

VAYNOR QUARRY
Environment Act 1995
First Periodic ROMP



Environmental Statement
Non-Technical Summary
Volume 3
August 2022



**ENVIRONMENTAL STATEMENT
NON-TECHNICAL SUMMARY
VOLUME 3**

**VAYNOR QUARRY
Environment Act ROMP Review**

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CONTENTS

1.0 INTRODUCTION..... 1

1.1 Background 1

1.2 The Application Sites 2

1.3 The Quarry Development Scheme..... 4

1.4 Environmental Impact Assessment 4

1.5 The Non-Technical Summary 5

1.6 Technical Studies 5

1.7 Planning Conditions..... 5

1.8 Document Availability 6

2.0 THE PROPOSED DEVELOPMENT 9

2.1 Existing Quarry..... 9

2.2 Proposed Quarry Development Scheme..... 9

2.3 Processing Plant10

2.4 Hours of Operation.....10

2.5 Output and Traffic Movements11

2.6 Water Management.....11

2.7 Restoration11

3.0 SUMMARY OF ENVIRONMENTAL ISSUES21

3.1 Introduction21

3.2 Landscape and Visual Impact Assessment (LVIA) Study.....21

3.3 Ecology23

3.4 Agricultural Land Quality and Soils28

3.5 Hydrology and Hydrogeology.....30

3.6 Noise33

3.7 Blast Vibration36

3.8 Air Quality37

3.9 Traffic40

3.10 Cultural Heritage.....43

4.0 CONCLUSIONS.....45

LIST OF FIGURES

Figure 1-1 - Site Location Plan..... 7

Figure 1-2 Vaynor Quarry Site 8

Figure 2-1 Vaynor Quarry Current Situation..... 13

Figure 2-2 Quarry Phase 1: 5 Year Plan..... 14

Figure 2-3 Quarry Phase 2: 10 Year Plan..... 15

Figure 2-4 Quarry Phase 3: 15 Year Plan..... 16

Figure 2-5 Quarry Phase 4: 30 Year Plan..... 17

Figure 2-6 Quarry Phase 6: 60 Year Plan..... 18

Figure 2-7 Final Quarry Development Plan..... 19

Figure 2-8 Restoration Concept for Overall Quarry 20

CONTENTS

1.0 INTRODUCTION

1.1 Background

This document comprises a Non-Technical Summary (NTS) of an Environmental Statement (ES) which sets out the results of an Environmental Impact Assessment (EIA) which has been undertaken in connection with future quarrying operations at Vaynor Quarry, Merthyr Tydfil.

A plan showing the location of Vaynor Quarry is produced as **Figure 1.1**.

The Environment Act 1995 (hereafter referred to as the 1995 Act) sets out a requirement to review, and where necessary update the planning conditions regulating operations at mineral sites at 15-year intervals. This is referred to as a 'review of old mining permissions, commonly known as a ROMP.

The area covered by the extant mineral planning permissions at Vaynor Quarry straddles the boundary between the administrative areas of Merthyr Tydfil County Borough Council (MTCBC) and the Brecon Beacons National Park Authority (BBNP), meaning that there are two separate 'mining sites' for the purposes of the Environment Act 1995. The extent of the 'overall mining site' within both MTCBC and BBNP is shown outlined in red on **Figure 1.2**, with the overall Vaynor Quarry site shown outlined in green on that plan.

From Figure 1.2 and the area outlined in red, it will be apparent that the permitted area for quarrying (the overall mining site) is confined to the central and northern areas of the Quarry. The south central and southern areas of the Quarry have been disturbed by historical quarrying operations but now lie outside the areas permitted for future mineral extraction. Most recently, these areas have been used for processing and stocking etc, (fixed processing plant now removed) and they would be used in the future for site offices, distribution and as general aggregate stocking areas. This will serve to provide a separation distance between residential properties to the south west and the future mineral extraction in the central and northern areas of the Quarry.

The majority of the Quarry falls within the administrative area of MTCBC, but with a narrow strip of land along the western boundary (amounting to approximately 12 hectares) and a small section on the eastern boundary (approximately 4 hectares) lying within the administrative area of the BBNP.

The 1995 Act provides for the undertaking of an Initial Review of planning conditions at mineral site designed to review and update the planning conditions attached to earlier permissions, and to ensure that future quarrying operations are undertaken in accordance with modern standards designed to minimise environmental and amenity effects.

An initial review of the mineral permissions at Vaynor Quarry was completed in January 2002 which established new planning conditions regulating future quarry operations in the overall Quarry area, with separate schedules covering the MTCBC and BBNP areas.

The 1995 Act also makes provision for undertaking Periodic Reviews of the conditions at 15 year intervals. This is designed to ensure that the conditions set by the Initial Review do not themselves become outdated with the passage of time. The deadline for the submission of the First Periodic Review applications has been agreed to be set as 31st August 2022.

Two parallel First Periodic Review applications have been submitted to MTCBC and BBNP in accordance with that deadline, supported by an ES, ES Appendices, application plans and this NTS.

The EIA has been undertaken as a study to consider the environmental effects of the overall future mineral development scheme which, for the purposes of the EIA, disregards the administrative boundaries. It thus does not attempt to consider the separate environmental effects within the administrative areas of MTCBC and BBNP since this would be contrived and inappropriate. Instead, it considers the environmental and amenity effects of the overall scheme and, via the ES, proposes a series of mitigation measures designed to minimise the effects of the development. These measures have in turn been translated into proposed updated planning conditions which would regulate the future development.

However, whilst a single ES has been produced, as was the case with the 1997 Initial Review of planning conditions at the site it is necessary to submit

Non-Technical Summary

two separate but parallel First Periodic Review applications to the two Authorities (MTCBC and BBNPA) reflecting their administrative responsibilities for those areas of the Quarry which lie within their jurisdiction.

Again, as was the case with the Initial Review, separate schedules of proposed updated planning conditions have been proposed to accompany the applications, which are generally consistent across the two areas with the exception of conditions which are deemed to be exclusively relevant to the respective areas. The proposed updated schedules of conditions produced as **Appendices 1.3 and 1.4** to the ES.

Finally, it is to be noted that not all of the land within the defined overall mining site is owned by the Applicant (Hanson UK). The area not owned by the Applicant comprises a block of undisturbed land covered by the 1959 permission, some 5.5 ha in extent within the administrative area of BBNP, lying along the south western side of the Quarry, partly within the Merthyr Tydfil (Cilsanws) Golf Course which extends to the west of the Quarry.

The Applicants do not intend to progress the future quarry development into this area and given that mineral development within the area could only realistically be undertaken via the main Quarry area, the area can effectively be regarded as being relinquished from the future mineral extraction area.

The Quarry was last worked during 2007, with quarrying operations being intermittent for a number of years prior to that. The drystone processing plant was closed in 2002 and the asphalt plant also closed in 2003. The fixed plant was removed in 2008.

1.2 The Application Sites

As noted above, there are two separate 'Application Sites' reflecting the cross boundary extent of quarrying planning permissions between the administrative areas of MTCBC and the BBNP.

The ROMP Application Sites are based upon the defined 'Mining Sites' within the two Authority areas which reflect the extent of the mineral planning permissions (and tipping permission) which apply within the respective administrative areas.

The 'Mining Site' within MTCBC is shown on application plan ref V6/PR/MT/4.

The 'Mining Site' within BBNP is shown on application plan ref V6/PR/BBNP/4.

Reference is also made in the ES to an 'Overall Mining Site' (OMS) which represents the total area covered by the respective extant mineral and tipping permissions within the two administrative areas.

The OMS is shown on plan ref numbers V6/PR/MT/3 and V6/PR/BBNP/3.

References in the ES to the 'Application Site' should therefore be regarded as relating to the area of land which is the subject of the Periodic ROMP application to either planning authority, and, in effect, is the same as the 'Mining Site' within the respective authority areas.

The ES also makes reference to the Quarry which relates to the overall extent of the permitted and historic Vaynor Quarry. 'The Quarry' comprises that part of the OMS in Hanson's ownership together with the historic workings and former plant site lying between the OMS and Vaynor Road to the south. The Quarry is shown outlined in green on plan ref numbers V6/PR/MT/2 and V6/PR/BBNP/2.

Site Location

The Quarry is a currently a mothballed limestone quarry located approximately 3.2 km north-north-west of the centre of Merthyr Tydfil town and 100 m north of Trefechan village in Merthyr Tydfil County Borough

The Quarry is accessed from Vaynor Road, which lies to the south-east. Vaynor Road links with the A4054 at Cefn Coed some 1.6 km south west of the Quarry. The Heads of the Valleys Road (A465) lies 850 m south of the Quarry. All of the Quarry void is located north of Vaynor Road.

Land south of Vaynor Road includes settlement ponds and was historically used as an aggregates products storage and distribution area based upon a separate planning permission for that use. The land south of Vaynor Road does not form part of the OMS and is not part of the ROMP application.

The Quarry has been worked for limestone for over 100 years. The Quarry temporarily ceased mineral extraction and was mothballed in 2007 though substantive quarrying operations ceased in the 1990s.

Other than Vaynor Quarry, land use in the area around the Quarry is predominantly rural, comprising various small settlements, agricultural land, woodland and moorland. Land immediately around the Quarry to the north and west is moorland and forms the eastern slopes of the hill Cefn Cil-Sanws, which peaks 750 m west of the Quarry at 461 m AOD.

The ground falls to the south and east of the Quarry, where to the immediate south of the Quarry is the village of Trefechan, built in the 1950s. In the east there is widespread, predominantly pastoral, agricultural land on the slopes while steep-sided gorges are dominated by deciduous woodland. Several farms are located in the surrounding area, the closest of which is Llwynsilanws Farm located 160 m north-east of the Quarry.

BBNP envelopes the Quarry on its western, northern and eastern sides, and includes an area of 9.7 ha on the extreme western and eastern periphery of the Quarry.

Cwm Taf Fechan Quarry of Special Scientific Interest (SSSI) follows the Taf Fechan river gorge to the south-east of Quarry within 170 m of the Quarry boundary. Nant y Glais SSSI lies in the gorge of the Nant y Glais 140 m north-east of the Quarry.

Settlements surrounding the Quarry include Trefechan (100 m south), Llwyn-on (1.9 km north-west) and Pontsticill (1.9 km north-east). A number of isolated dwellings and farms are located in the area around the Quarry, including Llwynsilanws (160 m north-east), Aberglais Inn (330 m east), Blaenglais (370 m north), Pen-rhiw-glais (440 m east), Llwynrodin (650 m east), Hy-Brasail (680 m east), and Berthlwyd (850 m north-east). Regionally, the outskirts of Merthyr Tydfil lie 1 km south of the Quarry, and Vaynor (comprised of a small number of wide-spread dwellings) lies 1 km east.

Ground levels at the Quarry itself range from 250 – 400 m AOD. Topography rises above the Quarry to the west and north, and slopes away from the Quarry to the east and south.

Vaynor Quarry

The OMS boundary covers an area of around 57 ha and extends over a proportion of the area subject to historical quarrying and an area where future quarrying will take place. Historical quarrying at the site has created a western and eastern limb or voids separated by a spur of land which has been partly disturbed by historical quarry waste and overburden tipping. A more substantial quarry tip is present in the northern area of the Mining Site.

Land in the south eastern area of the OMS accommodates an existing pond with land beyond being well-vegetated with trees. Woodland along the eastern boundary of the site provides separation between the quarry and the Taf Fechan Valley to the east.

The land within the Quarry, south of the defined OMS has been disturbed by historical quarrying activity associated with a previous Interim Development Order permission for quarrying and the ancillary mining land north of Vaynor Road which was historically used to house a fixed processing plant and related infrastructure.

Woodland along the eastern boundary and higher ground along the western flank of the Quarry result in a good degree of visual containment. The substantial changes in a level within the site from circa 285m at the southern boundary to circa 475m and the northern boundary, along with the area of disturbed ground are not prominent beyond the site boundary because of this containment.

There are distant views available southwards of the valley floor and side slopes around Merthyr Tydfil from the northern, elevated boundary of the site. The open moorland of the BBNP is also visible towards the north, with the distant summit of Pen-y-fan visible on the horizon.

The remaining reserves of limestone with planning permission within the Quarry amount to some 49 million tonnes, with some 42.6 million tonnes being within MTCBC and some 6.2 million tonnes being within the BBNPA. An additional reserve of some 2.7M tonnes lies within the land covered by the 1959 permission along the western side of the quarry within the BBNPA which it is not intended to be worked as part of the quarry development

Non-Technical Summary

scheme and which is excluded from the boundary of Quarry that is in Hanson's ownership.

The remainder of the Quarry site, lying to the south of the defined OMS comprises the former IDO permitted area and former plant site which would continue to be used as ancillary mining land for the purpose of accommodating site offices, weighbridge, wheel wash, aggregate stockpiles and despatch of aggregate.

1.3 The Quarry Development Scheme

In summary, the future development of the Quarry which forms the subject of the ROMP applications comprises:

- An initial 5 year development scheme focused upon quarrying in the north western area, working from the existing floor of the quarry at a level of 335m – 340m AOD, and the advancement of benches at the circa 350 and 360m AOD levels. This will require a limited soil and overburden strip in the northern area to allow for the progression of the faces, with the overburden to be placed partly on the existing northern quarry tip, and partly used to construct a screen bund along the north eastern side of the quarry designed to protect the amenities of residents of Llwynsilanws Farm to the north east of the Quarry.
- At 10 years the faces in the north western area would be developed further, in tandem with initial quarry progression in the southern area working northwards into the 'central spine' which separates the current western and eastern limbs of the quarry. This will facilitate drainage from the western limb of the quarry into the existing quarry sump in the south eastern area of the quarry.
- At 15 years, the north western quarry faces would advance eastwards into the central spine, in conjunction with further progress of the south central quarry faces working northwards into the central spine.
- At 30 years, quarrying would progress eastwards across the central spine into the eastern limb of the quarry. This would be accompanied by the removal of the current northern quarry tip, with the material used partly for progressive restoration, and the residue placed in a new quarry tip at the base of the quarry in the eastern area of the site.

- At 60 years, there would be full quarry development across the central area of the site, with the faces progressing northwards towards to northern Quarry boundary.
- The Final Quarry Development Plan shows the quarry faces and benches worked back to the limits of the planning permissions (within the control of Hanson), and a gently sloping floor of the quarry which reflects the dip of the underlying strata.
- This will form the basis for the progressive implementation of a restoration strategy for the overall site with restoration of the quarry faces and benches being achieved through a combination of planting and natural re-colonisation, grassland and woodland planting on the quarry floor, and a shallow water feature in the southern area.

The quarry development scheme would release a reserve of some 49m tonnes. It is anticipated that the quarry will be worked at an average output of some 500,000 tonnes per annum (tpa). That output would be consistent with average annual sales at Hanson's Penderyn Quarry which Vaynor Quarry would eventually replace.

With reserves of some 49 m tonnes and an expected average annual output of circa 500,000 tonnes per annum, it is evident that this will be a long-term development spanning circa 100 years.

Further details of the working and restoration scheme are set out in Chapters 2.0 below.

1.4 Environmental Impact Assessment

Planning permission for quarrying at Vaynor is already in place, and the principle of quarrying is not an issue for reconsideration as part of a ROMP review. The purpose of a ROMP is to devise updated, modern planning conditions to regulate future operations.

In this context, the primary purpose of the EIA is to assist in identifying environmental effects, and to use that information to:

- (i) Devise measures to minimise the environmental and amenity effects through specific mitigation/attenuation measures; and

- (ii) Provide for the measures to be enshrined in updated planning conditions which regulate ongoing quarrying in a way which is reflective of the conclusions and recommendations of the EIA.

In practical terms, an EIA is thus a constructive means of assisting the drafting of updated planning conditions in that it allows environmental effects to be identified through the EIA process. Mitigation measures to minimise environmental effects can be defined, and these in turn can be translated into planning conditions.

1.5 The Non-Technical Summary

The results of the EIA are presented in an Environmental Statement (ES) which accompanies the ROMP review applications.

This document is a Non-Technical Summary (NTS) of the ES and presents the main findings of the Environmental Impact Assessment (EIA) in non-technical language. The NTS, as the title suggests, provides only a brief summarised account of a large amount of text and technical data contained in the ES and its supporting Appendices

However, it is intended to provide a sufficient overview of the development scheme, and the environmental issues which would be associated with the development, to allow the reader to gain an understanding of the key issues, and the way in which the EIA has informed the preparation of the schedule of updated planning conditions.

The NTS comprises Volume 3 of a comprehensive submission which consists of:

- Volume 1: Environmental Statement (ES)
- Volume 2: Technical Appendices
- Volume 3: Non-Technical Summary of the ES (i.e. this document); and
- Volume 4: Application Plans

The ROMP Review application is supported by the required application form, a series of application plans illustrating the details of the site and quarry development and restoration strategy, and schedules of proposed planning conditions for consideration by MTCBC and BBNP. Selected application plans are reproduced in this NTS for ease of reference.

1.6 Technical Studies

In order to ensure that the topics are comprehensively addressed, the Applicant has commissioned a number of specialist consultants to deal with the identified issues, namely:

- Landscape and Visual Impact and Restoration Design – Tir Collective Ltd
- Ecology – SLR Consulting Ltd
- Soils and Land Quality - LRA Ltd
- Hydrology and Hydrogeology – Stantec Ltd
- Noise – WBM
- Blast Vibration – SLR Consulting Ltd
- Air Quality – SLR Consulting Ltd
- Traffic – Hurlstone Partnership
- Cultural Heritage – Cotswold Archaeology.

In addition, technical inputs on geology, phased quarry development, working practices and operational mitigation measures have been prepared by in-house expertise available to the Applicant.

The EIA and preparation of the ES has been coordinated by SLR Consulting which has a specialist capability in mineral planning. SLR is a member of the Institute of Environmental Assessment and Management with an awarded EIA 'Quality Mark'.

1.7 Planning Conditions

As noted above, the purpose of the ROMP Review is to formulate a schedule of updated planning conditions which reflect modern standards and controls.

Non-Technical Summary

The initial onus is on the Applicant to propose an updated schedule of planning conditions. The EIA facilitates that exercise by providing an environmental context for the development scheme and environmental and amenity conditions which should logically be associated with the scheme. The ES also includes a review of planning policy guidance which recommends specific criteria levels for example. blast vibration limits which are more stringent than the limits prescribed in the current planning conditions. In those terms, the EIA has been of positive value in assisting in devising specific conditions which reflect the conclusions and recommendations of the EIA.

The conditions proposed by the Applicant are produced as Appendices 1.3 and 1.4 to the ES. MTCBC and BBNP are not obliged to except the planning conditions proposed by the Applicant, and they are entitled to impose different conditions or additional conditions. However, if they impose new conditions which have the effect of imposing a restriction on working rights, then Applicants whose interests have been adversely affected by the restrictions will be entitled to compensation.

These matters will be discussed further with MTCBC and BBNP during the determination of the application.

1.8 Document Availability

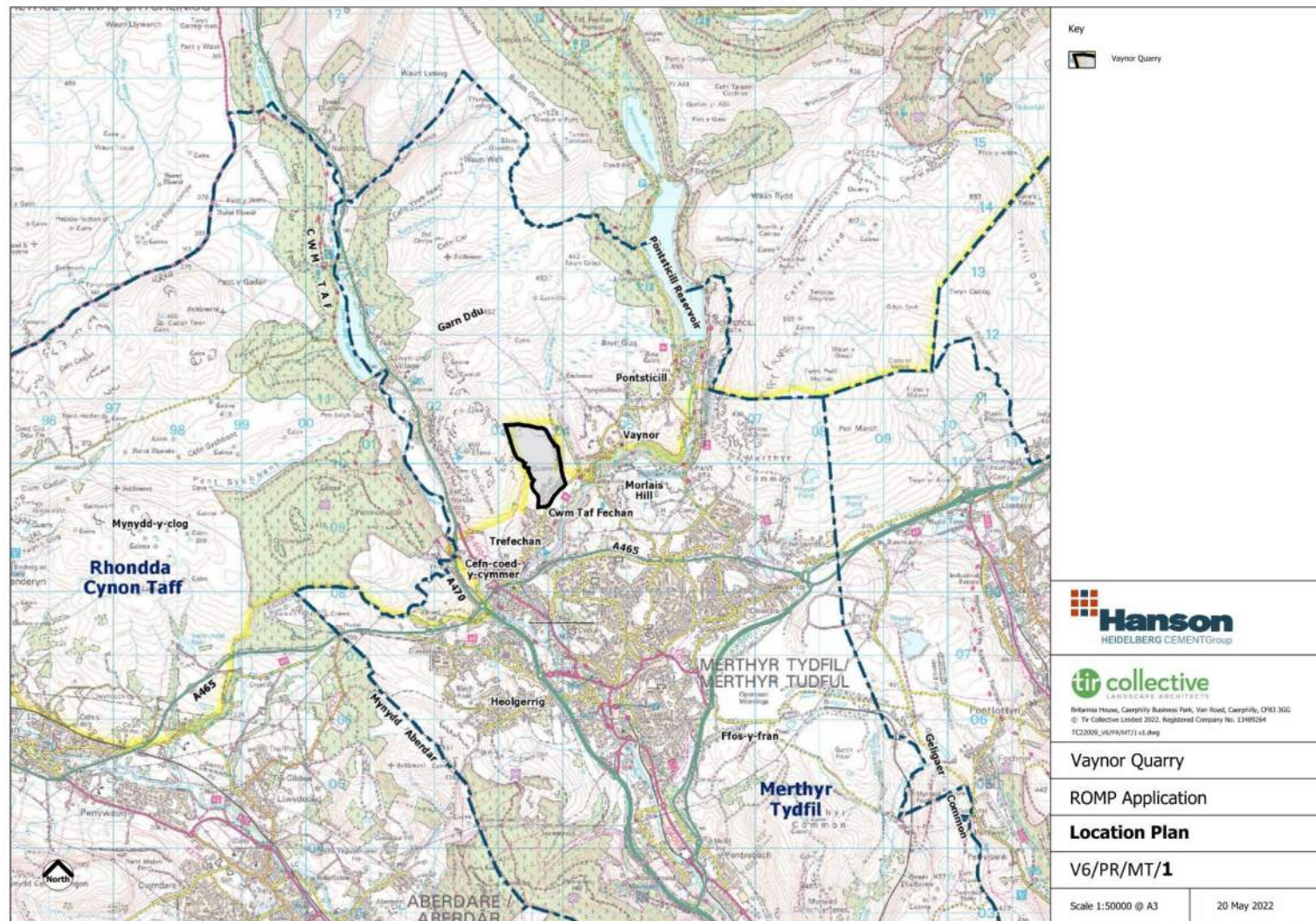
The ES Volumes will be available for inspection on-line via the MTCBC and BBNP Planning web sites.

Copies may be purchased from the Applicant's Agents, SLR Consulting Ltd, Ground Floor, Helmont House, Churchill Way, Cardiff CF10 2HE (Tel 02920 491010).

The cost of volumes (inclusive of VAT and postage) is:

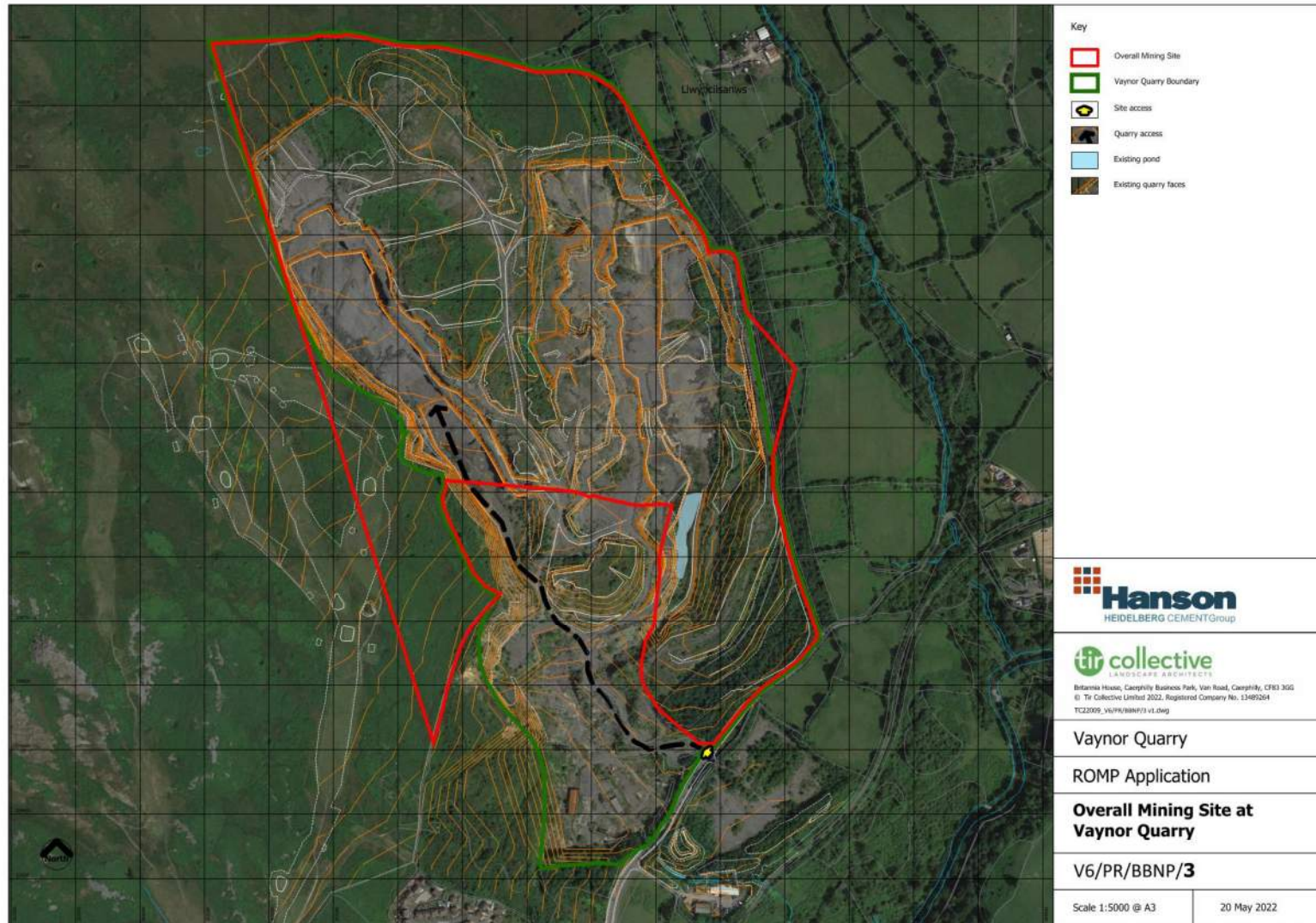
- ES Volumes 1 – 3
 - Printed versions £100.00
 - CD version £5.00
- Volume 3 NTS: (Printed version) £10.00
- Volume 4 Application Plans £20.00

Figure 1-1 - Site Location Plan



Non-Technical Summary

Figure 1-2 Vaynor Quarry Site



2.0 THE PROPOSED DEVELOPMENT

2.1 Existing Quarry

The existing Vaynor Quarry comprises:

- (i) The ROMP 'Overall Mining Site' (OMS) which straddles the administrative boundaries between MTCBC and BBNPA, and which comprises the majority of the Quarry Site in the central / northern and south eastern areas.
- (ii) The former processing plant area in the southern area of the site, with an access off Vaynor Road; and
- (iii) The former permitted area which occupies an area of land, undefined on the ground, between the OMS and the former processing plant site.

The OMS area within which future quarrying will take place has been subject to historical quarrying which has created a western and eastern limb or voids separated by a spur of land which has been partly disturbed by historical quarry waste and overburden tipping. A more substantial quarry tip is present in the northern area of the OMS.

Land in the south eastern area of the OMS accommodates an existing pond to which surface water and perched groundwater from the eastern limb of the quarry drains and then soaks away into the underlying strata. The land to the south east of the pond is well-vegetated with trees and would not be disturbed by future quarrying operations.

The current situation at the quarry is shown on plan numbers V6/PR/MT/6 and V6/PR/BBNP/6 produced within ES Volume 4, with plan ref V6/PR/MT/6 reproduced at the end of this chapter at a smaller scale as **Figure 2.1**.

2.2 Proposed Quarry Development Scheme

The Environment Act 1995 makes provision for the planning conditions which regulate operations at quarries to be updated at 15 year intervals. Following an Initial Review completed in January 2002 the current application represents the first of what will be a series of periodic reviews, with a second periodic review to take place 15 years following the determination of the current application.

Within this context, it has been deemed appropriate to prepare a quarry development scheme for the current application which provides details of the proposed quarry development scheme for an initial 15 year period (sub divided into 5, 10 and 15 year plans), followed by a year 30 plan (which would equate to the next review period).

The anticipated progression of the development is then shown on a year 60 plan, followed by a final quarry development plan representing the full exploitation of the permitted reserve.

Separate quarry development plans have been prepared for the purposes of formalising the applications within the two administrative areas, with the 'red line' application boundaries relating to the Mining Sites within each of the two administrative areas superimposed on the quarry development plans. However, the plans show the same detail in terms of the quarry development scheme and differ only in terms of the red line Mining Site boundaries for the two Authorities. These plans use the MT (Merthyr Tydfil County Borough Council) and BBNP (Brecon Beacons National Park authority) abbreviations in the plan title to allow them to be differentiated, as follows:

- Quarry Phase 1: 5 Year Plan (ref V6/PR/MT/7 and V6/PR/BBNP/7), reproduced at the end of this chapter at a smaller scale as **Figure 2.2**.
- Quarry Phase 2: 10 Year Plan (ref V6/PR/MT/8 and V6/PR/BBNP/8), reproduced at the end of this chapter at a smaller scale as **Figure 2.3**.

Non-Technical Summary

- Quarry Phase 3: 15 Year Plan (ref V6/PR/MT/9 and V6/PR/BBNP/9), reproduced at the end of this chapter at a smaller scale as **Figure 2.4**.
- Quarry Phase 4: 30 Year Plan (ref V6/PR/MT/10 and V6/PR/BBNP/10), reproduced at the end of this chapter at a smaller scale as **Figure 2.5**.
- Quarry Phase 5: 60 Year Plan (ref V6/PR/MT/11 and V6/PR/BBNP/11), reproduced at the end of this chapter at a smaller scale as **Figure 2.6**.
- Final Quarry Development Plan (ref V6/PR/MT/12 and V6/PR/BBNP/12), reproduced at the end of this chapter at a smaller scale as **Figure 2.7**.

2.3 Processing Plant

The quarry will operate using a mobile crushing and screening processing plant which will be sited within the OMS, in proximity to the working area and which will be periodically relocated to reflect the progressive development of the working faces.

The mobile plant will comprise a conventional arrangement of a series of crushers to reduce the size of the stone, and screens to separate the stone into sized products, which will then be transferred to initial stockpiles by radial conveyors. The processed stone will then be lifted by face shovel and transferred by loading shovel or dump trucks to product stockpiles either within the OMS or in the southern ancillary mining area, ready for onward loading into road going vehicles.

The quarry processing activities will be controlled by an Environmental Permit which it is assumed will be issued by MTCBC as the principal Authority within whose administrative area the Quarry lies. If external contractors are used for crushing and screening operations, then the Permit will be registered at their operating base/registered office. In either case, such a Permit will impose detailed requirements to control emissions from the processing plant, together with obligations for the maintenance of

records and training. The Permit is likely to subject to the overarching requirement to use “*the best available techniques for preventing or, where that is not practicable, reducing emissions from all aspects of the installation*”.

2.4 Hours of Operation

The hours of working limitations imposed by the current schedules of planning conditions relating to the Quarry require that:

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 800 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.

These hours of working limits were drafted in 1997 when the Initial Review application was submitted, before more recent advice became available in Minerals Technical Advice Note (Wales) 1: Aggregates 2004 (MTAN1) regarding working hours. MTAN1 confirms that daytime working is defined as 0700 - 1900 hours and night-time as 1900 – 0700 hours (ref para 88).

Hanson has thus reviewed the permitted working hours in the context of this advice and the experience of the working hours at Penderyn Quarry which Vaynor Quarry will replace in the medium term.

It is thus proposed that quarrying and processing operations will be confined to the MTAN1 recommended daytime hours, including a 07.00 start time,

Mondays to Saturdays, rather than the currently approved 06.00 start time. It is also proposed to restrict operations on all Bank and National Holidays.

The proposed hours of working planning condition included in the proposed schedules of planning conditions included as Annexes 1 and 2 to the ES thus includes the following revised condition relating to hours of working:

Except in the case of emergency, quarrying operations shall take place only from 0700 hours to 1800 hours Mondays to Fridays and from 0700 hours to 1600 hours on Saturdays.

No quarrying operations shall take place on Sundays, Bank Holidays or National Holidays.

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 processing plant.

2.5 Output and Traffic Movements

Based on the anticipated average production of 500,000 tonnes of stone per annum being distributed in 20 tonne average payloads over 287.5 working days gives an average of 87 loads / 174 HGV movements per day, which equates to around 8 loads / 16 HGV movements per hour when rounded up.

All of the HGV traffic would travel south west bound along Vaynor Road to /from the A4054 High Street / Upper High Street junction, from which it would distribute around the local road network based upon the origin and destination of the HGV transporting the load.

2.6 Water Management

Passive dewatering (which does not require pumping) is required to allow the mineral to be extracted. Intercepted groundwater and runoff to the quarry void will be allowed to drain southwards along the dip of the limestone beds. This is in line with what is currently occurring. Groundwater will be directed towards a pond in the southern part of the void where it will infiltrate

to the limestone aquifer in accordance with current practices. There will be no surface water outflows from the ponds within the quarry void.

In the first ten years of the quarry development, most quarrying will occur in the western arm. It has been assessed that the estimated increased groundwater and surface water inflows to the western arm as a result of this development can be accommodated through infiltration in the southern part of the western arm as currently occurs.

Before year 10 of the development, a connection will be made between the western arm and the eastern arm, so that drainage from the western arm can flow into the south-east pond. This will provide additional infiltration capacity as development progresses. As the quarry void expands, the south-east pond will be enlarged to manage increased inflows from groundwater and surface water as the quarry void is deepened and the runoff catchment area increases. There will continue to be no surface water outflow from this pond, or anywhere else in the quarry void (although there will be from the wider site as discussed below).

Hanson intends to use mains water for various consumptive purposes, including wheel washing and dust suppression. If at a later stage the decision is made to abstract water from the quarry void for these uses, an abstraction licence would need to be applied for. The potential impacts (if any) of this abstraction would be considered by NRW during the licencing process.

Runoff and any intercepted groundwater in the processing plant area will be discharged off-site via the culvert beneath Vaynor Road as per the current situation in accordance with an existing permit.

2.7 Restoration

The restoration strategy plan has been prepared to guide the long term restoration of Vaynor Quarry, and to assist in establishing restoration principles and restoration treatments. The finer details of the restoration works are likely to evolve as the quarrying progresses, and would be subject to amendment depending on the physical nature of the quarry benches, faces and slopes created. The strategy is therefore based upon a number

Non-Technical Summary

of treatments or the retention of key features which would be used to create a diverse mix of habitats.

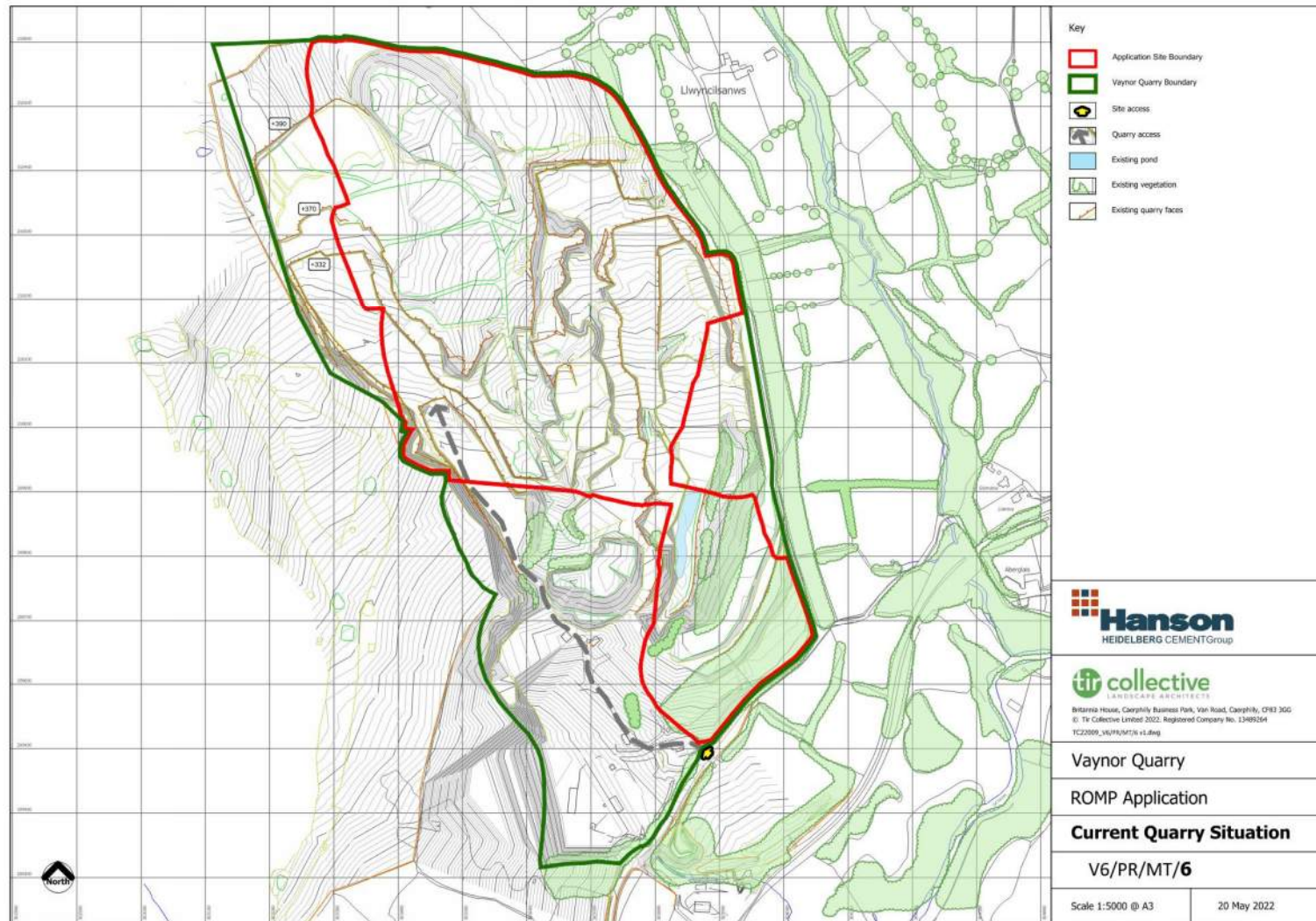
The broad principles of the restoration strategy are illustrated on **Figure 2.8**, which reproduces plan ref **V6/PR/BBNP/14** and **V6/PR/MT/14** at a smaller scale, and incorporate four main elements, namely:

- on-site soils would be used for restoration planting in selected locations to reflect the pattern of existing woodland adjacent to the site
- quarry waste would form the basis of the soil forming material to be used for the restoration. Clay, silt and mud recovered from pockets within the limestone in the central part of the quarry will supplement the quarry waste by creating suitable growing conditions
- quarry benches and faces would be progressively restored during quarry phases, where consistent with operational requirements, with a variety of treatments to enhance the ecological and landscape value of the site; and
- the quarry floor would be restored using fine granular material / quarry waste.

In view of the recognised ecological potential of restored mineral workings, the main objectives of the restoration proposals are ecological enhancement and nature conservation.

The restoration strategy is also consistent with the ongoing natural regeneration of sections of existing faces and benches where no further mineral extraction is proposed.

Figure 2-1 Vaynor Quarry Current Situation



Non-Technical Summary

Figure 2-2 Quarry Phase 1: 5 Year Plan

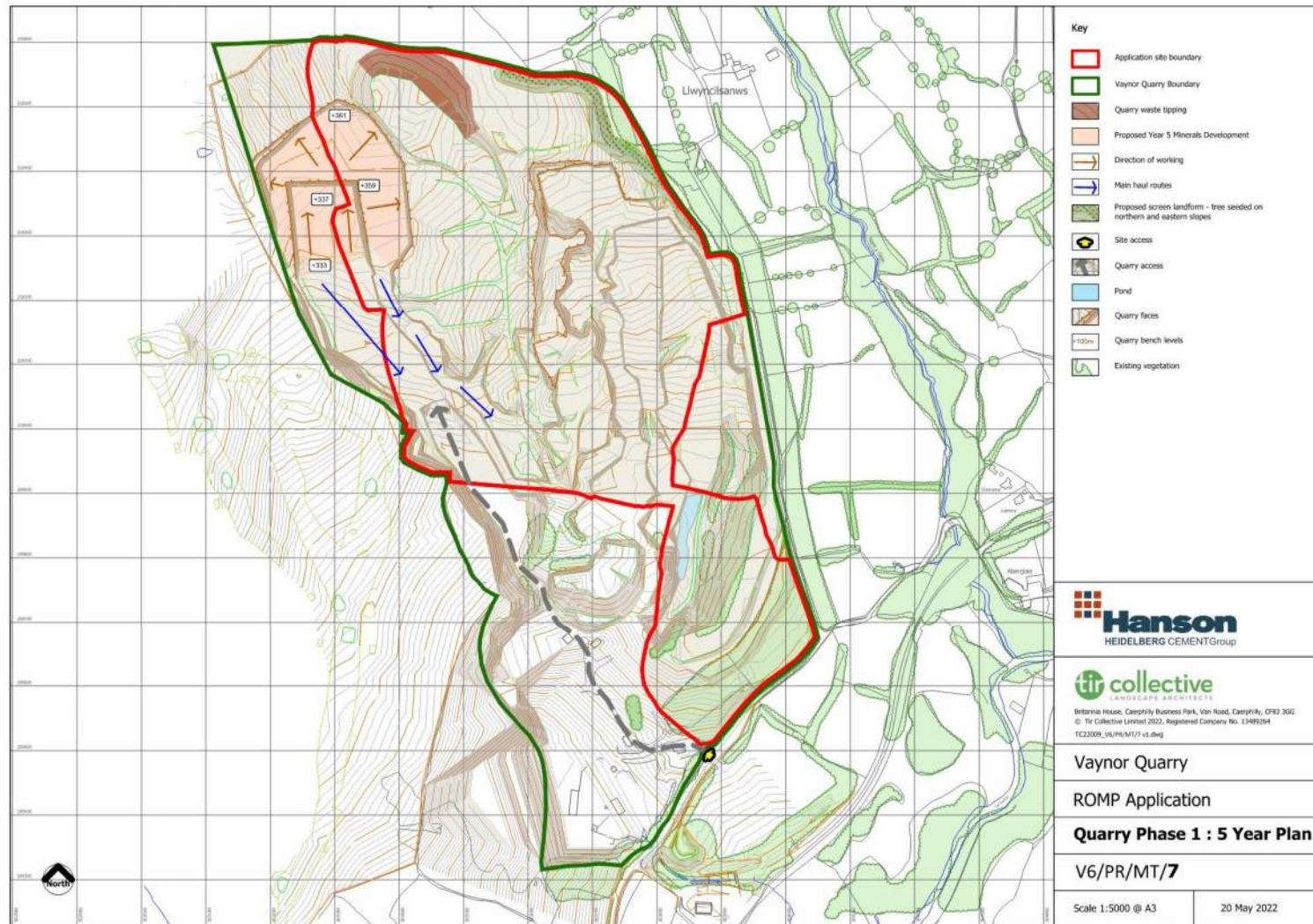
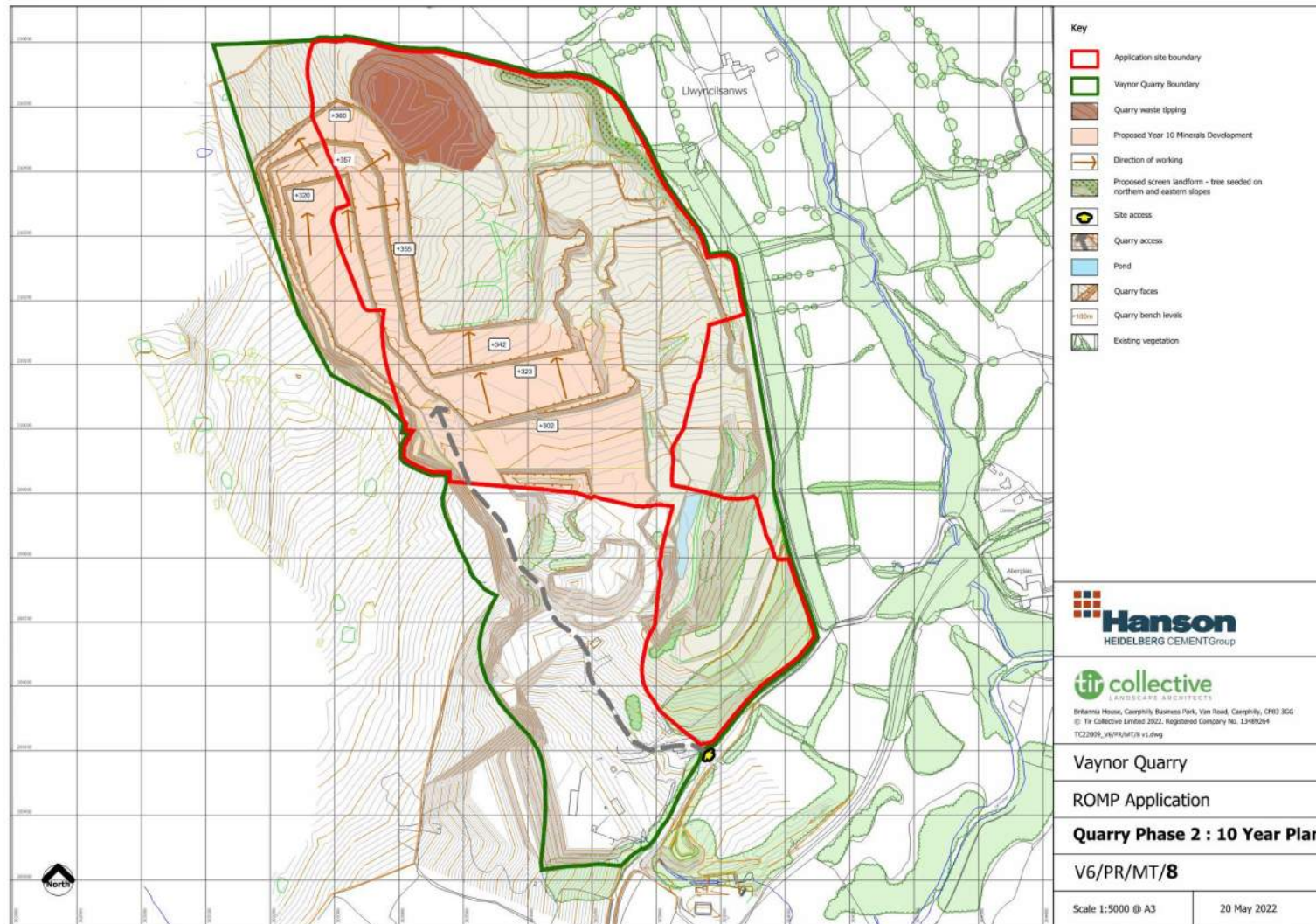


Figure 2-3 Quarry Phase 2: 10 Year Plan



Non-Technical Summary

Figure 2-4 Quarry Phase 3: 15 Year Plan

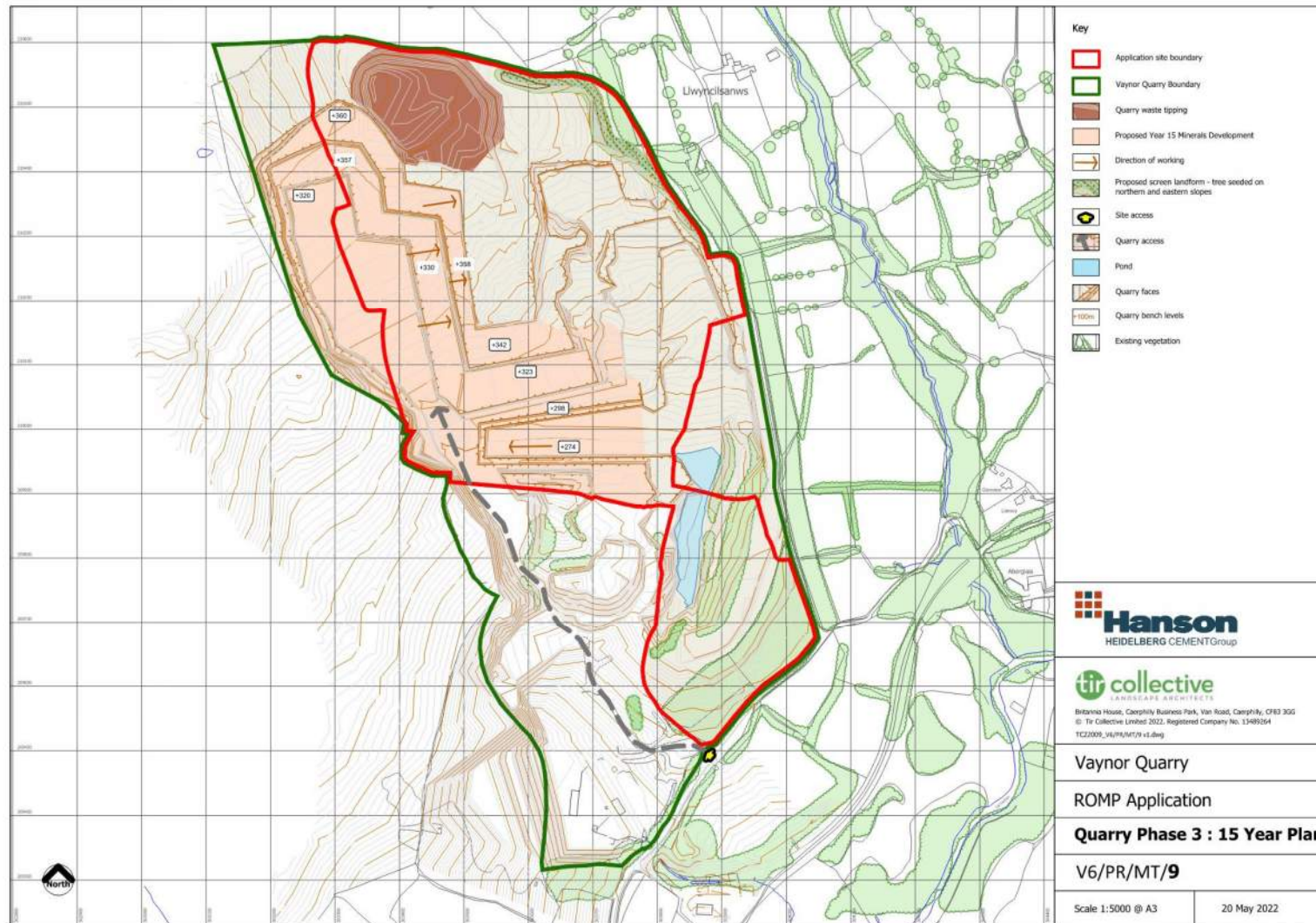
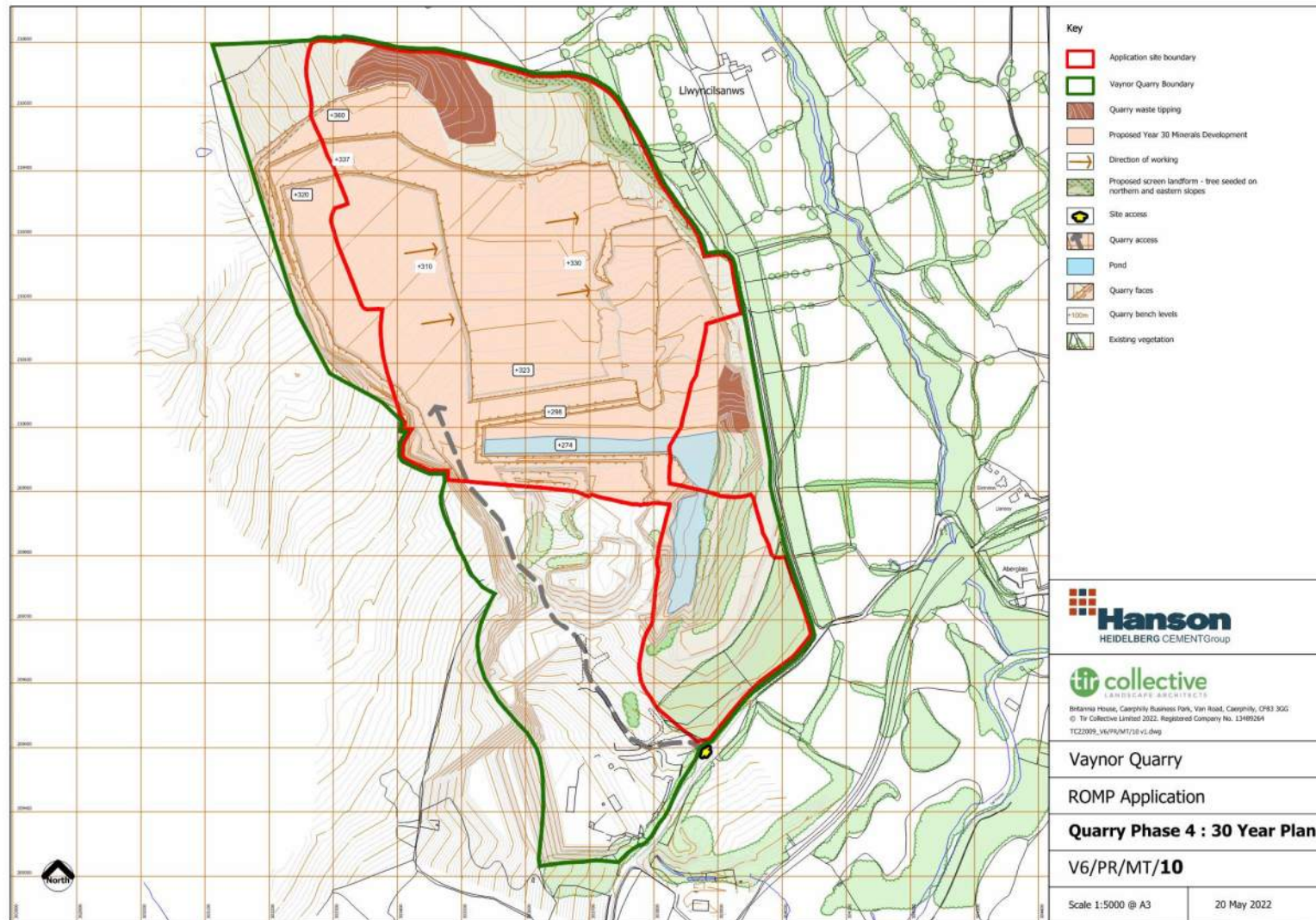


Figure 2-5 Quarry Phase 4: 30 Year Plan



Non-Technical Summary

Figure 2-6 Quarry Phase 6: 60 Year Plan

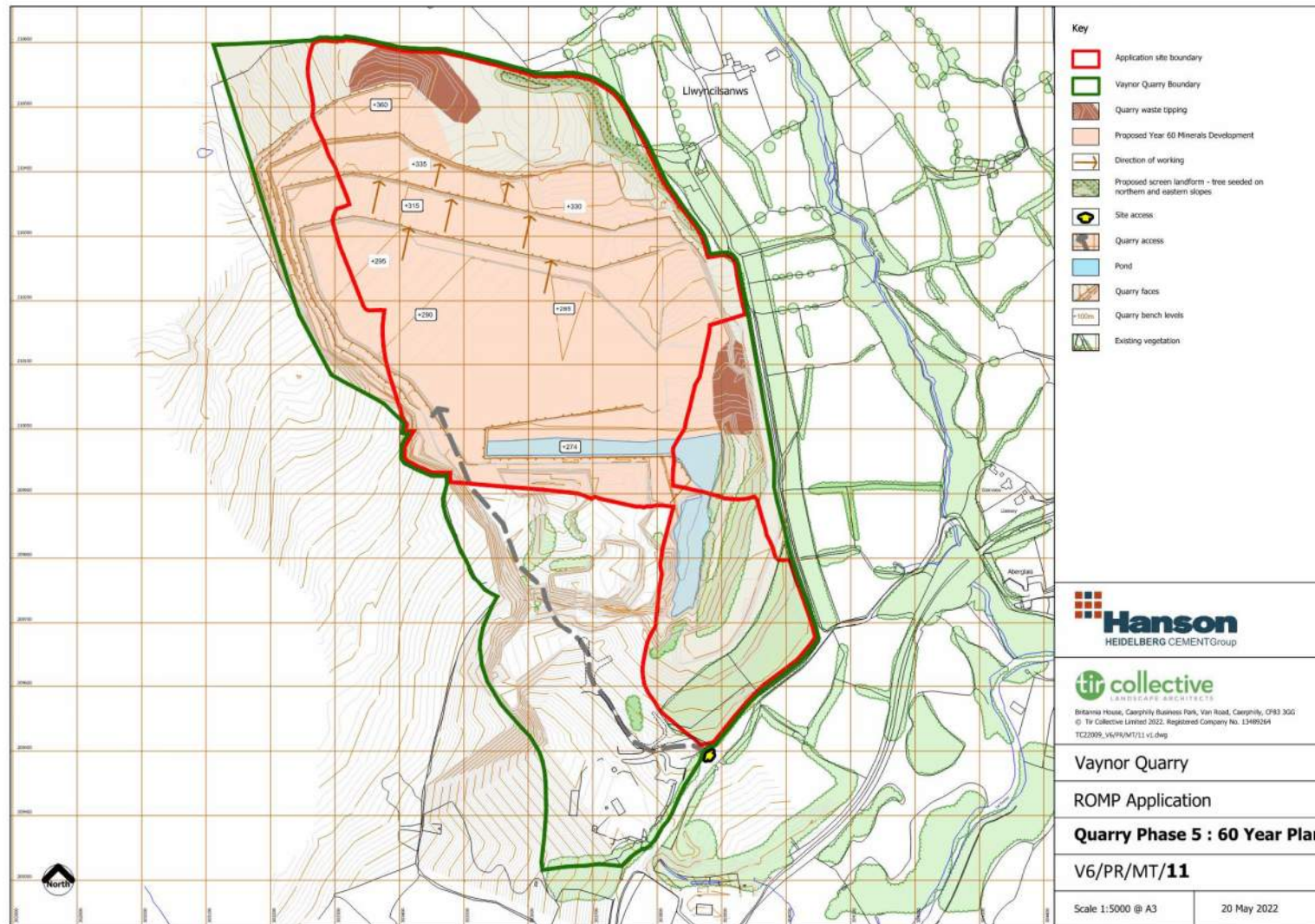
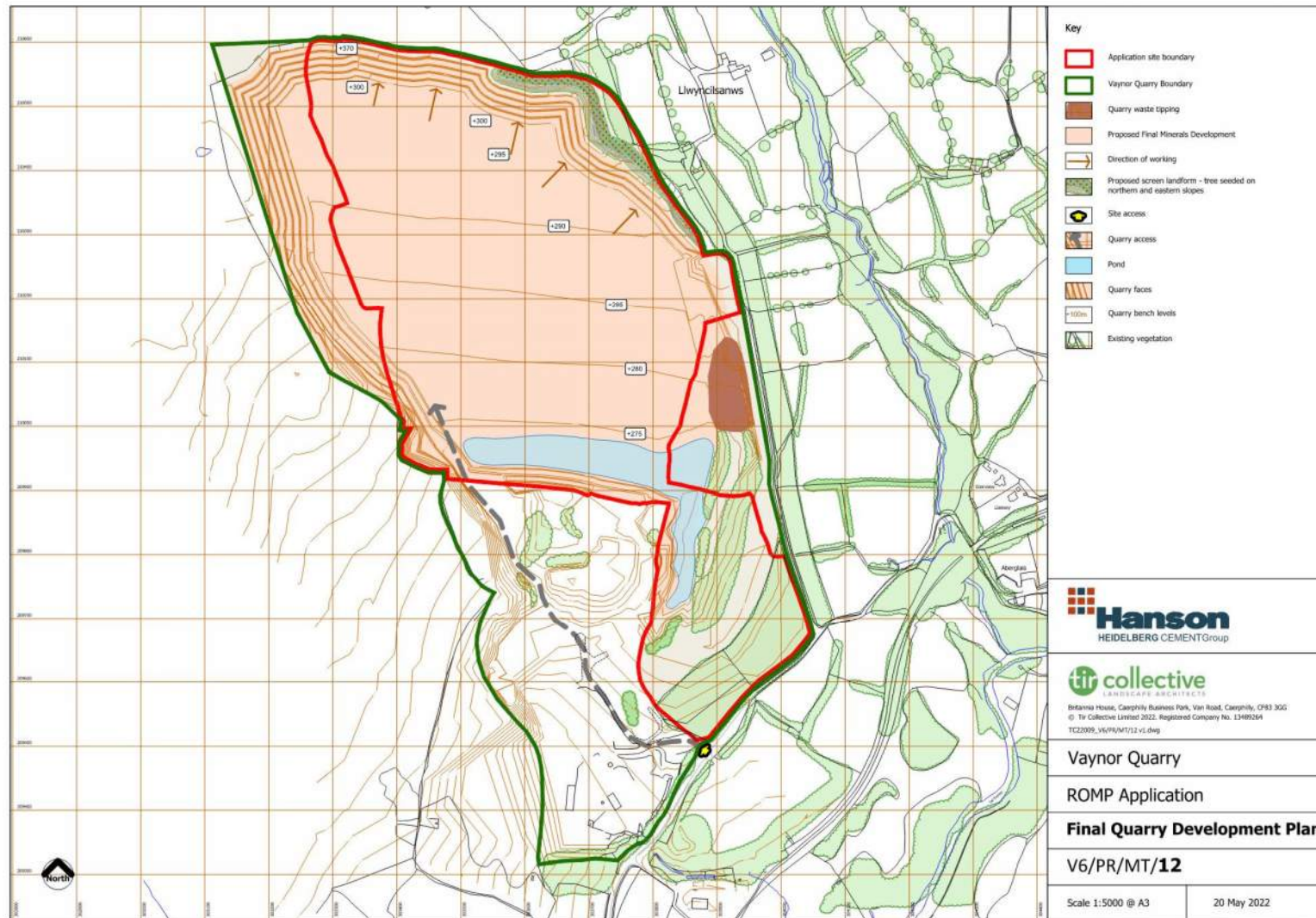
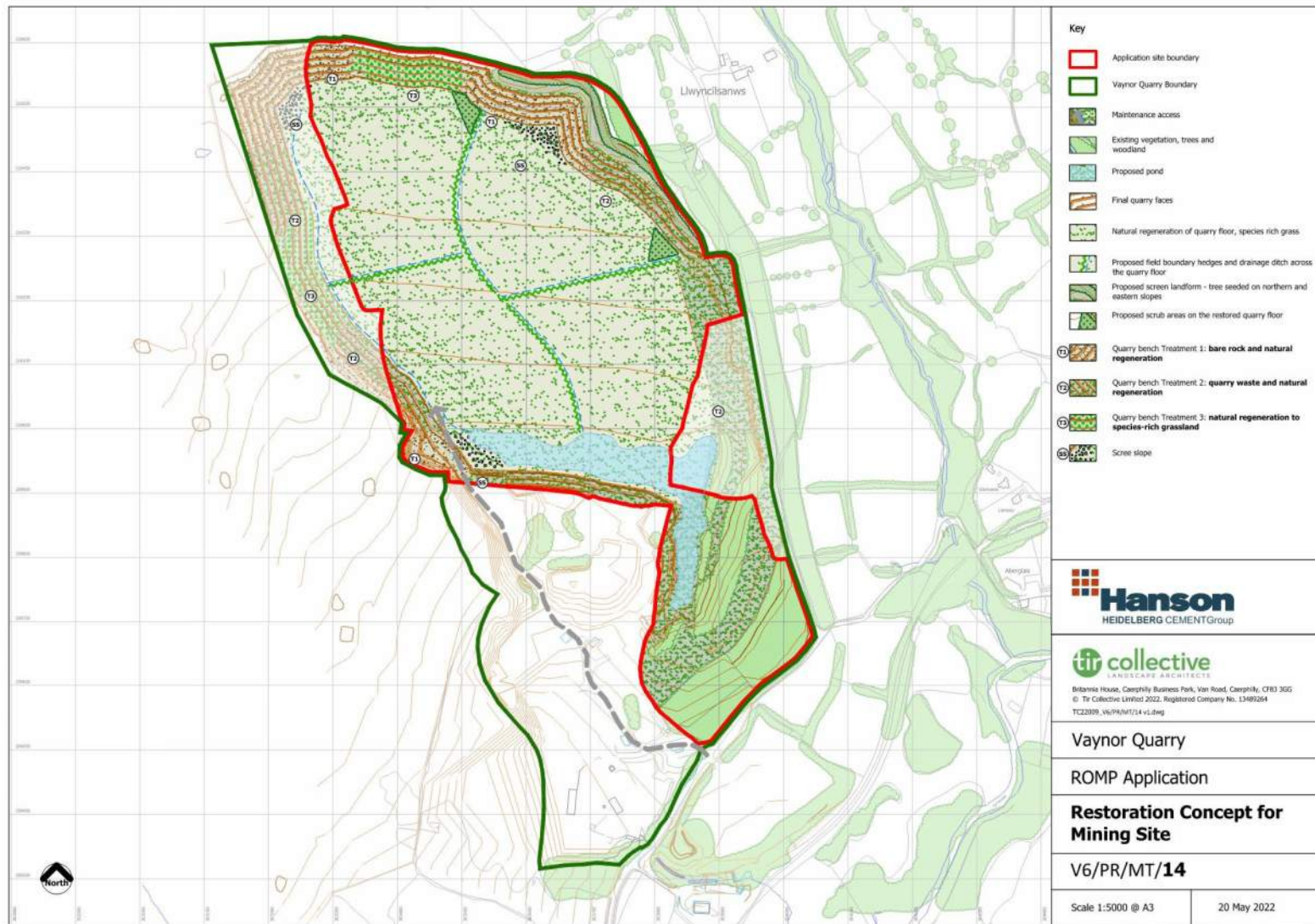


Figure 2-7 Final Quarry Development Plan



Non-Technical Summary

Figure 2-8 Restoration Concept for Overall Quarry



3.0 SUMMARY OF ENVIRONMENTAL ISSUES

3.1 Introduction

The main Environmental Statement (ES) has considered the potential environmental effects of the future quarrying operations at Vaynor Quarry. Where relevant, the studies have made a series of recommendations for measures which could minimise effects, and which could be translated into updated planning conditions.

These issues are set out below as a summary of the main findings of the ES and the conclusions which are drawn. For each topic, the summary describes the key elements of the study which has been undertaken, the mitigation measures which have been incorporated into the development scheme or which will be implemented as part of the ongoing development, and the conclusions which are reached regarding environmental effects.

Where applicable, the summary highlights the recommendations for planning conditions and these recommendations form the context for the drafting of updated planning conditions, as set out in Appendices 1.3 and 1.4 to the ES which draw upon the recommendations which have been made.

3.2 Landscape and Visual Impact Assessment (LVIA) Study

3.2.1 LVIA Study

The Landscape and Visual Impact Assessment (LVIA) provides an assessment of landscape and visual effects of the minerals development at Vaynor Quarry.

The immediate landscape context extends to approximately 1km from the study site boundary and the wider landscape context extends 6km from the study site boundary and is influenced by the surrounding topography and screening features such as woodland and settlement.

The methodology used for assessing the potential effects on landscape character and visual amenity were based on the recommendations in the Guidelines for Landscape and Visual Impact Assessment (GLIVA3).

Minerals development

The proposed minerals development involves extraction within the central / northern parts of the Quarry and expanding the western wing of the void eastwards into the eastern wing of the quarry. A noise attenuation landform is proposed along the north-eastern boundary of the quarry as a permanent landscape feature, with tree planting designed to establish a woodland corridor linking to adjoining established woodland features.

The minerals development is proposed over a circa 100 year period. Progressive restoration and final restoration is based on a variety of restoration treatments, designed to create a range of conditions and habitats which would foster the biodiversity and geodiversity potential of the site, and assist in integration into its landscape context. This will include the emplacement of quarry waste on selected benches, the retention of crags and rock outcrops in appropriate locations and the creation of scree slopes.

The Quarry would be restored to a wildlife enhanced feature, which recognises and exploits the biodiversity potential associated with worked-out quarries, and the range of habitats which can be created. The final restoration and after use proposals for the site represent the principal long-term measure in mitigation of potential landscape and visual effects. Restoration work would commence on quarry benches as soon as possible after they have been worked to their final position and are no longer required for access purposes.

Management of the site, including the established vegetation, would focus on its nature conservation interest and amenity potential, resulting in substantial beneficial impacts on the biodiversity of the site. The landscape and visual appearance of the site would be improved as the tree planting and natural recolonisation establishes and matures.

Non-Technical Summary

3.2.2 LVIA Assessment

Landscape assessment

LANDMAP assessments and the BBNP Landscape Character Assessment were referred to as part of a baseline understanding of the landscape context of the Quarry.

A site-specific appraisal was also carried out identifying the landscape features, characteristics, and aesthetics within the Quarry which are sensitive to change, noting in particular the existing naturally regenerating quarry faces and benches, and the woodland along the Quarry boundary / within the Quarry. The existing naturally regenerating faces within the quarry make a contribution to landscape character, particular from elevated locations to the east where past and present quarrying are a recognisable feature of the landscape. The effects of the advancing faces and exposure of un-weathered limestone would be Minor-moderate adverse (Not significant) at Years 0-5, Moderate adverse at Years 5-30 and Moderate adverse after Year 30.

Woodland and vegetation pattern is sensitive to change and is a receptor of moderate sensitivity. Due to the small magnitude of change along the eastern and north-eastern boundary there would be a minor-moderate adverse effect on woodland pattern during all phases of quarrying. After 30 years, woodland establishment within the site as part of the natural regeneration of vegetation would have a positive effect on vegetation pattern because the Quarry would eventually appear as a woodland edged valley.

Within the wider context, the BBNP and its open upland moorland landscape was identified as a sensitive landscape receptor. Changes at the site level, relative to the BBNP, would be extremely small in scale – no change. Despite the high sensitivity of this receptor the effects would be Negligible/no change.

The historic pasture field pattern and the landscape setting of public routes were identified as sensitive landscape receptors where indirect effects on landscape character/patterns may result in adverse effects. For all phases of quarrying the effects would be Minor-moderate adverse.

The effects identified on landscape receptors were all identified as Not significant.

Visual assessment

Based upon baseline studies of designations, landscape character, and Zone of Theoretical Visibility (ZTV) mapping, a total of 14 views were photographed to illustrate the study site and its appearance in publicly available locations. Of the 14 views that were taken, 8 views were carried forward as representative viewpoints for the visual amenity assessment. The assessment of Visual Effects was based on eight receptors or groups of receptors.

Visual Effects on residents in scattered farmsteads to the east and within 1km of the study site with partially screened or oblique views towards the study site are represented by the views from the footpath to the northeast of the study site. The effects would be Minor-moderate adverse (Not significant) at Years 0-5, Moderate neutral at Years 5-30 and Moderate neutral after Year 30.

Visual Effects on people in settlement and users of public rights of way and access land beyond 3km to the southwest of the study site with partially screened or oblique views towards the study site are represented by the views from the Mynydd Aberdar. The effect would be Negligible (Not significant) for all phases of quarrying.

Visual Effects on visitors and users of public rights of way and access in the BBNP within 2km of the study site to the east with open views towards the study site are represented by the views from the footpath to the northeast of the study site and the bridleway in the BBNP to the north of the study site. The effects would be Minor-moderate adverse (Not significant) at Years 0-5, Moderate adverse at Years 5-30 and Moderate adverse after Year 30.

Visual Effects on visitors and users of public rights of way and access in the BBNP between 2km and 4km of the study site to the east with open views towards the study site are represented by the views from the bridleway at Merthyr Common and the bridleway, east of Pontsticill Station, Merthyr Common. The effects would be Minor-moderate adverse (Not significant)

at Years 0-5, Moderate adverse at Years 5-30 and Moderate adverse after Year 30.

Visual effects on users of public rights of way and access land within 2km of the study site to the southeast with open views towards the study site are represented by a view from Pontsarn Road, north of Merthyr Tydfil. The effects would be Minor-moderate adverse (Not significant) at Years 0-5, Moderate adverse at Years 5-30 and Moderate adverse after Year 30. Effects on users of public rights of way between 2km and 4km of the study site to the southeast with site with partially screened or oblique views are represented by a view from Pontsticill Road and the footpath adjacent to Pengarnddu pond. The effect would be Minor neutral (Not significant) for all phases of quarrying.

Visual effects on road users between 2km and 4km are represented by a view from Pontsticill Road and would be Minor neutral (Not significant). Effects on road users within 2km are represented by a view from Pontsarn Road, north of Merthyr Tydfil and would be Minor adverse (Not significant). Effects on road users between 2km and 4km are represented by a view from Pontsticill Road and would be Minor neutral (Not significant).

The effects identified on visual receptors were all identified as Not significant.

Designated landscapes

The Brecon Beacons National Park (BBNP) is partially located within the study site and covers the northern extent of the 6km study area. The landscape assessment concluded that changes at the quarry, relative to the BBNP, would be extremely small in scale and the impact of the quarry on the character of the BBNP would be Negligible/no change.

The key characteristics and special qualities of the BBNP would not be affected by the development proposals. This is because the proposals would be viewed in the context of the existing quarry and built development of Merthyr Tydfil in the distance. The visual assessment also concluded that effects on visual amenity to visitors to the nearest selected locations within the BBNP would be moderate adverse. The proposed development would form a distant feature viewed in context of the existing quarry and built development.

3.2.3 LVIA Conclusion

The LVIA has examined the landscape and visual impacts in relation to the minerals development at the existing Vaynor Quarry. All impact assessments are based on the proposed development phasing, which incorporates mitigation measures, along with a progressive and final restoration strategy. The potential impacts have been thoroughly assessed through a combination of desk study research and walk-over surveys of the study site and the surrounding context. The effects identified on landscape and visual receptors were all identified as Not significant

3.2.4 Proposed Planning Conditions

The key elements of landscape and visual mitigation relate to the phased progressive nature of the working scheme, and the opportunities for progressive restoration of faces and benches when they have reached their final positions. These elements are catered for in the schedules of proposed conditions with provision for the submission of updated quarry development plans at 5-year intervals, with the plans to include reference to progressive restoration planned for the respective periods.

The restoration concept also makes provision for a wildlife enhanced landscape with revised conditions designed to secure the implementation of the restoration scheme in the longer term.

The proposed northeast screen bund is primarily associated with noise attenuation, but it would also assist in visual screening. The proposed woodland planting on the outer flank of the bund would visually integrate with other woodland in the vicinity as a further landscape screening measure. Again, provision for the construction of the bund and planting is included in the schedule of proposed conditions.

3.3 Ecology

3.3.1 Ecology Study

The scope of the Ecological Impact Assessment (EclA) has comprised the collection of baseline data, evaluation of ecological resources and

Non-Technical Summary

description and assessment of the significance of impacts. The assessment has followed the guidelines set out by the Chartered Institute of Ecology and Environmental Management (CIEEM 2018).

It has included a desk study review of available published information, and a series of field surveys comprising an initial; habitat survey and subsequent species surveys of the potential of the site to support legally protected or notable species, comprising a survey for bats, great crested newts in ponds within a 250m radius, reptiles, and breeding birds.

In addition, a walkover survey for badger setts has been undertaken across the site together with searches for evidence of otter alongside other ecological survey work.

Bats

Trees with the potential to support bats have been identified although these occur beyond the future working area and so no further surveys were required or undertaken.

The presence of a bat roost was recorded in the former weighbridge building although use was not recorded during all surveys.

No direct evidence of bats emerging or returning to roosts in the cliff faces were observed or suspected during the surveys although it is considered a possibility that roosts occur in quarry faces that were not directly accessible.

Bat foraging was widespread throughout the site.

Great Crested Newts

A survey of six ponds has been undertaken which recorded a large population of great crested newt. This included a peak count of 180 great crested newts in the pond in the south eastern area of the Quarry. The presence of common frog, common toad and palmate newt was also recorded during the surveys.

Reptiles

A reptile survey of suitable habitats was undertaken during May and June 2018, with the presence of slow-worm and common lizard was confirmed.

The peak count for slow worm during a single visit was two animals and for common lizard was four animals although it was considered both species are likely to occur at low densities throughout the site where suitable habitats occur.

Birds

A breeding bird survey was undertaken during May and June 2018, encompassing the site as well as noting any bird species seen or heard in adjacent habitats connected to the site.

A total of 45 bird species were recorded, of which 20 bird species are recognised priority for concern.

Of these, just three species were identified as confirmed breeders and were recorded in the grasslands on the central spine within the main worked area.

Peregrine falcon was present within the western void of the main worked area on several occasions throughout the 2018 survey period. No nests were located but historic records indicate the presence of nesting peregrine within the site and so this species cannot be discounted from future breeding due to the suitability of nesting habitat present within the site.

Badger

No evidence of badgers has been found within the Quarry during the habitat survey or subsequent site visits. Their presence in the currently unworked northern area is considered unlikely due to the absence of preferred habitats and upland fringe setting of the Quarry.

However, recommendations have been made as the future presence of badger cannot be fully discounted.

Otter

Similarly, no evidence of otter was found but further recommendations have been made as the future presence of otter cannot be fully discounted.

Designated Sites

Nant Glais Caves SSSI

There would be no direct effects to the SSSI as a result of resuming operations. Although the SSSI is primarily notified on account of geological reasons, the citation and species associated with the SSSI include white trout, lesser horseshoe bats and the cave spider is also known to occur.

The Hydrological Impact Assessment (HIA) concludes that impacts to the Nant y Glais watercourse would be negligible, with no specific mitigation measures required. As such, it is concluded that the environmental conditions and associated faunal interest of the Nant Glais cave system would not be adversely affected.

No mitigation is proposed or deemed to be required.

Cwm Taf Fechan Woodlands SSSI

There would be no direct impact to the SSSI as a result of resuming operations. Passive de-watering of the quarry void when working below the water table has the potential to cause a change in hydrological regimes within the SSSI resulting in adverse changes in the habitats or species present. This potentially includes impacts upon the Taf Fechan itself and the springs that feed into the river.

The quarry design has been undertaken to ensure continuity of soak-away conditions via a sump pond in the same location to that currently present in the eastern arm of the Quarry to ensure the hydraulic gradient remains. No pumping will be required to dewater the workings, so no decrease in flow to the springs or base flow of the Cwm Taf Fechan springs or Taf Fechan, is predicted as a result of future quarrying operations.

Based on the finding of the HIA together with the fact that no direct loss of SSSI designated land would occur, no specific mitigation is proposed or deemed to be required.

Habitats

Habitats directly lost to enable mineral extraction and progressive restoration works within previously permitted quarry development areas equate to:

- Quarry, bare ground, scree, aggregate, early successional vegetation 26.2ha;
- Bracken 0.4ha;
- Ffridd mosaic in previously disturbed locations 10.3ha;
- Marshy grassland 1.1ha;
- Scattered scrub 1.4 ha; and
- Standing water 0.3ha.

This is phased over the identified phases of quarry development with minimal loss of established habitats in the initial phases of development.

The HIA predicts a negligible impact upon the Nant y Glais and Taff Fechan water courses and, as such, no significant ecological impacts are predicted to the rivers or associated riparian habitats.

Spring NG01 and NG02 are tufa-forming springs within the Nant y Glais valley but outside the SSSI designated area. The HIA predicts that deepening of the quarry and associated passive dewatering may divert groundwater that currently moves east to the springs, and this may reduce deep groundwater flow to the springs. However, the positioning of the springs on the Dowlais Fault and uncertainty regarding the overall deep and shallow water flows to the springs make any change difficult to accurately predict.

Non-Technical Summary

3.3.2 Ecology Mitigation Measures

Habitats

Full details of the proposed habitat creation and aftercare are set out in Chapter 4.0 of the ES. This includes the following habitat creation and restoration treatments to encompass the full extent of the quarry:

- Broadleaved woodland / tree planting along the north-eastern screening landform;
- Natural regeneration of the quarry floor to species rich grassland;
- Quarry bench treatment 1 – bare rock and natural regeneration.
- Quarry bench treatment 2 – quarry waste and natural regeneration.
- Quarry bench treatment 3 – natural regeneration to species rich grassland; and
- Scree slope.

A further 10ha of habitat creation and enhancement will be undertaken in order to establish a great crested newt receptor site. This will include new ponds and enhancement of agricultural grassland and plantation woodland habitats within land under the applicant's control, largely to the east of the Quarry.

Whilst there are potential effects predicted in relation to Springs NG01 and NG02, there is no mitigation proposed as the impact cannot be accurately predicted or mitigated (in a hydrological sense) with any certainty.

The early stages of tufa formation have been noted in quarry seepages, and such features will be present in perpetuity and potentially increase once the quarry deepens. Whilst not direct mitigation or a quantifiable 'creation', this does ensure the continued presence of tufa in the locality in the event that groundwater flow is reduced to the extent that Springs NG01 and NG02 decline or dry up and tufa does not persist.

Given that there is no long term viable mitigation solution available for Springs NG01 and NG02, following a precautionary / worst case basis, it is assumed these two springs will be lost.

Bats

Mitigation for loss of roosts

The following approach is proposed and considered appropriate given the current status of the quarry being inactive and no known resumption date for which there will be a lead in period prior to any resumption of quarrying:

- A review of previous survey findings by way of up-dated bat roost potential surveys prior to a resumption of quarrying activity, and then thereafter ahead of each phase of works or stage of land take. This will confirm the exact number and location of roosts to be removed in the phase. Depending on the findings, update roost detection surveys are then likely to be required at previously confirmed or potential roosts due to the high potential for these to change over time.
- No specific roost provision is proposed in respect of quarry face roosts, as there will be a multitude of comparable opportunities present at every stage of quarry development and in the long-term following cessation of all operations.
- In the event of it not being possible to retain the identified roost in Building 3 (considered highly unlikely), then roost closure will follow widely adopted methods under licence from Natural Resources Wales. Based on the species and numbers of bats recorded, provision of artificial boxes would be sufficient to maintain current levels of roosting at the site.
- In all cases, destruction of roosts will seek to be undertaken at times when bats are least likely to be present. Where this is not possible, roosts will be excluded using measures appropriate to the individual circumstances under licence and following recognised best practice measures.

Mitigation in respect of foraging and commuting

The phased approach to operations and restoration, including advance habitat creation works associated with the great crested newt receptor site,

are such that loss of habitat is staged, and a comparable balance of habitats is maintained within the site through each stage of development.

This is considered sufficient to ensure that the bat species known to forage and commute within the quarry can continue to do so at comparable levels. As such, no detriment to population fitness, local distribution or conservation status of any bat species is predicted and no further mitigation to that embedded in the scheme design is proposed or considered necessary.

Great Crested Newt

It is proposed to implement a great crested newt translocation exercise under an EPSL from Natural Resources Wales.

Phase 1 of the working scheme has been designed to focus quarrying more than 250m from great crested newt ponds with only minimal loss of potential terrestrial habitats during this stage, following capture of great crested newt, to enable reinstatement of the internal haul road and stock yard etc.

This will then enable advance establishment of a dedicated receptor area to the east (as shown on Drawing GCN2 within ES Appendix 7/7), where five purpose-built ponds will be created for great crested newt in conjunction with conservation led management of grassland and woodland habitats already present.

Translocation of great crested newts would be undertaken from the remaining areas where impacts are predicted and suitable habitats occur. This will be undertaken using a combination of trapping at ponds, pitfall trapping (where ground conditions allow), and night searches. Based on a large sized population and current guidelines, a minimum period of 90 days effort will be employed during suitable weather conditions.

Population monitoring and habitat management will be undertaken as required under the EPSL.

Reptiles

In order to minimise the risk of killing or injury, a reptile exclusion exercise will be completed using capture and translocation as the primary basis to

relocate reptiles from the working area. This will be undertaken alongside the great crested newt mitigation scheme described above as the approaches, timescales and efforts will be commensurate and compatible to those required to ensure the risk of killing or injury of reptiles is minimised.

Additional reptile translocation will be required in areas not subject to formal great crested newt translocation i.e. parts of the of the unstripped reserve areas more than 500m from GCN ponds.

Based on the low numbers likely to be encountered, this is anticipated to take the form of advance habitat manipulation in advance of each phase of quarry development to displace reptiles into adjacent retained habitat. This will be achieved by successive cuts of vegetation over a week during conditions that are favourable for reptile activity i.e. dry and above 9 degrees Centigrade, followed by a destructive search under an ecological clerk of works.

Initial habitat creation for reptiles would be undertaken as part of the great crested newt receptor site and enhancement area through the provision of species-rich tussocky grassland and hibernacula features as described in **Appendix 7/7**.

Habitat creation in undisturbed areas in conjunction with quarry restoration will eventually reinstate the quarry and increase overall provision of suitable habitat for reptiles to recolonise the restored site on completion of works.

Birds

As a general measure, removal of established vegetation in Phase 2 onwards will be undertaken outside of the nesting bird season (the season is typically March to end of August) or subject to an advance check for nesting birds by an appropriately qualified ecologist if this is not possible.

There are two approaches to mitigation that are relevant to peregrine falcon:

- A resumption of site operations (this may include preparatory work) during the nesting season will require a specific survey to be undertaken in order to confirm the presence/absence and precise nesting location. A buffer may then be required between any working area and the nest location. Specific buffers are not provided at this

Non-Technical Summary

stage as any requirement will be subject to judgement by an experienced ornithologist and depending on factors such as the plan distance, vertical separation, stage of nesting and type/duration of activity.

- A resumption in site operations outside of the nesting season would generally avoid the risk of disturbance and it would be expected that peregrine falcon would habituate to quarrying activity. Notwithstanding this, a general watching brief will be required to confirm there is no risk of disturbance.

Badger and Otter

Whilst no specific mitigation is proposed or required in relation to badger or otter, it is recommended that a review of the 2018 surveys is undertaken prior to the resumption of operations to confirm the continued absence of these species, in particular badger.

3.3.3 Ecology Conclusions

An Extended Phase 1 habitat survey was undertaken, initially in March 2018 and subject to review, most recently in 2021, by an experienced terrestrial ecologist. This was followed by a suite of protected species surveys and habitat assessments.

The potential for any significant or detrimental impact upon ecologically designated sites has largely been ruled out.

It has been concluded that the later stages of quarrying may reduce base flow of two tufa forming springs (NG01 and NG02) which could in turn reduce or prevent the continued formation of tufa.

The presence of notable habitats has been identified, although no significant residual impacts are predicted as the proposed restoration is dedicated to habitats of comparable biodiversity value.

The presence of protected species has been identified, including bats, great crested newt, reptiles and breeding birds. The phased approach to quarrying has been designed to minimise impacts, whilst additional habitat

creation establishes, in particular for great crested newt. The extent and type of habitat creation is embedded within the restoration scheme and ability to provide a separate receptor site meaning that any residual impacts are considered unlikely to be ecologically significant or have a negative effect on conservation status.

3.3.4 Proposed Planning Conditions

The specific mitigation measures recommended for bats, reptiles and birds are reflected in requirements set out for an Ecological Management Plan in the proposed schedules of conditions, with the mitigation measures for great crested newt to be addressed via an EPSL.

3.4 Agricultural Land Quality and Soils

3.4.1 ALC and Soils Study

Soil resources were reviewed by means of a desk study of published and unpublished soil maps and reports and more accurately assessed by a detailed survey across the Quarry. The detailed survey involved observations of soil and land characteristics at the intersects of a 100 m grid.

Agricultural land quality was assessed using information from the soil resources survey and other constraints to agricultural land use, such as climate, flooding and slope. The survey was undertaken in line with post 1988 Agricultural Land Classification published by the former Ministry of Agriculture, Fisheries and Farming (MAFF) by an experienced soil surveyor.

The agricultural quality of the land is determined by adverse climate, wetness and soil depth. Other potentially limiting factors have been assessed, but do not affect the land grading. The potential agricultural land within the Quarry was found to be of Grade 5 quality (6.1 ha). This grade comprises the land in the north with peaty soils which is poorly-draining and cannot be improved, limiting land use to rough grazing. Also included are the very thin soils and rocky outcrops in the north-west which prohibit cultivation and can carry limited livestock densities due to poor grass growth. This land is also limited to rough grazing use.

The majority of the OMS (some 45.0 ha) comprises non-agricultural land made up of existing quarry workings, buildings and blocks of woodland/scrub.

Two main soil types were identified: Loamy soils with peaty topsoil and very shallow rocky soils. The loamy soils with peaty topsoils occur in an area of limited extent on a level summit in the north of the survey area. They comprise a peat surface layer over freely-draining mineral layers. In the north-east of the site these soils are very shallow over hard limestone.

The very shallow rocky soils occur in the north-west of the site where rocky exposed crags are interspersed with sparse grassland and scrub. The soils are extremely shallow (less than 10 cm) and absent from large areas. At least some of the area appears to have been disturbed by quarry operations. These soils do not comprise a useful resource for restoration.

There is the potential for soil resources to be damaged during the working phase of the proposed development if there were improper soil handling and storage. This would result in the loss of suitable topsoil and subsoil resources which would otherwise be available for restoration of the site.

As mineral working of the proposed development proceeds, the potential use of the agricultural land will cease. There will therefore be a loss of 6.1 ha of grade 5 agricultural land – a minor adverse impact of the Proposed Development.

3.4.2 Mitigation Measures

There is the potential for all soil resources to be damaged if handled incorrectly (i.e. stripped when wet or compaction through excessive trafficking). This would render them unsuitable for use in quarry restoration. Mitigation for the loss or damage of soil resources requires the adoption of a Soil Management Plan (see Section 8.6 of the ES), undertaken by a suitably qualified practitioner in accordance with the principals outlined in the Construction Code of Practice for Sustainable Use of Soils on Construction Sites, which will detail:

- Depth and method of topsoil stripping and stockpiling

- Identification of landscaping topsoil requirements and assessment of suitability and availability of on-site resources
- Means of subsoil protection from compaction damage and remedial measures to remove damage

Adhering to the Soil Management Plan would protect the entire soil resource within the Quarry allowing for its beneficial re-use in restoration, thereby, mitigating the magnitude of effects to negligible-low on high sensitivity receptors. This is a minor adverse impact of the proposed development.

3.4.3 Soils Conclusions

All of the top soil and sub soil resources will be stripped and stockpiled in bunds and would be available for reuse. In practice, the soil resources would be used partly for the construction of the north eastern screen bund, with the residual material to be placed in temporary separate storage bunds adjoining the northern quarry tip. This will represent a sustainable use of the soil resource, which would be retained and be available for re-use in the long term either for other agricultural purposes on the restored floor of the quarry, or for other restoration within the quarry. The effect of the proposed development on soil resources remains minor adverse.

The floor of the quarry would be restored to species rich grassland sub divided by hedgerows, using the limited soil resources supplemented by suitable soil forming material. This remains a negligible adverse impact of the proposed development.

The proposed development will have minor adverse effects to soil resources and negligible adverse effects to agricultural land resources. The Soil Management Plan will ensure the protection of all soil resources and sustainable use and potential re-use.

3.4.4 Proposed Planning Conditions

The recommendation for soil handling to be undertaken in accordance with a Soil Management Plan is reflected in the proposed schedule of planning conditions which cross references the Soil Management Plan set out in

Non-Technical Summary

Section 8.6 of the ES, with other conditions also proposed relating to the protection of soil resources.

3.5 Hydrology and Hydrogeology

3.5.1 Hydrology (surface water) and Hydrogeology (ground water) Study

The Hydrogeological Impact Assessment (HIA) considers the potential hydrogeological impacts of the mineral working and subsequent restoration at the site and includes the following:

- Review of the baseline geology, hydrology and hydrogeology at the Quarry and surrounding area
- Formulation of a conceptual model based on the above
- Identification of receptors and assessment of potential impacts; and
- Recommendations for appropriate monitoring and mitigation measures (as required).

A Flood Consequence Assessment (FCA) has also been undertaken, which is appended to the ES (Appendix 9.2), with a Groundwater Flow Modelling Report produced as Appendix 9.3.

The study describes the baseline conditions at the site in terms of topography, geology, hydrology, site water management, hydrogeology, surface and groundwater quality, and licenced water abstractions, and develops a conceptual model based upon this baseline data.

The potential impacts arising from the operational quarry development have been identified as follows:

Neighbouring abstractions

All identified licenced abstractions are from surface water bodies and are at least 2 km away from the Quarry and most are beyond the boundaries of the regional aquifer system defined within the Vaynor Hydrological Scope Boundary (VHSB). Based on an understanding of the hydrogeological conceptual model, the radius of influence from passive dewatering is not

expected to extend this far and the level of effect and degree of impact on these receptors is considered to be negligible.

The spring-fed water supply at Llwynsilanws Farm is 330 m north of the Quarry that could be affected by passive dewatering. However, it is also possible that the supply is fed by shallow groundwater sourced from upgradient of the Quarry that may be hydraulically isolated from passive dewatering at the Quarry. Indeed, the supply has only ceased to flow during periods of drought, even though passive dewatering has been ongoing. The level of effect could be Negligible to High dependent on the degree of connection, meaning that the degree of impact could also be Negligible to Major. Monitoring and mitigation measures have therefore been proposed.

Sensitive sites

Cwm Taf Fechan SSSI is located to the south of the Quarry. It is expected that water draining from the south-east pond currently contributes to flows in the Cwm Taf Fechan SSSI springs and baseflow in the Taf Fechan. The pond will be retained and enlarged through quarrying. This will allow the hydraulic gradient south of the Quarry to remain unchanged or as the pond is expanded, the hydraulic gradient may steepen through time and in either case there will be no decrease in flows at the springs within the SSSI as a result of the development. Therefore, there will be no loss of flow to the Cwm Taf Fechan SSSI springs and the degrees of effect and impact are expected to be Negligible.

Ponds and lakes in connection with the aquifer

The small ponds to the north-east of the Quarry are located east of the Nant y Glais and are most likely to be fed by rainfall. Impacts on these waterbodies will hence be Negligible.

The south-east pond at the Quarry is relatively large and forms a habitat for great crested newt. The degrees of effect and impact on the south-east pond will both be Negligible (following the implementation of the great crested newt translocation mitigation strategy).

Baseflow in drains and watercourses

Baseflow in the Nant y Glais east of the extraction area at the Quarry is likely to be supported by the Abercriban Oolite on which it lies. The Abercriban Oolite is separated from the Dowlais Limestone by the lower permeability Llanelly Formation. Therefore, it is likely that the degree of effect on the baseflow in the Nant y Glais in this area will be Negligible. This concept is further supported by the groundwater modelling which suggests an insignificant change in baseflow along the Nant y Glais due to the passive dewatering.

Baseflows in the Taf Fechan are currently supported by flow in the limestone sourced from the south-east pond. The hydraulic gradient south of the Quarry will be unchanged or may steepen through time meaning there will be no decrease in baseflows to the Taf Fechan and baseflow, or flow to the springs in the valley, may actually slightly increase. Therefore, there will be no loss of flow to the Taf Fechan and the degrees of effect and impact are expected to be Negligible. This concept is also consistent with the findings of the groundwater flow model.

There are two springs directly east of the extraction area within the Quarry, referred to in the HIA as springs NG01 and NG02. Precise measurement of flow rates from these springs is not possible due to the difficulty in accessing the springs; however, records of visual observations confirm that NG01 rarely flows whereas NG02 has a consistent low-moderate flow on the order of 10 l/s.

These springs are both outside of the SSSI and downstream of it, and their contribution to the flow of the Nant y Glais is small. If small quantities of water are diverted from these springs due to the passive dewatering of the quarry void, it will ultimately discharge from groundwater as baseflow further downstream. These springs are thought to be tufa-forming and therefore are an Annex I Habitat and, considering their small, localised and low-flowing nature, are classified as Medium value receptors.

The effect of dewatering at the quarry on spring flow is not clear as it depends on the catchment of the spring and the proportion of water from shallow recent rainfall recharge and deeper more long-term groundwater. NG01 and NG02 lie on the Dowlais Fault which may act as a pathway to more distant groundwater source in the north, rather than the Dowlais

Limestone immediately from the west (where the Quarry is located). The effect on the flow rates in NG01 and NG02 could be up to Medium due to the reduction in flow from the deeper, slow moving groundwater. This results in a Moderate degree of impact

Impacts on water quality from plant operation

The limestone aquifer is utilised for private water supply abstractions and supplies springs in SSSIs, and water quality could be affected by chemical spillages or mobilisation of suspended solids.

Spills at the Quarry could feasibly occur from the accidental loss of fluids from mobile or fixed plant equipment and mitigation measures are thus required.

Although the limestone aquifer is in hydraulic continuity with surrounding surface watercourses and waterbodies, there will be an inwards hydraulic gradient caused by passive dewatering. This means that there would not be any impact on receptors to the north, east and west. Spills that affect the limestone could, however, potentially affect surface water receptors to the south of the Quarry, namely the Taf Fechan and springs. Dilution and attenuation would reduce the effect of any spills; however, if transport is along karstic features, this would be minimal.

C1 Impacts on receiving watercourse quality

Runoff within the quarry void catchment will infiltrate to the limestone aquifer and will discharge to neighbouring watercourses; namely the Taf Fechan, via springs or as baseflow. This water will pass through the limestone aquifer prior to discharge which will provide some filtration leading to removal of fines. Therefore, the level of effect and degree of impact will be negligible.

Runoff from the former fixed processing plant site will continue to discharge off-site south of Vaynor Road under the current arrangements, and the discharge will be undertaken in accordance with the existing discharge permit. Once off-site, the discharge passes through a settlement pond south of Vaynor Road prior to the discharge compliance point. Hanson will clean out the settlement pond as required to ensure that the discharge

Non-Technical Summary

consent is complied with. Therefore, the degrees of effect and impact on receiving watercourses will be negligible.

Impacts on receiving watercourse flows

There is to be no water discharge from the Quarry above greenfield runoff rates, and all excess runoff will be attenuated within the Site.

3.5.2 Hydrogeological Mitigation and Monitoring Measures

Mitigation

The HIA concludes that with the exception of possible impacts to the spring-fed water supply to Llwynsilanws Farm, there will be negligible impact to other neighbouring abstractions based upon distance and the predicted degree of drawdown. Similarly, the potential impact to other sensitive sites (springs and SSSIs in the vicinity), and on baseflows in surface watercourses are all assessed as 'negligible' with no mitigation required. The required mitigation is thus confined to conventional fuel and oil handling protocols, and mitigation measures in the event of an identified adverse impact to the Llwynsilanws Farm private water supply which is attributable to quarrying operations at Vaynor.

In relation to springs NG01 and NG02 it is considered that maintaining tufa formation through augmentation of water flows to the springs would present significant challenges, as tufa forms under specific physico-chemical conditions and this would require pumping in perpetuity. It is noted that NG01 rarely flows and both springs are outside of the Nant y Glais SSSI, and therefore it is considered that this impact is not significant and does not change the overall character of the Nant y Glais. Mitigation therefore is not proposed due to the environmental costs (and economic viability) of pumping in perpetuity with the effectiveness not guaranteed.

Potential water quality impacts will be addressed by standard planning conditions. A spill is considered unlikely; however, were this to occur, it would be retained within the active quarry void for a sufficient length of time to allow it to be collected using oil absorbent materials, with standard operational procedures from a Hanson ISO 14001 certified environmental

management system. Contaminated material would then be disposed of in accordance with current best industry practices.

Facilities for the storage of soils, fuels or chemicals will be sited on an impervious base and surrounded by impervious bund walls. The volume of the bunded compound will be greater than the tank capacity (i.e. at least 110%). Filling points, vents, gauges and sight glasses will be located within the bund walls. The bund drainage system will be sealed with no discharge to any watercourse, land, or underground strata permitted. Associated pipework will be located above ground and protected so as to prevent accidental damage. All filling points and tank overflow pipe outlets will discharge downwards into the bund.

Drainage systems at the Quarry will be regularly inspected to ensure that visible oil is not present. The environmental management system will be used to ensure that all procedures follow best practice.

Water in the pond at the southern end of the quarry void will be derived from groundwater and rainfall runoff, and hence is expected to be clean. Suspended solid concentrations may become elevated due to the movement of mobile plant equipment or runoff, particularly during storm events. Discharge from the pond will be via infiltration back into the limestone aquifer through the base of the pond and there is not expected to be any surface water outflow.

Any discharge from areas of the former processing plant area (south of the pond) will be controlled by the terms of the existing discharge permit. It is recommended that the suspended solids concentration of any off-site discharge is monitored regularly to allow compliance in accordance with the discharge permit.

Monitoring

Flows at the Llwynsilanws Farm private water supply springs will be monitored initially on a monthly basis with the option to review this frequency. Should a material reduction in spring flow occur that is not related to climate, Hanson will provide Llwynsilanws Farm with an alternative source of water. This could be through drilling a water supply borehole or by connection to mains water. Any such measures would be agreed privately between Hanson and the Farm owner.

3.5.3 Hydrology and Hydrogeology Conclusions

During limestone extraction, the quarry void will be passively dewatered. Intercepted groundwater and runoff will be infiltrated back into the limestone aquifer at the southern end of the extraction area and there will be no net loss of water from the aquifer. Following completion of the quarrying operations, the Quarry will be restored to a predominantly nature conservation based after-use.

The most proximal receptors include a private water supply abstraction (at Llwynsilanws Farm), the Nant y Glais SSSI, the Cwm Taf Fechan SSSI, the Nant y Glais and the limestone aquifer. The study has concluded that impacts on all receptors, prior to any mitigation measures, would be insignificant except at the private water supply at Llwynsilanws Farm, potential water quality impacts on the limestone aquifer, and at springs on the Nant y Glais (NG01 and NG02). Upon implementation of the proposed mitigation measures, the study concludes that the impact at Llwynsilanws Farm and the limestone aquifer water quality would be insignificant. Whilst impacts to the springs (NG01 and NG02) are potentially significant, they are not reasonably mitigable.

Passive dewatering could cause potentially significant impacts on the Llwynsilanws Farm private water supply abstraction. It is therefore proposed to implement a monitoring programme to monitor effects at that receptor. Should monitoring indicate a significant impact at Llwynsilanws Farm, Hanson would provide an alternative source of water.

Potential water quality impacts on the limestone aquifer will be mitigated by applying standard planning conditions to the planning permission requiring the implementation of fuel and oil handling protocols.

3.5.4 Proposed Hydrogeological Planning Conditions

These issues are reflected in the schedule of proposed planning conditions which includes measures to avoid fuel spillage and a requirement to agree a fuel handling protocol.

3.6 Noise

3.6.1 Noise Study

The noise study examines the environmental noise impact of rock extraction operations, processing operations and associated workings at Vaynor Quarry. It sets out the findings of noise surveys conducted in July 2021 at positions representative of the closest dwellings to the site. It also provides the calculated noise levels arising from the workings and considers the possibility of the need for any mitigation measures where necessary aimed at enabling the site to conform with acceptable noise levels at all dwellings.

The closest noise sensitive properties, in each direction, to the extraction, processing and stockpiling/loading areas have been selected as representative of the properties potentially most affected by the operation.

The receptors selected for the purposes of this study are:

- A/B Llwynsilanws Farm (2 locations)
- C Pen-rhiw-glais
- D Glenview
- E Llansay
- F Former Pontsarn Hotel
- G Aberglais
- H Sweetwater Park 1 (western extent)
- I Sweetwater Park 2 (No 62)
- J Sweetwater Park 3 / High Trees

The noise assessment locations are shown on a site plan in ES **Appendix 10.2**.

Noise Limits

The conventional approach to setting noise limits is outlined in Minerals Technical Guidance Note 1: Aggregates (MTAN1) which indicates that *'noise limits should relate to background noise levels, subject to a maximum daytime noise limit of 55 dB(A) where background noise levels exceed 45 dB(A). 55dB(A) is the lower limit of daytime noise levels where serious*

Non-Technical Summary

annoyance is caused. Where background noise is less than 45 dB(A), noise limits should be defined as background noise levels plus 10 dB(A).....(ref MTAN 1 paragraph 88).

Calculated Noise Levels

In order to present the noise levels for the proposed site operations, the contribution from each significant specific noise source has been evaluated separately and then combined together to give the overall noise level.

The combined effect of drilling and secondary breaking, loading at the face, crushing and screening, hauling, stockyard activity and access road noise has been calculated in terms of $L_{Aeq,T}$ noise levels at the representative receptor properties with screening from the intervening landforms, and the proposed north east soil/overburden storage bund (after 5 years) or working face taken into account. The realistic "worst case" $L_{Aeq,T}$ noise levels, representing the highest site noise levels calculated for each property, are presented in this chapter.

Calculations have been undertaken for two scenarios:

- Scenario 1 - extraction occurs at the highest/closest point to Llwynsilanws Farm.
- Scenario 2, extraction occurs at the closest point to Sweetwater Park and the eastern receptors.

At **Receptor A/B**, Llwynsilanws Farm, the average background noise levels were 33dB $LA_{90,15min}$ from the sample measurements and 32 dB $LA_{90,15min}$ from the installed meter.

Following the guidance in MTAN1, the usual approach would be to suggest a noise limit of 42 dB $LA_{eq,1h}$ based on the lower background noise measured during the installed meter monitoring.

This limit can be met for most of the development years and scenarios considered, however, the limit would be exceeded for Development Years 10-15 Scenario 2 (by 3 dB) and Development Years 15-30 Scenario 1 (by 4 dB). The highest calculated site noise level is 46 dB $LA_{eq,1h}$ for 15-30 years Scenario 1.

At **Receptor C** at Pen-rhiw-glais to the east of the site, At Pen-rhiw-glais the average background noise level was 34 dB $LA_{90,15min}$ from the sample measurements. Following the guidance in MTAN1, the usual approach would be to suggest a noise limit of 44 dB $LA_{eq,1h}$

This limit would be exceeded for the majority of the development years and scenarios considered by up to 8 dB. The highest calculated site noise level is 52 dB $LA_{eq,1h}$ for 5-10 years Scenario 2, and 10-15 years Scenario 2.

For **Receptors D to G** to the east of the site, including Glenview, Llansay, the former Pontsarn Hotel and Aberglais, the average background noise level was 37 dB $LA_{90,15min}$ from the sample measurements. Following the guidance in MTAN1, the usual approach would be to suggest a noise limit of 47 dB $LA_{eq,1h}$

This limit would be exceeded for several of the development years and scenarios considered by up to 4 dB. The highest calculated site noise level is 51 dB $LA_{eq,1h}$ for 15-30 years Scenario 1.

For **Receptors H and I** on Sweetwater Park to the south of the site, the average background noise level was 34 dB $LA_{90,15min}$ from the sample measurements. Following the guidance in MTAN1, the usual approach would be to suggest a noise limit of 44 dB $LA_{eq,1h}$

For **Receptor H** (western extent of Sweetwater Park) this limit would be met for the majority of development year and scenarios considered. It is only exceeded for two years/scenarios and only by 1 dB.

For **Receptor I** (central Sweetwater Park) the limit would be exceeded for several of the development years and scenarios considered by up to 3 dB. The highest calculated site noise level is 47 dB $LA_{eq,1h}$ for 15-30 years Scenario 1.

For **Receptor J**, representing properties on the east end of Sweetwater Park and on High Trees, to the south of the site. the average background noise level was 39 dB $LA_{90,15min}$ from the sample measurements. Following the guidance in MTAN1, the usual approach would be to suggest a noise limit of 49 dB $LA_{eq,1h}$. This limit would be met for all of the development years and scenarios considered.

Although the suggested limits for the majority of receptors are above the usual MTAN 1 approach of background noise levels + 10 dB, all of the suggested noise limits are below the upper limit of 55 dB $L_{Aeq,1h}$ set out in MTAN 1

To meet lower site noise limits would require substantial mitigation, such as restricting operations in terms of the allowable on-time per hour or restricting the geographical occurrence of operations within the site boundaries, which would impose an 'unreasonable burden' on Hanson as the mineral operator.

Guidance for ROMP applications are set in Minerals Planning Guidance Note 14 (MPG14) issued by the Welsh Office in September 1995. Paragraph 174 of MPG14 states the following with regard to periodic reviews:

"174. The approach to be adopted to the determination of conditions following periodic reviews broadly follows that for initial reviews with two main differences. First, there is no distinction between periodic review sites that are working and those that are not. Secondly, where mpas determine conditions difference from those submitted by the applicant; and the effect of those conditions, other than restoration or aftercare conditions, is to restrict working rights further than before the review, a liability for compensation will always arise..."

MTAN1 also provides guidance on noise limits for temporary operations such as screen bund formation, which indicates that "during temporary and short-term operations higher levels may be reasonable but should not exceed 67dB(A) for periods of up to 8 weeks in a year at specified noise sensitive properties' (ref MTAN 1 para 88).

The calculated noise level at Llwynsilanws Farm due to the bund construction operations at the nearest point to the property is 62 dB $L_{Aeq,1h}$, i.e. below the MTAN1 recommended noise limit for such temporary operations of 67 dB $L_{Aeq,1h}$. and it should be possible to complete the construction of the bund within a period of less than 8 weeks..

3.6.2 Noise Mitigation Measures

Mitigation is incorporated into the scheme in the form of a bund to the north-east of the site, as well as confining mineral processing operations within the Overall Mining Site where future mineral extraction will take place, rather than in the former processing plant area further south. Calculations have

determined that further screening from bunds to protect dwellings to the east and south of the site would be neither practical nor effective.

3.6.3 Noise Conclusions

A study of the noise effects associated with the recommencement of working at the currently inactive Vaynor Quarry has been undertaken.

As part of that exercise, noise surveys were conducted in July 2021 to provide baseline noise data at the nearest dwellings in the vicinity of the currently inactive quarry near Merthyr Tydfil. The noise surveys indicate that distant and local road traffic is the controlling noise source throughout the area with individual locations also being affected by other sources.

The extraction operation, crushing/screening, and associated operations, have been described and set out in terms of the equipment proposed to be used and typical Sound Power Levels of the plant to be used. These values have been used to determine the worst-case noise levels affecting the surrounding residential receptors.

Noise limits have been suggested for the residential receptors based on either the guidance in MTAN 1 or the worst-case calculated site noise level. All of the suggested noise limits are below the upper limit of 55 dB $L_{Aeq,1h}$ set out in MTAN 1

To meet lower site noise limits would require substantial mitigation, such as restricting operations in terms of % on-time or restricting the geographical occurrence of operations within the site boundaries, which would impose an 'unreasonable burden' on Hanson as the mineral operator by restricting working rights.

3.6.4 Proposed Noise Planning Conditions

Planning conditions have been proposed which reflect the suggested noise limits for the respective properties in the vicinity of the Quarry (for both normal and temporary operations), together with the requirement for a noise monitoring scheme to be submitted which, inter alia, includes requirements for:

- (i) the provision of measures to reduce noise levels from quarrying operations and specify a methodology for monitoring

Non-Technical Summary

- (ii) the results of monitoring to be submitted to the Local Planning Authority within 1 month of the monitoring being undertaken, together with confirmation of action required and/or undertaken to remedy any breach of the noise limits set out in Table 1.; and
- (iii) steps to be taken upon receipt of a complaint of noise nuisance, including the commencement or continuation of the noise monitoring programme to assist in the investigation of any relevant complaint if appropriate

3.7 Blast Vibration

3.7.1 Blast Vibration Study

A study has been undertaken of the potential effects upon nearby receptors of vibration generated by blasting operations. The study has been undertaken in accordance with guidance set out in Minerals Technical Advice Note 1: Aggregates' [MTAN1], which provides advice on keeping blast induced vibration from mineral extraction sites to acceptable levels including advice on peak particle velocity (ppv) limits for ground vibration, and relevant British Standards which set parameters for maximum satisfactory magnitudes of vibration for residential properties.

The detonation of explosive charges in a borehole (often referred to as a 'shot hole') generates stress waves causing localised distortion and cracking of the rock mass. Outside of this immediate vicinity, permanent deformation does not occur. Instead, the rapidly decaying stress waves cause the ground to exhibit elastic properties whereby rock particles are returned to their original position.

Despite the substantial design process involved in a blast, such as borehole diameter, spacing, depth, amount of explosive etc, all blasts will generate vibration. This vibration occurs both through the ground and through the air (as a pressure wave).

If not properly regulated, blast induced vibration has the potential to cause damage to properties or structures and loss of amenity to residential properties. It is however important to realise that for any given blast it is

very much in the operator's interest to always reduce vibration, both ground and air borne to the minimum possible in that this substantially increases the efficiency and hence the economy of blasting operations.

Ground vibration arising from blasting is calculated in terms of 'peak particle velocity' (PPV) and is measured in millimetres per second (mms^{-1}).

Air-Blast Overpressure represents the increase in pressure caused by a shock wave over and above normal atmospheric pressure. Modern blast-monitoring equipment is also capable of measuring peak overpressure data in terms of unweighted decibels (dB). Decibels, as used to describe air blast, should not be confused with or compared to dB(A), which are commonly used to describe relatively steady-state noise levels.

Blast vibration limits for the existing Quarry as set out in the Initial ROMP deemed conditions set a peak particle velocity limit of *10mm per second at any residential property in 95% of all blasts measured over any period of six months, with no blast to exceed a level of 12mm per second.*

The advice in MTAN1 which post-dates the Initial ROMP Review is that ground vibration at vibration sensitive locations (residential properties) as a result of blasting operations '*should not exceed a peak particle velocity of 6 mms⁻¹ ppv in 95% of all blasts measured over any 6 month period, and no individual blast should exceed a peak particle velocity of 10 mms⁻¹ ppv*' (ref MTAN 1 para 83).

It is thus noteworthy that the current ground vibration limits at residential property at 10mms for 95% of blasts and an upper limit of 12mms are less stringent than the more up to date guidance in MTAN1 which suggests a limit of 6mms for 95% of blasts with an upper limit of 10mms.

The opportunity is available via the Periodic ROMP to update the blast vibration limits to accord with the guidance in MTAN1.

As noted above, in addition to ground vibration, whenever blasting is carried out, energy is transmitted from the blast site in the form of airborne pressure waves known as 'air overpressure'.

Meteorological conditions, such as wind direction and velocity, cloud cover, humidity and temperature inversions influence the intensity of air overpressure levels at any given location. In view of this, unlike with ground vibration, predictions of air overpressure can be made less certain by atmospheric conditions. Accordingly, MTAN1 does not recommend the imposition of limits on air overpressure, and the most effective method of control is its minimisation at source.

3.7.2 Blast Vibration Mitigation Measures

It is proposed that the currently imposed ground vibration limit of 12mms should be revised to reflect the more up to date advice and more stringent limit recommended in MTAN1 of 6mms for 95% of blasts, with an upper limit of 10mms.

Accordingly, all blasts should be designed in order to comply to a vibration criterion of 6 mms-1 peak particle velocity at a 95% confidence level.

Adherence to these levels will ensure that all vibration will be of a low order of magnitude and would be entirely safe. It will also be within the levels deemed to be satisfactory in terms of human perception.

With such low ground vibration levels accompanying air overpressure would also be of a very low and hence safe level, although possibly perceptible on occasions at the closest of properties.

A number of general good practice measures are also outlined to further reduce the potential for adverse impacts due to blast vibration at the site including:

- correct blast design;
- accurate setting out and drilling of shot holes;
- correct charging of shot holes with explosives to avoid accidental over charging;
- correct stemming (placement of material in the shot hole above the explosive charge), to help control air overpressure and ground vibration.;
- monitoring of blasting and re-optimising the blast design (if necessary), in the light of the results, and
- avoid blasting in adverse/unsuitable weather conditions.

3.7.3 Blast Vibration Conditions

The recommendations for the imposition of an updated ground vibration limit from blasting to reflect the advice in MTAN1 is reflected in the schedule of proposed conditions.

This is supplemented by the submission of a Scheme for Blast Vibration Monitoring and a Scheme for the Control of Air Overpressure.

3.7.4 Blast Vibration Conclusions

An assessment of predicted blast-induced vibration levels has been made with reference to existing policy guidance and standards.

Reference has also been made to the limits on ground vibration imposed by the current planning conditions, which notes that the defined ground vibration limit measures at residential property is less stringent than the limit recommended by MTAN1 (2204) which post-dates the ROMP Initial Review.

It has therefore been recommended that the planning conditions relating to residential property should be updated to reflect the ground vibration limits set out in MTN1.

In addition, to determine as far as reasonably practicable that the blasting associated with the future development at Vaynor Quarry is not causing an exceedance in the stipulated limits at the nearest vibration sensitive receptors, a detailed Blast Vibration Plan (BMP) has been prepared which is referred to in the schedules of proposed planning conditions.

3.8 Air Quality

3.8.1 Air Quality Study

The Air Quality study describes the scope, relevant legislation, assessment methodology and the baseline conditions currently existing at the application site and its surroundings. It then considers any potential significant environmental effects the development would have on this baseline environment; the mitigation measures required to prevent, reduce

Non-Technical Summary

or offset any significant adverse effects; and the likely residual effects after these measures have been employed.

The scope of the assessment has comprised:

- baseline review – identification of relevant receptors, background pollutant concentrations and meteorological conditions;
- a qualitative minerals dust assessment – considering dust deposition and suspended airborne dust with an aerodynamic diameter of less than 10 microns (PM_{10});
- a detailed operational phase road traffic emissions assessment (via dispersion modelling); and
- a review of the proposed dust control measures and recommendations for additional controls, as required.

The study highlights the Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland which provides the over-arching strategic framework for air quality management in the UK and contains national air quality standards and objectives established by the UK Government and Devolved Administrations for the protection of public health and the environment.

Of particular note is the Air Quality Assessment Level (AQAL) or limit of $40\mu\text{g}/\text{m}^3$ of PM_{10} particulate as an annual mean, and a nitrogen dioxide (NO_2) limit of $200\mu\text{g}/\text{m}^3$ as a one hour mean.

For the purposes of assessment, nineteen human receptor locations (DR1 to DR19) have been considered, including residential properties and nearby footpaths/bridleways, deemed to be representative of the local area for the assessment of dust and PM_{10} impacts.

Twelve ecological receptors have been considered (ER1-ER12) including locations within the Nant y Glais Caves SSSI and Cwm Taf Fechan SSSI.

For the road traffic emissions study, seventeen receptors (residential properties) have been considered (receptors HR1 – HR17) as being representative of worst-case exposure locations within the development

locale, relative to the affected road network discussed (i.e. routes to/from the A465).

PM₁₀ Assessment

The Institute of Air Quality and Management (IAQM) minerals guidance states that if the PM_{10} background concentration is less than $17\mu\text{g}/\text{m}^3$ it is considered unlikely that any Process Contribution (PC) from the additional activities proposed would lead to an exceedance of the annual mean AQAL.

Utilising data set out in Defra background maps, the maximum annual mean PM_{10} concentration across the area in 2019 is $14\mu\text{g}/\text{m}^3$ and therefore less than $17\mu\text{g}/\text{m}^3$. In addition, background concentrations are predicted to decrease year on year and by 2023 the maximum concentration is predicted to be $13.3\mu\text{g}/\text{m}^3$. Furthermore, annual mean PM_{10} concentrations at the MTCBC suburban monitor APM1 have been $<12\mu\text{g}/\text{m}^3$ for the period 2015-2019.

It is therefore considered that in the absence of additional mitigation, the effect of the proposed operations on human health from emissions of PM_{10} will be negligible.

Deposited Dust Assessment

Activities or sources associated with the proposed development that have the potential to result in the release of dust include:

- site preparation and restoration;
- mineral (limestone) extraction ;
- mineral processing;
- storage of material;
- on-site transportation; and
- off-site transportation.

The magnitude of effect predicted is considered 'negligible' at the majority of receptor locations (human and ecological). This is largely due to the receptors being located upwind of activities, and/or not located 'close' to activities (see following section).

Furthermore, the Quarry experiences a large percentage of days per year where daily rainfall exceeds 0.2mm. In line with IAQM minerals guidance, this is considered sufficient to suppress potential dust emissions and has therefore been factored into the assessment.

In line with the IAQM methodology, receptors located close, i.e. <100m, or intermediate, i.e. 100-200m, from a dust source or activity are most at risk from potential adverse dust impacts. In this case, most of the receptor locations considered within the assessment are located >100m from the proposed mineral extraction phases. Only Receptor DR19 (Merthyr Tydfil Golf Course) is located within 100m of all phases, and Receptor DR3 (footpath) is located within 100m of phase 4, 5 and the final phase.

In addition to the above, Receptor DR18 is located within 200m of phases 2-5, and the final phase, Receptor ER3 and ER4 are located within 200m of phase 5 and the final phase, and DR1, ER2 and ER5 are also located within 200m of the final phase.

The number of receptor locations located 'close' or 'intermediate' to the extraction phases increases as the development progresses, suggesting that the latter phases have greater potential to result in dust impacts. However, this potential is largely counteracted, as most of the receptors are classified as 'low' or 'medium' sensitivity in line with IAQM guidance (Ref ES Table 12-17).

Of the receptors identified only DR1 (Llwyncilsanws residential dwelling) is classified as 'high' sensitivity in line with IAQM guidance. However, given that DR1 is located within 200m of the final phase only, this potential impact would relate to the final phase only; at which point the north-eastern soil screening bund would be well established.

Overall and based on the assessments undertaken, the effect of the proposed development in terms of dust deposition is considered to be 'not significant'. This conclusion is reliant on the designed-in and operational mitigation measures, which have been accounted for in the assessment, as discussed in Section 15.8.4 below.

Traffic Emissions Assessment

Based upon the modelling results, and in accordance with Environmental Protection UK (EPUK) and IAQM guidance, the impact of the development on annual mean NO₂ concentrations at all assessed receptors is considered to be 'negligible'.

Given the marginal increase in annual mean NO₂ concentrations associated with the proposed development, and that there are no predicted exceedances of the annual mean NO₂ AQAL, unmitigated effects associated with annual mean NO₂ concentrations at all assessed receptor locations are therefore considered to be 'not significant'.

Ecological Receptors

In relation to road traffic emissions, the Cwm Taf Fechan Woodlands SSSI and LNR, and some ancient woodland sites are located within 200m of the affected road network.

In line with the IAQM guidance, a screening assessment has been undertaken. The predicted development-generated trips are 138 HDV AADT and therefore below the indicative screening threshold of 200 HDV AADT.

Potential impacts from road traffic emissions on the ecological designations are therefore likely to be imperceptible, whereby resultant effects can be classed as insignificant.

3.8.2 Air Quality Mitigation Measures

A number of specific mitigation measures have been incorporated into the Quarry layout and design; these measures include:

- mobile processing plant would be located in the quarry void and therefore sheltered;
- tarmacked access road off Vaynor Road, approximately 100m in length to any active areas;

Non-Technical Summary

- extraction areas located away from the majority of sensitive receptor locations;
- stocking areas located upwind from the majority of sensitive receptor locations; and
- wheel washing facilities to be located at the Quarry entrance.

3.8.3 Air Quality Planning Conditions

The above dust mitigation measures have been incorporated into a Dust Management Plan [DMP] (ES Appendix 12.7) which sets out the proposed management procedures and dust controls for the Quarry. Planning conditions are included in the proposed schedule of conditions requiring adherence to this DMP.

3.8.4 Air Quality Conclusions

The assessment has been undertaken in line with the IAQM minerals guidance and has considered the potential significance of effects on amenity, human health (from PM₁₀) and ecological receptors as a result of operations within the Quarry.

The proposed scheme is considered unlikely to cause adverse effects with the correct mitigation measures in place

The conclusions in relation to the dust assessment are that:

- the effect on amenity is considered to be 'not significant';
- the effect on PM₁₀ concentrations at receptors is considered to be 'not significant'; and
- the effect from dust on ecological receptors are considered to be 'not significant'.

These conclusions rely on the implementation of operational mitigation measures and the environmental design measures throughout the proposed development.

3.9 Traffic

3.9.1 Traffic Study

The traffic study considers the potential for the proposed development to impact upon the existing highway network in the vicinity of the Quarry. It describes the scope, relevant legislation, assessment methodology and the baseline conditions currently existing at the Quarry and its surroundings. It then considers any potential significant environmental affects the proposed development would have on this baseline environment; the mitigation measures required to prevent, reduce or offset any significant adverse effects; and the likely residual impacts after these measures have been employed.

In summary, the proposed development comprises the resumption of extraction and processing within the permitted extraction site using mobile plant to produce aggregate at a rate of approximately 500,000 tonnes per annum, which would be distributed by the existing site access to Vaynor Road.

In terms of transport and highway matters there would be no significant increase beyond what has previously been agreed to be acceptable on the majority of the local road network. However, as a result of the A465 improvement scheme, which has closed the direct connections between Cefn-coed-y-cymmer, there would be an increase in quarry traffic along the A4054 Upper High Street, as it would be necessary to use that route and thereafter the A470 in order to access the A465, as would a proportion of other existing traffic travelling between the village and the A465. Nevertheless, based on data provided by Transport for Wales and the analyses undertaken as part of the traffic study, the route has sufficient capacity to accommodate the diverted traffic movements.

Based on an average production of 500,000 tonnes of stone per annum being distributed in 20 tonne average payloads over 287.5 working days

gives an average of 87 loads / 174 HGV movements per day, which equates to around 8 loads / 16 HGV movements per hour when rounded up.

Traffic Routing and A465 Improvements

All of the HGV traffic would travel to / from the southwest along Vaynor Road to / from the A4054 High Street / Upper High Street junction, from which it would be distributed around the local road network based upon the origin and destination of the HGV transporting the load.

Historically, access to / from the A465 Heads of the Valleys Road was gained either via Grawen Lane, opposite Vaynor Road, which provided a left in / left out junction from / to the eastbound traffic lane, or via High Street to the southeast then Lower Vaynor Road, the latter providing a similar left in / left out arrangement with the westbound traffic lane of the A465.

However, the A465 is being upgraded to a dual carriageway, with the existing A470 / A465 roundabout being upgraded to a grade separated dumb-bell intersection with the link between the two roundabouts sitting below the A465, which would cross via an over-bridge. Slip roads will be provided from the A470 intersection to provide access to and from both carriageways of the A465, effectively creating an all-movements junction.

As a result of these revisions to the road network, the connections to the A465 via Grawen Lane and Lower Vaynor Road will be removed. Traffic currently using these routes to access the A465 will therefore re-route along the A4054 to the northwest or southeast.

The improvements to the A470 junction involve increased radii at the bellmouth to accommodate the general uplift in traffic volumes and the diversion of HGV traffic servicing Cefn-coed-y-cymmer. In addition, a ghost-island right-turn lane is to be provided for traffic turning to the A4054 from the northbound lane of the A470, due to the increase in right turn movements associated with the permanent diversion of traffic from the slip roads which previously provided access to / from the village. This will prevent delays to the northbound traffic flows continuing along the A470 towards Brecon.

Traffic Survey

In the absence of any recent traffic survey information on Vaynor Road, two Automatic Traffic Counters (ATCs) were installed for a 7 day period between Friday 10th and Thursday 16th September 2021. ATC Site 1 was fixed to a telegraph pole approximately 80m to the northeast of the Vaynor Road / A4054 High Street / Upper High Street junction at Cefn-coed-y-cymmer, opposite the bus stop shelter southwest of Cloth Hall Lane.

Site 2 was fixed to telegraph pole approximately 30m beyond the 30 mph speed limit, within the national speed limit zone, and 85m northeast of the access to Vaynor Quarry, in order to obtain vehicle flows and southbound approach speeds towards the access.

The results revealed the average daily flows at Site 1 over the 7 day period were 4,340 vehicles. The comparable HGV flows for the same periods varied between 26 (Sunday) and 90 (Thursday). The overall HGV proportion at Site 1 was established to be 1.63%.

The weekday (Monday to Friday) AM peak hour occurred between 08:00 – 09:00 with an average flow of 377 movements. The comparable PM peak hour period occurred between 15:00 – 16:00 with an average of 384 vehicles.

At Site 2, the 7 day average daily flow was 1,698 vehicles. The comparable HGV flows for the same periods varied between 10 (Sunday) and 20 (Friday). The overall proportion of HGV traffic at Site 2 was established to be 0.79%.

The weekday (Monday to Friday) AM peak hour occurred between 08:00 – 09:00 with an average flow of 114 movements. The comparable PM peak hour period occurred between 16:00 – 17:00 with an average of 160 vehicles.

In terms of traffic flows on the wider highway network, due to the significant revisions being implemented as part of the A465 roadworks, which will sever existing connections to the A465 Heads of the Valleys Road, the existing traffic patterns will undoubtedly change at the local level.

Non-Technical Summary

Highway Capacity

It is apparent from the traffic survey data that baseline traffic flows in the area on the local roads are relatively low in absolute terms. To put the traffic flows in context, TA 79/99 “*Traffic Capacity of Urban Roads*” indicates that a road of this type could accommodate up to 1250 vehicle movements per hour of which up to 15% (187) could be HGV movements.

It is therefore apparent that the local road network retains significant levels of reserve of spare capacity in the baseline conditions, both currently and in the future.

Safety Risks: Accident Statistics

A review of the wider highway network performance has been undertaken by interrogating the Crashmap database, which revealed there have been no personal injury accidents recorded along Vaynor Road or the A4054 corridor between its junctions with the A470 to the north and A4102 to the south involving HGVs within the most recent 5 year period for which data is available (2016 – 2020 inclusive).

In the event there is a feature on the road network that results in compromised safety for its users, it is normal to find a number of incidents with common characteristics at that location.

It is apparent from the traffic flow data that HGV activity is regularly experienced on the local road network without resulting in personal injury accidents occurring. This indicates the routes are of an acceptable design standard to safely accommodate such vehicles, based on the evidence-based approach advocated in current design guidance.

Development Traffic Impact

As established above, the local road network retained a reserve or spare capacity of some 664 vehicle movements per hour on the busiest route within the study area, which equates to some 53%.

The proposed development is predicted to attract 87 loads / 174 HGV movements per day, in addition to the traffic movements associated with the

11 staff to be based at the site, resulting in a total of 196 movements, assuming the worst-case scenario whereby all members of staff travel independently by car to / from the site.

In practical terms, due to the proposed main operating hours of 07:00 – 19:00 Monday to Friday and 07:00 – 16:00 on Saturdays, staff travel would not occur during the peak hours on the network and would therefore have an insignificant impact on the operation of local roads.

Notwithstanding this, even if the entire daily traffic associated with Vaynor Quarry is added to the base flows in 2051, the cumulative total of (586 + 196) 782 vehicle movements remains 468 movements and 37.4% below the design capacity of the busiest link.

It is therefore apparent that capacity of the local roads is not a constraint to the proposed resumption of permitted operations at Vaynor Quarry.

Similarly, as demonstrated through the traffic survey and collision data, the local road network can safely accommodate regular HGV movements. Given the apparent spare capacity of the road network and its excellent safety record, there is no reason to conclude that the resumption of permitted activities would have a material impact on highway safety.

3.9.2 Traffic Mitigation Measures

Although Vaynor Quarry benefits from planning permission to extract, process and distribute stone, the operation has been mothballed for a number of years, during which vegetation has grown in the vicinity of the site access.

Whilst the visibility at the access has been found to be acceptable, it is recommended that the vegetation be periodically trimmed to ensure the visibility from and towards turning traffic is not limited by un-checked growth.

The sheeting of vehicles and cleaning of vehicles’ wheels is recommended to avoid detritus being deposited on the public highway.

Normal quarry management protocols adopted to minimise adverse transport impacts, such as agreed driver conduct codes, strict vehicle maintenance etc. should also be adopted.

3.9.3 Highways Planning Conditions

Based upon the above recommendations, planning conditions have been included within the proposed schedules of conditions relating sheeting of vehicles and use of HGV wheel cleaning equipment

3.9.4 Traffic Conclusions

Having considered the findings of the review undertaken, it is concluded that subject to the imposition of reasonable planning conditions to minimise impacts associated with the HGV activity and maintenance of the site access, a resumption of operations at the quarry is acceptable insofar as highways and transport matters are concerned.

3.10 Cultural Heritage

3.10.1 Cultural Heritage Study

This Cultural Heritage Study considers the effects of the proposed development on the cultural heritage resource and describes the assessment methodology, the baseline conditions, the likely significant environmental effects, the mitigation measures required to prevent, reduce, or offset any significant adverse effects, and likely residual effects after these measures have been employed.

The historic environment desk-based assessment that informs the study was undertaken in accordance with a Written Scheme of Investigation (WSI), formalising the adopted scope and methodology. The WSI was submitted to the Planning Officer (MTCBC), Glamorgan-Gwent Archaeological Trust (GGAT) and the Heritage Officer, Brecon Beacons National Park Authority (BBNPA), for review, comment and approval prior to the assessment being undertaken.

To characterise the known and potential historic resource within the environs of the Quarry, a study area measuring 2km around the Quarry boundary was agreed upon within the WSI. This was considered sufficient to capture the relevant data and provide the necessary context. All archaeological sites, monuments and other heritage assets within this area were analysed, and then refined to narrow the research focus onto those of relevance to the Quarry.

There are no designated historic assets, including archaeological remains, within the OMS.

There are two records of non-designated historic assets within OMS. One refers to a Romano-British or early medieval inscribed stone, noted as found in this area. However, available sources do clearly establish the exact location of the find: it is also the case that the stone, if indeed found here, would have been removed and any associated features would have been destroyed by subsequent quarrying activities.

The second non-designated historic asset relates to a post-medieval limekiln. The limekiln was in an area of intense quarrying activities and has also have been destroyed by subsequent activities within the OMS.

Studies of the immediate environs of the OMS emphasise that area was once a rich prehistoric landscape. There are several designated and non-designated prehistoric features to the north, north-east and north-west of the OMS. These features are predominantly burial monuments, comprising of Bronze Aged cairns, along with occasional enclosure features of probable Bronze Age or Iron Age date.

Historic cartographic records and later aerial photography illustrate the OMS as being within an area of mixed agricultural land, consisting of pasture, arable, and meadowland. The evidence shows the gradual growth of Vaynor Quarry from the late 19th century up until the late 20th century. During this time most of the farming land within the OMS boundary was incorporated into the quarry, and any existing agricultural buildings and structures were subsequently destroyed.

Aerial photography suggests that the northernmost area of the OMS is still partially former agricultural land that has not been subjected to intense

Non-Technical Summary

quarrying activities. Therefore, there is potential for prehistoric or post-medieval archaeological features to exist within the northernmost area of the OMS.

Physical Effects

There will be no physical effects upon any known designated or non-designated historic asset. The inscribed stone and limekiln, discussed above, have already been removed from the OMS and there will be no effect upon these.

The assessment of the archaeological potential of the OMS has suggested that there is some limited potential of encountering prehistoric and/or post-medieval archaeological features. These potential features would be in the northernmost area of the OMS, i.e., areas that have not previously been quarried. There will be no archaeological remains within areas of the OMS that have previously been quarried.

Non-Physical Effects

The potential non-physical effects upon the Registered Historic Landscape (RHLA) of Merthyr Tydfil and the Scheduled Monuments of Merthyr Tramroad: Morlais Castle section, Morlais Castle, and Morlais Hill ring cairn were assessed with a conclusion that indirect effects would be negligible.

3.10.2 Cultural Heritage Mitigation Measures

The potential for prehistoric and/or post-medieval archaeological features within previously unquarried areas of the OMS, i.e., the northernmost area, indicates that further archaeological mitigation would be beneficial. It is envisaged that such mitigation could consist of a programme of archaeological observation and recording during any topsoil and subsoil stripping in this area of the OMS. All further archaeological mitigation will need to be agreed with GGAT and BBNPA, and the scope and methodology of additional work agreed within a Written Scheme of Investigation (WSI).

3.10.3 Planning Conditions

This mitigation measure is reflected in a proposed planning condition which requires the submission of a WSI in advance of any soil stripping within the northern area of the OMS.

3.10.4 Cultural Heritage Conclusions

The proposals will have no more than a Negligible/None effect upon any known historic assets (including designated or non-designated historic assets).

Regarding physical effects, an assessment of the archaeological resource for the area has identified that the OMS has a limited potential for previously unknown archaeological remains because of extensive quarrying activities. Specifically, the northernmost area of the OMS has not previously been quarried and there is some limited potential of encountering prehistoric/post-medieval remains in this area. To mitigate possible effects upon potential archaeological remains it is suggested that further archaeological investigation are needed in this area only. The archaeological investigation may appropriately consist of a programme of archaeological observation and recording during any topsoil and subsoil stripping in this area of the OMS.

With regard to non-physical effects upon the setting and significance of any historic assets in its wider environs, it is concluded that the significance of none of these historic assets would be harmed to more than a negligible degree by the proposed resumption and extension of quarrying.

Subject to the implementation of a programme of industry-standard archaeological mitigation, the proposals are in compliance with national and local policy directed to protecting heritage assets.

4.0 CONCLUSIONS

This document comprises a Non-Technical Summary (NTS) of an Environmental Statement (ES) which considers the environmental effects which would be associated with future quarrying operations at Vaynor Quarry and related final restoration works.

The ES has been prepared in support of 'Review of Old Mining Permissions' ('ROMP') applications for Vaynor Quarry submitted to MTCBC and BBNP.

The Environment Act 1995 sets out a requirement to review, and where necessary update the planning conditions regulating operations at mineral sites at 15 year intervals.

An initial Review of the planning conditions regulating operations at Vaynor Quarry was completed on 1st January 2002.

The Environment Act 1995 Act also makes provision for undertaking Periodic Reviews of the conditions at 15 year intervals. This is designed to ensure that the conditions set by the Initial Review do not themselves become outdated with the passage of time. The deadline for the submission of the First Periodic Review applications has been agreed to be set as 31st August 2022.

This ES and the two parallel First Periodic Review applications submitted to MTCBC and BBNPA have been finalised and are being submitted in accordance with that deadline.

The EIA has been undertaken as a study to consider the environmental effects of the overall future mineral development scheme which, for the purposes of the EIA, disregards the administrative boundaries. Instead, it considers the environmental and amenity effects of the overall scheme and, via the ES, proposes a series of mitigation measures designed to minimise the effects of the development. These measures have in turn been translated into proposed updated planning conditions which would regulate the future development.

However, whilst a single EIA has been undertaken, with the results set out in the ES, as was the case with the 1997 Initial Review it is necessary to

submit two separate but parallel First Periodic Review applications to the two Authorities (MTCBC and BBNPA) reflecting their administrative responsibilities for those areas of the Quarry which lie within their jurisdiction.

The ES draws together the inputs from specialist consultants who have undertaken the EIA, and sets out the results of very careful, detailed and systematic research into each of the potential environmental effects of the development. Where relevant, the technical chapters make recommendations for measures to mitigate the environmental and amenity effects of the development which employ conventional and well established controls at such quarries.

The primary purpose of the ES is to assist in identifying environmental effects, and to use that information to (i) devise measures to minimise the environmental effects through mitigation/ attenuation measures; and (ii) provide for the measures to be enshrined in up to date planning conditions which regulate ongoing quarrying in a way which is reflective of the EIA.

The purpose of the Review is to formulate a schedule of updated planning conditions which reflect modern standards and controls, and which provide (i) detailed controls over on-going operations for the 15 year Review period; and (ii) a context for subsequent Periodic Reviews by confirming the intentions for the development of the Quarry, and the final restoration strategy.

The ROMP procedure places the initial onus on the Applicants to propose updated schedules of planning conditions. This has been undertaken, with proposed schedules for MTCBC and BBNP included as **Appendices 1.3** and **1.4** to the ES. The schedules draw partly upon the existing planning conditions which are in place, where in certain cases no changes are deemed to be necessary, but they also propose new and updated conditions which reflect the recommendations for mitigation measures set out in the technical chapters of the ES, and the way in which those mitigation measures can be translated into planning conditions.

The ES also includes a review of planning policy, noting that there have been some significant changes since 2002 Initial ROMP review notably in terms of limits for ground vibration from blasting. Particular attention has

Non-Technical Summary

thus been paid to the way in which planning policy and advice can inform the drafting of up to date planning conditions.

The updated conditions are considered to represent a positive and constructive approach which will ensure an environmentally sensitive operation regulated by modern, up to date planning controls. In those terms, the EIA has been of positive value in preparing specific conditions which reflect the conclusions and recommendations of the EIA.