying activities (Cadw/ICOMOS 1998, 114-6).
- 5.4 The majority of the western part of the route lies within the Ogwen Valley historic landscape. The classic glaciated valley itself, cutting through the Snowdonia mountains, lies to the south of the route, which passes instead across the lower slopes of the Carneddau ridge and onto the lowlands to the south of Bangor. The area in general contains prehistoric funerary and ritual monuments, Iron Age hillforts, settlements and field systems, medieval settlement, extensive remains associated with slate quarrying, as well as Penrhyn Castle and Telford's Holyhead Road (Cadw/ICOMOS 1998, 105-8).

6 The Baseline Assessment

Designated Cultural Heritage Assets within 200m of the overhead line

- 6.1 The identification of designated assets within 200m 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 Table 1).
- 6.2 Each of these designated assets was assessed to establish whether there is likely to be any direct impact as a result of the proposed development.

Scheduled Ancient Monuments

- 6.3 There are ten scheduled ancient monuments within 200m of the overhead line, which are tabulated and listed below.

Table 4: Scheduled Ancient Monuments within 200m of the Overhead Line

SAM No	Name	Type	NGR (centre)
CN129	Bwlch y Ddeufaen Standing Stones	Standing stone	SH714718
CN130	Cerrig Pryfaid Stone Circle	Stone circle	SH724713
CN131	Barclodiad-y-Gawres Round Cairn	Round cairn	SH717716
CN245	Hut Circle Settlement on Caer Mynydd	Hut circle settlement	SH657713
CN286	Hut Circle and Rectangular Hut North of Wern y Pandy	Unenclosed hut circle	SH675718
CN341	Cairn to NNW of Yr Orsedd	Round cairn	SH690721
CN342	Cairn to NE of Foel Dduarth	Round cairn	SH683720
CN344	Cairn to N of Cras	Round cairn	SH653712
CN345	Ring cairn to N of Cras	Ring cairn	SH654712
CN346	Cras cairn	Round cairn	SH653708

Listed Buildings

- 6.4 There are 25 listed buildings within 200m of the overhead line, one of which is listed grade I and the remainder grade II; these are tabulated below.

Table 5: Listed Buildings within 200m of the Overhead Line

LB No	Name	LB Grade	NGR
3160	Ffynnon-Bedr Cottage	II	SH7631269013
3209	Barn at Ffynnon-Bedr	II	SH7628468968
3210	Tyddyn-y-Coed Farmhouse	II	SH7598869189
3653	Cochwillan	I	SH6069569416
17015	Stable and Cart Range at Ffynnon-Bedr	II	SH7628868993
17020	Former Farmhouse at Gwern Felin	II	SH7650668696
17021	Agricultural Range at Gwern Felin	II	SH7649068699
18919	Railway bridge at Coed Howel	II	SH5862869305
18922	Fferm Glasynfryn	II	SH5838969158
18923	Bryn-y-meddyg	II	SH5866269278
22928	Plas-uchaf	II	SH6208969897
22946	Tyddyn-isaf & Tyddyn-isaf bach	II	SH6140769626
22948	Cart Shelter and Pigsties at Plas-uchaf	II	SH6209569913

22949	L-shaped Cowhouse Range at Plas-uchaf	II	SH6210769903
22950	Small Cowhouse Range at Plas-uchaf	II	SH6212369909
22958	Outbuildings at Cochwillan	II	SH6067569404
22959	Bwthyn Cochwillan	II	SH6066569442
22960	Pigsties at Bwthyn Cochwillan	II	SH6068769437
22961	Slate Fencing at Bwthyn Cochwillan	II	SH6066969463
22962	Fferm Cochwillan	II	SH6064369465
22963	Cowhouses/Cart Shelter at Fferm Cochwillan	II	SH6067169492
22964	Pigsties/Pig Kitchen at Fferm Cochwillan	II	SH6064069488
23384	Penrhyn Estate workers' cottage	II	SH6006069766
23385	Penrhyn Estate workers' cottage	II	SH6007769741
23471	Penrhyn Estate workers' cottage	II	SH6008069732

Registered Historic Parks and Gardens

- 6.5 There are no Registered Historic Parks and Gardens within 200m of the overhead line.

Registered Historic Landscapes

- 6.6 The powerline passes through three registered historic landscapes:
- Lower Conwy Valley
 - North Arllechwedd
 - Ogwen Valley

Conservation Areas

- 6.7 There are no Conservation Areas within 200m of the overhead line.

Undesignated Cultural Heritage Assets within 200m of the overhead line

- 6.8 A total of 176 undesignated cultural heritage assets have been identified within 200m of the overhead line, a full list of which is provided in Appendix 1 which includes an assessment of their perceived value. The majority are of medium value (99 assets) or low value (51 assets), although there are nine of high value and 17 of negligible value.
- 6.9 It is worth noting that a significant number of these assets, whilst individually perhaps of low or medium value, have a collective value which is much greater. This has to some extent been recognised in defining the three Registered Historic Landscapes through which the powerline runs, since many of the undesignated and designated assets form key landscape and cultural heritage components of those landscapes.
- 6.10 The assessment has identified 35 previously unrecorded assets, almost all of which were identified from historic mapping, details of which are provided in Appendix 1. All digital data, including photography and mapping, will be passed to the regional HER on completion of the project.

7 Assessment of Impacts

Potential Direct Impacts on designated cultural heritage assets

- 7.1 The potential direct impacts on designated cultural heritage assets lying within 200m of the overhead line are identified Tables 6 and 7. Each asset is provided with its scheduling or listing number, its heritage type, and the predicted magnitude of the impact before mitigation.
- 7.2 In the tables, 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 refurbishment process itself or through gaining access.

Scheduled Ancient Monuments

- 7.3 There are 10 scheduled monuments within 200m of the overhead line.

Table 6: Potential Direct Impacts on Scheduled Ancient Monuments

SAM No	Name	Type of impact	Magnitude of impact before mitigation
CN129	Bwlch y Ddeufaen Standing Stones	Vehicle/equipment	major
CN130	Cerrig Pryfaid Stone Circle	none	neutral
CN131	Barclodiad-y-Gawres Round Cairn	Vehicle/equipment	major
CN245	Hut Circle Settlement on Caer Mynydd	Vehicle/equipment	major
CN286	Hut Circle and Rectangular Hut, N of Wern y Pandy	Vehicle/equipment	major
CN341	Cairn to NNW of Yr Orsedd	none	neutral
CN342	Cairn to NE of Foel Dduarth	none	neutral
CN344	Cairn to N of Cras	Vehicle/equipment	major
CN345	Ring cairn to N of Cras	Vehicle/equipment	major
CN346	Cras cairn	none	neutral

CN129 Bwlch y Ddeufaen Standing Stones

Two large standing stones one of which was placed upright in the early 20th century. The scheduled area of this monument includes the small upright stones east of the north-west stone and the cairn west of the stones at SH71427184. A length of the trackway which follows the line of the Roman road also lies within the scheduled area.

CN130 Cerrig Pryfaid Stone Circle

A fairly complete circle of ten stones of various sizes, 22m in diameter. Two other stones, which may possibly form part of another circle, lie to the west.

CN131 Barclodiad-y-Gawres Round Cairn

A large cairn in a natural depression falling gently to the south and joining the head of the valley of the Afon Tafolog. The cairn seems originally to have been oval or rectangular with a large cist on its north side. The cist is 58ft long and seems to have been about 4ft wide, but the side stones are much dispoled. The scheduled area includes three other cairns and a length of Roman road.

CN245 Hut Circle Settlement on Caer Mynydd

Two well-preserved hut circles date from the Iron Age or Romano-British periods. They lie on the gently sloping upland pasture of Caer Mynydd within an extensive field system which represents part of a wider relic landscape.

CN286 Hut Circle and Rectangular Hut, N of Wern y Pandy

The site consists of two huts, set close together but of different types: one a hut circle of later prehistoric or Romano British type, the other a rectangular hut, perhaps of medieval date.

CN341 Cairn to NNW of Yr Orsedd

The stone-built cairn is circular in plan and measures about 7m in diameter and up to 0.6m in height. There is an exposed cist in the centre of the cairn, constructed of several long, thin orthostats. A large capstone is situated immediately to the south-west of the cist.

CN342 Cairn to NE of Foel Dduarth

A stone-built cairn measuring about 7m in diameter and up to 0.7m in height. Several possible kerbstones are visible.

CN344 Cairn to N of Cras

The grass and heather-covered stone-built cairn measures about 10m in diameter and up to 0.6m in height.

CN345 Ring cairn to N of Cras

A ring cairn 11m in diameter with a stony ring bank about 1m in thickness and up to 0.3m in height, situated on moorland below and to the north of the Cras ridge on the north-facing slopes of Moel Wnion.

CN346 Cras cairn

Circular stone built cairn, measuring c. 9m in diameter and up to 0.6m in height. It has been disturbed by the construction of a shelter around a hollow dug into the centre; the remains of a stone cist have been exposed within the hollow.

Listed Buildings

7.4 There are 25 listed buildings within 200m of the overhead line, none of which will be affected by the proposals.

Table 7: Potential Direct Impacts on Listed Buildings

Listing No	Name	Type of impact	Magnitude of impact before mitigation
3160	Ffynnon-Bedr Cottage	none	no change
3209	Barn at Ffynnon-Bedr	none	no change
3210	Tyddyn-y-Coed Farmhouse	none	no change
3653	Cochwillan	none	no change
17015	Stable and Cart Range at Ffynnon-Bedr	none	no change
17020	Former Farmhouse at Gwern Felin	none	no change
17021	Agricultural Range at Gwern Felin	none	no change
18919	Railway bridge at Coed Howel	none	no change
18922	Fferm Glasynfryn	none	no change
18923	Bryn-y-meddyg	none	no change
22928	Plas-uchaf	none	no change
22946	Tyddyn-isaf & Tyddyn-isaf bach	none	no change
22948	Cart Shelter and Pigsties at Plas-uchaf	none	no change
22949	L-shaped Cowhouse Range at Plas-uchaf	none	no change
22950	Small Cowhouse Range at Plas-uchaf	none	no change
22958	Outbuildings at Cochwillan	none	no change
22959	Bwthyn Cochwillan	none	no change
22960	Pigsties at Bwthyn Cochwillan	none	no change

22961	Slate Fencing at Bwthyn Cochwillan	none	no change
22962	Fferm Cochwillan	none	no change
22963	Cowhouses/Cart Shelter at Fferm Cochwillan	none	no change
22964	Pigsties/Pig Kitchen at Fferm Cochwillan	none	no change
23384	Penrhyn Estate workers' cottage	none	no change
23385	Penrhyn Estate workers' cottage	none	no change
23471	Penrhyn Estate workers' cottage	none	no change

Registered Historic Landscapes

- 7.5 The powerline passes through three registered historic landscapes, although there will be no additional visual impact over and above that already created by the powerline in its present state.

Registered Historic Parks and Gardens

- 7.6 There are no Registered Historic Parks and Gardens within 200m of the overhead line.

Summary

- 7.7 In summary, within 200m of the Development Area the assessment has identified six scheduled ancient monuments where the magnitude of the impact is judged to be **major** and three where no impact is predicted. The significance of that impact, based on Table 3 and with the requirement that all nationally designated assets are of high value, is thus assessed as **large or very large** in six instances and **neutral** in four instances.

Potential Direct Impacts on undesignated cultural heritage assets

- 7.8 Potential direct impacts have been identified for 62 undesignated cultural heritage assets lying within 200m of the overhead line are listed in Table 8. This excludes those assets where there is no predicted impact. The table identifies the unique number by which the asset is recognised in either the regional Historic Environment Record (the PRN) or the National Monument Record (the NPRN), the heritage type of that asset, its perceived value and the predicted magnitude of the impact before mitigation.

Table 8: Potential Direct Impacts on undesignated cultural heritage assets

NPRN	PRN	Type	Period	NGR	Value	Magnitude of impact before mitigation
	383	Incised Stone	Roman	SH6936072310	medium	major
	384	Incised Stone	Prehistoric	SH6937072280	medium	major
	1544	Chambered Tomb	Prehistoric	SH7703067770	medium	major
	4088	Long Hut	Medieval	SH6776072010	medium	major
	34713	Field System	Medieval	SH65817150	medium	major
	34714	Field System	Medieval	SH67507183	medium	major
	33959	Building	Post-Medieval	SH6722471721	low	major
	514	Hut Circle Settlement	Roman	SH7244071210	high	moderate
	515	Hut Circle Settlement	Unknown	SH7163071810	high	moderate
	5077	Stone Circle	Prehistoric	SH7153071750	high	moderate
	20	Pillow Mound	Unknown	SH5635068180	medium	moderate

	21	Hut Circle	Prehistoric	SH5809069470	medium	moderate
	26	Enclosure	Unknown	SH5973069600	medium	moderate
	71	Long Hut	Unknown	SH6428070650	medium	moderate
	233	Hut Circle Settlement	Medieval	SH6580071380	medium	moderate
	235	Hut Circle	Roman	SH6572071350	medium	moderate
	338	Hut Circle	Unknown	SH6695071620	medium	moderate
	365	Incised Stone	Medieval	SH6800072060	medium	moderate
	389	Burnt Mound	Bronze Age	SH6886072170	medium	moderate
	516	Long Hut	Unknown	SH7168071710	medium	moderate
	518	Long Hut	Unknown	SH7240071190	medium	moderate
	4702	Enclosure	Early Medieval	SH7160071770	medium	moderate
	4703	Long Hut	Early Medieval	SH7166071700	medium	moderate
	5393	Hut Circle	Prehistoric	SH6774072050	medium	moderate
	5402	Burnt Mound	Prehistoric	SH6883072170	medium	moderate
	7108	Enclosure	Unknown	SH6580071400	medium	moderate
	7111	Hut Circle	Prehistoric	SH6593071440	medium	moderate
	7112	Platform	Medieval	SH6590071400	medium	moderate
	7113	Field System	Unknown	SH6560071300	medium	moderate
	7114	Hut Circle	Prehistoric	SH6572071290	medium	moderate
	7115	Enclosure	Unknown	SH6569071240	medium	moderate
	7146	Hut Circle	Prehistoric	SH6751071920	medium	moderate
	7148	Enclosure	Unknown	SH6739071830	medium	moderate
	7566	Deserted Rural Settlement	Medieval	SH7234071290	medium	moderate
	7567	Deserted Rural Settlement	Medieval	SH7192071360	medium	moderate
	17572	Road	Roman	SH6973072280	medium	moderate
	17573	Road	Roman	SH7038072050	medium	moderate
	17575	Road	Roman	SH7112071910	medium	moderate
	17576	Road	Roman	SH7157071740	medium	moderate
	17577	Road	Roman	SH7198071550	medium	moderate
	29520	Hut Circle Settlement	Prehistoric	SH6755071800	medium	moderate
	29528	Hut Circle	Prehistoric	SH6767072030	medium	moderate
	34712	Hut platform	Medieval ?	SH6592271592	medium	moderate
278649		Earthwork	Unknown	SH73407076	low	moderate
	5390	Bank (Earthwork)	Unknown	SH6763071980	low	moderate
	5391	Clearance Cairn	Unknown	SH6767072000	low	moderate
	5396	Structure	Unknown	SH6803072070	low	moderate
	5398	Bank (Earthwork)	Unknown	SH6836072180	low	moderate
	5401	Boulder	Unknown	SH6869072230	low	moderate
	33957	Sheepfold	Post-Medieval	SH7027372176	low	moderate
	33958	Building	Post-Medieval	SH6724071719	low	moderate
	5474	Field System	Unknown	SH6766072000	medium	minor
	7561	Deserted Rural Settlement	Medieval	SH7494070100	medium	minor
	33951	Building	Post-Medieval	SH7363170640	medium	minor
	34016	Field System	Medieval	SH6399270447	medium	minor
	34017	Field System	Medieval	SH6586171267	medium	minor
	5389	Bank	Unknown	SH6763071900	low	minor

		(Earthwork)				
	5392	Terraced Ground	Unknown	SH6770072040	low	minor
	33961	Sheepfold	Post-Medieval	SH6531771151	low	minor
	33941	Sheepfold	Post-Medieval	SH7626068923	negligible	minor
	33964	Quarry	Post-Medieval	SH6324170216	negligible	minor
		Roman road RR67c	Roman	SH56306792	unknown	unknown

Summary

- 7.9 To summarise, within 200m of the scheme there are 62 undesignated assets where there is a potential for direct impacts. Potential major impacts have been identified for seven assets, six of which are of medium value, including the site of a chambered tomb (PRN 1544) and a long hut (PRN 4088), and one of low value, so that the significance, based on Table 3, is assessed as **moderate/large** and **moderate/slight** respectively. Potential moderate impacts have been identified for 45 assets, of which three are of high value, including two hut circle settlements (PRNs 514-5) and a stone circle (PRN 5077), 34 are of medium value and eight are of low value. The significance is therefore **moderate/large** in three cases, **moderate** in 34 cases and **slight** in eight cases. In 10 cases the potential impact is minor, so that the significance is **neutral or slight**. The underground cable connection to the substation at Pentir runs parallel to, and within 100m of the predicted line of the Roman road (RR67c) from Caerhun to Caernarfon (Segontium) (Fig. 11). The actual line of the road, and its degree of survival, are unknown but there remains the possibility that the road may be affected by the proposals.
- 7.10 Areas of particular concern include the line of the Roman road between Caerhun and Caernarfon which crosses the powerline a number of times and in some cases is assumed to have been adopted by a present day trackway, between SH 7208 7155 and SH 7099 7197, and SH 7029 7206 and SH 6958 7227, which may be used to gain access to the powerline. In addition there are two areas which contain extensive prehistoric and medieval field systems, which have been the subject of a rapid mapping exercise as part of this project in order to flag up and mitigate potential impacts during the work. Areas which are considered to be of particular archaeological sensitivity are depicted on the accompanying mapping.
- 7.11 There is some potential for damage to unrecorded, buried cultural heritage features which may result from compaction caused by the placement of the retensioning equipment. However, there is currently no information available regarding the potential for compaction and this will in any case inevitably vary depending on the nature of the soils, vegetation and moisture content.

8 Detailed Mitigation Measures

Introduction

- 8.1 A number of cultural heritage assets have been identified within the assessment area which could be subject to direct impacts.
- 8.2 In the light of the assessment above, this section provides a description of the measures adopted to mitigate the identified impacts on cultural heritage assets, together with a consideration of the residual effects of the development on cultural heritage assets.

Mitigation strategy

- 8.3 Cultural 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 cultural 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.

- 8.4 The client will be provided with digital data identifying the location of all cultural heritage assets which should be included on all constraints mapping for the project and be used during the development of the project design.
- 8.5 Further cultural heritage input will be required during the design phase to ensure the effectiveness of the mitigation strategy and determine any further requirements for assessment or mitigation which may be appropriate.
- 8.6 Tables 9-11 provide detailed mitigation options for designated and undesignated assets for which there may be a direct impact from the proposed refurbishment works.

Mitigation Measures for Scheduled Ancient Monuments

Repainting of pylons

- 8.6 *Activity* Access to the powerline will be by all terrain vehicles and on foot and the repainting will be conducted without the use of scaffolding or mobile elevated working platforms (MEWPs). There may, however, be potential impacts relating to vehicular access to the general area.
- 8.7 *Mitigation* The recommended mitigation is the avoidance of all scheduled areas through careful planning of the works programme, but specifically:
 - No vehicular access within or across a scheduled area. However, existing trackways which can be used for access cross the scheduled areas for CN 344, CN 345, CN 129 and CN 131 and it has been acknowledged by Cadw that access can be permitted across the scheduled areas provided that all vehicles adhere strictly to the track
 - No positioning or operation of machinery within a scheduled area
 - No storage of equipment or materials within a scheduled area
 - Appropriate demarcation of scheduled areas to ensure avoidance
 - All contractors to be made aware of the protected status of the monuments and the restrictions that this status imposes
 - Cadw to be provided with a method statement in advance of works commencing
- 8.8 *Consents* It has been determined through consultation with Cadw that scheduled monument consent is not required for the proposed works, although Cadw should be kept informed of the work programme for the relevant sections of the powerline to facilitate monitoring.

Restranging of cables

- 8.9 *Activity* There is the potential for direct impacts through vehicle movement, improvements to existing trackways, the positioning of the puller/tensioner equipment and cable drums and the storage of materials.
- 8.10 *Mitigation* The recommended mitigation is the avoidance of all scheduled areas through careful planning of the works programme, but specifically:

- No vehicular access within or across a scheduled area. However, existing trackways which can be used for access cross the scheduled areas for CN 344, CN 345, CN 129 and CN 131 and it has been acknowledged by Cadw that access can be permitted across the scheduled areas provided that all vehicles adhere strictly to the track.
- No positioning or operation of machinery within a scheduled area
- No storage of equipment or materials within a scheduled area
- Appropriate demarcation of scheduled areas. To be conducted under the supervision of an archaeologist prior to the commencement of works
- An archaeologist to be present during initial access to areas containing scheduled ancient monuments to ensure awareness and avoidance
- An archaeologist should conduct monitoring visits during any operations within the vicinity of a scheduled area to ensure the effectiveness of the mitigation strategy
- All contractors to be made aware of the protected status of the monuments and the restrictions that this status imposes.
- Cadw to be provided with a method statement in advance of the works commencing

8.11 *Consents* It has been determined through consultation with Cadw that scheduled monument consent is not required for the proposed works, provided that the above mitigation can be implemented.

- Any changes to the work programme must address potential impacts on scheduled areas and should be discussed with Cadw at the earliest opportunity.
- Cadw should be kept informed of the work programme for the relevant sections of the powerline to facilitate monitoring.

Underground cable connection at Pentir

8.12 *Activity* Installation of a c. 500m-long underground cable from the westernmost pylon to the substation. There are no scheduled ancient monuments within the area and no mitigation is proposed.

Table 9: Mitigation Measures for Scheduled Ancient Monuments

SAM No	Name	Type of impact	Mitigation
CN129	Bwlch y Ddeufaen Standing Stones	vehicle/equipment	Avoid/demarcate
CN130	Cerrig Pryfaid Stone Circle	vehicle/equipment	avoid
CN131	Barclodiad-y-Gawres Round Cairn	vehicle/equipment	Avoid/demarcate
CN245	Hut Circle Settlement on Caer Mynydd	vehicle/equipment	Avoid/demarcate
CN286	Hut Circle and Rectangular Hut, N of Wern y Pandy	vehicle/equipment	Avoid/demarcate
CN341	Cairn to NNW of Yr Orsedd	none	avoid
CN342	Cairn to NE of Foel Dduarth	none	avoid
CN344	Cairn to N of Cras	vehicle/equipment	Avoid/demarcate
CN345	Ring cairn to N of Cras	vehicle/equipment	Avoid/demarcate
CN346	Cras cairn	none	avoid

Mitigation Measures for Listed Buildings

Repainting of pylons

8.13 *Activity/Mitigation* There is no predicted impact on listed buildings and therefore no mitigation is proposed.

Restranging of cables

- 8.14 *Activity/Mitigation* There is no predicted impact on listed buildings and therefore no mitigation is proposed.

Underground cable connection at Pentir

- 8.15 *Activity* Installation of a c. 500m-long underground cable from the westernmost pylon to the substation. There are no listed buildings within the area and no mitigation is proposed.

Table 10: Mitigation Measures for Listed Buildings

Listing No	Name	Type of impact	Magnitude of impact before mitigation
3160	Ffynnon-Bedr Cottage	none	none
3209	Barn at Ffynnon-Bedr	none	none
3210	Tyddyn-y-Coed Farmhouse	none	none
3653	Cochwillan	none	none
17015	Stable and Cart Range at Ffynnon-Bedr	none	none
17020	Former Farmhouse at Gwern Felin	none	none
17021	Agricultural Range at Gwern Felin	none	none
18919	Railway bridge at Coed Howel	none	none
18922	Fferm Glasynfryn	none	none
18923	Bryn-y-meddyg	none	none
22928	Plas-uchaf	none	none
22946	Tyddyn-isaf & Tyddyn-isaf bach	none	none
22948	Cart Shelter and Pigsties at Plas-uchaf	none	none
22949	L-shaped Cowhouse Range at Plas-uchaf	none	none
22950	Small Cowhouse Range at Plas-uchaf	none	none
22958	Outbuildings at Cochwillan	none	none
22959	Bwthyn Cochwillan	none	none
22960	Pigsties at Bwthyn Cochwillan	none	none
22961	Slate Fencing at Bwthyn Cochwillan	none	none
22962	Fferm Cochwillan	none	none
22963	Cowhouses/Cart Shelter at Fferm Cochwillan	none	none
22964	Pigsties/Pig Kitchen at Fferm Cochwillan	none	none
23384	Penrhyn Estate workers' cottage	none	none
23385	Penrhyn Estate workers' cottage	none	none
23471	Penrhyn Estate workers' cottage	none	none

Mitigation Measures for Undesignated Assets**Repainting of pylons**

- 8.14 *Activity* Access to the powerline will be by all terrain vehicles and on foot and the repainting will be conducted without the use of scaffolding or mobile elevated working platforms (MEWPs).
- 8.15 *Mitigation* The powerline passes through an extremely sensitive upland area which contains a significant number of undesignated assets. For some of these assets the precise location and extent has yet to be determined. The following mitigation is therefore proposed:
- Feedback of survey information to SP Manweb in GIS format
 - No vehicular access across an asset

- An archaeologist to be present during initial access to areas where undesignated assets may be subject to an impact to ensure awareness and avoidance
- An archaeologist should conduct monitoring visits during the operations in areas where undesignated assets may be subject to an impact to ensure the effectiveness of the mitigation strategy
- An archaeologist must be present should access or works be unavoidable within any of the identified areas of archaeological sensitivity defined on the accompanying mapping to ensure the awareness and avoidance of assets.

Restraining of cables

8.16 *Activity* There is the potential for direct impacts on a number of undesignated assets through vehicle movement and the positioning of the puller/tensioner equipment and cable drums.

8.17 *Mitigation* The recommended mitigation is avoidance through careful planning of the works programme and specifically:

- No vehicular access across an asset
- No positioning or operation of machinery within the immediate area of an asset
- No storage of equipment or materials within the immediate area of an asset
- Demarcation where appropriate to ensure avoidance. To be conducted under the supervision of an archaeologist prior to the commencement of works
- An archaeologist must be present should access or works be unavoidable within any of the identified areas of archaeological sensitivity defined on the accompanying mapping to ensure the awareness and avoidance of assets.
- Appropriate field evaluation of assets where an impact is unavoidable. This may be of particular relevance to sections of the Roman road which are thought to have been adopted by a present day trackway between SH 72087155 and SH 70997197, and SH 70297206 and SH 69587227, should any improvements to the trackway be proposed.

8.18 *Consents* No formal consents are required, although the Snowdonia National Park Archaeologist, the National Trust Archaeologist, and the Gwynedd Archaeological Planning Service should be provided with a method statement and kept informed of the work programme for the relevant sections of the powerline.

Underground cable connection at Pentir

8.19 *Activity* Installation of a c. 500m-long underground cable from the westernmost pylon to the substation. The only undesignated asset close to the proposed route is an artificial rabbit warren, also known as a pillow mound (PRN 20), but this lies in an adjacent field and should therefore be unaffected. However, the route runs parallel to, and within 100m of the predicted line of a Roman road (Fig. 11).

Mitigation At the time of writing the proposed route and construction method for the underground cable have yet to be determined. The following mitigation is therefore provisional and should be reviewed once details of the scheme are available.

- Field-walk survey to be undertaken of the route in order to identify any previously unrecorded cultural heritage assets.
- Depending on the route, the method of construction and the potential extent of ground disturbance a further stage of assessment might be considered, consisting of geophysical survey and perhaps trial excavation should the survey identify and potentially significant archaeology.
- The pillow mound (PRN 20) should be clearly demarcated if any activity is planned in the field where it lies.
- A watching brief should be maintained during soil stripping activities along any wayleave and / or during the excavation of the cable trench as appropriate.

- Sufficient time and resources must be made available to ensure the preservation by record of any archaeological features or deposits which are revealed during the watching brief.

8.20 *Consents* No formal consents are required, although the Gwynedd Archaeological Planning Service would wish to be consulted regarding mitigation once details of the scheme are available.

Table 11: Mitigation Measures for undesignated cultural heritage assets

NPRN	PRN	Type	Value	Type of impact	Mitigation
278649		Earthwork	low	Access	Avoid
	20	Pillow Mound	medium	Underground cable	Avoid/demarcate
	21	Hut Circle	medium	Access/restringing	Avoid
	26	Enclosure	medium	Access	Avoid
	71	Long Hut	medium	Access	Avoid
	233	Hut Circle Settlement	medium	Access	Avoid
	235	Hut Circle	medium	Access	Avoid
	338	Hut Circle	medium	Access/restringing	Avoid
	365	Incised Stone	medium	Access	Avoid
	383	Incised Stone	medium	Access	Avoid
	384	Incised Stone	medium	Access/restringing	Avoid
	389	Burnt Mound	medium	Access	Avoid
	514	Hut Circle Settlement	high	Access	Avoid
	515	Hut Circle Settlement	high	Access	Avoid
	516	Long Hut	medium	Access/restringing	Avoid
	518	Long Hut	medium	Access/restringing	Avoid
	1544	Chambered Tomb	medium	Access/restringing	Avoid
	4088	Long Hut	medium	Access/restringing	Avoid
	4702	Enclosure	medium	Access/restringing	Avoid
	4703	Long Hut	medium	Access/restringing	Avoid
	5077	Stone Circle	high	Access	Avoid
	5389	Bank (Earthwork)	low	Access	Avoid
	5390	Bank (Earthwork)	low	Access	Avoid
	5391	Clearance Cairn	low	Access	Avoid
	5392	Terraced Ground	low	Access	Avoid
	5393	Hut Circle	medium	Access	Avoid
	5396	Structure	low	Access	Avoid
	5398	Bank	low	Access	Avoid

		(Earthwork)			
	5401	Boulder	low	Access	Avoid
	5402	Burnt Mound	medium	Access	Avoid
	5474	Field System	medium	Access/ restringing	Avoid
	7108	Enclosure	medium	Access	Avoid
	7111	Hut Circle	medium	Access	Avoid
	7112	Platform	medium	Access	Avoid
	7113	Field System	medium	Access/ restringing	Avoid
	7114	Hut Circle	medium	Access/ restringing	Avoid
	7115	Enclosure	medium	Access/ restringing	Avoid
	7146	Hut Circle	medium		Avoid
	7148	Enclosure	medium	Access/ restringing	Avoid
	7561	Deserted Rural Settlement	medium	Access	Avoid
	7566	Deserted Rural Settlement	medium	Access	Avoid
	7567	Deserted Rural Settlement	medium	Access/ restringing	Avoid
	17572	Road	medium	Access	Avoid/ ?evaluate
	17573	Road	medium	Access	Avoid
	17575	Road	medium	Access	Avoid/ ?evaluate
	17576	Road	medium	Access	Avoid/ ?evaluate
	17577	Road	medium	Access	Avoid/ ?evaluate
	29520	Hut Circle Settlement	medium	Access	Avoid
	29528	Hut Circle	medium	Access	Avoid
	33941	Sheepfold	negligible	Access/ restringing	Avoid
	33951	Building	medium	Access	Avoid
	33957	Sheepfold	low	Access	Avoid
	33958	Building	low	Access/ restringing	Avoid
	33959	Building	low	Access/ restringing	Avoid
	33961	Sheepfold	low	Access	Avoid
	33964	Quarry	negligible	Access	Avoid
	34016	Field System	medium	Access/ restringing	Avoid
	34017	Field System	medium	Access/ restringing	Avoid
	34712	Hut platform	medium	Access	Avoid
	34713	Field System	medium	Access/ restringing	Avoid
	34714	Field System	medium	Access/ restringing	Avoid

9 **Conclusions**

- 9.1 A cultural heritage study has been prepared for the proposed refurbishment of a 132kV overhead powerline between Dolgarrog and Pentir, near Bangor, and is based on an assessment of the available desk-top sources for assets within at least 200m of the route, together with selective field survey for those areas, principally comprising unenclosed upland, where the location and extent of assets required verification in order to determine potential impacts and develop appropriate mitigation.
- 9.2 The study indicates that there is the potential for direct impacts on a significant number of cultural heritage assets including seven scheduled ancient monuments. A mitigation strategy has been developed following consultation with Cadw to avoid impacts to the scheduled areas. Of the 178 undesignated assets identified during the assessment, a potential direct impact has been identified for 62 assets, three of which are considered to be of high value, 45 of medium value, 12 of low value and two of negligible value.
- 9.3 Mitigation measures have been proposed for each asset where a direct impact is considered possible and these have been based on the underlying assumption that no identified cultural heritage asset, regardless of its category, should be significantly disturbed unless this proves to be wholly unavoidable.
- 9.4 The additional desk-based assessment investigating the proposed underground cable connection has identified two undesignated assets within 200m of the route, one of which, a pillow mound, is unlikely to be affected. The other asset is the predicted line of the Roman road between Caerhun and Caernarfon (Segontium) which runs parallel to the cable route. A range of potential mitigation measures have been proposed which will need to be reviewed once details of the scheme become available.
- 9.5 This assessment will assist in the project design for the restringing operations as well as in the development of a strategy for access for both phases of the refurbishment. Further cultural heritage input will be required during the development of the project design to ensure the effectiveness of the mitigation strategy and determine any further requirements for assessment or mitigation which may be appropriate.

10 **References**

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 1948 CPE/UK/2525-4059

1948	CPE/UK/2525-4060
1948	CPE/UK/2525-4061
1948	CPE/UK/2525-4062
1957	58/2196-77
1957	58/2196-78
1957	58/2196-79
1957	58/2196-80
1957	58/2196-81

Appendix 1 Gazetteer of sites

Undesignated Cultural Heritage Assets within 200m of the overhead line

NPRN	PRN	Type	Period	NGR	Value	Magnitude of impact before mitigation
6769		Chapel	Post-medieval	SH7550769860	medium	none
6771		Chapel	Post-medieval	SH76876839	medium	none
11977		Chapel	Post-medieval	SH75516987	medium	none
15056		Sheep Fold	Post-medieval	SH74597004	low	none
16801		Dwelling	Post-medieval?	SH59396981	low	none
17043		House	Post-medieval?	SH74037065	medium	none
23807		Bridge	Post-medieval?	SH76956760	medium	none
23818		Bridge	Post-medieval?	SH76696867	medium	none
26736		House	Post-medieval?	SH75486988	medium	none
85420		Hydro Electric Power Station	Modern	SH76996759	medium	none
93572		Standing Stone	Prehistoric	SH724713	medium	none
275575		Sheep Shelter	Post-medieval	SH70777216	low	none
275581		Shelter	Post-medieval	SH69777212	low	none
275582		Sheep Fold	Post-medieval	SH69717218	low	none
275583		Shelter	Post-medieval	SH69697216	low	none
278534		Boundary Bank	Unknown	SH68537231	medium	none
278545		Hut Platform	Medieval	SH68487215	medium	none
278546		Long Hut	Medieval	SH68347230	medium	none
278547		Burnt Mound	Bronze Age	SH68037233	medium	none
278644		Cairn	Unknown	SH71467169	medium	none
278645		Sheep Shelter	Post-medieval	SH71437167	low	none
278649		Earthwork	Unknown	SH73407076	low	moderate
278667		Barn	Post-medieval	SH73677039	low	none
	20	Pillow Mound	Unknown	SH5635068180	medium	moderate
	21	Hut Circle	Prehistoric	SH5809069470	medium	moderate
	26	Enclosure	Unknown	SH5973069600	medium	moderate
	57	Enclosure	Unknown	SH5720069350	medium	none
	68	Hut Circle	Unknown	SH6421070700	medium	none
	71	Long Hut	Unknown	SH6428070650	medium	moderate
	72	Long Hut	Unknown	SH6432070800	medium	none
	73	Boundary Marker	Unknown	SH6495070750	low	none
	233	Hut Circle Settlement	Medieval	SH6580071380	medium	moderate
	235	Hut Circle	Roman	SH6571571360	medium	moderate
	338	Hut Circle	Unknown	SH6695071620	medium	moderate
	340	Hut Circle	Roman	SH6645071400	medium	none
	355	Cairn	Bronze Age	SH6742071630	high	none
	356	Cairn	Bronze Age	SH6739071660	high	none
	362	Cairn	Unknown	SH6764072050	medium	none
	365	Incised Stone	Medieval	SH6801272067	medium	moderate
	380	Cairn	Bronze Age	SH6859072210	high	none
	383	Incised Stone	Roman	SH6936072310	medium	major
	384	Incised Stone	Prehistoric	SH6937072280	medium	major

NPRN	PRN	Type	Period	NGR	Value	Magnitude of impact before mitigation
	385	Incised Stone	Prehistoric	SH6923072380	medium	none
	389	Burnt Mound	Bronze Age	SH6886072170	medium	moderate
	390	Burnt Mound	Bronze Age	SH6894072320	medium	none
	391	Burnt Mound	Bronze Age	SH6957072430	medium	none
	463	Cairn	Bronze Age	SH7089071980	high	none
	483	Cairn	Bronze Age	SH7055072010	high	none
	514	Hut Circle Settlement	Roman	SH7244071210	high	moderate
	515	Hut Circle Settlement	Unknown	SH7163071810	high	moderate
	516	Long Hut	Unknown	SH7168071710	medium	moderate
	518	Long Hut	Unknown	SH7240071190	medium	moderate
	675	Well	Unknown	SH7629069140	medium	none
	812	Trackway	Unknown	SH5940069650	low	none
	815	Burnt Mound	Unknown	SH5978069780	medium	none
	1544	Chambered Tomb	Prehistoric	SH7703067770	medium	major
	3667	Hut Circle Settlement	Unknown	SH6245069850	medium	none
	3673	Findspot	Prehistoric	SH6060069400	negligible	none
	3857	Trackway	Prehistoric	SH6878072150	medium	none
	4088	Long Hut	Medieval	SH6776072010	medium	major
	4095	Cairn	Bronze Age	SH6803072020	high	none
	4608	Findspot	Unknown	SH7600069000	negligible	none
	4609	Mine	Roman	SH7608068820	medium	none
	4611	House	Medieval	SH7628068980	medium	none
	4612	House	Medieval	SH7628068960	medium	none
	4613	House	Medieval	SH7626068960	medium	none
	4615	Findspot	Prehistoric	SH7700067700	negligible	none
	4688	Milestone	Roman	SH7198071550	negligible	none
	4694	House Platform	Medieval	SH7473070260	medium	none
	4702	Enclosure	Early Medieval	SH7160071770	medium	moderate
	4703	Long Hut	Early Medieval	SH7166071700	medium	moderate
	4704	Findspot	Prehistoric	SH7200071500	negligible	none
	5077	Stone Circle	Prehistoric	SH7153071750	high	moderate
	5386	Terraced Ground	Unknown	SH6760071700	low	none
	5387	Trackway	Unknown	SH6764071760	low	none
	5388	Scoop	Unknown	SH6764071820	negligible	none
	5389	Bank (Earthwork)	Unknown	SH6763071900	low	minor
	5390	Bank (Earthwork)	Unknown	SH6763071980	low	moderate
	5391	Clearance Cairn	Unknown	SH6767072000	low	moderate
	5392	Terraced Ground	Unknown	SH6770072040	low	minor
	5393	Hut Circle	Prehistoric	SH6774072050	medium	moderate
	5394	Clearance Cairn	Unknown	SH6789372013	low	none
	5395	Structure	Unknown	SH6802072040	low	none
	5396	Structure	Unknown	SH6804072070	low	moderate
	5397	Burnt Mound	Bronze Age	SH6805072120	medium	none
	5398	Bank (Earthwork)	Unknown	SH6836072180	low	moderate
	5399	Bank (Earthwork)	Unknown	SH6851772191	low	none
	5400	Platform	Medieval	SH6865072180	medium	none
	5401	Boulder	Unknown	SH6869072230	low	moderate

NPRN	PRN	Type	Period	NGR	Value	Magnitude of impact before mitigation
	5402	Burnt Mound	Prehistoric	SH6883072170	medium	moderate
	5403	Long Hut	Medieval	SH6885072110	medium	none
	5410	Bank (Earthwork)	Unknown	SH6935072350	low	none
	5474	Field System	Unknown	SH6766072000	medium	minor
	7058	Long Hut	Medieval	SH6869072330	medium	none
	7107	Hut Circle	Prehistoric	SH6586071510	medium	none
	7108	Enclosure	Unknown	SH6580071400	medium	moderate
	7111	Hut Circle	Prehistoric	SH6593071440	medium	moderate
	7112	Platform	Medieval	SH6590071400	medium	moderate
	7113	Field System	Unknown	SH6560071300	medium	moderate
	7114	Hut Circle	Prehistoric	SH6572071290	medium	moderate
	7115	Enclosure	Unknown	SH6569071240	medium	moderate
	7118	Hut Circle Settlement	Prehistoric	SH6596071220	medium	none
	7119	Hut Circle	Prehistoric	SH6601071530	medium	none
	7120	Hut Circle	Prehistoric	SH6602071290	medium	none
	7121	Enclosure	Unknown	SH6598071150	medium	none
	7122	Enclosure	Unknown	SH6608071250	medium	none
	7144	Hut Circle	Prehistoric	SH6758072010	medium	none
	7146	Hut Circle	Prehistoric	SH6751071920	medium	moderate
	7148	Enclosure	Unknown	SH6739071830	medium	moderate
	7150	Field System	Unknown	SH6750071670	medium	none
	7433	Enclosure	Unknown	SH6812072140	low	none
	7453	Enclosure	Unknown	SH6827072380	medium	none
	7560	Deserted Rural Settlement	Medieval	SH7490070250	medium	none
	7561	Deserted Rural Settlement	Medieval	SH7494070100	medium	minor
	7565	Hut Platform	Medieval	SH6866072180	medium	none
	7566	Deserted Rural Settlement	Medieval	SH7234071290	medium	moderate
	7567	Deserted Rural Settlement	Medieval	SH7192071360	medium	moderate
	7568	Deserted Rural Settlement	Medieval	SH7336070920	medium	none
	7569	Deserted Rural Settlement	Medieval	SH7340070900	medium	none
	8900	Sheep Fold	Post-medieval	SH66947166	low	none
	11746	Hut Circle	Prehistoric	SH6585071500	medium	none
	12859	Bank (Earthwork)	Post-medieval	SH6645071480	low	none
	12966	Farmhouse	Post-medieval	SH7692067750	low	none
	15860	Landscape	Multi-Period	SH6630071300	medium	none
	17571	Road	Roman	SH6943072360	medium	none
	17572	Road	Roman	SH6973072280	medium	moderate
	17573	Road	Roman	SH7038072050	medium	moderate
	17574	Road	Roman	SH7072072010	medium	moderate
	17575	Road	Roman	SH7112071910	medium	moderate
	17576	Road	Roman	SH7157071740	medium	moderate
	17577	Road	Roman	SH7198071550	medium	moderate
	17588	Road	Roman	SH6877072410	medium	none

NPRN	PRN	Type	Period	NGR	Value	Magnitude of impact before mitigation
	20046	Slate Quarry	Post-medieval	SH6110069600	negligible	none
	20049	Slate Quarry	Post-medieval	SH6450070800	low	none
	20142	Slate Quarry	Post-medieval	SH7570069300	low	none
	20832	Quarry	Post-medieval	SH6400070500	negligible	none
	20839	Quarry	Post-medieval	SH6740072000	negligible	none
	29444	Arrow Sharpening Stone	Prehistoric	SH6642171350	negligible	none
	29519	Feature	Unknown	SH6737071660	medium	none
	29520	Hut Circle Settlement	Prehistoric	SH6755071800	medium	moderate
	29526	Long Hut	Medieval	SH6765071770	medium	none
	29528	Hut Circle	Prehistoric	SH6767072030	medium	moderate

Newly-recorded Undesignated Cultural Heritage Assets within 200m of the overhead line

NPRN	PRN	Type	Period	NGR	Value	Magnitude of impact before mitigation
	33959	Building	Post-medieval	SH6722471721	low	major
	34713	Field System	Medieval	SH658171150	medium	major
	34714	Field System	Medieval	SH67507183	medium	major
	33961	Sheepfold	Post-medieval	SH6531771151	low	minor
	33951	Building	Post-medieval	SH7363170640	medium	minor
	34016	Field System	Medieval	SH6399270447	medium	minor
	34017	Field System	Medieval	SH6586171267	medium	minor
	33941	Sheepfold	Post-medieval	SH7626068923	negligible	minor
	33964	Quarry	Post-medieval	SH6324170216	negligible	minor
	33957	Sheepfold	Post-medieval	SH7027372176	low	moderate
	33958	Building	Post-medieval	SH6724071719	low	moderate
	34712	Hut platform	Medieval	SH6592271592	medium	moderate
	33942	Building	Post-medieval	SH7596069404	low	none
	33943	Building	Post-medieval	SH7596969438	low	none
	33944	Building	Post-medieval	SH7596969523	low	none
	33945	Building	Post-medieval	SH7572669622	low	none
	33946	Building	Post-medieval	SH7571969687	low	none
	33948	Building	Post-medieval	SH7560869735	low	none
	33949	Building	Post-medieval	SH7562369741	low	none
	33956	Sheepfold	Post-medieval	SH7121672101	low	none
	33960	Building	Post-medieval	SH6720471653	low	none
	33962	Sheepfold	Post-medieval	SH6471370882	low	none
	33963	Sheepfold	Post-medieval	SH6375970338	low	none
	33965	Building	Post-medieval	SH6158069713	low	none
	33966	Leat	Post-medieval	SH6024269744	low	none
	33968	Railway	Post-medieval	SH5868769495	low	none
	33969	Railway	Post-medieval	SH5857069497	low	none
	33970	Stone	Post-medieval	SH5691968964	low	none
	33947	Building	Post-medieval	SH7558869680	medium	none
	33950	Building	Post-medieval	SH7545469694	medium	none

NPRN	PRN	Type	Period	NGR	Value	Magnitude of impact before mitigation
	33952	Sheepfold	Post-medieval	SH7359470763	negligible	none
	33953	Sheepfold	Post-medieval	SH7321870582	negligible	none
	33954	Sheepfold	Post-medieval	SH7311370626	negligible	none
	33955	Sheepfold	Post-medieval	SH7161271999	negligible	none
	33967	Quarry	Post-medieval	SH5904169589	negligible	none

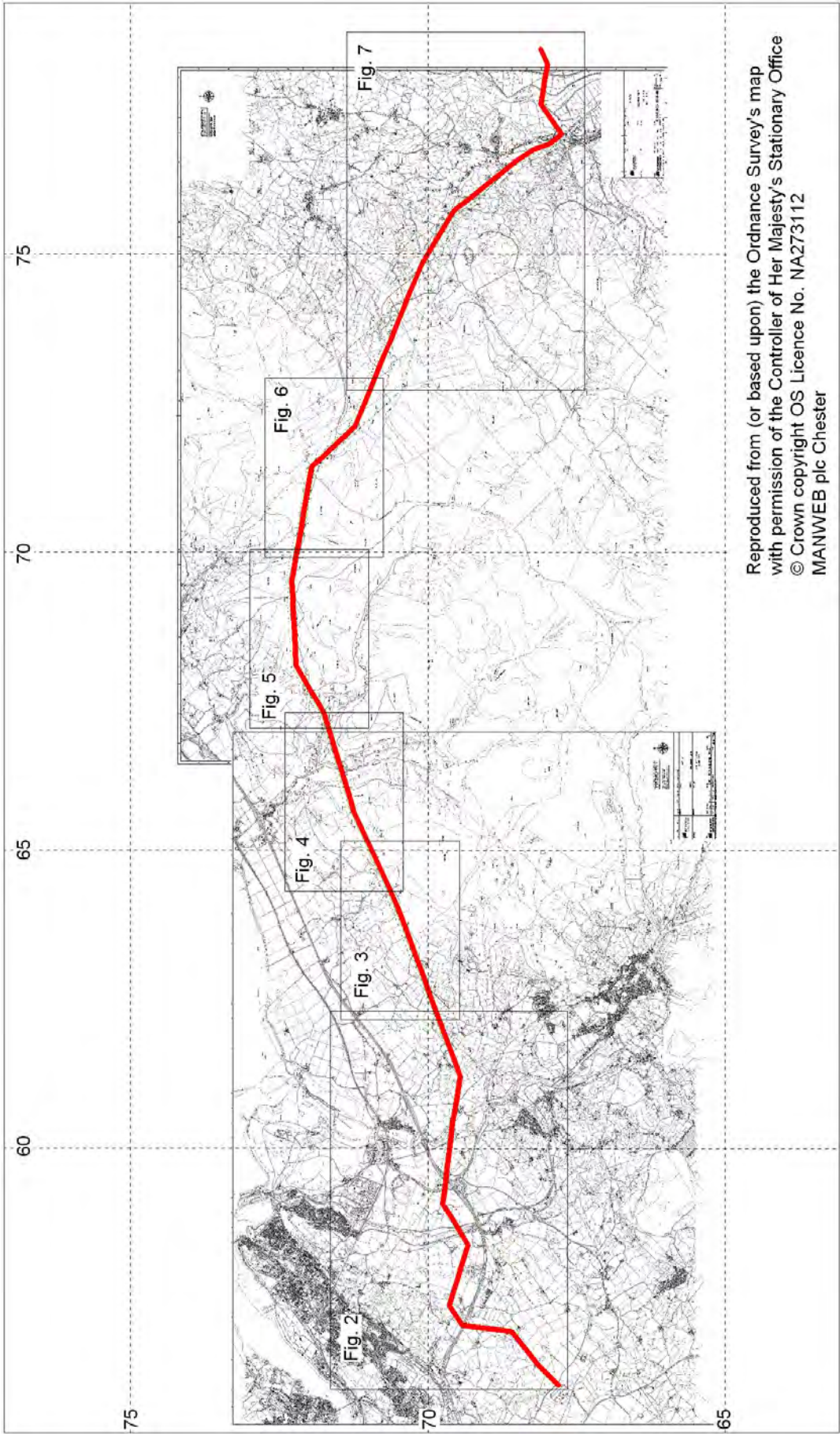


Fig. 1 The overall route of the AD line, providing a key for Figs 2-7

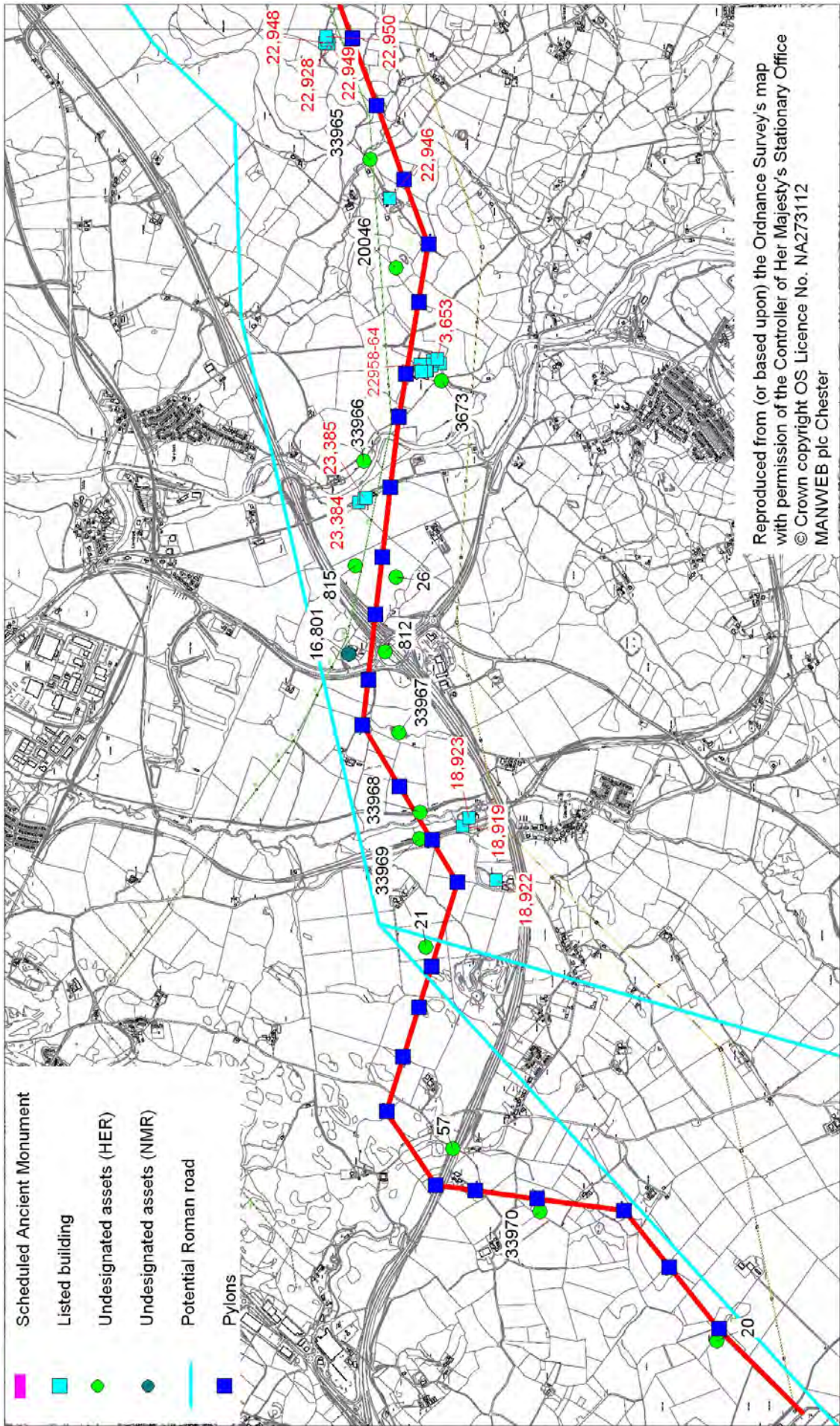


Fig. 2 Designated and non-designated cultural heritage assets, scale 1:25,000 (overhead line shown in red)

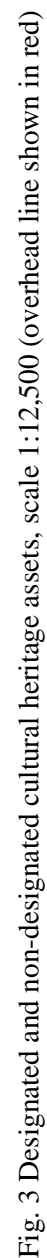




Fig. 4 Designated and undesignated cultural heritage assets, scale 1: 12,500(overhead line shown in red)

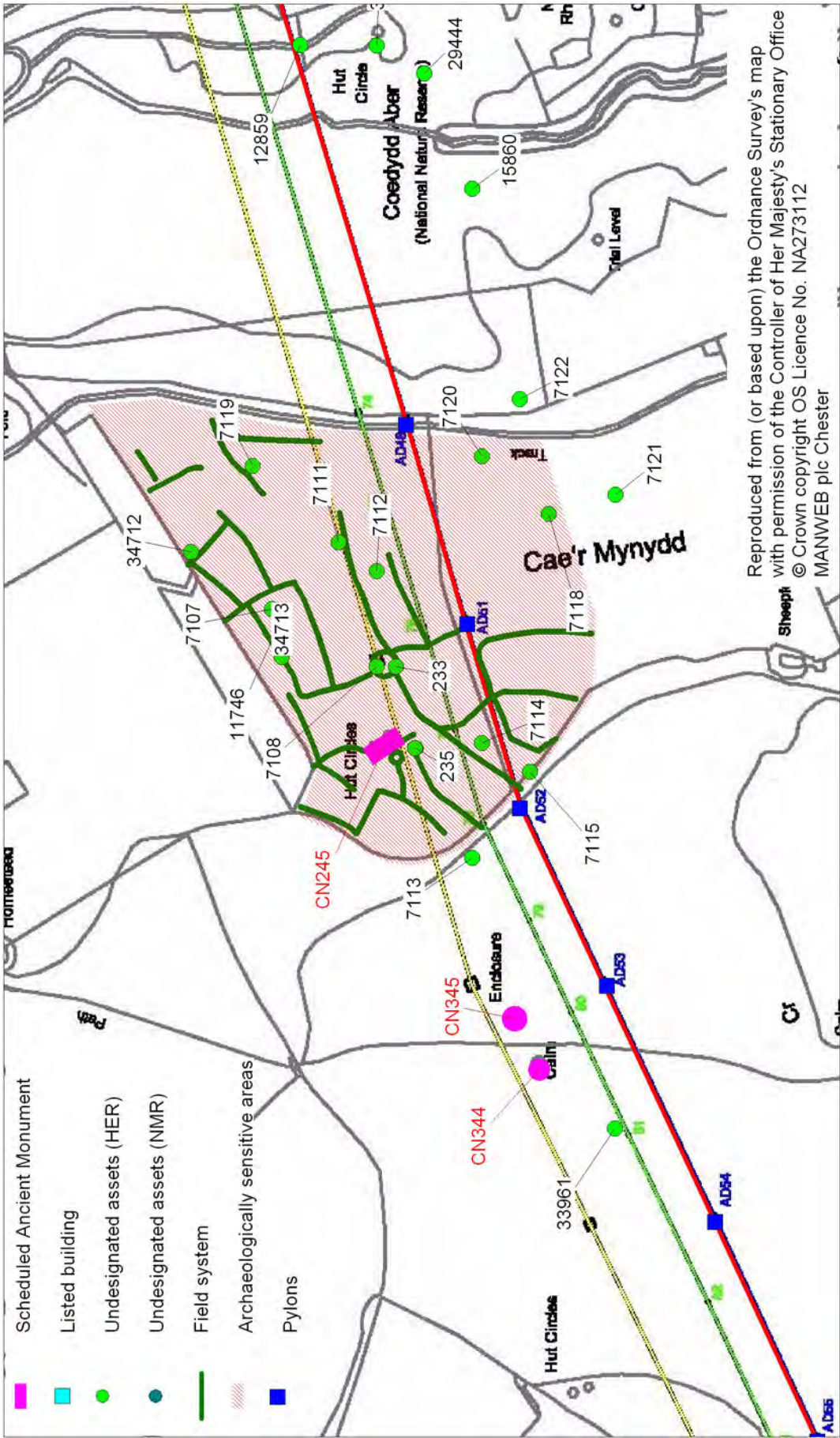


Fig. 5 Designated and undesignated cultural heritage assets, scale 1: 6,250 (overhead line shown in red)

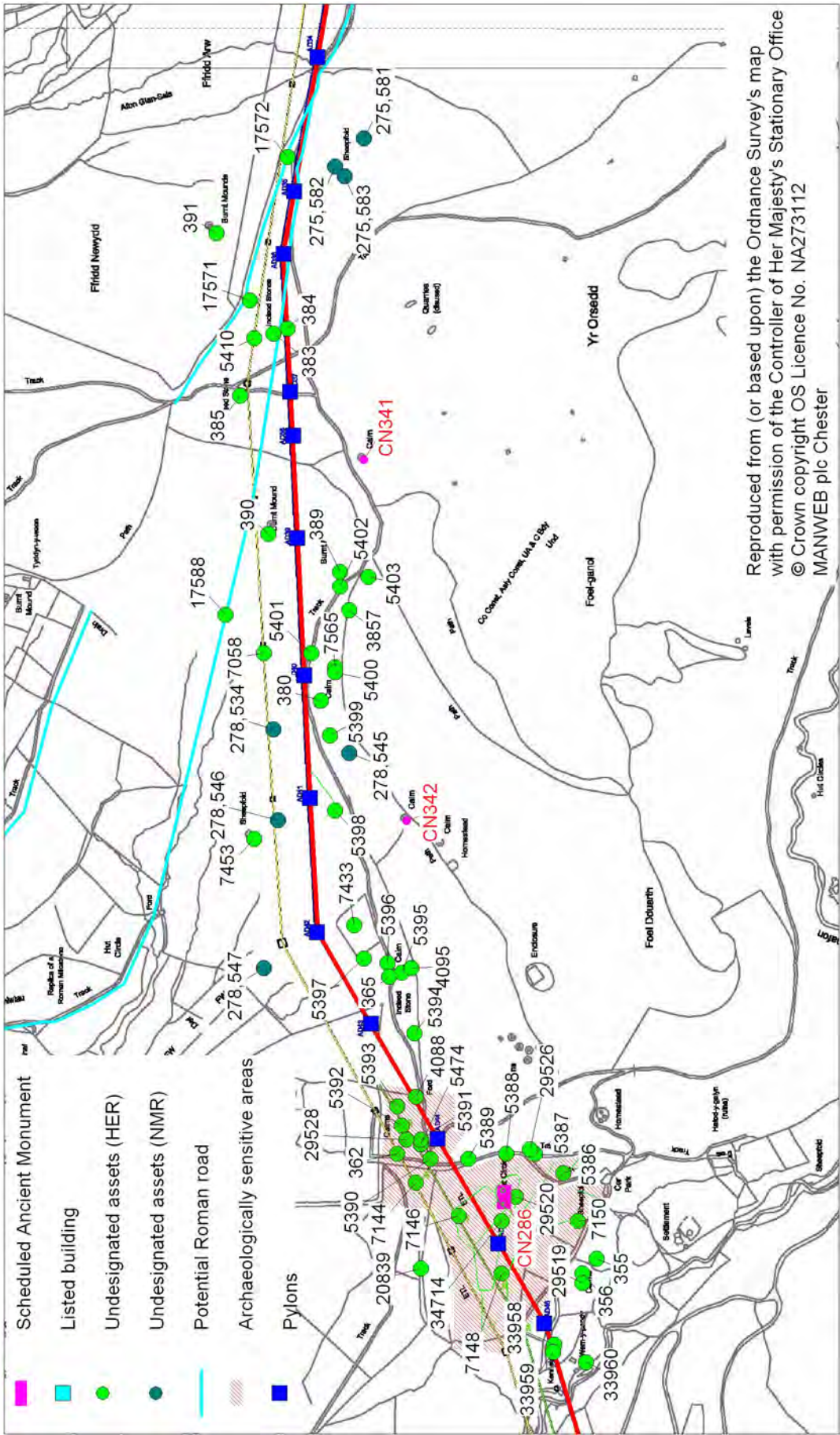
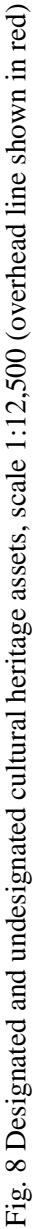


Fig. 6 Designated and undesignated cultural heritage assets, scale 1:12,500 (overhead line shown in red)



Fig. 7 Designated and undesignated cultural heritage assets, scale 1:6,250 (overhead line shown in red)



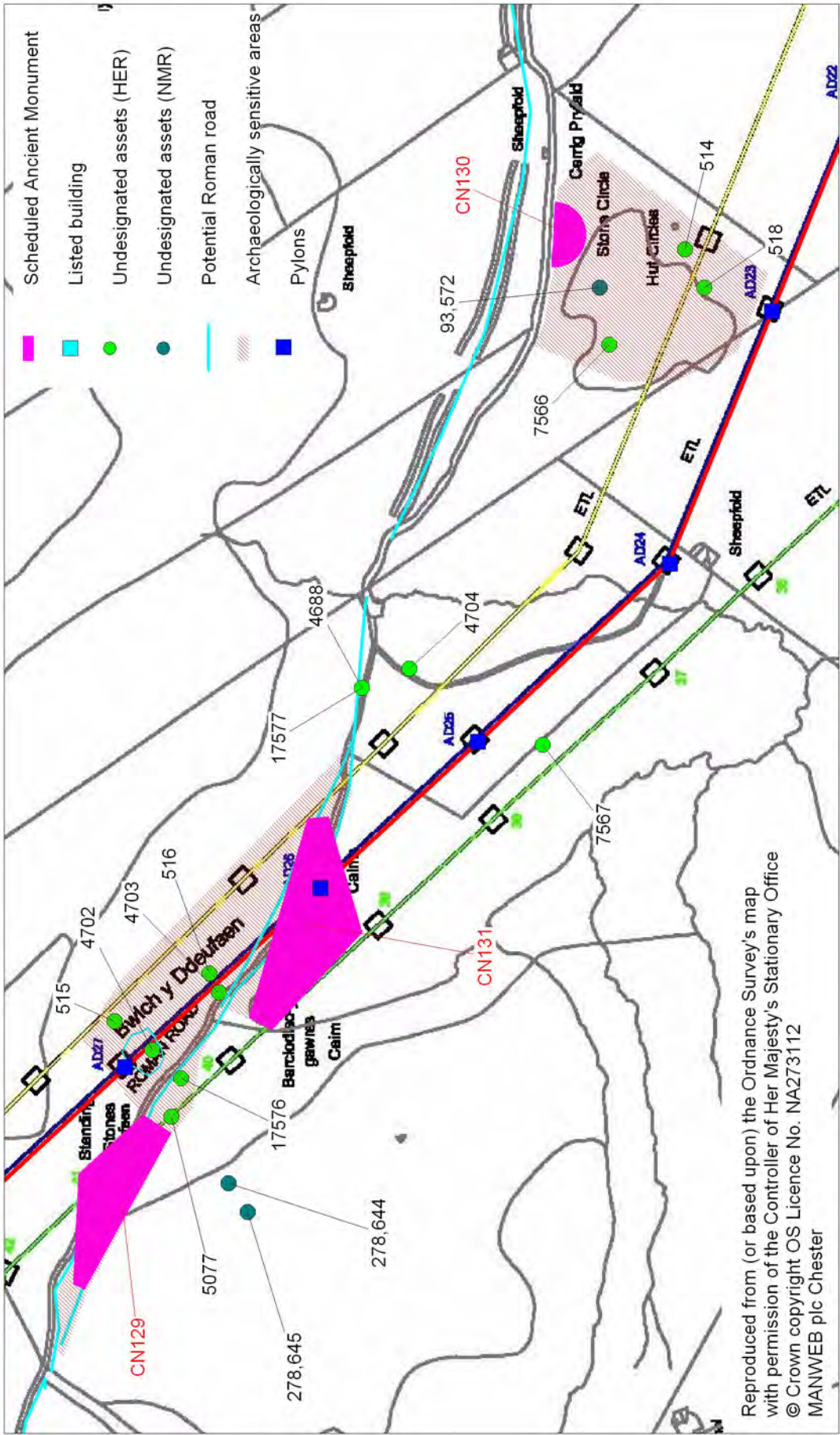


Fig. 9 Designated and undesignated cultural heritage assets, scale 1: 6,250 (overhead line shown in red)

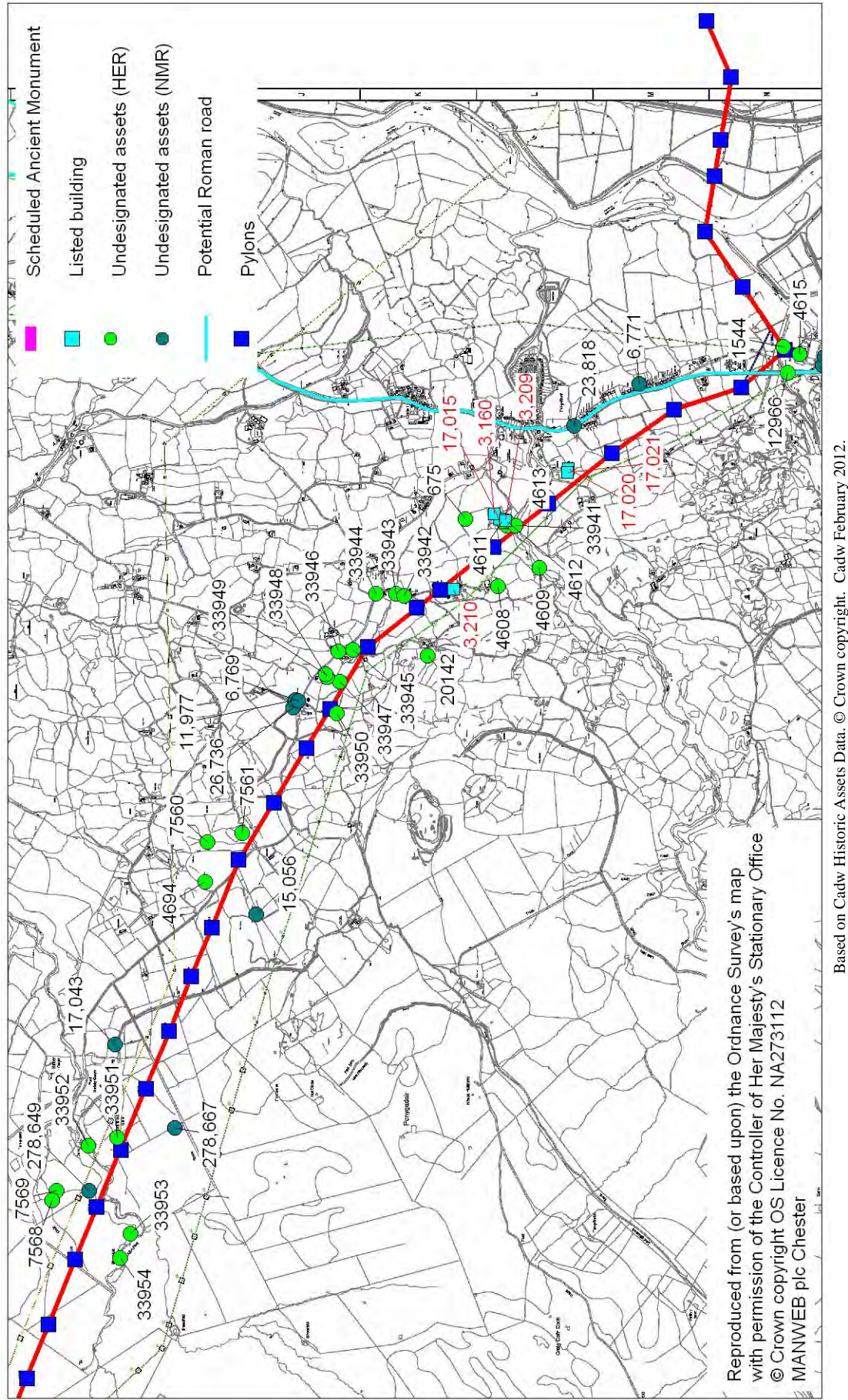


Fig. 10 Designated and undesignated cultural heritage assets, scale 1:25,000 (overhead line shown in red)

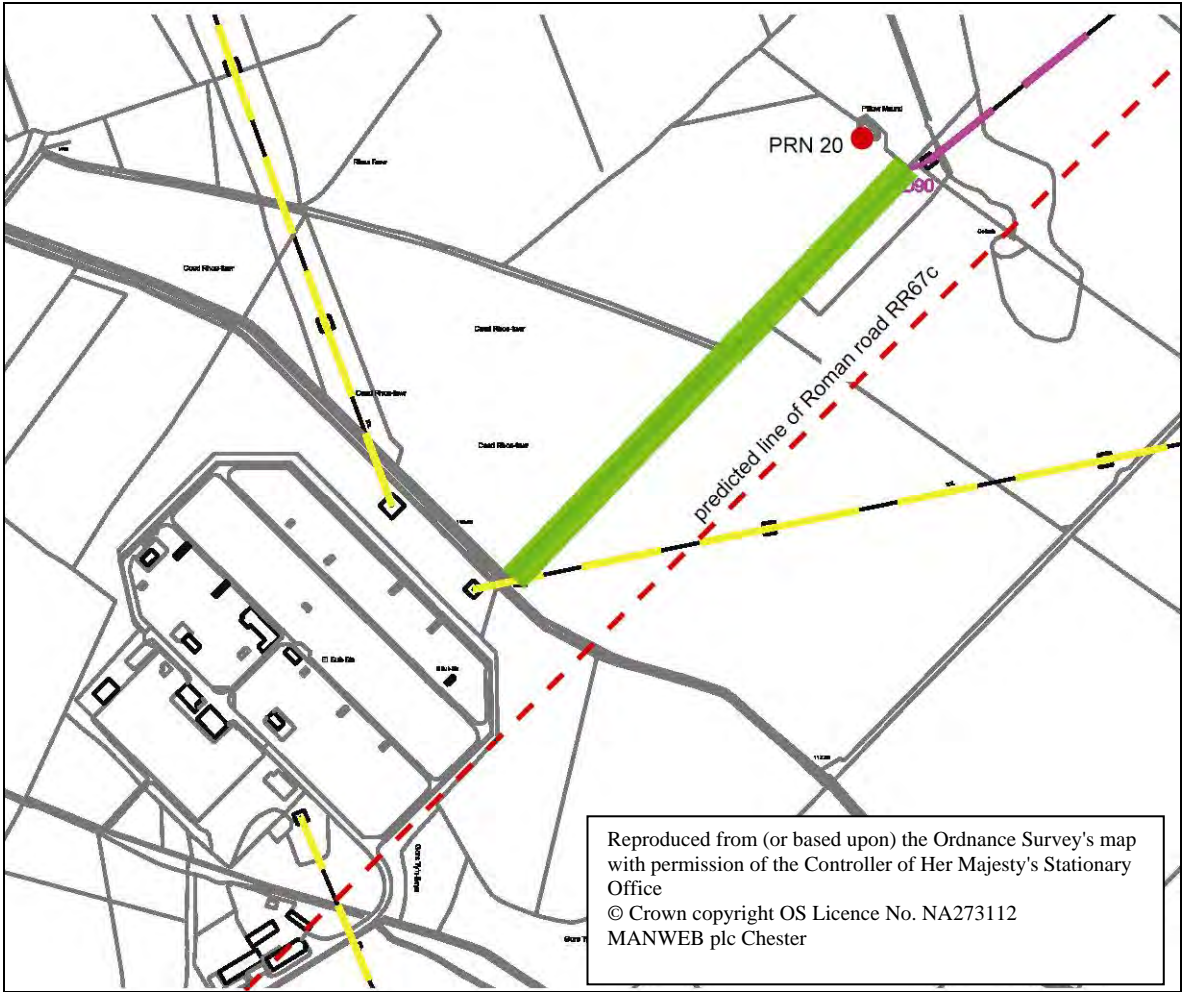


Fig. 11 Proposed underground cable connection (in green) to the substation at Pentir