

**GLYN GWILYM ISAF
FARM
RESOLVEN
NEATH**

**PROPOSED
DEVELOPMENT**

MINING STUDY

DESK STUDY REPORT

NOVEMBER 2019

***ateb*Consult**
42 Gurnos Road
Ystalyfera
Swansea
SA9 2HY
☎ 01639 849279

PROPOSED DEVELOPMENT AT GLYN GWILYM ISAF FARM

MINING REPORT –NOVEMBER 2019

November 2019

19/051

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1.0 Brief

The brief for the study and report, as instructed by the proposed Developers and owners of Glyn Gwilym Isaf Farm in Resolven , Neath was to,

- 1.1_ To undertake a mining study and risk assessment study on the parcel of land at Glyn Gwilym Isaf Farm where a new housing unit /dwelling is proposed and on which a Planning Application for the proposed development has been submitted to the local authority [Neath Port Talbot CBC] .
- 1.2 To review factual data, historic plans and site investigation records for the site made available by the site owner,
- 1.3 Review the Coal Authority and other available reports on the site
- 1.4 Consider the proposed housing development plans in relation to the site and available data and develop foundation concepts for the proposed new dwellings
- 1.5 Carry out on intrusive site investigations to confirm the geology and location and depth of any coal seams in the area
- 1.6 Review the results of the desk study so as to assess the risk to the proposed development from any past mining in the area , and then to advise on any mitigation measures that may be needed and also on the foundation types for the proposed dwellings.
- 1.7 Prepare a report on the study work undertaken to include for any recommendations as to further work that may be necessary following an award of planning for the development, thus geo-technical and foundation recommendations for the proposed development.

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2.0 Basis of Report

The basis of this report is a site investigation mining study and review carried out by *ateb* Consult in October- November 2019 .

The overall scope of the study works encompassed the following.

- 2.1** A review of available information present on the site.
- 2.2** A desk study into site conditions including liaison with the British Geological Survey and review of available historical records and plans of the site, held by BGS for the area.
- 2.3** A walk over survey of the site pre development and a site assessment of current conditions.
- 2.4** A review of the developer's proposals for provision of the new housing development.
- 2.5** A review of the information gathered on the site
- 2.6** Liaison with the Coal Authority and procurement of a Coal Authority Mining Report on the land.
- 2.7** Following the study work the results were collated conclusions drawn and recommendations developed and then the report prepared.

Metres 0 10 Feet
15.24 metres = 50 feet

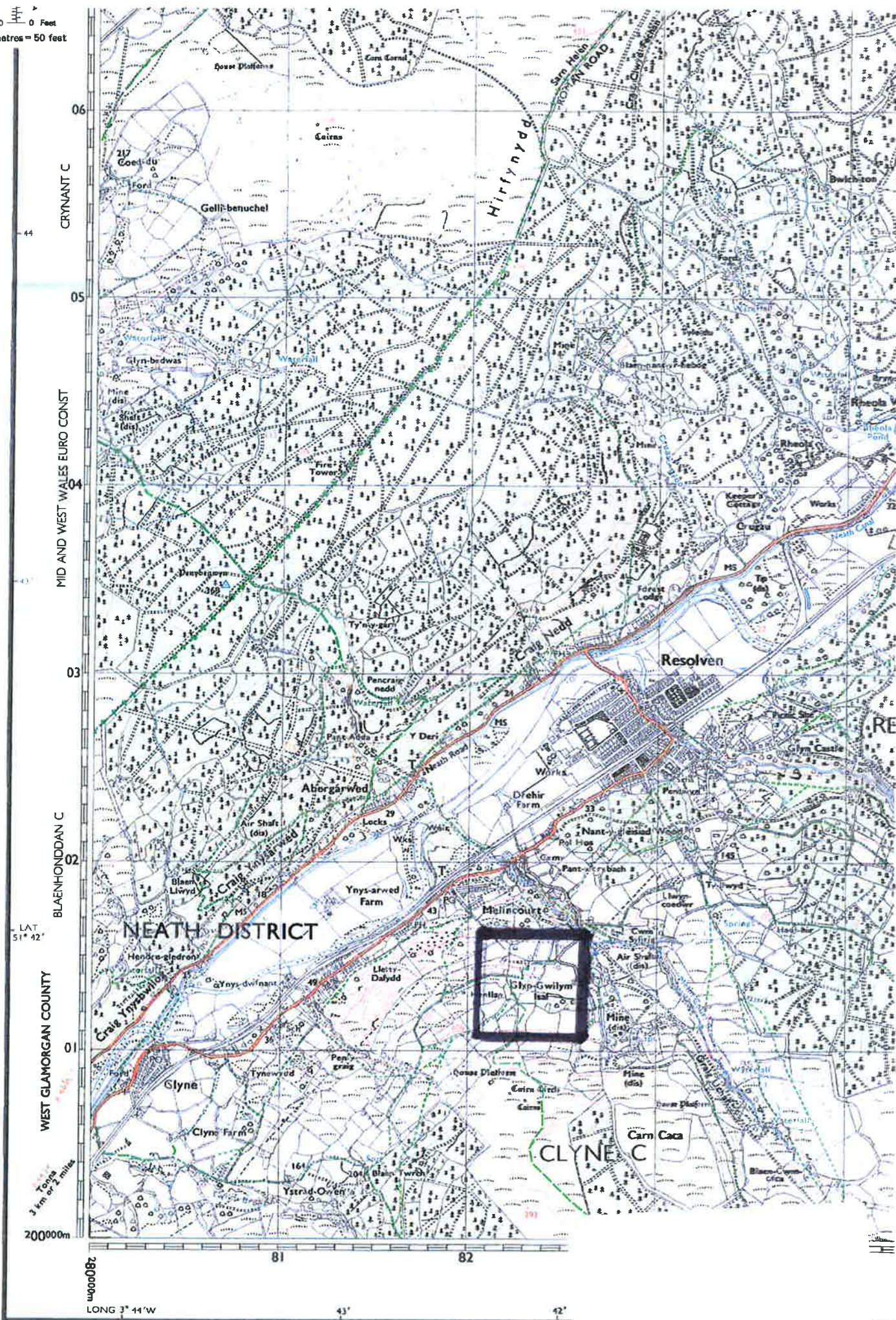


Fig.1

The map displays the Glyn Ceirw area, showing the River Ceirw and surrounding settlements. Key locations labeled include Pen-y-tyddwr, Pen-y-tyddwr Wood, and Glyn Ceirw. The map also features a scale bar (0m to 75m) and a north arrow. A red box highlights the Glyn Ceirw area, and a red pin marks a specific location within it.

Fig.2

Glyn -Gwilym Isaf farm

Legend

farm

Melincourt Waterfall

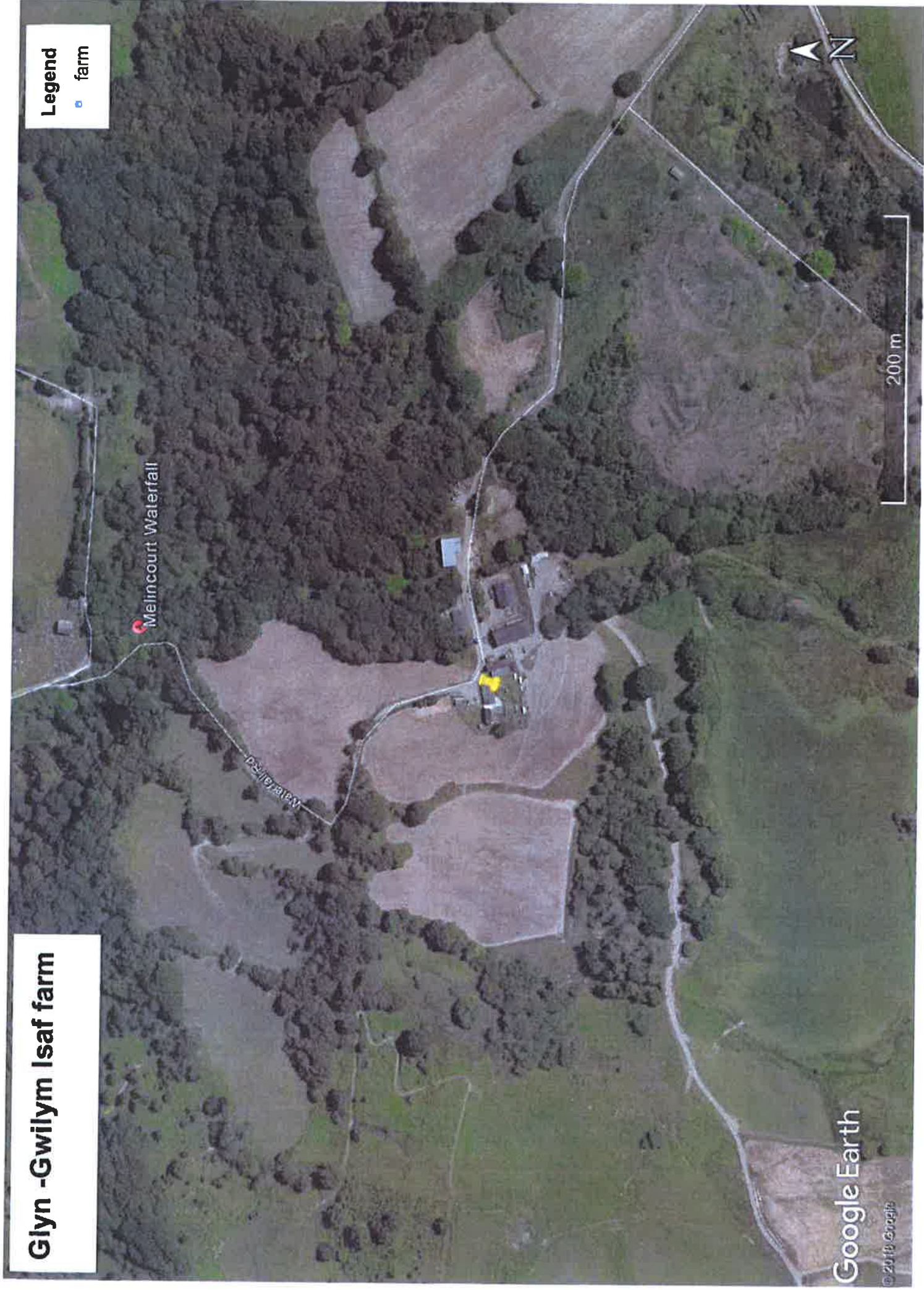
PS10312M

Google Earth

© 2019 Google

200 m

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3.0 Site Characteristics

3.1 General

The proposed housing development site is located on Glyn Gwilym Isaf Farm in Resolven [post code SA11 4EG] , Neath as shown on fig 1,2 near Neath [OS. grid ref 282580, 201360] The proposed land area for the development comprises of an approximately rectangular parcel of land within the curtilage of the farm as shown on fig. 1 ,2 ,

3.2 Topography and adjoining land use

The site lies on the hillside to the West of Melin Court Brook with the ground rising from circa 100m aod in the valley of the Brook to at the site which lies at some 160m aod.

Ground levels then rise to the East and North of the Farm with levels being circa 300m to 347m on the hillside and mountain side above the Farm

The proposed development land area lies alongside the existing Farm Buildings and Dwelling as can be seen in fig 1,

The adjoining land use is farm land with hillside and rough grazing above on the hillside. The OS record plans also show evidence of past mining to the East above the site area and also to the North, but well away from the site where disused workings at some 100-110m Aod are recorded along an old tramway line. The OS plan show no evidence of any past mine related activities in the general site area.

3.3 Current Use

The site area lies within the farm complex and is open land forming part of the farmyard . Currently the land is open and used for grazing.

3.4 Historic Land Use

A review of sequential editions of the Ordnance Survey plans of the area [Appendix A] shows that the only development in the past appears to be the well-established Farm Buildings dating back to the early 1800s. There are records of people living at the farm back to 1851

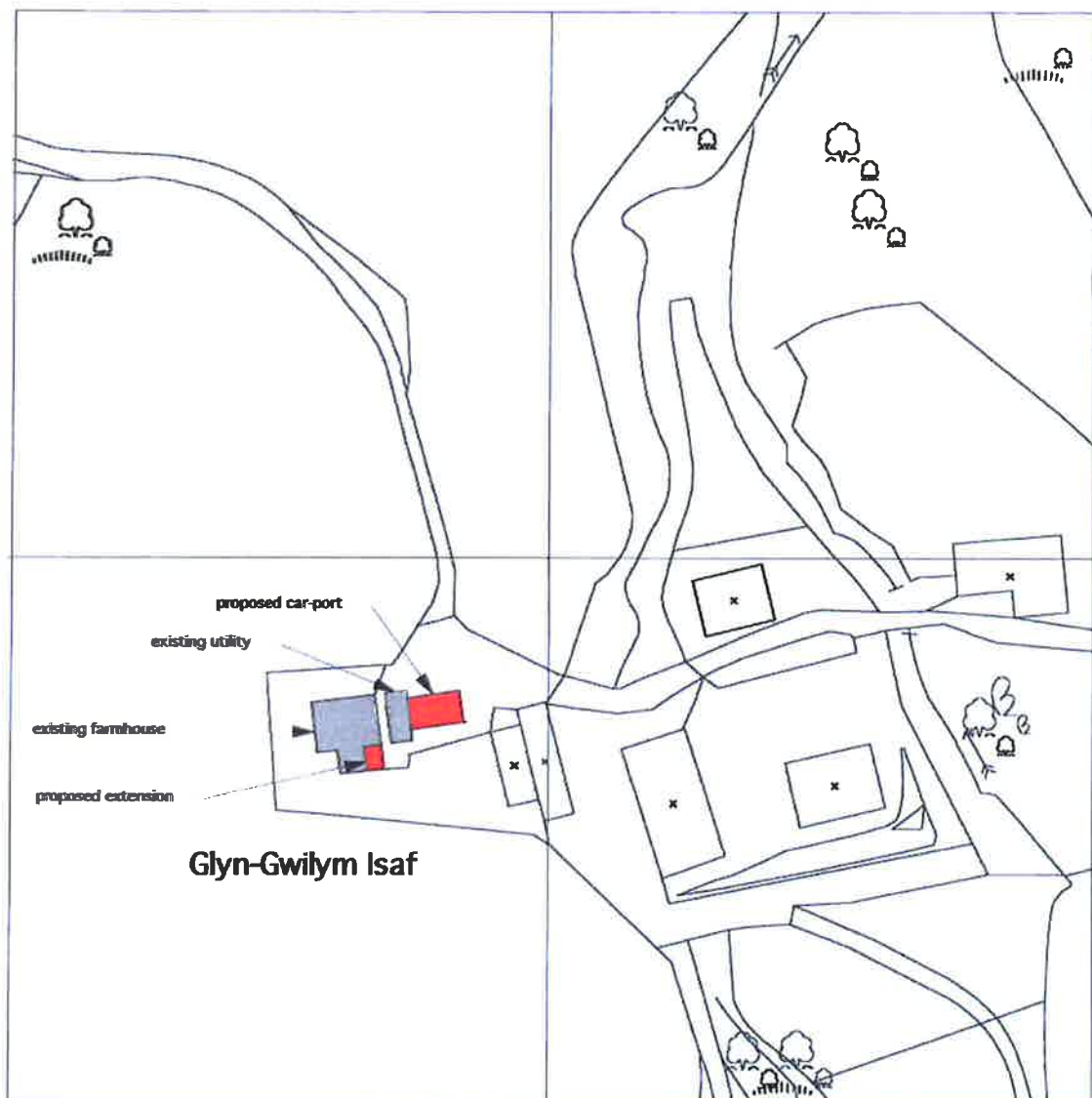
The historic plans do also show evidence of past mining activities in the area, with disused working shown some 500m to the North and downslope to the farm buildings.as well as to the East and above the site The historic plans do not show any evidence of past mining entries or activities near the actual proposed development land area. The Geological plans do show mine entire in the Resolven area , a well-known historic mining area but these are some distance and well away from the proposed development site itself.

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3.5 Proposed Development

The proposal is for a new building as shown on figure 3.



existing farmhouse footprint area 130sqm
 existing utility footprint area 35sqm
 proposed extension footprint area 14sqm
 proposed 'car-port' footprint area 50sqm

site location plan scale 1:1250

project : Glyn Gwilym Farm
 project number : ff0027
 drawing : site location plan
 drawing number : AL(0)01
 scale : 1:1250 @ A4

ffurf cyf

Fig.3

PROPOSED DEVELOPMENT AT GLYN GWILYM ISAF FARM

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4.0 Geology

4.1 General Geology

The general geology of the site area is shown on the 1:50,000 geological map of the area BGS sheet 231 [fig4] and is shown as comprising of superficial deposits, over the lower pennant coal measures formation of the South Wales Coalfield, which are shown in the area as generally being sandstones and mudstones with veins of coal. The BGS records show that the seams dip some 15 degrees to the South East

4.2 Superficial Deposits

The superficial deposits on the site evidenced during a walk over survey and as a result of discussion with the Farm owners comprise of some 150mm and then subsoil to a depth of some 300mm over shallow deposits of soft to firm brown clays and sands, [glacial drift] with rock head at depth [of probably from farming records at depths over 3meters] There is no evidence of any high water table and ground papers relatively free draining

4.3 Solid Deposits

The solid strata under the site comprises of the lower pennant coal measures of the South Wales Coalfield dipping at some 15 degrees to the South East. The geological plans also show that the solid strata is faulted in this area with the Pen Y castell fault running from the Neath Valley Disturbance in a South East direction to the East of the proposed site area. The geological plans also show the Rhondda No1 a well-known coal seam as sub cropping the East of the site and fault and also possibly at lower level and North of the site with mine entry[s] in the lower valley area but the plans also with the proposed site area clear.

The geological plans also show the Graig seam as sub cropping on the hillside above the proposed site, but as the seam sub crop is above in level and the strata dips to the South East the development site would not be affected by past workings in the Graig Seam.

4.3 Natural Radon Gas

From Liaison with British Geological Survey it is noted the site appears to lie in an area where there is no risk of Natural Radon gas emissions from the underlying solid strata. The area is thus classed as one where no Radon protection is required for the proposed development.

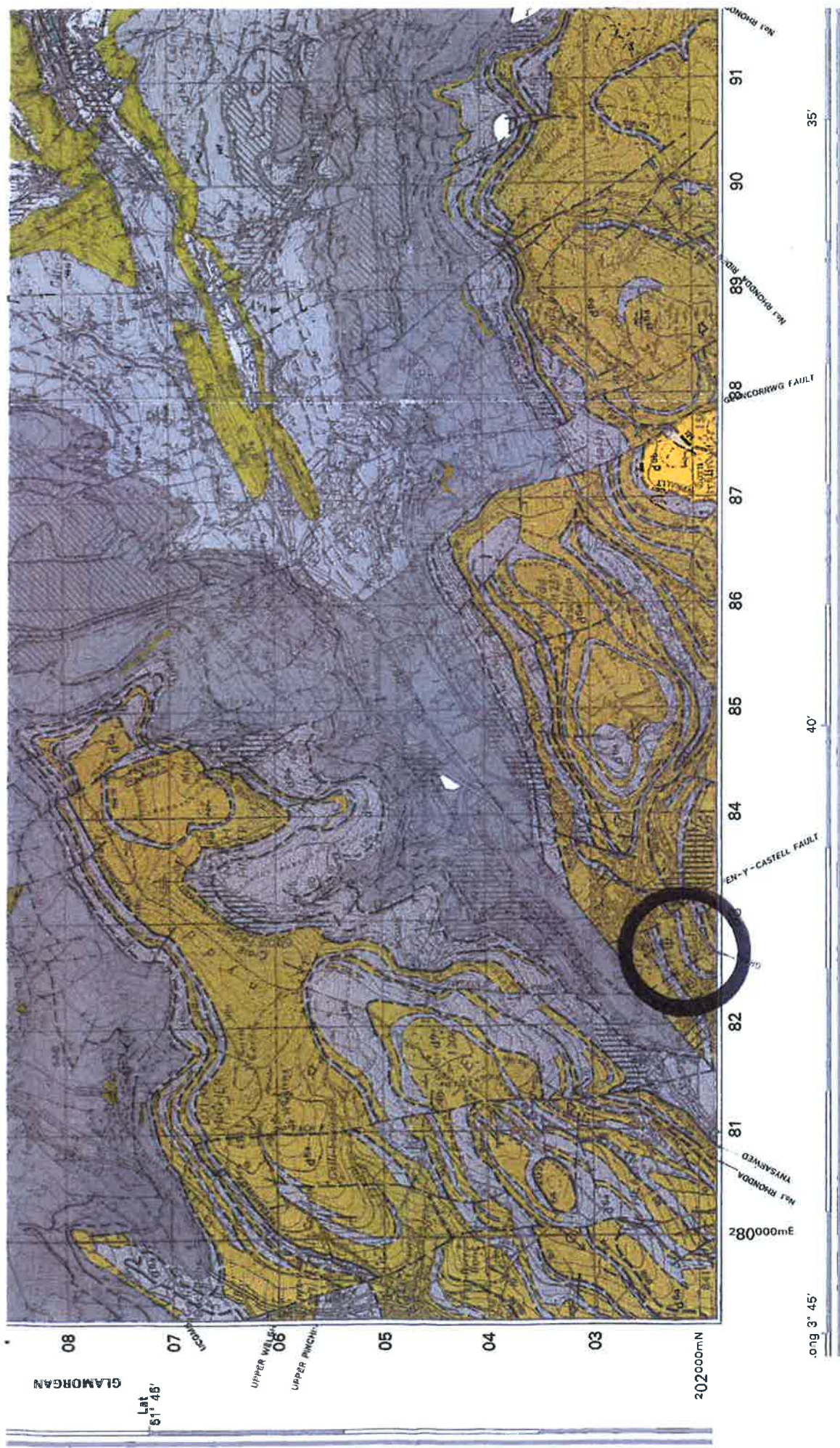


Fig.4

Original geological survey on the one-inch scale by Sir H. T. De la Beche,

Sir W. E. Logan and D. H. Williams.

Published on Old Series Sheets 36 and 42 (before 1844).

Surveyed on the six-inch scale by A. Strahan, W. Gibson and T. C. Cantrill in 1895-98.

Published with Drift in 1900.

Resurveyed on the six-inch scale by K. Taylor, L. P. Thomas, G. W. Green, H. C. Squirrel

and I. H. S. Hall in 1966-72.

J. R. Earp, District Geologist.

2nd colour-printed edition published (in Solid and Drift editions) 1979.

Austin W. Woodland, C. B. E., Director, Institute of Geological Sciences.

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5.0 Mining Study

5.1 General

A mining desk study has been carried out comprising of a review of available data undertaken and review of the Coal Authority report on the site [Appendix. A]]

5.2 Mining Study Results

5.2.1 The available Geological record plans show that there are mine entries away from the site to the South, East and North but the site itself appears clear.

5.5.2 The geological plans also show at least two well-known seams sub cropping in the area [Rhondda no 1 and the Graig], but due to the angle of dip the strata it is concluded that that any past workings in Graig seam would not affect the site, and any workings in the Rhondda no1 seam would be if present at depth under the site. Further due to age of workings any ground related movements would have long ceased by now.

5.5.3 The Coal Authority report correlates with the findings of the above BGS plans review and note that whilst there are past workings at depth, there are no records of any mine entries on or within 20m of the proposed site .

5.5.3 With reference to the Coal Authority report it is also noted that their records show that under the site there were workings undertaken at depths of some 230-330m depth, but mining ceased in 1927. Thus any ground related movement should have now long ceased, and with sandstone rock cover above the possible effect on surface layers is extremely remote.

The Coal Authority also notes that the site is not in an area which may be affected by present surface operations or future mining. Further there is no record by the CA of any mine related gas emissions in eth area

The Coal Authority Report does however also note that there may be unrecorded coal seams near the surface which may have been investigated or locally worked in the past, and this possibility should be considered in the site development factors. Due to the somewhat complex site geology in this area and extent of past mining operations it is considered that this possibility whilst being perhaps remote as the farm has been there for many years and possibly predates the mining history] needs to be taken into account in the detailed design stages

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5.3 Mining Study -Appraisal

- 5.3.1 A review of the study results the available geological plans of the area has been undertaken and the following conclusions drawn,
- 5.3.2 There are no recorded mine entries on the site or within 20m of the site area
- 5.3.3 There are past mine entries and past mine surface features in the general area but well away from the site and would not affect the site development
- 5.3.4 Past mining has occurred under the site at depth of over 230m but ceased circa 1927. Any related ground movement should now have ceased and due to depth of workings and rock cover above the site area would not be affected.
- 5.3.4 There is no evidence of past mine working in the immediate area of the proposed development land. However the Coal Authority notes there may be unrecorded seams at shallower depth under the site , and with due regard to the site geology it is concluded this fact cannot be discounted fully as of now and will need to be further investigated and verified and if necessary mitigated against . This can be done it is considered however post a planning approval by sinking 3 no rotary bores to confirm ground strata and also use of raft foundations for any development to mitigate against residual risks

5.4 Mining Study Results v Proposed Development Proposals

Following the above mining study the results were reviewed in relation to the proposed housing layout and the following conclusions drawn

- 5.4.1 The site appears clear of any mine entries and whilst there ae recoded past mine workings under the site into 2 seams these are at over 230m depth and would not affect surface layers
- 5.4.2 The possibility however remote does exist that there may be unrecorded seams t shallower depth which may have been worked locally in the past and this factor will need to be researched and discounted or mitigated against - , It is however considered due to nature of development on Farm that has been there for many years a low risk and could be dealt with post a planning approval but re start on site, as outline below

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5.4.3 To mitigate against any risk the following is thus proposed.

- 1] Following site clearance and removal of the topsoil the ground be inspected to ascertain if there are any abnormalities or evidence of local pitting/bell pits
- 2] Confirmatory rotary bores are sunk on the site area [3no] to 30m depth to check against any residual risks and to allow foundation design-If any evidence of past working are found then appropriate grouting can be undertaken as part of the site development
- 3] Reinforced concrete rafts used for the developments

PROPOSED HOUSING AT TREFORGAN CRYNANAT

SITE INVESTIGATION AND MINING REPORT

7.0 Conclusions & Recommendations.

- 7.1** As a result of the mining desk site investigation study it is concluded that there is no evidence of any past mine entries bell pits or adits being present on the site and there is no evidence of any mining activities at shallow depth under the site. The related risk from past mining activities is thus considered remote .However the possibility of unknown shallow seams being present cannot at this stage be fully discounted and needs to be further investigated as noted above, and if necessary mitigated against.
- 7.2** The nearest mine entries identified are at a distance from the site and would not affect the proposed development and in any event past mining has cased for some time and ground movement should have ceased
- 7.2** Two known past worked coal seams sub crop under the site but at depth and would affect the development
- 7.3** Notwithstanding the above and with regards to the development reinforced raft foundations are recommenced in any event to mitigate against any residual risks
- 7.4** With reference to the foundation design and bearing capacity of the strata present it is recommended that allowable bearing pressures of 100kn/m2 should be used in the design