



RHONDDA
GEOTECHNICAL
SERVICES

COAL MINING RISK ASSESSMENT
MERTHYR TYDFIL C.B.C.
PLANNING APP P/23/0216
EXTENSION TO EXISTING CHANGING ROOMS
AND NEW BALLSTOP FENCE
PANTYFFYN RD./MANSFIELD TERRACE
MOUNTAIN HARE
MERTHYR TYDFIL
CF47 0LB
29/11/2023

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COAL MINING RISK ASSESSMENT

1. INTRODUCTION

This Coal Mining Risk Assessment (henceforth C.M.R.A.) has been produced for Utopia Design. They are acting as the agents for a full planning application to Merthyr Tydfil County Borough Council L.P.A. (henceforth M.T.C.B.C.) The application is for an extension to the existing changing rooms opposite Mansfield Terrace, Mountain Hare, Merthyr Tydfil. Also included in the application is a plan to erect two tall ball stop fences at either end of the lower football pitch. Representative plans of the proposed development are included in Appendix 1. In response to a consultation letter from M.T.C.B.C. The Coal Authority gave the following reply on 28/09/2023:-

I have reviewed the site location plans, the proposals and the supporting information submitted and available to view on the LPA website. I can confirm that the site falls within the defined Development High Risk Area and that a Coal Mining Risk Assessment is required to be submitted to support this application. The Coal Authority records indicate that the site is likely to have been subject to historic unrecorded underground shallow coal mining. Voids and broken ground associated with such workings can pose a risk of ground instability and may give rise to the emission of mine gases. The site also lies within a Surface Coal Resource Zone. In addition, the records indicate that a mine entry (shaft) lies close to the site's southeastern boundary which may or may not ultimately be within the application site boundary due to having no treatment details and due to plotting inaccuracies. An untreated or an inadequately treated mine entry and its resultant zone of influence pose a significant risk not only to surface stability but also public safety. In accordance with the agreed risk-based approach to development management in the defined Development High Risk Areas, the applicant should be informed that they are required to submit a Coal Mining Risk Assessment Report, or equivalent report, to support this planning application. As no relevant information has been submitted at this time the Coal Authority objects to this planning application.

Richard Davies BSc. (Hons), MSc., F.G.S. of Rhondda Geotechnical Services has been commissioned as the competent person to prepare a C.M.R.A. of the proposed development site. The purpose of this is to provide the L.P.A. with information on possible coal mining and an assessment of its impact on the ground stability of the site. The purpose of this C.M.R.A. is to gather all the available information and use it to identify any coal mining risks and then to quantify them. It will then suggest, if necessary, any mitigation measures to

satisfy the L.P.A. that the sites are or can be made safe and stable in line with national guidelines. This will be done in line with the template and recommendations of the C.A. document Guidance for Welsh L.P.A.s (version 4, 2017).

The site location and site boundary can be seen overleaf in Figures 1 and 2. For the initial part of this risk assessment “the site” will refer to the entire sports ground. As can be seen in Figure 2 the three subjects of the planning application are widely separated. The ball stop fences are both 180m from the proposed extension to the changing rooms. The fences are 120m from each other, either end of the lower pitch. In the site-specific risk assessment, all three will need to be treated individually since different circumstances may apply to each.

The site is centred on grid reference 306120, 206210 at elevations ranging from approximately 257m-267m A.O.D. The sports ground covers approximately 2.4 Ha. The proposed extension is sited on the northern boundary of the sports ground fronting onto Mansfield Terrace. The ball stop fences are close to residential areas bordering the lower football pitch. There are no surface watercourses.

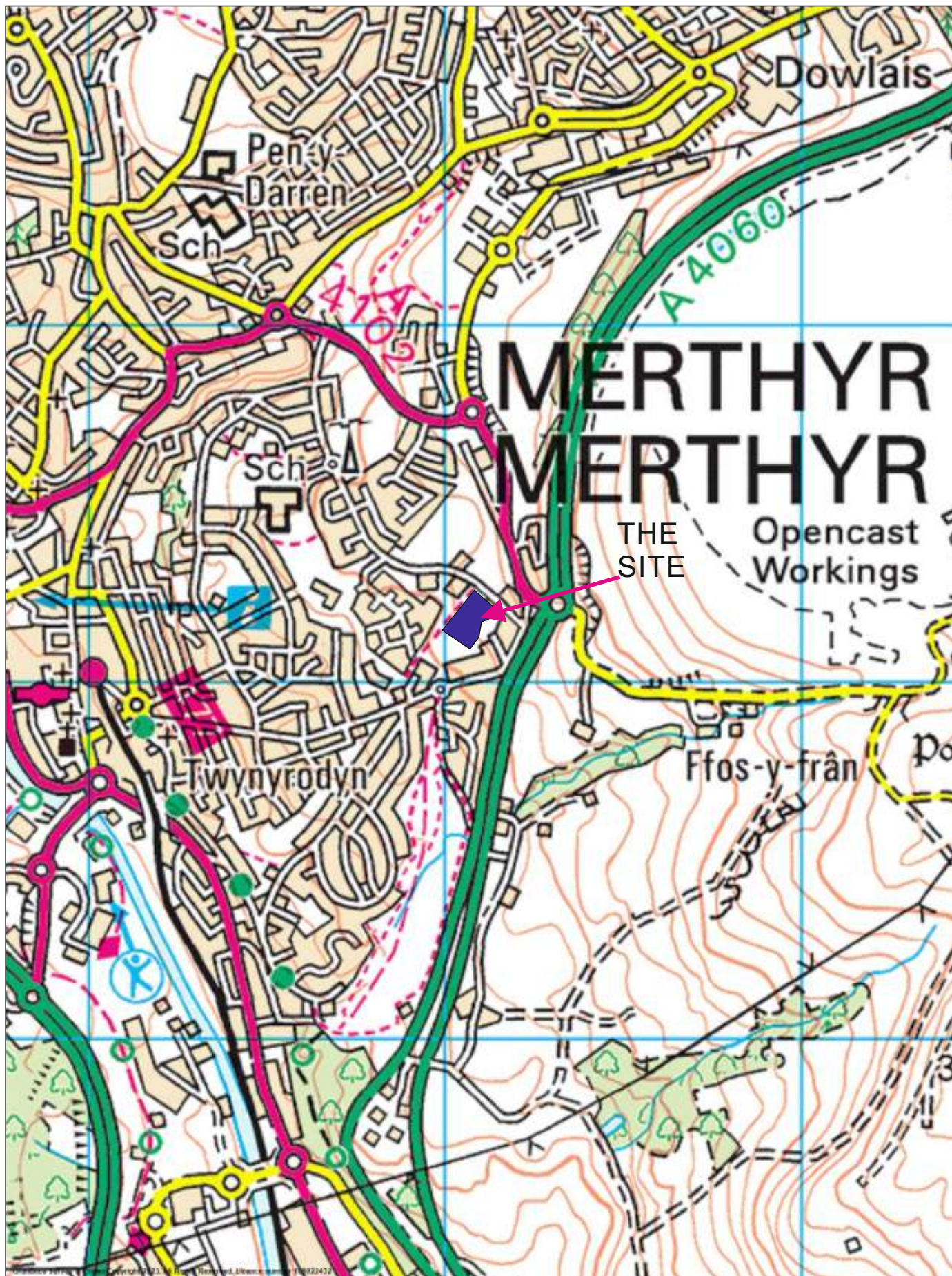


FIGURE 1
SITE LOCATION.

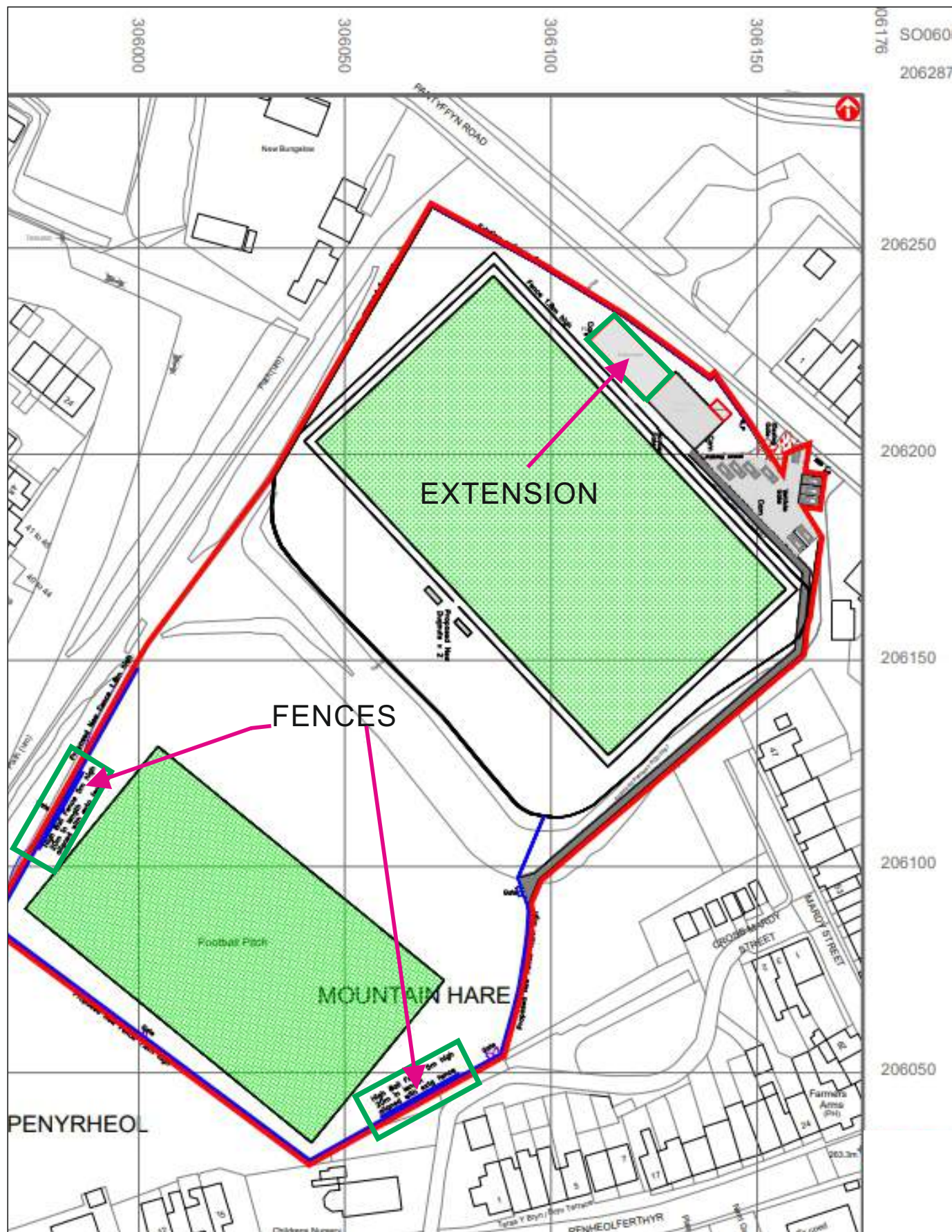


FIGURE 2
SITE OWNERSHIP BOUNDARY WITH THE THREE
PROPOSED DEVELOPMENTS HIGHLIGHTED

2. SOURCES OF INFORMATION

a) Coal Authority Consultants Report ref. MR-51003381669001. Shaft Plan and Data Sheets Report ref. MR51003386188001.

b) The C.A. interactive viewer.

c) The 6" to the mile Geological Survey sheet SO 00NE (1957 revision).

d) The Memoirs of the Geological Survey of The South Wales Coalfield, Part V, The Country around Merthyr Tydfil (1st, 2nd and 3rd editions of 1904, 1932 and 1988) and other mining archive sources. The Iron Ores of Britain Vol.3 (1861). Special Report on the Mineral Resources of Great Britain, Vol XIII (1920).

e) British Coal Development Plan 07/D/SO/00NE.

f) Mine Abandonment Plans SWR2509 and SWR2510 parts A-C.

g) Historical Ordnance Survey Map, Old County Series Sheet Glamorgan VI SW (1901 revision) at 1:10,560 scale.

2a) N.B. The boundary for the ordering of the Consultants Report only includes the immediate vicinity of the proposed extension. To include the entire sports field could possibly lead to the inclusion of confusing and unhelpful data. The Consultants Report states that there is no recorded underground mining of coal beneath the site. The report goes on to say the C.A. believe there are probable shallow unrecorded workings beneath the site but no shallow spine roadways. This is a slightly contradictory statement, which the author assumes refers to *recorded* roadways. There are two mine entries within 100m of the site boundary. These are both adits. There may be other mine entries relevant to assessing the ball stop nets. These will be dealt with in later sections. There are no outcrops or geological faults within 100m of the site. An extract of the Summary of Findings map is presented in Figure 3. This shows very extensive areas of opencast mining north and west of the site encroaching to the western boundary of the sports ground.

In section 2 the report records no site investigations or surface hazards that have required remedial action within 50m of the site boundary. The C.A. has received no damage notices or subsidence claims for properties within 50m since October 1994 (i.e. since the formation of the C.A. to take liability for legacy mining issues). There are no records of gas emissions requiring action within 500m of the site boundary. Section 3 states there is no licensing for present or future coal mining within 200m. There are no Section 46 notices or Withdrawal of Support notices. In Section 4 the Consultants Report states that no further information has been highlighted but that technical

advice should be sought before beginning work on the site. The report also contains the standard warning that the lack of recorded gas emissions does not mean there is no risk from mine gas.

All these facts will feed into the later quantitative risk assessment. The Consultants Report is attached in Appendix 2.

2b) The C.A. interactive viewer contains a vast amount of information from various sources, particularly on the mining data window. An extract from the planning window can be seen in Figure 4. Although difficult to distinguish at such a small scale, the area of the site has been circled and is entirely within an area of Development High Risk. The grey areas represent opencast mining, the blue areas denote recorded shallow mining. The site sits within a purple area. This colour represents an area of suspected unrecorded shallow mining. The isolated circular areas are 20m exclusion zones around mine entries not connected to seam outcrops.

In order to fully understand why sites have a high risk status it is informative to study the Coal Mining Data window. This window is far superior to the Planning Window as it is at a larger scale. There are multiple datasets which can be turned on and off. An extract from the Mining Data Window is reproduced as Figure 5 overleaf. The playing fields are circled, and the positions of the proposed extension and ball stop nets are shown in blue. For clarity only two sets of data are turned on in Figure 5- seam outcrops and mine entries.

The brown lines are coal seam outcrops. What the viewer shows that the S.o.F map doesn't are seam outcrops further afield around the site. It is useful to have an appreciation of these to fully understand the local geology. This in turn influences the coal seam geometry and the potential risk from mining to the site. The nearest outcrops to the site have been annotated with their C.A. codes. The fact that the seam codes are ascending to the east is partly influenced by the topography. It could also indicate the strata is dipping to the east or southeast. According to the C.A. Seam Code Directory the seams are:-

SW0131 Five Foot Gellideg

SW0181 Lower Seven Foot Bottom Leaf

SW0211 Upper Seven Foot

The Upper Seven Foot is shown outcropping east of the site. This means it cannot underlie the site and has no further relevance to the risk assessment. The other two seams will underlie the site. The depth would be determined by strata dip and ground

levels. What can be said is that both seams will be at a shallower depth beneath the ball stop nets than they will be beneath the proposed extension. Other datasets on the viewer show huge amounts of recorded mining north, south and east of the site. There is none shown beneath the site. However, everywhere above the outcrop of the Garw Seam (off the western margin of Figure 5) is classified as an area of suspected shallow mining. This includes the entire area of the site as stated in the Consultants Report.

The red crosses are mine entries. There is a huge amount of them scattered in all directions from the site. This reflects Merthyr's intensive industrial history. Many of them may not be connected to coal mining. Ironstone was the main economic target of mining in the early nineteenth century when Merthyr was the largest iron producer in the world. Coal was mined for fuel for the voracious ironworks, but the mining of "sale coal" did not develop until much later. As stated in the Consultants Report none of the mine entries are within influencing distance of the site, but this applies to the changing rooms only (see note at the beginning of Section 2a). There is a mine entry marked close to the proposed southeastern ball stop net.

The Interactive Viewer contains much additional information on mine entries that is not included in the Consultants Report. The mine entries with possibly the most relevance to the site have been numbered 1-8 in Figure 5. Details obtained off the database are as follows:-

- 1 305206-004 GWAUN CWRT PIT shaft 36.6m deep.
- 2 305206-005 ADIT orientation 8°.
- 3 305206-014 PANT-Y-FFYN LEVEL orientation 355°.
- 4 305206-002 ADIT orientation 41°.
- 5 305206-048 COEDCAE LEVEL orientation 101°.
- 6 305206-020 PENRHEOL (PENYRHEOL?) LEVEL orientation 94°.
- 7 305206-066 MEADOW PIT shaft unknown depth.
- 8 305206-081 ADIT orientation 51°.

Level is the term used in South Wales for a sub horizontal coal or ironstone mine. Adit is almost exclusively applied to metalliferous mines. Since all archive material uses the term level, it shall be used henceforth throughout this assessment. Using the additional information above it appears entries 1-5 will have no bearing on the site. Levels 2 and 3 are 200m from the site boundary and are orientated away from the site. The 36.6m depth of Gwaun Cwrt Pit (1) would indicate it is connected with the Five

Foot Gellideg. This gives an indication that the Five Foot Gellideg would be at least 50m beneath the site. Even if there were unrecorded workings in the seam, they would be too deep to influence ground stability. Levels 4 and 5 are orientated away from the site. They are not connected to an outcrop. This could mean several things. They could be drainage levels, Ironstone levels or cross measure levels to higher coal seams. Whichever, there is no influence on the site. Level 8 appears to be on the outcrop of the Upper Seven Foot, but this could be coincidental. The orientation is parallel with the site boundary. Penyrheol Level (6) is close to the outcrop of the Lower Seven Foot. Again, this could be coincidental. The orientation is away from the site, but the Lower Seven Foot does underlie the site at a currently unknown, but shallow depth. Lastly, No.7- the Meadow Pit is very close to one of the ball stop fences. It could possibly be connected to workings in the Lower Seven Foot, or to deeper coal or ironstone reserves. More information on these three mine entries was required for a thorough risk assessment and so a Shaft Plan and Data Sheet Report was purchased. This is attached in Appendix 2. The full details contained within the report hardly differ from the data on the interactive viewer. The only useful additional information was the sources of the mine entry locations shown in italics.

6 305206-020 PENRHEOL (PENYRHEOL?) LEVEL orientation 94°. *1:2500 O.S. 1870.*

7 305206-066 MEADOW PIT shaft unknown depth. *British Coal records Plan 60M.*

8 305206-081 ADIT orientation 51°. *Ab plan SWR2510.*

The mine entry of most interest was 305206-066. The C.A. apparently no longer have plan 60M so no useful information was forthcoming regarding any possible influence on the ball stop net.

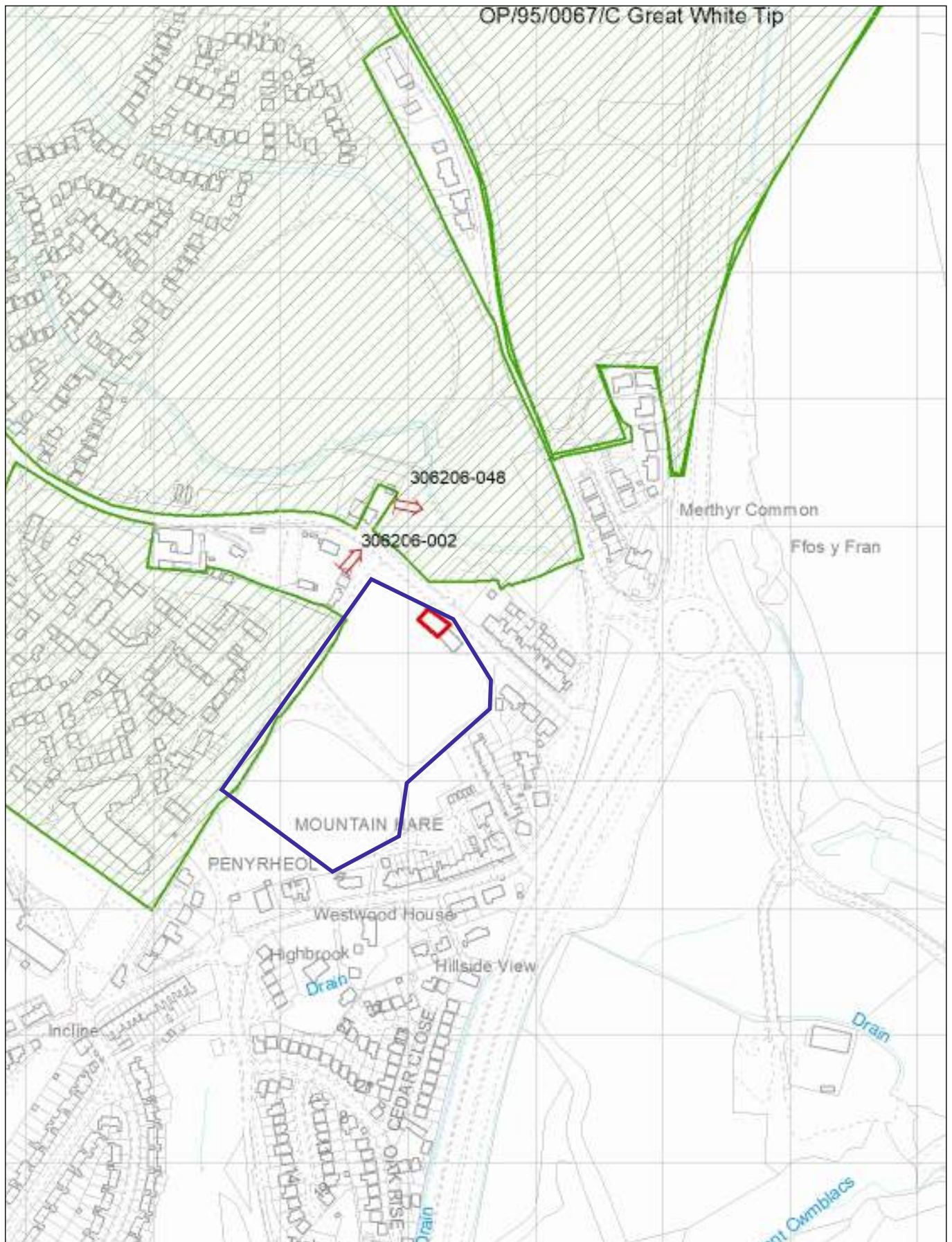


FIGURE 3
SECTION OF THE SoF MAP FROM THE CONSULTANTS REPORT
THE EXTENSION IS IN RED, OWNERSHIP BOUNDARY IN BLUE.

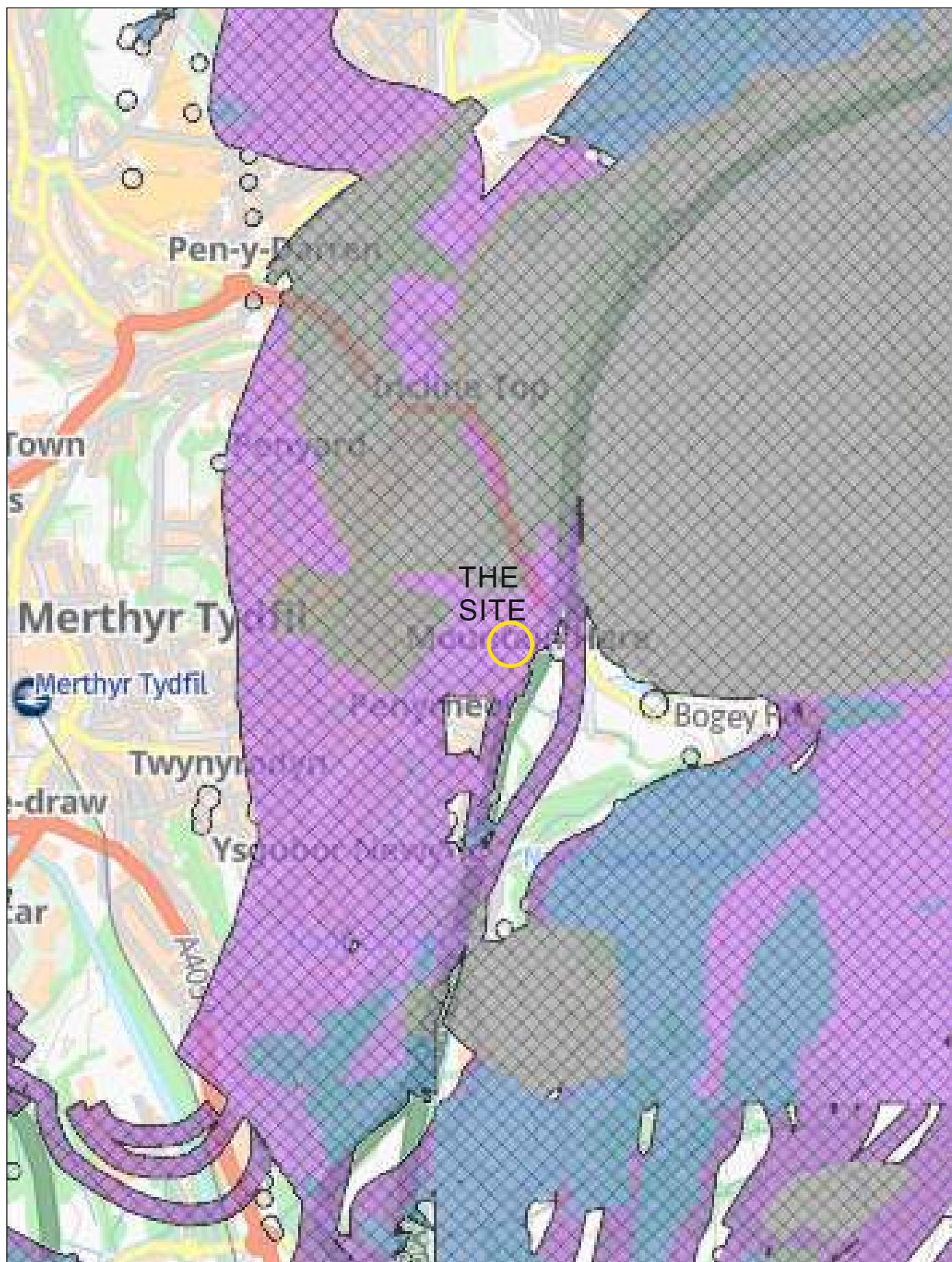


FIGURE 4
COAL AUTHORITY INTERACTIVE VIEWER, PLANNING WINDOW.
HATCHED AREAS ARE DEVELOPMENT HIGH RISK

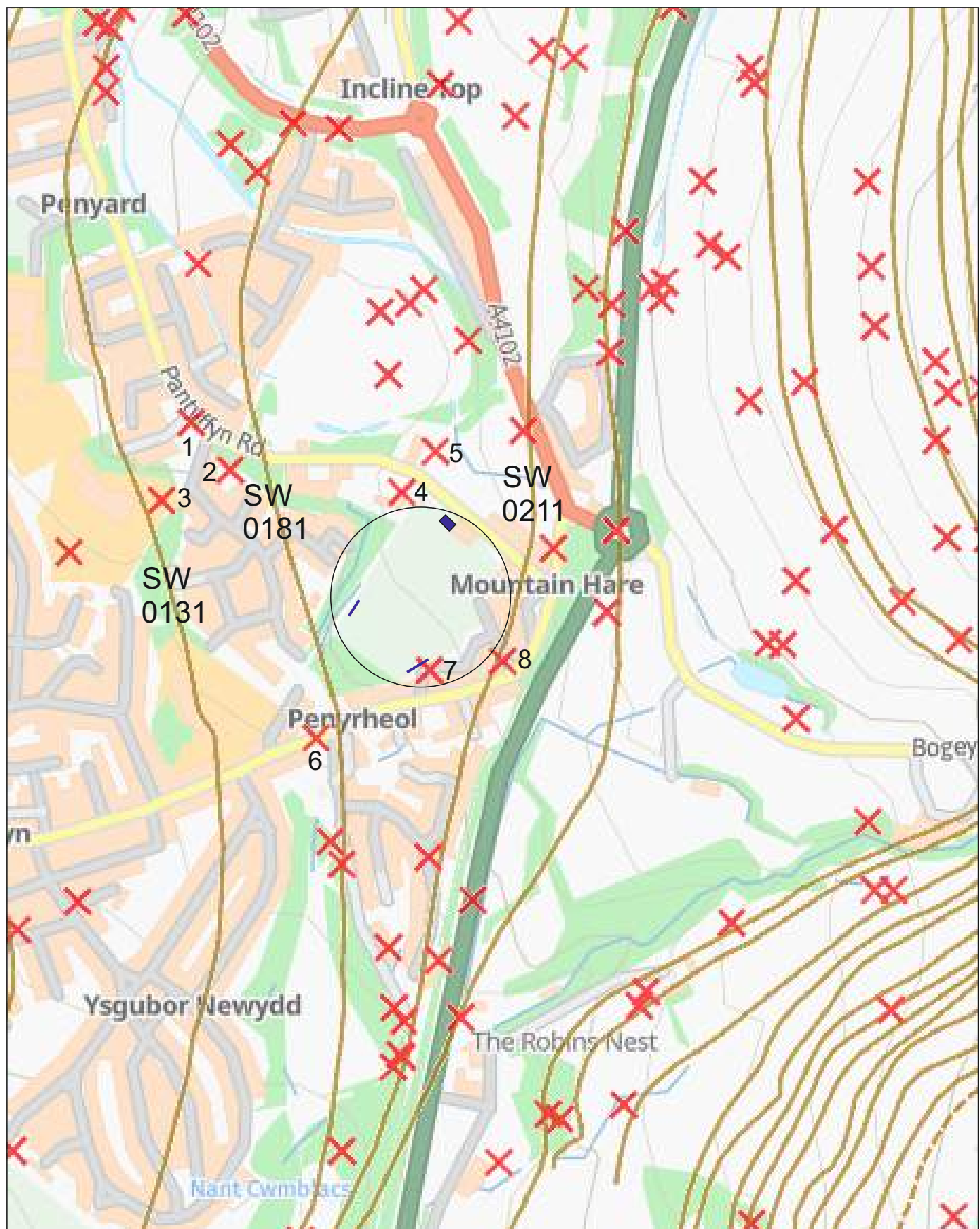


FIGURE 5

C.A. VIEWER, MINING DATA WINDOW. RED CROSSES ARE MINE ENTRIES, BROWN LINES ARE SEAM OUTCROPS. THE CHANGING ROOM EXTENSION AND PROPOSED NETS ARE SHOWN IN BLUE.

2c, d, e) The six inch to the mile Geological Survey sheet SO 00NE covers the area around the site. The urban environment around the site has changed significantly since 1965 which is the date of the underlying base map. To accurately position the site on the Geological Survey Sheet the O.S. map has been georeferenced onto a modern aerial photograph in Figure 6. An extract of the Survey Sheet has been reproduced as Figure 7 overleaf with the site outlined. A section of the stratigraphic column from the map is shown in Figure 8, with the approximate site level marked. It is always very useful to study the survey sheets in conjunction with the Memoirs. Used together, the six inch survey sheets and the Memoirs are an invaluable source of much detailed geological information on the area. Much of this has been obtained from mining records. Due to the very high economic importance of the area, extensive government funded geological surveys have been carried out in the past. These were completed in 1845, 1899 and 1957 respectively. Very little information on historical coal mining in the area is missing.

The site is underlain by strata of the Lower Coal Measures. The outcrop pattern for the Gellideg in Figures 5 and 7 is identical. This is not surprising as the primary source for the Interactive Viewer is the British Coal Development Plan which largely drew on the Geological Survey (see below). The outcrop of the Lower Seven Foot has the same orientation as in Figure 5 but the outcrop is not shown from a point just south of the site. This coincides with the right sloping diagonal hatching. This indicates thick Made Ground, mainly coal and ironstone spoil (left sloping hatching indicates opencast mining). The outcrop of the Upper Seven Foot is not shown at all. To avoid overcomplicating a map the Geological Survey will often only show the most economically or stratigraphically important seams. In addition, the Memoirs make it clear that the ground is so disturbed and covered with spoil or urban development that first hand observation of the outcrops is impossible. On the eastern side of Merthyr there is considerable variation in the coal seams underlying the site from what might be considered the normal. The Gellideg is very closely spaced from the two seams making up the equivalent of the Five Foot. The resulting composite seam was known the Lower Four Foot and was extensively mined. Seam depths in Figure 7 and on the Interactive Viewer show there must be records of this mining. There are no recorded workings below the proposed building. Seam projection and topography would place the seam approximately 35m below the site. The Lower Seven Foot would be at shallower depth. The Memoirs record that in East Merthyr the seam is represented by the Little Vein and the Little Vein Rider

which are separated by up to 6m. This is not an attractive section when there are so many superior coals nearby, particularly the thick, closely spaced seams of the Middle Coal Measures further up the hillside.

The British Coal Development Plan was a large project mainly concerned with estimating coal reserves and land usage for planning opencast mining. The primary source of information was the Geological Survey together with input from geological observations made by N.C.B./B.C. geologists on working opencast sites and from drilling records on prospecting sites. There has been extensive opencast mining near to the site and the B.C.D.P. contains valuable additional material to complement the Geological Survey. The B.C.D.P. is reproduced here as Figure 9. The outcrop pattern is identical to the Geological Survey. This is to be expected as the interactive viewer is also identical. The seam naming on the B.C.D.P. is the same as the Survey. The stratigraphic column is shown in Figure 10. This is a composite covering a 25km area (as is the stratigraphic column from the Geological Survey) and shows the splitting of the Seven Foot into thin uneconomic leaves.

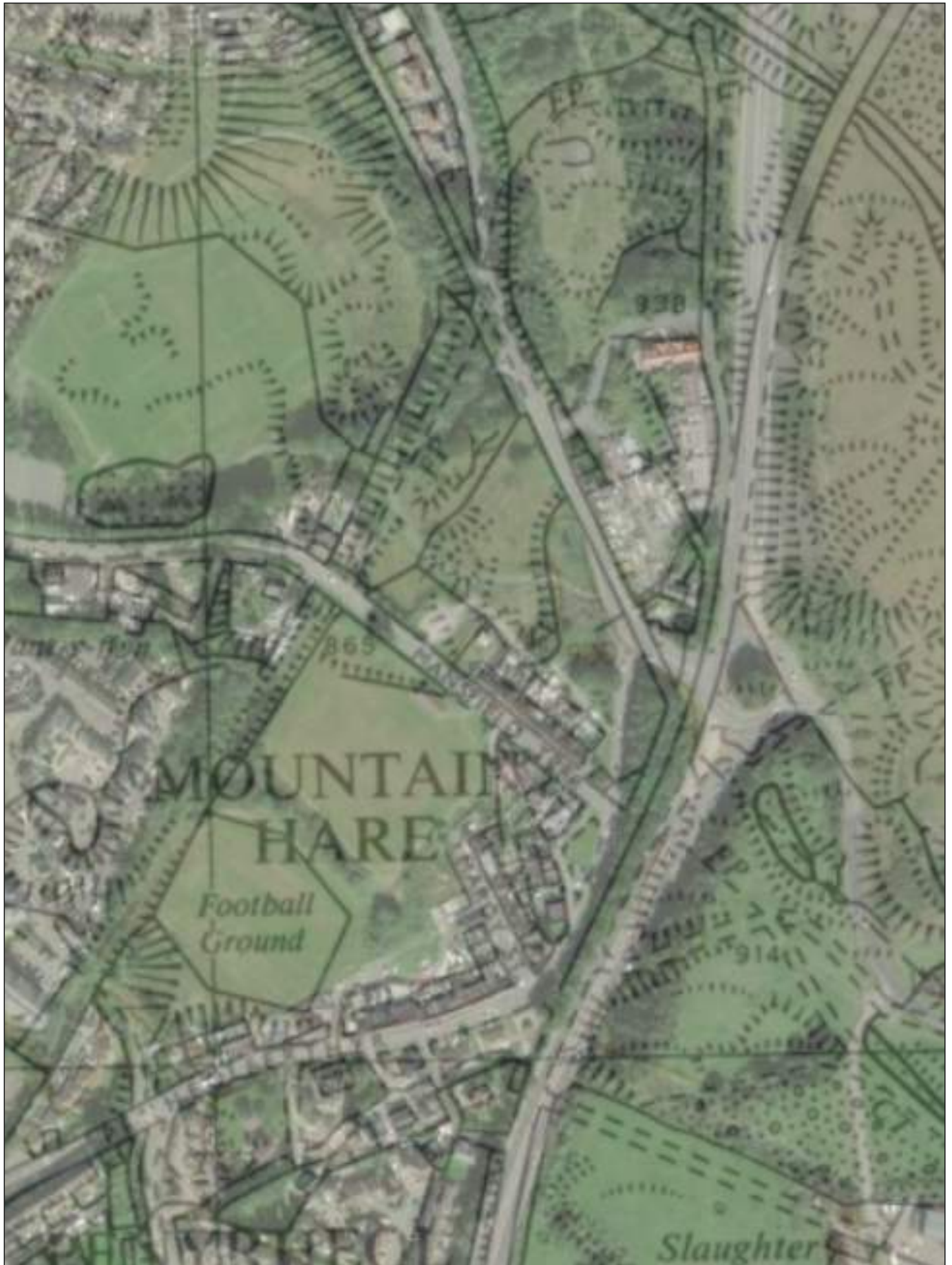


FIGURE 6

BASE MAP GEOREFERENCED ONTO A RECENT AERIAL PHOTO.

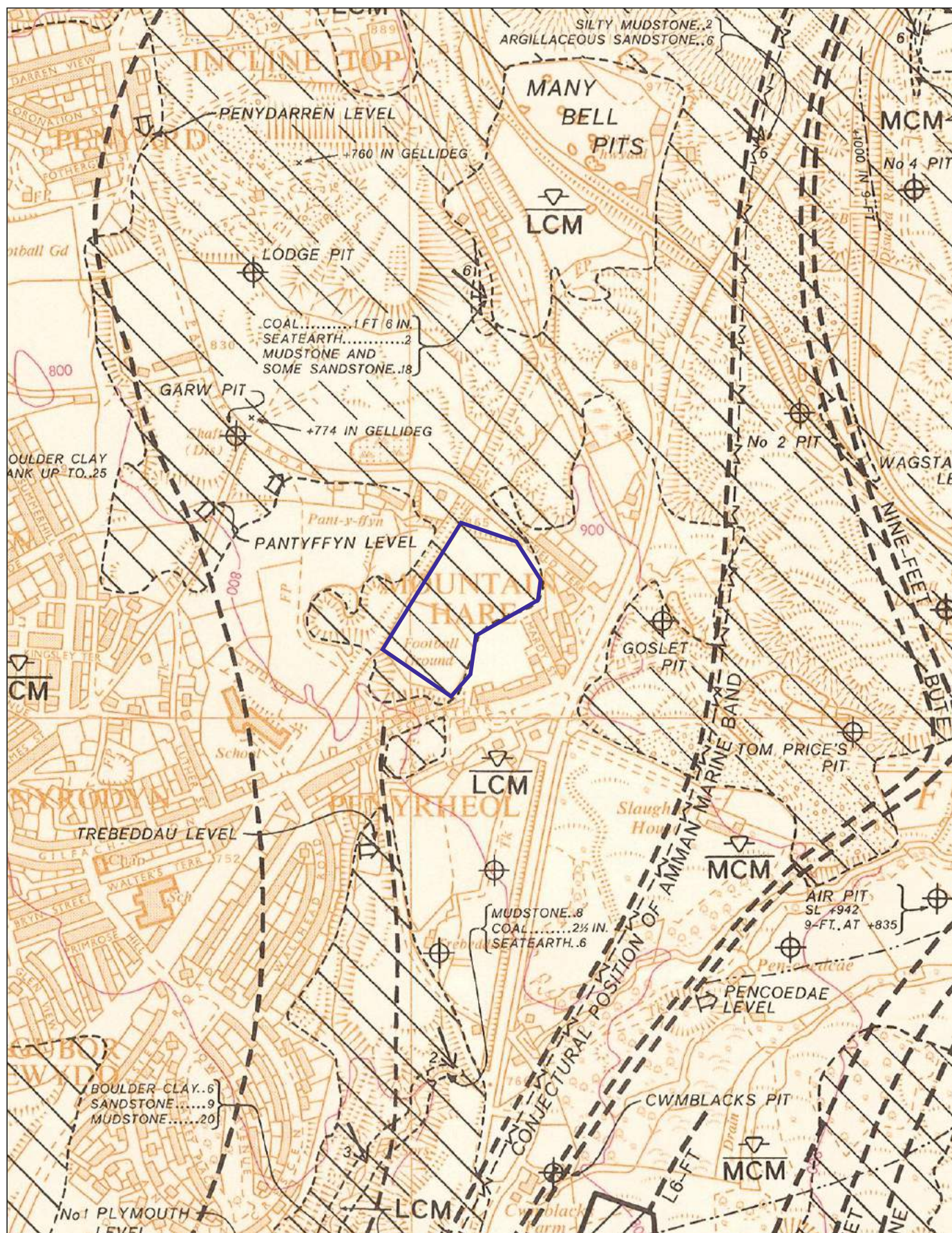


FIGURE 7
SECTION OF GEOLOGICAL SURVEY SHEET SO 00NE.
THE SITE IS OUTLINED IN BLUE.

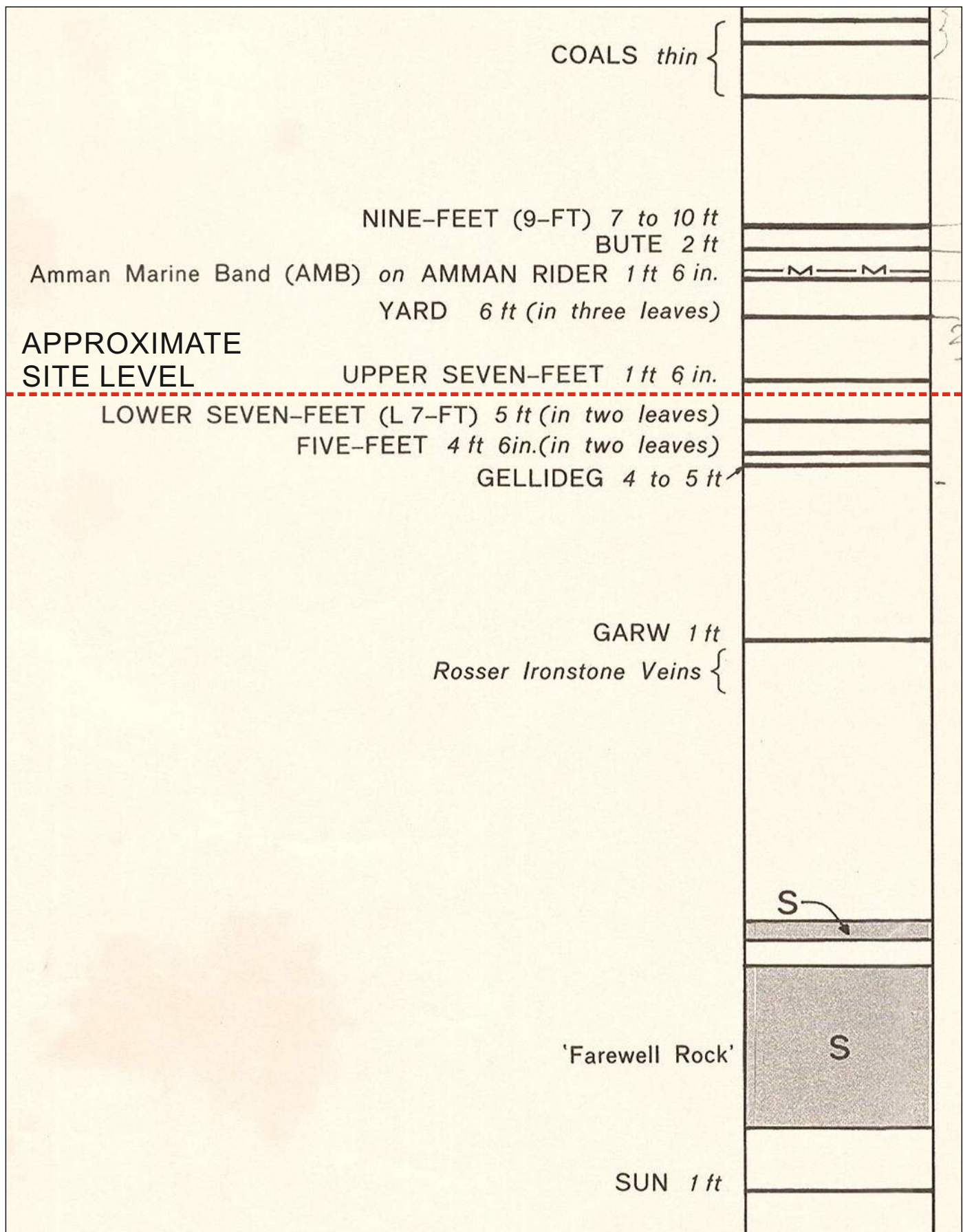


FIGURE 8
SECTION OF THE STRATIGRAPHIC COLUMN FROM SO 00NE.
THE APPROXIMATE SITE LEVEL IS MARKED.

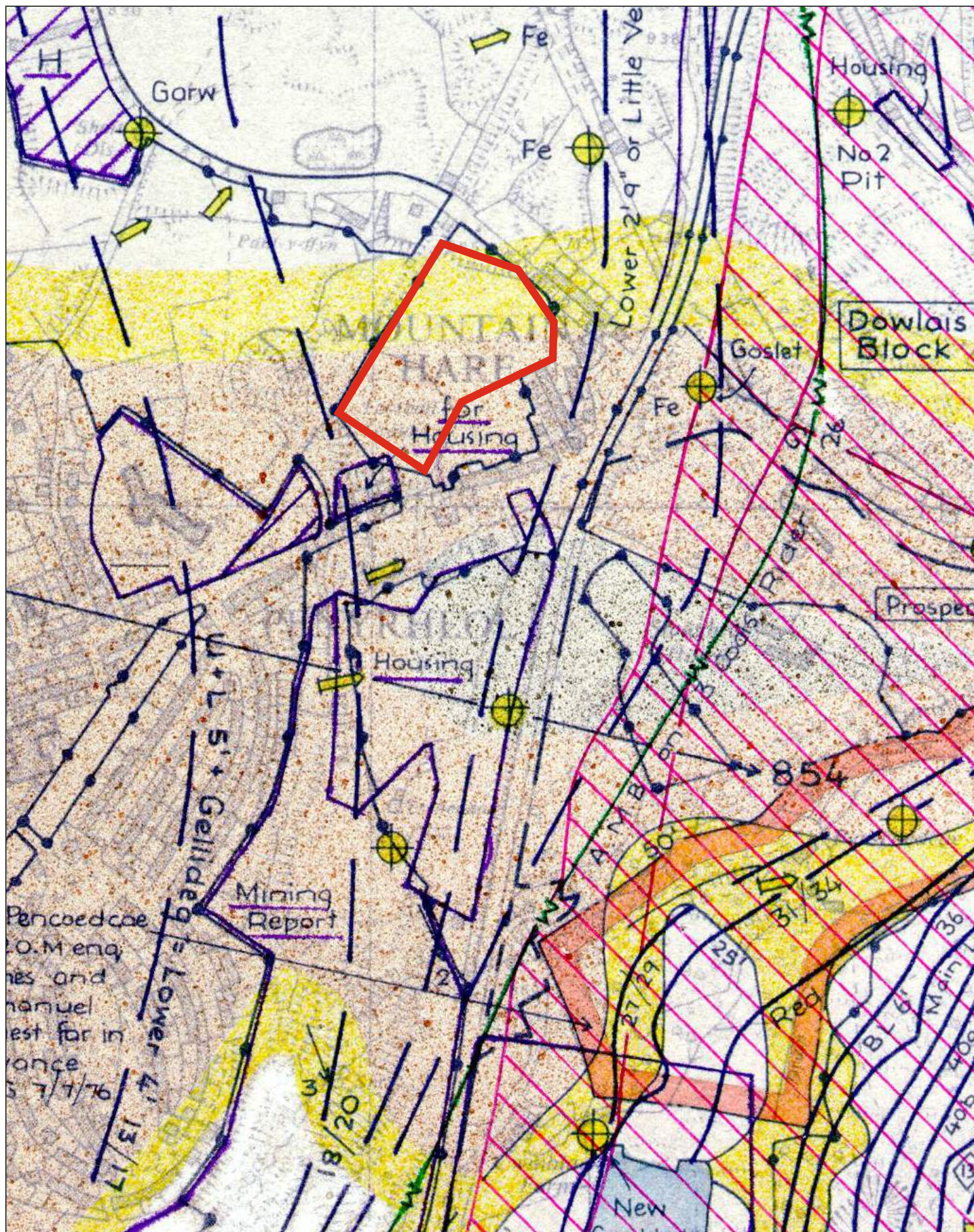


FIGURE 9
SECTION OF B.C.D.P. 07/D/SO/00 NE
THE SITE IS OUTLINED IN RED.

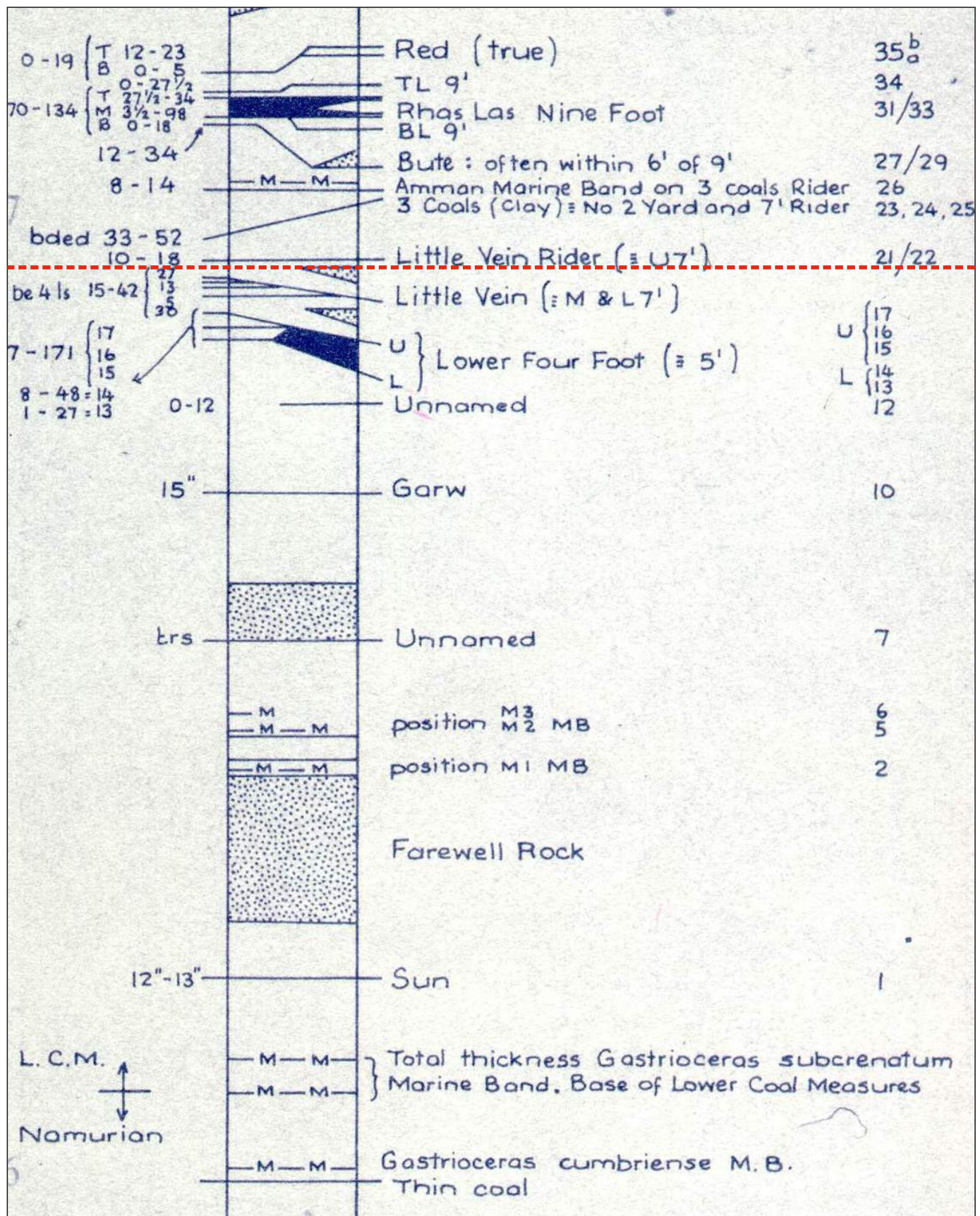


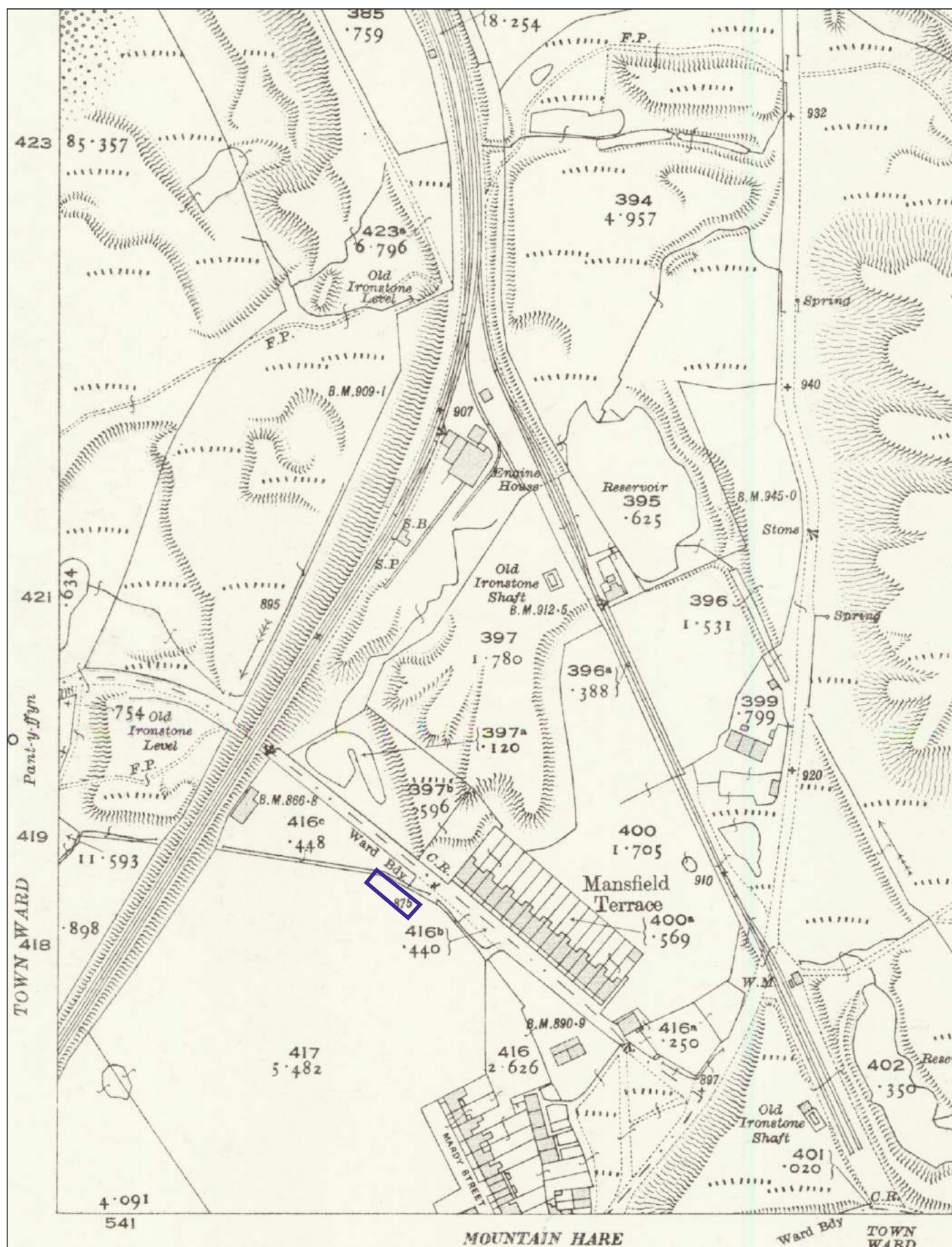
FIGURE 10

SECTION OF THE STRATIGRAPHIC COLUMN FROM 07/D/SO/00 NE.
THE APPROXIMATE SITE LEVEL IS MARKED IN RED.

2e) Large scale historical Ordnance Survey maps can prove invaluable in looking for evidence of any mining activity. Since the first County Series maps were produced in the 1870's nearly all mining features have been recorded, even if they were considered "old" at that time. Since the proximity of a mineshaft is the most important issue in the risk assessment of one of the ball stop nets, they can be a useful additional source to the geological material.

In Figure 6 the 1965 National Grid base map for the Geological Survey and the B.C.D.P. was georeferenced because it shows a different urban environment to that seen today. This was done to ensure the site was outlined correctly. On larger scale maps the lower of the two pitches sits on the corners of four adjacent map sheets. In Figures 11A and 11B the 1914 revisions of the 1:2500 O.S. of two of these maps are shown. The proposed changing room extension is in 11A. This is an extract from GLAM XII.2. There are two Ironstone shafts shown and two Ironstone levels. All are described as "old" as by that time underground mining of Ironstone had ceased due to a combination of exhaustion and imports of cheap, higher-grade ore from elsewhere. There are huge amounts of spoil in the surrounding area. Figure 11B is an extract from GLAM XII.6. This contains the site of the southeastern proposed ball stop net. There is no mineshaft shown in the supposed position of the Meadow Pit (306206-066).

Figure 12 shows the 1897 1:10,560 map georeferenced as an aid to locating the position of the proposed ball stop net which is shown in yellow. Several old mining features are shown including the Pen yr Heol Ironstone Level. No shaft is marked in the supposed location of the Meadow Pit. Figure 13 shows the site of the proposed ball stop net on Google Earth. The C.A. location for the Meadow Pit is also shown. This is very close to a large, detached garage. A 10m departure has been drawn around the C.A. position.



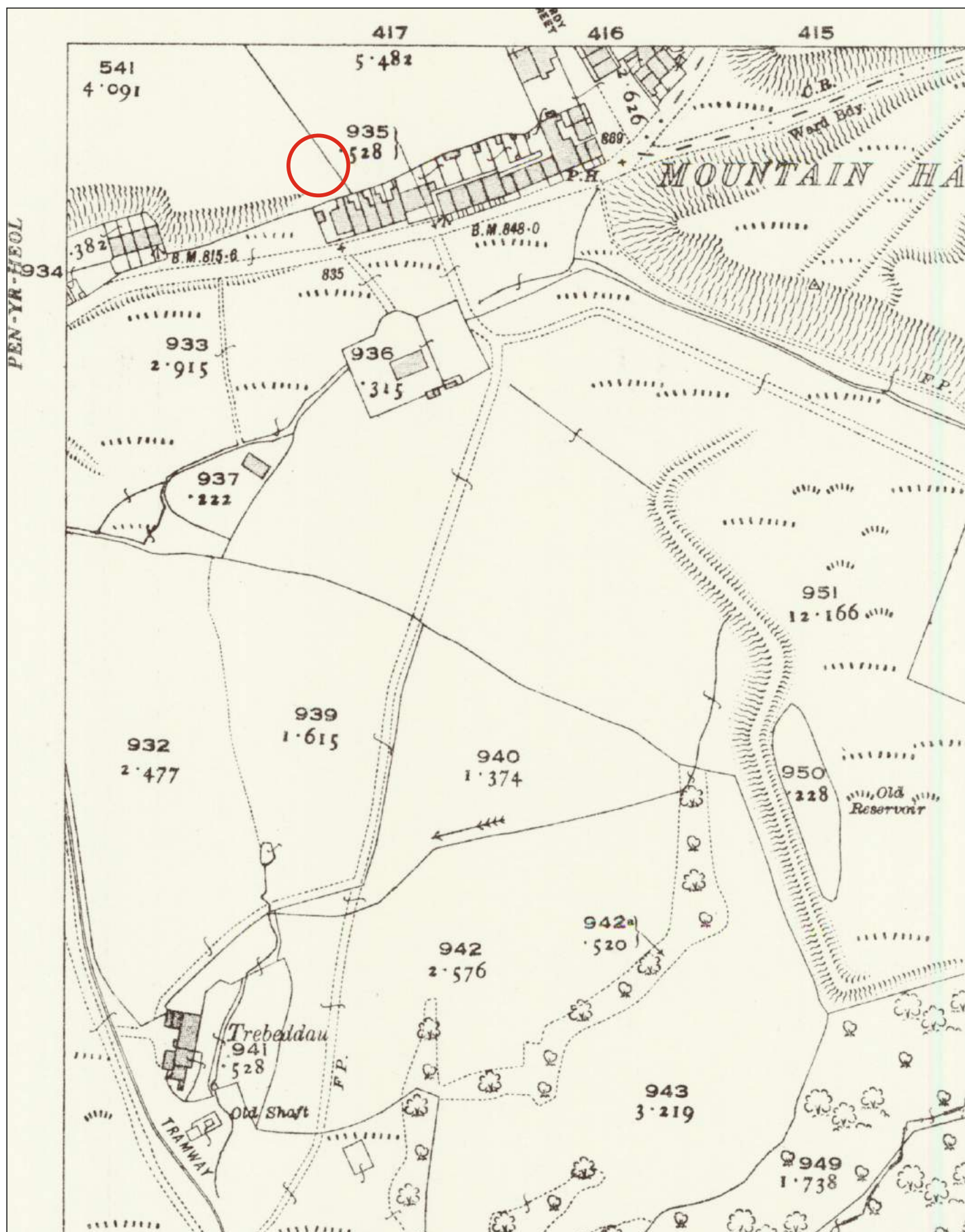


FIGURE 11B
SECTION OF 1914 REVISION OF 1:2500 GLAM XII.6.
THE SUPPOSED MINESHAFT POSITION IS CIRCLED.

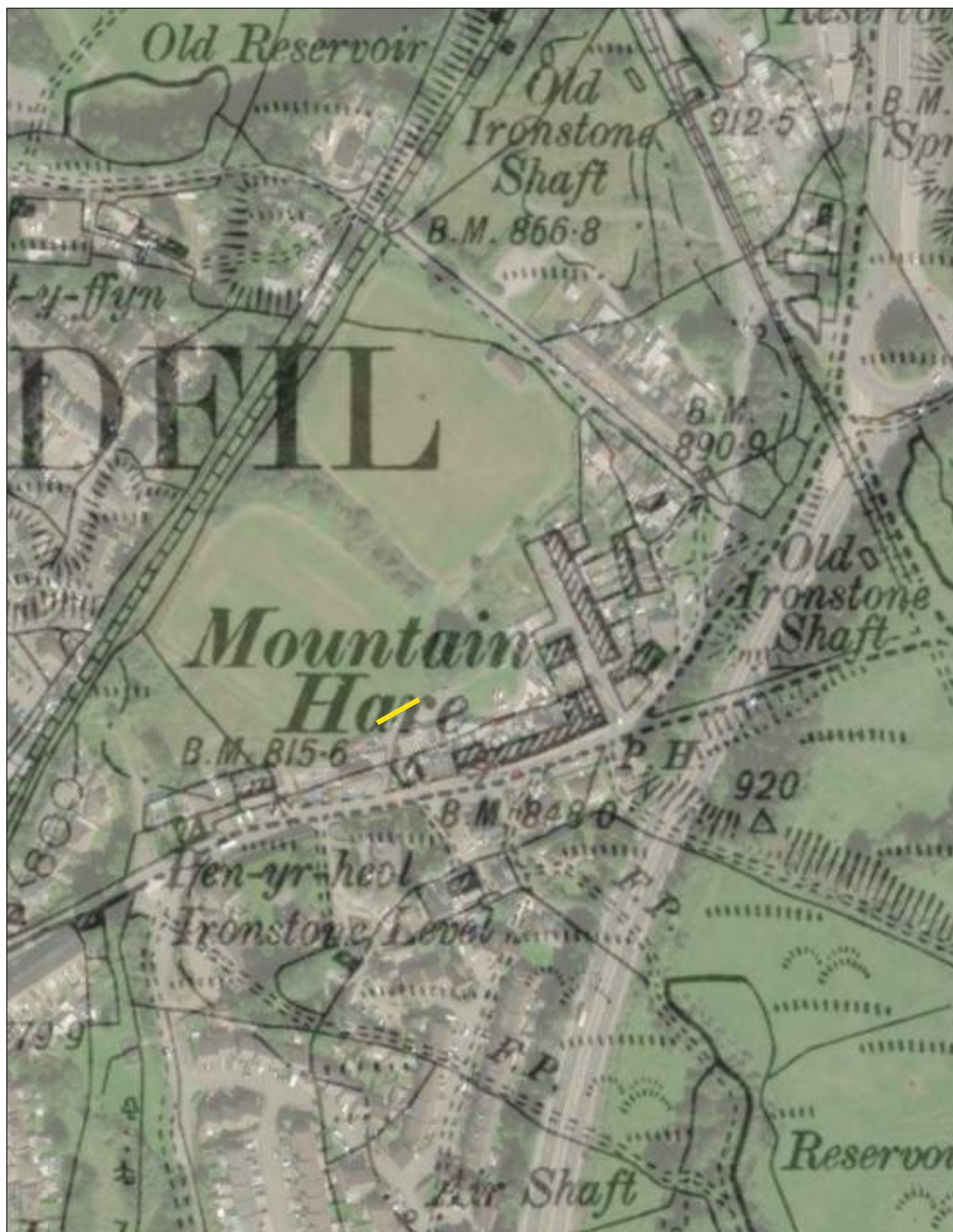


FIGURE 12
GLAM XIINW (1897) GEOREFERENCED ON AERIAL PHOTO.
THE NET IS SHOWN IN YELLOW.



FIGURE 13
SUPPOSED POSITION OF SHAFT 306206-066 ON GOOGLE EARTH
IN RELATION TO THE PROPOSED FENCE SHOWN IN ORANGE.
A 10m DEPARTURE FOR THE SHAFT POSITION IS SHOWN IN RED.

2f) The Consultants Report stated there was no recorded coal mining beneath the site. The proximity of Ironstone mining features on the historical O.S. indicated the possibility of Ironstone mining close to or beneath the site. Recorded Ironstone mining would normally be contained in the report. Initially a Shaft Location Plan and Data Sheets Report was obtained to try and find the source of the supposed position of the Meadow Pit (306206-066). The report is included in Appendix 2. This gave the source as British Coal Records Plan 60M. Enquiries were made regarding the purchase of said plan, but it is no longer held by the C.A. and other attempts to obtain it have failed to date. Following this a mining plan search was requested and paid for. This concentrated on SWR2510 which consists of ten plans of (mainly) Ironstone workings. The Mining Information Managers were very helpful in this matter and gave plan titles (if present) and summaries of what was shown. They stated that all the plans were lacking in recognisable surface features and were therefore very hard to georeference.

Two of the plans thought most likely to inform the risk assessment were purchased. SWR2510/1 is titled Plan of the Penydarran Minery and covers a very large area. Dating from 1880, it shows a complex network of shafts, main roadways and drainage levels. The extent of the workings linked to these roadways is not shown. The plan shows roadways in six different Ironstone veins together with cross measure drives. Multiple sets of workings would need to be superimposed on each other in any composite plan. This would probably make the plan unreadable. In the author's experience, workings in individual veins would normally be shown on separate plans. Marked surface features are indeed sparse and, in many cases, no longer in existence. Nevertheless, the vicinity of the site can be recognised by named mine entrances. These are Gwain Court Pit, Railway Pit, Coslet Pit and Penyrheol Water level. In Figure 14 these four have been triangulated on the Interactive Viewer. This then allows the position of the proposed changing rooms to be transferred onto the mine plan. This has been done in Figure 15. The triangulation angles and distances in Figures 14 and 15 agree closely with each other giving confidence in the positioning of the development. It is apparent that although the site is close to marked roadways including the Penydarran Water Level, it is outside the Penydarran Estate. The site of the changing rooms is within the Mardy Estate, with the Plymouth Estate to the south. Mineral rights were extremely valuable and estate boundaries were closely monitored. The Dowlais, Plymouth and Penydarran estates supplied the three voracious ironworks with the same names. Presumably the Mardy Estate supplied either the Plymouth or Cyfarthfa works (at the time the largest in the world). It clearly did not supply the Penydarran works because there are no roadways marked outside the estate boundary. Also, there is a feature marked as an "encroachment" (circled). These would indicate that mining from the

Mardy Estate had crossed into the mineral rights of Penydarran Estate at some time prior to the plan being produced. This was not an unusual occurrence, particularly given the unreliability of compasses in Ironstone mines. Probably it would have resulted in legal action and compensation. What it means to the risk assessment is that there must be Ironstone workings within the Mardy Estate not shown on plan SWR2510/1. The adjacent blue object represents an unusually shaped terrace of cottages at the surface. These have long been demolished, but can be picked out on the 1873 O.S. This terrace together with the position of the Penyrheol Water Level would place workings beneath the upper football pitch and by inference possibly below the changing rooms. It is not shown what veins the workings would be in. On the Penydarran side of the boundary the nearest workings are in the Garw and Blue Veins, but details are sparse.

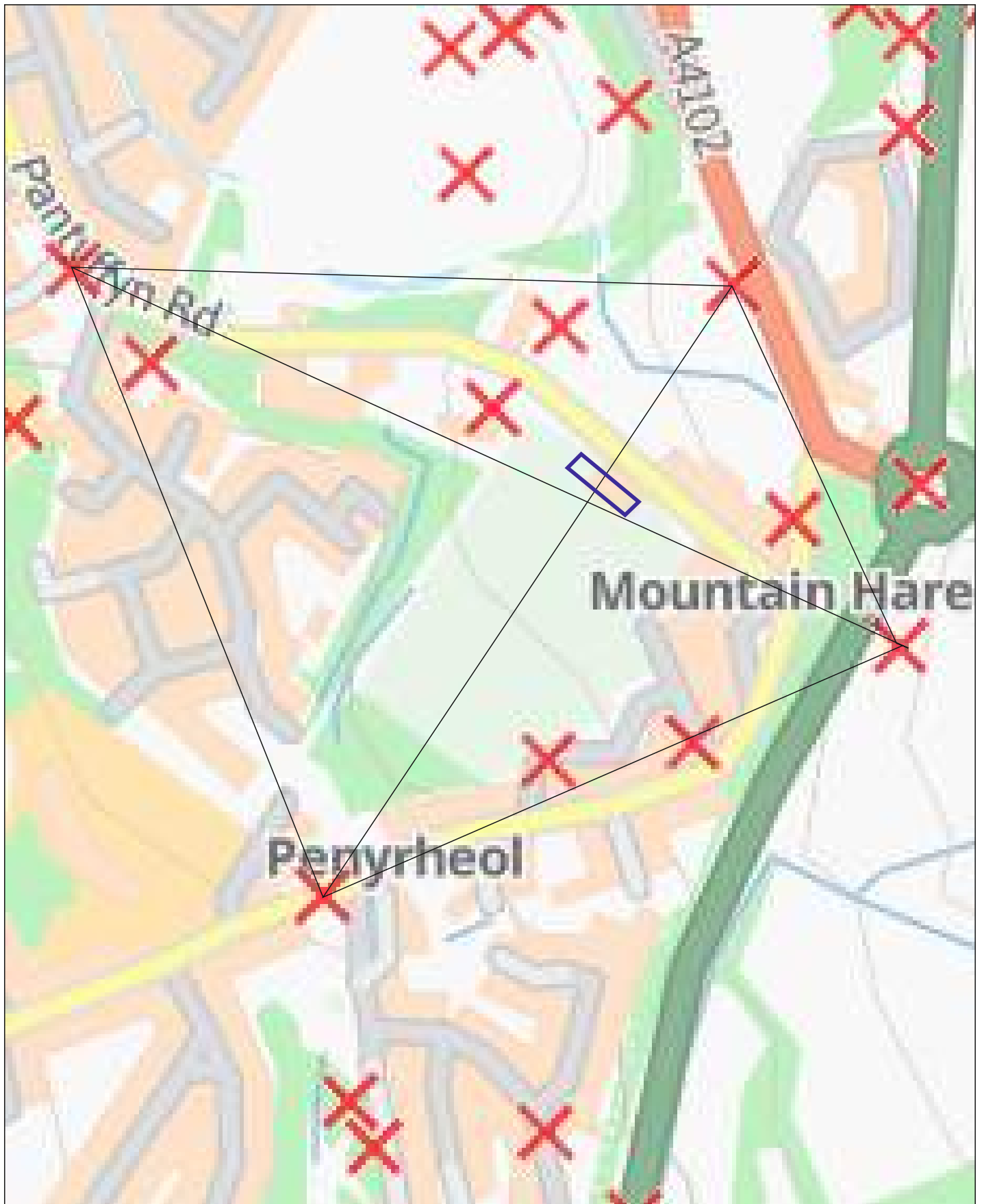


FIGURE 14

TRIANGULATION OF NAMED MINE ENTRANCES TO ENABLE THE POSITIONING OF THE CHANGING ROOMS ON OLD MINE PLANS

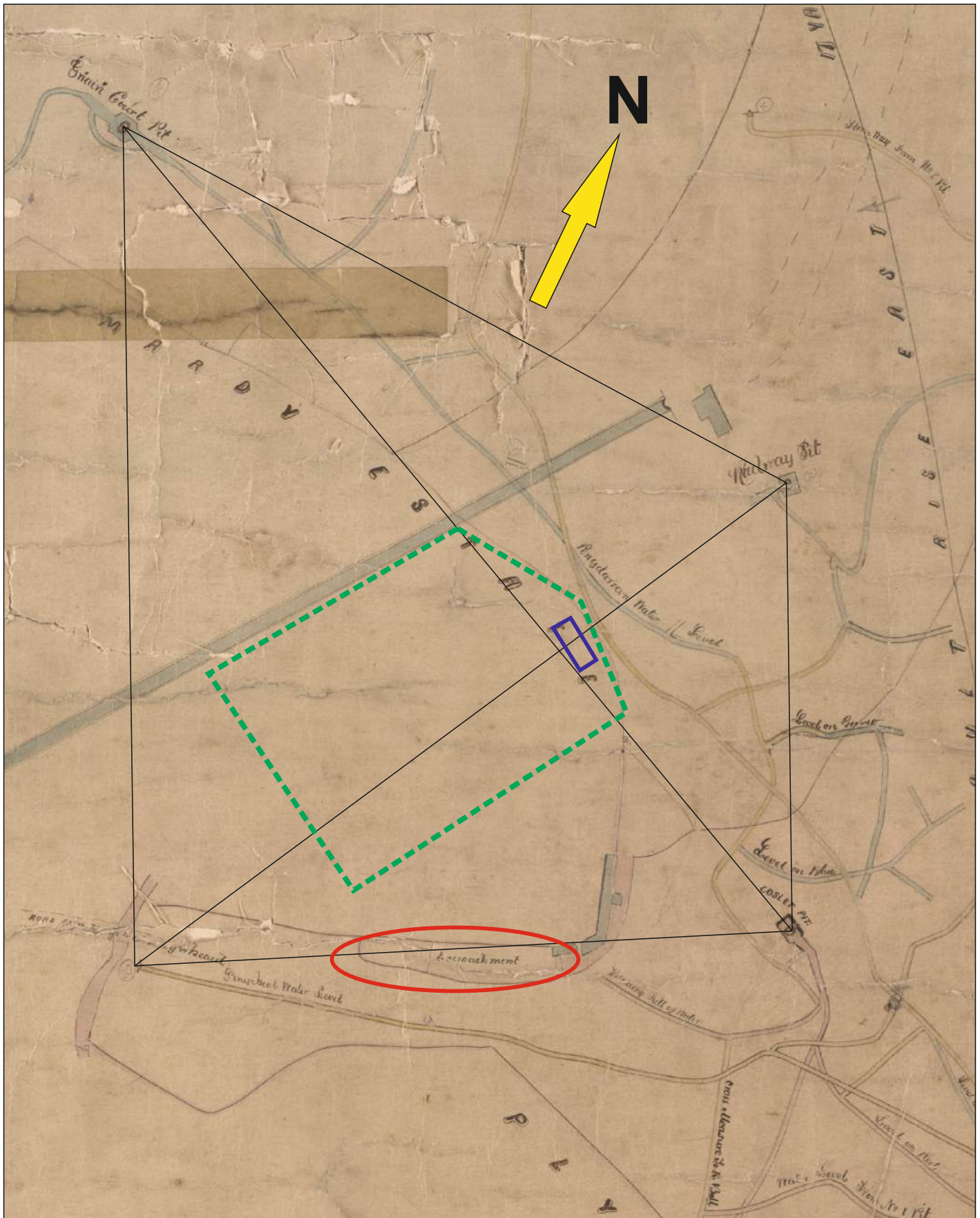


FIGURE 15

THE CHANGING ROOMS LOCATED ON MINE PLAN SWR 2510/1. THE "ENCROACHMENT" IS CIRCLED RED. AN APPROXIMATION OF THE SPORTS FIELD BOUNDARY IS OUTLINED IN GREEN.

COAL MINING ISSUE		YES	NO	R.A?
SHALLOW RECORDED WORKINGS			X	
SHALLOW UNRECORDED WORKINGS		X		X
MINE ENTRIES			X	
FISSURES			X	
GAS EMISSIONS		X		X
SURFACE HAZARDS			X	
SURFACE MINING			X	
FUTURE MINING LICENSE			X	

3. SITE SPECIFIC COAL MINING RISKS

From the table above it can be seen that only two issues require a risk assessment for the proposed changing room extension. The main risk is from shallow unrecorded workings in both Ironstone and Coal. The Consultants report states there are no records of gas emissions in the area. However, the risk of gas emissions would be entirely dependent on the presence or absence of shallow *coal* workings. In the case of the southeastern ball stop net, the possible influence of a mineshaft will also need to be considered. To first briefly deal with the issues marked NO on the table:-

- 1) The Consultants Report states that there is no past recorded mining beneath the site. The Consultants Report only covers the immediate area around the proposed extension to the changing rooms *not* the ball stop nets. The reasons for this were stated in section 2a. The Interactive Viewer shows there is no mining records held by the C.A. below the ball stop nets.
- 2) There are no mine entries within influencing distance of the site in the case of the changing rooms, but see above re. the ball stop net.
- 3) There are no faults, fissures or recorded breaklines.
- 4) There have been no subsidence claims or surface hazards recorded within 50m of the site.
- 5) There has been opencast mining very close to the site boundary. This was done prior to extensive house building. The intention was to remove shallow coal seams from beneath these sites and neutralise the threat from shallow workings. The mining was tightly regulated with well-engineered shallow batters. The excavations were then backfilled and compacted. Following this, residential developments were built. The former excavations pose no threat to ground stability at the site.
- 6) There are no future mining licenses extant.

The Consultants Report states there are probably unrecorded workings at shallow depth beneath the site. This is a generic statement covering vast areas of Merthyr and is not based on anything specific to the site. In the case of coal mining, this statement is not likely to be true. As described in the previous section, mineral rights were distributed amongst several very large players and these rights were strongly upheld. There was no small-scale unregulated mining. There is extensive recorded local mining in the Lower Four Foot. This is a locally composite seam formed from the Gellideg and Five Foot seams. For reasons unknown this does not extend under the site (including both football pitches). It could be speculated that this could be due to the estate boundaries seen in Figure 15. The sports ground falls entirely within the Mardy Estate. There is no doubt there is mineable coal beneath the site and earlier work suggested the Lower Four Foot would be at approximately 35m below the changing rooms, decreasing to 28m below the ball stop nets. There is no evidence the seam has been mined. The Seven Foot Seam will be at shallower depth beneath the site. There is no evidence of it being mined beneath the site. In this case the reason is because it is locally thin and of poor quality.

This leaves the risk from Ironstone mining. There are undoubtedly multiple Ironstone Veins beneath the site. Mine plan searches have failed to locate documentary evidence of them being mined beneath the site. However, mine plan SWR2510/1 shows workings encroaching into Penydarran land from the neighbouring Mardy Estate. This must mean there are unrecorded Ironstone workings beneath at least part of the site when the sports ground is taken as a whole. The workable Ironstone veins are all located below the Lower Four Foot and are spread over a vertical sequence of 27m (this figure is from a section at Plymouth Ironworks south of the site). So, the depth of any unrecorded ironstone workings must range from 35m-62m beneath the site.

Ironstone mining is a very different process from coal mining. As a result, the risks to ground stability are different. Ironstone in the Lower Coal Measures takes two forms. Thin continuous beds with a fibrous appearance were known as “pins”. Horizons of nodular concretions were known as “balls”. Besides the Plymouth section mentioned above, the author also holds detailed sections from Dowlais, north of the site. It is not necessary to reproduce them here, but in summary it is apparent how thin individual pins and balls were- anywhere between 20mm- 150mm. Closely spaced layers were grouped together as veins. For example, the Red Vein consisted of 290mm total thickness of Ironstone in four layers spread over 1.3m of strata. The intervening strata was almost exclusively Mudstone or Siltstone. In coal mining the height of the workings was generally controlled by the seam thickness, with only roadways being higher. Ironstone workings were generally about 4’ (1.22m) high to allow a man to work

“comfortably”. There was no mechanisation. Where possible, if closely spaced, multiple veins would be taken top and bottom. Excessive roof support would make this impractical if the separation was more than 1.8m. The mining proceeded forward in a similar manner to hand longwall coal mining with minimal roof support. Obviously, a very large amount of spoil would be produced, between 70% and 95% of the total extraction thickness. To take the waste to the surface would be totally uneconomic. Instead, it was “backstowed” i.e. packed in behind the advancing workings to support the roof. The roof would gradually settle and compress the “gob” as the workings advanced. This means there is very little potential for void migration. Crown holes from Ironstone workings alone are unknown in South Wales.

The same risk assessment above can be applied the southeastern ball stop net, although the depths of any unrecorded workings would be up to 8m shallower. In the case of coal workings in the Lower Four Foot it has been concluded that none exist. In the case of Ironstone workings, it has been concluded that they may well exist, but they pose no threat to ground stability. This leaves the risk from the supposed mine shaft. There is no documentary evidence for this shaft now extant. The solitary source is claimed to be an old British Coal plan. This in turn must have come from an archive document. The supposed shaft is not shown on any O.S. or mine plan. The mine plans held by the C.A. may not be exhaustive, but it is puzzling that there is not a single reference to a named shaft (Meadow Pit). A physical search is not an option. The supposed position is off the land ownership and possibly beneath a building. Figure 13 shows a 10m departure. This could possibly bring the “mine shaft” closer to the proposed net. Equally it could be further away. Were the mine shaft to collapse it would present far more of a threat to the nearby buildings and the highway (Cross Mardy St.) than to a relatively minor structure such as the net.

4. MITIGATION STRATEGY.

M.T.C.B.C. Building Control have a blanket insistence on raft foundations for extensions to existing buildings in certain areas with a history of shallow mining. It is not known if this policy applies to Mountain Hare. The proposed extension is a relatively small, non-residential building. It is the recommendation of this report that reinforced foundations are designed by a qualified Structural Engineer. These should be sufficient to prevent any miniscule risk of ground instability at the site. Shallow ground conditions are currently unknown. The pitches are almost certainly underlain by Made Ground, but the changing rooms are quite possibly on natural ground. This is based on the levels observed at the site and the proximity to Mansfield Terrace. A small site investigation unconnected to mining would be necessary to finalise foundation

design. Since there is no risk from unrecorded coal mining there is no risk from mine gas. Therefore, no gas prevention measures need be incorporated into the design of the proposed building.

The proposed ball stop nets are likely to be founded at least partly in Made Ground. The nets have been rejected previously by the planning department for aesthetic reasons. If they are now approved, a watching brief by an experienced Mining Engineer or Geologist is recommended during the construction of the foundations of the southeastern net only. This is merely precautionary, to check for unusual ground conditions.

5. CONCLUSION

This risk assessment has presented abundant evidence from comprehensive research that there is no risk to the proposed development from ground stability issues due to underground mining. There is no evidence of underground coal mining. The reasoning behind this statement has been described in detail in previous sections. There is indirect evidence of Ironstone mining beneath the site. However, the nature of Ironstone mining and the minimum depth of any unrecorded mining means there is no threat to ground stability. As a purely precautionary measure, strengthened foundations for the proposed new building are recommended. The design of these cannot be specified at present but will be subject to the findings of a shallow ground investigation. There may also be input from M.T.C.B.C. Building Control into foundation requirements. The northwestern ball stop net requires no mitigation measures. The small threat from a possible mineshaft to the southeast net is unproven. A watching brief is recommended during the formation of the foundations of the southeast as a precautionary measure.

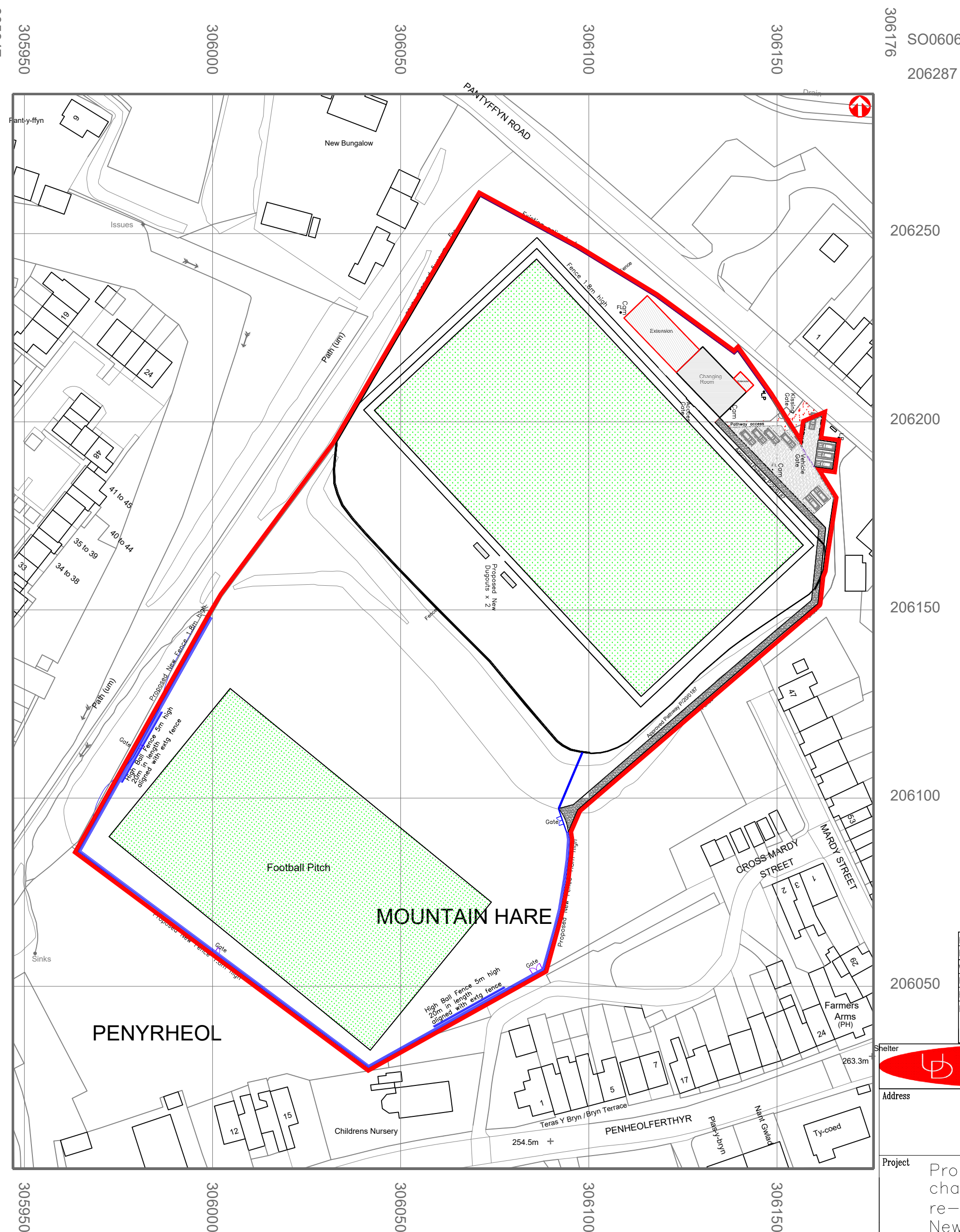
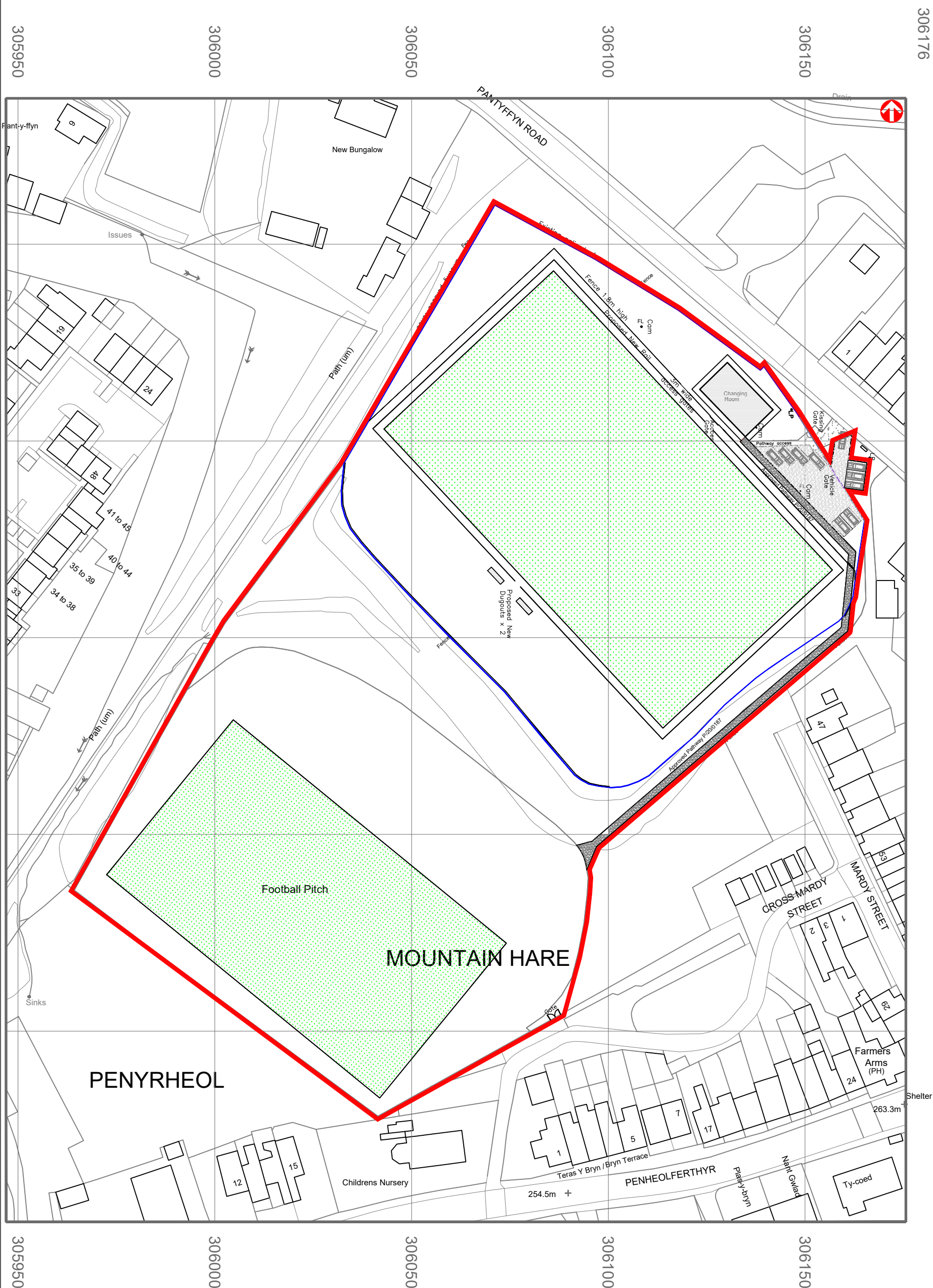
The measures to mitigate any risk from mining legacy issues must be proportionate to both the nature of the development and the quantified risk. It is the conclusion of this report that this has been done and that there is no reason why the Coal Authority cannot remove their objections to planning.

Richard Davies BSc. (Hons), MSc., F.G.S.

29/11/2023

APPENDIX 1

REPRESENTATIVE SITE PLANS



Finishes	
Roof:	Con tile matching extg
External walls:	Render matching extg
Windows/Doors:	Grey
Fascia:	White uPVC
RWG's:	Black uPVC
Enclosure:	Steel post and mesh panels in green matching extg



Address	SO 06148 06194 Mountain Hare Playing Fields Mansfield Terrace Merthyr Tydfil CF47 0LB
---------	--

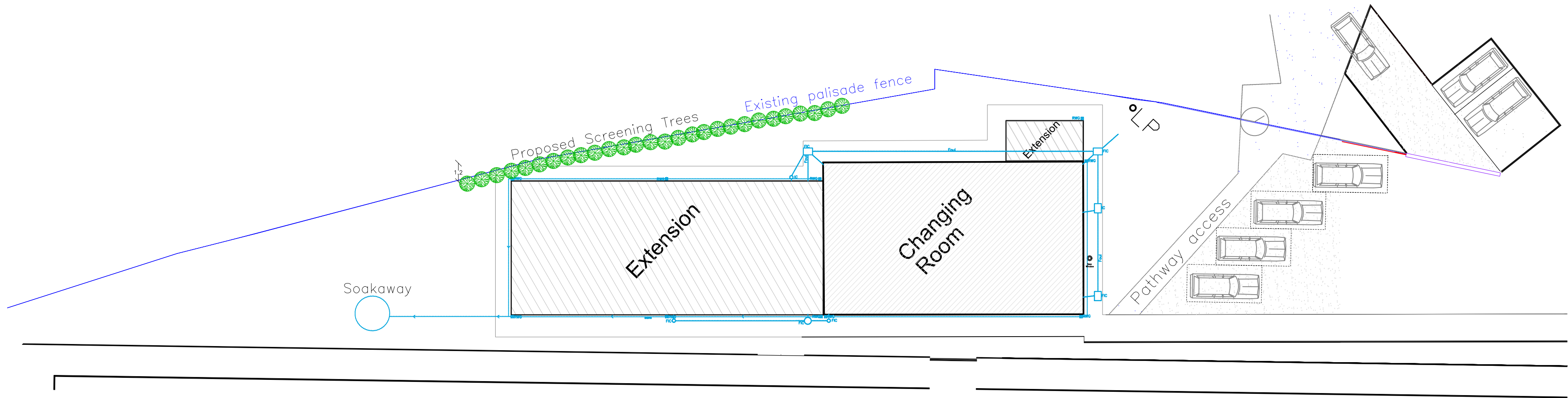
Project	Proposed new extension to changing rooms with internal re-arranged layout and New Fence to Lower Pitch
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Drawing Status: FOR PLANNING PURPOSES ONLY

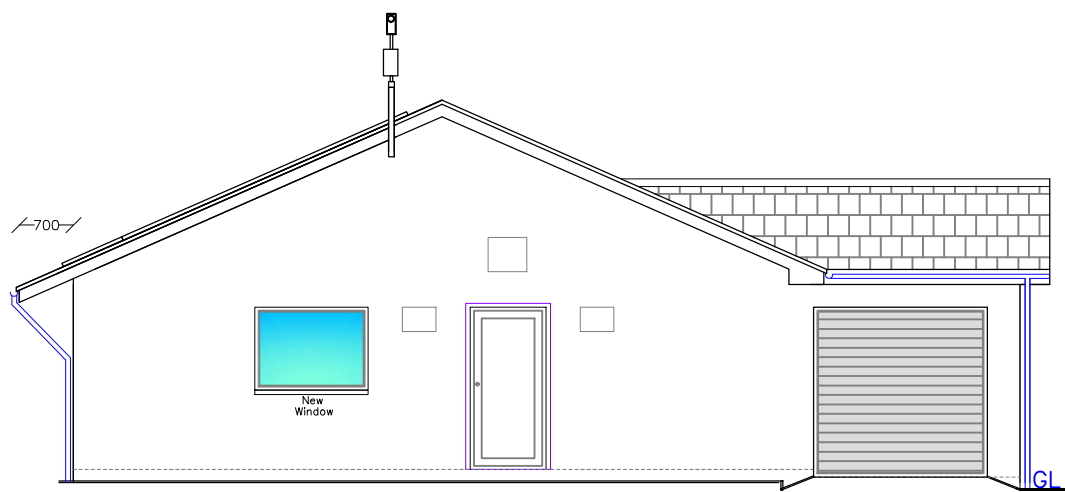
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PT	SEPT 23	

Title	1:1000
	Paper

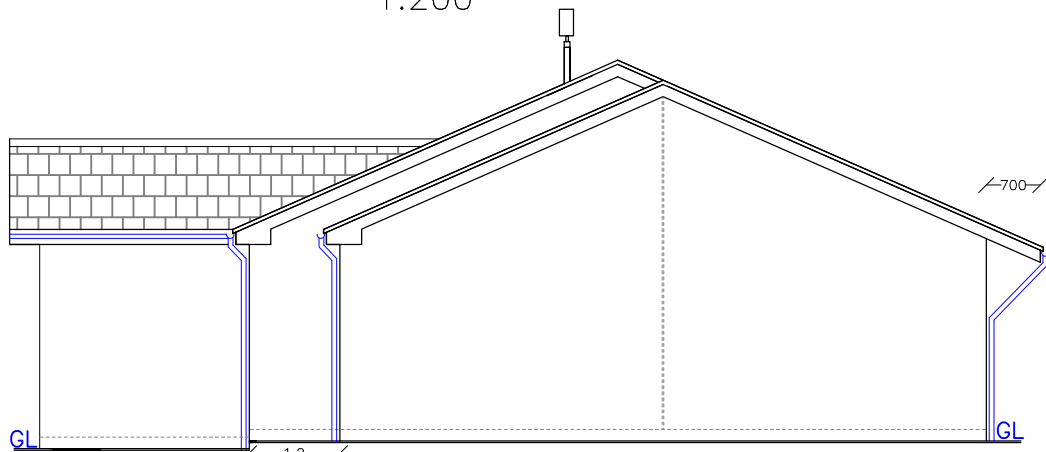
Existing & Proposed Plan	A2
	Drwg No MT HARE EXT 02



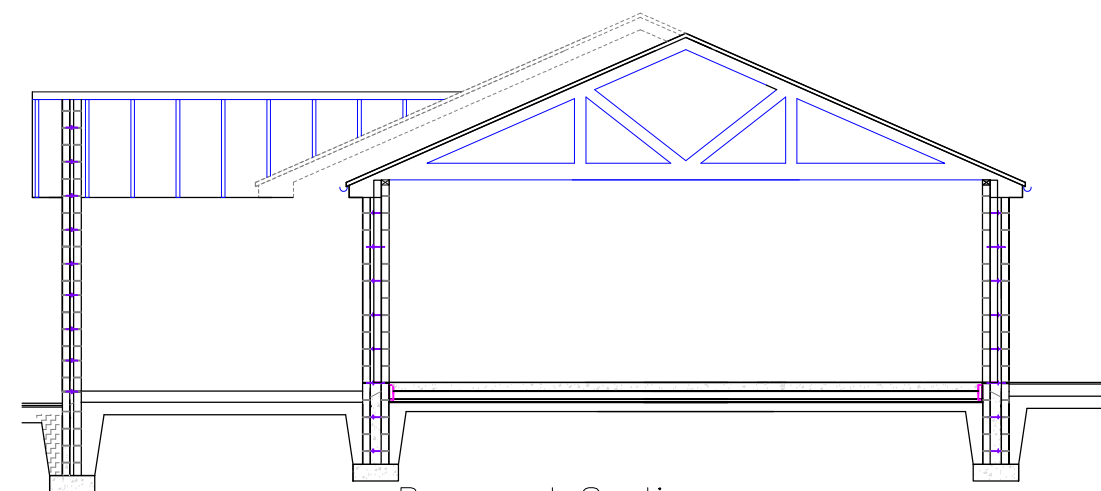
Proposed Partial Block Plan
1:200



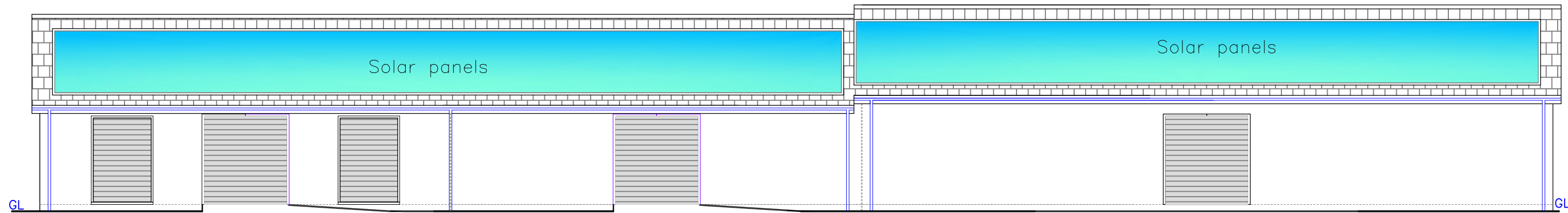
Proposed Side Elevation
1:100



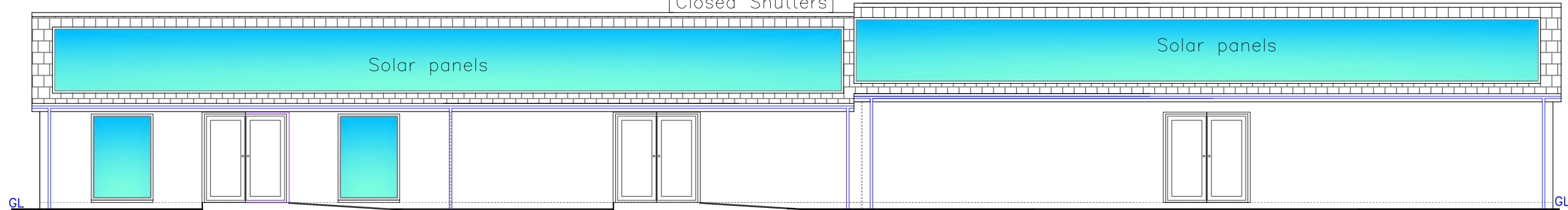
Proposed Side Elevation
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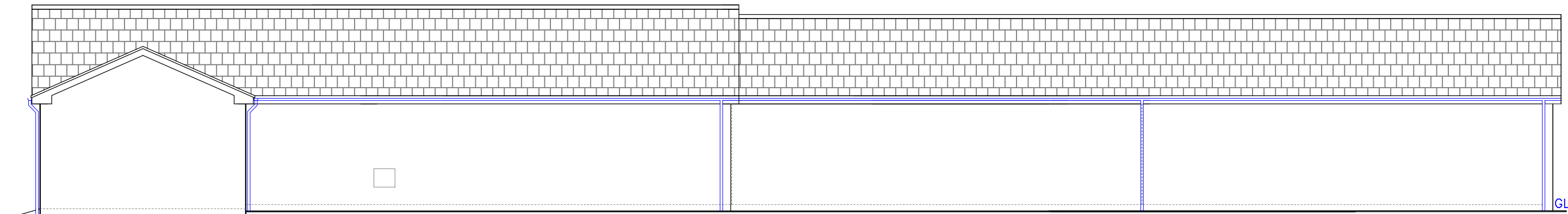
Proposed Section
1:100



Proposed Front Elevation
1:100
[Closed Shutters]



Proposed Front Elevation
1:100



Proposed Rear Elevation
1:100

Finishes	
Roof:	Con tile matching extg
External walls:	Render matching extg
Windows/Doors:	Grey
Fascia:	White uPVC
RWG's:	Black uPVC
Enclosure:	Steel post and mesh panels in green matching extg

 Utopia Design Architectural Services			
Address		SO 06148 06194 Mountain Hare Playing Fields Mansfield Terrace Merthyr Tydfil CF47 0LB	
Project		Proposed new extension to changing rooms with internal re-arranged layout and New Fence to Lower Pitch	
Drawing Status: FOR PLANNING PURPOSES ONLY			
Drawn by	Date	Scale	
PT	SEPT 23	1:100 1:200	
Title		Page	A2
Proposed Plans and Elevations		Draw No	MT HARE EXT 04A

APPENDIX 2
COAL AUTHORITY
CONSULTANTS REPORT
MOUNTAIN HARE PLAYING FIELDS
MERTHYR TYDFIL

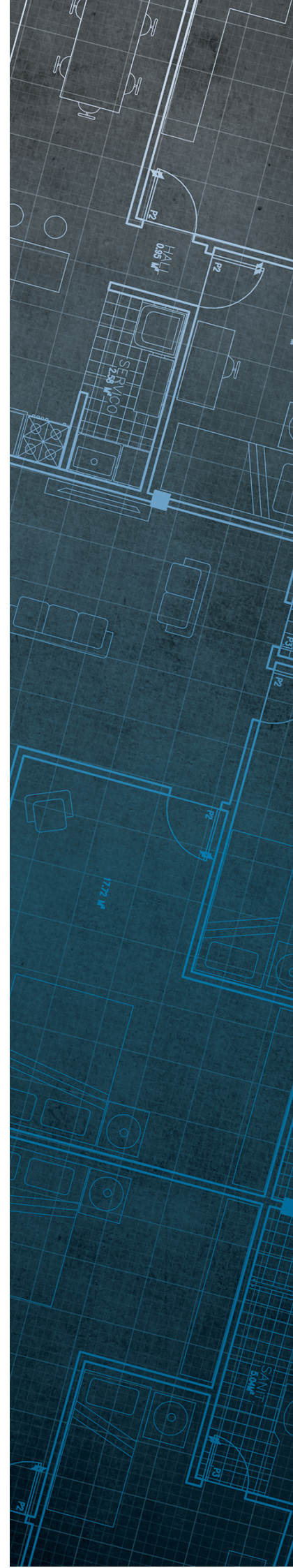


The Coal
Authority

Consultants Coal Mining Report

Pavilion And Changing Rooms
Pantyffyn Road
Penyard
Merthyr Tydfil
Merthyr Tydfil
CF47 0LB

Date of enquiry:	5 October 2023
Date enquiry received:	5 October 2023
Issue date:	5 October 2023
Our reference:	51003381669001
Your reference:	



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

RICHARD Davies

Enquiry address

Pavilion And Changing Rooms
Pantyyfyn Road
Penyard
Merthyr Tydfil
Merthyr Tydfil
CF47 0LB

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

No past mining recorded.

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Adit	306206-002	306049 206266		Ironstone	
Adit	306206-048	306091 206317		Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

SWR1592	SWR1573	SWR2272
SWR2523	SWR2509	SWR2500
6768	SWT3850	SWR3131

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

No outcrops recorded.

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the “Summary of findings” map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

Based on the responses in this report, no further information has been highlighted.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848

RICHARD DAVIES
56 MEYLER STREET
THOMASTOWN
TONYREFAIL
RHONDDA CYNON TAF
CF39 8EA

Our reference:	51003386188001
Your reference:	
Date of your enquiry:	28 October 2023
Date we received your enquiry:	28 October 2023
Date of issue:	30 October 2023

This report is for the property described in the address below and the attached plan.

Shaft Plan and Data Sheets

**PAVILION AND CHANGING ROOMS, PANTYFFYN ROAD, PENYARD, MERTHYR TYDFIL,
MERTHYR TYDFIL, CF47 0LB**

I refer to the enquiry dated 28 October 2023, received 28 October 2023, in connection with the above.

As requested I enclose the mine entry data sheet(s) held for the mine entry/entries referred to.

Mine Entry Data

Shaft/adit:	Adit
Reference:	305206-020
Source:	1/2500 O.S Sheet Glam 12:1 1870 Ed
Colliery name:	Unknown
Entry name:	Old level
Date abandoned:	Unknown
Depth of superficial deposits (m):	Unknown
Depth of shaft (m):	Unknown
Diameter of shaft (m):	Unknown
Probable adit azimuth:	60
Treatment details:	Unknown
Conveyance:	Not Applicable
Easting:	305667
Northing:	206855
Other information:	None

Mine Entry Data (continued)

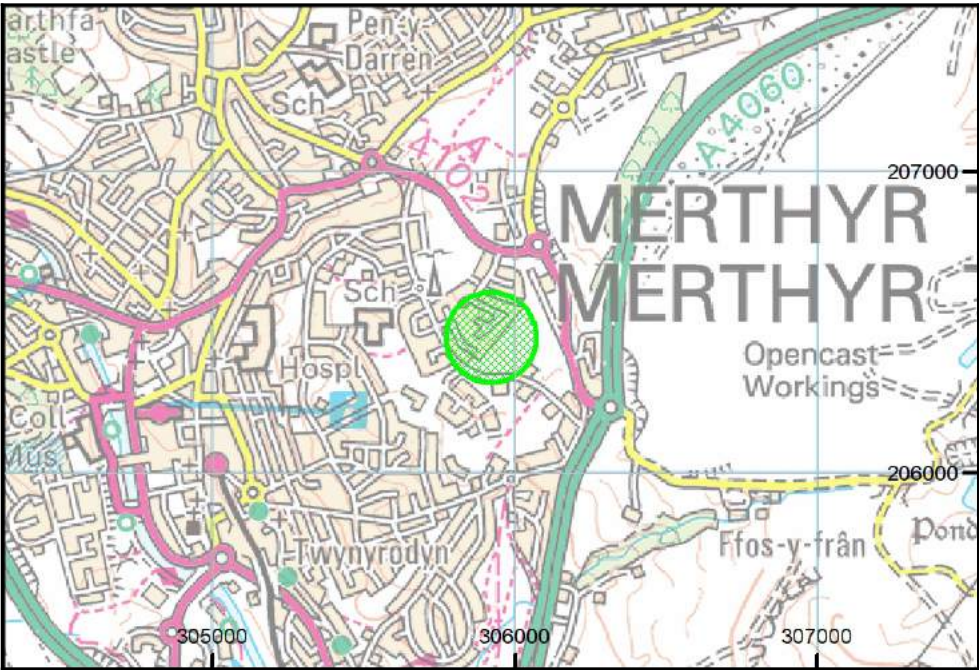
Shaft/adit:	Adit
Reference:	306206-081
Source:	Ab plan SWR2510
Colliery name:	Unknown
Entry name:	Unknown
Date abandoned:	Unknown
Depth of superficial deposits (m):	Unknown
Depth of shaft (m):	Unknown
Diameter of shaft (m):	Unknown
Probable adit azimuth:	51
Treatment details:	Unknown
Conveyance:	Not Applicable
Easting:	306175
Northing:	206055
Other information:	None

Mine Entry Data (continued)

Shaft/adit:	Shaft
Reference:	306206-066
Source:	Other: Former British Coal records Plan 60M
Colliery name:	Unknown
Entry name:	Meadow Pit
Date abandoned:	Unknown
Depth of superficial deposits (m):	Unknown
Depth of shaft (m):	Unknown
Diameter of shaft (m):	Unknown
Probable adit azimuth:	Not Applicable
Treatment details:	Unknown
Conveyance:	Not Applicable
Easting:	306084
Northing:	206044
Other information:	None

Location map

Approximate position of enquiry



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This plan shows the approximate location of the disused mine entry / entries referred to in the attached mining report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence Act 1991). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by visiting www.groundstability.com.

If you wish to discuss the relevance of any of the information contained in this report, you should seek the advice of a qualified mining engineer or surveyor. If you or your advisor wish to examine the source plans from which the information has been taken, these are available to view, free of charge, at our Head Office in Mansfield. To book an appointment please ring 01623 637225. Should you or your advisor wish to carry out a physical investigation that may enter, disturb or interfere with any disused mine entry, prior permission of the owner must be sought. For coal mine entries, the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries).

Our emergency telephone number is 0800 288 4242.

Key

Disused Adit or Mineshaft

