Technical Note:

Vaynor Quarry: Transitional abstraction licence (Transfer) application

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CONFIDENTIAL

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Prepared for Hanson Quarry Products Europe Limited

Document reference: 64789TN3, December 2019

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	Name	Signature
Author	Kate Brady	
Checked by	Chris Woodhouse	
Reviewed by	Barnaby Harding	

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1 Introduction

Vaynor Quarry is a dormant limestone quarry operated by Hanson Quarry Products Europe Limited (Hanson). The red line boundary on Figure 1.1 outlines the area for which this application relates and is hereinafter referred to as the 'Site' in the text and 'Application Boundary' in the figures. The 51 ha Site is approximately 3.2 km north west of Merthyr Tydfil (nearest postcode: CF48 2LA and NGR: SO 035103), as shown on Figure 1.1. The Site is accessed from Vaynor Road, which cuts across the Site in the south-east, and this in turn is accessed 1.7 km south-east of the Site from the A4054. All of the dormant quarry void is located north of Vaynor Road. The portion of the Site south of Vaynor Road was historically used as a stockpile storage area. The Site has been quarried for limestone since at least the 1940's.

The existing quarry floor is, in part, lower than the inferred pre-development groundwater level and thus an element of passive groundwater abstraction appears to be occurring. The relative proportions of rainfall and groundwater entering the quarry have not been measured and so it is not possible to reliably estimate the percentage groundwater contribution. There is no water use at the Site.

This Technical Note has been prepared by Stantec UK Limited (Stantec) to support Hanson's application to obtain a transitional route transfer abstraction licence for the continued passive dewatering of Vaynor Quarry and should be read in conjunction with the application form presented in Appendix A (Form WRH: Application for a transitional water resources licence). The form is signed on behalf of Hanson by Wendy Rodgers who is the registered company secretary.

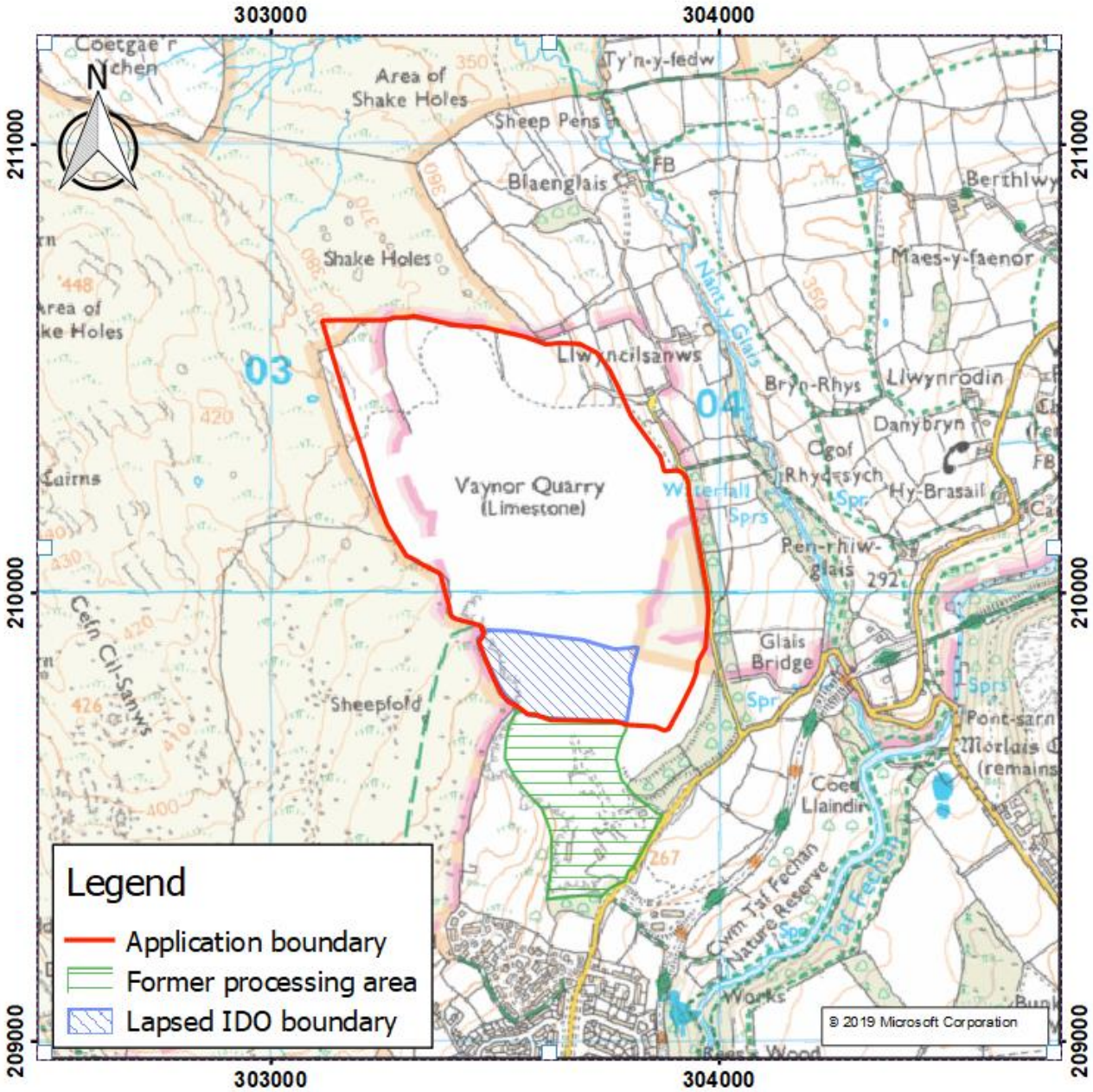
Payment of the application fee of £1,500 will be paid by credit card. Please call Kate Brady on 01743 276117 for payment.

Per application form question 2.4, please contact Julian Radcliffe regarding invoices and returns at the following details;

c/o: Julian Radcliffe
Craig-yr-Hesg Quarry
Berw Road
Pontypridd
CF37 3BG

julian.radcliffe@hanson.biz
01443 493841

Figure 1.1 Vaynor Quarry location



1.1 Background

The Site has been quarried for limestone for over 100 years, with the first planning permission granted in 1947 (IDO permission, now lapsed), with four subsequent mineral planning permissions granted from 1959 onwards. The 99 ha Site is currently a dormant quarry, with approximately 26.5 ha being an open excavation. The target mineral is limestone of the Dowlais Limestone Formation.

Based upon measured groundwater levels at the Site and observed seepages during a recent Site visit on 21 November 2019, it is considered that areas of the quarry floor and footprint intercept groundwater. This effectively causes passive dewatering with seepages draining to a series of

ponds before re-entering the aquifer. There is no consumptive groundwater abstraction and the passive dewatering that is occurring is a water transfer activity.

There is no active (i.e. pumped) dewatering nor any water use on site.

Brecon Beacons National Park (BBNP) lies to the north of the Site and overlaps an area of 23.9 ha (24%) of the Site in the east and west. Cwm Taf Fechan Site of Special Scientific Interest (SSSI) follows the Taf Fechan river gorge to the south-east of Site within 100 m of the Site boundary. Nant y Glais SSSI lies in the gorge of the Nant y Glais immediately north-east of the Site, overlapping the Site boundary by 0.5 ha (0.5% of the Site area). A Hydrogeological Impact Assessment (HIA) is being prepared in support of the Review of Mineral Permissions (ROMP) application. This HIA is expected to conclude that there is no impact on the nearby sensitive sites as a result of the passive dewatering.

Ground levels at the Site itself range from 250 – 400 m AOD. Topography rises above the Site to the west and north, and slopes away from the Site to the east and south. There are steep changes in topography within the Site boundary due to the presence of the Vaynor Quarry void that was worked historically to a minimum elevation of 270 m AOD in the south-east of the void. The maximum depth of the void is around 50 m in the north-west (although with the base dipping in a south-easterly direction, the base is at a higher elevation in this area). The current base of Vaynor Quarry varies between 270 m AOD and 360 m AOD depending on location. East of the Site, topography falls towards the southward flowing Nant y Glais, which is at an elevation of between 250 – 281 m AOD along its closest approach.

1.2 Planning permission

A summary of the planning history is given in Table 1.1. The Site ceased mineral extraction and was mothballed in 2007 (though the Site was largely inactive for over seven years prior to this). As required by question 4.2 of the application form, the site ownership and permission boundaries are shown on Drawing number V6/PPSP in Appendix B.

Table 1.1 Planning history

Permission reference	Date of original issue	Purpose	Granted until
52/78/0718	25/10/1982	Winning and working of minerals	31/05/2097
1/4120	26/07/1962	Winning and working of minerals	31/05/2097
1/1466	16/04/1959	Winning and working of minerals	31/05/2097

Permission reference	Date of original issue	Purpose	Granted until
IDO permission V.37	03/07/1947	Quarrying operations at Vaynor Quarry	Now lapsed*
1/5066	12/11/1964	Tipping of quarry waste	-

* The lapsed Interim Development Order (IDO) issued for a portion of the Site will be the subject of a forthcoming full planning application for mineral extraction within this area, submitted alongside a Periodic ROMP application for the four extant mineral planning permissions.

The extant permission(s) for quarrying is/are valid until 31 May 2097. A copy of the decision notice(s) and the accompanying plan showing each permitted area, is presented in Appendix B.

1.3 Report structure

This technical note covers the details required by the application forms and includes:

- Existing water movements and water management at the Site, including abstraction arrangements and transfer/discharge details (Section 2); and
- Summary of licencing requirements (Section 3).

2 Environmental Statement

2.1 Background

A scoping assessment was prepared by Stantec (formally ESI Ltd) (ESI, 2017) in July 2017 (see Appendix C). This report sets out the Conceptual Site Model (CSM) and proposed impact assessment approach to be undertaken for the Hydrogeological Impact Assessment (HIA) to support a ROMP review planning application. In October 2017, Natural Resource Wales (NRW) confirmed that it agreed with the CSM and proposed approach (SLR, 2018).

2.2 Conceptual Site Model

2.2.1 Hydrogeological setting

Figure 2.1 shows groundwater level contours for the Dowlais Limestone Formation based on April 2019 levels (considered to be representative of a recent high). Figure 2.2 shows a hydrogeological cross section through the Site orientated parallel to the groundwater flow direction.

The geological units at the Site are the Dowlais Limestone Formation, Llanelly Formation, and Abercriban Oolite Formation. The Cwmyniscoy Mudstone Formation underlies all of these units. These bedrock units are sporadically overlain by superficial glacial till deposits. Figure 2.2 is based on drilling data from monitoring and exploration boreholes drilled at the Site and geological mapping.

The Cwmyniscoy Mudstone Formation is expected to act as an aquitard forming the regional aquifer base. Low hydraulic conductivity units within the overlying limestones (in particular within the Llanelly Formation) may limit vertical flow, resulting in a degree of perching and hydraulic separation between formations.

Groundwater flow through the limestone is expected to be through fissures, fractures, and karst features. Areas of sinkholes are present over much of the Dowlais Limestone Formation outcrop, particularly to the west. Recharge will be through rainfall over the aquifer outcrop areas and from runoff from the Cwmyniscoy Mudstone Formation to the north that then drains to the aquifer via sinkholes. Where present, glacial till will limit rainfall recharge to the limestone. Groundwater discharge is to the watercourses and springs to the south, east, and west.

Figure 2.1 shows that groundwater flow at the Site is to the south-east. Groundwater primarily discharges to the Taff Fechan watercourse and springs to the south. There is also some discharge to the Nant y Glais watercourse and springs to the east, although Figure 2.1 suggests that there is a groundwater flow divide east of the quarry void meaning that groundwater beneath the void does not discharge to the Nant y Glais or its springs. Areas of the extant quarry floor intersect the groundwater surface causing a series of seepages which often occur along bedding planes. Some of these seepages may be draining perched aquifer layers above low permeability layers within the limestone. Further information on the seepages at the Site is outlined in Section 3.

The influence of faulting on groundwater flow is uncertain. Faults may restrict groundwater flow perpendicular to them and enhance flow parallel to them (i.e. in a south-south-east direction) but this is unproven.

The caves which lie along the Nant y Glais have a strong connection with the stream and accept water from it via sinks in the stream bed as well as discharging to it via a number of resurgences.

Under normal conditions most of the flow immediately upstream of the northernmost sinks is diverted into the caves.

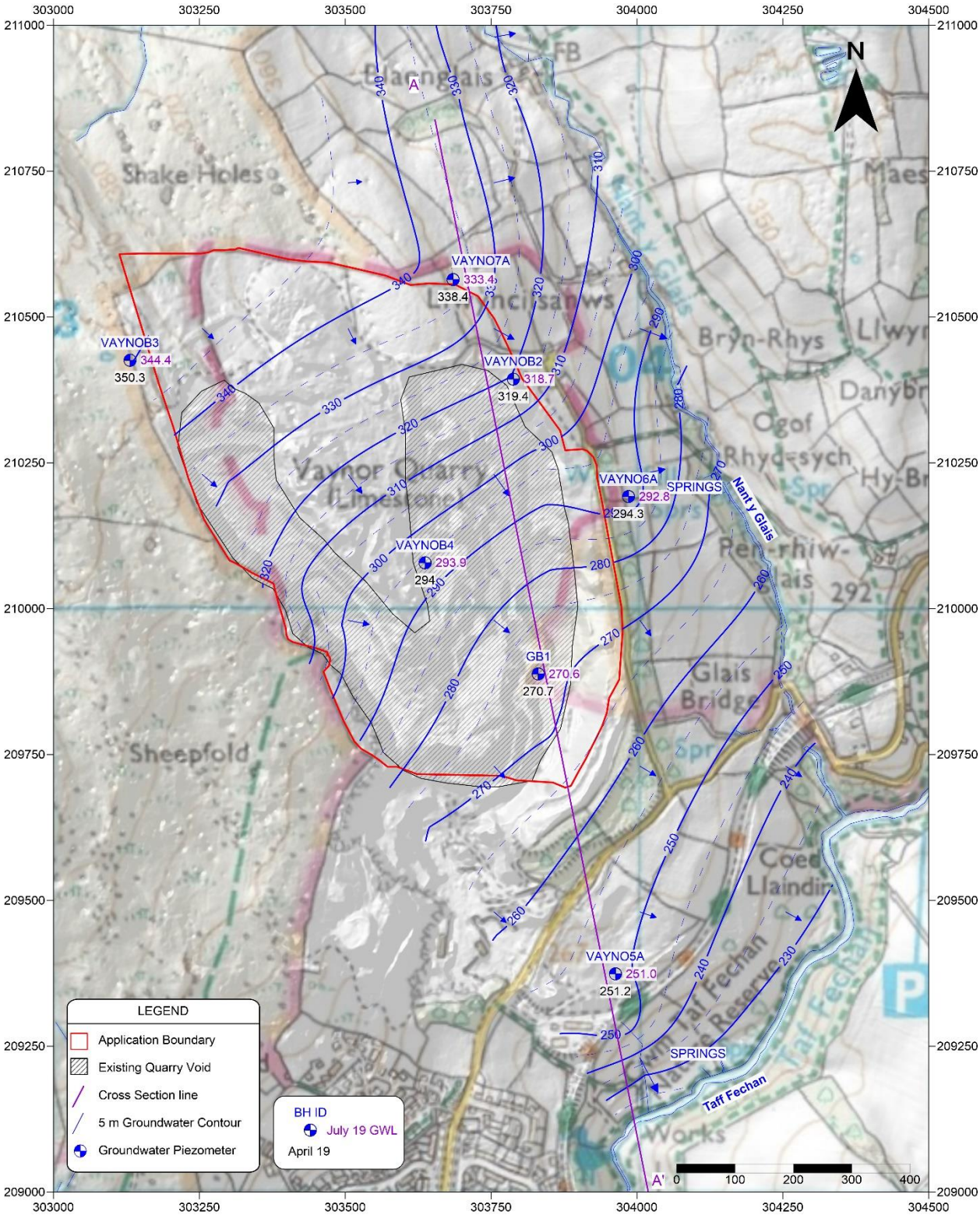


Figure 2.1 Groundwater level contour plot

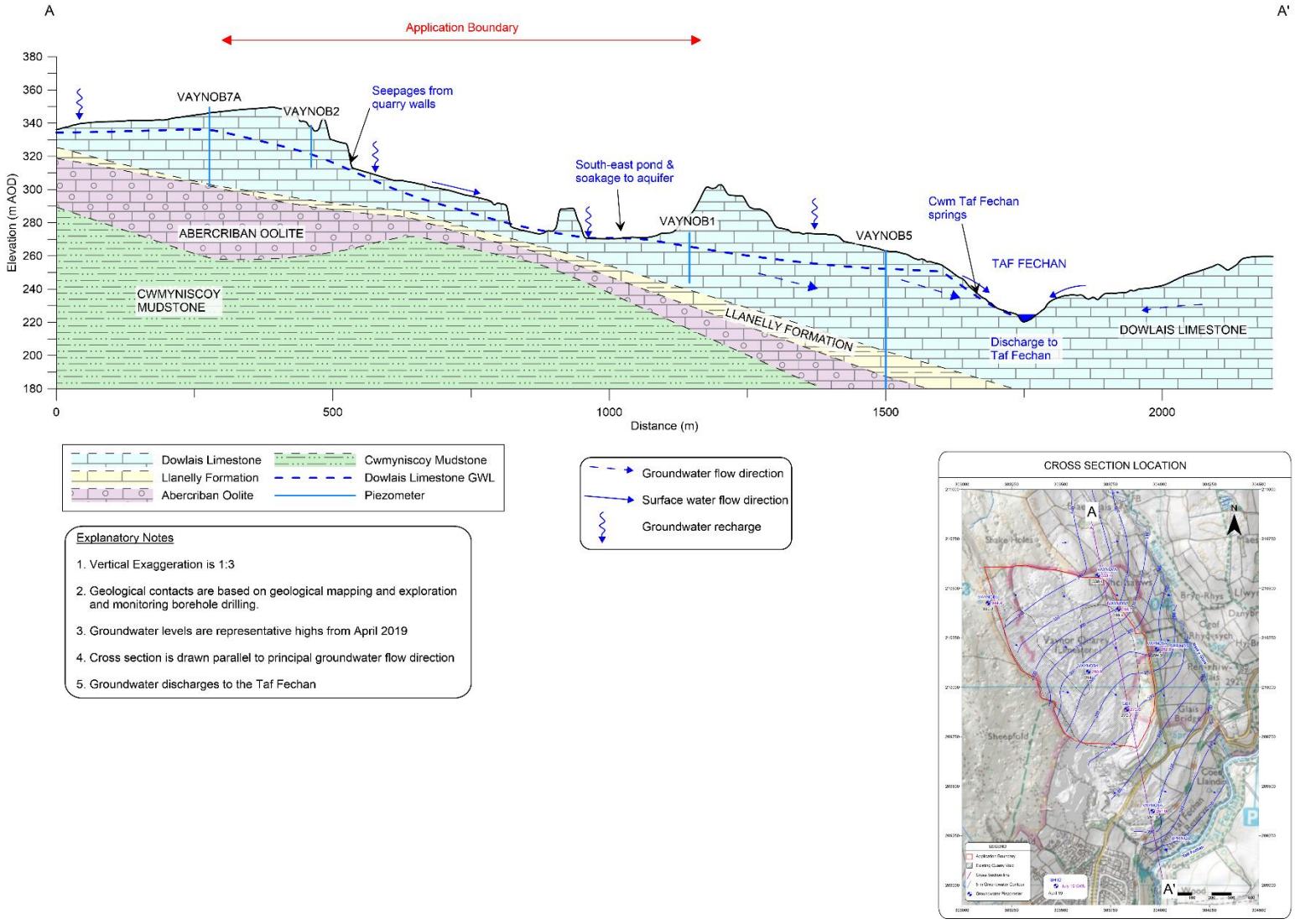


Figure 2.2 Conceptual hydrogeological cross section

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2.2.2 Receptors

ESI (2017) identified the following potential receptors:

- Nant y Glais Caves SSSI: watercourse and springs;
- Cwm Taf Fechan Woodlands SSSI: Taf Fechan watercourse and springs; and
- Llwyncilsanws Farm spring water supply.

2.3 Impact Assessment

Any drawdown due to the presence of the quarry is likely to be small and localised. Most of the intercepted groundwater infiltrates into the Dowlais Limestone aquifer at the southern part of the quarry void. This therefore maintains the hydraulic gradient to the south and there is/will be no impact on receptors to the south of the Site, including the Cwm Taf Fechan Woodlands SSSI.

Monitoring undertaken by Stantec in 2018 and 2019 has shown that, even during the dry summer of 2018, there was no effect on the water supply at Llwyncilsanws Farm. Impacts on the Nant y Glais SSSI (located immediately north east of the Site) are expected to be similarly negligible. Extant impacts on all adjacent receptors are therefore considered to be negligible.

Impacts due to the proposed deepening of the quarry void and associated passive dewatering will be considered as part of the ROMP application.

3 Water Management

3.1 Site drainage patterns

The Site is currently mothballed and there is no formal site water management in place within the application Site area. Water instead drains naturally across the quarry void footprint.

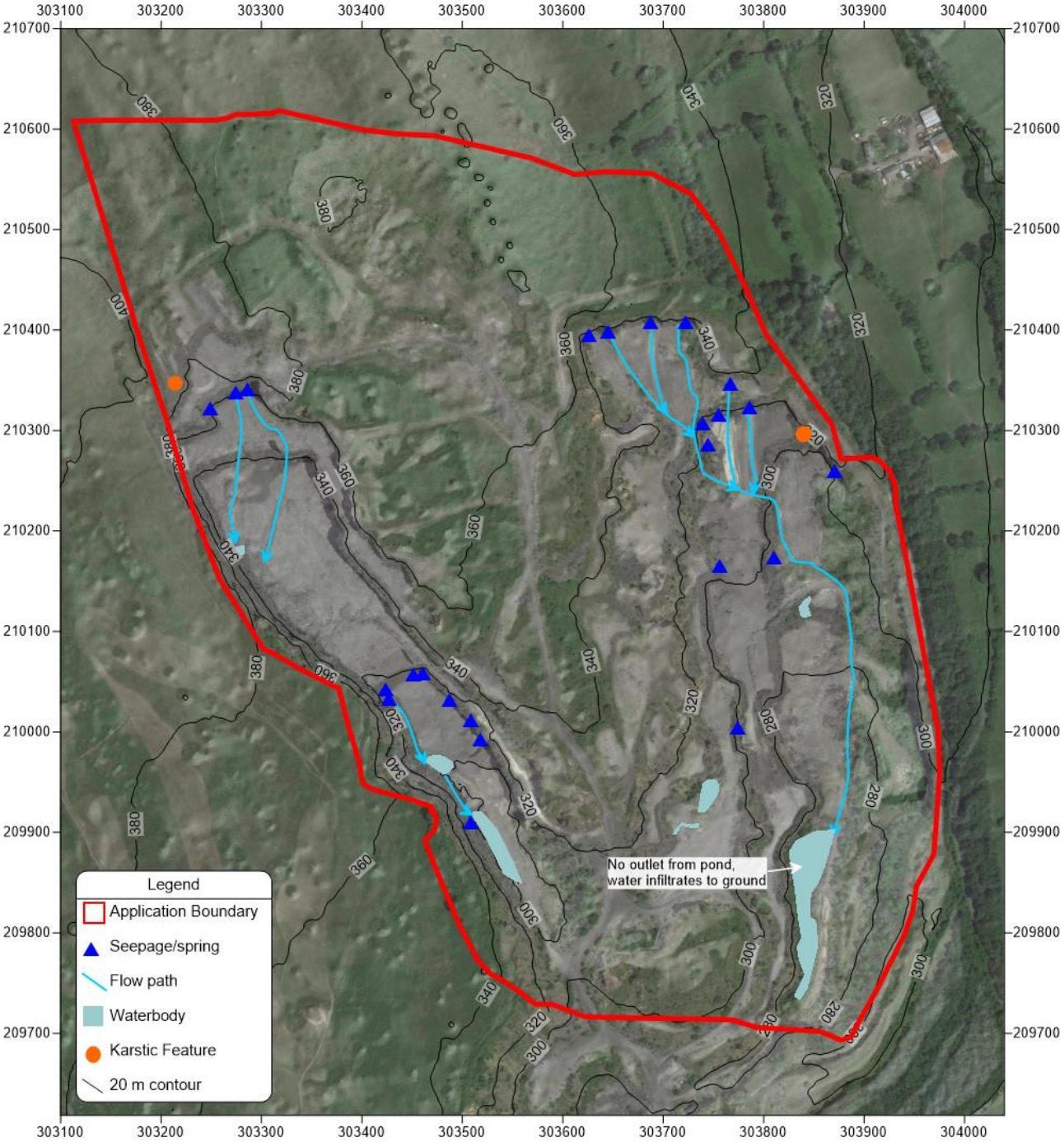
A site visit was undertaken by Stantec on 21 November 2019. During the visit a number of seepages (from the quarry faces and as springs from the quarry floor) were noted and mapped. These have been plotted on Figure 3.1, together with the observed water movements. Weather at the time of the visit, and in the days prior to the visit, was dry and as such, water observed was assumed to be groundwater.

These seepages are the source of a series of minor watercourses as shown in Figure 3.1. Water draining from these sources in the eastern arm drains from the north-eastern upper part of the quarry along the quarry floor and cascades in a series of waterfalls over the quarry benches to a pond in the south-eastern part of the quarry (see below). Photographs of these features are provided in Appendix D. This pond has no surface water outlet and water from the pond returns to the Dowlais Limestone aquifer. A number of much smaller ponds are also present in the eastern arm, which will likely drain to the south-east during heavy rainfall events.

Water draining from springs in the north-western part of the western arm of the quarry drains to a series of ponds along the western edge. These do not have any surface water outlet and appear to drain to groundwater.

At all times, runoff and groundwater drainage from the eastern and western arms will re-enter the Dowlais Limestone aquifer via ponds in the south-east and west respectively.

Figure 3.1 Surface water features and water movements (as identified in Site visit, Nov 2019)



3.2 Abstraction infrastructure

The water transfer activity occurring at the Site is passive. Abstraction occurs because the quarry floor intersects groundwater (some of which may be perched) at various locations around the Site and this causes seepages to form in the walls of the quarry void. These seepages constitute the abstraction. There is no infrastructure associated with this activity, which is uncontrolled.

3.3 Abstraction volumes

Due to the nature of the water transfer activity and the dormant nature of the Site, the volumes of water transferred at the Site during the qualifying period have not been recorded. Therefore, the likely transfer volumes have been based on the visual inspection of the Site during the 21 November Site visit. Only seepages from groundwater, or perched groundwater, constitute the abstraction; however, for completeness and in line with the requirements of NRW, runoff derived from rainfall has also been included in the estimated volumes, presented below.

Table 3.1 gives estimated groundwater seepage rates. These have been derived based on the following and assuming that all flow in the watercourses observed is derived from groundwater:

- Flow in the main watercourse in the eastern arm has been estimated to be 7 l/s, all seepages are assumed to contribute to this watercourse.
- Flow in the western arm is mainly comprised of two seepages at the northern end with an estimated rate of 0.5 l/s. These are joined by another seepage with an assumed flow of 0.25 l/s. Other minor seepages observed are assumed to contribute 0.1 l/s.

To allow for errors and fluctuation in flows which will vary through time with changes in groundwater levels, estimated flows have been increased by 5% and then rounded up to the nearest hundred. It should be noted that these are based on the observations of a single day and would increase during period of higher water table and decrease during periods of lower water table.

Table 3.1 Estimated groundwater seepage rates

Quarry Arm	Total Seepages	Estimated groundwater seepage (m^3/day)	Estimated groundwater seepage (m^3/year)
Eastern Arm	13	700	255,500
Western Arm	11	200	73,000
Total	**24**	**900**	**328,500**

Table 3.2 contains estimates of transferred runoff. Annual and maximum daily is based on the maximum recorded annual rainfall volumes recorded at Pontsticill rain gauge during the qualification period of 1,936 mm (2014) and 59 mm (3 September 2016) respectively. Runoff has been calculated by multiplying the inferred catchment area by the rainfall and Standard Percentage Runoff (SPR). An SPR of 0.47 has been used for all catchments. This is considered appropriate for bare rock.

Table 3.2 Estimated rainfall runoff transfer rates

Quarry Arm	Catchment Area (ha)	Estimated mean daily runoff (m^3/day)	Estimated maximum annual runoff (m^3/year)	Estimated maximum daily runoff (m^3/day)
Eastern Arm	29.4	733	267,632	8,156
Western Arm	12.4	310	113,252	3,451
Total	**41.9**	**1,044**	**380,884**	**11,607**

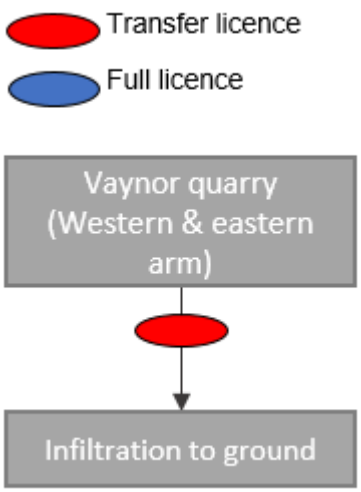
Table 3.3 contains estimates of total transfer rates at the Site (groundwater and runoff combined). Approximately 46% of these quantities is estimated to be groundwater.

Table 3.3 Estimated total transfer rates

Quarry Arm	Estimated maximum transfer rate (m^3/year)	Estimated maximum transfer rate (m^3/day)
Eastern Arm	523,132	8,856
Western Arm	186,252	3,651
Total	**709,384**	**12,508**

As the licence will comprise a transfer licence and the discharge will be rainfall dependant, we expect that the volume will not be limited in any case. The Site cannot abstract excessive groundwater as the abstraction is passive and will fluctuate through time dependent on rainfall and groundwater levels.

Figure 3.2 Water movements schematic



3.4 Discharge

Groundwater passively abstracted from the Site returns back to ground via pools with no observed outflow to the surface water system.

3.5 Water use

There is no water use at the Site.

4 Summary of licencing requirements

The Site is not actively dewatered; however, quarrying activities have intercepted groundwater within the Dowlais Limestone and thus passive dewatering of the aquifer is and has been occurring during the qualification period, and since at least 2007 and probably much earlier.

Table 4.1 presents the estimated transfer volumes from the Site during the period January 2011 to December 2017 (the qualification period). The records and workings for which are presented in Appendix E.

There is no water use and therefore a Full licence is not required.

Table 4.1 Application volumes to be transferred

Activity	Estimated (m^3/year)	Maximum (m^3/day)	Max (m^3/hour)	Max instantaneous flow (l/s)
Transfer	709,384	12,508	521	145

The relative proportion of groundwater to surface water is estimated to be less than 50% of the volumes in Table 4.1. The volumes applied for in Table 4.1 have been estimated based on available information. As the transfer licence does not require a limit and as the abstraction will be greater in wetter years and less in drier ones (where groundwater levels and runoff rates would be higher and lower respectively), we do not expect the transfer licence to have a numerical volume limit. Given that drainage occurs naturally by soakaway, it will be impractical to meter or prevent this transfer activity.

References

ESI, 2017. Vaynor Quarry – Scoping Discussion Document, report reference 64789TN2Rev01, July 2017.

SLR, 2018. Letter reference 407.00027.00430 from Graham Jenkins (SLR) to Stuart Reid (NRW) dated 19 June 2018.

Appendices

Appendix A

Application form

Application for a transitional water resources licence

Form WRH

Fill in this form if you are applying for a transitional water resources licence to continue a previously exempt abstraction.

This form is available in both English and Welsh. Please check that this is the latest version of the form available from our website before submitting your application.

Please ensure you use Guidance Note WRH to help you.

All relevant guidance documents can be found on our website.

Contents

1. Application type and fee

1.1 Please select your application type from the list below.

A new transitional water resources full abstraction licence for a previously exempt abstraction	☐
A new transitional water resources transfer licence for a previously exempt abstraction	☑
A variation to an existing full abstraction licence to add a previously exempt abstraction	☐
A variation to an existing transfer licence to add a previously exempt abstraction	☐

1.2 Please indicate the amount and how you wish to pay your application

Amount paid	1500		
Cheque	☐		
Credit or debit card	☑		
BACS transfer	☐	BACS reference number	PRC

2 Applicant and agent details

This is the individual or organisation any resulting licence will be issued to, and must be a legal entity. If you are an agent acting on behalf of an applicant, provide their details here and yours in section 2.2.

2.1 Applicant details

Individual	☐	Public body	☐
Registered company	☑	Organisation or group of individuals	☐
Other	☐	If 'Other', please specify	

Title		

First name	
Last name	
Company, charity, body, or trading name (if relevant)	Hanson Quarry Products Europe Limited
Registered company or charity number (if relevant)	00300002
Address	Hanson House
	14 Castle Hill
	Maidenhead
Postcode	SL6 4JJ
Telephone - mobile	
Telephone - office	
Email address	

We will contact you by email unless you tick here. ☐

2.2 Agent details

This is who we will correspond with unless otherwise informed. If you are an agent applying on behalf of an applicant, please include a letter of authorisation from the applicant allowing you to act as signatory,and provide a reference for this document in the box below.

Document reference		
Title	Mr	
First name	Christopher	
Last name	Woodhouse	
Company or trading name	Stantec UK Ltd	
Position in company	Senior Consultant	
Address	New Zealand House	
	160 Abbey Foregate	

	Shrewsbury
	Shropshire
Postcode	SY2 6FD
Telephone - mobile	07947 723045
Telephone - office	01743 276158
Email address	christopher.woodhouse@stantec.com

We will contact you by email unless you tick here. ☐

2.3 Site operation contact

Please specify who we should contact with regard to your site operation.

Applicant	☐	
Agent	☑	
Other	☐	Please provide contact details for the operational contact on a separate referenced document, and tell us this reference below.
		Document reference

2.4 Abstraction invoices and records contact

Please specify who we should contact for invoices and abstraction records (returns). Please note that these may not be not required for transfer licences.

Invoice address

Applicant	☐	
Agent	☐	
Other	☑	Please provide contact details for the operational contact on a separate referenced document, and tell us this reference below.
		Document reference: see report 64789TN3

Abstraction records

Applicant	☐	
Agent	☑	
Other	☐	Please provide contact details for the operational contact on a separate referenced document, and tell us this reference below.
		Document reference

3. Site name

3.1 Please provide the site name below:

Site name	Vaynor Quarry

4. Entitlement to apply

4.1 Have you abstracted water between 01 January 2011 and 31 December 2017 for the activity which you are applying to be licensed?

Yes ☑

No ☐ Please see our water abstraction and impounding webpage for further information on the correct applicaton forms.

4.2 What is your connection to the land where the abstraction takes place?

Please provide a map outlining your land ownership/occupation and include all abstractions and discharges where relevant.

Owner ☑

Occupier ☑

Document reference: See Figure 1.1 of 64789TN3

4.3 Do you have a legal right of access to the land where the abstraction take place?

No ☐

Yes ☑ Please provide further detail in the box below. If necessary continue on a separate referenced document, and tell us this reference.

Document reference: See App.B of 64789TN3

See planning permission documents, Appendix B of report ref 64789TN3

5. Existing licence number(s)

If you are applying to change an existing licence please provide the licence number below.

Licence number(s): n/a

6. Cross border applications

As part of your site operation do you also abstract for a previously exempt activity in England?

No ☑

Yes ☐ Please provide detail of this cross border application in the box below. If possible, provide a reference or application number, or name of an Environment Agency contact with whom the application has been discussed.

Continue on a separate referenced sheet if necessary and tell us the reference for this document.

Document reference:

7. Abstraction details

7.1 Site map

Please provide a map with details of the location(s) you abstract water from (points reaches, or areas). Tell us the reference for this map, below.

Site map reference	See Figure 3.1 in 64789TN3

7.2 Please tell us details about the location(s) you abstract water from (points reaches, or areas) in the tables below.

The abstraction location, name, or reference must be the same as those used on the site map, in question 7.1. If you need more space, please continue on a separate referenced sheet if necessary and tell us the reference for this document

Document reference	See 64789TN3

Table 7. 1 - Surface water abstractions						
Abstraction location name or reference (As labelled on the site map)	Type of location (single point, reach, area)	Source of Supply	First National Grid Reference (12 digits)	Second National Grid Reference (12 digits)	Third National Grid Reference (12 digits)	Fourth National Grid Reference (12 digits)
n/a						

If necessary, continue on a separate sheet and tell us the reference for this document.

Document reference(s) n/a

Table 7. 2 Ground water abstractions										
Abstraction location name or reference (as labelled on map)	Source of Supply	National Grid Reference (12 digit)	Overall depth (metres)	Maximum diameter (millimetres) or area of excavation (square metres)	Screened section (metres below ground level)	Drift geology	Solid geology	Rest pump water level	Pumped water level	Pump Depth
Vaynor Quarry void	Groundwater	SO 03092 10539	50mAOD	99 ha	n/a	Diamecton	Limestone	n/a	n/a	n/a
	& rainfall	SO 03800 10610				(Devensian Till)	(Dowlais)			
		SO 03885 09214								
		SO 03426 09326								

If necessary, continue on a separate sheet and tell us the reference for this document.

Document reference(s) See 64789TN3

8. Abstraction history and evidence

8.1 Please complete table 8.1 to document that the abstraction(s) and transfer(s) has or have been taking place during the qualifying period.

If necessary, continue on a separate sheet and tell us the reference for this document.

Document reference(s) See App. F of 64789TN3

Table 8.1

Year	Abstraction location name or reference (as labelled on map)	Purpose(s) water used for	Period of abstraction	Maximum quantities abstracted						Means of measurement, or assessment of abstracted quantities	Are these the maximum quantities of water you wish to have licensed? (Yes or No)
			All year, or months, or days (provide specific dates)	Year (cubic metres)	Day (cubic metres)	Hour (cubic metres)	Peak instantaneous flow rate (litres per second)	Maximum number of hours of abstraction per day	Please indicate whether volume is actual (A) or estimated (E)		
01 January 2011 to 31 December 2011	Vaynor Quarry void	Passive dewatering	All year	709384	12508	521	145	24	E	See Report 64789TN3	Yes
01 January 2012 to 31 December 2012	As above										
01 January 2013 to 31 December 2013	As above										
01 January 2014 to 31 December 2014	As above										
01 January 2015 to 31 December 2015	As above										
01 January 2016 to 31 December 2016	As above										
01 January 2017 to 31 December 2017	As above										

8.2 Please complete the table below if you wish a lesser quantity of water to be licensed than that detailed in table 8.1.

If necessary, continue on a separate sheet and provide a reference for this document.

Document reference | n/a

Table 8.2

Abstraction location name or reference (as labelled on map)	Purpose water is used for	Abstraction period	Maximum annual abstraction volume (cubic metres)	Maximum daily abstraction volume (cubic metres)	Maximum hourly abstraction volume (cubic metres)	Maximum number of hours of abstraction per day	Peak abstraction rate (litres per second)

8.3 Do you wish your abstracted quantities to be aggregated?

You can aggregate:

i) across some or all of the abstraction points, or reaches, or areas listed above.

ii) with other abstractions you wish to have licensed through the transitional process.

iii) abstractions you need to have licensed through the standard licensing process.

iv) with existing licences you hold.

No ☑

Yes ☐ Provide details of any proposed aggregation in the box below. If necessary, continue on a separate sheet and provide a reference for this document.

Document reference

8.4 Please provide a detailed description of how the abstraction(s) has/have taken place

Use the box below to tell us about your abstraction(s). The description should include the following:

- A diagram or schematic of how the activity has been undertaken, using your abstraction point references and including any discharge points
- Details of the structure and equipment involved in the abstraction. This should include dimensions.
- Details of your means of measurement or assessment of abstraction quantities method

If necessary, continue on a separate sheet and tell us the reference for this document.

Document reference | See report 64789TN3

8.5 Please list the evidence you are providing to support your application

Use the box below. The evidence should demonstrate the following:

- That abstraction has taken place at some time during the seven year qualifying period.
- The quantities of water you have abstracted during the qualifying period. For example, records of meter readings, or cropping plans.

If necessary, continue on a separate sheet and provide a reference for this document.

Document reference

Google earth historical imagery shows seepages occurring since 2001.

9. Discharge details

9.1 Please provide details on any discharge of abstracted water in table 9.1 below and on the map used to show abstraction locations.

If necessary, continue a separate sheet and provide a reference for this document.

Document reference See Report 64789TN3

Table 9.1 - Details of any discharge of abstracted water

Discharge location name or reference (as labelled on map)	National Grid Reference of discharge point (12 digit)	Total volume discharged (cubic metres)	Environmental Permit number for Water Discharge Activity number (if applicable)
Return to ground			

9.2 Please provide a description of discharge structures and equipment

n/a see report 64789TN3 - quarry floor.

If necessary, continue a separate sheet and provide a reference for this document.

Document reference See report 64789TN3

10. Eel considerations

Does your abstraction include measures to safeguard eels?

No ☑

Yes ☐ Provide details below

n/a

11. Trickle Irrigation

If you are applying to licence a trickle irrigation abstraction, do you wish to apply for a Two-Part Tariff agreement with your application?

No ☑

Yes ☐ We will contact you during determination of your application to arrange this agreement.

12. Planned abstractions

12.1 Do you expect to increase the current rate of abstraction for the activity you are applying to have licensed from 01January 2018 onwards or to carry out further new abstractions (both termed 'planned' abstractions) at this site in the future?

No ☐

Yes ☑

12.2 Have you submitted a licence application (s) for any planned abstraction(s) as a result of the Water Act 2003 changes?

No ☑

Yes ☐ Provide a reference number if you have already submitted an application(s) to cover any planned abstractions.

Document reference

13. Other abstractions

Please provide details of any other abstraction(s) (licensed or exempt) that are associated with this application in table 13.1 below.

Table 13.1 - Details of any other abstraction(s) (licensed or exempt) that are associated with this application

National Grid Reference (12 digit) of where you abstract water	Source name and type	Purpose of abstraction	Where do you use the water?	When do you abstract the water?	Is this a pending application, or already licensed? Please provide the application or licence number as appropriate
None					

14. Planning permission

Complete table 14.1 below and provide details of any planning permissions or advice associated with the abstraction you are applying to have licensed where relevant. Provide a copy of any permissions or advice,providing a reference for this document below.

Document reference: See App. B 64789TN3

Table 14.1 – Planning permission

Abstraction location name or reference (as labelled on map	Is planning permission needed, Yes or No?	Planning permission status (if required)	Have you received any planning advice for the abstraction?
Vaynor Quarry void	Yes	Granted	No

15. Environmental impact assessment(EIA)

Does your application require an EIA under The Water Resources (Environmental Impact Assessment) (England and Wales) Regulations 2003 (as amended)

No ☑

Yes ☐ Please provide a copy of your environmental impact assessment; provide a reference for this assessment below.

Document reference: see App C of 64789TN3 for Scoping

16. Licence duration

Tell us when you wish your abstraction licence to end

Normally abstraction licences are granted for between 6 and 18 years in line with the catchment licence common end date. If you require a shorter or longer duration licence, please provide details and your justification in the box below.

If necessary, continue a separate sheet and provide a reference for this document.

Document reference: See report 64789TN3

Licence should be granted until 31 December 2097 which is the expected end date of the planning permission for extraction and restoration.

17 Declaration and data protection and commercial confidentiality

Data protection:

Please read the guidance carefully for details on who can sign this section and note the information relating to the Data Protection Act 1998, our Public Register and exclusions.

Commercial confidentiality:

Do you think your application should be confidential, and that information should not be placed on the public register?

No ☑

Yes ☐ You must send us supporting information to tell us why. Use the box below or a separate sheet, and tell us the reference you have given this document.

Document reference

Declaration:

By signing below, you are declaring that as far as you know and believe the information given in this form, on any map and in any supporting or additional information is true.

A printed name in the 'signature' response box will be treated as the equivalent of an electronic signature.

Title	Ms
First name	Wendy
Last name	Rogers
Position	Company secretary
Today's date	10/12/2019

Hanson UK
Hanson House
14 Castle Hill
Maidenhead
SL6 4JJ

Phone 01628 774194
Fax 01628 774232

www.hanson.com/uk

Environment Agency
Permitting Support Centre
Quadrant 2
99 Parkway Avenuie
Parkway Business Park
Sheffield
S9 4WF

14 April 2016

Dear Sirs

Hanson Quarry Products Europe Limited - Company No. 300002
Hanson Packed Products Limited - Company No. 26306
Castle Cement Limited - Company No. 2182762
Civil and Marine Limited - Company No. 2301423
Midland Quarry Products Limited - Company No. 3173418

I confirm that the persons listed below are relevant persons for the purposes of completing Environment Agency permit applications, including water and waste permits and carbon related permits, and compliance matters (e.g. ETS, CRC and ESOs) on behalf of Hanson UK and that they have the authority to bind each of the above companies in relation to documents signed on their behalf.

The relevant persons are:

Claire Bark, Senior Geologist (Central Region)
Adam Chapman, Geologist (Southern Region)
Roger Griffiths, Principal Geologist (South-Western Region)
David Holman, National Landfill and Recycling Manager
Dan Senkans, Geologist (Northern Region)
John Peate, Principal Geologist (Northern Region)
Matthew Uttley, Geological Services Manager
Bob Woodbridge, Principal Geologist (Central Region)
Martin Crow, Senior Sustainability Manager
Matthew Newton, Energy Manager
Neil Kilner, Energy and Carbon Advisor
Iain Walpole, Safety, Health and Environment Manager
Mark Tyrer, Safety, Health and Environment Manager
Asif Khalil, Safety, Health and Environment Advisor
Graham Dunwell, Senior Safety, Health and Environment Advisor
Kevan Shovlar, Safety, Health and Environment Advisor
Jon Dransfield, Safety, Health and Environment Advisor
Darren Herbert-White, Safety, Health and Environment Advisor
Bryan Abbot, Safety, Health and Environment Advisor
Tom Hill, Internal Auditor and Radiation Protection Supervisor

Please note this notification replaces any previous notifications of relevant persons by the above companies.

Yours faithfully

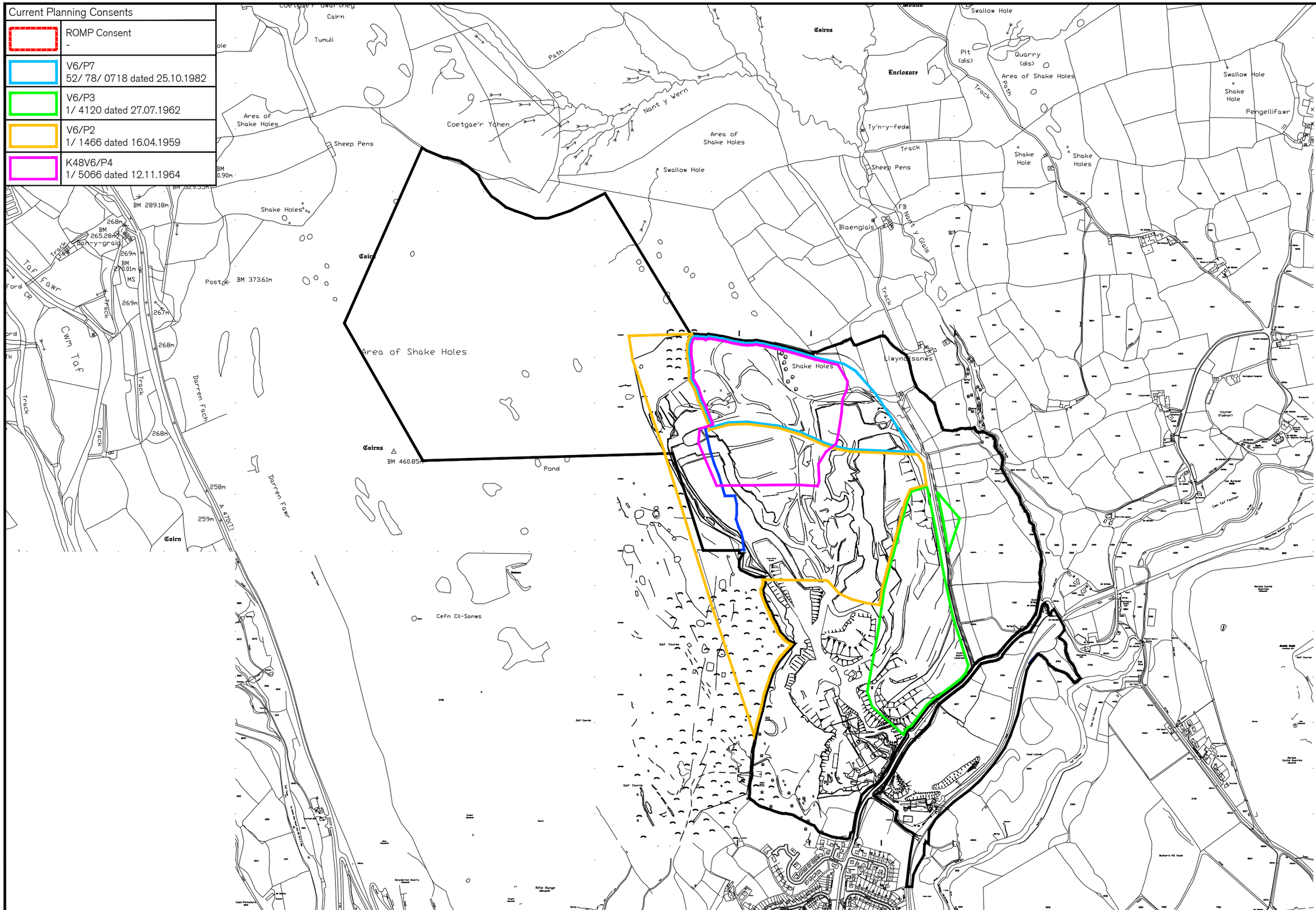
W F Rogers
Company Secretary of each of the above companies

wendy.rogers@hanson.com
DDI: 01628 774167

Appendix B

Planning permission

Current Planning Consents
ROMP Consent -
V6/P7 52/ 78/ 0718 dated 25.10.1982
V6/P3 1/ 4120 dated 27.07.1962
V6/P2 1/ 1466 dated 16.04.1959
K48V6/P4 1/ 5066 dated 12.11.1964



Legend

Company Landholding
(Relevant surface and minerals interests only)

Note: To view historic planning permissions (expired, revoked/surrendered, superseded) the relevant layers need to be switched on in the PDF.

Hanson HEIDELBERGCEMENT Group

Site	VAYNOR QUARRY
Title	Planning Permission Summary Plan Issued on Date: 11/01/2013
Scale	1:10,000
Paper Size	A3
Drawn by	LW
Drawing No.	V6/PPSP
Revision	
Date	Jan 2013
Check by	KJB

G.W.CHAPMAN OStJ, DL,LL.M., D.B.A., Dip.L.G., F.C.M.I.
Solicitor
Deputy Chief Executive and Executive Director of Schools, Governance and Technical Services
Dirprwy Brif Weithredwr a Chyfarwyddwr Gweithredol Ysgolion, Llywodraethu a Gwasanaethau Technegol

MERTHYR TYDFIL COUNTY BOROUGH COUNCIL
CYNGOR BWRDEISTREF SIROL MERTHYR TUDFUL

Tŷ Keir Hardie
Cwrt Glan Yr Afon
Avenue De Clichy
Merthyr Tudful
CF47 8XF

Tŷ Keir Hardie
Riverside Court
Avenue De Clichy
Merthyr Tydfil
CF47 8XF

Ffon : (01685) 726233
Ffacs : (01685)375095

Tel : (01685) 726233
Fax : (01685) 375095

Mr Mark Frampton
Land & Planning Manager (S.Wales)
Hanson Aggregates
Machen Quarry
Machen
Nr Newport, CF83 8YP

Dyddiad/**Date :** **24th August 2010**

Ein Cyf/**Our Ref.:** **AND69/ROMP VAYNOR/GR**
Eich Cyf/**Your Ref.:** **V6/ROMP/MT/MMF**

Llinell Uniongyrchol/**Direct Line :** **(01685) 726200**
Gofynnwch am/**Please Ask For :** **Mr A N Davies**
e-bost/**e-mail:** **norman.davies@merthyr.gov.uk**

Dear Sir

RE: VAYNOR QUARRY – TOWN & COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) (UNDETERMINED REVIEWS OF OLD MINERAL PERMISSIONS) (WALES) REGULATIONS 2009

I refer to my letters dated 19th February and 4th March 2010, to our constructive meetings and further exchange of information.

As indicated at our last meeting on 23rd July that, following further consideration, I conclude that the previous application for determination of new planning conditions (App No. 970200) is not subject to the provisions of the Regulations cited at the head of this letter. Therefore that application is treated as having been determined and is not a "stalled ROMP". My previous letters this year on the matter are therefore withdrawn.

Furthermore, based on the premis that the above application was determined by default on 1st January 2002 (the last extension period having expired 31st December 2001), it follows that the date for the first periodic review is 31st December 2016.

Finally, as indicated at our last meeting, notwithstanding the content of this letter, I shall write separately to you regarding condition Nos. 6 and 12 attached to the 1997 application. The effective compliance date for these conditions is 1st April 2012, 10 years 3 months from determination date.

Yours faithfully

A N DAVIES
TOWN PLANNING MANAGER

c.c. Geraint Morgan
Hugh Towns (representing BBNP)

Cyngor Sir Gâr
Carmarthenshire
County Council

Eifion Bowen B.Sc., Dip.T.P., M.R.T.P.I.

Pennaeth Cynllunio
Cyfarwyddiaeth Adfywio a Hamdden
Swyddfeydd y Cyngor, Heol Cilgant, Llandeilo, SA19 6HW.

Head of Planning
Directorate of Regeneration and Leisure
Civic Offices, Crescent Road, Llandeilo, SA19 6HW.

Gofynner am / Please ask for:	Hugh Towns	Eich cyf / Your ref:	V6/ROMP/BBNP/MMF
Llinell Uniongyrchol / Direct Line:	01558 825373	Fy nghyf / My ref:	MT/15392/HT
E-bost Uniongyrchol / Direct Email:	ahtowns@carmarthenshire.gov.uk	Ffacs / Fax:	01558 824288
Dyddiad / Date:	8 November 2010	DX:	44054 Llandeilo

Mr Mark Frampton
Lands & Planning Manager (South Wales)
Hanson Aggregates
Machen Quarry
Machen
Newport
CF83 8YP

Dear Sir

Re: Application for the Review of Mineral Planning Conditions, Vaynor Quarry, Cefn Coed, Merthyr Tydfil - Environmental Impact Assessment - Scoping Opinion

Further to my letter dated 4 March 2010 I have given further consideration to your arguments in relation to the status of the application. On the basis of the evidence before me I have concluded that the application for determination of new planning conditions (Ref: MT/15392) was determined by default on 1st January 2002 (the last extension period having expired 31st December 2001). The application is not therefore a 'stalled ROMP' and I confirm that the Town & Country Planning (Environmental Impact Assessment) (Undetermined Reviews Of Old Mineral Permissions) (Wales) Regulations 2009 do not apply to it. My letter dated 4 March 2010 enclosing a scoping opinion under the provision of these Regulations is hereby withdrawn.

The conditions put forward as part of the determination of conditions application MT/15392 were imposed by default from 1 January 2002 and in my letter dated 16 July 2010 I sought to highlight conditions 4, 5 and 10 which require schemes to be submitted within 3 months of the date of determination. Whilst I accept that these have not been submitted to date due to a dispute over the status of the application I have to be mindful that any breach of these conditions will become immune from enforcement action 10 years from the date any breach occurred i.e. 1st April 2012 in this case.

I accept that your company has no plans to recommence working at Vaynor Quarry in the near future and that any scheme of working for the next 5 years (required by Condition 4) and a scheme of blast monitoring (required by Condition 10) would be a purely academic exercise. In such circumstances, I consider that you would be justified in submitting a scheme of working indicating that there will be no quarry working in the next 5 years and a scheme of blast monitoring indicating that there will be no blasting and therefore no blast monitoring in the next 5 years. It will of course

SCHEDULE A - Consent No 52/78/0718

It is proposed that the new planning conditions set out below shall apply to the development authorised by the planning permission Ref No 52/78/0718 dated 25th October 1982 in relation to the land shown edged yellow on Drawing No V6/ROMP/MT/2 and hereinafter referred to as the Permission Area.

DEFINITIONS

For the purposes of the new planning conditions the following words and phrases shall have the meaning given:

'Date of Determination'	-	means the date upon which the application for approval of conditions under Paragraph 9 of Schedule 13 to the Environment Act 1995 is determined or deemed to have been determined by the Mineral Planning Authority (MPA).
'the Quarry'	-	means those operational quarry lands at Vaynor Quarry which lie within the County Borough of Merthyr Tydfil, being shown for the purposes of identification only edged green on Drawing No V6/ROMP/MT/3.
'emergency'	-	means any circumstances in which the operator has reasonable cause for apprehending injury to persons or serious damage to property.

CONDITIONS

General Limitations

1 The winning and working of minerals and the depositing of mineral waste shall cease not later than 31st May 2097.

2 The limits of excavation shall be those defined by the plan and sections shown on Drawing Nos V6/ROMP/EL1 and V6/ROMP/EL2 insofar as they relate to the Permission Area.

Access

3 Except in the case of emergency the sole means of access for the Quarry shall be from the main quarry entrance off the Cefn Coed - Pontsticill Road as indicated on Drawing No V6/ROMP/MT1.

4 No loaded lorries shall leave the Quarry unsheeted except those only carrying stone in excess of 500mm size.

5 No commercial vehicles leaving the Quarry shall enter onto the public highway unless their wheels and chassis have been cleaned to prevent material being deposited on the highway.

Working Programme

6 Within 3 months of the Date of Determination an appropriate 5 year working programme, setting out the general manner in which the Quarry will be worked, shall be submitted for the approval of the MPA. After the date of its approval the development of the Quarry shall be carried out in accordance with the working programme unless otherwise agreed in writing with the MPA. The working programme shall be reviewed with the MPA at 5 year intervals.

7 The working programme referred to in Condition 6 above shall include inter alia details of the following:

(i) the phasing and direciton of quarry workings
(ii) the configuration and heights of quarry faces
(iii) the location of sites to be used for the disposal of overburden and/or quarry waste
(iv) proposals for the treatment or restoration of waste deposits or redundant quarry benches/areas
(v) the location and design of main haul routes

Hours of Working

8 Except in the case of emergency, quarrying operations shall take place only from 0600 hours to 1800 hours Mondays to Fridays and from 0600 hours to 1600 hours on Saturdays, except that with the prior agreement of the MPA (such agreement not to be unreasonably withheld) quarrying operations may also take place from 1800 hours to 2200 hours Mondays to Fridays and from 1600 hours to 1800 hours on Saturdays.

No quarrying operations shall take place on Sundays, Bank Holidays or National Holidays with the exception of Good Friday when quarrying operations will be permitted.

NB: for the purposes of this condition 'quarrying operations' shall mean the stripping of overburden, the development of the quarry faces and the operation of the primary crusher or any replacement thereof.

Environmental Protection

Dust

9 The emission and propagation of dust within the Quarry shall be contained and minimised by the use of effective dust control measures. Such measures shall include:

(i) the provision of a mobile spraying unit to be maintained in efficient working order and used so as to ensure that haul roads and other areas subject to vehicular traffic are kept adequately damped down during periods of dry weather.

(ii) the use of suitable dust supression systems, where appropriate, on crushing plant and drilling equipment.

Noise

10 Best practicable measures shall be taken to minimise noise arising as a result of activities within the Quarry. Such measures shall include inter alia the following:

(i) all vehicles and mobile plant shall be fitted with effective exhaust silencers which shall be maintained in good and efficient working order.

(ii) all machinery in intermittent use shall be shut down in the intervening periods between use or throttled down to a minimum.

(iii) all vehicles plant and machinery shall be maintained in good mechanical condition so that extraneous noise from machinery vibration shall be kept to a minimum

Blasting and Vibration

11 Unless otherwise previously agreed in writing with the MPA, no blasting shall be carried out within the Quarry other than as detailed hereunder:-

(a) Except in the case of emergency no blasting shall be carried out except between the following times:

1000 hours and 1600 hours on Mondays to Fridays

There shall be no blasting on Saturdays, Sundays, Bank Holidays or National Holidays

(b) At all times blasting shall be designed so that the peak particle velocity as measured in any one of three mutually perpendicular planes at the nearest residential property (existing at the Date of Determination) shall not exceed 10mm per second in 95% of all blasts measured over any period of 6 months and no individual blast shall exceed a peak particle velocity of 12mm per second.

(c) No stone shall be broken up by the use of explosives other than in primary blasting.

12 Within 3 months of the Date of Determination the operator shall submit for the approval of the MPA detailed schemes for:-

a) the monitoring of blasting operations including the location of monitoring points and the equipment to be used.

b) the methods to be employed to minimise the effects of air overpressure arising from blasting operations.

Prevention of pollution to surface and groundwater

13 Any oil, fuel lubricant, paint, solvent or other potential contaminant within the Quarry shall be stored in suitable impermeable enclosures to prevent such material contaminating any soil forming material or entering a watercourse or groundwater.

Landscaping - retention of existing vegetation

14 The landscape tree planting which has been carried out both in and around the Quarry in accordance with proposals previously approved by Mid Glamorgan County Council (as the former MPA), and as generally described on the approved Drawing No 507/17/B, shall be adequately maintained and any plants which within 5 years of planting die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of a similar size and species, and thereafter maintained for a period of five years, unless otherwise agreed in writing with the MPA.

Restoration

15 Within 15 years of the Date of Determination a scheme outlining the general principles for the progressive restoration of the Quarry will be submitted for the approval of the MPA. The approved scheme shall be reviewed at intervals not greater than 15 years throughout the duration of the permission hereby conditioned and shall inlcude details of:-

(i) the nature of the intended afteruse of the Quarry.

(ii) the sequence and phasing of reclamation

(iii) the respreading over the floor and benches of the excavated areas of overburden, quarry waste, subsoil and/or topsoil.

(iv) the proposed final levels of the reclaimed land and the gradients of any restored areas around the margins of the Quarry

(v) measures for the effective drainage of the reclaimed land

(vi) proposals for the reinstatement of areas occupied by plant, buildings and haul roads once the winning and working of minerals has ceased

(vii) grass seeding or tree planting of the reclaimed areas

All restoration works shall be carried out in accordance with the scheme as approved unless otherwise agreed in writing by the MPA.

NB **In relation to item (vi) of this condition, it shall not be required to remove those items of ancillary plant (for example, the coated stone plant and the ready mixed concrte plant) which are capable of continuing in operation once the winning and working of minerals has ceased.**

Aftercare

16 At the same time as the scheme under Condition 15 is submitted there shall be submitted an aftercare scheme for the approval of the MPA. The scheme shall provide for a five year maintenance period and specify such steps as are necessary to bring land restored within the Quarry to an adequate standard for the proposed afteruse.

Soil Stripping and Storage

17 The MPA shall be given at least 48 hours notice in writing before any soil stripping takes place within the Permission Area.

18 Unless otherwise agreed in writing with the MPA no turf, topsoil or subsoil from the Permission Area shall be removed and used for any purpose other than in the landscaping or restoration of land used for excavations at Vaynor Quarry.

19 All topsoil shall be stripped and stored until required for restoration from any parts of the Permission Area to be used for excavations, haul roads or the storage of overburden and subsoils.

20 All subsoil shall be stripped and stored until required for restoration from any parts of the Permission Area to be used for excavations, haul roads or the storage of overburden.

21 The stripping and movement of topsoil and subsoil shall only be carried out when the material to be moved is in a suitably dry condition unless there are circumstances of overriding urgency in which case the prior agreement of the MPA shall be sought.

22 Heavy plant and vehicles shall not cross areas of unstripped topsoil except for the purpose of soil stripping or replacement operations.

23 Topsoil and subsoil shall be stripped and stored separately with soil storage mounds being constructed so as to maintain soil quality and located so as to avoid disturbance or contamination. Soil mounds shall be sown to grass in the first available sowing season following their construction and thereafter maintained in a weed free condition.

MMF/DEP/scheda/April 1997

SCHEDULE B - Consent No 1/4120

It is proposed that the new planning conditions set out below shall apply to the development authorised by the planning permission Ref No 1/4120 dated 27th July 1962 in relation to the land shown edged orange on Drawing No V6/ROMP/MT/2 and hereinafter referred to as the Permission Area.

DEFINITIONS

For the purposes of the new planning conditions the following words and phrases shall have the meaning given:

'Date of Determination'	-	means the date upon which the application for approval of conditions under Paragraph 9 of Schedule 13 to the Environment Act 1995 is determined or deemed to have been determined by the Mineral Planning Authority (MPA).
'the Quarry'	-	means those operational quarry lands at Vaynor Quarry which lie within the County Borough of Merthyr Tydfil, being shown for the purposes of identification only edged green on Drawing No V6/ROMP/MT/3.
'emergency'	-	means any circumstances in which the operator has reasonable cause for apprehending injury to persons or serious damage to property.

CONDITIONS

General Limitations

1 The winning and working of minerals and the depositing of mineral waste shall cease not later than 31st May 2097.

2 The limits of excavation shall be those defined by the plan and sections shown on Drawing Nos V6/ROMP/EL1 and V6/ROMP/EL2 insofar as they relate to the Permission Area.

Access

3 Except in the case of emergency the sole means of access for the Quarry shall be from the main quarry entrance off the Cefn Coed - Pontsticill Road as indicated on Drawing No V6/ROMP/MT1.

4 No loaded lorries shall leave the Quarry unsheeted except those only carrying stone in excess of 500mm size.

5 No commercial vehicles leaving the Quarry shall enter onto the public highway unless their wheels and chassis have been cleaned to prevent material being deposited on the highway.

Working Programme

6 Within 3 months of the Date of Determination an appropriate 5 year working programme, setting out the general manner in which the Quarry will be worked, shall be submitted for the approval of the MPA. After the date of its approval the development of the Quarry shall be carried out in accordance with the working programme unless otherwise agreed in writing with the MPA. The working programme shall be reviewed with the MPA at 5 year intervals.

7 The working programme referred to in Condition 6 above shall include inter alia details of the following:

(i) the phasing and direciton of quarry workings
(ii) the configuration and heights of quarry faces
(iii) the location of sites to be used for the disposal of overburden and/or quarry waste
(iv) proposals for the treatment or restoration of waste deposits or redundant quarry benches/areas
(v) the location and design of main haul routes

Hours of Working

8 Except in the case of emergency, quarrying operations shall take place only from 0600 hours to 1800 hours Mondays to Fridays and from 0600 hours to 1600 hours on Saturdays, except that with the prior agreement of the MPA (such agreement not to be unreasonably withheld) quarrying operations may also take place from 1800 hours to 2200 hours Mondays to Fridays and from 1600 hours to 1800 hours on Saturdays.

No quarrying operations shall take place on Saturdays, Sundays, Bank Holidays or National Holidays with the exception of Good Friday when quarrying operations will be permitted.

NB: for the purposes of this condition 'quarrying operations' shall mean the stripping of overburden, the development of the quarry faces and the operation of the primary crusher or any replacement thereof.

Environmental Protection

Dust

9 The emission and propagation of dust within the Quarry shall be contained and minimised by the use of effective dust control measures. Such measures shall include:

(i) the provision of a mobile spraying unit to be maintained in efficient working order and used so as to ensure that haul roads and other areas subject to vehicular traffic are kept adequately damped down during periods of dry weather.

(ii) the use of suitable dust supression systems, where appropriate, on crushing plant and drilling equipment.

Noise

10 Best practicable measures shall be taken to minimise noise arising as a result of activities within the Quarry. Such measures shall include inter alia the following:

(i) all vehicles and mobile plant shall be fitted with effective exhaust silencers which shall be maintained in good and efficient working order.

(ii) all machinery in intermittent use shall be shut down in the intervening periods between use or throttled down to a minimum.

(iii) all vehicles plant and machinery shall be maintained in good mechanical condition so that extraneous noise from machinery vibration shall be kept to a minimum

Blasting and Vibration

11 Unless otherwise previously agreed in writing with the MPA no blasting shall be carried out within the Quarry other than as detailed hereunder:-

(a) Except in the case of emergency no blasting shall be carried out except between the following times:

1000 hours and 1600 hours on Mondays to Fridays

There shall be no blasting on Sundays, Bank Holidays or National Holidays

(b) At all times blasting shall be designed so that the peak particle velocity as measured in any one of three mutually perpendicular planes at the nearest residential property (existing at the Date of Determination) shall not exceed 10mm per second in 95% of all blasts measured over any period of 6 months and no individual blast shall exceed a peak particle velocity of 12mm per second.

(c) No stone shall be broken up by the use of explosives other than in primary blasting.

12 Within 3 months of the Date of Determination the operator shall submit for the approval of the MPA detailed schemes for:-

a) the monitoring of blasting operations including the location of monitoring points and the equipment to be used.

b) the methods to be employed to minimise the effects of air overpressure arising from blasting operations.

Prevention of pollution to surface and groundwater

13 Any oil, fuel lubricant, paint, solvent or other potential contaminant within the Quarry shall be stored in suitable impermeable enclosures to prevent such material contaminating any soil forming material or entering a watercourse or groundwater.

Landscaping - retention of existing vegetation

14 The landscape tree planting which has been carried out both in and around the Quarry in accordance with proposals previously approved by Mid Glamorgan County Council (as the former MPA), and as generally described on the approved Drawing No 507/17/B, shall be adequately maintained and any plants which within 5 years of planting die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of a similar size and species, and thereafter maintained for a period of five years, unless otherwise agreed in writing with the MPA.

Restoration

15 Within 15 years of the Date of Determination a scheme outlining the general principles for the progressive restoration of the Quarry will be submitted for the approval of the MPA. The approved scheme shall be reviewed at intervals not greater than 15 years throughout the duration of the permission hereby conditioned and shall inlcude details of:-

(i) the nature of the intended afteruse of the Quarry.

(ii) the sequence and phasing of reclamation.

(iii) the respreading over the floor and benches of the excavated areas of overburden, quarry waste, subsoil and/or topsoil.

(iv) the proposed final levels of the reclaimed land and the gradients of any restored areas around the margins of the Quarry

(v) measures for the effective drainage of the reclaimed land

(vi) proposals for the reinstatement of areas occupied by plant, buildings and haul roads once the winning and working of minerals has ceased

(vii) grass seeding or tree planting of the reclaimed areas

All restoration works shall be carried out in accordance with the scheme as approved unless otherwise agreed in writing by the MPA.

NB **In relation to item (vi) of this condition, it shall not be required to remove those items of ancillary plant (for example, the coated stone plant and the ready mixed concrte plant) which are capable of continuing in operation once the winning and working of minerals has ceased.**

Aftercare

16 At the same time as the scheme under Condition 15 is submitted there shall be submitted an aftercare scheme for the approval of the MPA. The scheme shall provide for a five year maintenance period and specify such steps as are necessary to bring land restored within the Quarry site to an adequate standard for the proposed afteruse.

MMF/DEP/Schedb/April 1997

SCHEDULE C - Consent No 1/1466

It is proposed that the new planning conditions set out below shall apply to the development authorised by the planning permission Ref No 1/1466 dated 16th April 1959 in relation to the land shown edged green on Drawing No V6/ROMP/MT/2 and hereinafter referred to as the Permission Area.

DEFINITIONS

For the purposes of the new planning conditions the following words and phrases shall have the meaning given:

'Date of Determination'	-	means the date upon which the application for approval of conditions under Paragraph 9 of Schedule 13 to the Environment Act 1995 is determined or deemed to have been determined by the Mineral Planning Authority (MPA).
'the Quarry'	-	means those operational quarry lands at Vaynor Quarry which lie within the County Borough of Merthyr Tydfil, being shown for the purposes of identification only edged green on Drawing No V6/ROMP/MT/3.
'emergency'	-	means any circumstances in which the operator has reasonable cause for apprehending injury to persons or serious damage to property.

CONDITIONS

General Limitations

1 The winning and working of minerals and the depositing of mineral waste shall cease not later than 31st May 2097.

2 The limits of excavation shall be those defined by the plan and sections shown on Drawing Nos V6/ROMP/EL1 and V6/ROMP/EL2 insofar as they relate to the Permission Area.

Access

3 Except in the case of emergency the sole means of access for the Quarry shall be from the main quarry entrance off the Cefn Coed - Pontsticill Road as indicated on Drawing No V6/ROMP/MT1.

4 No loaded lorries shall leave the Quarry unsheeted except those only carrying stone in excess of 500mm size.

5 No commercial vehicles leaving the Quarry shall enter onto the public highway unless their wheels and chassis have been cleaned to prevent material being deposited on the highway.

Working Programme

6 Within 3 months of the Date of Determination an appropriate 5 year working programme, setting out the general manner in which the Quarry will be worked, shall be submitted for the approval of the MPA. After the date of its approval the development of the Quarry shall be carried out in accordance with the working programme unless otherwise agreed in writing with the MPA. The working programme shall be reviewed with the MPA at 5 year intervals.

7 The working programme referred to in Condition 6 above shall include inter alia details of the following:

(i) the phasing and direciton of quarry workings
(ii) the configuration and heights of quarry faces
(iii) the location of sites to be used for the disposal of overburden and/or quarry waste
(iv) proposals for the treatment or restoration of waste deposits or redundant quarry benches/areas
(v) the location and design of main haul routes

Hours of Working

8 Except in the case of emergency, quarrying operations shall take place only from 0600 hours to 1800 hours Mondays to Fridays and from 0600 hours to 1600 hours on Saturdays, except that with the prior agreement of the MPA (such agreement not to be unreasonably withheld) quarrying operations may also take place from 1800 hours to 2200 hours Mondays to Fridays and from 1600 hours to 1800 hours on Saturdays.

No quarrying operations shall take place on Sundays, Bank Holidays or National Holidays with the exception of Good Friday when quarrying operations will be permitted.

NB: for the purposes of this condition 'quarrying operations' shall mean the stripping of overburden, the development of the quarry faces and the operation of the primary crusher or any replacement thereof.

Environmental Protection

Dust

9 The emission and propagation of dust within the Quarry shall be contained and minimised by the use of effective dust control measures. Such measures shall include:

(i) the provision of a mobile spraying unit to be maintained in efficient working order and used so as to ensure that haul roads and other areas subject to vehicular traffic are kept adequately damped down during periods of dry weather.

(ii) the use of suitable dust supression systems, where appropriate, on crushing plant and drilling equipment.

Noise

10 Best practicable measures shall be taken to minimise noise arising as a result of activities within the Quarry. Such measures shall include inter alia the following:

(i) all vehicles and mobile plant shall be fitted with effective exhaust silencers which shall be maintained in good and efficient working order.

(ii) all machinery in intermittent use shall be shut down in the intervening periods between use or throttled down to a minimum.

(iii) all vehicles plant and machinery shall be maintained in good mechanical condition so that extraneous noise from machinery vibration shall be kept to a minimum

Blasting and Vibration

11 Unless otherwise previously agreed in writing with the MPA no blasting shall be carried out within the Quarry other than as detailed hereunder:-

(a) Except in the case of emergency no blasting shall be carried out except between the following times:

1000 hours and 1600 hours on Mondays to Fridays

There shall be no blasting on Sundays, Bank Holidays or National Holidays

(b) At all times blasting shall be designed so that the peak particle velocity as measured in any one of three mutually perpendicular planes at the nearest residential property (existing at the Date of Determination) shall not exceed 10mm per second in 95% of all blasts measured over any period of 6 months and no individual blast shall exceed a peak particle velocity of 12mm per second.

(c) No stone shall be broken up by the use of explosives other than in primary blasting.

12 Within 3 months of the Date of Determination the operator shall submit for the approval of the MPA detailed schemes for:-

a) the monitoring of blasting operations including the location of monitoring points and the equipment to be used.

b) the methods to be employed to minimise the effects of air overpressure arising from blasting operations.

Prevention of pollution to surface and groundwater

13 Any oil, fuel lubricant, paint, solvent or other potential contaminant within the Quarry shall be stored in suitable impermeable enclosures to prevent such material contaminating any soil forming material or entering a watercourse or groundwater.

Landscaping - retention of existing vegetation

14 The landscape tree planting which has been carried out both in and around the Quarry in accordance with proposals previously approved by Mid Glamorgan County Council (as the former MPA), and as generally described on the approved Drawing No 507/17/B, shall be adequately maintained and any plants which within 5 years of planting die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of a similar size and species, and thereafter maintained for a period of five years, unless otherwise agreed in writing with the MPA.

Restoration

15 Within 15 years of the Date of Determination a scheme outlining the general principles for the progressive restoration of the Quarry will be submitted for the approval of the MPA. The approved scheme shall be reviewed at intervals not greater than 15 years throughout the duration of the permission hereby conditioned and shall inlcude details of:-

(i) the nature of the intended afteruse of the Quarry.

(ii) the sequence and phasing of reclamation.

(iii) the respreading over the floor and benches of the excavated areas of overburden, quarry waste, subsoil and/or topsoil.

(iv) the proposed final levels of the reclaimed land and the gradients of any restored areas around the margins of the Quarry

(v) measures for the effective drainage of the reclaimed land

(vi) proposals for the reinstatement of areas occupied by plant, buildings and haul roads once the winning and working of minerals has ceased

(vii) grass seeding or tree planting of the reclaimed areas

All restoration works shall be carried out in accordance with the scheme as approved unless otherwise agreed in writing by the MPA.

NB **In relation to item (vi) of this condition, it shall not be required to remove those items of ancillary plant (for example, the coated stone plant and the ready mixed concrte plant) which are capable of continuing in operation once the winning and working of minerals has ceased.**

Aftercare

16 At the same time as the scheme under Condition 15 is submitted there shall be submitted an aftercare scheme for the approval of the MPA. The scheme shall provide for a five year maintenance period and specify such steps as are necessary to bring land restored within the Quarry site to an adequate standard for the proposed afteruse.

Soil Stripping and Storage

17 The MPA shall be given at least 48 hours notice in writing before any soil stripping takes place within the Permission Area.

18 Unless otherwise agreed in writing with the MPA no turf, topsoil or subsoil from the Permission Area shall be removed and used for any purpose other than in the landscaping or restoration of land used for excavations at Vaynor Quarry.

19 All topsoil shall be stripped and stored until required for restoration from any parts of the Permission Area to be used for excavations, haul roads or the storage of overburden and subsoils.

20 All subsoil shall be stripped and stored until required for restoration from any parts of the Permission Area to be used for excavations, haul roads or the storage of overburden.

21 The stripping and movement of topsoil and subsoil shall only be carried out when the material to be moved is in a suitably dry condition unless there are circumstances of overriding urgency in which case the prior agreement of the MPA shall be sought.

22 Heavy plant and vehicles shall not cross areas of unstripped topsoil except for the purpose of soil stripping or replacement operations.

23 Topsoil and subsoil shall be stripped and stored separately with soil storage mounds being constructed so as to maintain soil quality and located so as to avoid disturbance or contamination. Soil mounds shall be sown to grass in the first available sowing season following their construction and thereafter maintained in a weed free condition.

SCHEDULE D - Consent No 1/5066

It is proposed that the new planning conditions set out below shall apply to the development authorised by the planning permission Ref No 1/5066 dated 12th November 1964 in relation to the land shown hatched purple on Drawing No V6/ROMP/MT/2.

DEFINITIONS

For the purposes of the new planning conditions 'Date of Determination' shall mean the date upon which the application for approval of conditions under Paragraph 9 of Schedule 13 to the Environment Act 1995 is determined or deemed to have been determined by the Mineral Planning Authority (MPA).

CONDITIONS

1 The tipping of any quarry waste as authorised by this permission shall be confined within the boundaries of the land shown hatched purple on Drawing No V6/ROMP/MT/2.

2 No tipping works which take place after the Date of Determination shall be carried out other than in strict accordance with plans and/or drawings previously approved in writing by the MPA showing the height, location and configuration of the material to be deposited.

3 A scheme showing the phasing and direction of the tipping works as approved under Condition 2 above shall be submitted to and approved in writing by the MPA before any tipping works take place.

4 On completion of each phase of the tipping works referred to in Condition 3 above the surface of the tipped areas shall be restored by grading and grass seeding in accordance with a scheme to be submitted to and approved by the MPA. The scheme shall include details of the method proposed for preparing the surface of the tipped areas ready for grass seeding, as well as a specification for the seed mixture and method of sowing.

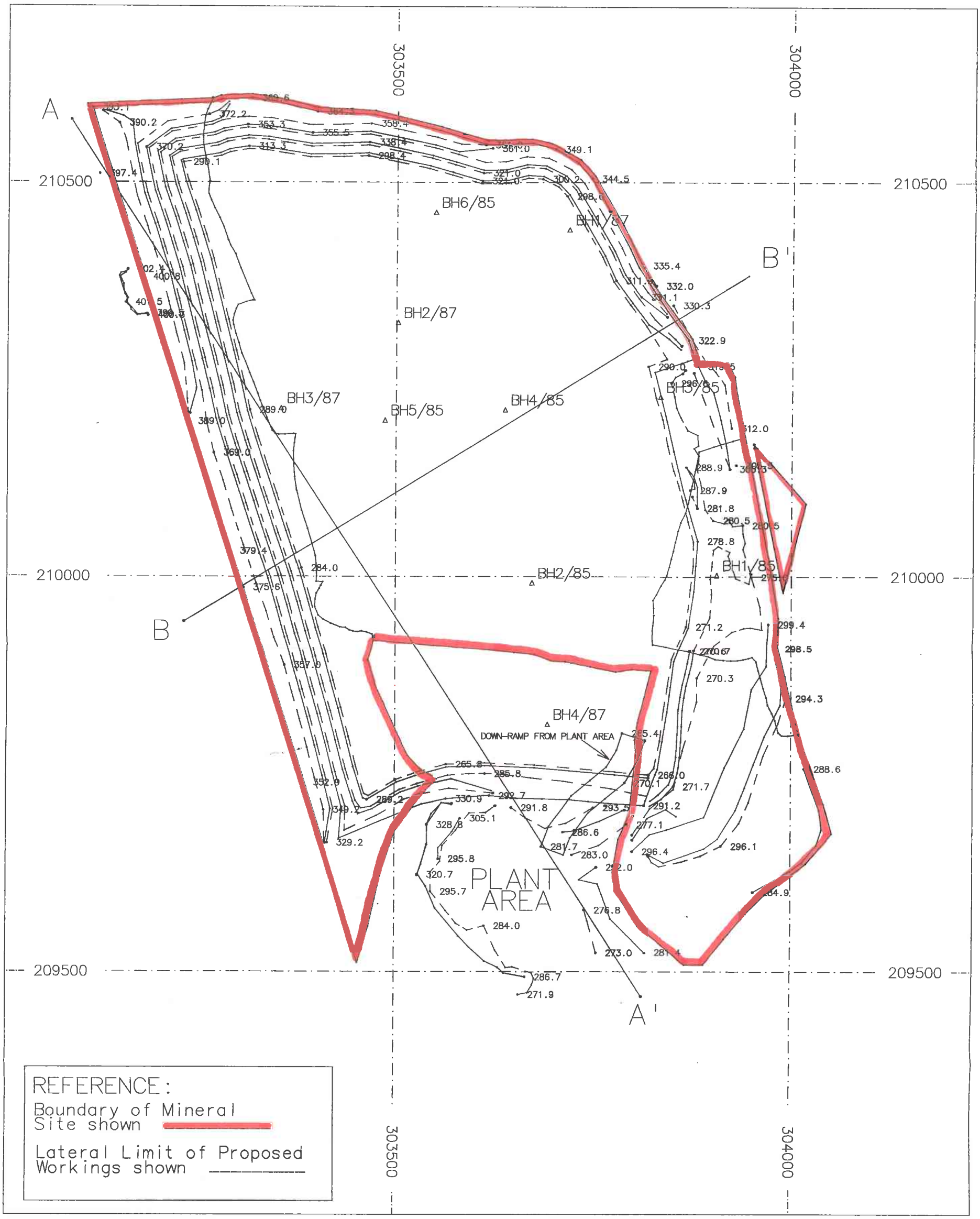
5 The seeding works referred to in Condition 4 above shall be implemented in the first available sowing season following completion of each phase of tipping and shall thereafter be maintained for a period of 5 years or until a satisfactory sward has become established to the reasonable satisfaction of the MPA should this be achieved before the end of the said 5 year period.

6 Full details of proposals to deal with surface water run off from the tipped areas shall be submitted to and approved by the MPA before any tipping works carried out after the Date of Determination are commenced.

7 The approved drainage works required by Condition 6 above shall be carried out and completed before any tipping takes place and shall be maintained throughout the life of the tipping operations and until the establishment of grass cover as required by Conditions 4 and 5 above.

8 Unless otherwise agreed in writing by the MPA the working, restoration and aftercare of the tipping site shall be carried out only in accordance with the approved plans and details required by Condition Nos 2, 3, 4 and 6 of this consent.

MMF/DEP/schemed/april 1997



ARC South Wales		
VAYNOR QUARRY		
EXTRACTION LIMITS PLAN		
Date: May 1997	**Scale: 1:5000**	**Dwg Ref No. V6/ROMP/EL1**

Appendix C

Scoping discussion

Vaynor Quarry - Scoping Discussion Document

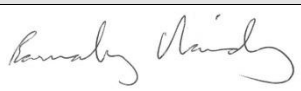
Prepared for Hanson

Report reference: 64789TN2Rev1, July 2017

This report has been prepared by ESI Ltd. (ESI) in its professional capacity as soil and groundwater specialists, with reasonable skill, care and diligence within the agreed scope and terms of contract and taking account of the manpower and resources devoted to it by agreement with its client, and is provided by ESI solely for the internal use of its client.

The advice and opinions in this report should be read and relied on only in the context of the report as a whole, taking account of the terms of reference agreed with the client. The findings are based on the information made available to ESI at the date of the report (and will have been assumed to be correct) and on current UK standards, codes, technology and practices as at that time. They do not purport to include any manner of legal advice or opinion. New information or changes in conditions and regulatory requirements may occur in future, which will change the conclusions presented here.

This report is confidential to the client. The client may submit the report to regulatory bodies, where appropriate. Should the client wish to release this report to any other third party for that party's reliance, ESI may, by prior written agreement, agree to such release, provided that it is acknowledged that ESI accepts no responsibility of any nature to any third party to whom this report or any part thereof is made known. ESI accepts no responsibility for any loss or damage incurred as a result, and the third party does not acquire any rights whatsoever, contractual or otherwise, against ESI except as expressly agreed with ESI in writing.

	Name	Signature
Author	Barnaby Harding	
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FIGURES (following main text)

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APPENDICES

1 INTRODUCTION

ESI has been commissioned by Hanson to produce a scoping discussion document for its Vaynor Quarry site ("The Site") The intention is for the document to inform and assist initial discussions with NRW regarding (i) the potential hydrological, hydrogeological and indirect ecological effects associated with a resumption of operations at Vaynor Quarry, and (ii) to seek the agreement of NRW on the range of monitoring which is proposed to inform a Hydrological Impact Assessment (HIA).

The intention is that the HIA will form part of a comprehensive Environmental Impact Assessment (EIA) which will accompany an Environment Act Periodic Review ROMP application to update the planning conditions regulating operations at the quarry. The current timetable requires the Environment Act Review application to be submitted by 30th December 2018. In anticipation of the need to undertake monitoring and data collection over a circa 12-month period in advance of finalising the HIA, Hanson are keen to commence initial informal discussions to review the issues, and agree a monitoring programme at this early stage. The issues will then be formalised via a formal EIA scoping exercise which will be undertaken separately, in due course.

The site is located at approximate National Grid Reference (NGR) SO 035 103 to the north of Merthyr Tydfil. It lies either side of the boundary between the Merthyr Tydfil County Borough Council (MTCBC) and Brecon Beacons National Park Authority (BBNPA) administrative areas.

The Site has existing mineral planning permissions but is currently "mothballed". The first Periodic Review of the planning permissions is due before the end of 2018 although Hanson may make a Consolidation Application as an alternative. In either case an Environmental Impact Assessment (EIA) will be required. Collection of baseline data will be required to support the EIA and Hanson are keen to ensure that the right monitoring data are collected.

In March 2010 both MTCBC and the BBNPA incorrectly took the view that Vaynor Quarry was a "stalled ROMP site" for the purposes of the Town and Country Planning (Environmental Impact Assessment (Undetermined Reviews of Old Mineral Permissions) (Wales)) Regulations 2009. Both Authorities now accept that this approach was incorrect, but nevertheless, the almost identical scoping opinions which were issued at the time, contained information which is useful in the scoping of any future ROMP application for this site. The Scoping Opinion produced by MTCBC and key responses from consultees are produced as Appendix A to this Report and include the following:

- **MTCBC ("Re: Review of Mineral Planning Conditions, Vaynor Quarry, Cefn Coed, Merthyr Tydfil – Environmental Impact Assessment – Scoping Opinion", Letter from A. N. Davies to Mr M Frampton of Hanson, dated 4th March 2010). See Appendix A;**
- Countryside Council for Wales ("Re: Review of Mineral Planning Conditions, Vaynor Quarry, Cefn Coed, Merthyr Tydfil – Environmental Impact Assessment – Scoping Opinion" Letter from Mr Stuart Reid to Mr Eifion Bowen of Carmarthenshire County Council, dated 1st March 2010);
- Environment Agency ("Review of Mineral Planning Conditions – EIA Scoping Opinion Vaynor Quarry, Cefn Coed, Merthyr Tydfil", Letter from Miss Gemma Beynon to Mr H. Towns of Carmarthenshire County Council, dated 3rd March 2010)
- Brecon Beacons National Park ("Re: Review of Mineral Planning Conditions, Vaynor Quarry, Cefn Coed, Merthyr Tydfil – Environmental Impact Assessment – Scoping Opinion", Letter from Graham Cowden to Eifion Bowen of Carmarthenshire County Council, dated 3rd March 2010).

The scoping opinions provided to Hanson by MTCBC and the BBNPA highlighted the following areas to be considered as part of the EIA:

- Potential effects on:
    - Statutory Protected Nature Conservation Sites, in particular Nant Glais Caves SSSI;
    - Cwm Taf Fechan Woodlands SSSI;
    - Non-Statutory Nature Conservation Sites (SINCs);
    - Legally Protected Species;
    - UK Biodiversity Action Plan Habitats and Species/NERC Act Section 42 Habitats; and
    - Species of Principal Importance for the Conservation of Biological Diversity in Wales.
- A detailed and comprehensive assessment of the potential effects of the development on geology, hydrology and hydrogeology including any indirect impacts on flora and fauna, provision for the control of pollution during operational activities and provision for on-going monitoring, evaluation and mitigation during the period of quarry working.

To assist in considering the potential for effects, a preliminary hydrogeological conceptual model of the Site has been developed. It is intended that the conceptual model will be developed in more detail subsequently; however, a preliminary understanding of the groundwater system is required at this stage to:

- Provide an indication of the main issues that will need to be addressed in the subsequent impact assessment;
- Provide a basis for recommendations of baseline monitoring.

This document is therefore not intended to be a definitive conceptual model or exhaustive impact assessment but is meant to provide a basis for discussions and decisions at this stage of the process. It will, in time, need to be developed further into a more formal and complete assessment based on local data to meet the requirements of the planning process.

The information used for this assessment has been obtained from a number of sources:

- Various documents and data provided by Hanson;
- Freely available online data;
- A site visit carried out on the 31st March 2016;
- Personal communications with Gwyn Jones of Llwyncilsanws Farm undertaken at various times in early 2017.

The conceptual model has been used to delineate the area within which potential receptors may be affected (and outside of which no effect is anticipated). This is referred to in this discussion document as the “Vaynor Hydrological Scope Boundary” (VHSB). A separate exercise has been undertaken to identify those ecological features within the zone of influence which could be sensitive to the hydrological and hydrogeological effects of the quarry and have the potential to be impacted by the proposal. Reporting on this exercise is included as Appendix B to this report. Only those receptors remaining as having potential to be impacted are discussed in the main text of this report.

2 SITE DESCRIPTION

2.1 Location and Topography

The site is an inactive limestone quarry located approximately 3.5 km north of the centre of Merthyr Tydfill.

The ground around the site rises to 460 mAOD c. 1 km to the west and to 462 mAOD c. 2.5 km to the north falling to the east and south east. The current base of the quarry is at approximately 275 m AOD (varying between approximately 270 mAOD and 300 mAOD depending on location).

2.2 Hydrology

The hydrology of the area around the site (Figure 2.1) is dominated by the south westerly draining Taf Fechan c. 300 m to the south and the southerly draining Afon Taf Fawr c. 1.3 km to the west. These watercourses are confluent c. 2 km to the south of the site where they continue as the River Taff. To the immediate east of the site is a smaller, southward draining watercourse, the Nant y Glais, which discharges into the Taf Fechan. The site sits within the catchments of the Nant y Glais (to which the majority of runoff from the site under pre-development conditions would have drained) and the Taf Fechan.

Flow data from the National Flow Archive are available for three locations on the local watercourses as shown on the figures in Appendix C.

No flow gauging results have been obtained from the Nant y Glais. During the site visit in March 2016, the stream was flowing along its full length, although flow appeared to decrease between Blaenglais farmhouse and the waterfall and caves further to the south. Significant flow was observed to enter from the cave mouth on the eastern bank of the stream (rough visual estimation of 30-40 l/s). Anecdotal evidence obtained from a local resident indicated that this reach is dry for most the time. Although not traced up beyond their confluence (approximately 700 m north of the current excavation boundary), flow was observed in both of the tributaries of the Nant y Glais.

2.3 Geology

The quarry sits within and exploits an outcrop of Carboniferous-aged limestone of the Dowlais Limestone Formation (limestone with shale interbeds and some local basal sandstone) as shown Figure 2.2. Regional dip is to the south, resulting in the older Llanelly Formation (limestones with green clay interbeds and capped with green and red-mottled clay palaeosol) cropping out to the north and being present at depth beneath the site. Beneath the Llanelly Formation is the Abercriban Oolite Subgroup (limestone) and beneath this the Cwmyniscoy Mudstone Formation (mudstone with interbedded limestone). Successively older formations crop out further to the north of the site (and at greater depth beneath it). On the higher ground to the west and to the south of the site, younger formations of the Penderyn Oolite Member (limestone, sandstone, mudstone), Oxwich Head Limestone (limestone with shaly partings, sandstone in some places, palaeokarst surfaces overlain by red and grey clay palaeosols), and, at the highest elevation, Millstone Grit (sandstones interbedded with siltstones and mudstones) crop out.

Till (Diamicton - clay and silty clay interbedded with sand and gravel) is present at the site, with the outcrop roughly following the alignment of the Nant y Glais and Taf Fechan. Till is also present to the north, along with some alluvium (associated with the watercourses) and peat. Glaciofluvial deposits, head, river terrace deposits and alluvium occupy a strip of land close to the Afon Taf Fawr to the west. Much of the land immediately to the north and of the site, along with the high ground to the west is absent of superficial deposits.

The site is heavily faulted with the predominant structural alignment being approximately NNW to SSE.

2.4 Hydrogeology

The main aquifers at the site are the Dowlais Limestone Formation, Llanelly Formation, and Abercriban Oolite Subgroup.

Groundwater has been monitored at the site at four observation borehole locations (VaynOB1 to VaynOB4) from January 1998 through to May 2001 (Figure 2.3). It is understood that these extend only as far as the base of the Dowlais Limestone Formation but this has not been confirmed. On the site visit VaynOB1 was observed to be destroyed. These observation boreholes are installed in the limestone with base of borehole elevations between 239 mAOD and 279 mAOD. Average groundwater levels over the period of record vary between 265 mAOD and 336 mAOD. Some early readings appear to indicate non-stabilised water levels although this does not affect the averages a great deal. Groundwater level variation (ignoring non-stabilised readings) is generally modest being around 1 m at VaynOB1, VaynOB2, and VaynOB4. VaynOB3 exhibits a higher variability with a range of c. 9.8 m over the observation period; higher variability in this area may be related to its location further from the dampening influence of the watercourses. The groundwater flow pattern implied by the groundwater monitoring is broadly a mirror of topography, with descending groundwater levels and flow toward the Nant y Glais and Taf Fechan. The quarry floor appears to be positioned above the water table at present; however, ponded water was observed on the site visit in the quarry base. This may represent either groundwater or perched surface water.

Based on average groundwater levels and stream levels, an assessment of the likely alignment of groundwater contours has been undertaken. These are shown on Figure 2.3. These show groundwater flow at the site to be broadly toward the south-east.

A number of springs are marked on the OS 1:25,000 scale maps (Figure 2.4). To the east of the quarry two discrete springs were observed on the western valley side of the Nant y Glais during the site visit. These appear to be tufa-depositing springs. The smaller, northernmost spring was visually estimated to be flowing at less than 1 l/s and the larger, southernmost spring was visually estimated to be flowing at around 10 l/s. Further south another spring is marked immediately north of the Trefechan-Vaynor road close to Glais Bridge. This was observed to be dry during the site visit. Tufa-depositing springs are also understood to be present on the northern bank of the Taf Fechan to the south east of the site. These were not visited during the site visit as no access arrangements were in place. To the west of the site, springs are marked on the eastern bank of the Afon Taf Fawr. These do not originate from the limestone but from sandstones of the Grey Grits Formation which underlies the Cwmyniscoy Mudstone Formation. Although not marked on the 1:25,000 OS map, examination of the citation for the Darren Fach SSSI indicates issues and springs are also present here. None of the springs to the west of the site was visited during the site visit.

2.5 Nant y Glais Cave System

The details presented below are taken from the publication Limestone and Caves of Wales[1].

A cave system has developed within the numerous fractures associated with the subsidiary faults of the major NNW-SSE fault running parallel with and close to the Nant y Glais. The location of the caves is shown in Figure 2.5. The system is subdivided into two main components – Ogof y Ci and Ogof Rhyd Sych (in addition to a number of smaller associated caves). These lie on either side of the fault which runs along the Nant y Glais. Ogof y Ci lies to the west of the Nant y Glais (i.e. between the quarry and the stream) and Ogof Rhyd Sych lies to the east (i.e. on the opposite side of the stream to the quarry). The caves are developed in the Abercriban Oolite where it rests on dolomitised limestones. The westward downthrow on the fault means that Ogof Rhyd Sych (to the west) lies at lower elevation than Ogof y Ci and slightly below riverbed level.

[1] Ford, T.D. (2011) Limestones and Caves of Wales, Cambridge University Press

Ogof y Ci is approximately 1600 m in length and is fed with water from sinks in the Nant y Glais just over 50 m upstream of Blaenglais farm. This location corresponds with the observations on the location on flow reduction made in Section 2.2 above. It ends in resurgences which enter the stream but almost immediately sink again to reappear in Ogof Rhyd Sych. Cross connections with Ogof Rhyd Sych also exist about half way along the caves.

Ogof Rhyd Sich is approximately 2000 m in length. The stream from Ogof y Ci appears around half way along its length. It is susceptible to flooding as it takes most of the Nant y Glais flow under normal conditions. At the southern, downstream end of the cave the stream enters the Nant y Glais from a small entrance.

Dye tracer tests were carried out in the 1960s to determine sources of the water in the Nant y Glais (and caves). Introduction of tracer at the "Old Quarry Sink" to the north east of the site (SO 0415 1140) showed no connection with Ogof Rhyd Sych. Dye tracing was also undertaken at the site to confirm if water from the quarry contributes to the Ogof y Ci. This was said to be "unsuccessful" although it is unclear if that means that no connection was seen or the test was not undertaken correctly.

2.6 Groundwater Abstractions

A full search of abstractions has not been carried out for the site. However, one abstraction is known to exist. Details of this abstraction have been obtained from personal communications with Gwyn Jones of Llwyncilsanws Farm and an ARC internal memorandum[2]. The water supply is purportedly from 11 springs which are located in a small area just over 250 m north of the quarry and west of Blaenglais farmhouse (see Figure 4.1). The water from the springs is used for domestic supply and agricultural purposes (incl. stock watering and shed washdown) and is conveyed to Llwyncilsanws Farm via a pipe. Anecdotally, this supply has only dried up on one occasion in the last 35 years (approximately 20 years ago during a summer drought). Flows and rates of water use have not been determined.

A well is also understood to be present at Blaen-y-dyffryn around 450 m south east of the springs. This has been dry since at least 1991 and is, anecdotally, around 15 m deep.

[2] ARC (1991) Re: Vaynor Quarry water supply to Llwyn Cilsanws Farm, internal memorandum from R D Jones to K Jenkins dated 14th November 1991

3 CONCEPTUAL MODEL

The main aquifers at the site are the Dowlais Limestone Formation, Llanelly Formation, and Abercriban Oolite Subgroup. The underlying Cwmyniscoy Mudstone Formation is expected to act as an aquitard forming the regional aquifer base. Low hydraulic conductivity units within the overlying limestones (in particular within the Llanelly Formation) may limit vertical flow resulting in a degree of perching and hydraulic separation between formations. Conceptual sections through the site are shown on Figures 3.1 and 3.2a/b and in more detail in Appendix D.

The boundaries of the groundwater unit within which the quarry sits can be defined by the watercourses to the south (Taf Fechan), east (Nant y Glais), and west (Afon Taf Fawr), and by the outcrop of the upper boundary of the Cwmyniscoy Mudstone Formation. These boundaries represent hydraulic barriers and are expected to constrain the impacts of dewatering such that groundwater drawdown will not propagate beyond them. Together, these boundaries are referred to as the Vaynor Hydrological Scope Boundary (VHSB). The boundary is shown on Figure 3.3. Due to the hydraulic isolation that the VHSB provides it is not considered necessary to look beyond it for potential receptors as no pathway to them will exist.

Groundwater flow through the limestone is expected to be through fissures, fractures, and karst features. Rapid drainage is suggested by the presence of shake holes (swallow holes) over much of the Dowlais Limestone Formation outcrop area. Recharge will be through rainfall over the aquifer outcrop areas and from runoff from the Cwmyniscoy Mudstone Formation to the north. The presence of Till will limit rainfall recharge where this is present. Runoff from the Twrch Sandstone would be expected to be more acidic and it is possible that this will have enhanced karst features where it comes into contact with the underlying limestone. Discharge will be to the watercourses and springs to the south, east, and west. At the location of the quarry the groundwater flow direction is to the south east.

The role of faults in groundwater flow is unclear. They may restrict groundwater flow perpendicular to them and enhance it parallel to them (i.e. in a NNW-SSE direction) but this has not been demonstrated. This will not impact on the shape of the VHSB and, if anything, may limit the propagation of drawdown toward the Nant y Glais stream and cave system.

The caves which lie along the Nant y Glais have a strong connection with the stream and accept water from it via sinks in the stream bed as well as discharging to it via a number of resurgences. Under normal conditions most of the flow immediately upstream of the northernmost sinks is diverted into the caves.

4 POTENTIAL RECEPTORS AND IMPACT ASSESSMENT

At this stage a full search of potential receptors has not been carried out, with the search largely restricted to designated ecological sites and springs. An abstraction which is used by a Mr Gwyn Jones of Llwyncilsanws Farm is also present along with a disused well that is probably exploiting the Dowlais Limestone Formation. These potential receptors are discussed in more detail below.

The proposed development of the quarry is to excavate to the base of the Dowlais Limestone Formation at around 280 mAOD (slightly lower at the southern end of the site and slightly higher at the northern end). This would involve below water table working. The depth below water table to which the base would be excavated would vary across the site but could be up to 40 m. For the purposes of this preliminary assessment 40 m has been used as a conservative global figure.

4.1 Potential impacts

4.1.1 Lowering of groundwater levels

Dewatering will result in the development of a cone of depression around the quarry. The dewatering will be largely non-consumptive with the water ultimately returned via discharge to surface water. However, whilst surface flows downstream are unlikely to be significantly reduced, the localised lowering of groundwater levels has the potential to impact locally on spring flows, upstream surface water flows, and groundwater dependent terrestrial ecosystems. Based on the conceptual model described above, the effects of dewatering are considered to be restricted to the area bounded by the watercourses to the south, east and west and the outcrop of the upper boundary of the Cwmyniscoy Mudstone Formation to the north and north-west. As stated above, this area is referred to as the Vaynor Hydrological Scope Boundary (VHSB) and is shown in full on Figure 3.3 and Figure 4.1.

4.1.2 Changes to runoff/flood risk

In line with the advice provided in Welsh Government's Technical Advice Note 15 (TAN15)[3] developments must not lead to an increase in flood risk elsewhere. As such, the sum of all discharges from the site (including runoff) should be managed to ensure that they do not increase flood risk. This is unlikely to represent an issue for the site and will be addressed fully in the EIA. These potential impacts or not considered further in this note.

4.1.3 Changes to water quality

Extraction of the stone and the presence of plant within the site, as well as water discharges have the potential to cause pollution of both groundwater and surface water in the vicinity of the site. These are normally dealt with through standard planning conditions, permitting, and adherence to good practice. These potential impacts or not considered further in this note.

4.2 Potential receptors

SLR has conducted a search of the various ecological designations within the identified zone of potential influence of dewatering[4] (VHSB) as defined in Section 4.1.1 above. The associated report which provides more information on each of the receptors is provided in Appendix B. This long list of potential receptors has been reviewed and those which are unlikely to be hydrologically affected have been removed through a process of discussion between ESI and SLR. The list of sites which remain is shown in Table 4.1 below and on Figure 4.1.

In addition, an abstraction associated with Llwyncilsanws Farm has also been identified (as described in Section 2.6) and is also shown in Table 4.1 and on Figure 4.1.

[3] Planning Policy Wales (2004) Technical advice note 15: Development and flood risk
[4] SLR (2017) Vaynor Quarry, Ecological Report to inform Baseline Hydrological / Hydrogeological Surveys at Vaynor Quarry, Report Ref: 406.00027.00434, Version No. 3, March 2017

Table 4.1 Receptor list

Potential Receptor	Potential Impact
• Cwm Taf Fechan Woodlands SSSI.	Depleted flow of flushes, tufa-depositing springs and watercourse leading to habitat loss and/or alteration of plant communities, in particular ground flora and bryophytes.
• Nant Glais Caves SSSI.	Depletion in flow resulting in changes to internal conditions may impact upon aquatic species, such as trout, or terrestrial species adapted to humidity conditions within cave i.e. invertebrates and bats (presence of lesser horseshoe bat raised by CCW).
• Suspected tufa-depositing springs	Depletion of flow to springs.
• Llwyncilsanws Farm spring water supply	Reduction is spring flow.
• Nant y Glais	Reduction in flows over limited reaches.

4.3 Preliminary impact assessment

4.3.1 Drawdown impacts

An assessment of the potential drawdown at the listed sites has been undertaken to give an idea of the order of magnitude of drawdown for a full 40 m reduction in groundwater level at the quarry. These estimates are relatively coarse and are based on a number of conservative assumptions. The estimates are based on the calculation of the shape of the water table in a 1D unconfined aquifer with recharge and two fixed heads (after Fetter, Applied Hydrogeology pp146/7). Recharge has been taken to be 900 mm per year based on similar values determined for quarry sites in South Wales with a slight downward adjustment to improve fit with observed levels at this site. Hydraulic conductivity has been taken to be 0.2 m/d, again based on similar values found at other limestone quarry sites in South Wales. Fixed end heads for the calculation are based on the head in the quarry and the head at the discharge point (i.e. watercourse or spring line) assuming that this is fixed. The head at the point of interest between the two fixed points was then calculated. This was carried out for current (i.e. no drawdown) and developed (40 m drawdown) conditions in the quarry; the difference in heads at the point of interest being the resulting drawdown. The results indicate drawdowns potentially in the order of a few metres at each of the receptors.

This assessment does not take into account the potential effects of faults on the pattern of drawdown within the VSHB as their hydraulic properties are not proven. As discussed in Section 3, faults are not expected to result in a change in the shape of the VSHB. It is considered most likely that they will limit the propagation of drawdown across them. Faults lie immediately to the east of the quarry, between the quarry and the Nant y Glais watercourse and cave system (see Figure 4.1). These faults may limit the eastward propagation of drawdown and its potential impact on the stream and caves. On this basis the assessment described above is considered conservative.

Drawdowns at springs have not been calculated separately as most fall within the areas listed in the table above and would be subject to similar drawdowns. The results suggest that potentially significant drawdowns might be expected at all of the identified springs and that in the absence of mitigation flows would therefore be potentially significantly reduced. Drawdowns would also decrease the hydraulic gradient to the surrounding watercourses and have the potential to reduce flows in these watercourses locally. Ultimately, however dewatered groundwater would be returned to the watercourses and there would be no overall net reduction in flow downstream. The hydrological impact assessment which will

form part of the EIA will thus consider the opportunities for mitigation measures to minimise the potential effects on springs and stream flows.

4.3.2 Flow impacts

Some initial scoping calculations have also been undertaken to determine the contribution of groundwater to the Nant y Glais stream flow to determine the impact of reduced contribution. This is based on average runoff and recharge estimation using 4 years of data (July 2008 to July 2012) obtained from CEH's CHESS datasets.

The total contributing catchment area to the stream is estimated to be 1.8 million m^2 (180 ha); this is estimated to provide approximately 3.7 million m^3/a surface runoff and 0.8 million m^3/a groundwater recharge. The groundwater component to flow may therefore represents around 18% of the total average flow in the stream. With a roughly equal contribution from the east of the stream and the west of the stream the contribution of groundwater from the quarry catchment is therefore around 9% of average stream flow. Clearly, whilst this is the average contribution, the percentage of flow which is groundwater will vary depending on rainfall and runoff at any given time and could be much higher during dry periods.

As discussed in the previous section, there is a possibility that the faults to the east of the quarry may limit the impacts on Nant y Glais flows but this has not been proven.

5 SUMMARY AND RECOMMENDATIONS

5.1 Impacts

The future development of the quarry may lead to a reduction in groundwater levels at the quarry through dewatering by up to around 40 m. This will lead to lowering of groundwater levels around the quarry within an area defined by the watercourses to the south, east, and west of the site and the outcrop of the upper boundary of the Cwmyniscoy Mudstone Formation to the north and north west, referred to in this Report as the Vaynor Hydrological Scope Boundary (VHSB).

A number of potential receptors have been identified within this area, and this initial assessment suggests that dewatering could cause lowering of groundwater levels of the order of a few metres below these sites. Spring flows could also be reduced. The role of faults (in particular the fault to the east of the quarry) in mitigating these impacts is as yet unclear and may be difficult to prove definitively in advance of dewatering.

Stream flows in the Nant y Glais could also be reduced as a result of reduced groundwater contribution.

5.2 Mitigation

As the dewatering is largely non-consumptive, there is the option to discharge water to areas of reduced surface water flow or lowered groundwater level if necessary. The key areas where this might be required are to various springs and in the upstream reaches of the Nant y Glais to support flows in the stream and within the caves in the Nant Glais SSSI.

Maintaining groundwater levels under sensitive sites may be possible through local discharge to surface or groundwater.

5.3 Baseline Monitoring

Three key areas of monitoring are recommended: surface water flow, groundwater level, groundwater and surface water quality. Baseline monitoring locations are shown in Figure 5.1. All baseline monitoring proposed below should be undertaken for at least one full continuous year prior to the preparation of impact assessments.

5.3.1 Surface water flow

This is the key parameter to monitor. Flows should be monitored on the Nant y Glais at locations close to the northern and southern ends of the quarry and immediately downstream of the Ogof-Rhys-Sych cave system. High frequency (daily) monitoring is recommended and this would require the installation of permanent gauging stations if the necessary permissions can be obtained from landowners. If this is not possible then frequent (monthly or more) manual gauging should be undertaken as an alternative.

Monthly visual inspection of the identified springs should be undertaken. This should include photographic and video record of the springs to monitor for flow and condition.

5.3.2 Groundwater levels

The nature of groundwater flow through the aquifer means that measurement of groundwater levels at a few discrete points may not provide a definitive indication as to the potential for and degree of connection between quarry and receptor. However, it is recommended that monitoring is continued at the existing groundwater level monitoring locations (VaynOB2, VaynOB3, and VaynOB4) and a number of new groundwater monitoring locations are installed:

- VaynOB5 should be installed between the extraction area boundary and the springs within the Cwm Taf Fechan Woodlands SSSI. This location is designed to monitor potential impacts on the Cwm Taf Fechan Woodlands to the south (and the tufa-depositing springs and issues in particular).

- VaynOB6 should be installed between the extraction area boundary and the springs and cave systems along the Nant y Glais. This is designed to monitor potential impacts on the Nant Glais Caves SSSI, Nant Glais Stream and the tufa-depositing springs.
- VaynOB7 should be installed halfway between the extraction area boundary and the Llywyncilsanws Farm spring water supply. This is designed to monitor potential impacts on the water supply.

5.3.3 Water quality

Quarterly water quality monitoring should be undertaken on VaynOB5 and VaynOB6 at the Tufa springs and at the upstream gauging site on the Nant y Glais.

6 CONCLUSIONS

This report has been prepared to assist initial discussions with NRW regarding the scope of surface and groundwater monitoring which should be carried out in support of an HIA which will be undertaken as part of a forthcoming Environment Act ROMP review.

It provides a preliminary conceptual model which has been used as a rationale for defining a "Vaynor Hydrological Scope Boundary". This in turn has been used to identify receptors within the defined boundary, and to exclude the potential for effects on receptors outside the defined boundary.

Potential direct and indirect effects on receptors within the defined boundary have been defined, and outline mitigation measures have been identified.

A series of recommendations have been made for monitoring of surface water flows, ground water levels and water quality, and it is hoped that agreement can be reached with NRW regarding the recommendations which have been made, and the scope of the monitoring which has been proposed.

Subject to discussions with NRW, the monitoring exercise will be undertaken over the period summer 2017 – summer 2018, and this will inform the HIA and ROMP application EIA scheduled to be submitted by 30th December 2018.

FIGURES

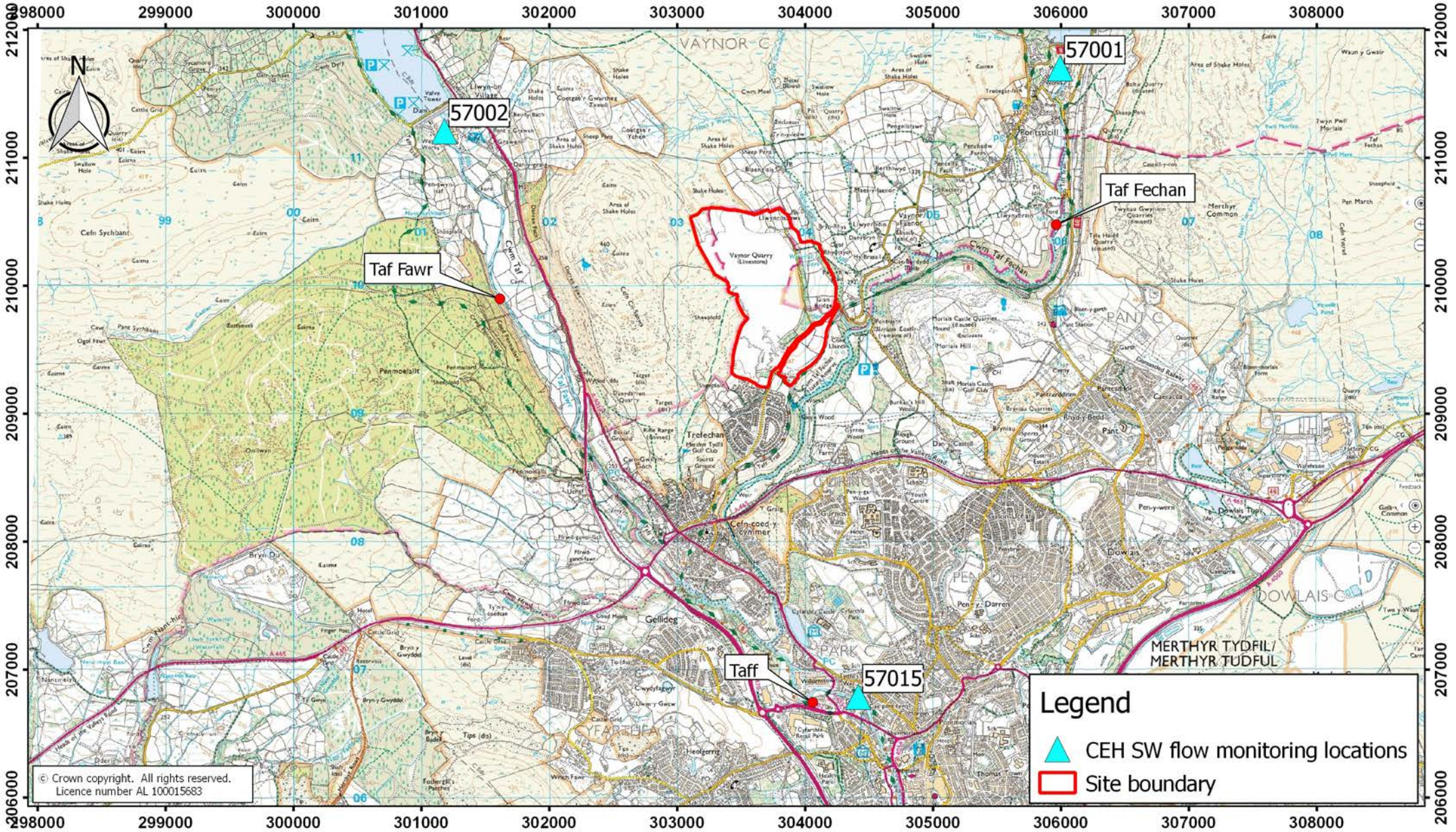

Figure 2.1

Location of river flow gauging stations

Date	11/05/2017	Drawn	SMS
Scale	1:40,000	Checked	BCH
Original	A4	Revision	2
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Applied Environmental Insight

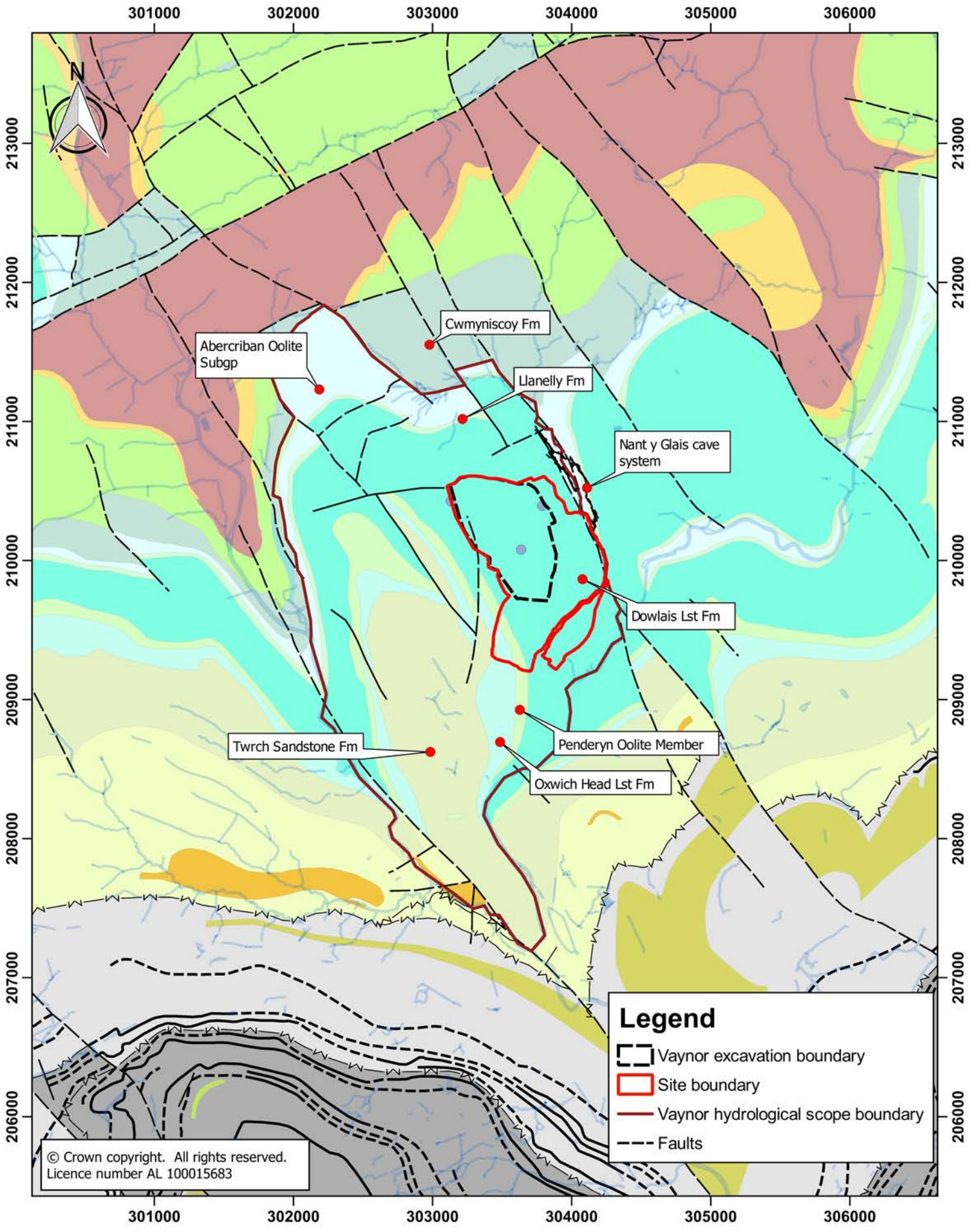

Figure 2.2

Solid Geology

Date 11/05/2017	Drawn SMS
Scale 1:35.000	Checked BCH
Original A4	Revision 2
File reference O:\64789 Vaynor Quarry ROMP\Reports\TN2 - Scoping Discussion Document\Figures\Figure 2.2 - Solid geology.pdf	

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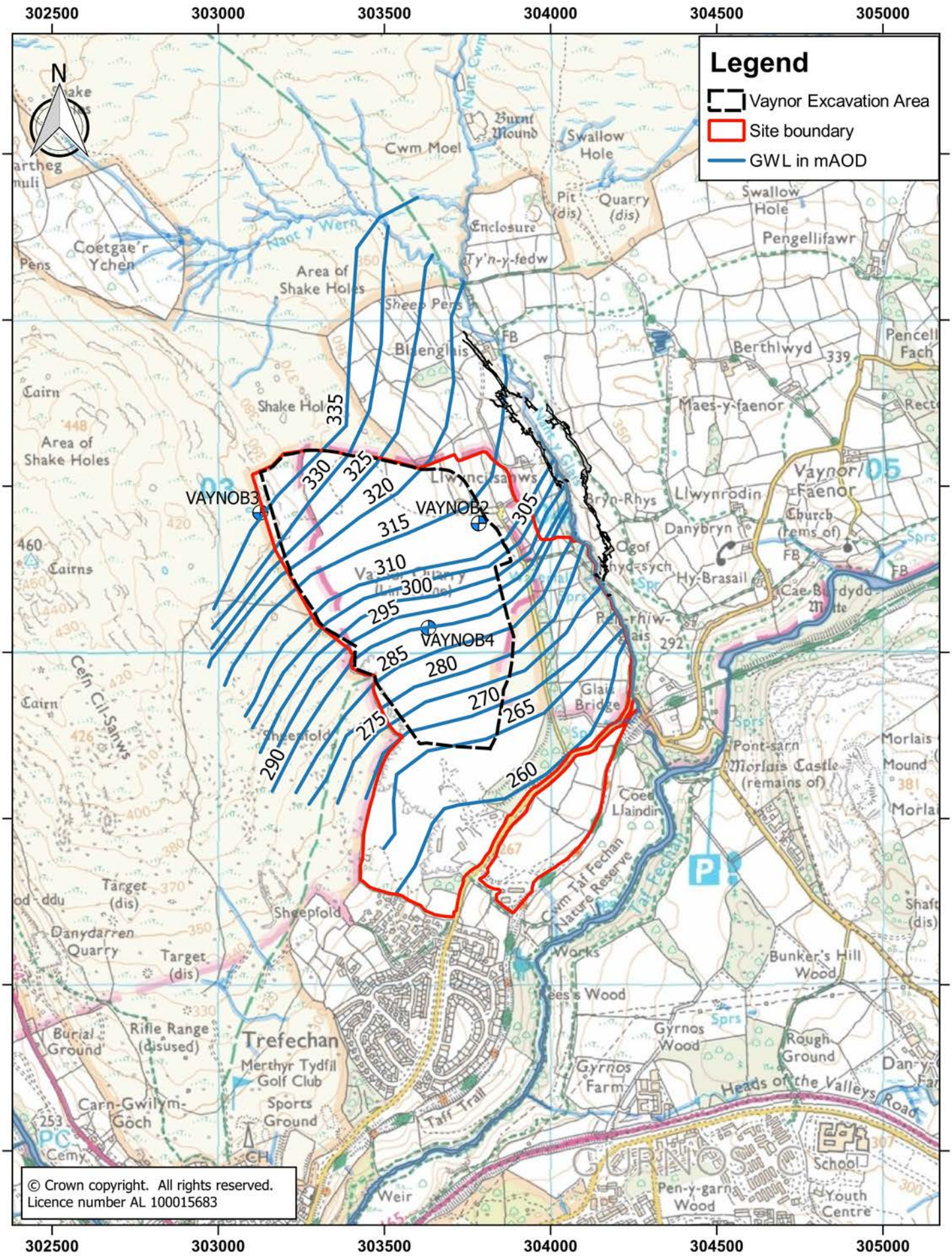

Figure 2.3

Average groundwater levels

Date: 11/05/2017	Drawn: SMS
Scale: 1:15,000	Checked: BCH
Original: A4	Revision: 2
File reference: O:\64789 Vaynor Quarry ROMP\Reports\TN2 - Scoping Discussion Document\Figures\Figure 2.3 - Mean water levels.pdf	

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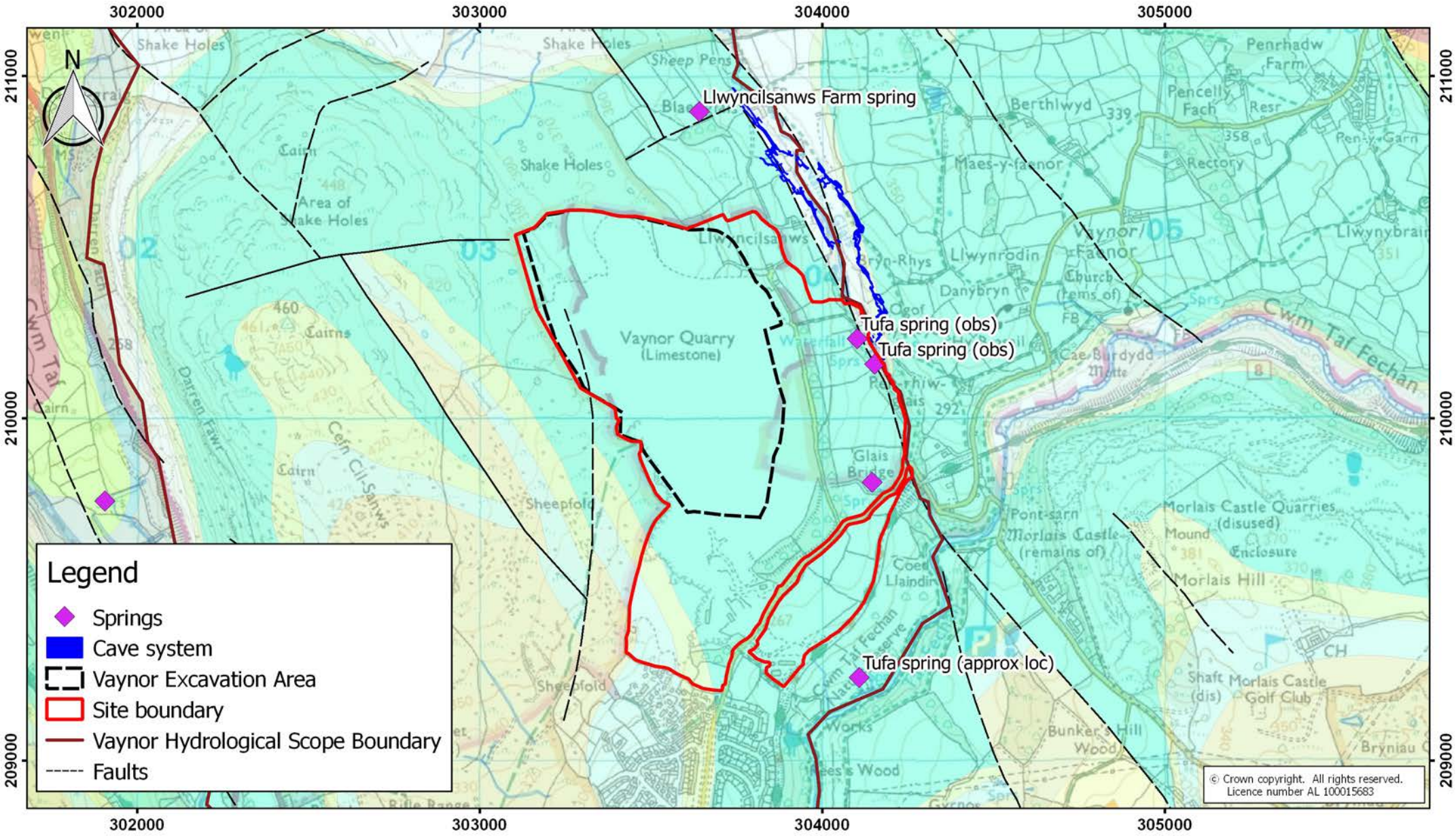

Figure 2.4

Springs

Date	11/05/2017	Drawn	SMS
Scale	1:15,000	Checked	BCH
Original	A4	Revision	2

File Reference
O:\64789 Vaynor Quarry ROMP\Reports\TN2 - Scoping Discussion Document\Figures\Figure 2.4 - Springs.pdf

esi consulting Applied Environmental Insight

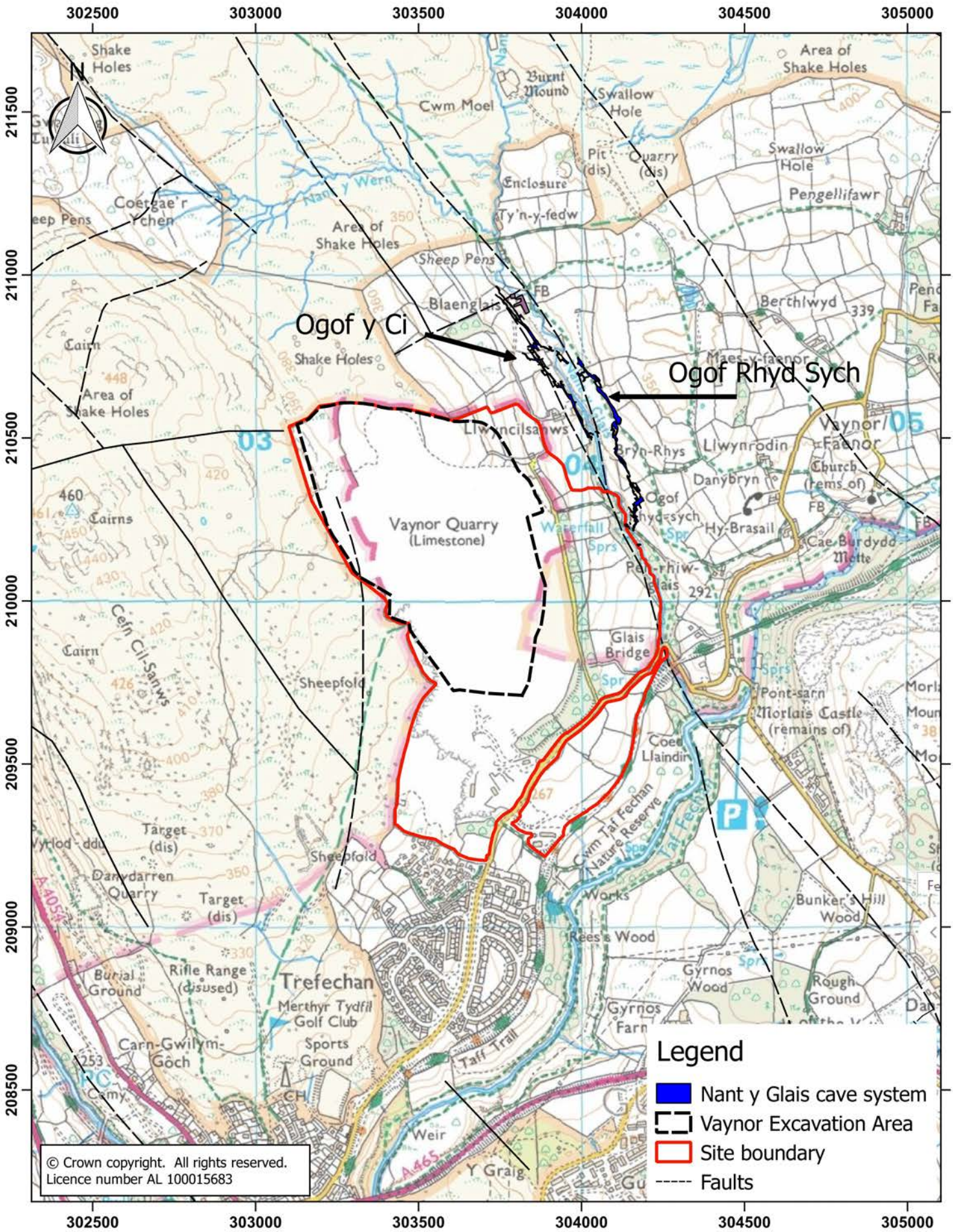

Figure 2.5

Nant y Glais Cave System

Date 27/04/2017	Drawn SMS
Scale 1:15.000	Checked BCH
Original A4	Revision 1

File reference: C:\Work\Vaynor Quarry ROMP\Reports\TN2 - Scoping Discussion Document\Figures\Figure 2.5 - Caves.pdf

esi consulting Applied Environmental Insight

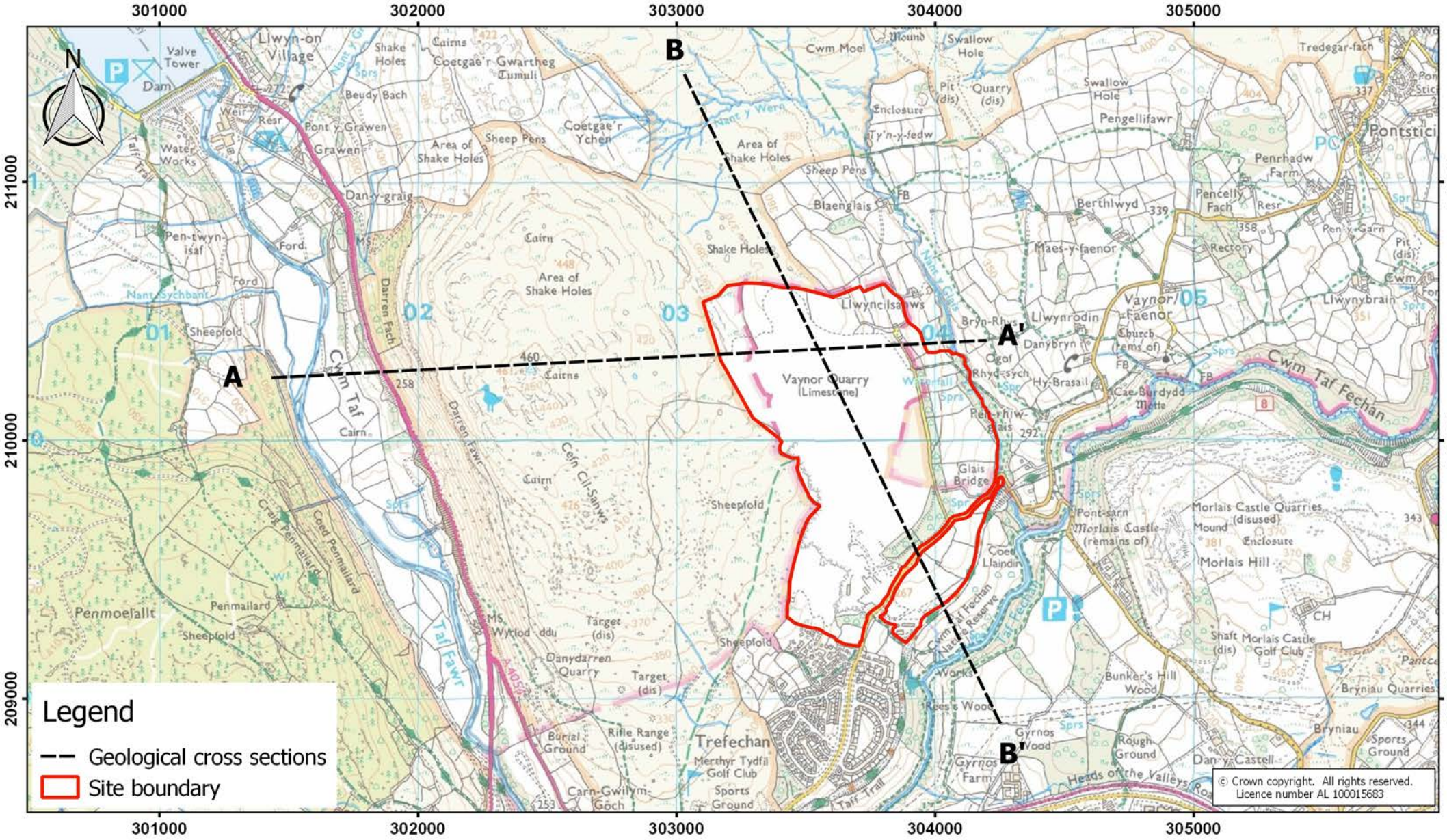

Figure 3.1

Location of Geological Sections

Date	11/05/2017	Drawn	SMS
Scale	1:20,000	Checked	BCH
Original	A4	Revision	2

File Reference
O:\64789 Vaynor Quarry ROMP\Reports\TN2 - Scoping Discussion Document\Figures\Figure 3.1 - Location of Geological Sections.pdf

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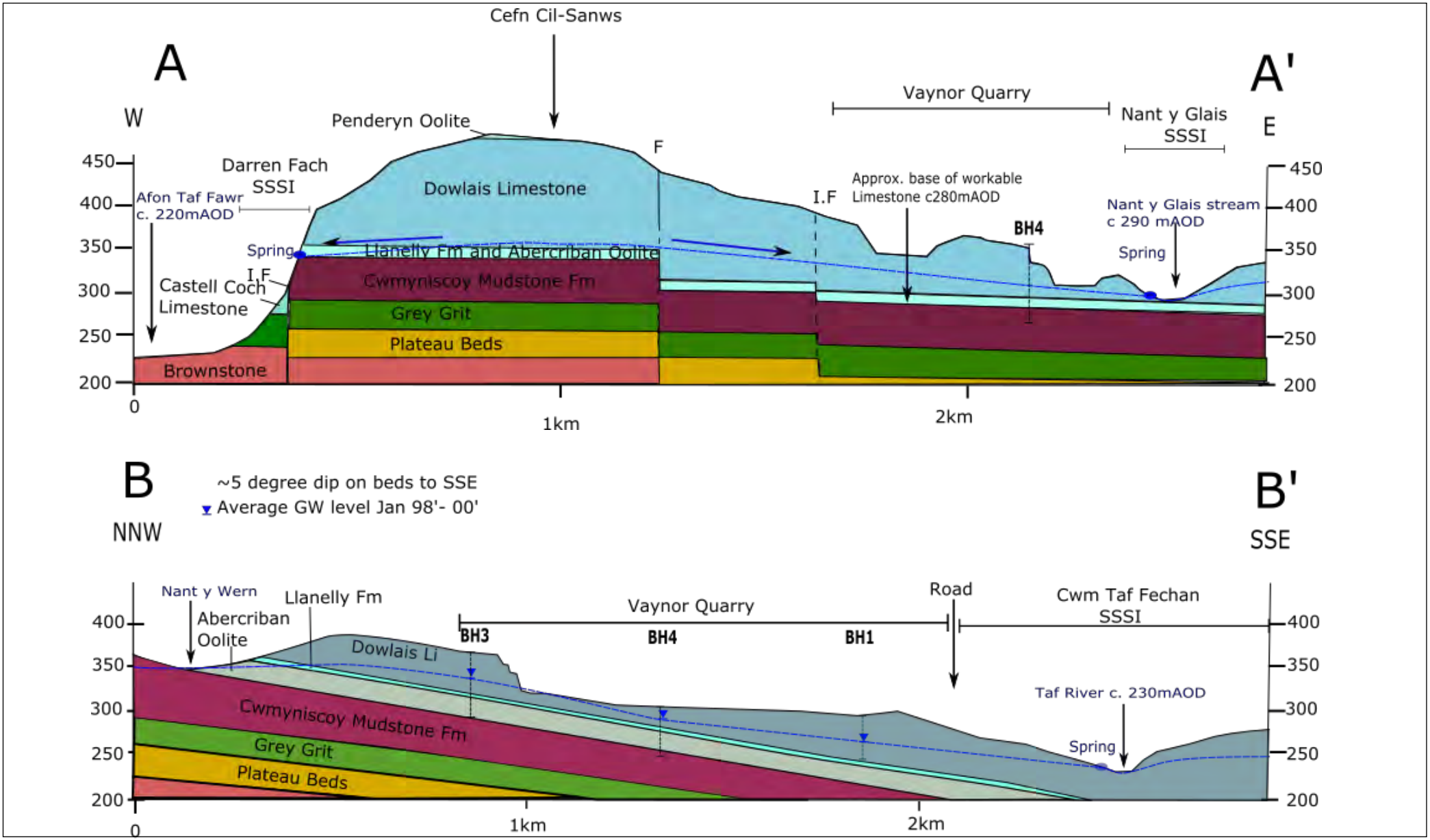

Figure 3.2a Schematic geological section A-A' (East-West)

Figure 3.2b Schematic geological section B-B' (North-South)

Date 27/04/2017	Drawn CDW
Scale NTS	Checked BCH
Original NTS	Revision 1
File Reference O:\64789 Vaynor Quarry ROMP\Reports\TN2 - Scoping Discussion Document\Figures\Figure 3.2a and Figure 3.2b.pdf	

esi Environment Specialists

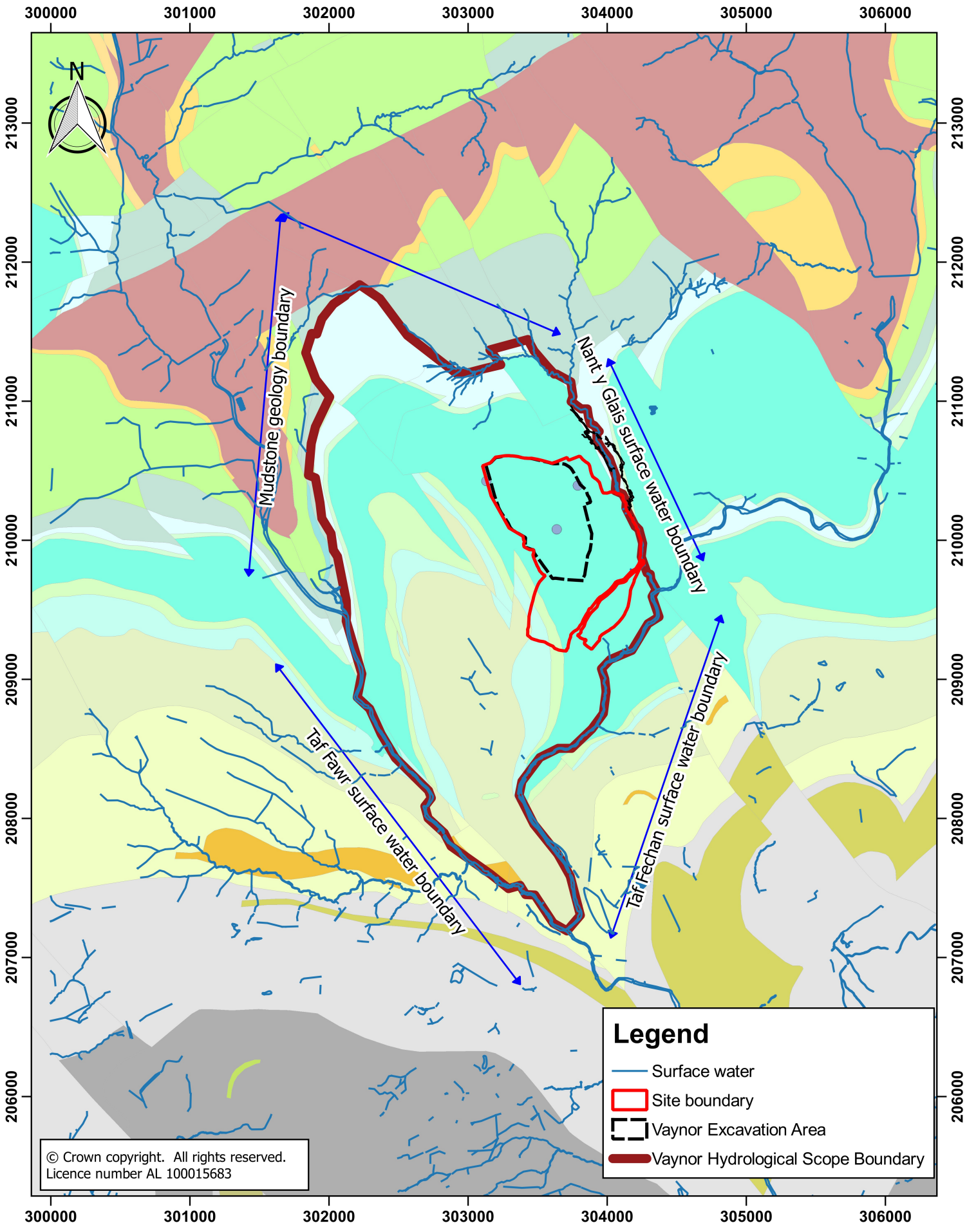

Figure 3.3

Definition of the Vaynor Hydrological Scope Boundary

Date: 27/04/2017	Drawn: SMS
Scale: 1:35,000	Checked: BCH
Original: A4	Revision: 1
File reference: O:\64789 Vaynor Quarry ROMP\Reports\TN2 - Scoping Discussion Document\Figures\Figure 3.3 - Definition of the VHSB.pdf	

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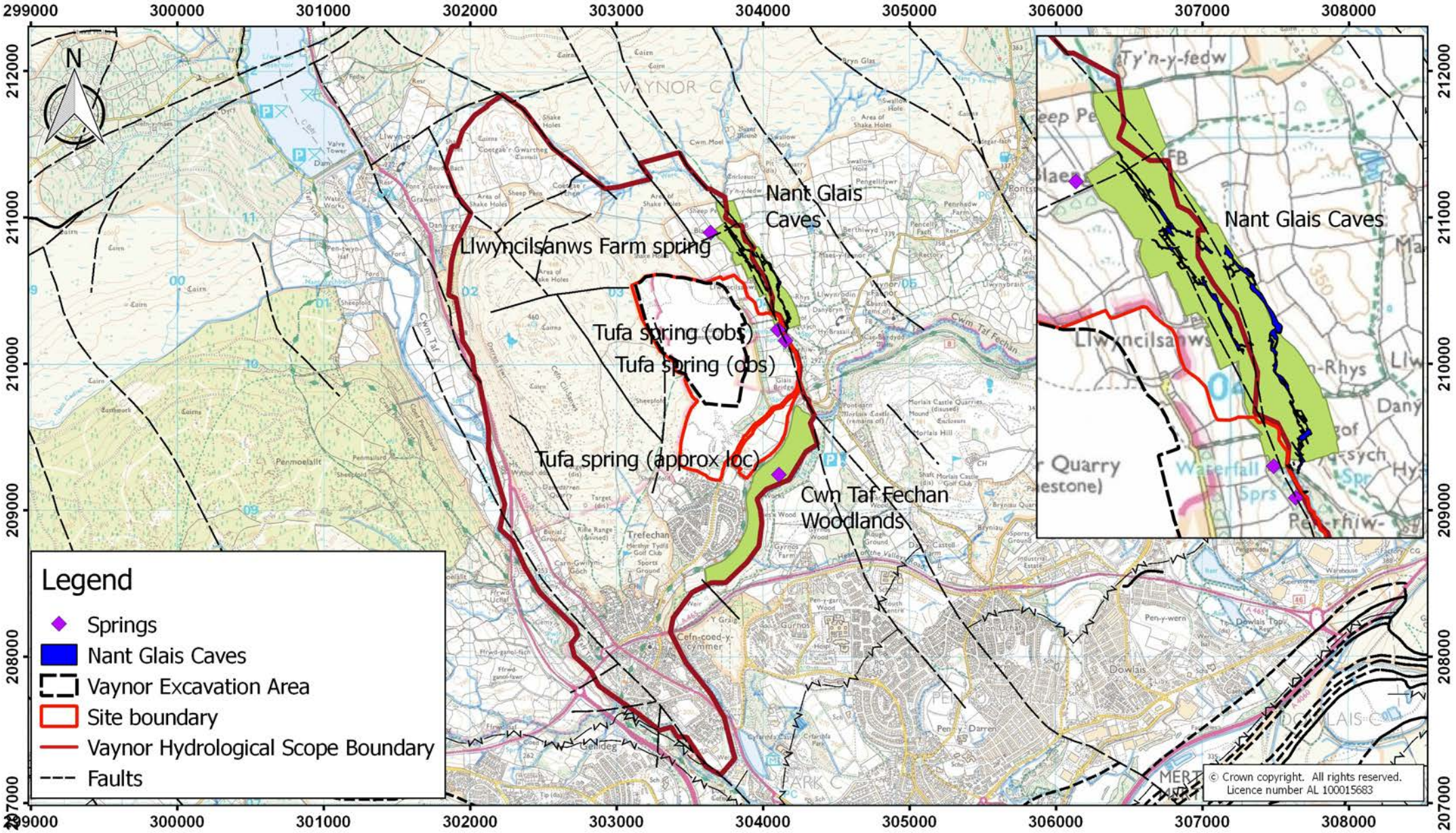

Figure 4.1

Location of receptors in the vicinity of the site

Date	11/05/2017	Drawn	SMS
Scale	Main: 1:35,000 Inset: 1:12,000	Checked	BCH
Original	A4	Revision	2
File Reference	O:\64789 Vaynor Quarry ROMP\Reports\TN2 - Scoping Discussion Document\Figures\Figure 4.1 - Ecological receptors		

esi consulting
Applied Environmental Insight

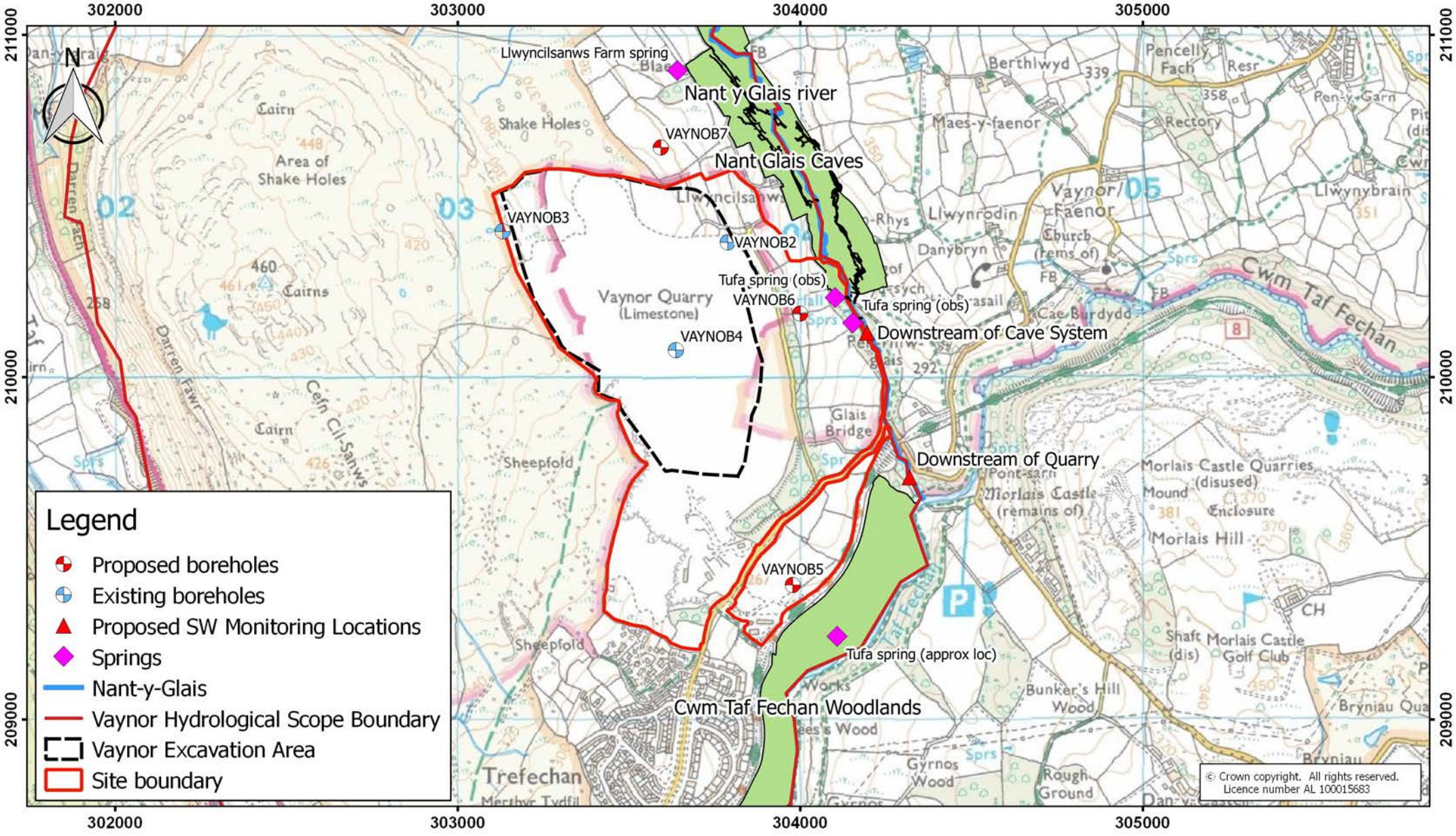

Figure 5.1

Proposed monitoring locations

Date	12/05/2017	Drawn	SMS
Scale	1:15,000	Checked	BCH
Original	A4	Revision	1.1
File Reference	O:\64789 Vaynor Quarry ROMP\Reports\TN2 - Scoping Discussion Document\Figures\Figure 5.1 - Monitoring locations.pdf		

esi consulting Applied Environmental Insight

APPENDICES

APPENDIX A

MTCBC Scoping Opinion and Key Responses

G.W.CHAPMAN LL.M., D.B.A., Dip.L.G., M.C.M.I., Solicitor
Deputy Chief Executive and Director of Customer Corporate Services
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Dyddiad/**Date :** **4th March 2010**

Ein Cyf/**Our Ref.:** **AND14/GR**
Eich Cyf/**Your Ref.:**

Llinell Uniongyrchol/**Direct Line :** **(01685) 726200**
Gofynnwch am/**Please Ask For :** **Mr A N Davies**
e-bost/**e-mail:** **norman.davies@merthyr.gov.uk**

Dear Sir

RE: REVIEW OF MINERAL PLANNING CONDITIONS, VAYNOR QUARRY, CEFN COED, MERTHYR TYDFIL – ENVIRONMENTAL IMPACT ASSESSMENT – SCOPING OPINION

Merthyr Tydfil County Borough Council considers that the review application for the above site falls within the provisions of the Town and Country Planning (Environmental Impact Assessment) (Undetermined Reviews of Old Mineral Permissions) (Wales) Regulations 2009 (the 2009 Regs) and the development is EIA development.

The Local Planning Authority has carried out a scoping exercise and considers that the information listed in the attached 'scoping opinion' should be provided in an Environmental Statement in relation to the proposed development. In reaching this opinion the Local Planning Authority has had regard to the specific characteristics of the particular development, the specific characteristics of development of the type concerned and the environmental features likely to be affected by the development.

The attached scoping opinion is intended to facilitate the preparation of an Environmental Statement but it does not preclude the Local Planning Authority from requiring the provision of further information or evidence that they consider is reasonable in order to properly consider the application.

This letter and the attached scoping opinion must be displayed at the site within 14 days of the date of this letter in such a way as to be easily visible to, and readable by members of the public without going onto the land. The Notice must remain in place for a period of at least 14 days.

A draft Environmental Statement must be submitted on or before 23 June 2010 unless a longer period has been agreed in writing with the Authority and must include all the information specified in the scoping opinion.

If a draft Environmental Statement is not submitted within the timescale specified, or such longer period as may be agreed, the planning permission to which this application relates

ceases to authorise any mineral development from the end of that period until such time as every requirement, not just the requirement which gives rise to the suspension, imposed on the applicant/operator in connection with this application has been met.

On receipt of a draft Environmental Statement the Local Planning Authority must consider whether it contains all the information specified in the scoping opinion and whether it is presented in an appropriate form. Written notification must be sent to you within 3 weeks of receipt of the draft Environmental Statement either confirming that it is satisfactory, that additional information is required or that it is in an inappropriate form.

The applicant has three weeks to supply any additional information requested in order to conform with the scoping opinion or to present the information in an appropriate form otherwise the planning permission is suspended from the end of that period until such time as every requirement, not just the requirement which gives rise to the suspension, imposed on the applicant/operator in connection with this application has been met.

If the Local Planning Authority give Notice that the Environmental Statement is satisfactory this does not preclude it from subsequently seeking further information or evidence that they consider is reasonable in order to properly consider the application.

If the planning permission for mineral development remains suspended for a period of two years from the date of any suspension and any requirement imposed on the applicant/operator has not been met the Local Planning Authority must consider whether to make a Prohibition Order in relation to all or part of the site. The Local Planning Authority must assume that mineral development has permanently ceased where it has been suspended for two years and it appears to the Authority that resumption of authorised minerals development is unlikely. A Prohibition Order must be confirmed by the Welsh Assembly Government but a confirmed order can have the effect of terminating planning permission.

I would draw your attention to Regulation 16 of the 2009 Regs in relation to the procedure to facilitate preparation of the Environmental Statement. If you consider that the Local Planning Authority or any of the consultation bodies have in their possession any information relevant to the preparation of the Environmental Statement then please do not hesitate to contact me in accordance with Regulation 16(3).

You have the right to challenge the scoping opinion but you must do so within a period of 6 weeks from the date of this letter.

Yours faithfully

A N Davies

A N DAVIES
HEAD OF TOWN PLANNING

Enc

Cyngor Cefn Gwlad Cymru
Countryside Council for Wales

CADEIRYDD/CHAIRMAN: JOHN LLOYD JONES OBE **PRIF WEITHREDWR/CHIEF EXECUTIVE: ROGER THOMAS**
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Llys Cantref / Cantref Court
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Eifion Bowen
Head of Planning
Directorate of Regeneration and Leisure
Carmarthenshire County Council
Civic Offices
Crescent Road, Llandeilo
Carmarthenshire
SA19 6HW

Ein cyf/Our ref: B.5.2.7/B.4.1.2/ID1349614
Eich cyf/ your ref: MT/19352/HT

1 March 2010

For the attention of Mr H Towns

Dear Mr Bowen,

RE: REVIEW OF MINERAL PLANNING CONDITIONS, VAYNOR QUARRY, CEFN COED, MERTHYR TYDFIL – ENVIRONMENTAL IMPACT ASSESSMENT – SCOPING OPINION

TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) (UNDETERMINED REVIEWS OF OLD MINERAL PERMISSIONS) (WALES) REGULATIONS 2009

Thank you for your consultation dated 10 February 2010, seeking the Countryside Council for Wales' (CCW's) comments on the information that should be included in an Environmental Impact Assessment (EIA) for the above proposal.

In discharging its functions under section 130 of the Environmental Protection Act 1990, the Countryside Council for Wales (CCW) champions the environment and landscapes of Wales and its coastal waters as sources of natural and cultural riches, as a foundation for economic and social activity, and as a place for leisure and learning opportunities. We aim to make the environment a valued part of everyone's life in Wales.

Please note that our comments are without prejudice to any comments we may wish to make when consulted on any related planning applications or on the submission of a more detailed scoping report or the full Environmental Statement (ES). At the time of any planning application there may be new information available which we will need to take into account in making a formal response to the planning authority.

The EIA for this development should include sufficient information to enable the planning authority to determine the extent of any environmental impacts arising from the proposed scheme on protected species and other nature conservation, countryside and landscape interests.

In general, the EIA should consider the following:

- Statutory Nature Conservation Sites (SAC, SPA, SSSI, LNR etc)
- Non-statutory Nature Conservation Sites (SINC)
- Legally Protected Species
- UK and Local Biodiversity Action Plan Habitats and Species
- Geological, hydrological and hydrogeological impacts on the environment
- Landscape and historical interest
- Access and recreation.

Each is dealt with in turn below.

Statutory Nature Conservation Sites

The following protected sites are in immediate proximity and would appear in need of particular consideration by the EIA:

- Nant Glais Caves Site of Special Scientific Interest (SSSI)
- Cwm Taf Fechan Woodlands SSSI

Nant Glais Caves SSSI was notified for its geological interest and associated fauna. The proposed deepening of the quarry may affect the hydrogeology of the area. Changes in water volumes and quality/chemistry within the SSSI could lead to adverse effects on biota, cave features and cave environment processes.

A hydrogeological assessment should address the likelihood of a significant change in the hydrological regime within the SSSI and should include any field investigation necessary to provide a sufficient level of confidence (e.g. dye tracing). If a significant change in the hydrological regime of the cave is identified as likely, cave invertebrate survey should be undertaken within the accessible level/ parts most likely to be affected by change, to assess the scale of impact to fauna.

Cwm Taf Fechan Woodlands SSSI also lies immediately adjacent to the quarry. High volumes of quarry dust or egress of liquids may cause effects within the SSSI. The EIA should address these possibilities and any others.

We attach a SSSI Site Management Statement for each of the above two SSSIs, which outlines the special features of the SSSIs and associated management issues.

There are a number of other statutory sites within 10km of the proposal. The EIA should consider the potential to impact on these sites and, where significant impacts are likely, assess

and outline the direct and indirect impacts on the features for which these sites are notified An interactive map of protected statutory sites can be found at http://www.ccw.gov.uk/interactive-maps/protected-sites-map.aspx

Where potential significant impacts are identified measures to avoid and mitigate impacts should be identified and the residual impacts assessed. Compensation should be identified where residual impacts remain. Assessments should be made using good quality information and enhancements should also be identified, in accordance with TAN5: Nature Conservation and Planning September 2009. Similarly this approach/requirement will apply to all other environmental impacts or sites, habitats, species, aspects affected, whether outlined below or otherwise identified.

Non-Statutory Nature Conservation Sites

The EIA should identify any impacts and necessary measures on non-statutory nature conservation sites/Sites of Importance for Nature Conservation (SINCs), identified/designated because of their importance at the county level for their biodiversity/nature conservation interest.

Legally Protected Species

Protected species records held on our files include:

- lesser horseshoe bats in Nant Glais Caves
- great crested newts circa 3 km away to the south-east & south-west of Merthyr
- otter records on Taf Fechan

The South-East Wales Biological Records (SEWBREC) and the ecologist of the relevant planning authority should be consulted for records to provide a full scoping of species and sites for species that may need to be addressed within the EIA.

The EIA should include a detailed and comprehensive assessment of those protected species likely to be significantly affected. New survey should be undertaken where their presence is likely but existing records are insufficient to allow a meaningful assessment. Survey work should be carried out in accordance with published guidance, where this exists and at the appropriate time(s) of year. It is possible that survey may be required in more than one year to allow an assessment.

We would particularly highlight the need to address the potential for significant impacts on bat populations. The quarry floors and cliffs may have broken into cave passage and these may be used as roosts. Smaller cliff fissures and crevices may also be used. Other man-made structures may be used as roosts. Proximity to woodland will increase the chances of bat use. Lesser horseshoe bat records exist from Nant Glais Caves SSSI.

Bat survey of the quarry area should be undertaken to identify roosts/ potential roosts. Where roosts are identified, the potential impacts from roost damage or destruction; vibration; noise;

dust; changes in airflow and humidity within cave; loss of surrounding vegetation; and lighting should be included in the assessment.

Bat surveys should follow Bat Conservation Trust (BCT) guidelines, which are available from the BCT webpage:
http://www.bats.org.uk/publications_download.php/379/BCT_Survey_Guidelines_web_final_version.pdf_ok

Peregrine falcons (*Falco peregrinus*) often nest in quarries. Breeding bird survey should be undertaken of the cliffs and quarry area.

If Peregrine or other birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) breed within the quarry, suitable approaches and conditions for working and mitigation should be identified.

UK and Local Biodiversity Action Plan (BAP) Habitats & Species

A phase II habitat survey of the quarry and immediately adjoining area should be carried out and a search/survey for notable plant and animal species. Surveys should be carried out at appropriate times of year and in appropriate weather conditions. This information should be used to identify the presence of and scale of impact to National and Local Biodiversity Action Plan Species.

We would highlight that primary and secondary limestone/calcareous grassland can be of considerable importance for grassland fungi. Records for several grassland fungi species exist within the vicinity including Olive earth-tongue (*Microglossum olivaceum*) – classified as *Vulnerable* in Great Britain. This species receives general protection under the Wildlife and Countryside Act 1981. It is also included on the provisional European red data list.

Areas of calcareous grassland should be identified and where possible avoided by works. Areas of woodland, heathland and marshy grassland may also be impacted by operations and should be avoided where possible.

Grayling (*Hipparchai semele*) colonies are known to be present nearby at Daren Fach, as well as colonies of other butterflies associated with calcareous or free-draining grassland. The Grayling is a BAP Priority species that uses sheltered sunny dry sites with sparse vegetation, including quarries. The potential for significant impact to butterfly/ invertebrate habitat should be considered.

Geological, hydrological and hydrogeological impact on the environment

In addition to the cave within Nant Glais Cave SSSI, there is potential to impact on other cave either directly or indirectly via hydrogeological connection. The EIA should collate information on known cave, assess potential impact and any mitigation measures possible. Measures that will be taken to avoid pollution and impact to the cave environment, if cave passage/conduits are intersected during quarry working, should be outlined.

Landscape

The proposal has the potential to have impacts on:

- Brecon Beacons National Park
- Merthyr Tydfil Landscape of Outstanding Historic Interest

Within Landmap the proposal lies within the MRTHRVS387 Vaynor Upland Visual and Sensory aspect layer which has an overall evaluation of High.

A Landscape and Visual Impact Assessment (LVIA) should be undertaken and should follow the Guidelines on Landscape and Visual Impact Assessment (second edition) Spon Press (2002). This should include a description of the landscape potentially affected. Information provided by CCW's LANDMAP system (www.landmap.ccw.gov.uk) should be used within the LVIA. Care should be taken to assess the full range of public viewpoints and appropriate viewpoints selected for the LVIA that will represent the impacts on visual amenity.

LANDMAP is an all-Wales GIS based landscape resource where landscape characteristics, qualities and influences on the landscape are recorded and evaluated into a nationally consistent data set. LANDMAP comprises five spatially related datasets known as Evaluated Aspects, the five layers are the Geological Landscape, Landscape Habitats, Visual & Sensory, Historic Landscape and Cultural Landscape. All information is managed through a Geographical Information System and associated Collector database.

All five layers of LANDMAP data for Merthyr Tydfil are available. All five layers of LANDMAP data for Powys are available. If there are problems with the LANDMAP website it should be possible for the information to be obtained by contacting Jenny Kamp in our Bangor headquarters. CCW would expect any Environmental Statement to demonstrate use of all five data sets in the Landscape and Visual Assessment for the proposals. CCW recommends that the impacts of any development proposals, including restoration schemes, on the landscape character of the area and its visual effects are assessed against the findings of this study.

Protected landscapes in the vicinity

The EIA should consider protected landscapes in the vicinity of the proposals. With respect to the Brecons Beacons National Park this should also consider the statutory purposes of the designation. The landscape and visual impact assessment (LVIA) should utilise appropriate viewpoints to consider the impacts of the proposals, including restoration schemes, on these protected landscapes, particularly if there is potential for the proposals to be visible from a wide area.

Photographs and photomontages

The views in photographs and photomontages taken to assist with this process should be representative of that observed from each viewpoint and not partially obscured by structures such as buildings, pylons, telegraph poles etc.

Historic Landscapes

The EIA should consider the presence of historic landscapes in the area and the potential impact that the proposed development may have on these. In accordance with Planning Policy Wales and the guidance in the 'Guide to good practice on using the register of landscapes of historic interest in Wales in the planning and development process' 2nd Ed. (CADW, 2007), an ASIDOHL would be expected for any development which is of such a scale that it would have more than local impact on an area on the Register. Copies of this publication may be obtained from CCW if required.

CCW are of the view that an ASIDOHL is not required in this particular case. The proposals involve a deepening of the quarry and only limited extension. The nature and scale of these, changes is not considered sufficient to cause more than local impact (with respect to historic landscape) when weighed against the wording in Planning Policy Wales, March 2002, section 6.5.23, and the supplementary guidance set out in sections 2.6, 2.7 in the Register Guide to Good Practice (2nd (revised) edition, Cadw, 2007). It would appear unlikely that a significant impact on this historic is likely to occur. The EIA should however describe the changes at the quarry in the context of the Historic Landscape.

Access and Recreation

- Part of the western edge of the quarry lies within common land (CL80 – Vaynor and Cilsanws Common)
- Parts of the eastern and western edges are also within Brecon Beacons National Park

The EIA should consider the implications of the proposals in terms of people's access to and enjoyment of public open space and the countryside.

It should assess the likely effects of the proposals on the local Public Rights of Way network as well as open access land and public open space in the area.

If the proposals are likely to affect the local Public Rights of Way network or people's access to open access land or public open space, the EIA should detail the measures that will be implemented to ensure that alternatives are provided and overall, the general public's accessibility to public open space and the countryside will be maintained and enhanced.

Phasing and restoration

Consideration should be given to the creation of a final form that replicates/approaches the morphology of natural limestone cliffs and outcrops, with screes and limestone grasslands.

Elsewhere in the BBNP, relatively young base rich secondary grassland on spoils have developed notable biodiversity interest, including some of the richest examples for grassland fungi in Britain. To maintain calcareous grasslands grazing would be required and design should address the practical aspects necessary to allowing safe grazing.

Limestone cliff and ledges will provide niches for nesting birds and the establishment with time of a range of plant species. A number of specialist cliff species have notable population within the vicinity, including Ley's whitebeam (*Sorbus leyana*). This extremely rare endemic species only grows at two sites just north of Merthyr Tydfil and could establish naturally with time from fruits transported by birds. There are a range of other uncommon and specialist species that may invade cliffs and crags including endemic hawkweeds.

I hope these comments are of assistance. Please do not hesitate to contact us if you have any queries or require any further information.

Yours sincerely

S.A.J. Reid

Stuart Reid
Team Leader
BBNP

Encs. Site Management Statements for Nant Glais Caves SSSI & Cwm Taf Fechan Woodlands SSSI

NANT GLAIS CAVES SITE OF SPECIAL SCIENTIFIC INTEREST

YOUR SPECIAL SITE AND ITS FUTURE

'Your Special Site and its Future' is part of our commitment to improve the way we work with Site of Special Scientific Interest (SSSI) owners and occupiers. In it, we explain what is special about the wildlife and geology on your site, and what care is needed to look after its geology into the future.

All SSSIs are considered to be of national importance and we recognise the crucial role that owners and occupiers play in their management and protection. We need you to share your views and knowledge of this site with us, to help safeguard it.

We hope that you will find 'Your Special Site and its Future' interesting and helpful. Please contact us if there is anything about the site and its management that you would like to discuss.

What is 'special' about the geology at Nant Glais Caves SSSI?

The site has one special feature:

- **Karst & Cave System**

  The limestone gorge of Nant Glais and two cave systems, which lie parallel to it and under each bank of the stream are of geological interest. The cave systems are of interest because they are developed at the contact of two different forms of limestone within the Carboniferous Limestone and the way in which they dissolve which has spectacularly influenced the pattern of cave passages.

As well as the cave feature listed above, Nant Glais Caves has habitats and species that may contribute to the interest. These include woodland along the gorge and species, such as invertebrates and fish, which live in the caves and river. Except where it is specified below, management of this site should also aim to look after these habitats and species as well as the feature mentioned above.

What do we want Nant Glais Caves SSSI to look like?

The following is a description of how we would like to see the features at this site:

There is no loss or damage to the structures that provide evidence for the formation of the caves, provided underground by the cave passage morphology or included sediments and cave decorations. There is no blocking or in-filling of surface features, such as springs or emergences or leakage into the cave system of materials likely to damage the interests. There should be no damage to the cave system through collecting or recreational activities.

Such a site as this is important for testing the latest research regarding cave processes, which are displayed here, in order to refine our knowledge. The cave system is kept in a condition, which will enable researchers to re-examine the evidence that was available to their predecessors and for teaching coming generations of students of this subject.

What management is needed on Nant Glais Caves SSSI and why?

Although the site is a good place for its geology it will only remain so if the necessary management continues. CCW's priority is to work with you to ensure that this management is carried out.

What does this mean in practice?

There are a number of different factors that could damage the features of interest at Nant Glais Caves if they are not properly managed. These are the ones we regard as most important:

- **Visibility**

  Activities that might obscure the cave features, such as the shape of the passages, sediments and stalagmites and stalactites, in particular the dumping of materials into the gorge and stream that leads to the cave system, should be avoided.

- **Agricultural practices/pollution**

  Agricultural practices could have an effect upon the caves themselves, for example through farm waste entering the stream water, and so environmental regulations should be strictly adhered to.

- **Natural processes**

  Current natural processes form part of the site interest and should continue be as little changed as possible.

- **Accessibility & Recreational use**

  Students and researchers need access to the site in order to study the structures that are present in Nant Glais Cave. However, the site lies on private land and access to the system is entirely at the discretion of the landowner.

  The cave system seems to attract visiting cavers, although numbers of visitors are unknown. Cave exploration may discover new passages in time, but such exploration must be carried out in a way which does not damage the site or destroy cave deposits of significance in understanding the cave formation processes.

Finally

Our knowledge and understanding of geology and wildlife is continually improving. It is possible that new issues may arise in the future, whilst other issues may disappear. This statement is written with the best information we have now, but may have to change in the future as our understanding improves, in particular, of the possible impact of climate change. Any information you can provide on the wildlife of your site, its management and its conservation would be much appreciated.

If you would like to discuss any aspect of your SSSI, or have any concerns about your SSSI, please contact your local CCW office.

Your local office is:

CCW
Cantref Court
Brecon Road
Abergavenny
Monmouthshire
NP7 7AX

Telephone: **01873 737000**
Fax: 01873 854753

CWM TAF FECHAN WOODLANDS SITE OF SPECIAL SCIENTIFIC INTEREST

YOUR SPECIAL SITE AND ITS FUTURE

'Your Special Site and its Future' is part of our commitment to improve the way we work with SSSI owners and occupiers. In it, we try to explain what is special about the wildlife on your site, and what care is needed to look after it into the future.

All SSSI are considered to be of national importance and we recognise the crucial role that owners and occupiers play in their management and protection. We need you to share your views and knowledge of this site with us, to help safeguard it.

We hope that you will find 'Your Special Site and its Future' interesting and helpful. Please contact us if there is anything about the site and its management that you would like to discuss.

What is 'special' about the wildlife at Cwm Taf Fechan Woodlands SSSI?

The Afon Taf Fechan has its origins as a stream on the southern face of the Brecon Beacons, and flows through several reservoirs before joining the Taf Fawr near Merthyr Tydfil. Here, it cuts through the Carboniferous Limestone that marks the edge of the South Wales coalfield and forms the wooded ravine of the Cwm Taf Fechan Woodlands SSSI. This SSSI has one special feature:

The **Semi-natural Broadleaved Woodland** at Cwm Taf Fechan is special for its wide variety of plants, including several rare species. The dominant tree species are oak, ash and downy birch, with an understorey of shrubs such as hazel and hawthorn. In places, springs occur, and where the water has previously seeped through limestone they can create porous or spongy deposits of calcium carbonate known as tufa. The humid conditions in the wooded ravine allow a particularly rich moss and liverwort flora to grow, with over a hundred species recorded.

Although parts of the woodland at Cwm Taf Fechan may have been periodically felled to provide fuel or pit props, the rich flora shows that the woodland has been in existence for a long period, and probably links back to the original 'wildwood' that covered Wales after the last Ice Age.

There are a number of scarce plant species, such as limestone fern, a species found on limestone in South Wales, North-East Wales, Avon, Somerset and parts of northern England. At Cwm Taf Fechan it can be found growing on old walls. Green spleenwort (another fern) and mountain melick (a grass) are also found here.

Other habitats at Cwm Taf Fechan include areas of acid grassland, limestone grassland and dry heath . These add diversity to Cwm Taf Fechan and help to maintain the large number of species to be found there. Part of Cwm Taf Fechan Woodlands SSSI has been declared as the Taf Fechan Local Nature Reserve.

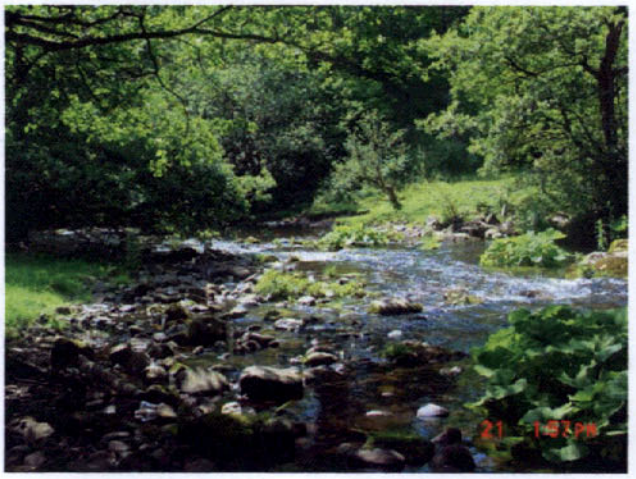
What do we want Cwm Taf Fechan Woodlands to look like?

The following is a description of how we would like to see Cwm Taf Woodlands look in the future:

The ravine that forms the Cwm Taf Fechan Woodlands is mostly covered in ash woodland, apart from some of the flatter parts of the SSSI kept open by stock grazing. The woodland itself is not continuous, and has occasional gaps in the canopy caused by dead or fallen trees. Trees vary in age, and where there are gaps in the tree canopy it is possible to see saplings growing to fill the space. Old trees are relatively rare, as trees often die early because of the difficult growing conditions on free draining limestone, but any dead wood is left to provide habitat for fungi and invertebrates.

Most of the trees and shrubs are of locally native broadleaved species. Ash is the dominant tree, but pedunculate oak, downy birch, beech, small-leaved lime and wych elm can all occasionally be found, with alder growing in damp areas near the river. Beneath the trees are scattered shrubs such as hazel, hawthorn and field

maple. Dead and dying trees, as well as live trees with holes, hollows and rotten branches, provide habitat for numerous mosses, fungi and specialist insects, as well as nesting sites for pied flycatchers, redstarts and other characteristic birds of Welsh oakwoods.



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On the woodland floor, in rocky areas near the river, luxuriant growths of mosses, liverworts and ferns can be found. Elsewhere the woodland floor is covered with a variety of plants depending on soil depth and acidity. In spring there can be an attractive display of wild flowers. In steeper areas, plants such as dog's mercury, wild garlic, primroses and violets predominate, together with some grasses such as false brome. Higher on the slope, the ground flora can be more grassy, with species such as wavy hair grass, sweet vernal grass and creeping soft grass together, in spring, with attractive displays of bluebells.

What management is needed at Cwm Taf Fechan Woodlands SSSI and why?

Although Cwm Taf Fechan is an excellent place for wildlife, it is not 'natural'. If fact, it is the product of decades or even centuries of management. This has involved direct management of the woodland itself and industry in the surrounding area. Grazing animals have been particularly important in shaping the habitats we see at Cwm Taf Fechan, but the site also has problems because of its proximity to a large urban centre. This site will only remain in good condition if the right management can be continued, and it is CCW's priority is to work with you to ensure that this management is carried out.

What does this mean in practice?

There are a number of management actions that are essential to maintain the scientific interest at Cwm Taf Fechan. These are the ones we think are most important.

Grazing has had a significant effect on the woodland in recent years. Although very light grazing can help to prevent flowers being smothered by bracken, it is very easy for this grazing to also damage young trees. If these saplings are unable to fill gaps as existing trees die and fall, then in the long term the area of woodland will shrink. Over-grazing can enrich the soil with dung, leading to an increase in species such as docks and nettles. However, some grazing will be needed if the grassland and heath are to be maintained.

Our aim is that any grazing of the site should not prevent the woodland renewing itself into the future. This may require a reduction of animals on the site, and the use of more stock-proof fencing.

Bracken is increasing in areas where the soil is deep enough to allow this invasive plant to spread. Once it forms a dense canopy, it can shade out any plants below it and prevent woodland regeneration. Our aim is to reduce the amount of bracken on site to prevent this happening. Bracken can be controlled in a number of ways including spraying, cutting and bruising. In the longer term, the aim would be to encourage saplings to 'get away' from the bracken canopy. These young trees will then eventually grow to shade out the bracken.

In common with other sites near urban areas, Cwm Taf Fechan suffers from a number of **vandalism** issues. These can vary from litter, damage to signs to arson (which can encourage bracken). There is little that can be done in the short term to prevent this, although increasing awareness through education, and closer liaison with the local police may help.

Finally

Our knowledge and understanding of wildlife is continually improving. It is possible that new issues may arise in the future, whilst other issues may disappear. This statement is written with the best information we have now, but may have to change in the future as our understanding improves. Any information you can provide on the wildlife of your site, its management and its conservation would be much appreciated.

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If you would like to discuss any aspect of your SSSI, or have any concerns about your SSSI, please contact your local CCW office.

Your local office is;
CCW (Vale and Valleys Team)
Unit 4
Castleton Court
Fortran Road
St Mellons
Cardiff
CF3 0LT
Tel: 029 20772400
Fax: 02920772412

FAO: Mr H Towns
Carmathenshire County Council
(Planning)
Crescent Road
Llandeilo
Dyfed
SA19 6HW

Ein cyf/Our ref: SE/2010/112247/01-L01
Eich cyf/Your ref: P/16141/HT

Dyddiad/Date: 03 March 2010

Annwyl Mr Towns / Dear Mr Towns

REVIEW OF MINERAL PLANNING CONDITIONS- EIA SCOPING OPINION VAYNOR QUARRY, CEFN COED, MERTHYR TYDFIL

Thank you for referring the above Scoping Opinion which we received on 12 February 2010. Unfortunately the consultation did not reach the appropriate office in time, so we have been delayed in responding. However, we understand that your Authority will still consider our comments.

We understand that you must determine the extent of matters to be covered by the Environmental Impact Assessment (EIA) and the content of the Environment Statement.

We consider the following groundwater resources and biodiversity issues to be significant, and the Environmental Impact Assessment (EIA) should consider and include information on the following:

Protection of controlled waters
We consider this site to be highly sensitive with respect to controlled waters as the quarry operation is extracting Carboniferous Limestone which under the Water Framework Directive has been classified as being a Principle aquifer (formerly Major aquifer). This aquifer has the potential for high yields which are able to support public water supply abstraction and provide baseflow to rivers on a regional scale. We note that there are a number of shake holes, streams and springs within the local area and continuation or commencement of quarry operation has the potential to impact on these watercourses.

We therefore recommend the following information is included as part of any EIA submitted to the Minerals Planning Authority (MPA):

1. Water Feature Survey with a radius of 800m – given the sensitive aquifer from which quarrying is taking place a radius has been set to consider the likely zone of impact and to identify water features within this zone. Requirement of water feature survey are detailed below.
2. Method statement detailing the methods of excavation, e.g. blasting, and how drainage from the site will be controlled e.g. surface water drainage and discharge.
3. Hydrogeological Risk Assessment (HRA) to assess the impact of the quarry operation. For guidance on HRA requirements please consult our Science report SC040020/SR1 “Hydrogeological Impact Appraisal for dewatering abstraction, 2007”.

Should any dewatering be taking place details on the abstraction rates and discharge locations along with monitoring records should be submitted as part of the EIA process. If dewatering is likely to be used at the site, we will require a minimum of 12 months groundwater and surface water monitoring to establish baseline conditions for the local area. We will also require assessment of the likely impact of dewatering following monitoring (as outlined in SC040020/SR1 “Hydrogeological Impact Appraisal for dewatering abstraction, 2007”).

Abstractions of water that are for dewatering purposes do not currently need an abstraction licence under Section 29 of the Water Resources Act 1991. We advise that this exemption is likely to be removed in the near future.

Dewatering the site may lower groundwater levels locally and could derogate any nearby domestic and licensed groundwater sources. It is the developers responsibility to ensure that no legal water abstractions are affected as a result of the development.

Requirements of Water Feature Survey
The developer must undertake a preliminary site assessment, which should include the following:
- Identification of all water features both surface and groundwater (ponds, springs, ditches, culverts etc.) within a 800 metres radius of the site.
- Use made of any of these water features. This should include the construction details of wells and boreholes and details of the lithology into which they are installed;
- An indication of the flow regime in the spring or surface water feature, for example whether or not the water feature flows throughout the year or dries up during summer months;
- Accessibility to the spring/well;
- This information should identified on a suitably scaled map (i.e. 1:10,000), tabulated and submitted to the Environment Agency. It would be useful for the developer to photograph each of the identified water features during the survey.

Based on the results of the survey the applicant must assess the likely impacts from the development on both quantity and quality of the surface water and groundwater. This should take into consideration both the preferred methods of construction and the assumed hydrogeology in the vicinity of the development.

The Environment Agency may require identified groundwater features to be monitored during the proposed workings. We would therefore recommend that the survey be undertaken as soon as possible to enable the developer to carry out suitable baseline monitoring prior to the commencement of workings at the site.

Cont/d..

Biodiversity
The EIA should consider how the management and activities of the quarry would impact upon local biodiversity.

In particular the EIA should consider how the proposal could affect the Sites of Special Scientific Interest (SSSI) in the area. The Taff Fechan SSSI has interesting plant communities in wet flushes around springs and communities of bryophytes, these features of the Quarry may be impacted from quarry dewatering activates. The interaction between the groundwater and the surrounding habitats should be further investigated. Dust and noise pollution from quarry operations may have an impact upon the site and the wildlife using the river corridor. Dust and vibrations may have an impact upon water quality and fish populations in the area, in particular the Nant Glas Caves SSSI.

Otters are present in the area with a good population resident and moving through the river corridor. The EIA should therefore assess the impacts that the quarry activities could have on the local the otters population.

Mitigation measures should be proposed to protect all aquatic features and habitats.

The Habitat Regulations are relevant to the development and an Appropriate Assessment will be required. The scope of this should be discussed with Countryside Council for Wales (CCW) should be consulted with regards to the SSSI.

In addition to the above comments, we also recommend the following points are considered:

Pollution Prevention
Surface water and ground water may be affected by a number of factors during site preparation, mineral extraction and processing operations. We would wish to be assured that there is no potential to adversely pollute surface and/or ground waters. For example this includes through the following: site drainage; surface water drainage; accidental leaks or spillages of oils and fuels from vehicles; or sediment loading of a watercourse. Mitigation measures should be proposed to avoid or reduce potential negative impacts of construction and operational activities. An appropriate water management system should be used including procedures for on-site foul and surface water disposal and the storage of oil and diesel (if applicable).

The developer is also advised to consider the implications of the Mining Waste Directive on their activities. More information can be found on the following link: http://www.netregs.gov.uk/netregs/legislation/future/108834.aspx.

Should you have any further queries, please do not hesitate to contact us.

Yn ddiffuant / Yours sincerely

Miss Gemma Beynon
Planning Liaison Officer (1)

Deialu uniongyrchol/Direct dial 029 20245297
Ffacs uniongyrchol/Direct fax 02920 362920
E-bost uniongyrchol/Direct e-mail gemma.beynon@environment-agency.gov.uk
Cont/d..

cc Brecon Beacons National Park Authority, Merthyr Tydfil County Borough Council

BRECON BEACONS NATIONAL PARK

Lle i enaid gael llonydd
One of Britain's breathing spaces

Eifion Bowen
Head of Planning
Directorate of Regeneration and Leisure
Civic Offices
Crescent Road, Llandeilo
Carmarthenshire
SA19 6HW

3 March 2010

For the attention of Mr H Towns

Dear Mr Bowen,

RE: REVIEW OF MINERAL PLANNING CONDITIONS, VAYNOR QUARRY, CEFN COED, MERTHYR TYDFIL – ENVIRONMENTAL IMPACT ASSESSMENT – SCOPING OPINION

TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) (UNDETERMINED REVIEWS OF OLD MINERAL PERMISSIONS) (WALES) REGULATIONS 2009

Thank you for your consultation dated 9 February 2010, seeking the views of the Brecon Beacons National Park Authority (BBNPA) on the scope of information that should be included in an Environmental Impact Assessment (EIA) for the above Blaen Onneu quarry proposal.

It is acknowledged that the BBNPA is required in accordance with Regulation 12, to provide in writing a scoping opinion on the EIA. As your letter has been addressed to the National Park Ecologist the comments provided below are specifically limited to the information required to inform only the ecological aspects of the EIA.

In accordance with the Regulations, the EIA for this development should include sufficient information to enable the BBNPA to determine the extent of any significant environmental impacts arising from the proposed scheme on protected species and other nature conservation interests.

Please note that these views are without prejudice to any comments the BBNPA may wish to make when consulted on any related planning applications or on the submission of a more detailed scoping report or the full Environmental Statement (ES). At the time of any planning application there may be new information available which may be material to any determination.

The views provide are based on information held by the Countryside Council for Wales (CCW) and Biodiversity Information Service for Powys and Brecon Beacons National Park (BIS). This information is not exhaustive and may therefore not address all potential significant impacts. Additional ecological to inform necessary ecological surveys may be held by the following parties:

- Countryside Council for Wales (Tel: 01873 737000);
- Biodiversity Information Service for Powys and Brecon Beacons National Park (BIS) (Tel: 01874 610881);
- South-East Wales Biological Records Centre(SEWBREC) (Tel: 02920 641110);

- Merthyr Tydfil CBC, Countryside & Landscape (Tel: 01685 725278);
- Brecknock Wildlife Trust (Tel: 01874 625708); and
- Environment Agency Wales' Biodiversity Officers (Tel: 08708 506506).

The EIA process must identify the significance of the potential impacts on the ecological receptors following the published guidelines, e.g. IEEM Guidelines for Ecological Impact Assessment. Survey work should be carried out by appropriately qualified personnel using accepted methodologies at the recognised times of year for the habitats and species likely to be encountered. In the event of potential significant impacts being recognised the ES should provide sufficient details on the measures required to avoid or mitigate such impacts. Where residual impacts remain following the application of mitigation, compensation measures should be identified. In accordance with national policies, Technical Advice Note 5 (September 2009) and local policies, BBNPA Unitary Development Plan (March 2007), not only should impacts be moderated but net gains for biodiversity should also be identified and secured to also satisfy the requirements on the BBNPA from the Natural Environment and Rural Communities Act (NERC) 2006.

The ecological scope of the EIA should cover:

- Statutory Nature Conservation Designations
- Non-Statutory Nature Conservation Sites
- Protected Species
- UK and the BBNPA Biodiversity Action Plan (BAP) Habitats & Species

It is essential that the significance of ecological impacts is appraised for all stages of the quarry development, operation and final restoration, and appropriate mitigation proposed for each stage.

Statutory Nature Conservation Designations

Sites of Special Scientific Interest (SSSI)

Records show that two Sites of Special Scientific Interest (SSSI), Nant Glais Caves and Cwm Taf Fechan Woodlands, are in close proximity to the Vaynor quarry site as illustrated in the supporting statement provided by the applicant. Nant Glais Caves SSSI lies east of the application site, approximately 150 metres from the illustrated quarry boundary. Cwm Taf Fechan is located just outside the boundary of the Brecon Beacons National, approximately 600 metres south-east of the quarry boundary.

The EIA needs to assess the potential significance of direct and indirect effects on these protected sites. CCW hold full details of the SSSI designations and the features for which they are notified. The Nant Glais Caves SSSI has been notified for its geological cave system and associated fauna, including an unusually large population of white trout and a Red Data Book cave-dwelling spider, *Porrhomma rosenhaueri*. Consequently the assessment needs to examine any potential changes to the hydrological regime which could lead to adverse effects on the cave features and the notified species.

Cwm Taf Fechan Woodlands SSSI supports interesting plant communities associated with limestone exposures, flushes and tufa springs. The EIA should address the potential for hydrological effects on the flush and spring communities and also the effects of quarry dust emissions.

There are a number of other SSSIs within a 10km radius of the application site as illustrated. The EIA should consider the potential direct and indirect impacts on these sites

Non-Statutory Nature Conservation Sites

The EIA should consider the effects of the proposed development on non-statutory nature conservation sites, Wildlife Sites, designated because of their importance at the county level for their biodiversity interest.

The BBNPA has confirmed a list Wildlife Sites in association with the Brecknock Wildlife Trust. There no confirmed sites within 5km of the quarry boundary as illustrated. The list of sites remains under review and therefore further advice should be sought from the BBNPA during the course of the EIA.

Legally Protected Species

The EIA should include a detailed and comprehensive assessment of those protected species that may be affected by the proposal, including any species that occupy adjoining land, but which may use the proposed site. The assessment should include an evaluation of the population and detail of any mitigation measures available to enable the requirements of Habitats Regulations 1994 to be satisfied in the case of European protected species.

<u>European Protected Species</u>

CCW hold records for:

- lesser horseshoe bats in Nant Glais Caves.
- great crested newts within 3km of the application site

Further species records may be held by Biodiversity Information Service for Powys and Brecon Beacons National Park (BIS), South-East Wales Biological Records Centre (SEWBREC) and the county ecologist of Merthyr Tydfil CBC.

Due to the proximity of the known lesser horseshoe roosts in the Nant Glais Caves there is the potential for lesser horseshoe bats to be present within the structures located on the faces of the existing quarry void or within connected features. It is recognised that establishing the presence of roosting bats in such environments is difficult. It is therefore recommended that the detailed scope of any survey work is developed in subsequent consultations with CCW. Sufficient information needs to be gathered to allow the tests set out in Regulation 44 of the Habitats Regulations 1994 to be met.

As a minimum, a screening survey for water bodies suitable to support great crested newts should be completed over a 500 metres radius from the application site as illustrated.

<u>Birds</u>

A Breeding bird survey should be undertaken of the cliffs and quarry area and the surrounding area to assess the potential impacts on Schedule 1 species, in particular peregrine falcons which are known to nest within quarries. In accordance with the strict protection afforded to peregrines and other Schedule 1 bird species under the Wildlife and Countryside Act 1981 (as amended) appropriate mitigation

measures must be described should this protected species be recorded within the quarry or surrounding area.

UK and Local Biodiversity Action Plan (BAP) Habitats & Species

To inform the EIA a Phase II habitat and vegetation survey of the quarry and immediately surrounding area should be completed, including a survey for notable plant and animal species. This information should be used to identify the presence of and significance of impact on habitats and species listed in National, the Local Biodiversity Action Plans for the BBNPA and Merthyr Tydfil CBC and Section 42 of the NERC Act 2006.

To support and inform the survey work any existing records habitat and species records should be sought from CCW and the other parties previously listed.

I trust these views are of assistance. Should you require any further information on the broader aspects to be considered within the scope of the EIA please contact our Head of Development Control, Kevin Jones.

Yours sincerely,

Graham Cowden
Conservation Officer
BBNPA

Cc. Kevin Jones, Head of Development Control, BBNPA

APPENDIX B

SLR Ecological Report

Vaynor Quarry

Ecological Report to inform Baseline Hydrological / Hydrogeological Surveys

SLR Ref: 406.00027.00434
Version No: 3
March 2017

CONTENTS

TABLES

DRAWINGS

APPENDICES

1.0 INTRODUCTION

SLR Consulting Limited (SLR) has been commissioned by Hanson to provide initial ecological advice in respect of Vaynor Quarry, hereafter referred to as the 'site'. The approximate centre of the site is located at National Grid Reference (NGR) SO 035 103 and due to its extent it occurs within both the Merthyr Tydfil County Borough Council (MTCBC) and Brecon Beacons National Park Authority (BBNPA) administrative areas.

Vaynor Quarry is currently 'mothballed', although there is currently in the order of 40-50 million tonnes of mineral reserve that could be extracted at the site. The site benefits from an existing mineral planning permissions, although The Environment Act 1995 sets outs a process whereby the planning conditions imposed on mineral planning permissions are reviewed on a 15 year cycle (Periodic Review), a process often referred to as a 'Review of OId Minerals Permissions' or 'ROMP' review.

The process is typically supplemented by the completion of an Environmental Impact Assessment (EIA) to identify any significant environmental effects, identify appropriate mitigation measure and, ultimately, inform a schedule of updated planning conditions to ensure operations comply with current planning policy, industry standards or relevant environmental legislation.

The first Periodic Review for Vaynor Quarry is required to be submitted by January 2019, although Hanson may consider making a Consolidation Application in place of a 'periodic review' and this would still require an EIA to be undertaken.

1.1 Scope of Study

A degree of consultation has already taken place between the two planning authorities and key stakeholders when in 2010 the quarry was wrongly identified as an 'Undetermined ROMP' site. This included, but was not limited to scoping opinions being issued by MTCBC and the BBNPA, following scoping advice being issued by the Environment Agency Wales and the Countryside Council for Wales (both now Natural Resources Wales) which identified the need to consider in detail the potential hydrogeological effects of the continued operation, in particular upon ecologically designated sites.

As part of this initial consultation, one of the key environmental considerations identified for consideration in any future EIA, is the interaction between site hydrology/hydrogeology and important ecological receptors. This is due to the likelihood that the continued operation of Vaynor Quarry will eventually require de-watering during operational periods, which could have indirect effects on groundwater dependent habitats in the vicinity.

As such, this study has been commissioned to identify important ecological features (habitats) in the zone of potential influence, to ensure that the Hydrological Impact Assessment (HIA), that will form part of the EIA, is suitably designed to gather appropriate and sufficient baseline information to then enable a thorough assessment of the potential impacts upon ecological features to be completed and any necessary mitigation or compensation measure to be identified.

1.2 Limitations

At this stage, advice is given on the basis of a 'desk top' study only to ascertain the location and extent of important habitats which could be susceptible to changes in the hydrological/geological regimes that current exist. No site work or inspection of identified habitats or features has been undertaken. Given the intended purpose of the study, this is

not deemed to be a limitation or likely to prevent the objective of identifying important ecological features from being met.

2.0 METHODOLOGY

The following organisations or on-line resource have provided data which has been used to prepare this report:-

- South East Wales Biodiversity Records Centre (SEWBReC) for information regarding statutory ecological designations (within 5km of the site boundary), non-statutory ecological designations (within 2km of the site boundary) and habitat inventories i.e. Section 42 habitats and ancient woodland (within 2km of the site boundary);
- Biodiversity Wales website[1] for information on habitats and species of principle importance in Wales;
- Forestry Commission Wales (FCW) website[2] for information on the 2011 Ancient Woodland Inventory (AWI);
- Consultation with the LPA ecologist for Merthyr Tydfil; and
- Consultation with NRW regarding Phase 2 vegetation survey data and Daren Fach SSSI.

A copy of all external data received for the purposes of this study have been included as Appendices A and B.

It is important to note, that following commencement of the data search, the project Hydrogeologists were able to refine the 'standard 2km and 5km' search areas to a bespoke 'study area' shown on Drawings 1 to 3. In this instance, the study area has been defined on the basis of river catchments and underlying geology as these have an influence on the potential zone of influence from the quarry itself and in this case significantly reduce the zone of potential influence.

[1] http://www.biodiversitywales.org.uk/en-GB/Section-42-Lists

[2] http://www.forestry.gov.uk/forestry

3.0 RESULTS

3.1 Ecological Designations

3.1.1 Statutory Ecological Designations

Table 3-1 identifies statutory designated sites occurring within the study area, as shown, on Drawing 1. Further details are provided in Appendix A.

Table 3-1
Summary of Statutorily Designated Sites within 5km

Site name and importance	Proximity to site boundary	Habitats and additional features
Cwm Taf Fechan Woodlands SSSI	Adjacent to the SE of the site and 0.3km E	Partially wooded valley of the Taf Fechan crosses the north crop Carboniferous Limestone. Mixed deciduous woodlands over steep slopes and spoil from quarries with one of the few Glamorgan stations for *Gymnocarpium robertianum*. Interesting plant communities in flushes around tufa springs and luxuriant growths of bryophytes in the splash zone of the river. The SSSI is also partly designated as a Local Nature Reserve.
Nant Glais Caves SSSI	Adjacent to the NE of the site	Limestone gorge of the Nant Glais and two vadose cave systems which lie parallel to it and under each bank. Both caves are formed at the contact of the oolitic and dolomitic facies within the Carboniferous Limestone and the contrasting solutional properties of the two lithologies have spectacularly influenced the passage morphology. The caves are also important for their unusually large populations of white trout. The site is within the Brecon Beacons National Park and the citation identifies that the SSSI is, in part, a Glamorgan Trust for Nature Conservation Reserve although this has not been verified as still being the case.
Daren Fach SSSI	c. 0.2km W	Open scrub on low limestone cliffs with screes and woodland on the gentler slopes. The latter are dominated by ash inter-mixed with wych elm together with a well-developed understorey of hazel and hawthorn. Field maple is present and a group of small-leaved lime lies at the northern end. The primary interest lies in a concentration of Sorbus spp. on the southern end of the Darren Fach crags. This is the type locality for the rare Ley's Whitebeam *Sorbus leyana*. Several shrubs of *S. leyana* together with a specimen of *S. rupicola* grow in association with ash, yew and holly. Within the Brecon Beacons National Park

3.1.2 Non-Statutory Ecological Designations

SEWBReC identified three Sites of Importance for Nature Conservation (SINCs) within the study area as described in Table 3-2 below. Further details are provided in Appendix A.

Table 3-2
Non-Statutory Designated Sites

Site Name	Proximity to site boundary	Description
Cilsanws Common South SINC	0.2km SW	Area of semi-upland and upland common land. The habitats include dry heathland and acid grassland mosaics, acid flushes, wet heathlands, extensive bracken slopes with scattered trees, and small areas of calcareous grassland and scrub.

Cwm Taf Fechan SINC and Wildlife Trust Reserve	1km S	A linear site based on the valley of the Afon Taf Fechan and containing the Cwm Taf Fechan Woodlands SSSI but covering adjacent habitats supplementary to those of the SSSI and includes limestone woodlands, calcareous grasslands, species-rich neutral grasslands, heathlands and limestone scrub. It is considered the single most important biodiversity resource in the county borough. The SINC additionally includes heathlands, acid and calcareous grasslands, bracken slopes, calcareous flushes and calcareous scrub woodland habitats. Many regionally rare and scarce plant species occur.
Cwm Taf Fawr SINC	1.2km SW	Section of major river tributary of the Afon Taf with SINC which includes adjacent woodlands. The upper reaches in particular are of high ecological value, comprising limestone gorge woodland dominated by oak and ash, with a rich ground flora including numerous rare plant species.

3.1.3 Other Designations

The SEWBReC report also identified the presence of Ancient Semi Natural Woodlands (ASNW) within the search area although these woodlands occur within the ecologically designated sites identified above.

The Phase 1 Habitat survey information provided by SEWBReC also identifies the presence of habitats identified as being or principle importance for conservation in Wales (i.e Section 42 habitats under the NERC Act 2006). This includes the following habitat groups which (can) support vegetation communities that are dependent on either surface or ground water: semi-natural broadleaved woodland, unimproved grassland, marshy grassland, wet heath, heath/acid grassland mosaic, blanket bog, flushes, fen, mire, standing water/marginal habitats and limestone pavement. It should be noted that some occurrences of Section 42 habitats are within the ecologically designated sites described above.

4.0 IDENTIFYING POTENIAL IMPACTS

Following review of the data search, Table 4-1 below provides a summary of the identified important habitats or ecological designations within the study area and considers whether they have the potential to be adversely affected by changes to the current hydrological/geological regime during continued operation of Vaynor Quarry when de-watering will be required.

Where potential impacts have been identified, the need for further assessment as part of the HIA is highlighted.

It is important to note that certain species may also be indirectly affected if there are indeed impacts to these habitats that could led to changes in habitat type or extent, for example otter is known to occur at Cwm Taf Fechan SSSI and lesser horseshoe bat at Nant Glais Caves SSSI, salmon and other fish species also occur in watercourses.

Table 4-1
Summary of Potential for Impacts/Impact Pathways

Potential Receptor	Potential impact	Further Information/scoping required as part of HIA?
Cwm Taf Fechan Woodlands SSSI.	Depleted flow of flushes, tufa springs and watercourse leading to habitat loss and/or alteration of plant communities, in particular ground flora and bryophytes.	Yes
Nant Glais Caves SSSI.	Depletion in flow resulting in changes to internal conditions may impact upon aquatic species, such as trout, or terrestrial species adapted to humidity conditions within cave i.e invertebrates and bats (presence of lesser horseshoe bat raised by CCW).	Yes.
Daren Fach SSSI.	Based on citation, does not appear to contain ground water dependent ecosystems and so the potential for impacts due to changes in hydrology is low.	No – NRW confirmed assumptions made by reviewing citation.
Cilsanws Common South SINC.	Depletion of local water table leading to loss of marshy grassland (fen meadow) and flush habitats.	No – wetland interest is localised and is topographical/soligenous (wet heath/flush) rather than ground-water dependent.
Cwm Taf Fechan SINC and Wildlife Trust Reserve (outside of SSSI).	Habitat loss and/or alteration of plant communities, in particular ground flora and bryophytes.	Not in addition to consideration of SSSI features.
Cwm Taf Fawr SINC.	Depletion of ground water leading to alteration or loss of habitat through change in species composition.	No – no strong wetland interest. Localised streamside wet areas from impeded drainage.

5.0 SUMMARY AND CONCLUSIONS

SLR has completed a desk-top study to identify habitats, including Section 42 habitats and ecologically designated sites, in the vicinity of Vaynor Quarry which have the potential to be adversely affected by the continued operation of the site. In addition to the operational impacts i.e. though de-watering of the quarry void which could lower local ground water levels (a drawdown cone), it will also be necessary to assess whether flow regimes will be affected (during and operational and restored phases) and any longer term effects associated with restoration i.e the formation of a large water body (if proposed) may influence the local water table levels or surface water regimes.

The desk study has identified that the potential for impacts to occur does exist, as watercourses, aquatic habitats (such as flushes and tufa springs) and ground water dependent terrestrial ecosystems (i.e. marshy grassland) do occur in the potential zone of influence, including within areas with statutory and non-statutory ecological designations.

Initial consultation with the hydrogeologist has identified that the majority of identified ecological sites can be scoped out of further assessment based on a combination of topographical and geological characteristics of the study area.

Whilst it is evident that further assessment is required in respect of Cwm Taf Fechan SSSI and Nant Glais Caves SSSI, Daren Fach SSSI can be scoped out of the Hydrological study.

Further details regarding the possible extent of any groundwater drawdown, and the types of vegetation communities that occur, within these sites is required to clarify if these sites can be scoped out at this stage. The Hydrological Study will also need to, in terms of ecology, identify whether any significant alteration to flow levels of water courses in the study area would occur. Such an effect may have indirect impacts on receptors such as fish.

It will be necessary to monitor the results of the hydrological study as, if it indicates an impact is possible, it is possible that ecological survey will be required at the identified receptors to identify the location and extent of features of interest which could also have lead in or timing implications to consider when undertaking the eventual EIA.

6.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Hanson; no warranties or guarantees are expressed or should be inferred by any third parties.

SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

LEGEND

- STUDY BOUNDARY
- WOODLAND VEGETATION
- GRASSLAND VEGETATION
- UPLAND VEGETATION
- SITES OF SPECIAL SCIENTIFIC INTEREST
- LOCAL NATURE RESERVE
- NATIONAL PARK

N

Vaynor Quarry

Contains Ordnance Survey data © Crown copyright and database right 2017

00027.00434 1 Phase 2 Suvery Data & Designations 2km

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4/5 LOCHSIDE VIEW
EDINBURGH PARK
EDINBURGH
EH12 9DH

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VAYNOR QUARRY

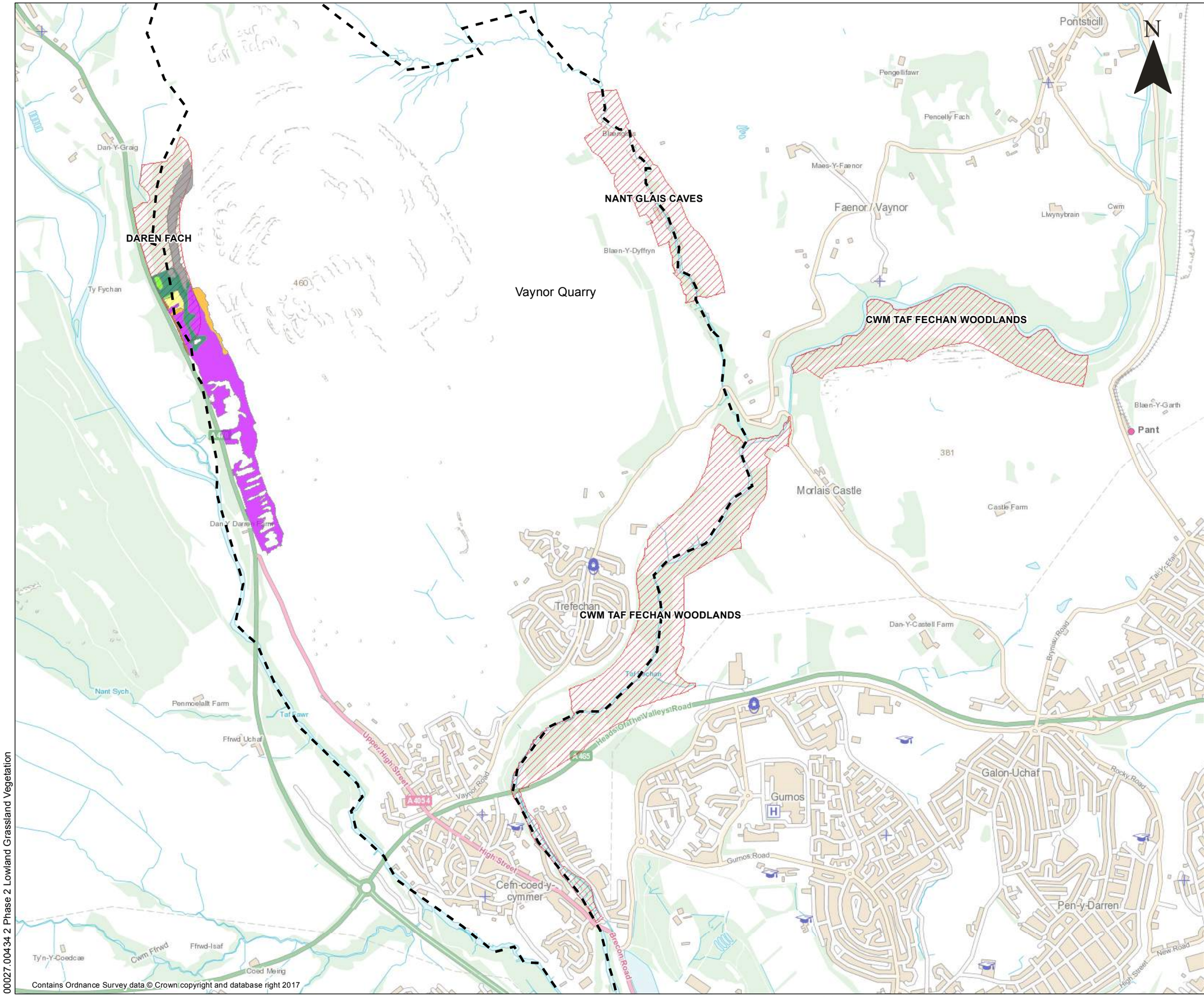
ECOLOGY

PHASE 2 SURVEY DATA & STATUTORY DESIGNATIONS WITHIN STUDY AREA

1

Scale 1:25,000 @ A3

Date FEBRUARY 2017



LEGEND

- STUDY BOUNDARY
- SITES OF SPECIAL SCIENTIFIC INTEREST

LOWLAND GRASSLAND VEGETATION

- CG10A
- CG1E
- DENSE BRACKEN
- DENSE SCRUB/WOODLAND
- LIMESTONE SCREE INCLUDING OV38
- BARE/DISTURBED GROUND
- ACCESS NOT OBTAINED

00027.00434 2 Phase 2 Lowland Grassland Vegetation

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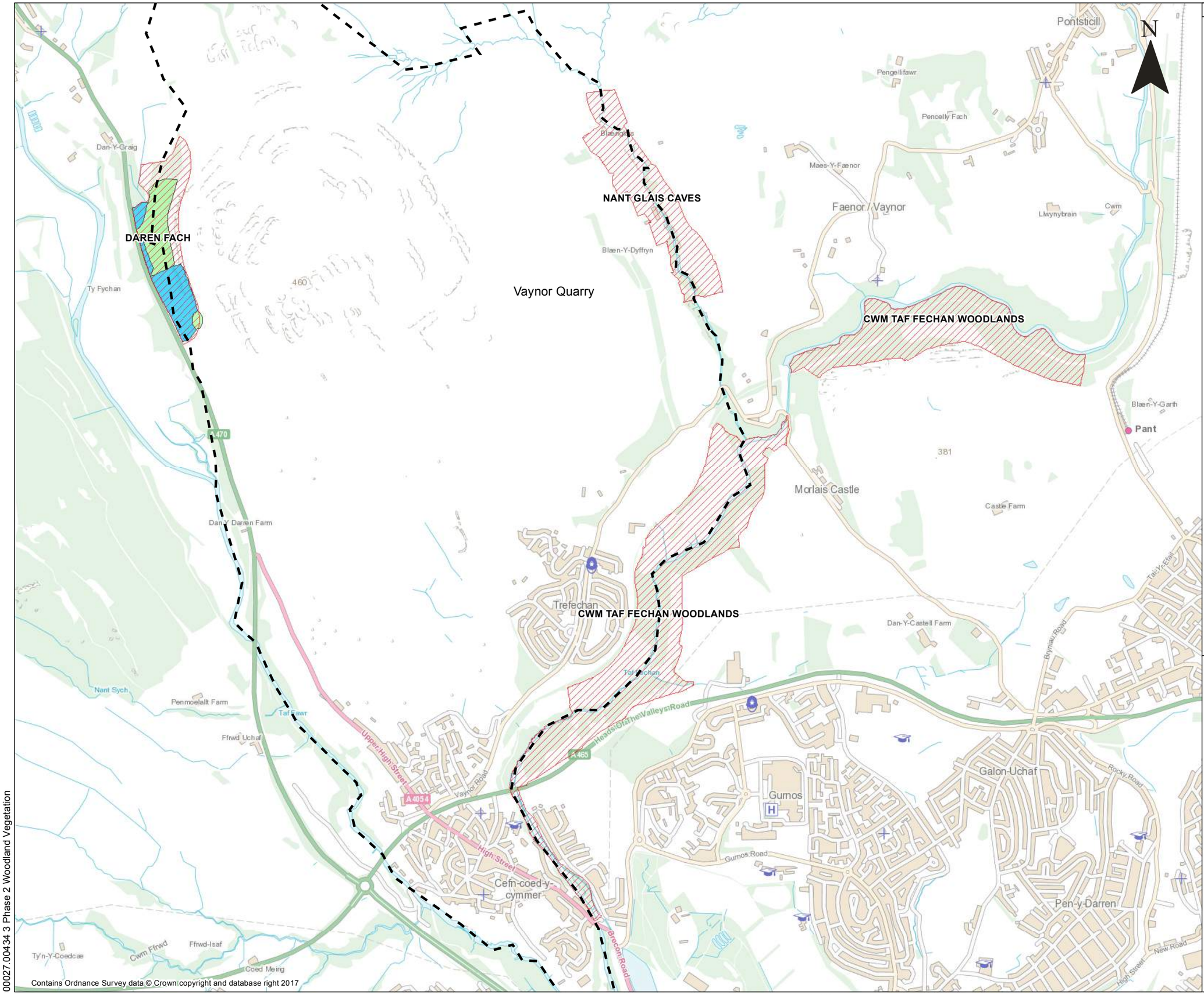
ECOLOGY

PHASE 2 SURVEY DATA
LOWLAND GRASSLAND VEGETATION

2

Scale 1:15,000 @ A3

Date FEBRUARY 2017



LEGEND

STUDY BOUNDARY

SITES OF SPECIAL SCIENTIFIC INTEREST

WOODLAND VEGETATION

W8e

Other Vegetation

00027.00434 3 Phase 2 Woodland Vegetation

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VAYNOR QUARRY

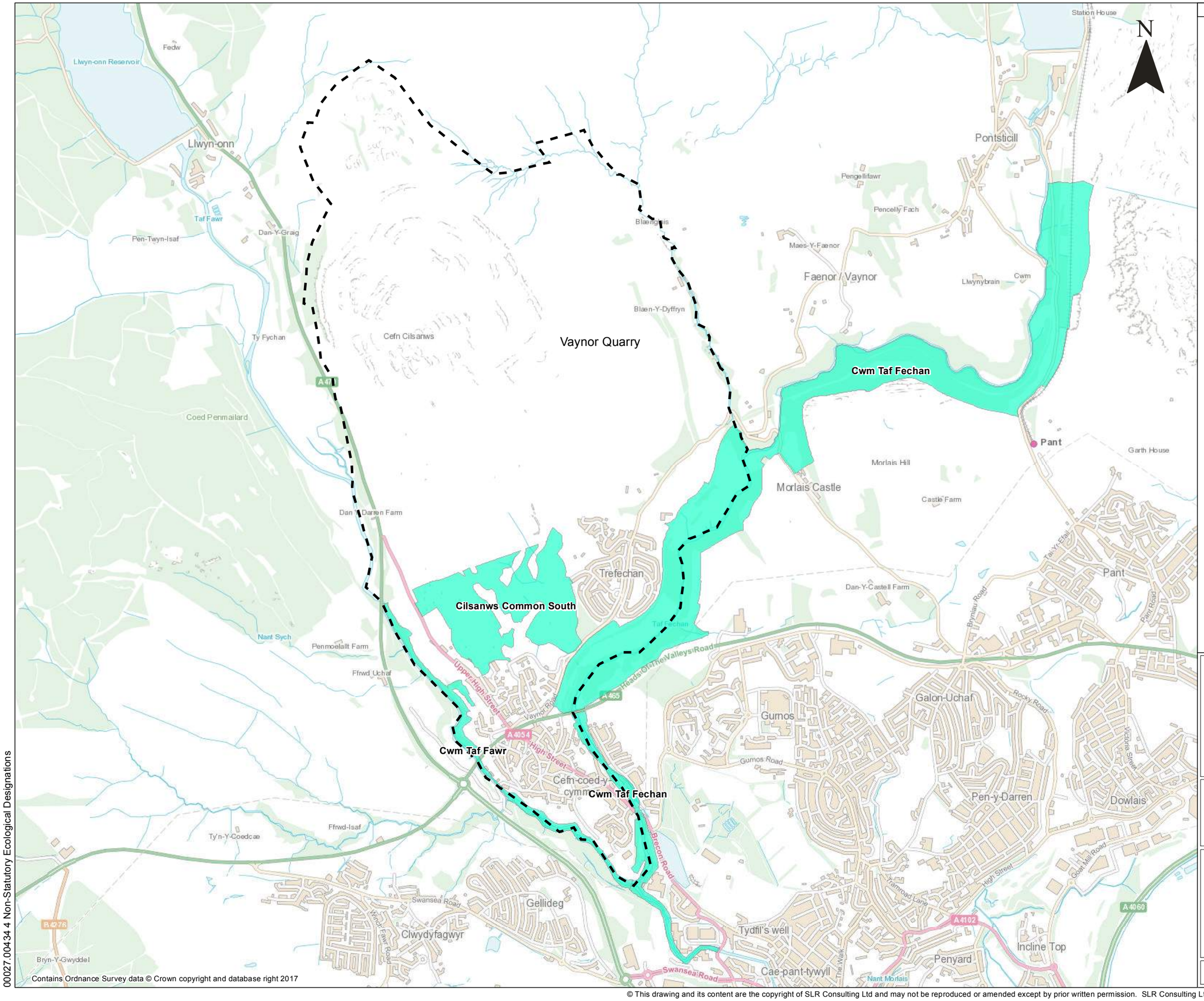
ECOLOGY

PHASE 2 SURVEY DATA
WOODLAND VEGETATION

3

Scale 1:15,000 @ A3

Date FEBRUARY 2017



00027.00434 4 Non-Statutory Ecological Designations

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VAYNOR QUARRY

ECOLOGY

NON-STATUTORY ECOLOGICAL DESIGNATIONS

4

Scale 1:20,000 @ A3

Date MARCH 2017

CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

MERTHYR TYDFIL **NANT GLAIS CAVES**

Date of Notification: 1963, 1985

National Grid Reference: SO 040105

O.S. Maps 1:50,000 Sheet number: 160
1:25,000 Sheet number: S0 00/10, SO 01/11

Site Area: 15.7 ha

Description:

The site covers the limestone gorge of the Nant Glais and two vadose cave systems which lie parallel to it and under each bank. Both caves are formed at the contact of the oolitic and dolomitic facies within the Carboniferous Limestone and the contrasting solutional properties of the two lithologies have spectacularly influenced the passage morphology. The caves are also important for their unusually large populations of white trout.

Remarks:

The site is within the Brecon Beacons National Park and is in part a Glamorgan Trust for Nature Conservation Reserve.

CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

MERTHYR TYDFIL **CWM TAF FECHAN WOODLANDS**

Date of Notification: 1972, 1985

National Grid Reference: SO 052101

O.S. Maps 1:50,000 Sheet number: 160
1:25,000 Sheet number: S0 00, 01, 10

Site Area: 60.9 ha

Description:

Where the partially wooded valley of the Taf Fechan crosses the north crop Carboniferous Limestone. Mixed deciduous woodlands cover steep slopes and spoil from quarries with one of the few Glamorgan stations for *Gymnocarpium robertianum*. There are interesting plant communities in flushes around tufa springs and luxuriant growths of bryophytes in the splash zone of the river.

CYNGOR CEFN GWLAD CYMRU
COUNTRYSIDE COUNCIL FOR WALES

SITE OF SPECIAL SCIENTIFIC INTEREST CITATION

MERTHYR TYDFIL **DAREN FACH**

Date of notification: 1960, 1983

National Grid Reference: SO019105

O.S. Maps 1:50,000 Sheet number: 160
1:25,000 Sheet number: S0 01

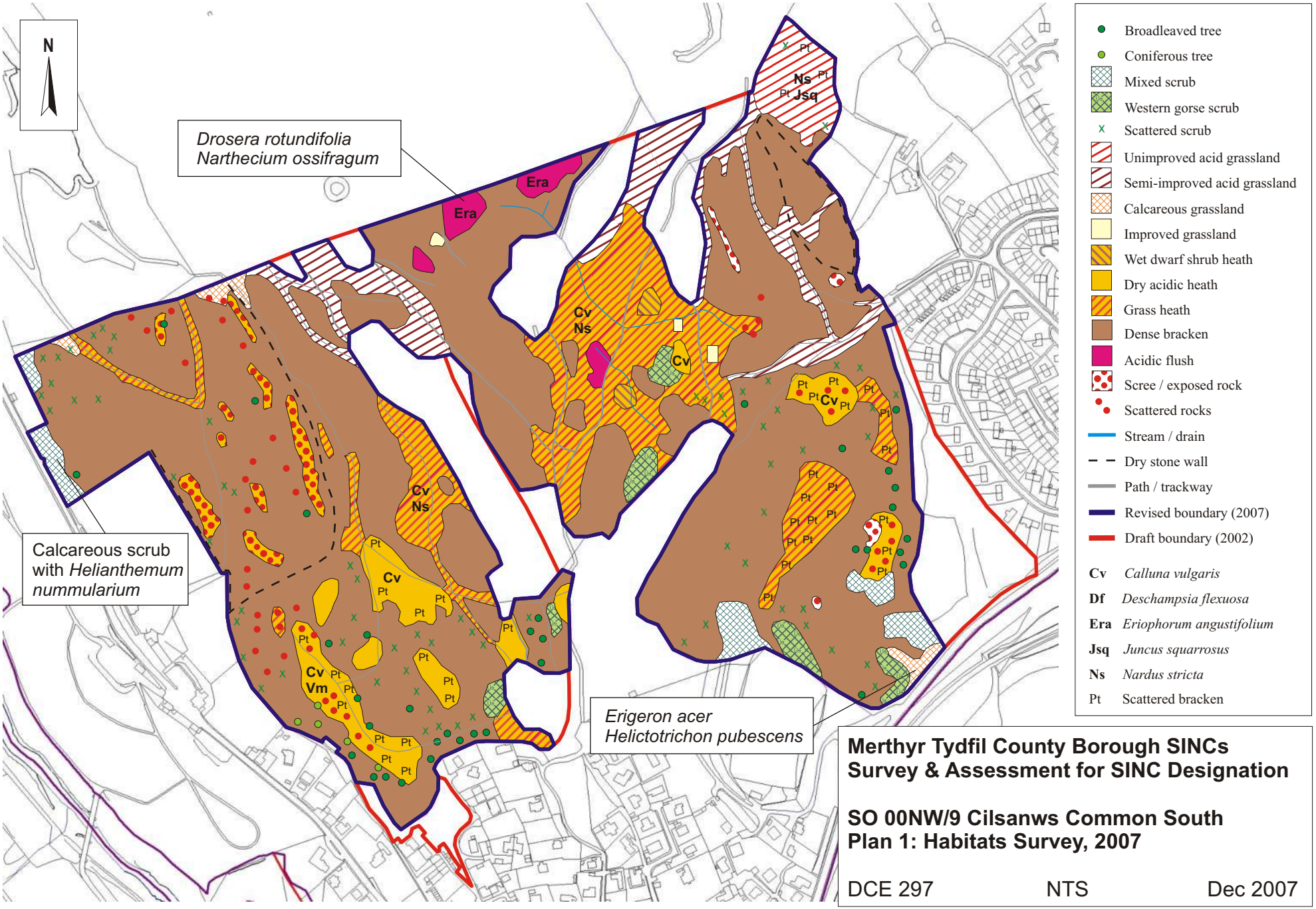
Site Area: 12.1 ha

Description:

The site consists of an open scrub on low limestone cliffs with screes and woodland on the gentler slopes. The latter are dominated by ash inter-mixed with wych elm together with a well developed understorey of hazel and hawthorn. Field maple is present and a group of small-leaved lime lies at the northern end. The primary interest lies in a concentration of Sorbus spp. on the southern end of the Darren Fach crags. This is the type locality for the rare Ley's Whitebeam *Sorbus leyana* . Several shrubs of *S. leyana* together with a specimen of *S. rupicola* grow in association with ash, yew and holly.

Remarks:

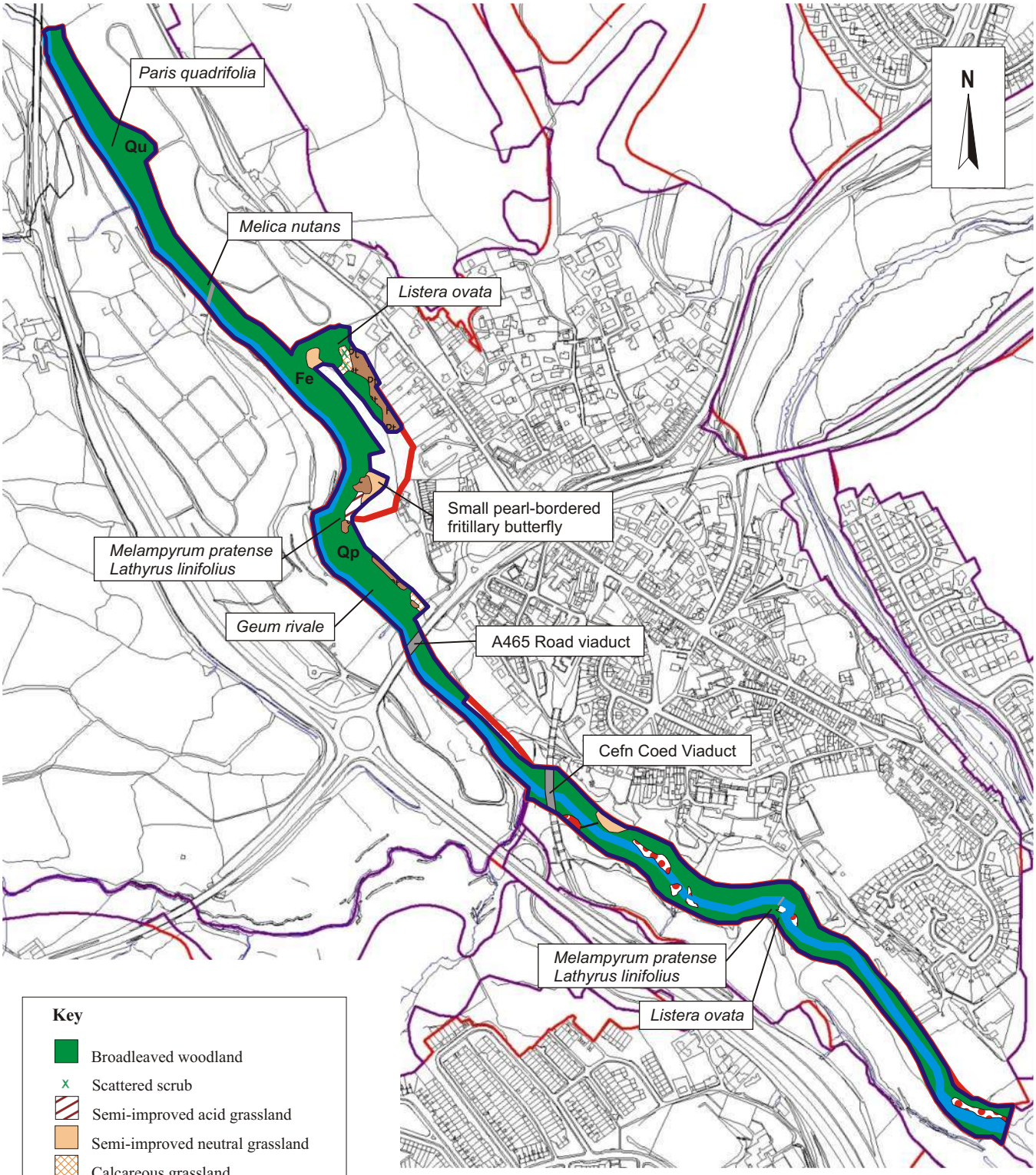
Within the Brecon Beacons National Park



Merthyr Tydfil County Borough SINCs
Survey & Assessment for SINC Designation

SO 00NW/9 Cilsanws Common South
Plan 1: Habitats Survey, 2007

DCE 297 NTS Dec 2007



Key

- Broadleaved woodland
- Scattered scrub
- Semi-improved acid grassland
- Semi-improved neutral grassland
- Calcareous grassland
- Dense bracken
- Japanese knotweed (dense stand)
- Exposed Bedrock / River cobbles
- River
- Road / bridge
- Revised boundary (2008)
- Draft boundary (2002)

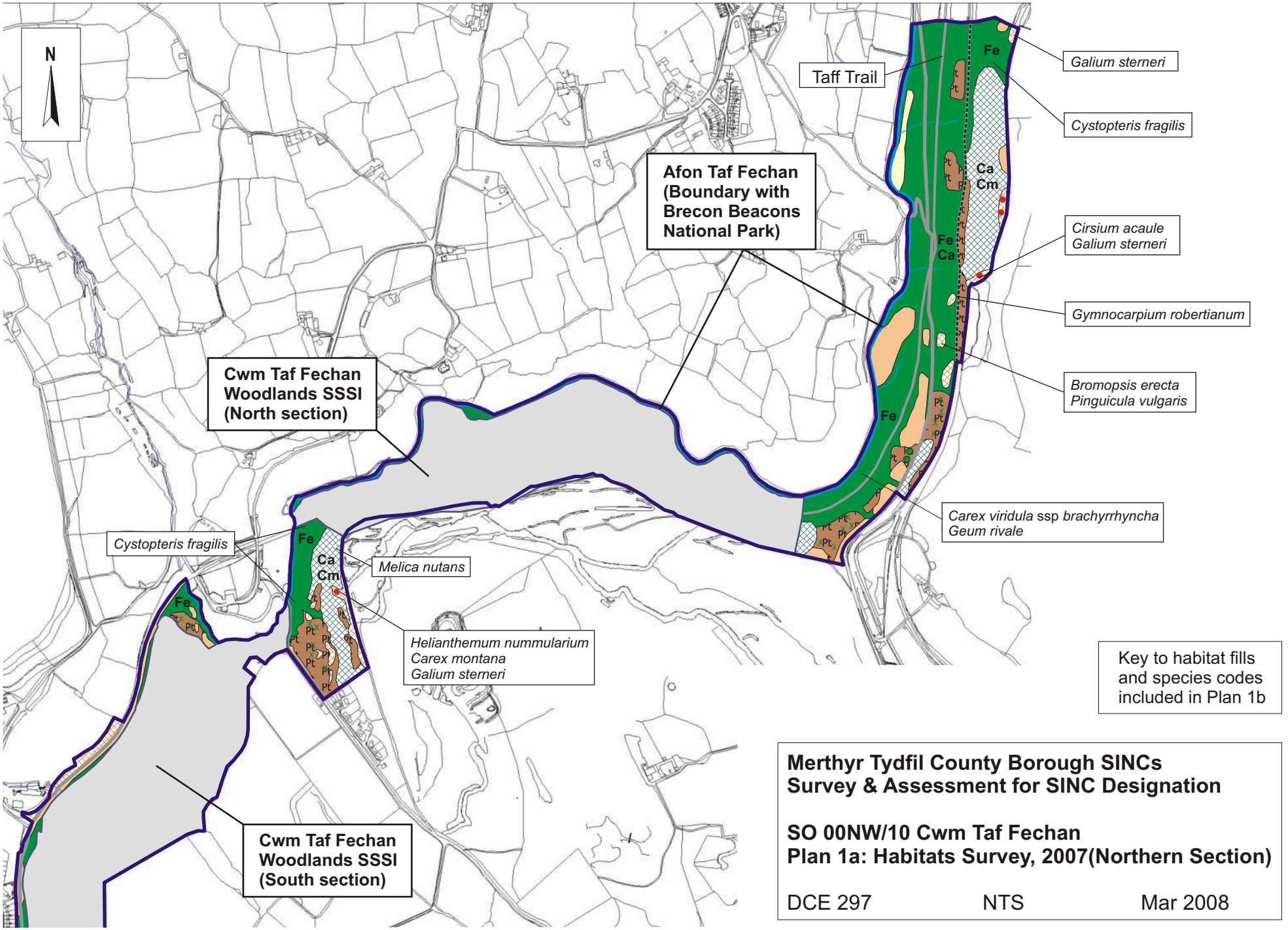
Dominant Species Codes

Fe *Fraxinus excelsior*
Qp *Quercus petraea*
Qu *Quercus* spp

Merthyr Tydfil County Borough SINCs
Survey & Assessment for SINC Designation

SO 00NW/11 Cwm Taf Fawr
Plan 1: Habitats Survey, 2007

DCE 297 NTS Apr 2008

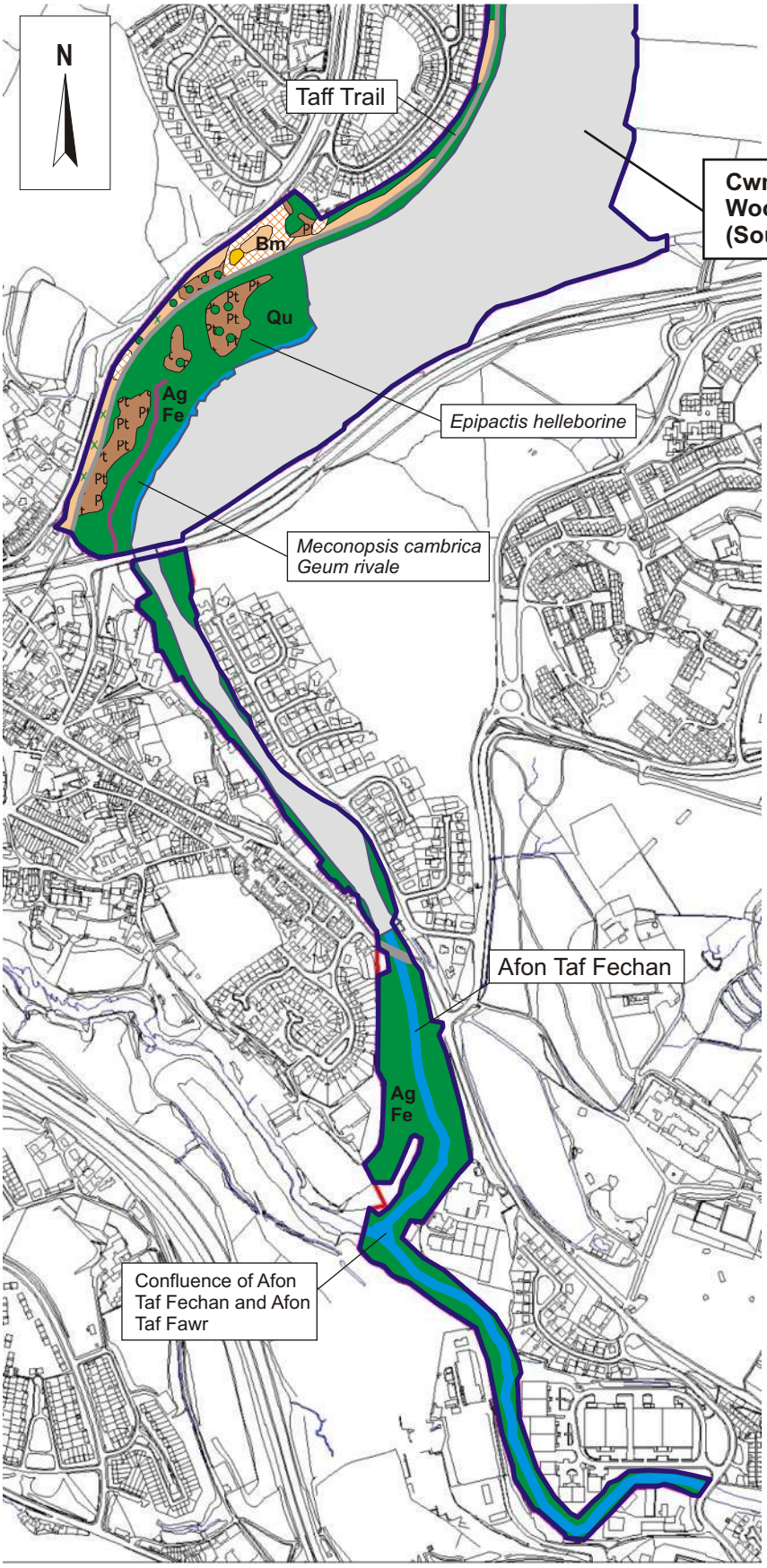


Key to habitat fills and species codes included in Plan 1b

Merthyr Tydfil County Borough SINCs
Survey & Assessment for SINC Designation

SO 00NW/10 Cwm Taf Fechan
Plan 1a: Habitats Survey, 2007(Northern Section)

DCE 297 NTS Mar 2008



Key

- Broadleaved woodland
- Dense scrub
- Broadleaved tree
- Scattered scrub
- Calcareous grassland
- Semi-improved neutral grassland
- Improved grassland
- Dense bracken
- Dry acidic heath
- Watercourse
- Scree
- Rock face
- Trackway / Road
- Revised boundary (2008)

Dominant Species Codes

Ag	*Alnus glutinosa*
Bm	*Briza media*
Ca	*Corylus avellana*
Cm	*Crataegus monogyna*
Fe	*Fraxinus excelsior*
Qu	*Quercus* spp

Merthyr Tydfil County Borough SINCs
Survey & Assessment for SINC Designation

SO 00NW/10 Cwm Taf Fechan
Plan 1b: Habitats Survey, 2007(Southern Section)

DCE 297 NTS Mar 2008

Response From NRW Re: Darren Fach SSSI

From: Sharp, Nick [mailto:Nick.Sharp@cyfoethnaturiolcymru.gov.uk]
Sent: 02 February 2017 17:05
To: Andy Law
Subject: EIA Scoping in relation to Vaynor Quarry

Hi Andy,

Good to speak to you just now. Just a quick e-mail to confirm the agreed approach regarding the scoping of SSSI relevant to the above project. I agree that Daren Fach SSSI may be scoped out of hydrological study for this application as it's distance from the quarry as well as the local topography mean that it is very unlikely to be hydrologically connected.

As you mentioned on the phone, Nant Glais Caves SSSI and Cwm Taf Fechan Woodlands SSSI will need to be considered as they are in closer proximity to the quarry and also have features of interest that could potentially be affected by the proposals.

I look forward to the opportunity to comment in more detail on the application in due course, when more information is available.

Regards,

Nick Sharp

Conservation Officer (Taf Natural Resource Management Team) / Swyddog Cadwraeth (Tîm Rheolaeth Adnoddau Naturiol y Taf)

Response From MTCBC

Classification: NOT PROTECTIVELY MARKED

Thanks Chris,

OK well as a broad overview and brief consideration .....I am not aware of detailed habitat survey on site but several detailed and ongoing species surveys have been undertaken by the Wildlife Trust with most results being sent to SEWBReC.

In my opinion the greatest water dependant habitat it will impact is the most obvious, the river itself with the associated species including otter and salmon.

Anecdotally from personal experience most of the water from the quarry enters Taf Fechan SSSI through small streams which do have important contributing localised flora but changes in these will increase erosion (causing additional access problems and land management problems in addition to habitat loss) or result in more sporadic/lower water flow changing bankside flora. Erosion in these areas is currently a problem so a more regularised flow with less flash flooding is desirable.

Changes in flow entering Afon Taf Fechan will also be important downstream for the historic extraction through Gurnos Leat (Scheduled Ancient Monument) in to Cyfarthfa Castle Pond and Merthyr Tydfil Angling Association weirs installed for salmon spawning.

The neighbouring Nant Glais Caves SSSI will also be important to consider although this is within Brecon Beacons National Park Authority and I would imagine that they have more details of that.

Please feel free to contact me if you need any further information.

Rolf Brown

Swyddog Cefn Gwlad/Ecolegydd (Countryside Officer/Ecologist)

Cyngor Bwrdeistref Siriol Merthyr Tudful (Merthyr Tydfil County Borough Council)

From: Chris Mitchell [mailto:ChrisMitchell@slrconsulting.com]
Sent: 09 November 2016 14:34
To: Brown, Rolf; Jess Colebrook
Cc: Carys Solman (c.solman@welshwildlife.org)
Subject: RE: Vaynor Quarry, Merthyr Tydfil: ecological info request [NOT PROTECTIVELY MARKED]

Hi Rolf,

We have the 'high level' site locations and descriptions / citations gathered through an initial data search, together with the NRW Phase 1 habitat data, but we would really like to understand if there are any ground water dependant habitats or features within these designated sites to help advise the project hydrogeologists if there are such habitats/features that may require consideration in the scoping and EIA design stages of the ROMP process. So if, through personal knowledge or more detailed surveys such as NVC (?) being available, you are able to provide some further details to help us assess if any ground water dependant habitats occur and might be in need of further consideration that would be very helpful.

This isn't to say additional aspects may need consideration, just that with the lead in periods associated with Hydrological assessment that we are considering this particular aspect at a very early stage.

Many thanks in advance,

Chris

Chris Mitchell

CEcol CEnv

Associate Consultant - Ecology

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APPENDIX C

Surface Water Flow Data

Table C.1 Surface water gauging location details

Station number	River	Location	Year opened	Year closed	Daily data?	Peak flow data?
57001	Taff Fachan	Taf Fachan Reservoir	1937	1973	Yes	No
57002	Taf Fawr	Llwynon Reservoir	1931		Yes	No
7015	Taff	Merthyr Tydfil	1978		Yes	Yes

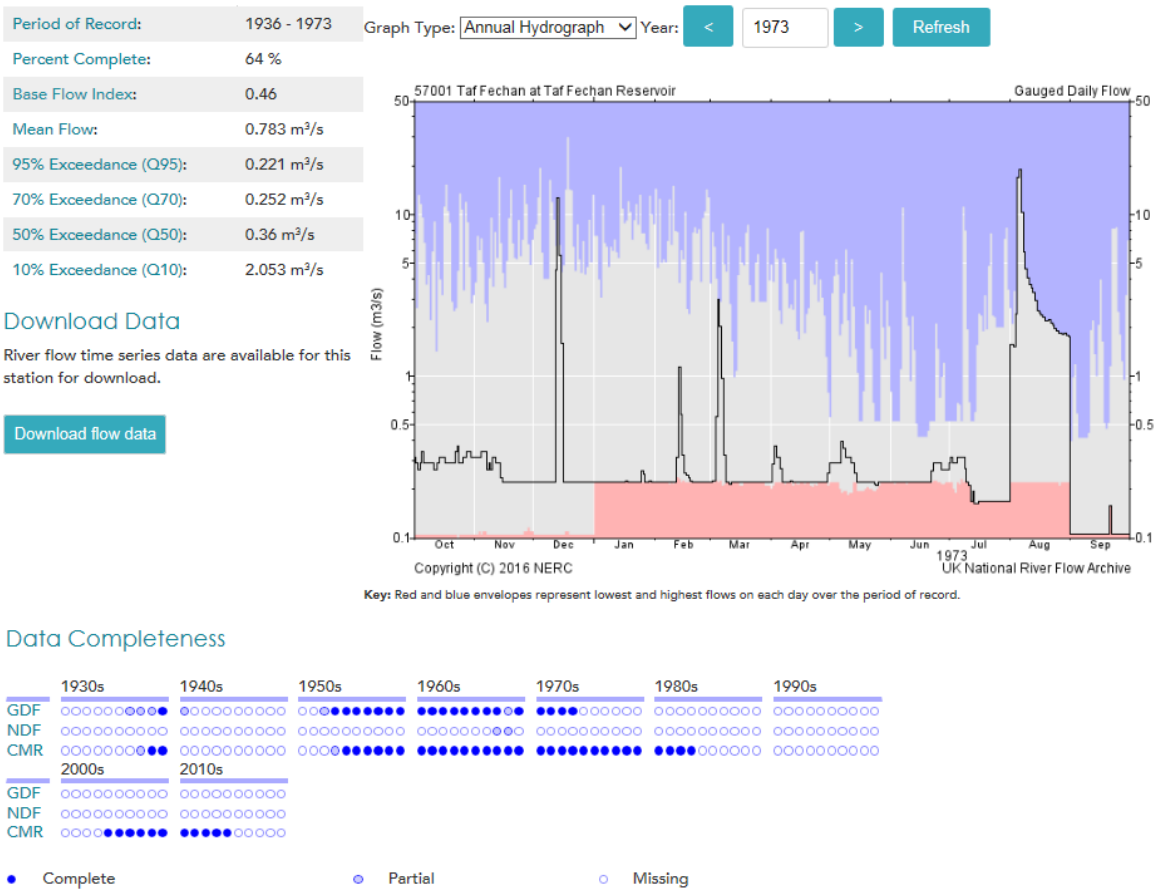


Figure C.1 Flow data – Taf Fechan at Taf Fachan Reservoir[5]

[5] Centre for Ecology and Hydrology – National River Flow Archive

Figure C.2 Flow data – Taf Fawr at Llwynon Reservoir[6]

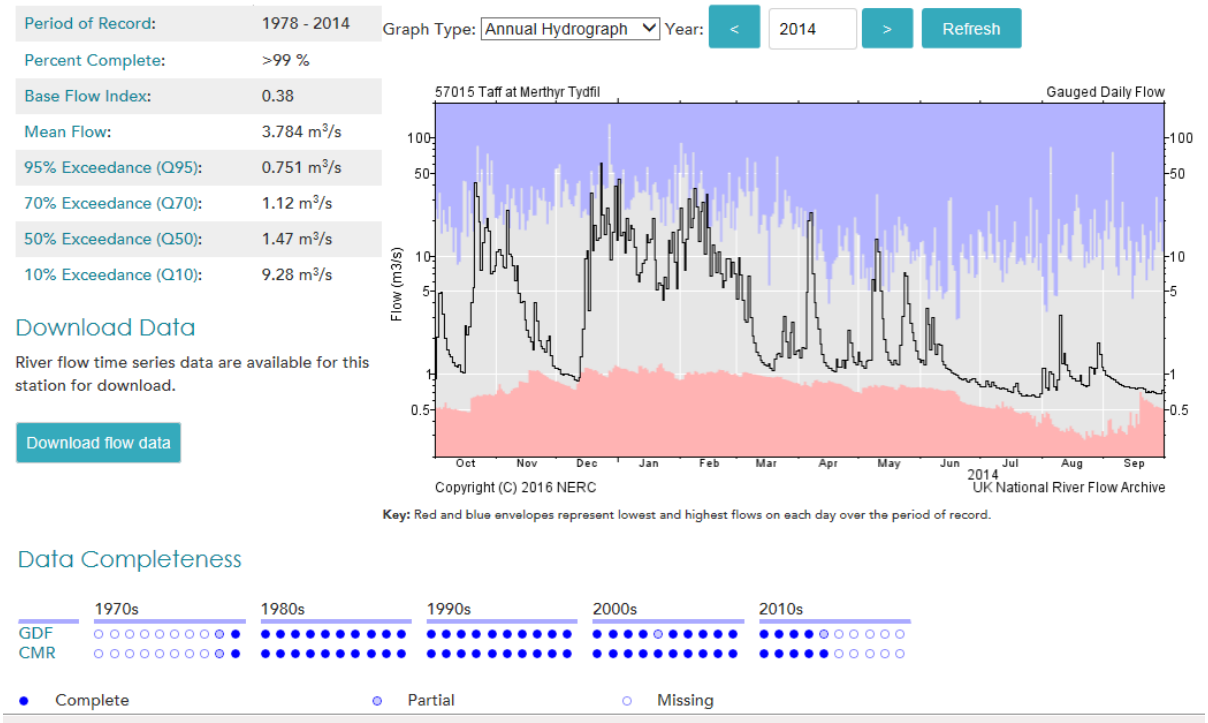
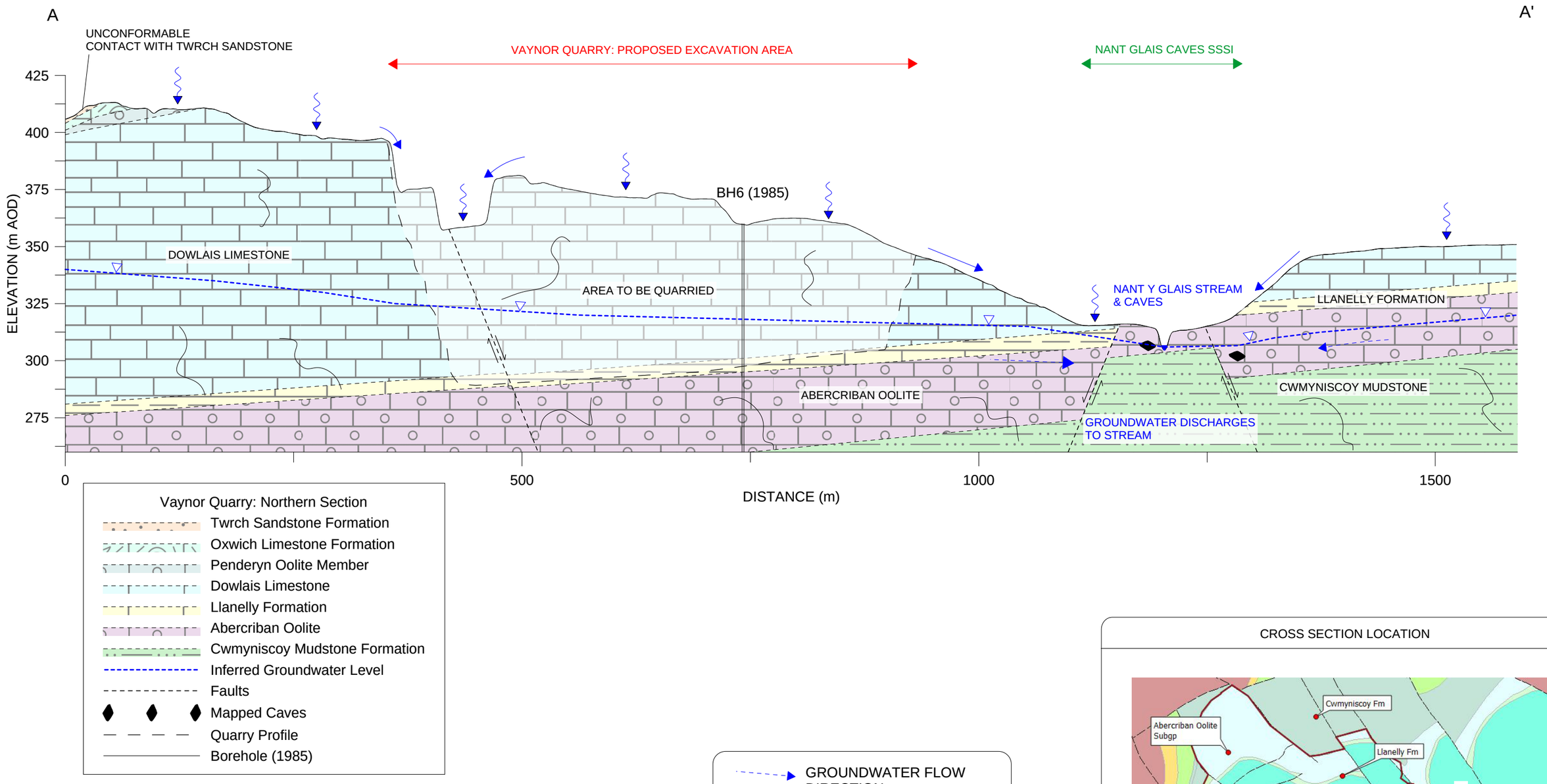


Figure C.3 Flow data – Taf at Merthyr Tydfil[2]

[6] Centre for Ecology and Hydrology – National River Flow Archive

APPENDIX D

Detailed Conceptual Cross Sections



Vaynor Quarry: Northern Section

- Twrch Sandstone Formation
- Oxwich Limestone Formation
- Penderyn Oolite Member
- Dowlais Limestone
- Llanelly Formation
- Abercriban Oolite
- Cwmyniscoy Mudstone Formation
- Inferred Groundwater Level
- Faults
- Mapped Caves
- Quarry Profile
- Borehole (1985)

- GROUNDWATER FLOW DIRECTION
- SURFACE WATER FLOW DIRECTION
- RECHARGE/PERCOLATION

- VERTICAL EXAGGERATION IS 1:2.5
- CROSS SECTION TOPOGRAPHY FROM NRW LiDAR DATA
- GEOLOGICAL CONTACTS ARE FROM BOREHOLE LOGS AND MAPPING
- GROUNDWATER LEVELS ARE INDICATIVE ONLY
- GROUNDWATER DISCHARGES TO THE CAVE SYSTEM AND NANT Y GLAIS STREAM

CROSS SECTION LOCATION

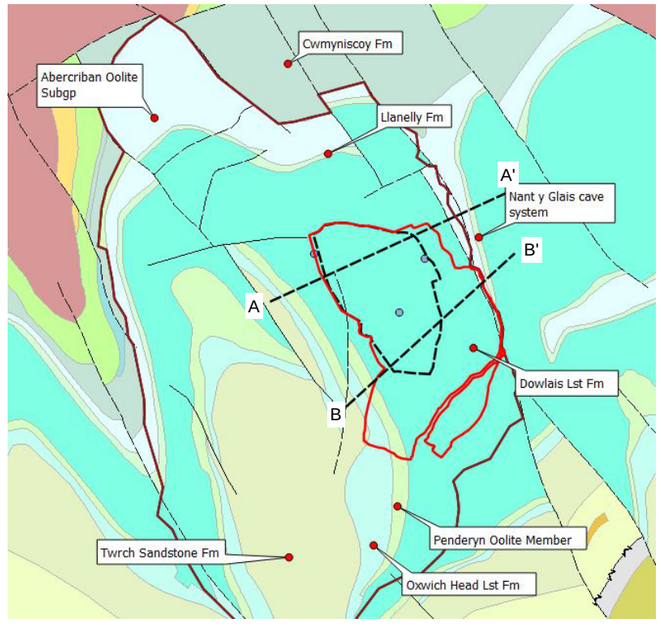
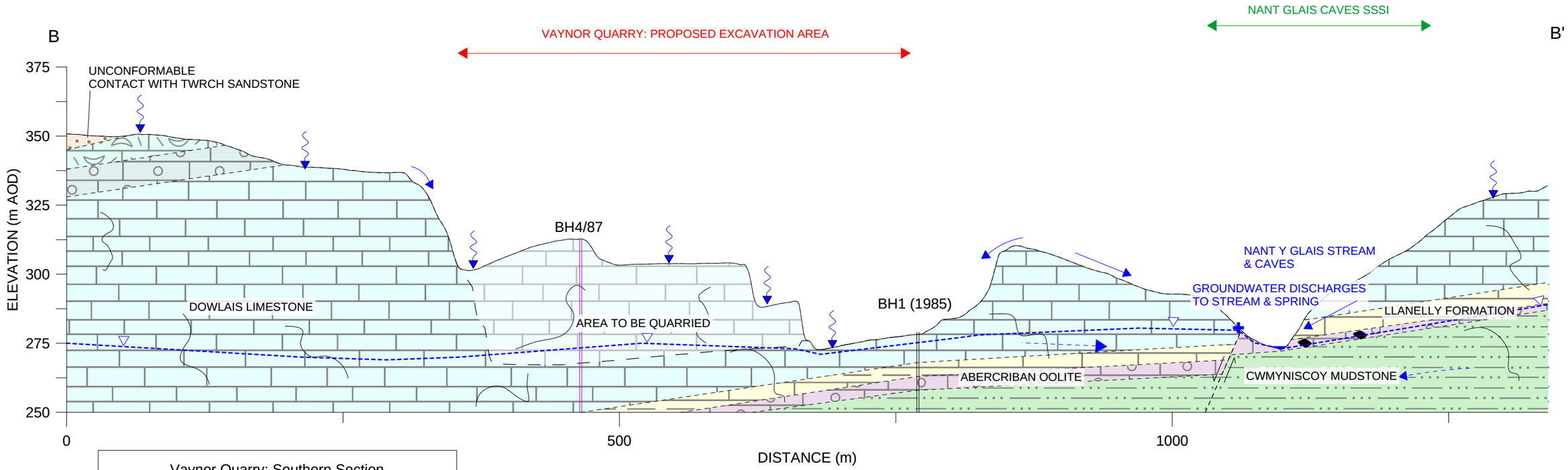


FIGURE D1 NORTHERN CONCEPTUAL CROSS SECTION	DATE: *June 2017*	AUTHOR: CDW	esi consulting Applied Environmental Insight
	VERTICAL EX.: 1:2.5	CHECKED: BCH	
	PAGE: A3	VERSION: *FINAL*	
	FILE REF: O:\64789 Vaynor Quarry ROMP\Others\Northern_Section.grf		



Vaynor Quarry: Southern Section

- Twrch Sandstone Formation
- Oxwich Head Limestone Formation
- Pendeyn Oolite Member
- Dowlais Limestone
- Llanelly Formation
- Abercriban Oolite
- Cwmyniscoy Mudstone Formation
- Faults
- Spring
- Inferred Groundwater Level
- Mapped Caves
- Quarry Profile
- Borehole (1987)
- Borehole (1985)

- GROUNDWATER FLOW DIRECTION
- SURFACE WATER FLOW DIRECTION
- RECHARGE/PERCOLATION

- VERTICAL EXAGGERATION IS 1:2.5
- CROSS SECTION TOPOGRAPHY FROM NRW LiDAR DATA
- GEOLOGICAL CONTACTS ARE FROM BOREHOLE LOGS AND MAPPING
- GROUNDWATER LEVELS ARE INDICATIVE ONLY
- GROUNDWATER DISCHARGES TO THE CAVE SYSTEM AND NANT Y GLAIS STREAM

CROSS SECTION LOCATION

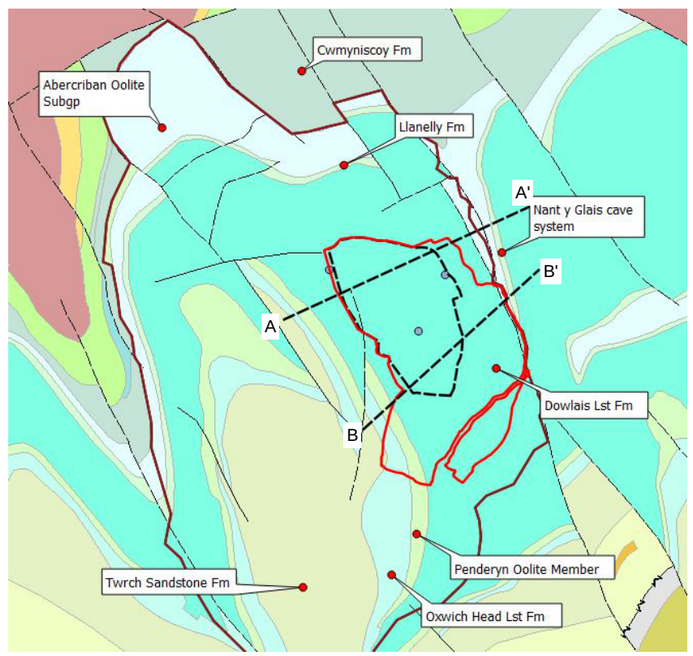


FIGURE D2 SOUTHERN CONCEPTUAL CROSS SECTION	DATE: *June 2017*	AUTHOR: CDW	esi consulting Applied Environmental Insight
	VERTICAL EX.: 1:2.5	CHECKED: BCH	
	PAGE: A3	VERSION: *FINAL*	
	FILE REF:		

Appendix D

Site visit photographs

Removed (due to file size)

Appendix E

Dewatering calculations worksheet

(Electronic appendix)