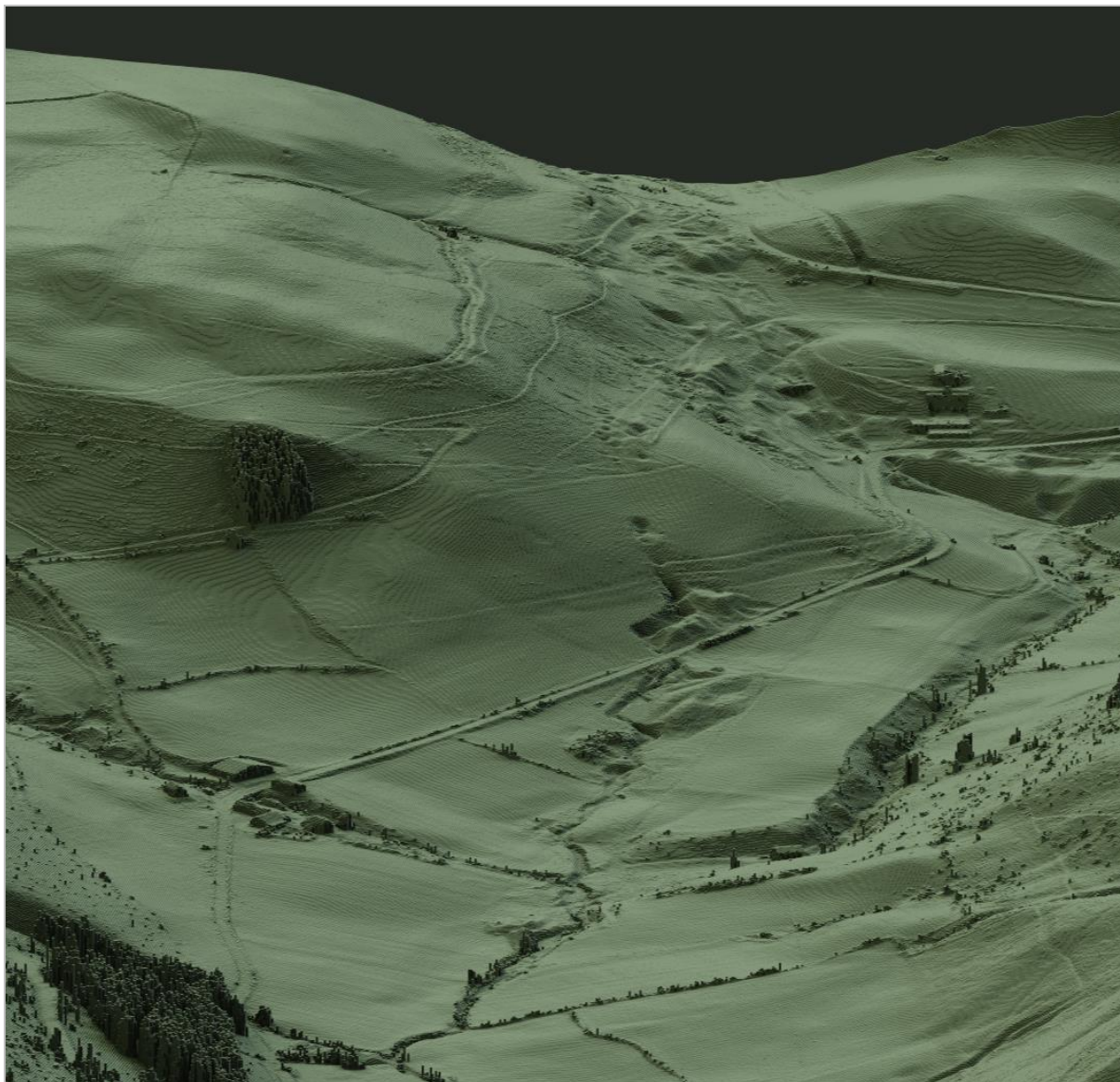


# WEMYSS METAL MINE

## ARCHAEOLOGICAL DESK BASED ASSESSMENT UPDATE



Cover Image: 3D rendered 1m DSM LiDAR data of Wemyss Metal mine, east facing perspective



Prepared by DAT Archaeological Services  
For Natural Resources Wales



ymddiriedolaeth archaeolegol  
**DYFED**  
archaeological trust

## DYFED ARCHAEOLOGICAL TRUST

REPORT NO 2020\_55  
EVENT RECORD NO. 125592

December 2020

# WEMYSS METAL MINE ARCHAEOLOGICAL DESK-BASED ASSESSMENT UPDATE

Gan / By

Menna Bell

*Paratowyd yr adroddiad yma at ddefnydd y cwsmer yn unig. Ni dderbynnir cyfrifoldeb gan Ymddiriedolaeth Archaeolegol Dyfed Cyf am ei ddefnyddio gan unrhyw berson na phersonau eraill a fydd yn ei ddarllen neu ddibynnu ar y gwybodaeth y mae'n ei gynnwys*

*The report has been prepared for the specific use of the client. Dyfed Archaeological Trust Limited can accept no responsibility for its use by any other person or persons who may read it or rely on the information it contains.*

Ymddiriedolaeth Archaeolegol Dyfed Cyf  
Ty Cornel, Stryd 6 Caerfyrddin,  
Llandeilo, Sir Gaerfyrddin SA19 6AE  
Ffon: Ymholiadau Cyffredinol 01558 823121  
Adran Rheoli Treftadaeth 01558 823131  
Ebost: [info@dyfedarchaeology.org.uk](mailto:info@dyfedarchaeology.org.uk)  
Gwefan: [www.archaeolegdyfed.org.uk](http://www.archaeolegdyfed.org.uk)

Dyfed Archaeological Trust Limited  
Corner House, 6 Carmarthen Street,  
Llandeilo, Carmarthenshire SA19 6AE  
Tel: General Enquiries 01558 823121  
Heritage Management Section 01558 823131  
Email: [info@dyfedarchaeology.org.uk](mailto:info@dyfedarchaeology.org.uk)  
Website: [www.dyfedarchaeology.org.uk](http://www.dyfedarchaeology.org.uk)

*Cwmni cyfyngedig (1198990) ynghyd ag elusen gofrestredig (504616) yw'r Ymddiriedolaeth.  
The Trust is both a Limited Company (No. 1198990) and a Registered Charity (No. 504616)  
CADEIRYDD CHAIR: J Protheroe Jones CYFARWYDDWR DIRECTOR: K MURPHY BA MCIfA*

**WEMYSS METAL MINE,  
ARCHAEOLOGICAL DESK BASED ASSESSMENT UPDATE**

<b>Client</b>	Natural Resources Wales
---------------	-------------------------

**Event Record No** 125992

<b>Report No</b>	2020-55
------------------	---------

**Project Code** FS20\_051

<b>Report Prepared By</b>	Menna Bell
---------------------------	------------

**Fieldwork Undertaken By** Menna Bell

<b>Illustrated By</b>	Menna Bell
-----------------------	------------

**Report Approved By** Philip Poucher

Rev Number	Description	Undertaken	Approved	Date
Version 1	DRAFT	MB	PP	17.12.2020
Version 2	FINAL	MB	FM	25.02.2021

**WEMYSS METAL MINE  
ARCHAEOLOGICAL DEAK BASED ASSESSMENT UPDATE**

**TABLE OF CONTENTS**

<b>1. INTRODUCTION .....</b>	<b>8</b>
<b>1.1 Project Proposals and Commission .....</b>	<b>8</b>
<b>1.2 Scope of the project .....</b>	<b>8</b>
<b>1.3 Abbreviations used in this report .....</b>	<b>9</b>
<b>1.4 Illustrations .....</b>	<b>9</b>
<b>2. LOCATION .....</b>	<b>10</b>
<b>2.1 Site location .....</b>	<b>10</b>
<b>2.2 The study area .....</b>	<b>10</b>
<b>3. METHODOLOGY.....</b>	<b>11</b>
<b>3.1 Archaeological Assessment.....</b>	<b>11</b>
<b>3.2 Site Walkover Survey.....</b>	<b>11</b>
<b>4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND .....</b>	<b>12</b>
<b>4.1 Historic Landscape.....</b>	<b>12</b>
<b>4.2 Historical Development.....</b>	<b>13</b>
<b>4.3 Recorded Archaeology .....</b>	<b>14</b>
<b>Scheduled Ancient Monuments .....</b>	<b>14</b>
<b>Listed Buildings .....</b>	<b>15</b>
<b>Non-designated archaeological assets.....</b>	<b>15</b>
<b>Frongoch West study area .....</b>	<b>15</b>
<b>Pond study area.....</b>	<b>15</b>
<b>Newly identified archaeological assets .....</b>	<b>20</b>
<b>4.4 Historic Mapping .....</b>	<b>21</b>
<b>4.5 Site Visit .....</b>	<b>23</b>
<b>4.6 Previous Archaeological Work.....</b>	<b>25</b>
<b>5. CONCLUSIONS .....</b>	<b>26</b>
<b>5.1 Archaeological Constraints .....</b>	<b>26</b>
<b>6. SOURCES .....</b>	<b>28</b>
<b>7. FIGURES.....</b>	<b>29</b>
<b>8. PHOTOGRAPHS.....</b>	<b>44</b>
<b>9. PROJECT ARCHIVE .....</b>	<b>60</b>
<b>APPENDIX 1 .....</b>	<b>61</b>
<b>APPENDIX 2 .....</b>	<b>65</b>
<b>APPENDIX 3 .....</b>	<b>70</b>



## TABLES

<b>Table 1:</b>	Archaeological and Historical Timeline for Wales	9
<b>Table 2:</b>	Scheduled Ancient Monuments within 2km of the Wemyss mine site	14
<b>Table 3:</b>	Listed Buildings within 2km of the Wemyss mine site	15
<b>Table 4:</b>	Non-designated HER assets within the Frongoch West study area	16
<b>Table 5:</b>	Non designated assets recorded within the pond study area	19

## FIGURES

<b>Figure 1:</b>	Location map of Wemyss former lead and zinc metal mine (shaded in pink) on the 1:50,000 Ordnance Survey map. The study areas are shown shaded in red.	29
<b>Figure 2:</b>	The two new study areas (shaded in red) at Wemyss Metal mine. The 2016 study area is outlined in red.	30
<b>Figure 3:</b>	Map showing designated sites, Scheduled Ancient Monuments (outlined in red) and Listed Buildings (blue triangles).	31
<b>Figure 4:</b>	Aerial image showing the non-designated assets recorded in the HER (red stars) and RCAHML's NMR (blue dots) within the Frongoch study area (hashed in pink) and immediate vicinity.	32
<b>Figure 5:</b>	1m LiDAR DSM (Digital Surface Model) map showing the non-designated assets recorded in the HER (red stars) and RCAHML's NMR (blue dots) within the Frongoch study area (hashed in pink) and immediate vicinity.	33
<b>Figure 6:</b>	The 1905 25inch Ordnance Survey map showing the non-designated assets recorded in the HER (red stars) and RCAHML's NMR (blue dots) within the Frongoch study area (hashed in pink) and immediate vicinity.	34
<b>Figure 7:</b>	Aerial image showing the non-designated assets recorded in the HER (red stars) and RCAHML's NMR (blue dots) within the pond study area (hashed in pink) and immediate vicinity.	35
<b>Figure 8:</b>	1m LiDAR DSM (Digital Surface Model) showing the non-designated assets recorded in the HER (red stars) and RCAHML's NMR (blue dots) within the pond study area (hashed in pink) and immediate vicinity.	36
<b>Figure 9:</b>	The 1905 25inch Ordnance Survey map showing the non-designated assets recorded in the HER (red stars) and RCAHML's NMR (blue dots) within the Frongoch study area (hashed in pink) and immediate vicinity.	37
<b>Figure 10:</b>	Extract of the 1847 Llanfihangel Y Crueddyn parish tithe map with the study area outlined in red.	38
<b>Figure 11:</b>	Extracts of the 1 <sup>st</sup> edition Ordnance Survey 1:2500 map of 1889, with the study area outlined in red.	39
<b>Figure 12:</b>	Extract of Ordnance Survey 1:2500 map published in 1905 with the study area outlined in red.	40
<b>Figure 13:</b>	Extract of the 1:10560 Ordnance Survey map published in 1953 with the study area outlined in red.	41

- Figure 14:** Map showing the location of photographs taken during the site visit included in this report 42
- Figure 15:** Wemyss mine plan of archaeological constraint overlying an extract of the 1905 Ordnance Survey map 43

## PHOTOGRAPHS

- Photo 1:** View facing southwest with fine waste tip PRN96304 in the foreground. The steep cutting of the "Mill Race Stream" can be seen at the right hand side of the photo (DAT Photo 125592\_3439) 44
- Photo 2:** Possible stone line field drain (PRN125596) exposed in southern cutting of the Mill Race eroding spoil tip PRN96304 (DAT Photo 125592\_3443) 44
- Photo 3:** Overview of location of wheelpit PRN69303. The site is fenced off and engulfed in gorse (DAT Photo 125592\_3444) 45
- Photo 4:** The earthwork remains of tramway PRN96328 heading west. The western end of spoil tip PRN68304 is visible at the right of the frame (DAT Photo 125592\_3440) 45
- Photo 5:** The earthwork remains of tramway PRN96328 heading west as viewed from the top of spoil tip PRN68304 (DAT Photo 125592\_3440) 46
- Photo 6:** Hollow way PRN125583 at the western end of tramway PRN96328. View facing northwest (DAT Photo 125592\_3446) 46
- Photo 7:** Overview of wheelpit PRN96394, facing north (DAT Photo 125592\_3447) 47
- Photo 8:** The north facing elevation of wheelpit PRN96394 (DAT Photo 125592\_3458) 48
- Photo 9:** Overview of the southern end of balance bob pit PRN125584 (DAT Photo 125592\_3448) 49
- Photo 10:** Overview of the northern end of balance bob pit PRN125584 (DAT Photo 125592\_3449) 50
- Photo 11:** The internal elevation of the southern gable end of winding house PRN125585, with the possible remnants of a thin limewash (DAT Photo 125592\_3450) 50
- Photo 12:** The western external elevation of winding house PRN125585 (DAT Photo 125592\_3452) 51
- Photo 13:** The northern end of the western elevation of winding house PRN 125585 and the abutting platform or revetement at its northern end (DAT Photo 125592\_3454) 51
- Photo 14:** The stone and timber structure PRN125586 eroding from the tip opposite wheelpit PRN96394 (DAT Photo 125592\_3459) 52
- Photo 15:** The square masonry collar for shaft PRN69390. Facing west (DAT Photo 125592\_3460) 52
- Photo 16:** Overview of shaft PRN96390 (left in the frame) and wheelpit PRN 96394 and winding house PRN 125585 at Frongoch West (DAT PHOTO 125592\_3461) 53
- Photo 17:** The northern side of spoil tip PRN96391 showing an area of extraction. Two wooden posts are also shown protruding from the centre of the tip (DAT Photo 1255921\_3470) 53

- Photo 18:** The large circular depression (PRN125587) at the western end of tip PRN96391 maybe indicative of a shaft or a continuation of shaft PRN96390 seen at the right hand of the frame (DAT Photo 125592\_3462) 54
- Photo 19:** Overview of the northern slopes of development tip PRN 96393 (DAT Photo 125592\_3469) 54
- Photo 20:** A wooden post is seen protruding out from the actively eroding, steep southern slope of development tip PRN96393 (DAT Photo 125592\_3469) 55
- Photo 21:** Overview of the eastern area of Frongoch West where there are no visible traces the recorded levels, hollows and abandoned buildings (DAT Photo 125592\_3471) 55
- Photo 22:** Overview (facing west) of the south eastern extent of the pond study area at the corner of the post and wire fence which follows the hedgebank, enclosing the south-eastern end of the rush filled pond and eastern side its the narrow brook (DAT Photo 125592\_3474) 56
- Photo 23:** Overview (facing east) of the western side of the pond study area. The prominent hedgebank/field boundary can be seen curving northwards in the background of the frame (DAT Photo 125592\_3476) 56
- Photo 24:** Overview of the low earthwork hedgebank/field boundary running westwards beyond the pond study area (DAT Photo 125592\_3478) 57
- Photo 25:** Overview (facing south-east) of the brook and its prominent bank (DAT Photo 125592\_3475) 57
- Photo 26:** Overview (facing west) of leat PRN96317 at the point where it truncates the brook (DAT Photo 125592\_3479) 58
- Photo 27:** A closer view of leat PRN96317 and the cluster of trees (at the left of the frame) roughly in the area of the former Tan-Yr-Dam farmstead PRN125986 (DAT Photo 125592\_3480) 58
- Photo 28:** View looking northwards towards the brook which joins the main mine workings just above Glanville's Shaft PRN96315 and spoil tip, now covered in gorse (DAT Photo 125592\_3481) 59



**WEYMSS METAL MINE**  
**ARCHAEOLOGICAL DESK BASED ASSESSMENT UPDATE**

**SUMMARY**

*DAT Archaeological Services were commissioned to provide an update of an archaeological assessment undertaken in 2016 to inform an option appraisal process for environmental remediation works at Wemyss former Lead and Zinc mine, near Pontrhydygroes, Ceredigion (SN 71579 74089). This update includes two new areas beyond the original study area, one to the north, one to the west. The study identified and assessed a number of archaeological features of interest associated with the mine workings, and identified zones of archaeological sensitivity.*

**CRYNODEB GWEITHREDOL**

*Comisiynwyd Gwasanaethau Archeolegol YAD i ddarparu diweddariad o asesiad archeolegol a gynhaliwyd yn 2016 i lywio proses arfarnu opsiynau ar gyfer gwaith adfer amgylcheddol yn hen fwynglawdd Plwm a Sinc Wemyss, ger Pontrhydygroes, Ceredigion (SN 71579 74089). Mae'r diweddariad hwn yn cynnwys dwy ardal newydd y tu hwnt i ardal yr astudiaeth wreiddiol, un i'r gogledd, un i'r gorllewin. Nododd yr astudiaeth ac asesu nifer o nodweddion archeolegol o ddiddordeb sy'n gysylltiedig â'r gwaith mwynloddio, a nododd ardal o sensitifrwydd archeolegol.*

## 1. INTRODUCTION

### 1.1 Project Proposals and Commission

- 1.1.1 DAT Archaeological Services were commissioned by Natural Resources Wales to provide an update of an archaeological assessment undertaken in 2016 (Bell et al, 2016) to inform an option appraisal process for environmental remediation works at Wemyss former Lead and Zinc mine, near Pontrhydygroes, Ceredigion (SN 71579 74089).
- 1.1.2 This update includes two new areas beyond the original study area at Wemyss metal mine. The first is a natural pond area and its connecting brook some 200m north of main mine workings. The second is a small area of mine workings and connecting infrastructure covering an area roughly 3.75ha, known as "Frongoch West" located some 400m west of Wemyss mine.
- 1.1.3 An approved written scheme of investigation was prepared for the Metal Mine Remediation Project in 2016. The object of the assessment as outlined in the Written Scheme of Investigation (Appendix 1) is to:
- ...."collate existing information and identify the most significant elements of the mine sites and provide at least one plan of each mine identifying zones of archaeological sensitivity or any specific features of high significance. The assessments will be provided for use in the development of the scope of future environmental remediation works required at the mines."***
- 1.1.4 In addition, the assessment is intended to *"identify any known archaeological remains and their significance, as well as identify the potential for hitherto unknown archaeological deposits [or structures] to be present within the respective mine areas, highlighting any features or areas of high sensitivity"* within the two new areas.

### 1.2 Scope of the project

- 1.2.1 This assessment is presented as a fulfilment of the Written Scheme of Investigation (Appendix 1) as approved by Natural Resources Wales.
- 1.2.2 The results of this update are discussed within the context of the original study area for continuity and in acknowledgement that these extended areas are intrinsically linked to the original Wemyss study area. The aim of this assessment is to characterise and map the known archaeological resource and to assess the archaeological potential of Wemyss mine workings and connected infrastructure within the parameters of the new study areas. The results of the original assessment have been used as a baseline to ensure a consistent assessment and approach. This update does not re-evaluate the results of the original study. Archaeological constraints are presented as an illustrative plan with supporting narratives in similar accordance with the results of the original study. In effect, the two new study areas are presented as addendums.
- 1.2.3 The new study areas were visited to assess and verify the presence or absence of archaeological remains, and to identify any previously unrecorded features within the bounds of each study area.
- 1.2.4 As previous, this assessment should be considered the first stage of the archaeological process and does not preclude the possibility that further archaeological mitigation may be required prior to, or during, any programme of remediation works.
- 1.2.5 The report complies with the Standard and Guidance for an Archaeological Desk-Based Assessment (Chartered Institute for Archaeologists (CIfA 2014) and abides by their Codes of Conduct (CIfA 2014).



### 1.3 Abbreviations used in this report

- 1.3.1 All sites recorded on the regional Historic Environment Record (HER) are identified by their Primary Record Number (PRN) and located by their National Grid Reference (NGR). Sites recorded on the National Monument Record (NMR) held by the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW) are identified by their National Primary Record Number (NPRN). Scheduled Monuments (SM) are recorded by a SM number. Altitude is expressed to Ordnance Datum (OD). References to cartographic and documentary evidence and published sources will be given in brackets throughout the text, with full details listed in the sources section at the rear of the report.

### 1.4 Illustrations

- 1.4.1 Printed map extracts are not necessarily reproduced to their original scale and are illustrative only.

### 1.5 Timeline

- 1.5.1 The following timeline is used within this report to give date ranges for the various archaeological periods that may be mentioned within the text (Table 1).

Period	Approximate date	
Palaeolithic –	c.450,000 – 10,000 BC	Prehistoric
Mesolithic –	c. 10,000 – 4400 BC	
Neolithic –	c.4400 – 2300 BC	
Bronze Age –	c.2300 – 700 BC	
Iron Age –	c.700 BC – AD 43	
Roman (Romano-British) Period –	AD 43 – c. AD 410	Historic
Post-Roman / Early Medieval Period –	c. AD 410 – AD 1086	
Medieval Period –	1086 – 1536	
Post-Medieval Period <sup>1</sup> –	1536 – 1750	
Industrial Period –	1750 – 1899	
Modern –	20th century onwards	

**Table 1:** Archaeological and Historical Timeline for Wales

<sup>1</sup> The post-medieval and industrial periods are combined as the post-medieval period on the Regional Historic Environment Record as held by Dyfed Archaeological Trust

## **2. LOCATION**

### **2.1 Site location**

- 2.1.1 Wemyss former lead and zinc mine is located around 14.6km southeast of the town of Aberystwyth in Ceredigion and is situated in an extensive area of upland moorland between 190m and 260m above sea level (Figure 1).
- 2.1.2 The remains of Wemyss mine are nearest to the village of Pontrhydygroes, some 2.5km southeast of the site. The mine workings are dissected by minor road that runs from Pontrhydygroes to Abermagwr; with the ruined mine buildings to the north of the road and to the south of the road the mine's spoil tips tumbling down to the stream below.
- 2.1.3 Approximately 500m to the north east is the site scheduled site of Frongoch metal mine (CD146; PRN 9151) with which the history and development of Wemyss mine is inextricably linked.

### **2.2 The study area**

- 2.2.1 The original study area for the 2016 assessment encompassed the main area of workings of Wemyss mine and spanned east-west across the road and comprised an area measuring 11.9ha. The first of the new study areas is located on a plateau of Cwm Newydion, approximately 200m north of the eastern end of the original study extent (Figure 2). It comprises a large, natural rush filled hollow or pond-like feature with a narrow linear brook, which reaches the eastern extent of the main area of mine workings at Wemyss. Indeed, this pond and brook appear to be the source of the water for a now ruinous, 55ft wheelpit (PRN 96318) in the main area of mine workings. A prominent hedgebank curves round the southern end of the hollow. The second study area encompasses a number of relict tips and localized mine workings and connecting infrastructure known as Frongoch West (approximately 3.75ha in total) at the convergence of the Nant Gwyn and Nant Cwmnewydion water courses and a modern water course known as the "Mill Race Stream" originating from a flooded level at the base of Cwm Newydion, some 400m west of the western end of the original study area (see Figure 2).
- 2.2.2 In general, the surface archaeology at Wemyss mine is in relatively good condition, is visible and largely accessible with appropriate permissions in place. The infrastructure of trackways, leats and tramways are still prominent and easily traceable, along with the openings of shafts and adits. Owing to the nature of the industry at Wemyss (functioning mainly as drainage and ore processing for Frongoch) there are few built structures or buildings on the site although the majority of these features including a dressing mill, several wheelpits and a winding house, remain substantially extant. Wemyss however, is largely dominated by spoil tips of coarse to fine mine waste.
- 2.2.3 All the elements within the study area are vulnerable to the effects of water and are actively being eroded. The agents of this erosion are twofold; firstly by the pooling and runoff of surface water and secondly, by the more persistent action of fluvial erosion.

### **3. METHODOLOGY**

#### **3.1 Archaeological Assessment**

3.1.1 The archaeological assessment has been prepared in accordance with the approved WSI (see Appendix 1) and using the following sources of information:

- Dyfed Archaeological Trust Historic Environment Record data and other relevant information (including a review of online information held on the RCAHMS Coflein site) – minimum search area was that as defined within the tender documentation;
- Identification of any Scheduled Monuments, Listed Buildings, Conservation Areas or Historic Landscape Areas within or in the vicinity of the site area from information held by Dyfed Archaeological Trust, CADW and NRW – 2km search area;
- Readily available bibliographic information, cartographic material and photographs (including aerial photographs) held at the Trust;
- A review of historic maps to include a map regression exercise;
- Relevant web-based information;
- Site visit and walkover survey;
- Consultations undertaken in 2016 with the Welsh Mines Preservation Trust regarding each site and identification of any specific features of high significance;
- Consultations undertaken with Jennifer Protheroe-Jones, curator of Heavy Industries at Amgueddfa Cymru National Museum of Wales, and a Trustee of Dyfed Archaeological Trust;
- A consideration of underground features of the mines; and
- Assessment of the archaeological potential of the area.

3.1.2 The report complies with the Standard and Guidance for Archaeological Desk-Based Assessments (CIfA 2014).

#### **3.2 Site Walkover Survey**

3.2.1 A site visit of the new study areas at Wemyss former metal mine was undertaken on 23<sup>rd</sup> November 2020 by Menna Bell.

3.2.2 The site visit comprised a walkover of the study areas and its surrounding environs. Photographs were taken and field observations recorded in note form.

## **4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND**

### **4.1 Historic Landscape**

4.1.1 The study area defined for Wemyss mine spans two Historic Landscape Character (HLC) areas as recorded on the Register of Landscapes of Outstanding Historic Interest in Wales (Cadw 1998). These both lie within the Upland Ceredigion landscape area.

4.1.2 The northern area falls within the Llety Synod & Frongoch HLC. This is summarised as:

*A large and complex area that consists of an undulating plateau ranging in height from 220m to 340m, with wet hollows and occasional craggy outcrops and peaks. Almost all the land comprises improved grazing, though peaty and rushy patches can be found in valley bottoms and rougher grazing on some steep slopes. Apart from conifer plantations and small stands of broadleaf woodland, it is virtually a treeless landscape. Settlement is of dispersed farmsteads, with a small cluster of buildings at Trisant which include a listed mid-19th century chapel.*

*The field pattern is one of large, irregular enclosures. These were once divided by earth banks, which are now redundant or augmented with wire fences. Closer to farms enclosures are smaller, but still irregular, with occasional hedges on the earth banks. These hedges are not in a good condition and are rarely stock-proof - all are supplemented with wire. The physical remains of mining are much in evidence and form an important element of the historic landscape. Frongoch mine buildings are of national importance, though in a poor state of preservation. Associated with the mine are further landscape components such as spoil heaps, reservoirs and leats. The reservoirs in particular are dramatic elements of the landscape.*

*The recorded archaeology of this area is dominated by the metal mining industry, and by deserted farmsteads and cottages. A Bronze Age round barrow and a hearth or burnt mound - a possible settlement site - of similar date provide time-depth to the landscape. This is emphasized by the three early Christian monuments at Llantrisant, and by the place-name Llety Synod, which may indicate a Medieval hospice.*

*It is the mining component of this Historic Landscape Area that defines it from its neighbours. Only to the southwest are mining features present to such a degree. To the north is a more settled area, to the west higher formerly unenclosed land, to the south and east squatter settlements, and to the southeast lower-lying enclosed land.*

4.1.3 The west study area, that at Frongoch West falls within the Cwmnewidion HLC. This is summarized as:

*A narrow, steep-sided valley. The floor of the valley rises from 100m at the western end to over 200m at the east. The valley sides rise to over 300m. The landscape area includes the valley bottom and the lower slopes of the valley sides, but not the higher slopes. A minor road, but nevertheless an important local route-way, runs along the northern side of the valley floor linking the fertile lands of the lower Ystwyth valley with Pontrhydygroes and Cwmystwyth. The settlement pattern is of dispersed farmsteads located at the foot of the steep valley sides with enclosed land spread across the valley floor. Enclosures are small and irregular and are formed by low earth banks. Banks were formerly topped with hedges, but apart from in the extreme western part of the area these hedges have gone and are now replaced by wire. Improved grazing predominates on the valley floor, giving way to poorer quality land on the lower slopes. Land here is enclosed into larger divisions, but the earth bank boundaries*

*are redundant and replaced by wire. There are stands of deciduous woodland and 20th century forestry at the western end of the area.*

*The remains of the metal mining industry are an important and distinctive element in this landscape. These are concentrated towards the eastern end of the valley and comprise dominant spoil heaps and mine buildings. The mine buildings constructed of local stone are roofless, but stand in some instances to their original full height. The buildings include a generating station at Frongoch mine that was supplied by a pipeline from a reservoir to the north.*

*Other than metal mine remains; the recorded archaeology consists of a mill site and a chapel.*

## **4.2 Historical Development**

- 4.2.1 Wemyss lead and zinc mine (PRN 23230) is immediately south-west of Frongoch mine (PRN 9151) and is located around 3.5km southwest of Devil's Bridge, Ceredigion. The Frongoch mineral lode ran through both Frongoch and Wemyss mines and was worked independently until 1846 when Wemyss was purchased by John Taylor & Sons Company; owners of Frongoch mine. Thereafter, Wemyss was operated in conjunction with Frongoch until the closure and sale of both mines in 1903.
- 4.2.2 Shortly after its procurement by John Taylor the Wemyss adit was extended eastwards to serve the Frongoch workings. By 1848 the Wemyss adit had holed through to the Frongoch adit at the 24 fathom level, subsequently becoming the deep ("Frongoch") adit that purportedly extended for 3 miles (Bick, 1986). The *"adit began on the main lode near the road [northern side presumably], but after about 150 fathoms turned northeast for about 25 fathoms before continuing eastwards on a north lode which outcrops on surface about 20 fathoms norths of Boundary Shaft [at Frongoch]" (Bick, ibid:14).*
- 4.2.3 During this period in the mid-nineteenth century the mines were both profitable and productive while the operations continued to exploit deeper levels. In 1863 new dressing floors were constructed at Wemyss to process the ore from Frongoch. Sometime during the 1870s Ball's Shaft, the first of two principal shafts at Wemyss was cut into the lode at 76 fathoms (Bick, *ibid*).
- 4.2.4 However, by the latter half of the nineteenth-century the mines began to struggle as the productivity of the lode began to dwindle. Meanwhile the prices of metal fluctuated against ever increasing working costs. In 1878, the mines made their first loss and the Taylor Company sold their lease of both mines.
- 4.2.5 In the same year of 1878 the lease was obtained by Messrs Henry Davey and Alexander Kerby of London, and John Kitto from Llanidloes. By all accounts Kitto, a competent and successful mining engineer, was the primary agent and motivator of this venture. It was during the early years of this leasehold that Glanville's Shaft; the second of the principal shafts was cut into the lode. Unlike Ball's shaft, Glanville's Shaft was much shallower at only 16 fathoms (Bick, *ibid*). Kitto was also responsible for the construction of the pit for a 56ft waterwheel (later replaced by a 55ft wheel) at the lower levels of the site which was fed by a circuitous leat that carried water from the dressing floors (Bick, *ibid*). The later 55ft wheel turned a line of flat rods connected to the machinery at Vaughan's New Shaft at Frongoch (Bick, *ibid*).
- 4.2.6 In 1898 both sites were leased by the Belgian company "*Société Anonyme Minière*". The new lease holders endeavoured to modernise the site by constructing a hydro-electric power station at nearby Pont Ceunant (some 160m west of the Frongoch West study area) to power the machinery and mining

operations. The five-tiered, stone built dressing mill which now dominates the site, was built in 1899 to process the ore from Frongoch. Built on the side of the slope, each tier was occupied by a machine which was supported by a series of platforms and walls, with the dressing process becoming finer downslope. The mill was fed from material from Vaughan's New Shaft at Frongoch via a chain operated tramway which passed under the road by means of a cutting (Bick, *ibid*).

- 4.2.7 In spite of such optimistic investments, the venture proved to be ill-fated and terminally brief. The metal markets continued to be volatile but were fleetingly favorable between 1898 and 1900. However, full production was not underway until 1902, and even then, the yields paled in comparison to what Kitto had previously achieved in spite of the absence of modern intervention (Bick, *ibid*). It would seem that during this time production at Wemyss was solely focused on processing the waste dumps from Frongoch. The new dressing mills proved to be highly efficient in this task, producing a dump of tailings and fine waste, of monumental proportions which is still visible today.
- 4.2.8 Full mining operations ceased at Frongoch in June 1903 although the dressing mill at Wemyss continued processing ore until August of the same year. Finally, the mines and machinery were sold at auction to Messrs R.A King and & Company in November 1903 (Bick, *ibid*). Thereafter, much of the substantial spoil tips at Frongoch were re-processed during the early twentieth-century, whilst Wemyss was left to quietly decay and erode.

### 4.3 Recorded Archaeology Scheduled Monuments

- 4.3.1 There are two Scheduled Monuments (SMs) within 2km of the Wemyss study area (Figure 3):

SM No	SM Name	Period	NGR	Distance (km)
CD146	Fron Goch Lead Mine	SN72118 74450	Post-Medieval	0.12 NE
CD012	Castell Grogwynion Hillfort	SN72125 72495	Prehistoric	1.47 S

**Table 2:** Scheduled Ancient Monuments within 2km of the Wemyss mine site, including distance to mine area and direction (Figure 3)

- 4.3.2 SM CD146 Frongoch Lead Mine (PRN 9151) is located to the northeast of the Wemyss former metal mine. The Frongoch mine was in operation from the mid-eighteenth to early twentieth centuries and the scheduled area includes a number of surviving buildings.
- 4.3.3 Castell Grogwynion SM CD012 (PRN 2066) is an Iron Age hillfort located approximately 1.5km southeast of the Wemyss study area. It is roughly rectangular in plan and measures nearly 170m east-west by some 100m north-south. It is located in a naturally defended position on a rocky hill some 270m above sea level.



### Listed Buildings

- 4.3.4 There are six, post-medieval listed buildings within the 2km search radius of the Wemyss former metal mine (Figure 3):

PRN Number	Listing	Name	NGR	Grade	Distance (km)
5468	9868	Capel Trisant Chapel	SN71699 75755	II	1.384
25529	10735	Telephone call-box to SE of Capel Trisant	SN71735 75749	II	1.374
58125	82650	Cwmnewyddion Ganol House	SN70026 74286	II	1.111
58129	82654	Glanrhos House	SN71252 73046	II	0.995
58255	83421	Rockview Mining Shop and Stores	SN72750 73356	II	1.258
58331	9869	Ty Capel House	SN71701 75768	II	1.397

**Table 3:** HER recorded Listed Buildings with 2km of Wemyss site, including distance to mine area and direction (Figure 3).

### Non-designated archaeological assets

- 4.3.5 There are no designated archaeological assets within the new study areas or within the parameter of the 2016 Wemyss study area. Consultation of the HER and National Monuments Record (NMR) held by the RCAHMS during the 2016 assessment revealed 25 non-designated archaeological sites within the original study area. A further 15 previously unrecorded assets identified during the assessment have since been added to the regional HER. These records are presented in Appendix 2 (the “new” records are highlighted in red) and shown in Appendix 3. Those sites held within the HER are listed by PRN, those held within the NMR by NPRN. Unless otherwise stated all sites listed in Appendix 3 are of Post-Medieval date.

#### Frongoch West study area

- 4.3.6 Current HER searches for the new study areas returned 25 recorded assets, all of which were Post-Medieval in date and pertained to the localised mining features and connecting infrastructure. These sites are presented in Table 4 and shown in Figures 4 to 6.
- 4.3.7 The majority of the sites listed are concentrated at the convergence of the Nant Gwyn and Nant Cwmnewyddion water courses with the remainder associated with the fine dumps and former processing area at the very western end of the original 2016 study area (See Figures 4 to 6).

#### Pond study area

- 4.3.8 The HER returned two records for archaeological assets within the pond study area. The first is a record for the remains of Tan-yr-Dam farmstead PRN 125986 which is located some 150m below the pond and immediately west of the narrow brook leading from the pond. It is at this location where the prominent remains of the substantial leat PRN96317 truncates the brook, running east-west along the lower contours of Cwm Newyddion. These sites are presented in Table 5 and shown in Figures 7 to 9.
- 4.3.9 Elsewhere, the southern extent of the pond basin is bounded by a notable hedgebank/field boundary. Installed with post and wire fencing along its eastern extent, the boundary continues as a prominent earthwork amongst the rush filled low basin of the pond feature in a westward direction for around 66m. The narrow brook runs due south for some 200m down the hillside where it converges with a small leat PRN125573 which supplied water to the substantial 55ft wheelpit PRN96318. These features and the recorded assets within the eastern end of the original study are shown in Figures 6 and 7 and tabulated in Appendix 2.

PRN	NPRN	Type	Summary	NGR
25915	420404	Lead Mine	A minor metal mine 1km west of the main Frongoch mine complex.	SN709743
96303		Wheel Pit	Virtually no trace of waterwheel apart from a brick quoined masonry tailrace culvert just to south at base of vegetated tips (Protheroe-Jones 1993, mine 159, no.3).  See PRN 23230 for additional references.	SN7115374272
96304		Spoil Heap	Fines dumps (Protheroe-Jones 1993, mine 159, no.4).  See PRN 23230 for additional references.	SN7123374215
96305		Dressing Floor	No remains at all of dressing floor (Protheroe-Jones 1993, mine 159, no.5).  See PRN 23230 for additional references.	SN71287421
96306		Balance Pit	Bobpit; fairly good condition; no other trace of route of flat rods (Protheroe-Jones 1993, mine 159, no. 6).  See PRN 23230 for additional references.	SN7129274234
96307		Spoil Heap	Coarse tips with much vein stuff (Protheroe-Jones 1993, mine 159, no.7).  See PRN 23230 for additional references.	SN7132874226
96308		Level	Deep Adit level: rockcut; open; very wet; fairly large (Protheroe-Jones 1993, mine 159, no.8).  See PRN 23230 for additional references.	SN7134874244
96328		Tramway	A minor metal mine 1km west of the main Frongoch mine complex.	SN7115774201

**Table 4:** Non-designated HER assets within the Frongoch West study area.

PRN	NPRN	Type	Summary	NGR
96329		Shaft	Cratered, run in shaft (Protheroe-Jones 1993, mine 159, no.31). See PRN 23230 for additional references.	SN71347422
96385		Shaft	No trace of shaft marked on 2nd ed OS (Protheroe-Jones 1993, mine 160, no.1). See PRN 25915 for additional references.	SN70927429
96386		Mine Building	Two buildings are recorded at this location on the Ordnance Survey 1st edition map (1888). No trace of buildings (Protheroe-Jones 1993, mine 160, no.2). See PRN 25915 for additional references.	SN70927427
96387		Level	No trace of hollow and level marked on 2nd ed. Ordnance Survey map (Protheroe-Jones 1993, mine 160, no.3). See PRN 25915 for additional references.	SN70907427
96388		Shaft	No trace of shaft (Protheroe-Jones 1993, mine 160, no.4). See PRN 25915 for additional references	SN70887427
96389		Spoil Heap	This area razed and tips removed (Protheroe-Jones 1993, mine 160, no.5). See PRN 25915 for additional references.	SN70897425
96390		Shaft	Shaft: square masonry collar in poor condition; blocked at 3' depth. No remains of bobpit (Protheroe-Jones 1993 , mine160, no.6). See PRN 25915 for additional references.	SN70867425

**Table 4:** *(Continued)*

PRN	NPRN	Type	Summary	NGR
96391		Spoil Heap	This tip much removed: development rock (Protheroe-Jones 1993, mine 160, no.7).  See PRN 25915 for additional references.	SN70877426
96392		Level	No trace of level marked on 2nd ed. Ordnance Survey map (Protheroe-Jones 1993, mine 160, no.8).  See PRN 25915 for additional references.	SN70857426
96393		Spoil Heap	Development tip (Protheroe-Jones 1993, mine 160, no.9).  See PRN 25915 for additional references.	SN70837425
96394		Wheel Pit	3.5' by 18' waterwheel pit in good condition with quite well preserved winding house to west and well preserved balance bob pit to southeast. Fragment of wall opposite wheel pit on north bank of stream (Protheroe-Jones 1993, mine 160, no.10).  See PRN 25915 for additional references.	SN70857423
96395		Tramway	No remains of tramway alignment (Protheroe-Jones 1993, mine 160, no.11). Recorded on Ordnance Survey 1st ed. 1888.  See PRN 25915 for additional references.	SN70997423
125577		Tramway	Narrow gauge tramway shown on 1888 1st edition OS map at Western end of Wemyss site. Disused by 1905 2nd edition OS map. Likely part of PRN 96395	SN7132174188
125578		Buddle	One possible buddle shown on 1st edition 1888 OS map. Three then shown on 1905 2nd edition OS map. On 1st ed OS, buddle appears to be fed by launder/leat.	SN7126874206

**Table 4:** *(Continued)*

PRN	NPRN	Type	Summary	NGR
125579		Launder	Possible leat or launder shown on 1st edition 1888 OS map feeding possible buddle PRN 125577.	SN7126974221
125580		Slime Pit	Two rectangular structures shown on 1st edition 1888 OS map.	SN7125974203
125582		Wheel Pit	Wheel pit shown on southern side of road on both 1888 and 1905 1:2500 OS maps. Possible leats and launders connected to it. As part of PRN 96306	SN7129174212

**Table 4:** *(Continued)*

**Table 5:** Non designated assets recorded within the pond study area.

PRN	NPRN	Type	Summary	NGR
96317		Leat	Well-defined leat (Protheroe-Jones 1993, mine 159, no.18).  See PRN 23230 for additional references.	SN71717440
125986		Farmstead	Small farmstead "Tan-Yr-Dam" visible on 1888 25inch OS map. Appears to be abandoned by 2nd edition by which point leat PRN96317 has been constructed and truncates the farmstead.  Earthworks visible on 1m DSM	SN177574412

### Newly identified archaeological assets

4.3.10 A further 6 archaeological sites have been identified as a result of the desk-based assessment and/or the site visit. All of these assets are located in the Frongoch study area and where erosion and weathering of the tips and structures in this area have exposed features which may not have been visible/accessible during previous surveys in the area. These are sites have been recorded in the regional HER and have been allocated PRNs and are presented in Table 6 and are shown in Figures 4 to 6.

PRN	NPRN	Type	Summary	NGR
125583		Hollow Way	Short hollow way, survives as prominent earthwork and visible on 1m LiDAR.	SN7100674222
125584		Balance Pit	Well preserved balance bob pit situated south east to wheel pit PRN96394	SN7086174234
125585		Mine Lifting And Winding Structure	Winding house to wheelpit PRN 96394. Southern gable and west facing elevation survive to almost full height.	SN7085674238
125586		Mine Lifting And Winding Structure	Exposed mortared stone and timber structure on river bank opposite wheelpit PRN 96307, eroding from tip. Masonry survives as a right angle, nearly 2m in height.	SN7085974245
125587		Shaft	Large circular depression/sink hole in western extent of fine tips, possibly indicative of shaft, likely associated with blocked shaft PRN96390	SN7086174258
125596		Mine Drainage And Ventilation Site	Possible stone lined field drain exposed in east facing bank of small watercourse/burst leat now eroding out of fine dumps PRN 96304	SN7120874246

**Table 6:** Newly recorded assets in the Frongoch study area



#### 4.4 Historic Mapping

- 4.4.1 It would be erroneous to discuss the two new study areas in isolation from the original 2016 study areas encompassing the main area of main workings at Wemyss for they are intrinsically linked. Therefore, the two new areas are discussed within the context of the main mine workings and in effect, aggregating the previous and current study areas.

***Llanfihangel y Creuddyn Tithe Award map of 1888*** (Figure 10)

- 4.4.2 The tithe map presents a modest impression of the scale of industry at this time and is misleading. Processing at Wemyss in the later part of the 19<sup>th</sup> century was at its peak and so the poor representation is largely because it has been deliberately omitted from the map. The purpose of a tithe map is not topographic accuracy but to record ownership of land within the parish for the purpose of tax collection. Any irrelevant information is often omitted or included with varying detail and accuracy. Nevertheless, key features of the mine workings are still recognisable.
- 4.4.3 The pond on the plateau of Cwm Newidion is shown as an enclosed parcel of land with a definitive eastern boundary, most likely the extant hedegbank, and a dashed western boundary. The apportionment records this parcel ("779" on the map) with the placename "Rhos" which is commonly translated as "moor". The linear feature/ boundary extends southwards to a small farmstead ("778" and "777") pertaining to a "House and Garden" on the tithe apportionment. A small circle and teardrop shaped feature located to the southwest of this farmstead is most likely to be an adit or a continuation of the original Wemyss adit described by Bick (1986, see para 4.2.2), and it seems reasonable to assume that it is one and the same. The western opening is shown on the northern side of the road in field "716". A small building referred to as a "House and Garden" on the apportionment is located on the southern side of the road and immediately south west of the western hollow or adit.
- 4.4.4 A small watercourse is depicted running southwest from the teardrop feature and is likely to be the leat, fed by the brook descending from the pond and in turn powering Kitto's waterwheel before descending under the road and joining the Cwmnewidion stream to the south.
- 4.4.5 A faint linear feature is shown extending westwards along the centre of fields "696" and "702" and intersecting with the Cwmnewidion watercourse. This is almost certainly the tramroad/tramway connecting the processing areas at Frongoch West and the Wemyss adit. A single small building is shown at the western end of this linear feature but is not distinguished in the apportionment entry for the "Cwmmydion Uchaf Homestead & Land" in tithe "695".

***Ordnance Survey 1<sup>st</sup> edition 25" map published in 1888*** (Figure 11)

- 4.4.6 This map provides an indication of the progress made during the latter half of the nineteenth century and depicts the endeavours of the Taylor Company and the leasehold under Kerby and Kitto. In the broader context, Wemyss and Frongoch mines are no longer operating as separate entities but are connected by a series of trackways and leats as the Frongoch mining operation sprawled westwards. The pond and connecting brook are defined amongst the scrub and rush hillslope of "Banc Cwm-mewydion" and eastern hedgbank field boundary is clearly depicted. Tan-yr-dam farmstead appears to be extant at this time and is connected to a number of tracks which roughly follow the contours of the hill and navigate to discrete areas of the mine workings.

- 4.4.7 The eastern extent of the 2016 study area, at the lower slopes of Cwm Newdigion is now populated by spoil tips, trackways and Ball's and Glanville's shafts are shown. Kitto's 56ft wheel pit and a second, smaller wheel pit to the south are shown supplied by an "aqueduct". In addition to this a magazine is shown to the north. At the western extent of the study area the hollow of the adit is illustrated and appears to be a focus for mining activity. Here, a shaft, spoil tips and possible leats or launders are shown supplied with water from a leat or watercourse which meanders along the western side of the main area of working. A possible (elevated) leat or launder appears to cross the road where it connects with a possible wheel pit and other features associated with a dressing floor. One buddle is shown along with two probable slime or settling pits and a small spoil tip. The likely wheelpit is shown to be connected to a short tramway which runs parallel to the road where it connects at an acute angle, to the east-west tramway linking the Frongoch West (annotated as "Wemyss Mine Lead").
- 4.4.8 Here, the tramway is terminated by small tips and "Shafts". Two small buildings are shown east of these features and a "Level" is clearly marked immediately north of the tips. South of these tips is a structure, possibly a shaft or its associated balance bob platform or pit. Just below this a footbridge is shown bridging the Nant Cwmnewidion water course to a wheelpit and winding house. An "aqueduct" is also shown to the south-east of this wheelpit. Elsewhere the Nant Gwyn stream converges with the Nant Cwmnewidion some 145m upstream of these mine workings.

***Ordnance Survey 2<sup>nd</sup> edition 25" published in 1905*** (Figure 12)

- 4.4.9 By 1905 Wemyss mine is labelled as "*disused*", having closed in 1903. Nevertheless, the map documents both growth and decline during at the turn of the century. The pond on Cwm-newydion (as it is now annotated) and connecting brook are shown but the brook is now truncated by a substantial leat which follows the contours in an east-west fashion. Tan-yr-dam farmstead is no longer annotated and two, unshaded buildings are shown indicating at that by this time, these are unroofed and abandoned buildings.
- 4.4.10 Glanville's shaft and the Wemyss adit are now prefixed by "old" although the wheelpits, connecting aqueducts and leats are clearly defined. The large dressing mill built in 1899 is shown along with the tramway which serviced the mill from Frongoch. In addition to these structures and those features previously described, a large spoil tip has appeared on the western side of the road in front of the dressing mill and east of Nant-y-Rhidyll farm. An "Old Limekiln" is depicted at the northern end of the access track to Nant-y-Rhidyll farm. Although unmarked, the remains of meeting of the two tramways are shown in the area of mine workings associated with the western end of the Wemyss adit. In addition to the wheelpit, three buddles, a large spoil tip, an "aqueduct" and a second wheelpit is also now shown in this area.
- 4.4.11 The remaining western length of the tramway connecting to the Frongoch West mine workings is not depicted. Absent too is the likely balance bob platform or pit but the area is still annotated with "Shaft". The tips and "levels" are also shown along with the wheelpit and winding house on the southern side of the Nant Cwmnewidion although the footbridge is omitted.

***Ordnance Survey 6" map of Cardiganshire published in 1953***

- 4.4.12 By 1953 the site had been long abandoned but appears to be relatively unchanged save two notable exceptions. Firstly the dressing mill is no longer depicted which seems an odd omission since the remains of the dressing mill are

substantial and still visible today. The second is an addition to the topography in that the “Mill Race Stream” watercourse which joins the convergence of the Nant Gwyn and Nant Cwmnewidion watercourses is now depicted. This is a modern feature most likely to have originated from the flooding of the Wemyss adit and the redundancy/ineffectuality of the leat.

#### **4.5 Site Visit**

- 4.5.1 A site visit to Wemyss mine was undertaken on 23<sup>rd</sup> November 2020 to assess the nature and extent of any surviving archaeology on the ground and to allow for the possible identification of previously unrecorded sites.
- 4.5.2 The survey areas for the current site visit included an overlap with the 2016 visited areas. The survey of Frongoch West included the western end of the previous study which were not visited during the previous assessment. The northern pond area and connecting brook were visited, including a rapid walkover of the immediate environs and the eastern most area visited during the previous assessment. The main area of workings at Wemyss were not revisited save for a cursory observation between visiting the new study areas and no underground archaeology, namely the adits, were assessed.
- 4.5.3 Wherever possible, the grid references of each recorded archaeological site within the study areas were visited, recorded and photographed. Six previously unrecorded sites were encountered during the site visit. These features were recorded and photographed. Figure 14 shows the location of photographs included in this report.
- 4.5.4 The visit began at the western extent of the 2016 study area where the “Mill Race Stream” flowing from the western end of the Wemys adit (PRN96308) crosses to the southern side of the road where a 7 bar steel gate enables access into the field. From here the stream turns sharply westwards eroding the northern fringes of the substantial spoil tip of fine waste material (PRN96304; Photo 1). At the time of the visit, a sizable length of stacked timber logs had been placed parallel to the fence obscuring any evidence for the wheelpit PRN125582 and possible leat or launder PRN125579 shown on the historic mapping. There was also a stack of logs on the south western edge of the spoil tip, vaguely in the area of rectangular structures (PRN125580) shown on the historic mapping. No traces of the possible wheelpit PRN125582, dressing floor PRN96305 or buddles PRN125578 were noted.
- 4.5.6 A possible stone-lined field drain (PRN12556) was found eroding from the southern cutting of the “Mill Race Stream”, at the northern fringe of spoil tip PRN96304 (Photo 2). It appeared that the opposing side had already been eroded away and an alignment could not be confirmed. No other features were noted in the bank sections further downstream. It was not possible to access wheelpit PRN69303 as recorded on the historic mapping for this was on the northern side of the stream, fenced off and engulfed in gorse (Photo 3). It was not possible to verify any visible remains of this feature.
- 4.5.7 The remains of the tramway PRN96328 survive as a well-defined earthwork and is evidently now used for vehicular access to the fields beyond. It is possible to see exposed sections of iron railing in the sections of the tramway. It's route is clearly visible heading westwards from the eastern extent of spoil tip PRN96304 but it is not so discernible heading east.
- 4.5.8 A band of woodland curls round to meet the western end of the tramway which seems to taper out as an earthwork at this point where it is interrupted by a short hollow way orientated northwest-southeast (PRN125583, Photo 6). This is an odd feature which does not appear to correspond with any topographic nor

cartographic feature but does appear to truncate the end of the tramroad, suggesting that it is a later feature.

- 4.5.9 Beyond this and further west, the Mill Race, Nant Gwyn and Nant Cwmnewidion water courses converge. Here, the modern vehicular track diverges into an uphill track which continues west along the southern side of the water or, it becomes a small ford crossing to the northern side of the Cwmnewidion and into the Frongoch West mine workings. The uphill track provides easy access to the impressive and reasonably well-preserved remains of a wheelpit PRN96394 and accompanying balance bob pit PRN125584 and winding house PRN125585 which are somewhat hidden amongst the copse.
- 4.5.10 Built into the bank, the 3.5ft by 18" wheelpit PRN96394 appears to be constructed of dry-stone walling using roughly dressed local stone and is orientated north-south (Photo 7). It has a small archway at its north facing gable (Photo 8). Immediately southeast of this wheelpit is its balance bob pit PRN125584 which is well preserved with little sign of tumble or collapse (Photos 9 & 10).
- 4.5.11 Adjoining the western side of the wheelpit is the relatively substantial remains of winding house PRN12558. Again, this appears to be of dry-stone construction and the southern gable end and western elevation survive to almost full height. The eastern elevation (for it did return) is all but gone although there was (despite the leaf litter) seemingly few tumbled stone suggesting perhaps that this has been robbed of its stone during its decay. The internal elevation of the gable appears to retain a thin limewash or plaster (Photo 11). The western elevation has two window openings although both lintels have long since gone (Photo 12). Abutting both the winding house and wheelpit, and flush with all elevations, is dry stone platform or revetement (Photo 13). This platform also has a small archway at its north eastern foot (see photo 7).
- 4.5.12 Directly opposite these buildings on the northern side of the water are the exposed remains of a stone and timber structure PRN125586. The masonry, a right angled corner, survives to nearly 2m in height with two square timber posts protruding out towards the wheelpit (Photo 14). It is possible that this is a remnant of the footbridge shown on the 1888, 1:2500 Ordnance Survey map.
- 4.5.13 Just over 2m or so up slope from the exposed structure is the square masonry collar for shaft PRN96390 (Photo 15). This shaft has been filled in and is presently accumulating a modest scree of detritus and it is clear to see that the capping of the collar is susceptible to active weathering. This shaft is situated at the highest point of the northern bank opposite the wheelpit and winding house and corresponds to the possible balance bob pit or platform shown on the 1888, 1:2500 Ordnance Survey map (Photo 16).
- 4.5.14 This shaft is situated between two spoil tips. Immediately east of the shaft and bounded by a post and wire fence is tip PRN96391. This corresponds with the spoil tip showing on the historic mapping although it is clear that material has been removed from the northern slope. Two wooden props protrude from the centre of the tip, they are spaced approximately 1.5m apart and are least 2m in (visible) height and are orientated roughly east-west (Photo 17). A large, circular depression PRN125587 has appeared at the western end of the tip and maybe indicative of another shaft but is likely to be a continuation of shaft PRN96390 (Photo 18). It does correspond with the location of a small shaft annotated on the 1905, 1:2500 Ordnance Survey map.
- 4.5.15 The second spoil tip is the latest of the two and is located immediately west of shaft PRN96390 (Photo 19). This development tip PRN 96393 is almost double the height of the former, is narrow and steep sided with an asymmetrical profile owing to the significant erosion of its southern slope. Here, it is plain to see active

undercutting at the base of the tip by the Nant Cwmnewidion and surface erosion of the extremely loose and seemingly unstable material. A sizable, yet truncated wooden post and fragmented cross bar, protrudes at an angle from this southern slope (Photo 20).

- 4.5.16 Elsewhere, there were no visible traces of shaft PRN69385 noted on the 1905 1:2500 Ordnance Survey map, nor of the hollow and level PRN96387 or indeed any remains of the two small buildings PRN 96386 shown on the 1888 1:2500 Ordnance Survey map (Photo 21).
- 4.5.17 After completing the survey at the Frongoch West study area, the site visit proceeded uphill to the pond study area on Cwm Newidion. The pond feature is located on a broad plateau, roughly halfway up the hill. Entirely rush filled, it is a stark contrast to grazed pasture of the south-eastern slopes. A post and wire fence encloses the narrow brook leading from the pond and continues along the eastern extend of the well defined hedgebank/field boundary. The western side of the brook and pond remains unenclosed (Photo 22). Two hardy trees roughly mark the point where the brook leaves the pond and roughly align with the return of the post and wire fence (Photo 23).
- 4.5.18 Beyond the junction with the brook, the hedgebank continues for around 66m westwards and is a discernible earthwork (Photo 24). Aside from the occasional small suspicious hollow on the south-eastern slopes of the hill, no other features of potential archaeological interest were identified in this area.
- 4.5.19 Retreating back down the hill, it is possible to follow the well-defined bank of the brook as it cuts a straight path down to the mine workings (Photo 25). Around 150m south of the pond, the brook is truncated by a substantial leat PRN96317 which survives as formidable earthwork and follows the contours of the hills east-west (Photo 26). Here, a cluster of trees is roughly situated in the location of the Tan-y-Dam farmstead PRN125986 shown on the historic mapping (Photo 27). No remains of the farmstead were visible, but the area was not surveyed properly owing to difficulties in accessing the site.
- 4.5.20 Finally, the brook joins the main area of mine workings at the eastern end of the 2016 study area just above Glanvill's Shaft PRN9615 and its spoil tip which is now covered in gorse (Photo 28).

## **4.6 Previous Archaeological Work**

- 4.6.1 A detailed survey of the remains of the mine was undertaken in 1993 by Jennifer Protheroe Jones on behalf of the Dyfed Archaeological Trust. The results of this survey have been added to the HER and the PRNs generated from this survey are those which have been used in this assessment (Protheroe Jones, 1993). Jennifer Protheroe Jones has since conducted more recent surveys and a review of Wemyss; the results of which are pending.
- 4.6.2 Wemyss was included in the 2002 scheduling enhancement Metal Mines Project undertaken by Dyfed Archaeological Trust in 2002 (Sambrook, 2002).
- 4.6.3 In 2016, Dyfed Archaeological Trust undertook a desk based assessment of Wemyss as part of a wider Metal Mines Remediation project for Natural Resources Wales (Bell et al, 2016).
- 4.6.4 There have not been any intrusive archaeological investigations nor any systematic recording surveys undertaken at the site.

## **5. CONCLUSIONS**

### **5.1 Archaeological Constraints**

- 5.1.1 Following the results of the desk-based assessment and the completion of the walk-over survey, it has been possible to draw a map of the study area showing the archaeological constraints. For the purpose of continuity, the 2016 and current assessments have been aggregated to create one, coherent map for the site. This map identifies areas of low, medium or high archaeological potential with areas coloured red, amber and green respectively (Figure 15). This map can be used to inform the detailed design stage of the remediation project.
- 5.1.2 The constraints map shows the study area outlined in pink and divided into 13 separate zones of archaeological potential.

#### **Area 1: (Shaded red) Area of high archaeological potential**

- 5.1.3 This area is the entirety of the eastern extent of the 2016 study area as described in the previous section. This area is occupied by several known archaeological features and a significant number of previously unidentified sites. It is likely that the density of activity in this area is masking earlier phases of both above and below ground archaeology. Whilst there will be areas within this region which are devoid of archaeology, the distribution of sites is such that it is more convenient to consider this area as a whole as opposed to trying to isolate individual elements.

#### **Area 2: (Shaded amber) Area of medium archaeological potential**

- 5.1.4 This area covers the large spoil tip at the south of the site (PRN 96324). The results of the desk-based assessment suggest that this spoil tip is largely the product of the latest phase of the mine's production phase but it may contain or cover further archaeological structures and/or artefacts.

#### **Areas 3 & 4: (Shaded red) Area of high archaeological potential**

- 5.1.5 Bisected by the road, these areas are the southern and northern halves of the localised area of mining activity at the western end of the Wemyss adit. The adit in this area of the site (PRN 96308) appears to be that shown on the tithe and therefore this could potentially be the earliest phase of working at the site. In addition, there is a high density of recorded sites in this area, some of which are masked by the stacks of timber logs (such as the possible wheelpit PRN125582 and narrow-gauge tramway PRN125577) and may only be superficially buried. Furthermore, the discovery of a possible field drain PRN125596 exposed by the Mill Race Stream indicates that there may be other undocumented, buried archaeology in this area.

#### **Area 5: (Shaded amber) Area of medium archaeological potential**

- 5.1.6 This area covers the entirety of the curvilinear feature PRN125576 identified during the desk-based assessment. It survives as a definite earthwork and the evidence from the historic mapping suggests that it may have functioned as a leat or drain and is an integral component to the site.

#### **Area 6: (Shaded green) Area of low archaeological potential**

- 5.1.7 This area covers the southernmost areas of the site and appears to be largely devoid of archaeology. It was worth noting that the remains for Nany-Y-Rhidyll farmhouse PRN125575 and its access track, whilst derelict, are still extant.

#### **Area 7: (Shaded red) Area of high archaeological potential**

- 5.1.8 This discrete area encompasses the length of the tramway PRN96328 of which the western length is easily discernible as a prominent earthwork. The eastern extent is not easily identified on the ground but is clearly visible on the 1m LiDAR



DSM (Digital Surface Model) data provided by Natural Resources Wales via the Lle Portal.

**Area 8: (Shaded red) Area of high archaeological potential**

- 5.1.9 This area encompasses the extent of the Tan-yr-Dam farmstead PRN125986 as according to the cartographic sources. It also includes a section of the substantial leat PRN96317 which truncates the brook at this point. As a later feature, the leat truncates the documented extent of the farmstead, the remnants of which are traceable on the 1m LiDAR DSM. Therefore in addition to the section of leat, it seems highly likely that the archaeological remains of the farmstead survive in this area.

**Area 9: (Shaded amber) Area of medium archaeological potential**

- 5.1.10 This area includes the length of hedgebank/field boundary included within the pond study area. It is an important component that characterises the historic landscape of the area.

**Area 10: (Shaded green) Area of low archaeological potential**

- 5.1.11 This area included the entirety of the pond area and length of brook. The pond itself appears to be a natural feature which has been exploited by the creation or manipulation of the brook leading from it. The historic mapping and LiDAR indicates that there is low potential for any further archaeological features or sensitivities in these areas.

**Area 11: (Shaded red) Area of high archaeological potential**

- 5.1.12 This area covers the extent of the known and extant archaeology on either side of the Nant Cwmnewidion at the Frongoch West study area. Of particular interest and sensitivity are the eroding spoil tips (PRNs 96393 and 96391) which are revealing intriguing features potentially integral to understanding the phasing and processing in this area and its connection with the main workings at Wemyss.

**Area 12: (Shaded amber) Area of medium archaeological potential**

- 5.1.13 This amber area is effectively a buffer to capture the ambiguity and discrepancy between the cartographic sources and the apparent topography. The majority of the records in this area are concerned with evidence of extraction (hollows and levels).

**Area 13: (Shaded green) Area of low archaeological potential**

- 5.1.14 The remaining areas of the Frongoch West study area are included within this "low" threshold. The bounds of which are arbitrary for the purpose of providing discrete study areas, but this area includes the three water courses, including the modern Mill Race Stream and associated tracks etc.

## 6. SOURCES

### ***Cartographic***

- 1888 – Llanfihangel y Creuddyn Tithe Award map of 1888
- 1888 - First Edition Ordnance Survey 25-inch map of Cardiganshire.
- c.1896 – Crosswood (Earls of Lisburne) working plan and section of Wemyss mine
- 1905 - Ordnance Survey 25-inch map of Cardiganshire
- 1953 - Ordnance Survey 6-inch map of Cardiganshire

### **LiDAR**

1m LiDAR from Lle Portal: [Lle - Home \(gov.wales\)](https://lle.gov.wales)

### **Published**

- Bick, D. 1986, *Frongoch Lead & Zinc Mine, British Mining No 30*, Northern Mine Research Society Monograph.
- Cadw 1998. Register of Landscapes of Outstanding Historic Interest in Wales.
- Murphy, K,. 1999. Upland Ceredigion Historic Landscape Characterisation. Dyfed Archaeological Trust.

### **Unpublished**

- Bell et al, 2016. *Metal Mines Remediation Project Part 3: Wemyss Archaeological Assessment*. Dyfed Archaeological Trust
- Natural Resources Wales. 2015. *Abandoned Mine Case Study: Wemyss Lead & Zinc Mine*
- Prothero-Jones. J. 1993. Ceredigion Metal Mines survey archive held Dyfed Archaeological Trust HER
- Sambrook, P. 2002. *Metal Mines Project 2002 Interim Report*. Cambria Archaeology [Dyfed Archaeological Trust]

### **Database**

Dyfed Archaeological Trust Historic Environment Record, housed with Dyfed Archaeological Trust in The Corner House, 6 Carmarthen Street, Llandeilo, Carmarthenshire, SA19 6AE

### **Websites**

- AditNow: Mine exploration and mining history website and forum:  
[Mine exploration, exploring disused mines and quarries, mining history, photographs and information for explorers, historians and industrial archaeologists \(aditnow.co.uk\)](http://aditnow.co.uk)
- Coflein: The Royal Commission on the Ancient and Historic Monuments of Wales:  
<https://coflein.gov.uk/en/site/search>

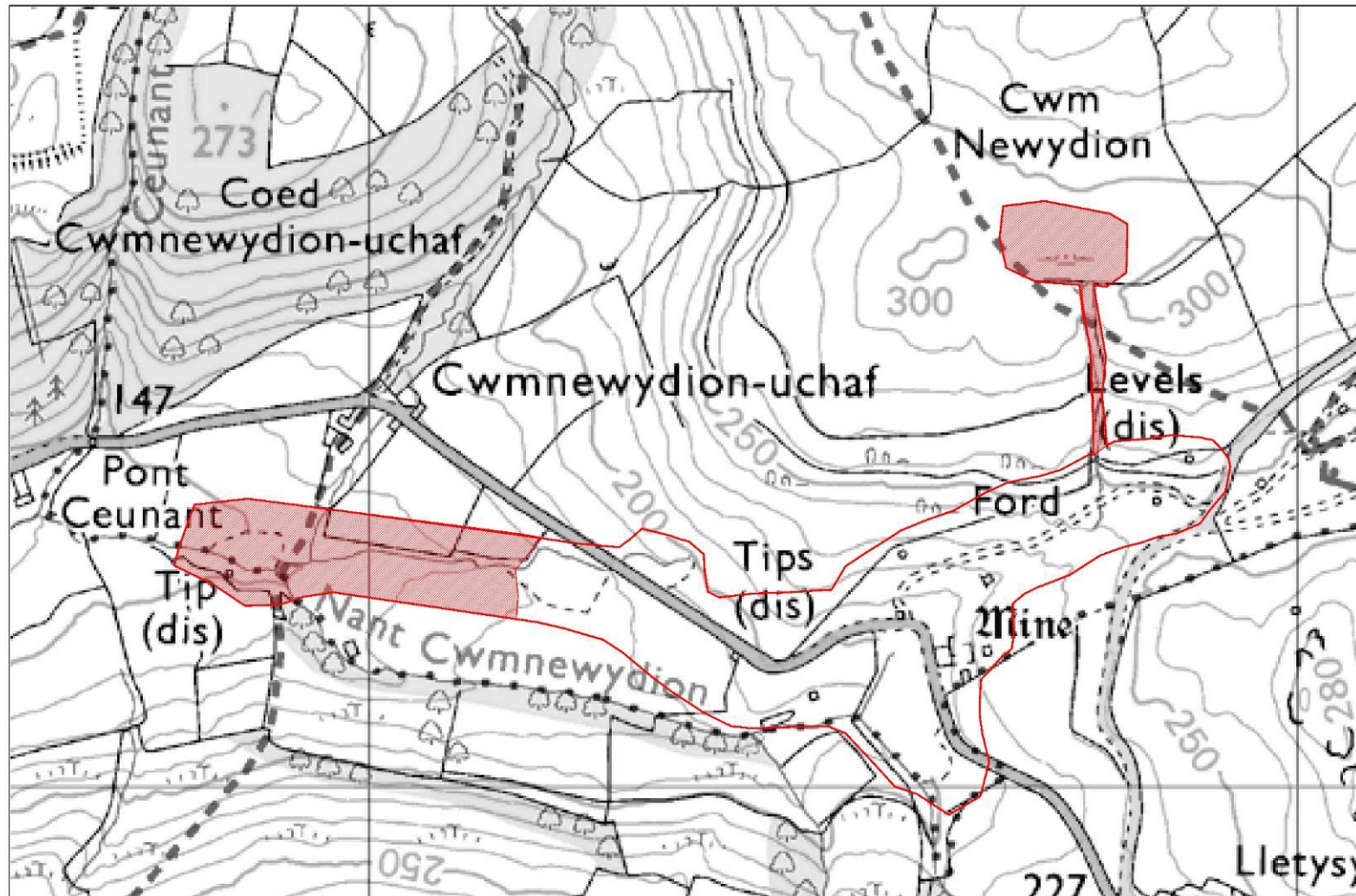
## 7. FIGURES



**Figure 1:** Location map of Wemyss former lead and zinc metal mine (shaded in pink) on the 1:50,000 Ordnance Survey map. The study areas are shown shaded in red.

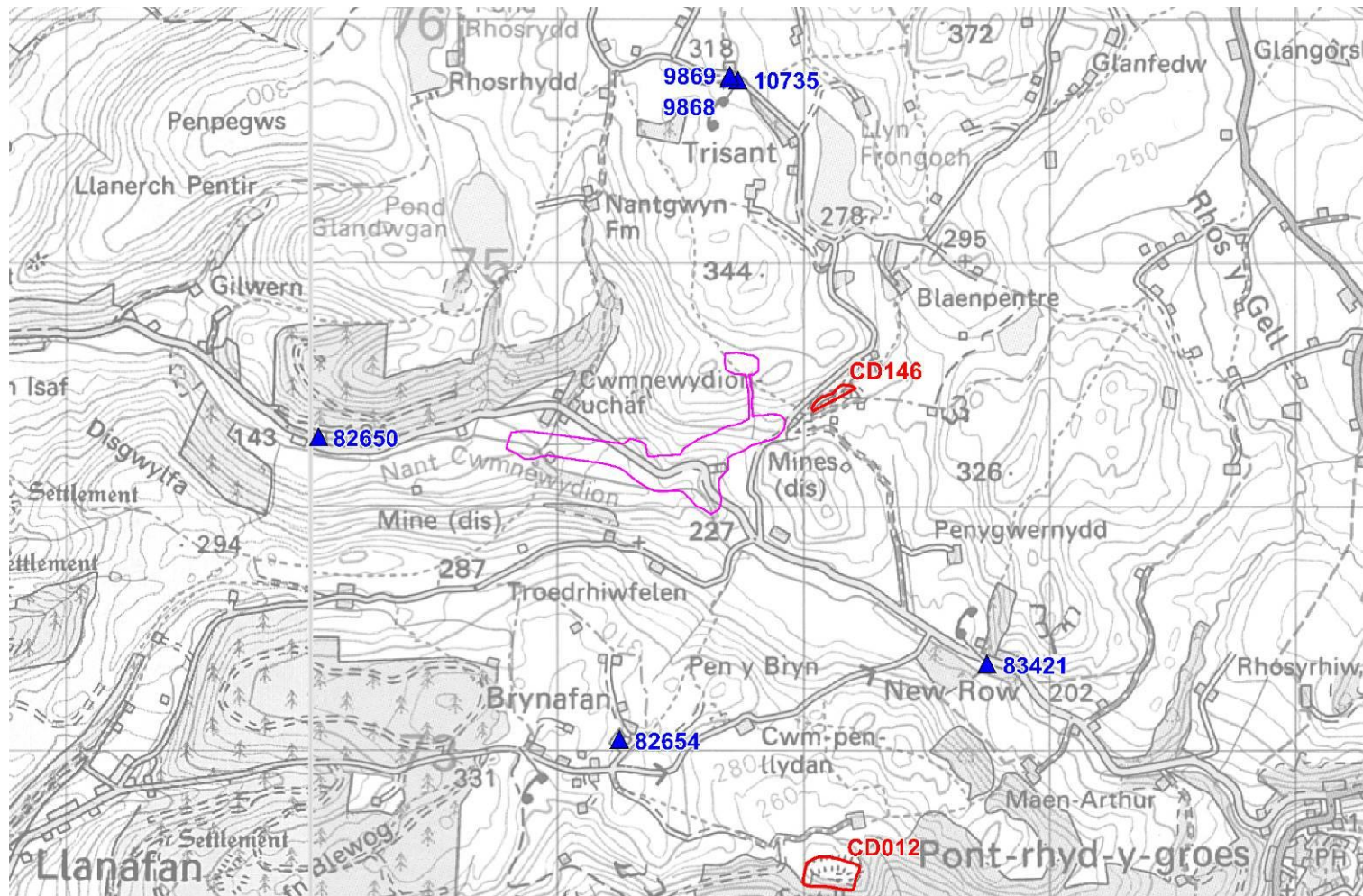
Reproduced from the Ordnance Survey 1: 50,000 scale map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust, The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF. Licence No 100020930





**Figure 2:** The two new study areas (shaded in red) at Wemyss Metal mine. The 2016 study area is outlined in red.

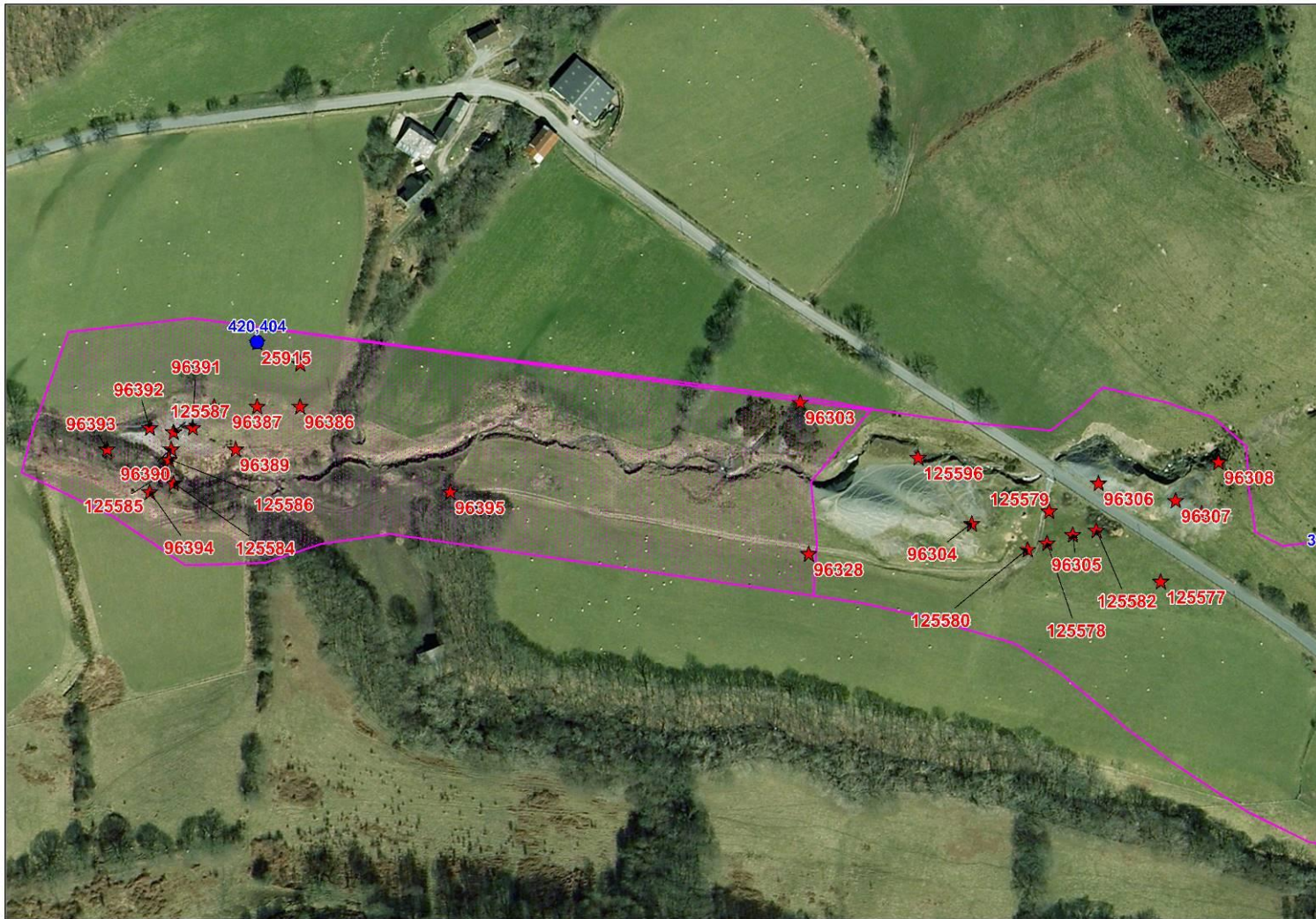
Reproduced from the Ordnance Survey 1:25,000 scale map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust, The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF. Licence No 100020930



**Figure 3:** Map showing designated sites, Scheduled Monuments (outlined in red) and Listed Buildings (blue triangles).

Reproduced from the Ordnance Survey 1:25,000 scale map with the permission of The Controller of Her Majesty's Stationery Office, © Crown Copyright Dyfed Archaeological Trust, The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF. Licence No 100020930



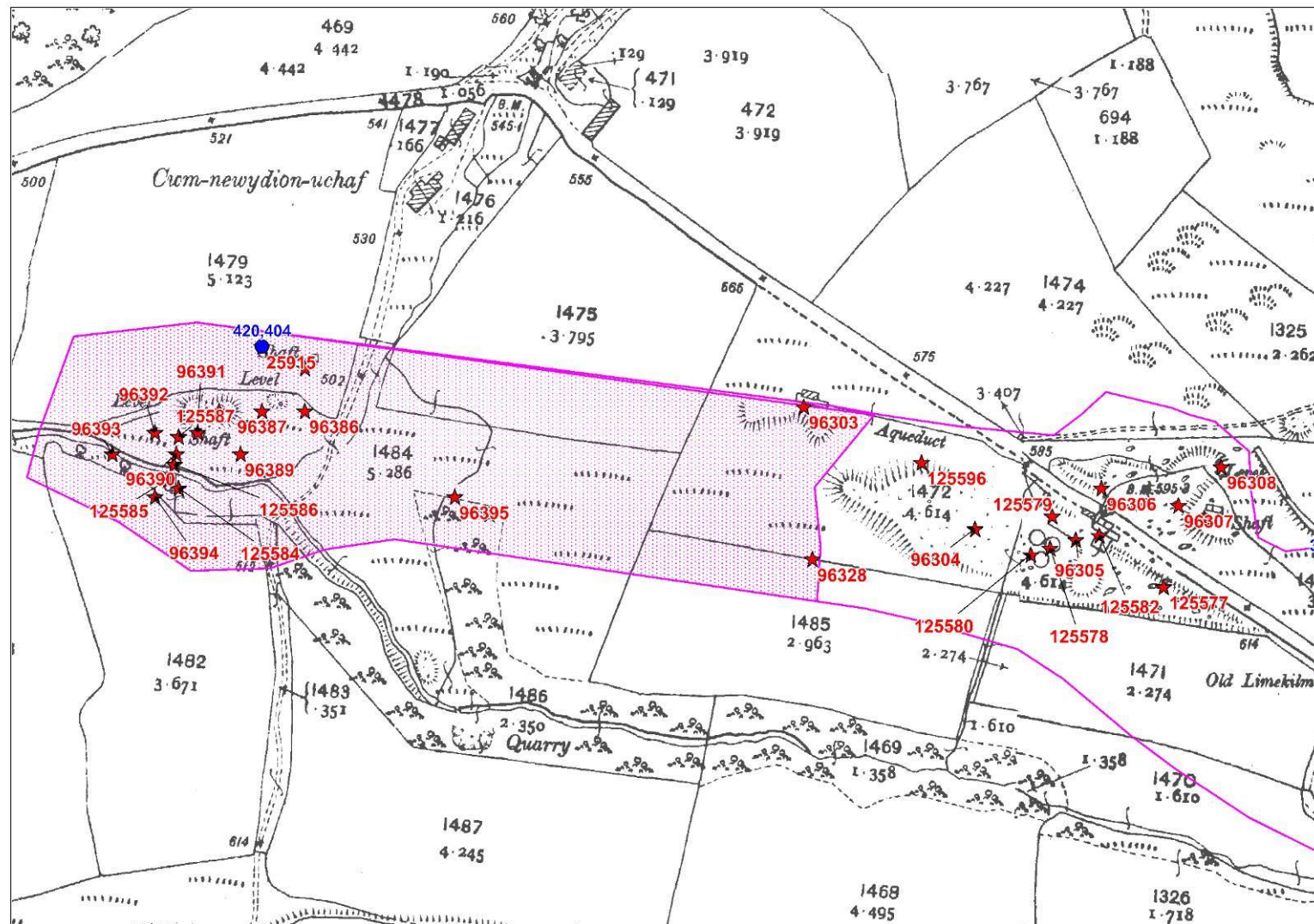


**Figure 4:** Aerial image showing the non-designated assets recorded in the HER (red stars) and RCAHMW's NMR (blue dots) within the Frongoch study area (hashed in pink) and immediate vicinity.





**Figure 5:** 1m LiDAR DSM (Digital Surface Model) map showing the non-designated assets recorded in the HER (red stars) and RCAHMW's NMR (blue dots) with in the Frongoch study area (hashed in pink) and immediate vicinity.



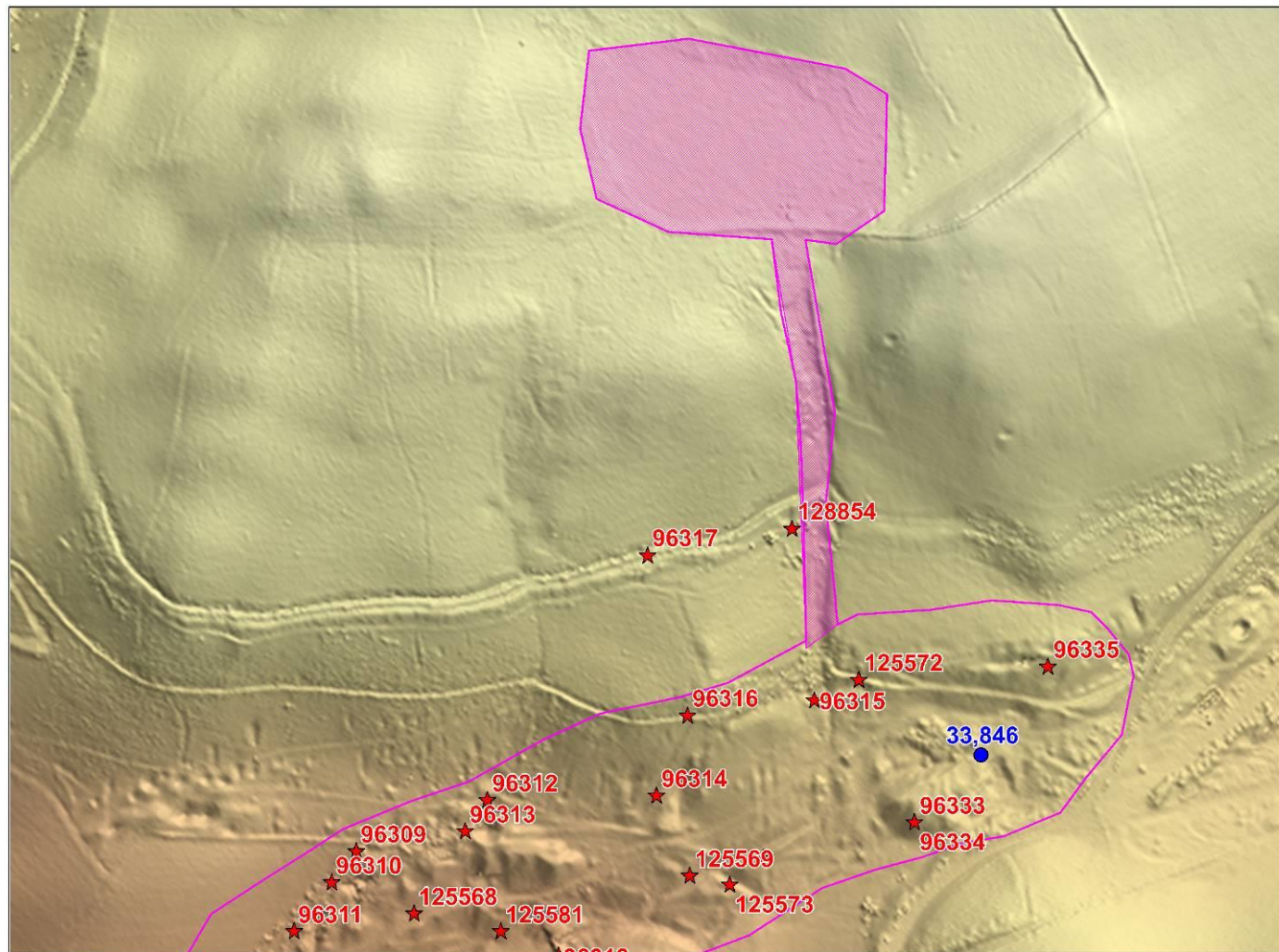
**Figure 6:** The 1905 25inch Ordnance Survey map showing the non-designated assets recorded in the HER (red stars) and RCAHMW's NMR (blue dots) with in the Frongoch study area (hashed in pink) and immediate vicinity.



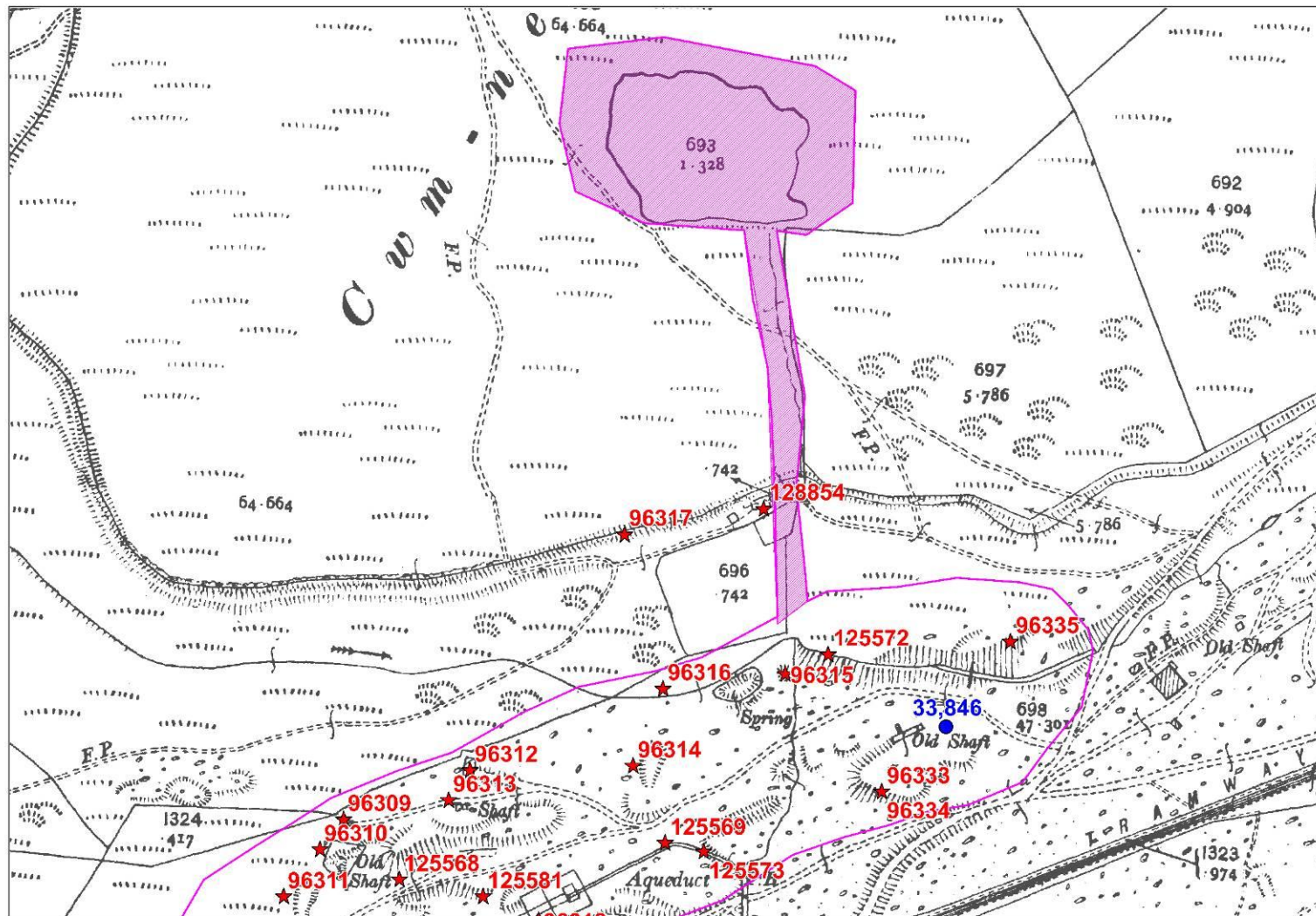


**Figure 7:** Aerial image showing the non-designated assets recorded in the HER (red stars) and RCAHMW's NMR (blue dots) with in the pond study area (hashed in pink) and immediate vicinity.



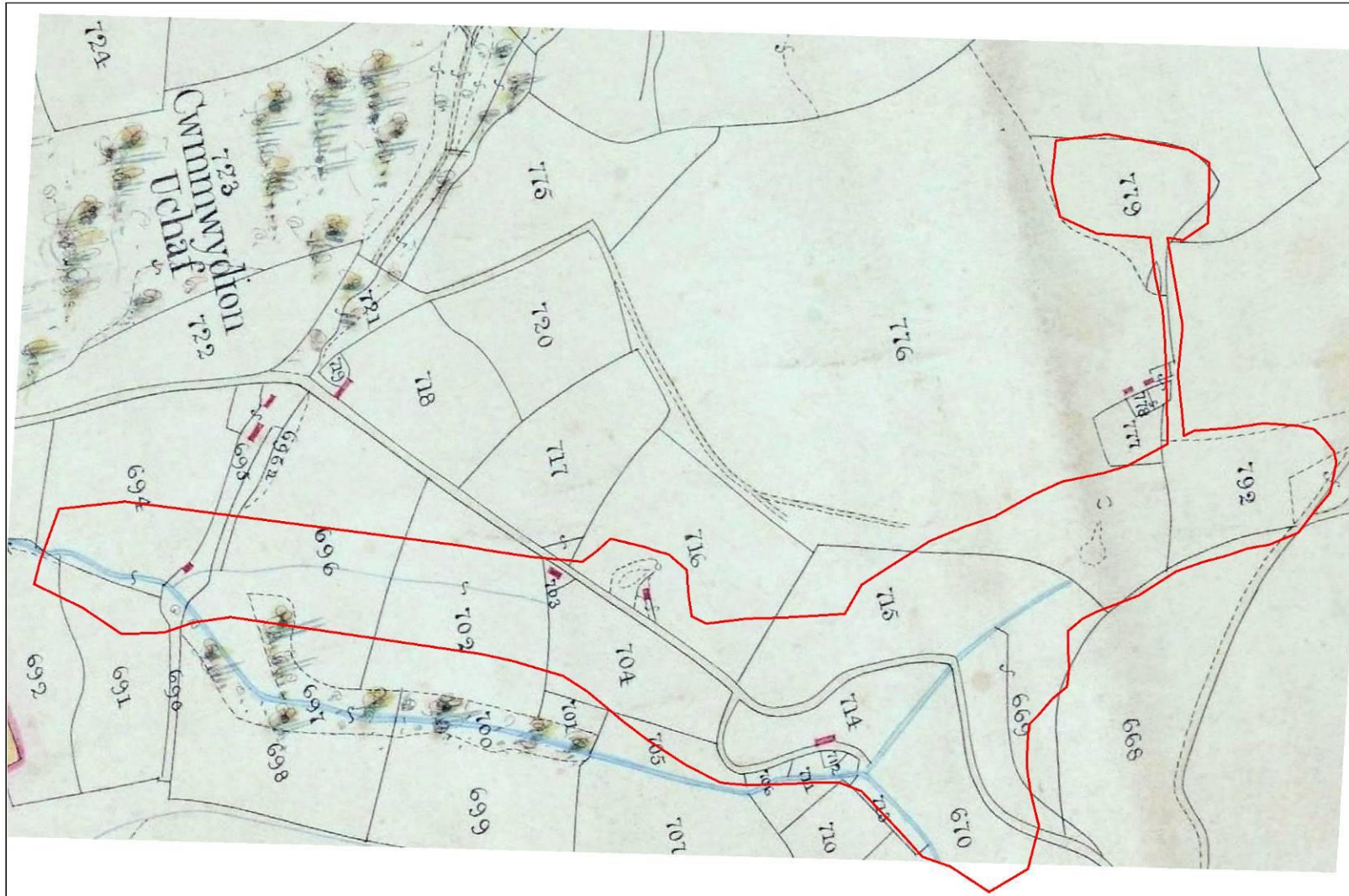


**Figure 8:** 1m LiDAR DSM (Digital Surface Model) showing the non-designated assets recorded in the HER (red stars) and RCAHMW's NMR (blue dots) with in the pond study area (hashed in pink) and immediate vicinity.

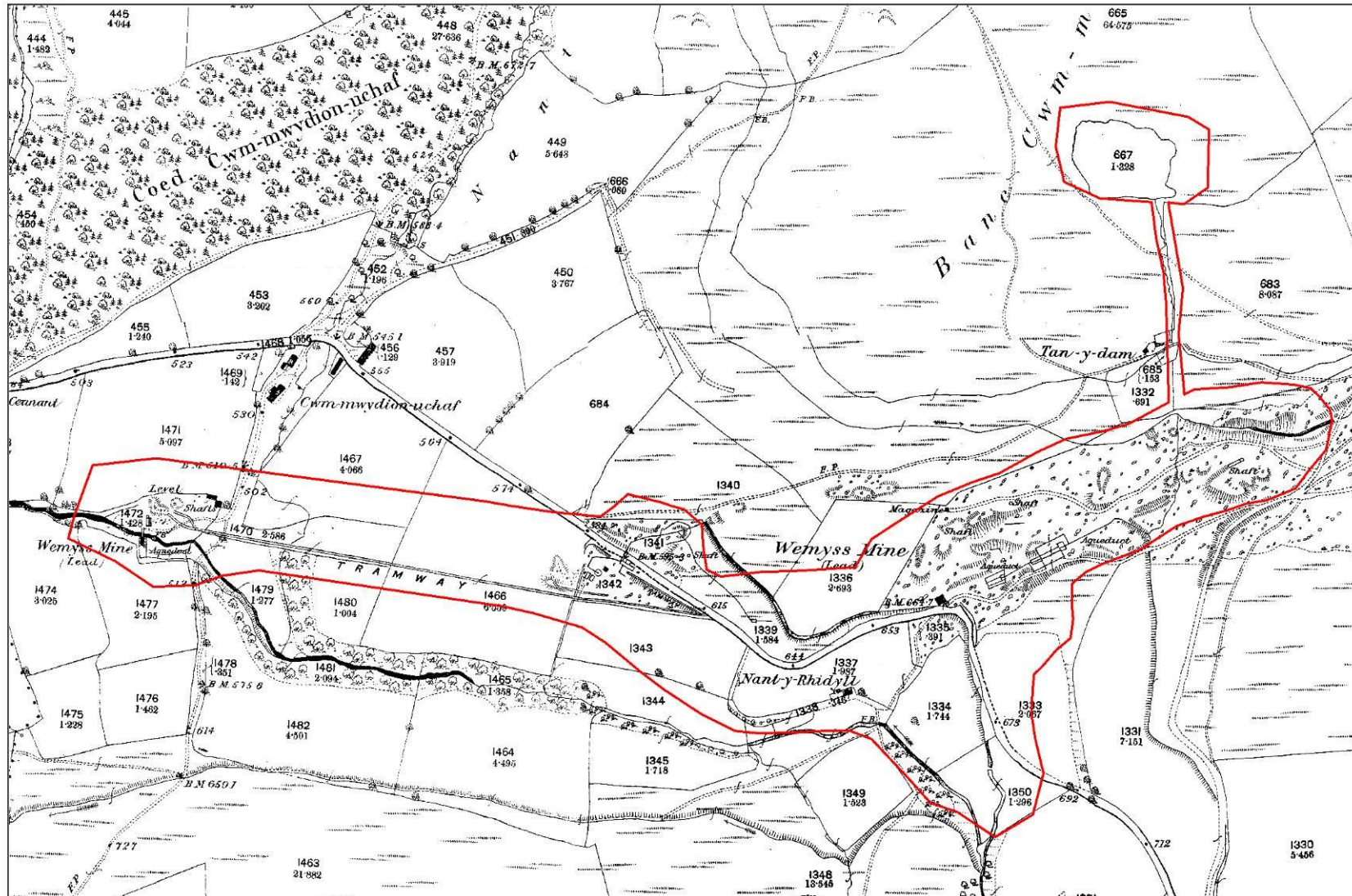


**Figure 9:** The 1905 25inch Ordnance Survey map showing the non-designated assets recorded in the HER (red stars) and RCAHMW's NMR (blue dots) with in the Frongoch study area (hashed in pink) and immediate vicinity.



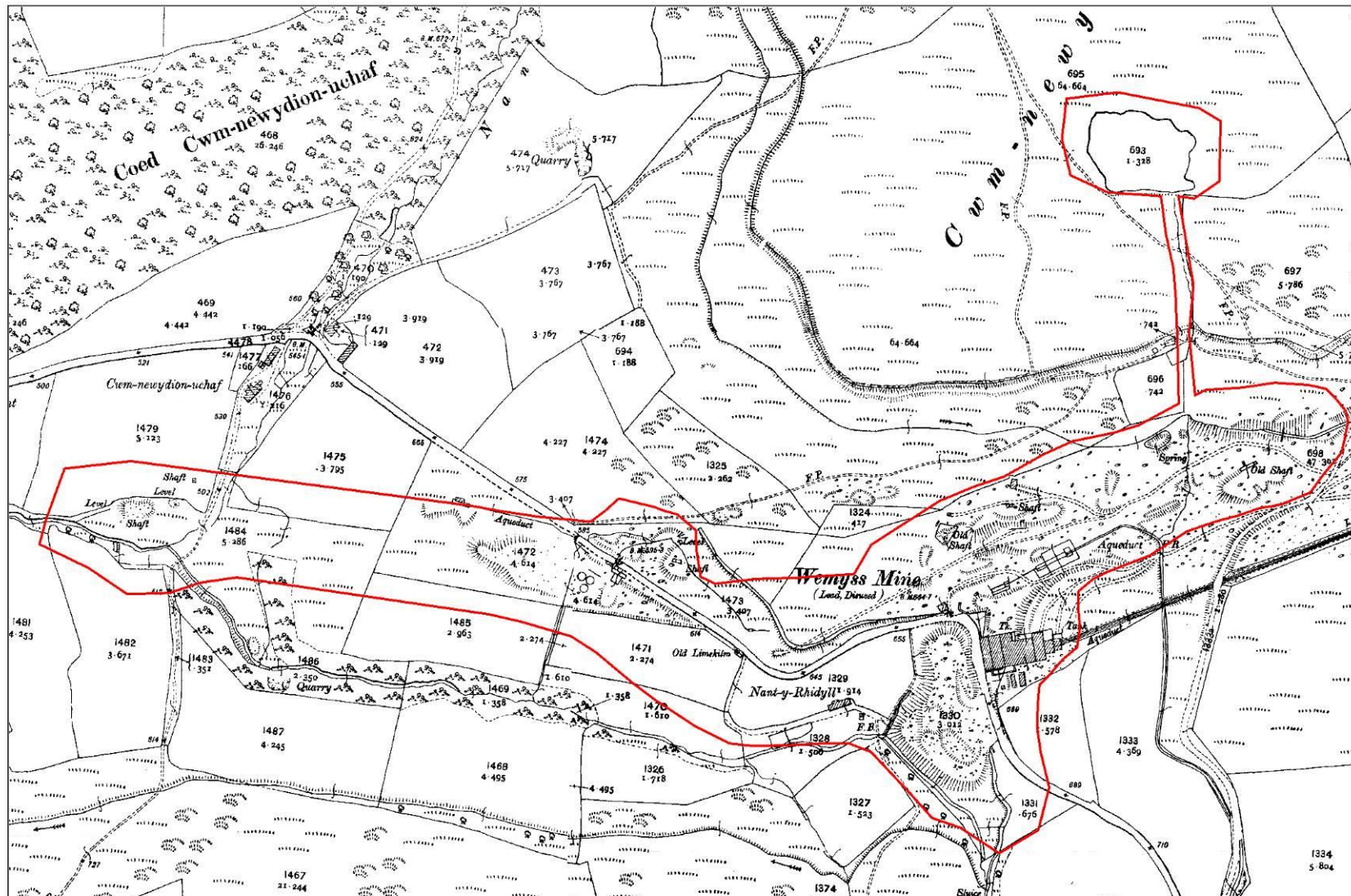


**Figure 10:** Extract of the 1847 Llanfihangel Y Crueddyn parish tithe map with the study area outlined in red.

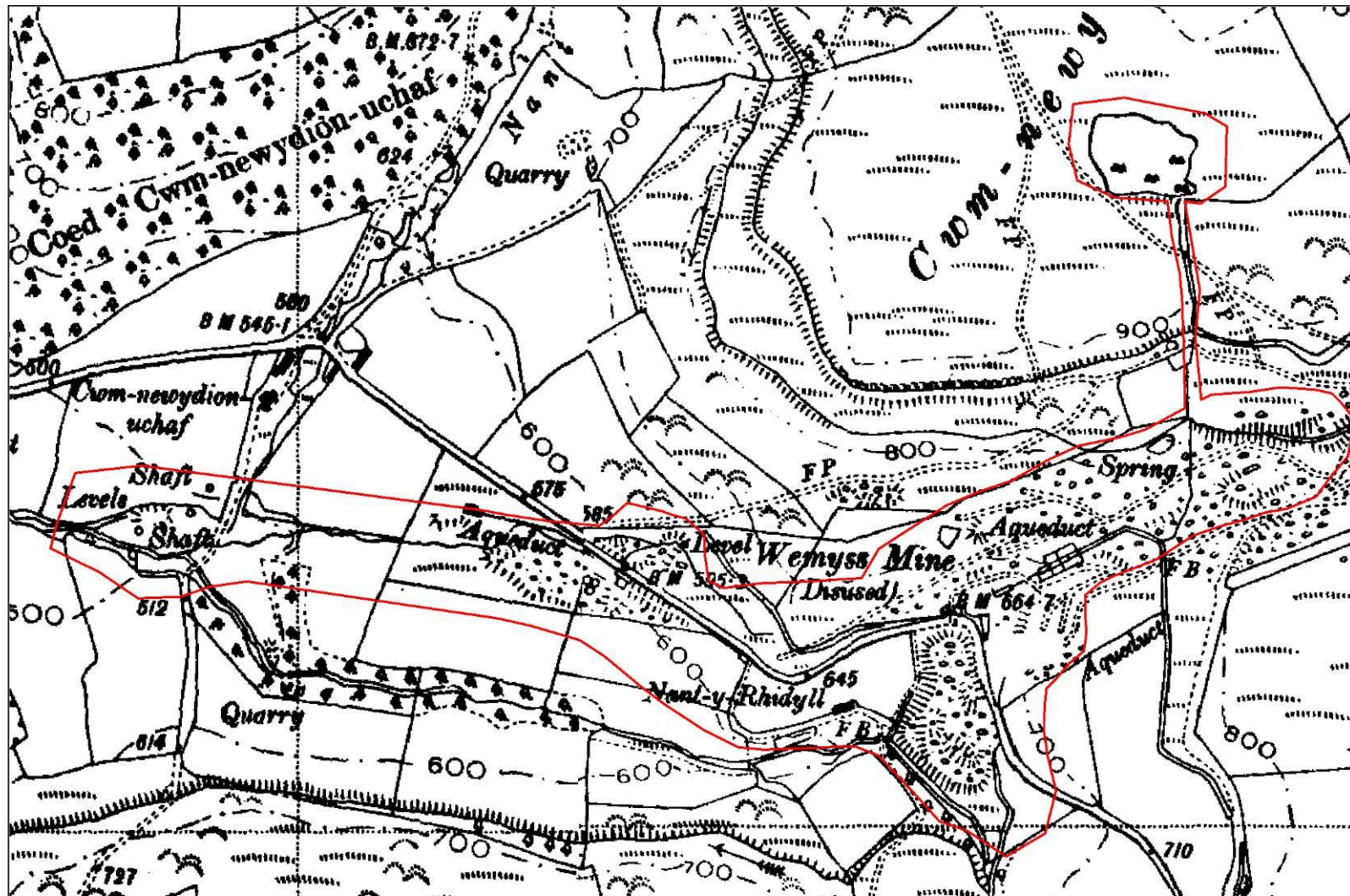


**Figure 11:** Extracts of the 1<sup>st</sup> edition Ordnance Survey 1:2500 map of 1889, with the study area outlined in red.



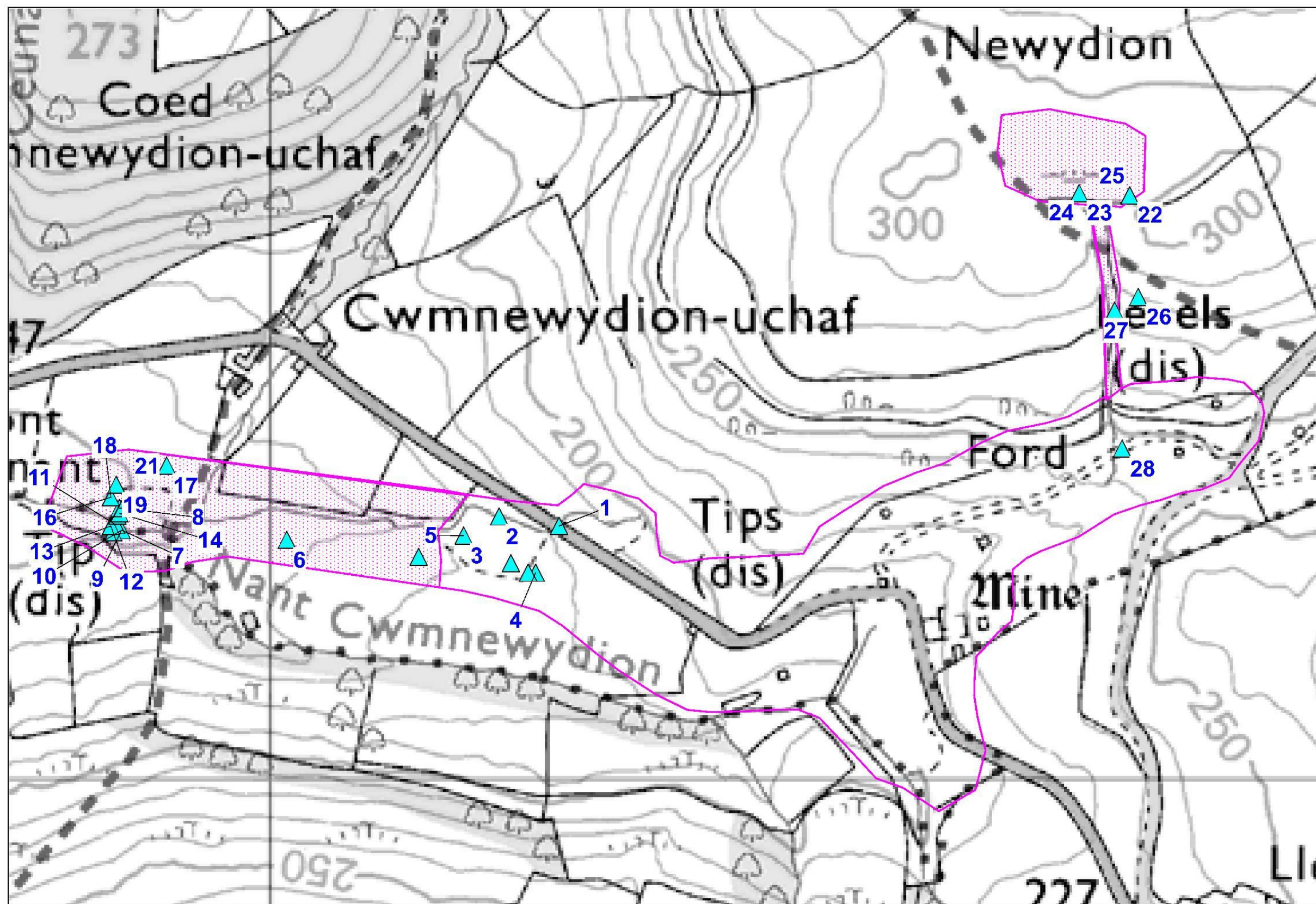


**Figure 12:** Extract of Ordnance Survey 1:2500 map published in 1905 with the study area outlined in red.



**Figure 13:** Extract of the 1:10560 Ordnance Survey map published in 1953 with the study area outlined in red.





**Figure 14:** Map showing the location of photographs taken during the site visit included in this report

Reproduced from the Ordnance Survey 1:25,000 scale map with the permission of The Controller of Her Majesty's Stationery Office,  
© Crown Copyright Dyfed Archaeological Trust, The Shire Hall, Carmarthen Street, Llandeilo, Carmarthenshire SA19 6AF. Licence No 100020930



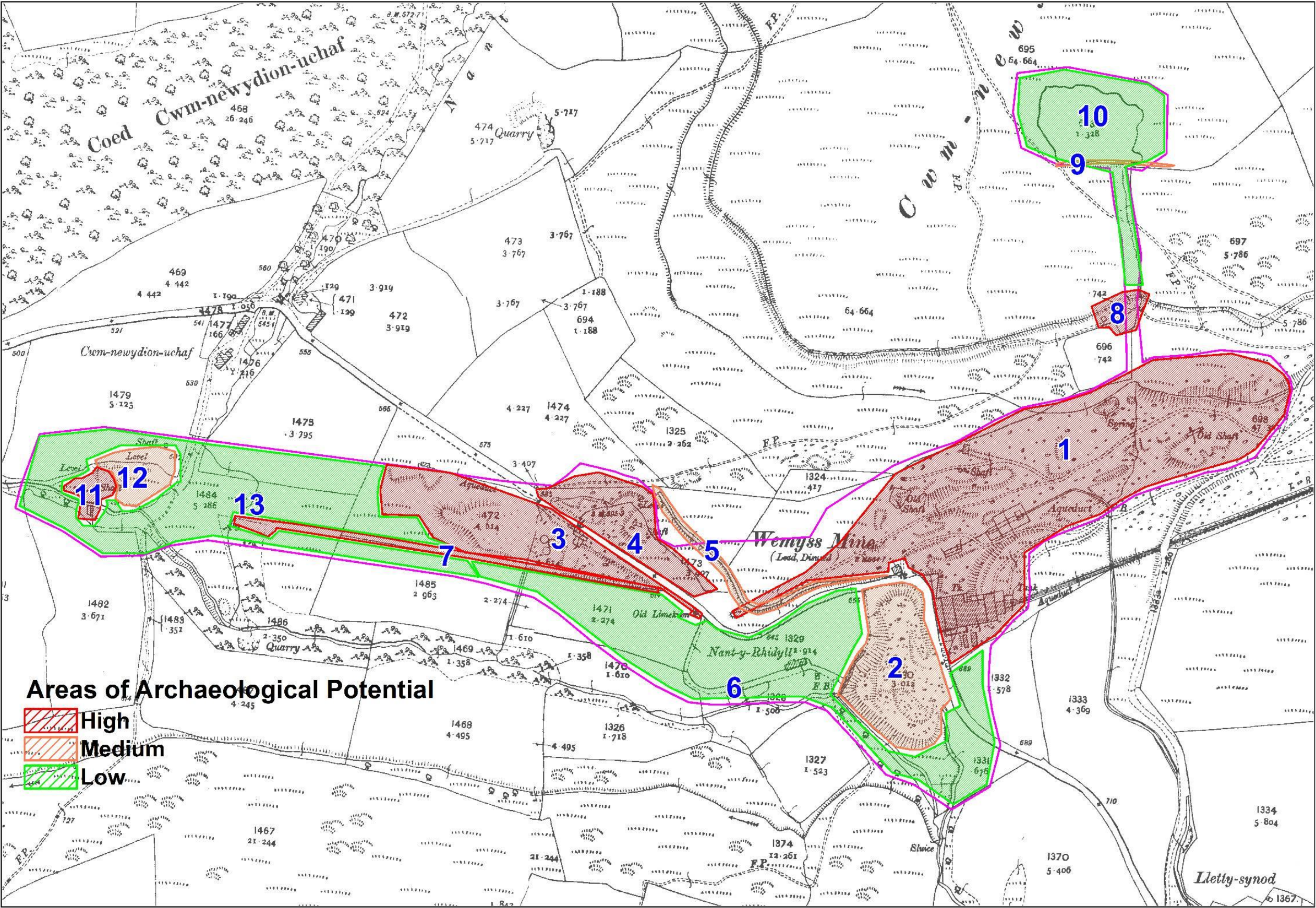


Figure 15: Wemyss mine plan of archaeological constraint overlaying an extract of the 1905 Ordnance Survey map



## 8. PHOTOGRAPHS



**Photo 1:** View facing southwest with fine waste tip PRN96304 in the foreground. The steep cutting of the "Mill Race Stream" can be seen at the right hand side of the photo (DAT Photo 125592\_3439)



**Photo 2:** Possible stone line field drain (PRN125596) exposed in southern cutting of the Mill Race eroding spoil tip PRN96304. 1m scale (DAT Photo 125592\_3443)





**Photo 3:** Overview of location of wheelpit PRN69303. The site is fenced off and engulfed in gorse (DAT Photo 125592\_3444)



**Photo 4:** The earthwork remains of tramway PRN96328 heading west. The western end of spoil tip PRN68304 is visible at the right of the frame. 1m scale (DAT Photo 125592\_3440)





**Photo 5:** The earthwork remains of tramway PRN96328 heading west as viewed from the top of spoil tip PRN68304 (DAT Photo 125592\_3440)



**Photo 6:** Hollow way PRN125583 at the western end of tramway PRN96328. View facing northwest. 1m scale (DAT Photo 125592\_3446)





**Photo 7:** Overview of wheelpit PRN96394, facing north (DAT Photo 125592\_3447)





**Photo 8:** The north facing elevation of wheelpit PRN96394. 1m scale (DAT Photo 125592\_3458)





**Photo 9:** Overview of the southern end of balance bob pit PRN125584 (DAT Photo 125592\_3448)





**Photo 10:** Overview of the northern end of balance bob pit PRN125584 (DAT Photo 125592\_3449)



**Photo 11:** The internal elevation of the southern gable end of winding house PRN125585, with the possible remnants of a thin limewash. 1m scale (DAT Photo 125592\_3450).





**Photo 12:** The western external elevation of winding house PRN125585. 1m scale (DAT Photo 125592\_3452)



**Photo 13:** The northern end of the western elevation of winding house PRN 125585 and the abutting platform or revetement at its northern end. 1m scale (DAT Photo 125592\_3454)





**Photo 14:** The stone and timber structure PRN125586 eroding from the tip opposite wheelpit PRN96394. 1m scale (DAT Photo 125592\_3459)



**Photo 15:** The square masonry collar for shaft PRN69390. Facing west. 1m scale (DAT Photo 125592\_3460)





**Photo 16:** Overview of shaft PRN96390 (left in the frame) and wheelpit PRN 96394 and winding house PRN 125585 at Frongoch West (DAT PHOTO 125592\_3461)



**Photo 17:** The northern side of spoil tip PRN96391 showing an area of extraction. Two wooden posts are also shown protruding from the centre of the tip (DAT Photo 1255921\_3470)





**Photo 18:** The large circular depression (PRN125587) at the western end of tip PRN96391 maybe indicative of a shaft or a continuation of shaft PRN96390 seen at the right hand of the frame (DAT Photo 125592\_3462).



**Photo 19:** Overview of the northern slopes of development tip PRN 96393 (DAT Photo 125592\_3469)





**Photo 20:** A wooden post is seen protruding out from the actively eroding, steep southern slope of development tip PRN96393 (DAT Photo 125592\_3469)



**Photo 21:** Overview of the eastern area of Frongoch West where there are no visible traces the recorded levels, hollows and abandoned buildings (DAT Photo 125592\_3471)





**Photo 22:** Overview (facing west) of the south eastern extent of the pond study area at the corner of the post and wire fence which follows the hedgebank, enclosing the south-eastern end of the rush filled pond and eastern side its the narrow brook (DAT Photo 125592\_3474).



**Photo 23:** Overview (facing east) of the western side of the pond study area. The prominent hedgebank/field boundary can be seen curving northwards in the background of the frame (DAT Photo 125592\_3476)



**Photo 24:** Overview of the low earthwork hedgebank/field boundary running westwards beyond the pond study area (DAT Photo 125592\_3478)



**Photo 25:** Overview (facing south-east) of the brook and its prominent bank (DAT Photo 125592\_3475)





**Photo 26:** Overview (facing west) of leat PRN96317 at the point where it truncates the brook (DAT Photo 125592\_3479)



**Photo 27:** A closer view of leat PRN96317 and the cluster of trees (at the left of the frame) roughly in the area of the former Tan-Yr-Dam farmstead PRN125986 (DAT Photo 125592\_3480)





**Photo 28:** View looking northwards towards the brook which joins the main mine workings just above Glanville's Shaft PRN96315 and spoil tip, now covered in gorse (DAT Photo 125592\_3481)

## **9. PROJECT ARCHIVE**

Project Number: FS20\_051

Project Name: Wemyss Metal Mine DBA Update

Event Record Number: 125592

Digital Photographs: x 40 JPEGs

X 40 TIFFs

Digital Photographs Film Number: 125592\_3439 to 125592\_3481

Photographic Record x 1 Excel Workbook

GIS MapInfo Tables (.TAB, .MAP, .ID, .DAT):

- FS20\_051\_Wemyss\_Area\_2020
- FS20\_051\_Archaeological\_Potential
- FS20\_051\_Photographic\_Record

## APPENDIX 1

### METAL MINE REMEDIATION PROJECT: ARCHAEOLOGICAL ASSESSMENTS OF ABBEY CONSOLS; ESGAIR MWYN AND WEMYSS MINES

#### WRITTEN SCHEME OF INVESTIGATION

##### 1 Introduction

- 1.1 This written scheme of investigation presents a proposed methodology for archaeological assessments of three former metal mines in Ceredigion; Abbey Consols (SN 74304 66123); Esgair Mwyn (SN 75469 69293); and Wemyss (SN 71579 74089). The assessments have been requested by Natural Resources Wales within an *Invitation To Quote*, with description of the requirement stated as being: *To inform the option appraisal process for each of the 3 sites, NRW is seeking an archaeological consultant to undertake an archaeological assessment so that a better understanding of each site's historic interests can be gained.*
- 1.2 The assessment will be a primarily desk-based study of the site area, identifying any known archaeological or historical features within the mine sites and their immediate environs, identifying potential setting impacts on scheduled ancient monuments or listed buildings in the vicinity, identifying any historic landscape areas that may be affected by the proposals and assessing the potential for hitherto unknown archaeological remains to be present within the remediation areas.
- 1.3 The three mines are all historically significant sites which have been subject to some previous historical research and investigation. The assessment will collate the most relevant facts about the sites and their most significant elements. Maps will be produced highlighted zones of archaeological sensitivity including any special features that could cause issues for any future metal mine remediation.
- 1.4 Study areas have been defined for the three sites as shown on the plan attached to the *Invitation To Quote*: Abbey Consols covering an area of c.3.3ha; Esgair Mwyn covering an area of c.16.2ha; and Wemyss an area of 11.9ha. The background information for the work within the *Invitation To Quote* notes that the desk studies should include not only the defined study areas (as above), but also potential passive treatment sites as laid out in studies of the Esgair Mwyn and Abbey Consols sites. These additional areas are not defined within the documents.
- 1.5 The specification is in accordance with the *Standard and Guidance for Archaeological Desk-Based Assessments* (Chartered Institute for Archaeologists (CIfA), 2014).
- 1.6 DAT Archaeological Services staff have considerable experience of Metal Mine sites, having prepared the 'Metal Mining in Upland Ceredigion' booklet; undertaken a previous assessment and subsequent stages of evaluation and excavation at the Frongoch Lead mine for NRW; and production of the 'Cwmystwyth Mines Management and Protection Plan' for the Cwmystwyth Mines Trust
- 1.7 The Trust always operates to best professional practice. DAT Archaeological Services has its own Health and Safety Policy, and all works are covered by appropriate Employer's Liability and Public Liability Insurances. Copies of all are available on request.
- 1.8 This document provides details on how DAT Archaeological Services intend to fulfil the requirements laid out in the *Invitation to Tender* and is intended for NRW only and must not be shown to any third parties.
- 1.9 ***Dyfed Archaeological Trust is a CIfA Registered Archaeological Organisation.***

## **2. AIM AND OBJECTIVES OF THE PROJECT**

2.1 This document provides a scheme of works for:

***The preparation of an archaeological assessment for three metal mines in Ceredigion: Abbey Consols; Esgair Mwyn; and Wemyss. The reports will collate existing information and identify the most significant elements of the mine sites and provide at least one plan of each mine identifying zones of archaeological sensitivity or any specific features of high significance. The assessments will be provided for use in the development of the scope of future environmental remediation works required at the mines.***

2.2 Provision of a written scheme of investigation to outline the methodology by which DAT Archaeological Services will undertake the appraisal.

2.3 To identify any known archaeological remains and their significance, as well as identify the potential for hitherto unknown archaeological deposits to be present within the mine areas, highlighting any features or areas of high sensitivity.

## **3. Archaeological Assessment Methodology**

3.1 The archaeological assessment will involve the preparation of a stand-alone report. The report will be prepared using relevant information from a number of sources, and will comprise a number of elements, including:

- Dyfed Archaeological Trust Historic Environment Record data and other relevant information (including a review of online information held on the RCAHMS Coflein site) – minimum search area will be that as defined within the tender documentation;
- Identification of any Scheduled Ancient Monuments, Listed Buildings, Conservation Areas or Historic Landscape Areas within or in the vicinity of the site area from information held by Dyfed Archaeological Trust, CADW and NRW (formerly CCW) – 2km search area;
- Readily available bibliographic information, cartographic material and photographs (including aerial photographs) held at the Trust;
- A review of historic maps to include a map regression exercise;
- Relevant web-based information;
- Site visit and walkover survey;
- Consultation with the Welsh Mines Preservation Trust (namely Graham Levins) regarding each site and identification of any specific features of high significance;
- Consultation with Robert Protheroe-Jones, curator of Heavy Industries at Amgueddfa Cymru National Museum of Wales, and a Trustee of Dyfed Archaeological Trust;
- A consideration of underground features of the mines; and
- Assessment of the archaeological potential of the area.

3.2 The proposed sites visit would be undertaken to provide an assessment of the presence of any visible archaeological remains within the mine areas and possible identification of new features. Photographs will be taken of the site area and its environs and these will be used within the report.

3.3 The following will be considered when preparing the appraisal, although in some cases no such features may be present and will thus not be considered further:

- a. Scheduled Ancient Monuments {SAMs} and their settings;



- b. Non-scheduled ancient monuments and their settings;
  - c. Listed buildings and their settings;
  - d. Non statutory Buildings of Local Importance, where this information is readily available and relevant to the proposed development;
  - e. Registered Parks and Gardens and their essential settings;
  - f. Registered Historic Landscapes;
  - g. Non-registered historic landscapes;
  - h. Buried archaeological potential;
  - i. Palaeo-environmental potential;
  - j. Newly identified sites of historic importance;
  - k. LANDMAP and landscape characterisation information.
- 3.5 A report will be prepared on the results of the assessment. This report will include information on known sites within and in the vicinity of the proposed development site. Maps of known archaeological and historical sites will be presented in the report. Photographs will be used where appropriate.
- 3.6 The report will be fully representative of the information gained from the above methodology and will include the following:
- a) A concise non-technical summary of the assessment results.
  - b) The report will contain at least one plan showing the site's location in respect to the local topography.
  - c) The report will list all the sources consulted.
  - d) The report will contain at least one plan showing zones of archaeological sensitivity for each of the mine sites, including any specific highlighted features.
  - e) Map regression exercise using all readily available maps of the sites; and
  - f) An assessment of the relative value or significance of each recognised historic asset.
- 3.7 Once completed, copies of the report will be submitted to NRW. A further copy of the report should be provided to the Dyfed Archaeological Trust for deposition within the Regional Historic Environment Record (HER).
- 3.8 Where appropriate, a summary report on any new significant archaeological discovery will be submitted for publication to a national journal (e.g. Archaeology in Wales) no later than one year after the completion of the work.
- 3.9 The assessment and maps showing zones of sensitivity need to be completed and submitted to NRW prior to the 29<sup>th</sup> February 2016.
- 3.10 The consultees noted above have extensive knowledge of these metal mine sites and will be invaluable in highlighting any features of special significance or areas of sensitivity which are not readily identifiable from map regression.

#### **4 STAFF**

- 4.1 The project will be managed by J Meek MCIfA, Head of DAT Archaeological Services.
- 4.2 The reports will be prepared by members of DAT Archaeological Services staff with experience of metal mines site, namely James Meek (MCIfA), Frances Murphy (ACIfA pending) or Duncan Schlee (summary CVs provided below). A second member of DAT Archaeological Services staff will be used for the site walkover survey for health and safety reasons.

## **5. HEALTH AND SAFETY**

- 5.1 All permanent members of DAT Archaeological Services staff are CSCS<sup>2</sup> registered.
- 5.2 DAT Archaeological Services will carry out a health and safety risk assessment prior to any site visits to ensure that all potential risks are minimised.
- 5.3 All relevant health and safety regulations must be followed.
- 5.4 All site inductions, H&S procedures, H&S constraints and site rules of the client or any on-site contractor will be made known to DAT Archaeological Services staff prior to any site visits being undertaken.
- 5.5 Safety helmets, high visibility vests and boots are to be used by all site personnel as necessary when on-site visits. Two members of staff will undertake each of the site visits as the sites are remote and potentially dangerous.
- 5.6 The site visits will not include any subterranean parts of the mine sites.

---

<sup>2</sup> Construction Skills Certification Scheme (Health and Safety Tested)

## APPENDIX 2

Updated table of recorded non-designated archaeological assets within the 2016 Wemyss mine assessment area.

PRN	NPRN	Type	Summary	NGR
23230	33907	Zinc Mine, Lead Mine	The Wemyss mine was a lead and zinc mine which operated in conjunction with Frongoch Mine intermittently from 1861 to 1899. In 1899 a dressing mill was built on the site to process ore from Frongoch Mine. Modernised and provided with electric power from the Pont Ceunant generator house at the end of the 19th century.	SN717742
96303		Wheel Pit	Virtually no trace of waterwheel apart from a brick quoined masonry tailrace culvert just to south at base of vegetated tips (Protheroe-Jones 1993, mine 159, no.3). <i>Only visible on 1905 2nd edition, 1:2500 OS map (MB Feb, 2016)</i>	SN7115374272
96304		Spoil heap	Fines dumps (Protheroe-Jones 1993, mine 159, no.4). <i>Visible on 1st edition 1888. 1:2500 OS map, spoil tips cover a larger area on 2nd edition, 1905 OS map. (MB Feb 2016).</i>	SN7123374215
96305		Dressing Floor	No remains at all of dressing floor (Protheroe-Jones 1993, mine 159, no.5). <i>Possible buddles and slime pits/settling tanks shown on 1st edition 1888. 1:2500 and 2nd edition, 1905 OS maps. These may be the site of the new dressing floors built in 1864 (MB Feb 2016).</i>	SN71287421
96306		Balance Pit	Bobpit; fairly good condition; no other trace of route of flat rods (Protheroe-Jones 1993, mine 159, no. 6). <i>This is not shown on either the 1st edition 1888. 1:2500 or 2nd edition 1905 OS maps. (MB Feb 2016).</i>	SN7129274234
96307		Spoil heap	Coarse tips with much vein stuff (Protheroe-Jones 1993, mine 159, no.7). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. (MB Feb 2016).</i>	SN7132874226
96308		Level	Deep Adit level: rock cut; open; very wet; fairly large (Protheroe-Jones 1993, mine 159, no.8). <i>This is likely to be the hollow shown on the 1847 tithe map and may be the "original" Wemyss adit. Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. (MB Feb 2016).</i>	SN7134874244
96309		Magazine	Substantially intact magazine (Protheroe-Jones 1992, mine 159, no.10). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. (MB Feb 2016).</i>	SN7157974267

(Continued)

PRN	NPRN	Type	Summary	NGR
96310		Shaft	Irregular rock cut shaft or stope come to surface; open (Protheroe-Jones 1993, mine 159, no.11). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. (MB Feb 2016).</i>	SN7156874253
96311		Gulley	Gulley- probable site of a level (Protheroe-Jones 1993, mine 159, no.15). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. (MB Feb 2016).</i>	SN7155174231
96312		Mine Building	Minimal ruins of building (Protheroe-Jones 1993, mine 159, no.12). <i>Only visible on 2nd edition 1905 OS map. (MB Feb 2016)</i>	SN7163874290
96313		Shaft	Ball's Shaft: cratered and run in. Development rock tips to west, possible site of ore bins to south (Protheroe-Jones 1993, mine 159, no.14). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. Annotated as "Ball's shaft on 1896 Crosswood plan of Wemyss (MB Feb 2016).</i>	SN7162874276
96314		Level	Gulley- probable site of level (Protheroe-Jones 1993, mine 159, no.15). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. Annotated as "adit" on 1896 Crosswood plan of Wemyss (MB Feb 2016).</i>	SN7171474292
96315		Shaft	Glanville's Shaft: run in crater; vegetated tip to south (Protheroe-Jones 1993, mine 159, no.16). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. Annotated as "Glanville's Shaft" on 1896 Crosswood plan of Wemyss (MB Feb 2016).</i>	SN7178574335
96316		Leat	Well-defined leats (Protheroe-Jones 1993, mine 159, no.17). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. (MB Feb 2016).</i>	SN7172874328



PRN	NPRN	Type	Summary	NGR
96318		Wheel Pit	Large, well-built waterwheel pit; east part much filled by stream washing gravel in. Minimal remains of balance bob pit to east; no trace of structure to west (Protheroe-Jones 1993, mine 159, no.20).  <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. This is also shown on the 1896 Crosswood plan. It is most likely that this is Kitto's 56ft wheel pit 2016).</i>	SN71677422
96319		Level	Masonry arched entrance, fairly small, to a level. Open (Protheroe-Jones 1993, mine 159, no.21).  <i>Not marked on historic OS mapping (MB Feb 2016)</i>	SN7163174218
96320		Wheel Pit	Slight remains of water wheel pit although virtually entirely washed away by stream (Protheroe-Jones 1993, mine 159, no.22).  <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. This is also shown on the 1896 Crosswood plan. Secondary wheel to PRN 96318 (MB Feb 2016).</i>	SN7162674201
96321		Building	Ruined building (Protheroe-Jones 1993, mine 159, no.23).  <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. This is also on the 1896 Crosswood plan and is annotated as a "Smithy" (MB Feb 2016).</i>	SN71577418
96322		Spoil heap	Mixed coarse and crushed tips (Protheroe-Jones 1993, mine 159, no.24).  <i>Only visible on 2nd edition 1905 OS map (MB Feb 2016)</i>	SN71627418
96323		Dressing Mill	Well-preserved ruins of dressing mill on 5 levels, great deal of loadings etc. (Protheroe-Jones 1993, mine 159, no.25).  <i>Only visible on 2nd edition 1905 OS maps. These were built in 1899 under the Belgian company Société Anonyme Minière (MB Feb 2016)</i>	SN71637415
96324		Spoil heap	Fine dumps - large (Protheroe-Jones 1993, mine 159, no.26)  <i>Only visible on 2nd edition 1905 OS maps (MB Feb 2016).</i>	SN71577410
96328		Tramway	Only trace of route of tramway from West Frongoch (160) mine is hedge bank alignment (Protheroe-Jones 1993, mine 159, no.30).  <i>Visible on 1st edition 1888 1:2500 OS map, not shown to be extant on 2nd edition 1905 1:2500 OS map (MB Feb 2016)</i>	SN7115774201

(Continued)

PRN	NPRN	Type	Summary	NGR
96329		Shaft	Cratered, run in shaft (Protheroe-Jones 1993, mine 159, no.31). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. The 2nd edition also appears to show it. (MB Feb 2016)</i>	SN71347422
96333		Spoil heap	Development tips protruding from grassy hummocky area (Protheroe-Jones 1993, mine 158, no.6). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. (MB Feb 2016)</i>	SN7183074280
96334	33846	Shaft	Boundary shaft: stonewalled collar; blocked with refuse; well preserved balance bob pit to south west with set of steps entering from north (to aid greasing of bearings) (Protheroe-Jones 1993, mine 158, no.7.)	SN7184174306
96335		Spoil heap	Slight trench above grassy tips (Protheroe-Jones 1993, mine 158, no.8). <i>Visible on 1st edition 1888. 1:2500 and 2nd edition 1905 OS maps. (MB Feb 2016)</i>	SN71897435
125568		Building	Ruined Stone building emerging from eroding spoil tips in the northern area of the site and is level with a trackway runs parallel to its front.	SN7160574239
125569		Launder	Site of launder, component of Wemys lead and zinc mine. RPJ 1993 Site No. 19 Wemyss (Mine 159): "Stone footing on site of launder"	SN7172974256
125570		Mine Office	Site of "Office & Workshop" depicted on 1896 Crosswood plan of Wemyss mine; not shown on any other mapping. No visible trace on ground.	SN7158974193
125571		Lime Kiln	"Old Lime kiln" identified on 1905 OS map, Structure visible on modern AP. Site not visited	SN71396274145
125572		Leat	Leat northeast of "Glanville's Shaft" running east-west.	SN71805274344
125573		Aqueduct	Remains of "Aqueduct" feeding wheel pit PRN 96319 as depicted on historic OS maps. Earthwork remains still visible	SN71747274252
125574		Gully	Possible remains of old trench or shaft. Not recorded in HER, shown on historic OS maps but not annotated as such.	SN71762 274264
125575		House	Remains of Nant-y-Rhidyll farm house as shown on the 1888 1st edition OS map.	SN71479274101

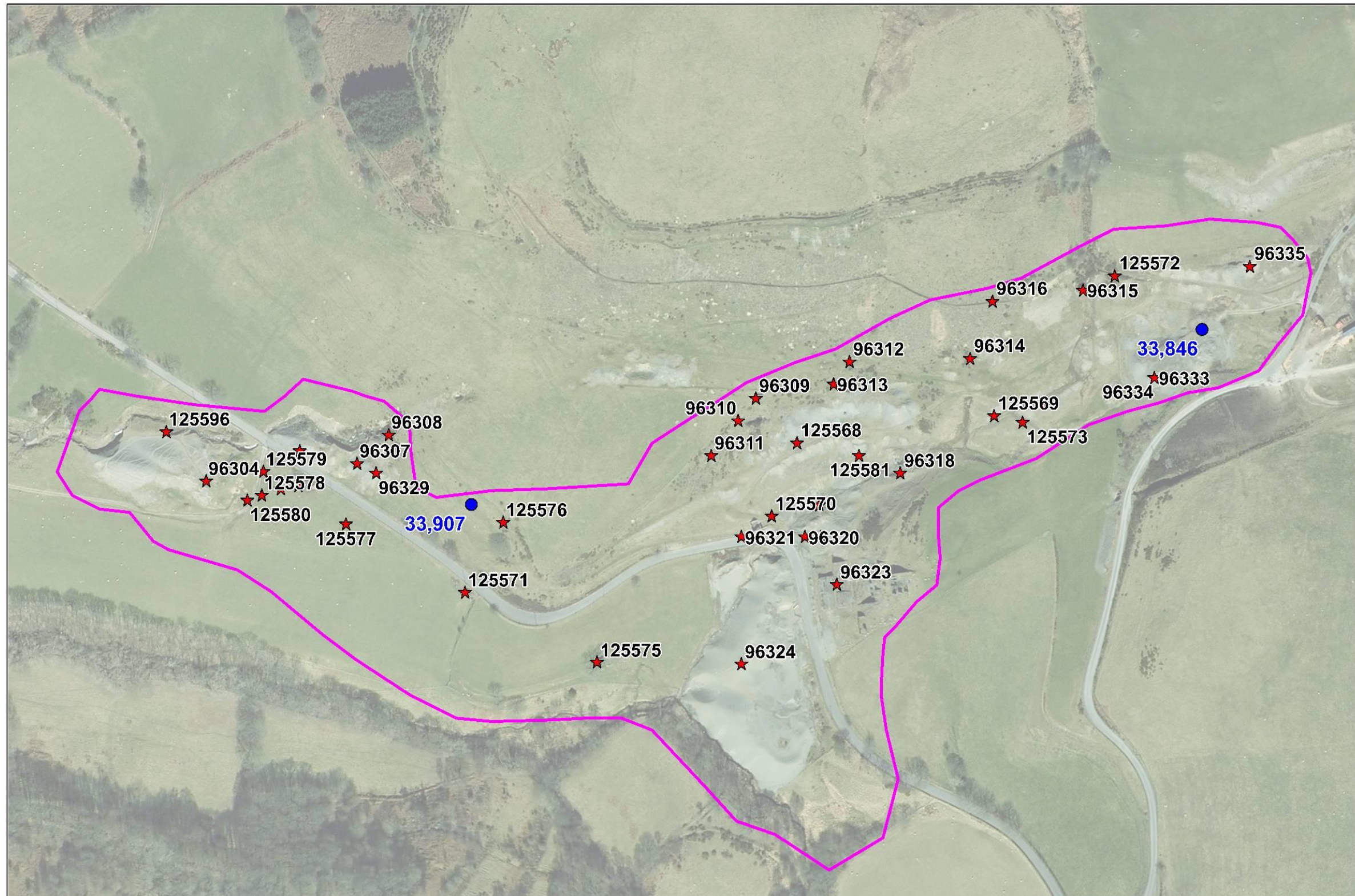
			Structural remains visible on modern AP	
--	--	--	-----------------------------------------	--

(Continued)

PRN	NPRN	Type	Summary	NGR
125576		Leat	Curvilinear feature shown on 1888 1st edition OS map, 1896 Crosswood plan and 2nd edition 1905 OS map. Also visible as earthwork with bank on southern side with flat bottomed channel. Starts at Adit (PRN 96308) and ends at the Smithy building (PRN 96321).	SN71420274189
125577		Tramway	Narrow gauge tramway shown on 1888 1st edition OS map at Western end of Wemyss site. Disused by 1905 2nd edition OS map	SN7132174188
125578		Buddles	One possible buddle shown on 1st edition 1888 OS map. Three then shown on 1905 2nd edition OS map. On 1st ed OS, buddle appears to be fed by launder/leat	SN7126874206
125579		Leat/laundry	Possible leat or laundry shown on 1st edition 1888 OS map feeding possible buddle PRN15578	SN7126974221
125580		Slime pits	Two rectangular structures shown on 1st edition 1888 OS map	SN7125974203
125581		Adit	Small "adit" marked on 1896 working plan map	SN7164474231
125582		Wheelpit	Possible wheel pit shown on southern side of road on both 1888 and 1905 1:2500 OS maps. Possible leats and launders connected to it. As part of PRN 96306	SN71291274212



## APPENDIX 3



Map showing all the recorded non-designated historic assets within the Wemyss 2016 and 2020 study parameter (outlined in pink). HER points (red stars) are shown with their accompanying PRNs, RCAHMW points (blue dots) and accompanying NPRNs are also shown.

