

Non Technical
Summary (NTS)

Nant Llesg Surface Mine

Incorporating Land Remediation



Contents

1

INTRODUCTION	4
Purpose of the Non-Technical Summary	4
Document availability	4
The Applicant – Miller Argent (South Wales) Limited	4

2

SITE CONTEXT	6
---------------------	----------

3

PROPOSED DEVELOPMENT	8
Overview	8
Scheme components	8
Timescales	9
Stand-off from Settlement Boundary	9
Direction of mining	9
Hours of working	12
Transportation of coal	12
Employment	12

4

RESTORATION OF THE LAND AFTER SURFACE MINING	13
Overview	13
Restoration of landscape	13
Restoration of Rhaslas pond	15
Ecological Features	15
Cultural Heritage	16
Access and links	16

5

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)	17
Overview	17
The Development Team	17

6

SOCIAL IMPACT ASSESSMENT	18
Overview	18
Existing Conditions	18
Predicted Effects	18

7

RECREATION & TOURISM	19
Overview	19
Existing conditions	19
Predicted Effects	19

8

TRAFFIC & TRANSPORT	21
Overview	21
Existing conditions	21
Predicted impacts	22
Conclusion	22

9

ECOLOGY AND NATURE CONSERVATION	23
Overview	23
Existing conditions	23
Site Restoration and aftercare	23
Biodiversity offsetting	24
Predicted impacts	24

10

AGRICULTURAL LAND USE & SOILS	25
Overview	25
Existing conditions	25
Predicted effects	26

Nant Llesg Surface Mine

Incorporating Land Remediation

11

HYDROGEOLOGY	27
Overview	27
Existing conditions	27
Monitoring	28
Predicted Effects	28

12

HYDROLOGY & DRAINAGE	29
Overview	29
Existing conditions	29
Mitigation	30
Flood risk	30
Predicted Effects	30

13

AIR QUALITY & DUST	31
Overview	31
Existing air quality	31
Mitigation	31
Predicted impacts	32
Conclusion	32

14

NOISE	33
Overview	33
Mitigation	33
Predicted effects	33

15

BLASTING AND VIBRATION	34
Overview	34
Existing conditions	34
Predicted impacts	34
Conclusion	34

16

CULTURAL HERITAGE	35
Overview	35
Existing conditions	35
Mitigation	36
Use as a Cultural Heritage resource	36
Predicted Effects	36

17

LANDSCAPE & VISUAL IMPACT ASSESSMENT	37
Overview	37
Existing conditions - Landscape	37
Existing conditions - Visual Amenity	37
Mitigation	39
Predicted Effects - landscape	39
Predicted Effects - Visual	39

18

WASTE	40
Overview	40
Existing conditions	40
Mitigation	40
Predicted effects	41

19

HEALTH AND WELFARE	42
---------------------------	-----------

20

SUSTAINABILITY AND CLIMATE CHANGE	43
Sustainability	43
Climate change	43

21

CUMULATIVE EFFECTS	44
---------------------------	-----------

22

CONCLUSIONS	45
--------------------	-----------

Nant Llesg Surface Mine

Incorporating Land Remediation

1.1 Purpose of the Non-Technical Summary

An Environmental Impact Assessment (EIA) is a study that systematically assesses the likely significant effects on the environment of a project. This is a requirement derived from the 'Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (Codification)', as transposed into UK law for Wales by the Town and Country Planning (Environmental Assessment) (England and Wales) Regulations 1999 as amended in Wales (The EIA Regulations) and the results of the EIA are presented within a report known as the Environmental Statement (ES) which is submitted along with the planning application. An ES has been prepared in support of a planning application, submitted by Miller Argent (South Wales) to Caerphilly County Borough Council, which seeks permission to establish a surface mine, including land remediation. This is known as the 'Nant Llesg Surface Mine, Incorporating Land Remediation'.

This report is a non-technical summary (NTS) of the ES, and presents the main findings of the EIA in non-technical language. As such the NTS provides a succinct summary of the large amount of technical data that is available, highlighting the environmental impacts that have been identified and what is being proposed to mitigate them. This NTS summarises the following documents that comprise the ES:

- **Volume I:** Environmental Statement
- **Volume II:** Technical Appendices
- **Volume III:** Drawings

Where further information is required about matters referred to in the NTS, interested parties should consult the ES and its technical appendices/drawings.

1.2 Document availability

All of the ES documents are available for viewing at the following location during normal working hours (09:00 – 17:00 Mon –Fri):

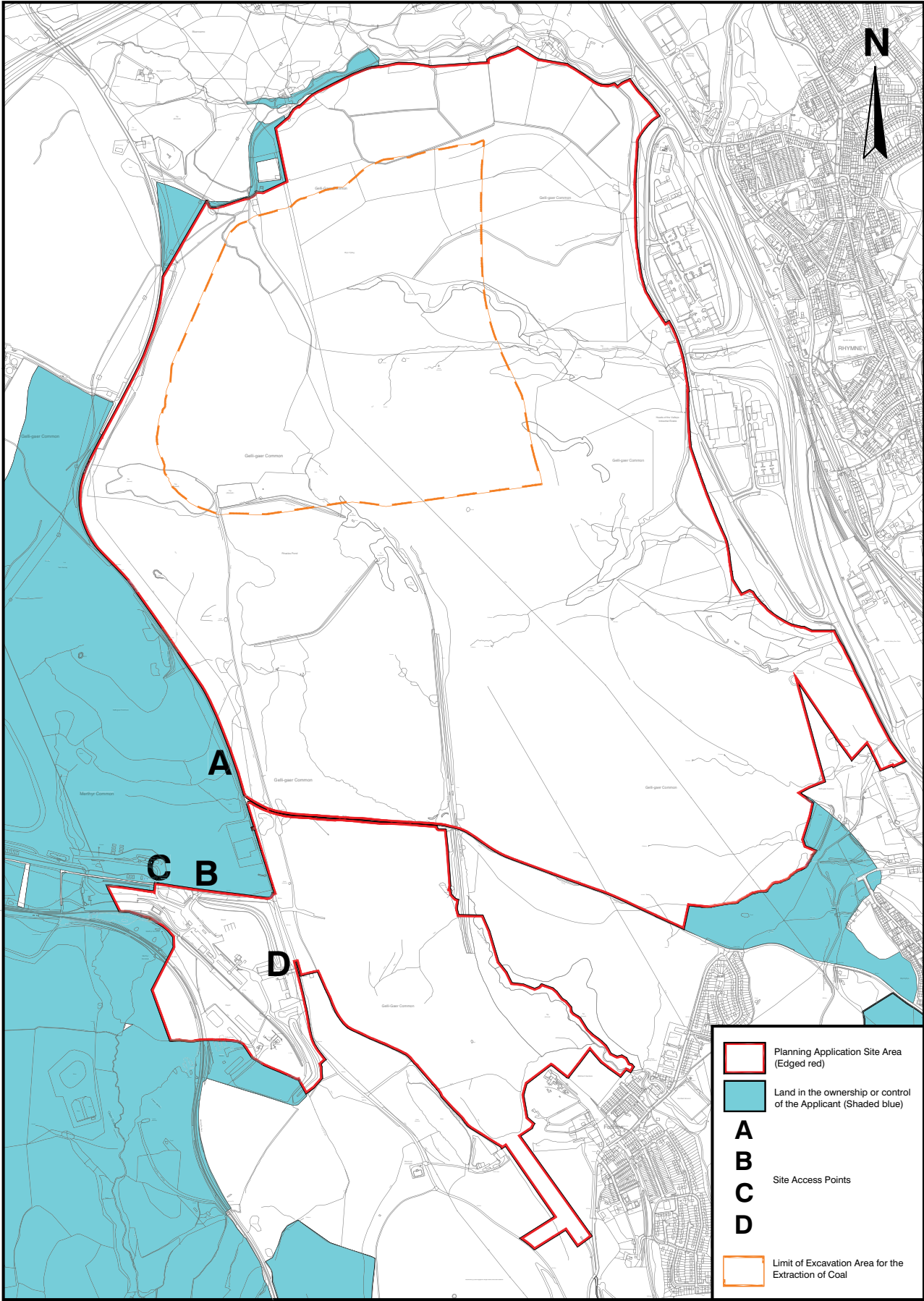
- Miller Argent (South Wales) Limited, Cwmbargoed Disposal Point, Fochriw Road, Merthyr Tydfil, Mid Glamorgan, CF48 4AE (Miller Argent);
- The Council Offices, Planning Division, Pontllanfraith House, Pontllanfraith, Blackwood, NP12 2YW

Hard copies of the ES documents can be purchased from Miller Argent at a cost of £500. DVD copies are also available at a cost of £10 each.

1.3 The Applicant – Miller Argent (South Wales) Limited

Miller Argent is a 50-50 joint venture between The Miller Group Limited and Argent Group PLC. The company was specifically created to carry out the Ffos-y-fran Land Reclamation Scheme (FLRS) in Merthyr Tydfil but it will also operate the proposed scheme. The FLRS project currently provides employment for around 200 people, the majority of whom are local (in excess of 80 per cent live within 15 km of the site).

Miller Argent, together in partnership with local communities, will develop a community investment fund strategy with a specific aim of positively contributing to the sustainable development of the local area. As part of this Miller Argent already funds a number of local community facilities, including two community minibuses and the use of an education and training centre. Miller Argent also contributes to a multi-million pound Community Benefit Fund set up under FLRS which is administered by Merthyr Tydfil County Borough Council (MTCBC).



NTS001 - Planning Application Site Boundary

Nant Llesg Surface Mine

Incorporating Land Remediation

The planning application site boundary is shown on Figure NTS001 and the general site location is indicated on Figure NTS002. The land included within the planning application site boundary, edged red on Figure NTS001, covers some 478.1ha to the west and south west of Rhymney and to the north and west of Pontlottyn and Fochriw in the County Borough of Caerphilly. It consists primarily of previously mined and industrially disturbed upland urban common land and agricultural grazing land on the western side of the Upper Rhymney Valley area.

Immediately east of the planning application site boundary lie the Heads of the Valleys Industrial Estate and the Capital Valley Eco Park. The roads to the west of the industrial estates mark the western limit of the Rhymney settlement boundary and the residential area of Rhymney lies approximately 300m or so further east. The western application boundary is defined by the unclassified road known as 'Fochriw Road', which runs northwards over the Gelligaer and Merthyr Urban Common from Cwmbargoed towards the A470 Heads of the Valleys Road. The northern extent of the site generally follows the line of the 'Nant Carno' watercourse, which meanders just north of the site boundary. The southern limit of the 'Nant Llesg Surface Mine' is largely defined by South Tunnel Road, which is an unclassified road over the Gelligaer and Merthyr Urban Common that runs east-south-eastwards towards Fochriw and Pontlottyn. Land has been included within the application boundary to the east, west and south of the surface mine for land remediation and road improvement works, as have the coal processing and dispatch facilities at Cwmbargoed Disposal Point.

There are no communities within 500m of the operational boundary although there are a number of isolated properties in the vicinity of the site as shown on Figure NTS003 which identifies the different components of the project.



NTS002 - Site Location

Proposed development

3.1 Overview

The proposed scheme is called the 'Nant Llesg Surface Mine, Incorporating Land Remediation' and covers approximately 478.1 ha of land in the County Borough of Caerphilly (Figure NTS003). It is proposed to mine approximately 6 million tonnes of coal using surface mining methods and to carry out land remediation works within and adjacent to the surface mine to address public safety and land drainage concerns. The scheme incorporates ancillary operations and works, including the progressive restoration of the land followed by a minimum five-year period of aftercare. It also includes proposals for a new coal washing plant and associated water recycling facilities at Cwmbargoed Disposal Point and incorporates an extension of time for the retention of the facilities there, with some amendments to the layout being included to take into account the expiry of existing permissions and the need to restore areas beyond the scope of the proposed scheme in 2024.

3.2 Scheme components

The Nant Llesg scheme incorporates the following development proposals:

Main development - Mineral workings

- **Mineral Workings at the Nant Llesg Surface Coal Mine** to recover approximately 6 million tonnes of coal by surface mining methods; including creation of void space, erection of a visual and acoustic screening bund and an overburden mound, progressive and final restoration, construction, erection and /or installation of all related buildings, plant, structures and other facilities ancillary to mining operations;
- **Coal Washing Plant and Ancillary Water Recycling Facility** at Cwmbargoed Disposal Point for the preparation and processing of coal for the duration of mining operations at the Nant Llesg and Ffos-y-fran surface mines;
- **Continued Use of facilities at Cwmbargoed Disposal Point** for the duration of mining operations at the Nant Llesg Surface Mine and the Ffos-y-fran land reclamation scheme (FLRS);
- **Changes to Cwmbargoed Disposal Point in 2024** to ensure that the facility can continue to operate despite the expiry of existing permissions which lie beyond the scope of the proposed scheme

Associated development

- **Remediation of Old Shafts, Adits and Mining Dereliction** associated with former iron ore and coal mining, including improvements to the quality of mine water discharge into the River Rhydney;
- **Land Remediation to Reduce Silting of Parc Cwm Darran Lake**, involving drainage works on the site of a former colliery tip and tip washing scheme to help address the scouring of tip material into the adjoining watercourse and reduce the build-up of silt at the lake at Darran Valley Country Park;
- **Road Improvement Works at the junction of Fochriw Road and Bogey Road** to improve visibility for traffic using the junction by reducing the vertical alignment of Fochriw Road to the south of the junction; along with the formation of Access Point 'A' to the surface mine and minor improvements to Access Points 'B' and 'C' to Cwmbargoed disposal point (refer to Figure NTS003);
- **Works Associated with Rhaslas Pond** – The archaeological examination and recording of the northern embankment before its removal and the protection of and minor drainage works to the southern embankment; it being considered a prospective Scheduled Monument;
- **Investigate, Treat and/or Remove Waste Materials** from within part of a licenced inert landfill site that currently lies over the coal excavation area;
- **Restoration and Aftercare of the Land**, which includes restoration of the land in accordance with an approved Restoration Strategy and aftercare of the land for a minimum period of five years.

Nant Llesg Surface Mine

Incorporating Land Remediation

To facilitate these development proposals it is also necessary that separate applications are submitted and planning obligations undertaken to address the following:

- **Public Rights of Way** - An application to stop up all public rights of way that cross the site, together with an appropriate planning obligation for the creation of a replacement network of rights of way at appropriate times. This would be part of an approved restoration strategy for the land. The impacts will be mitigated by the provision of north south links to the east and west of the site following diversion of power lines (to the west) and during land remediation, following which more permanent rights will be formalised (to the east)
- **Common Land** - An application for consent for the proposed works over the areas of the land that form part of the Gelligaer and Merthyr Urban Common. The impact on common land will be mitigated by the provision of temporary grazing and public access land for the duration of mining operations, restoration and aftercare of the land (Figure NTS004).

Full details of the development scheme are set out in Chapter 3 of the ES.

3.3 Timescales

It is proposed that the site would be worked and restored in a series of stages over a total period of 14 years. This time frame can be broken down into the stages set out in Table NTS1 below:

Stage	Description	Maximum 750,000 Tonnes/Annum
Stage 1	Excavation of Initial Void (Inc. Site Establishment)	Year 1.00 – 4.00
Stage 2	Up to Maximum Void	Year 4.00 – 6.00
Stage 3	Max. Void to Start of Backfilling from Overburden Mound	Year 6.00 – 9.50
Stage 4	Up to End of Coal Excavations	Year 9.50 – 11.00
Stage 5	Backfilling of Final Void and Restoration	Year 11.00 – 14.00

Table NTS1 - Timescales Required to Complete Stages of Operations

Figure NTS005 shows the various stages of the void excavation and progressive restoration.

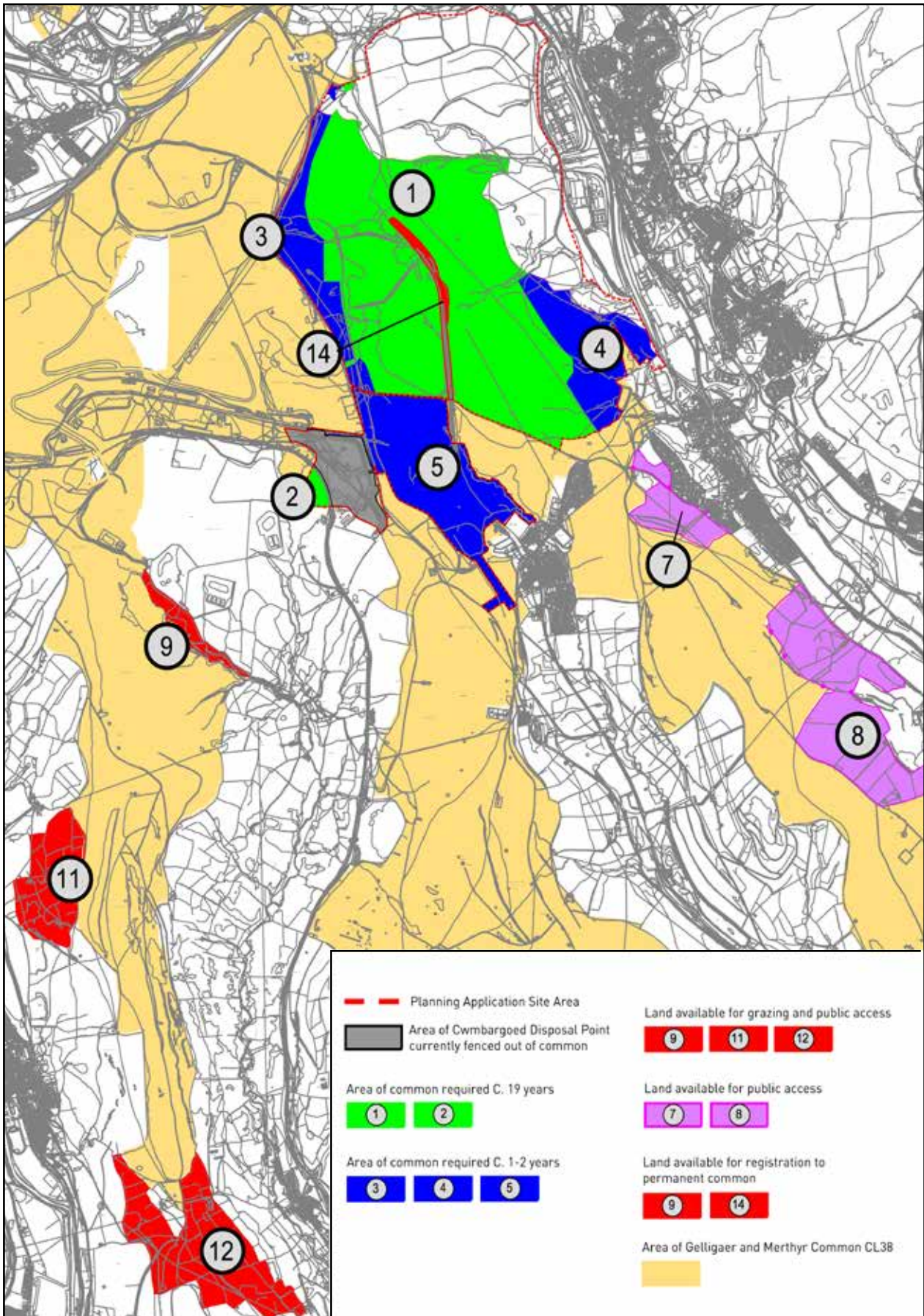
Within 2 years of the commencement of coaling operations it is intended that areas of land outside the operational boundary will be remediated and released back to their existing use. This represents approximately 32% of the total project area.

3.4 Stand-off from Settlement Boundary

The main operational area of the surface mine would be kept at least 500m from the settlement boundaries of Rhymney, Pontlottyn and Fochriw. This distance accords with the Welsh Government's Minerals Technical Advice Note 2: Coal (MTAN2) which states that 'coal working would generally not be acceptable within 500 metres (m) of settlements' notwithstanding that such advice is not incorporated within the Caerphilly Local Development Plan (LDP). Some activities, such as fencing, the erection of a visual and acoustic screening bund and remediation works will take place within 500m of the settlement boundaries, but these are not considered to be coal working and are considered to fall within exceptional circumstances referred to in MTAN2 in any event.

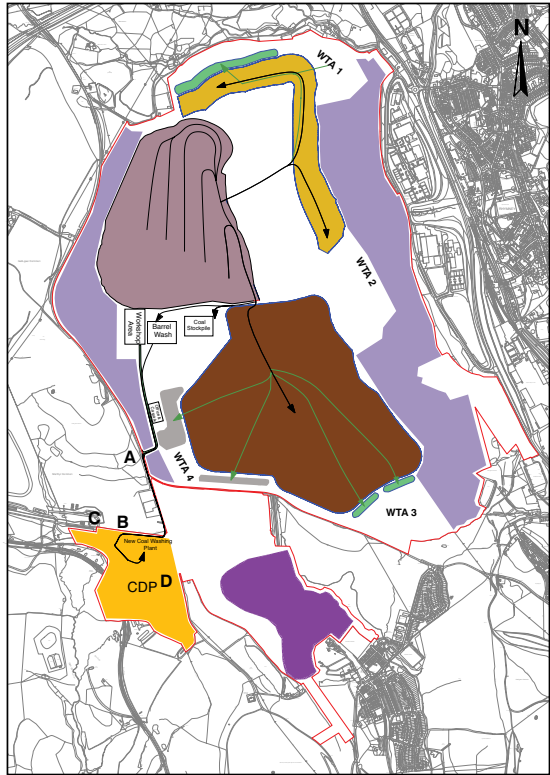
3.5 Direction of mining

The site would be worked in a west to east direction as a series of 'cuts' with the land being progressively backfilled and restored as the excavations progressed eastwards.

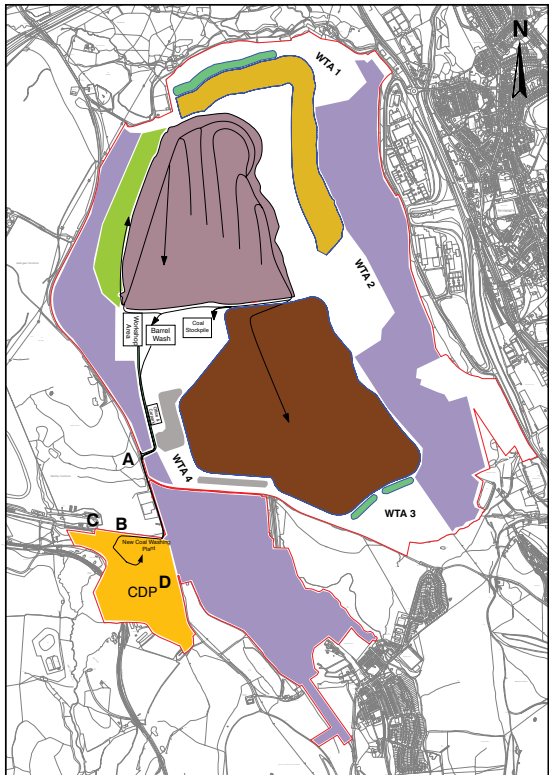


NTS004 - Section 38 Application Areas

Development of Box Cut - Year 4



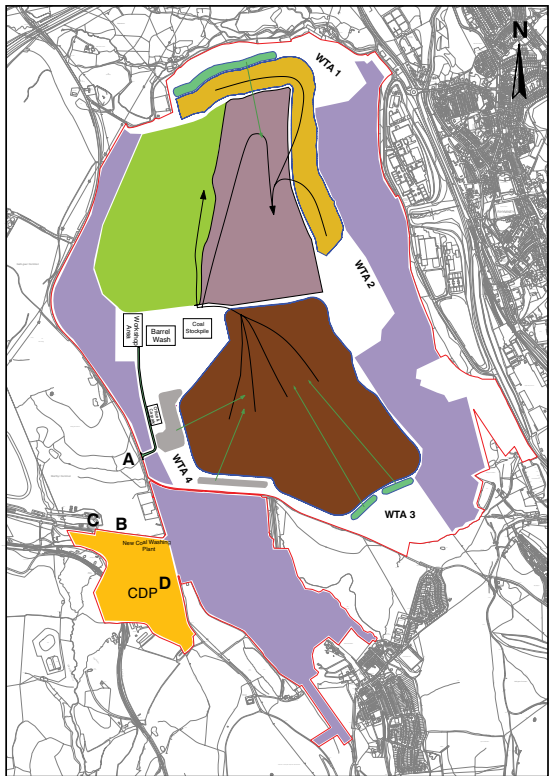
Maximum Void - Year 6



End of Coaling - Year 11



Restoration - Years 11-14



- | | | | |
|---------------------------------|---------------------------------|----------------------------------|--|
| Planning Application Site Area | Overburden storage area | Land remediation works | Peat storage area |
| Cwmbargoed Disposal Point (CDP) | Area of early land remediation | Visual & acoustic screening bund | A-D Access points to site and Cwmbargoed Disposal Point |
| Working area | Area of progressive restoration | Soil storage areas | Haul Route (Coal and Overburden) |
| | | WTA Water treatment area | Haul Route (Soils) |

NTS005 - Sequence of Operational Stages

Proposed development

3.6 Hours of working

The proposed hours of working for the Nant Llesg surface mine are:

- **Weekdays:** 0700 – 1900 hrs
- **Saturdays:** 0700 – 1400 hrs
- **Sundays:** Dust suppression only (water bowsers)
- **Public & Bank Holidays:** Dust suppression only (water bowsers)

The proposed hours for Cwmbargoed Disposal Point are (as per existing permission):

- **Weekdays:** 0600 – 2200 hrs
- **Saturdays:** 0700 – 1800 hrs
- **Sundays:** Dust suppression only (water bowsers)
- **Public & Bank holidays:** Dust suppression only (water bowsers)
- **Train loading and dispatch:** 24 hrs

Blasting would only take place over periods of very short duration between the proposed hours of:

- **Weekdays:** 1000 – 1300 and 1400 – 1600 hrs
- **Saturdays:** 1000 – 1300
- **Sundays:** No blasting
- **Public holidays & bank holidays:** No blasting

3.7 Transportation of coal

It is proposed that up to 750,000 tonnes of coal per annum would be mined from the Nant Llesg Surface Mine. All coal so mined would be taken to Cwmbargoed Disposal Point (CDP) for processing and onward dispatch to market. There is an existing limit of 50,000 tonnes per annum that can be dispatched by road from the CDP. All other coal would be dispatched by rail.

3.8 Employment

The Nant Llesg project would support new local jobs as a result of surface mining operations, land remediation, and supplier spending over the 10 year coaling period.

The economic benefits of the Nant Llesg scheme include:

- Direct employment: Between 144 and 239 jobs (dependent upon shift pattern);
- Indirect employment: 118 jobs;
- Indirect employment (through supplies and supported by employee spending): 25 jobs;
- Average annual expenditure on goods and services: £32.7m;
- Estimated total project expenditure on goods and services: £457.8m;
- Estimated total project expenditure on goods and services within 5 mile radius of Nant Llesg: £120.9m;
- Average weekly wages at Nant Llesg: £96,000;
- Average annual wages at Nant Llesg : c.£5m;
- Total project wage bill: £70m;
- Estimated total employee spending per annum: £2.38M;
- Total project employee spend: £33.3;

In addition to the above, a Community Benefit Fund of up to £6m would also be provided. Miller Argent would use local recruitment and are seeking to link with local partners such as training agencies and 'Jobcentre Plus' which would combine to enhance the social and economic benefits that the project can bring to the local area. The focus would be mostly on recruiting in the adjacent towns and villages including Rhymney, Pontlottyn and Fochriw where high unemployment and economic inactivity was assessed to be common among local residents. Given the numbers of unemployed among young people (in particular young men) in these areas, the availability of local jobs is expected to be a major enhancement of local prosperity.

Nant Llesg Surface Mine

Incorporating Land Remediation

4.1 Overview

The aim of the Restoration Strategy is to restore the land in such a way that provides for informal recreational uses, incorporating open access land, footpaths and bridleways to act as links between the already established Parc Cwm Darran and Bryn Bach Country Park. The Strategy has determined that the provision of public access should be sympathetic to the existing ecological, nature conservation and cultural heritage interests as well as any other interests created as part of the restoration scheme.

Within this overall aim, there are a number of objectives for the strategy:

- To provide a range of landscape characters which reflect the landscape patterns of the area and reintegrate the site into its surroundings whilst upgrading its contribution to the setting of Rhymney;
- To improve the long-term water quality of the River Rhymney;
- To improve accessibility to the public and connection with nearby communities, and increase the amenity value of the site to the community;
- To provide a range of habitats offsetting the habitat loss due to the operations and enhancing other habitats within the site; and
- To reflect the history and archaeology of the area in landscape features, and provide access to the public and information about the cultural heritage of the area.

An aspect of the upgrading of the amenity for the public is the opportunity for interaction with the nature and heritage interests, existing and new, and reconnection with the natural and cultural landscape.

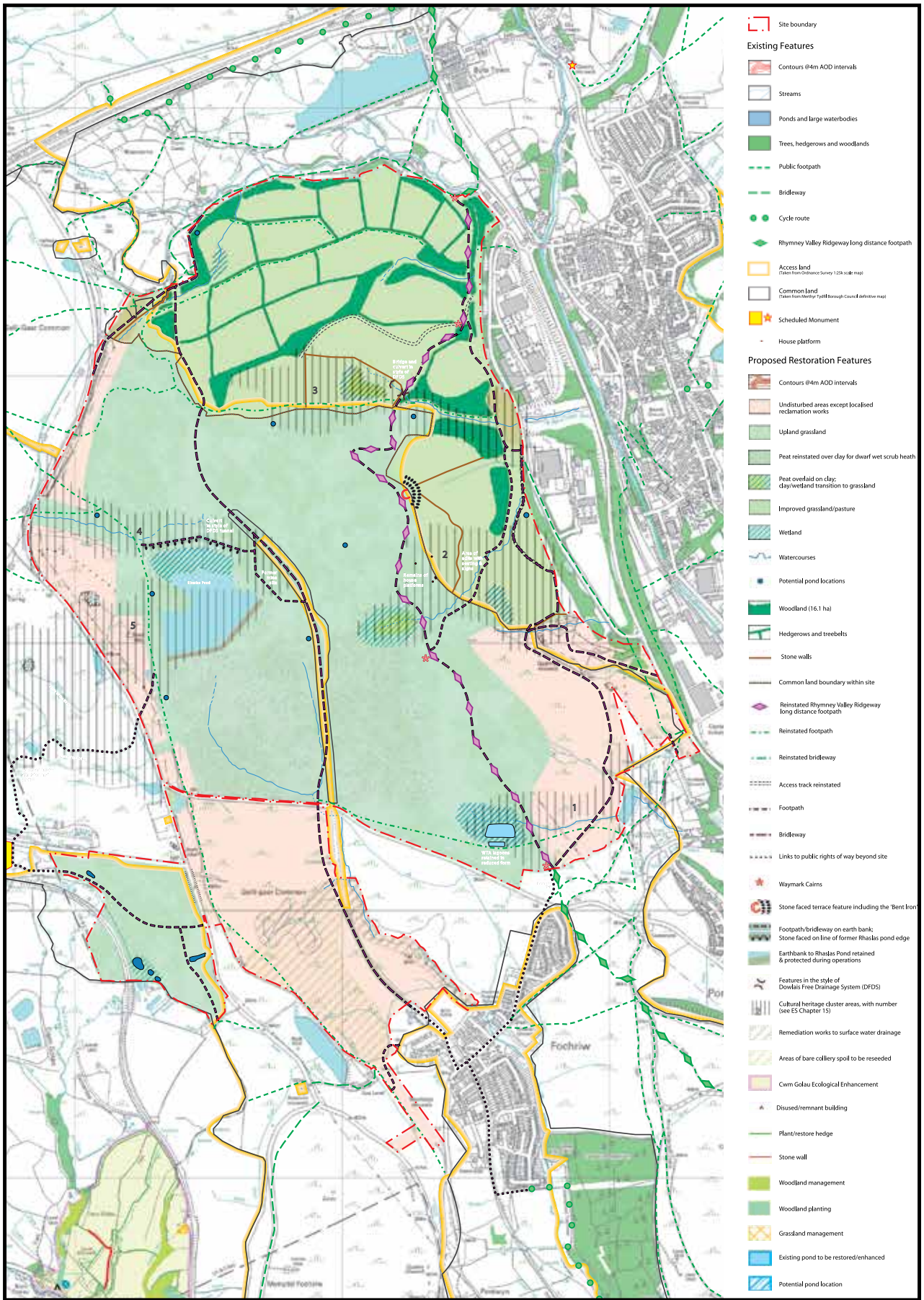
The strategy for the restoration of the site is shown on Figure NTS006.

4.2 Restoration of landscape

The restoration of the site would reflect the various landscape character areas that currently exist across the site. The northern slopes would be restored to enclosed fields of pasture, similar to the layout of the present landscape, with improved hedgerow and woodland planting. On the lower slopes, the restored fields would be smaller and divided by hedgerows. New woodland belts would be established along the field boundaries on the mid-slopes. The upper fields would be larger and would extend up to the edge of the common/access land, reflecting the historic pattern but restoring a formerly characteristic feature of the landscape to a higher standard than currently.

On the eastern valley side, land would be restored to fields of pasture, in a similar pattern to the northern slopes. The Rhymney valley side is sub-divided by stream valleys, along which woodland would be established and extended along part of the lower slopes near the industrial estate. A pattern of small fields divided by hedgerow would be established along the mid-slopes with larger fields divided by stone walls on the upper slopes, again extending to the stone wall marking the edge of the open upland. At the heads of these valleys, small basins of more gentle slopes would be formed, and peat laid over clay to encourage the development of wet heathland. As in the rest of the site, small ponds suitable for an array of wildlife including great crested newt would be established at intervals to extend the habitat for this species around the site.

The open urban common land and access land would be restored with upland grassland over most of the area. In the south, between Rhaslas Pond and South Tunnel Road, peat saved from the initial soil stripping would be laid over recovered clays to provide landform and drainage conditions suitable for development of wet heathland. The western margins of the operational site would remain undisturbed throughout the operations and the restoration landform and vegetation would be merged with the existing. Again, small ponds would be established along the western margin of the area, at intervals suitable for great crested newt habitat, extending the habitat along the western boundary.



NTS006 - Restoration Strategy

Restoration of the land after surface mining

4.3 Restoration of Rhaslas pond

Partial restoration of Rhaslas Pond as an open water body is proposed. Cadw have indicated that the southern embankment is being considered for designation as a Scheduled Monument and that the retention of the footprint of the pond and the southern part of the open water would be desirable. The southern embankment would therefore be retained and protected for the duration of the scheme and incorporated into the restoration design.

The location of the northern embankment would be defined within the restored landscape by a raised earth bank with a footpath along it, using recovered stone from the original embankment to clad it or as marker stones along its southern face. This would enable visitors to visualise the former extent of the water body, although only the southern part of the water body would be retained; the northern part petering out to a wetland.

Nant Llesg Surface Mine

Incorporating Land Remediation

4.4 Ecological Features

Habitats which would be restored at the end of operations would include areas of wet heath and marshy grassland to the south of Rhaslas Pond. So far as practicable, the topography, hydrology and soil conditions in these areas would be reinstated to encourage the development of the desired vegetation. Appropriate seed mixes would be sown and the land carefully managed during the aftercare period. Areas of marsh would be reinstated on clay soils at the heads of watercourses which would be created to drain the site to form a similar habitat to that which currently occurs in similar situations within the site.

In the north of the site, new habitats would be created on completion of the scheme as a network of hedgerows and small woodlands. Water treatment areas would be reinstated to form wetland areas and a number of ponds would be created in suitable areas around the margins of the site.



4

Restoration of the land after surface mining

4.5 Cultural Heritage

The restoration of the site aims to integrate cultural heritage into the landscape that would be recreated. This would include the forging of heritage trails which identify the heritage of the site and the incorporation of known archaeological assets, of prehistoric to mediaeval age into the restored landscape.



4.6 Access and links

Strategic or promoted routes would be re-established, while other routes would be provided as an enhanced network of footpaths and bridleways to replace those closed at the start of the scheme, realigned as required to “fit” with the restoration landscape patterns and features, and provide new routes and links as additional access benefits.



Nant Llesg Surface Mine

Incorporating Land Remediation

5.1 Overview

The proposed development has been the subject of a detailed Environmental Impact Assessment (EIA). The final project as proposed in the planning application is the project that has been assessed in the EIA. The design of the scheme has been an iterative process that has informed the design of the proposed development scheme, and the mitigation measures which should be employed.

The results of the EIA process are set out in the ES, its technical appendices and the accompanying drawings. A summary of the key issues and principal conclusions of the respective studies are set out below.

5.2 The Development Team

Miller Argent has engaged a range of environmental specialists to provide advice on the working and restoration scheme, and to identify and address the potential environmental issues which might arise. As part of the EIA process, the team has obtained advice from Caerphilly County Borough Council and other consultees on the issues which should be assessed as part of the EIA and have ensured that they have been comprehensively addressed as part of the reiterative design and environmental assessment of the scheme.

In addition, substantial technical inputs have been provided by in-house expertise available at Miller Argent, most notably relating to the design of the working scheme, geology, geotechnical issues, coal resource assessment, civil engineering, and the markets for coal.

Social impact assessment

6.1 Overview

Within the social assessment considerations were given to the economic impacts generated by the Nant Llesg scheme on the local area, and to a degree on the wider area of Caerphilly and Merthyr Tydfil county borough areas where most of the economic impacts on residents and businesses are likely to occur. This includes the changes in local labour and any impact that this might have on housing and other community infrastructure.

6.2 Existing Conditions

The population in the Nant Llesg local area has largely been static for some time and is projected to remain relatively unchanged for the period to 2030. Most (64%) of the local area resident population are of working age, which is positive for sustaining the area, but within this group, there is relatively high unemployment and long term unemployment, particularly among young men. There are also low levels of economic activity among the working age resident population, again with young men most prone to this. The consequence of low economic activity coupled with high unemployment is a problem for local prosperity.

This is evidenced further in the Index of Multiple Deprivation statistics, which shows widespread deprivation, with all neighbourhoods in the local area being within the most deprived 30% of neighbourhoods within Wales, and nearly half the neighbourhoods in the most severely deprived 10% of neighbourhoods in Wales. Local employment deprivation is a major problem, and education disadvantages have also been identified to be a moderate problem.



6.3 Predicted Effects

It is estimated that the proposed Nant Llesg surface mine would directly employ an average of between 144 and 239 workers on-site for 14 years of operation (this would fluctuate from year to year). The range reflects whether a one shift or split shift (i.e. a two shift) working pattern is adopted at the Nant Llesg site. When other jobs that are created as a result of the whole project are taken into consideration, i.e. land aftercare, supplier spending and employee spending in the local economy, it is estimated that the project would support between 287 and 382 jobs, of which some 173 to 249 jobs are within 10 miles of the site.

Miller Argent would use local recruitment and are seeking to link with local partners such as training agencies and 'Jobcentre Plus' which would combine to enhance the social and economic benefits that the project can bring to the local area. The focus would be mostly on recruiting in the adjacent towns and villages including Rhymney, where high unemployment or economic inactivity was assessed to be common among local residents. Given the extent of deprivation and the numbers of unemployed among young men in these areas in particular, the availability of local jobs is expected to be a major enhancement of local prosperity.

With a large identified pool of under used labour in the local area, the impact of the job increases is expected to pose little additional burden on the provision of new public funded services and housing because most of these jobs are expected to be filled from residents already living locally.

There are approximately 200 businesses within the Nant Llesg study area (i.e. up to 10 miles from the Nant Llesg site), and they employ some 2,000 workers. The impact of the scheme is likely to add to local economic activity, and although there may be perception by some businesses that the scheme would have a negative visual impact on their location, the neighbouring Ffos-y-fran Land Reclamation Scheme has been running similar activities to the Nant Llesg scheme for some years without any noted negative effects on local businesses. Indeed, all identified effects have been beneficial.

Overall, the economic impacts associated with job creation are assessed as having a major significant beneficial effect. Likewise the re-training and local economic activity impacts are assessed as bringing moderate significant benefits.

Nant Llesg Surface Mine

Incorporating Land Remediation

7.1 Overview

Likely environmental effects on recreational and tourist resources arising from the site establishment operations, the operational surface mining, remediation and restoration phases of the project were assessed. This included effects on recreational and tourist resources and land used for recreational activities, including walking, cycling and horse riding along the existing network of public rights of way (PRoW), common land and other land benefitting from a right of public access.

7.2 Existing conditions

The proposed project is partly located on the Gelligaer and Merthyr Urban Common which predominantly comprises open-mountain grazing land, with some areas of old mineral working deposits and mining dereliction. The public have a right of access over the urban common for air and exercise on foot and on horseback. This area of urban common is also designated as 'Access Land' which reflects the public's right to use the land for the purpose of open-air recreation on foot. In addition, public access is available along a number of public rights of way which cross the site. User surveys of these PRoW showed that they appear to be little used. Rhaslas Pond, within the site is a popular location for walkers. There are no other recreational facilities within the site. Beyond the site recreational and tourist facilities include those within the Brecon Beacons National Park to the north, Parc Cwm Darran to the south, Parc Bryn Bach to the east and at Bute Town Reservoir.



7.3 Predicted Effects

Outside the operational area of the proposed surface mine, land remediation works are proposed to the east, west and south which will include the making safe of a large number of shafts and adits associated with old mine workings, which are located within the common land and access land. Additional areas of land would be made available, outside the site for temporary public access for the duration of the Project and an area for ecological compensation is proposed at Bryn Caerau Farm, to the south-west of the site, to which there would be permissive public access.



During the preliminary site establishment and mining operation phases there would be a temporary suspension of rights to access approximately 201 hectares of common land and the public rights of way across the site would be stopped up. During remediation works areas to the east of the site would however remain open to public access, with some minor deviations to existing routes while remediation works are carried out. To the west of the site, access would be made available once power line diversions are completed.

Additional areas would be made available for public access from the outset of the project and some additional linear routes would be made available to walkers, and in some cases, horse riders and cyclists. In some instances these additional areas would only be available following the completion of the early land remediation works, for example the new route along the eastern side of the site, adjacent to the Heads of the Valleys Industrial Estate, which are scheduled for completion within two years of commencement of coaling. The existing bridleway that runs to the north of the site would also be permanently extended to allow east-west access between the A469 and the Fochriw Road. Rhaslas Pond would fall within the operational area and would not be available for public access, until such time as the restoration of the site is complete.

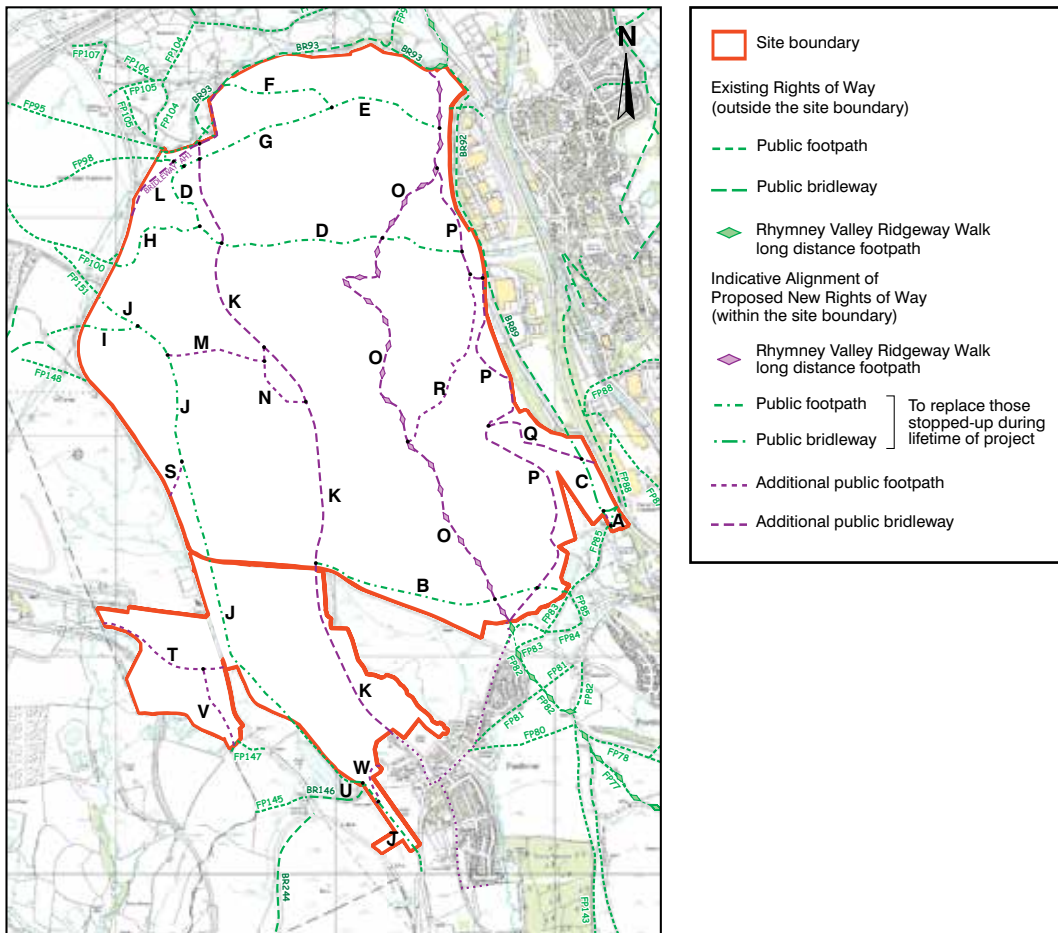
Recreation & tourism

There would therefore be long term temporary minor adverse effects on common land and public rights of way during the coaling operations, although the effects on public rights of way would be reduced by the retention of north south links while land remediation is carried out and the by the provision of additional recreational routes following completion of land remediation works.

The site would be restored in accordance with the Restoration Strategy, which includes the re-instatement of the rights of common and public access, public rights of way and additional linear routes. This includes small additions to the area of common and new routes along the eastern side of the site adjacent to the Heads of the Valleys Industrial Estate, some of which would be available within two years of the commencement of coaling, together with the creation of a new bridleway across the site following

the alignment of the old dismantled railway and the establishment of the Rhymney Valley Ridgeway Walk along a new bridleway. Links between the common and adjoining recreational resources such as Parc Cwm Darran and the national cycle network would also be improved by the provision of these new routes. Rhaslas Pond would be re-established and a new footpath would be created running along the northern side linking to other linear routes across the common. The Bent Iron feature would be reinstated on the edge of the urban common within a stone faced terrace. The restoration would therefore result in permanent minor benefits to the Gelligaer and Merthyr urban common and permanent minor to moderate benefits to the local public rights of way network.

The proposed layout of reinstated footpaths and bridleways is shown on Figure NTS007.



NTS007 - Reinstated Footpaths and Bridleways

Nant Llesg Surface Mine

Incorporating Land Remediation

8.1 Overview

The traffic and transport assessment considered the effects associated with the site enabling works, operation and restoration/aftercare phases of the proposed Nant Llesg project.

The study area for traffic and transport has been defined as the public road network in the vicinity of the Nant Llesg site which would be used during its construction and operation. This includes the A465 and A4060 trunk roads and the unclassified Fochriw Road, Bogey Road and Rhymney Common Road which provide access to the development site from the trunk road network.

8.2 Existing conditions

Annual Average Daily Traffic (AADT) flows were obtained for sites on the local highway network using Automated Traffic Count (ATC) data collected during the year 2010, supplemented by a traffic count data undertaken at the Fochriw Road/South Tunnel Road junction in November 2011.

The data show that existing traffic flows on the local highway network are highest on the A465 Heads of the Valleys Road, although traffic flows are significantly lower than design capacities on all roads. This means that local roads could continue to operate satisfactorily even with substantial increases in traffic volumes.

Analysis of accident data indicates very few clusters of injury accidents on the local highway network and none can be considered statistically significant. It is clear that HGVs have not been instrumental in the cause of the accidents recorded, although it is also clear that a significant number of HGVs use the local highway network.



8.3 Predicted impacts

If the project was implemented, there would be an increase in traffic movements on the local highway network during the site enabling works and site operation phases in particular. The increases would be greatest on the route between the Nant Llesg site and Cwmbargoed Disposal Point, a distance of approximately 800m, as well as the main route to the trunk road network, i.e. via Fochriw Road and Rhymney Common Road. An increase in traffic flows of 48% on Bogey Road (from the CDP entrance to its junction with Fochriw Road – movements west of the CDP entrance would be restricted to LGVs and so would be of a lesser magnitude) and 27% on Fochriw Road (north of its junction with South Tunnel Road) is forecast as a result of the project. However, the impact of the project upon the operation of the rail network would be negligible, as it would remain well within capacity.



Proposed measures to mitigate the highway impacts include:

- A Site Environmental Management Plan (SEMP), to manage the impacts of HGV movements on the local highway network; and
- Improvements to the Bogey Road/Fochriw Road junction, to improve visibility for turning vehicles.

8.4 Conclusion

It is considered that the traffic and transport impacts of the project would be of temporary long term minor adverse significance with respect to highway operation, highway safety and non-motorised users (i.e. pedestrians/cyclists). The impact on physical fitness is judged to be not significant as there are very few people living adjacent to the site or the main HGV routes to it, and so very few people would be discouraged from walking or cycling as a result of the project. However, during the site restoration/aftercare phase, the potential creation of new pedestrian and cycle routes could deliver minor permanent benefits in respect of non-motorised users and physical fitness.

Nant Llesg Surface Mine

Incorporating Land Remediation

9.1 Overview

Sites of importance for nature conservation, habitats, species populations, and species assemblages present within and in the vicinity of the site have been identified through desk study and surveys. The effects of the Nant Llesg proposals on ecology and nature conservation have been assessed taking into account measures to avoid or reduce the effects which are integral to the design of the project and which would be secured as part of the proposal.

The Restoration Strategy forms the basis for the assessment of the effects of the restoration of the site. This is a comparison of the ecological characteristics of the restored landform and vegetation against the baseline situation before the commencement of the scheme.

9.2 Existing conditions

There are no statutory sites located within the site boundary although there are 28 sites with a total of 36 statutory designations within 10km of the site. These comprise two Special Areas of Conservation (SACs), 18 Sites of Special Scientific Interest (SSSI), 11 Local Nature Reserves (LNR) and four Country Parks. Some sites have more than one designation. There are no Special Protection Areas (SPAs) or Ramsar Sites within the search area.

There is a total of 20 non-statutory designated sites within 2km of the site, all designated as Sites of Importance for Nature Conservation (SINCs). Much of Cefn Gelligaer, west of Deri SINC is within the site boundary, and there are three further SINCs located within 50m of the site boundary.

9.3 Site Restoration and aftercare

The restoration and aftercare proposals for the site take account of the habitats and species currently present within the site, and seek to re-establish topographical, soil and drainage conditions and management practices which would support these habitats and species. In particular habitats and species included in the Caerphilly Biodiversity Action Plan (BAP) have been taken into account. Local BAPs are intended to focus resources to conserve and enhance biodiversity by taking account of national and local priorities. Thus the restoration and after care proposals include specific measures to reinstate wet dwarf shrub heath in the area south of Rhaslas Pond. New ponds would be created by modifying the water treatment areas used for the development and watercourses would be established as part of the drainage of the restored site. A network of hedgerows would be established within the farmland area in the north of site, with new woodland areas here and in the east of the site. The restored site would provide habitat for Caerphilly BAP species such as great crested newt and other amphibians, common lizard, bats, otter, lapwing and a range of other breeding and wintering birds.



9.4 Biodiversity offsetting

The nature of the proposed development means that it is not possible to fully mitigate the ecological effects of the proposals within the Nant Llesg Site. In order to offset these effects it is proposed to implement ecological enhancements and management in an area to the south west of Nant Llesg known as Bryn Caerau.

The land at Bryn Caerau already contains a variety of habitats of value and supports protected and notable flora and fauna. However, there are a number of opportunities available to enhance the overall ecological value of the area by creating new habitats and by managing both the existing habitats and new habitats created. The land is part of the holding known as Bryn Caerau Farm which is owned by Miller Argent (South Wales) Limited and farmed by tenants. Management of the land at Bryn Caerau would be secured by means of a S106 agreement.

The land at the north of the Nant Llesg site which would be restored to enclosed agricultural grazing land would, at the end of the aftercare period, return to the current landowner who would continue to farm the land.

Management of the land at the south of the Nant Llesg site, following the aftercare period, would be the responsibility of the commoners as is currently the case.



9.5 Predicted impacts

As a result of the land take of the project there would be an temporary long term impact of major significance on breeding birds (in particular the loss of the nesting area for two pairs of little ringed plover, suitable habitat for which would be reinstated on restoration). There would be temporary long term impacts of moderate significance on non-statutory designated sites (loss of much of the Cefn Gelligaer SINC, although this would be restored on completion of the scheme), habitat loss (particularly wet heath, unimproved acid grassland and marshy grassland), wintering/passage birds (especially those associated with Rhaslas Pond), terrestrial invertebrates (including grayling and small heath butterflies and broom moth), and dragonflies and damselflies (including the scarce blue-tailed damselfly). Suitable habitat for species which currently occur on the site would be reinstated on restoration. Other than for these instances, the remainder of the ecological effects would be of negligible or minor significance.

During operation of the site no additional adverse effects would be of greater than minor significance. There would potentially be beneficial effects on amphibians and bats as a result of habitat creation (and for amphibians, through provision of road crossings), and to otter and fish as a result of improvements to downstream water quality.

Comparing the restored site with the baseline, the majority of effects would be of negligible or minor significance. There would be potential moderate adverse effects on non-statutory sites and habitats, breeding and wintering/passage birds (taking account of the long timescales required for full recovery of the restored areas). There are likely to be beneficial effects on amphibians, reptiles, bats and otter as a result of habitat creation (and for amphibians, provision of road crossings), and on fish as a result of improvements to downstream water quality.

Taking into account the likelihood of the wet heath recovering, the existing and continued threats from overgrazing, and the habitat improvement and management of Bryn Caerau, then the overall balance of biodiversity of the area would be maintained.

Nant Llesg Surface Mine

Incorporating Land Remediation

10.1 Overview

Likely environmental effects on agricultural land use and soil resources arising from the site establishment operations, operational surface mining, remediation and reclamation phases of the project were assessed. This included effects on agricultural land quality, soils resources, farm holdings and the agricultural land use of the Gelligaer and Merthyr Common.



10.2 Existing conditions

The detailed soil and agricultural land classification survey of the land likely to be disturbed by the implementation of the Nant Llesg project has found approximately 41% of the operational area to have been previously disturbed by firstly iron ore scouring and subsequently by surface mining and tipping operations. The remaining land which would be stripped of soils as part of the operation comprises natural soil profiles. Approximately 64.9ha of this land contains soils with peaty topsoils.

The Agricultural Land Classification provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use, where Grade 1 is excellent quality and Grade 5 very poor quality. The land across the site is limited to Grade 4 due to a severe climatic limitation, or grade 5 due to a severe soil wetness limitation. Welsh Government planning policy stipulates that land of grades 1 to 3a is the best and most versatile, and should be conserved as a finite resource for the future. None of the land at Nant Llesg falls within those grades.

The operational area of the project would affect two farm holdings outside the boundary of the Gelligaer and Merthyr Common. One holding comprises land on the eastern side of the Nant Llesg project and the second is based at Cwm Carno, located to the north of the project.

A total of approximately 201 hectares of the land affected by operational area of the project forms part of the Gelligaer and Merthyr Urban Common which represents approximately 6.5% of the total area of the Gelligaer and Merthyr urban common.

Agricultural land use & soils

10.3 Predicted effects

There would be no loss of the “best and most versatile” grades 1, 2 or 3a agricultural land arising from the project.

Strategies for the stripping, storage and reinstatement of mineral and peaty soils have been developed to reduce, wherever possible, effects on soil resources. Based on limited losses of materials during the process of soil stripping and storage and handling the effect on non-peaty soil resources at the end of the project is therefore assessed to be a permanent adverse impact of only minor significance.

With regard to the clayey soils with a peaty surface, it is recognised that these peaty soils are sensitive materials and are susceptible to damage and losses when disturbed.

It is therefore assessed that a loss of a proportion of these sensitive materials may result from the operations taking place and the overall effect on these clayey soils with a peaty surface is of permanent moderate adverse significance.

The project would only affect the workability of the farm holding based at Cwm Carno, where the holding could not continue in its current form during the lifetime of the project. The significance of this effect on a single holding in the context of the wider framework of farm holdings and agricultural production in the local area is assessed to be of long term temporary minor adverse significance during the operational period and of negligible significance following the reinstatement of the agricultural land affected within the holding.

The project proposals include the provision of approximately 81ha of temporary grazing land that runs contiguous to the common that would be available for use by those commoners with grazing rights throughout the life of the project. This would provide areas of good quality improved grassland to the commoners. The inherent quality of the agricultural land within the additional areas is generally of better quality than the areas of grazing lost on the Nant Llesg site, where there are limited natural soil resources due to the extent of previous mining disturbance and areas of low capacity grazing land where clayey soils with peaty topsoils are located. It is predicted that the loss of grazing capacity within the common as a whole will result in an effect that is long term temporary minor adverse significance.

There are however a number of individual commoners in the vicinity of the Nant Llesg project who use this area of land on a regular basis for grazing livestock and who would be more specifically affected by the temporary loss of the common within the project and the effect of site establishment and operational stages of the Nant Llesg project on the local structure of farm holdings which use the Nant Llesg area on a regular basis would be of long term temporary minor to moderate adverse significance.

The restoration of the land in accordance with the restoration strategy and the effective implementation of the aftercare period would enable the land to be effectively re-integrated into the common. Based on the successful restoration, the residual effect on the agricultural use of the common is assessed to be of negligible permanent significance.

Nant Llesg Surface Mine

Incorporating Land Remediation

11.1 Overview

The hydrogeology assessment looks at potential effects on the local hydrogeology from the proposed Nant Llesg project. It also deals with the potential need to treat any pumped groundwater prior to discharge to surface watercourses, and the potential longer-term effects of the restored site in terms of groundwater quality.



11.2 Existing conditions

The bedrock in the area of the Nant Llesg site comprises Lower and Middle Coal Measures strata which are made up of alternating mudstones, siltstones and sandstones with intermittent coal seams and ironstone units. Drilling investigations of the Nant Llesg site have indicated a relatively consistent stratigraphy, with the strata dipping steadily south-south-eastwards at angles between 3° and 9°, with minor faulting trending north-northwest to south-southeast. Overlying, superficial deposits comprise variable thicknesses of a range of materials, namely gravels, clays, sand and made ground, as well as areas of opencast backfill in areas worked for coal in the past.

The Coal Measures strata in the area are classified as a secondary A aquifer (formerly classified as minor aquifer). Such aquifers are often capable of supporting water supplies at a local scale, but there are no licensed groundwater abstractions or private water supplies in the near vicinity of the proposed development. Overall groundwater use in the area is minimal; although it does provide a contribution to flow in the River Rhydney.

An underground artificial drainage network heavily influences the local groundwater flow regime. This drainage system, which was developed in the 18th and early 19th centuries, comprised a complex system of water collection ditches, canalised streams and a series of stone-lined culverts. This is called the Dowlais Free Drainage System (DFDS) and was developed partly to provide a water supply to the ironworks at Dowlais and Rhydney and partly to drain underground mine workings. It is still functional at depth and dominates groundwater movement in the area.

Hydrogeology

Groundwater level monitoring data indicate that groundwater levels can be over 100m below ground level, and are often associated with the elevation of the DFDS. The inferred eastward direction of groundwater flow beneath the planning application site is also largely controlled by the DFDS and its discharge into the Bute Watercourse, which itself discharges into the River Rhymney within a culvert which runs through the town. The Environment Agency (now Natural Resources Wales) has assessed the mine water outfall from the culvert, referred to as the 'Pontllytyn' mine water discharge, as the second worst impacting coal mine water discharge in Wales, that has not yet been remediated. The Coal Authority, having carried out their own investigations into the problem, considers that, at the present time, remediation is probably infeasible, mainly due to health and safety concerns of entering the river culvert to capture and transfer the water.

The quality of groundwater in the area is quite poor, with elevated concentrations of several metals, including iron, manganese and zinc. Similarly, water quality associated with the DFDS is poor and causes some deterioration in the river water quality.

11.3 Monitoring

An extensive surface water and groundwater monitoring scheme would be agreed with Natural Resources Wales (NRW, formerly Environment Agency Wales (EAW)) which is anticipated would incorporate existing borehole and stream monitoring locations. This would serve to monitor the effects of the development and site restoration on local groundwater levels and surface water and groundwater quality. Appropriate consents and licences would need to be obtained from NRW for water management at the site.

11.4 Predicted Effects

Dewatering of the void is likely to be required to maintain dry working conditions, although this may only be required once excavations have reached considerable depth. This would involve pumping a combination of surface water and groundwater to water treatment areas at the surface, before discharge to the River Rhymney. The effects of dewatering on local groundwater levels have been considered and are expected to be limited and of minor significance, and reversed on restoration. During operation the proposed water treatment would provide a temporary benefit of moderate significance with respect to river water quality. The removal of coal strata and the implementation of an approved backfill strategy as part of site restoration would provide a longer-term permanent water quality benefit of moderate significance. It is important to note that the Coal Authority currently consider that in the absence of the project, remediation of the DFDS discharge is "probably infeasible mainly due to health and safety concerns of entering the river culvert to capture and transfer the water"

Nant Llesg Surface Mine

Incorporating Land Remediation

12.1 Overview

Surface water is assessed in terms of the water quality, water quantity, flood risk, and hydromorphology of the water bodies present in and around the Site (i.e. watercourses, ponds, wetlands and reservoirs). The hydrology and drainage assessment looked at the potential effects of the proposed development on hydrology, i.e. surface water features in and around the proposed project site.



12.2 Existing conditions

Various watercourses rise on the Nant Llesg site (the 'Site') and drain towards the River Rhymney, but these comprise a small proportion of the upper River Rhymney's overall catchment area. A series of manmade drainage ditches and ponds are present on and adjacent to the Site, comprising the surface elements of the Dowlais Free Drainage System (DFDS). The largest component of these surface water features is Rhaslas Pond, which is an artificial water body with water levels raised above local ground levels by manmade embankments.

The only nearby user of water adjacent to the Site is the existing Ffos-y-fran Land Reclamation Scheme (FLRS). Information provided by the Environment Agency Wales (EAW) - now Natural Resources Wales (NRW) - and local authorities (Caerphilly and Merthyr Tydfil County Borough Councils) indicate that there are very few abstractions from the ground or watercourses and discharges to watercourses in the vicinity of the proposed development. Overall surface water utilisation in the area is minimal.

Monitoring data indicate that, whilst a variety of broader water quality indicators are generally good around the Site, the water quality is impacted by the area's historic mining/industrial legacy, with elevated levels of iron and other metals being recorded. A key influence on water quality is the discharge of untreated minewater, which is particularly high in iron and manganese, into the River Rhymney from the Bute Level (a minewater drainage system). This discharge occurs towards the southern end of the Rhymney culvert at Pontlotty and is responsible for the current severe orange ochre staining of the river bed in this area. The discharge is currently considered the second worst unmitigated discharge in Wales by Natural Resources Wales.

In addition to chemical pollution, severe erosion problems are present along the Nant Bargod Rhymni above Fochriw. It is considered that the erosion of colliery spoil (alongside other sediment sources along the watercourse) is the source of the fine material transported downstream to Parc Cwm Darran Country Park, where this material is being deposited at the head of the lake and which has to be cleared from time to time. The soft unconsolidated material deposited underwater is considered a health and safety issue and warning signs have been erected alongside the lake inlet.

Hydrology & drainage

12.3 Mitigation

The key mitigation measure identified was the need to manage water draining from the Site to ensure that water quality was not adversely impacted and additional runoff is captured, stored and released slowly at a rate matching the existing overall runoff rate. A Surface Water Management Plan (SWMP) has been prepared to demonstrate this. The SWMP provides detail of how drainage from the Site would be managed, and explains how a series of water treatment areas (WTAs) would be incorporated to provide water quality treatment and attenuate runoff.

A series of Method Statements would be followed to ensure works that could have adverse effects on the water environment follow current best environmental practice. These describe a means of undertaking the required site operations in a way that minimises or avoids actions that could have negative water environment effects.

12.4 Flood risk

Downstream water quality would be protected as a result of the SWMP, and there would be no increase in flood risk due to the installation of attenuation lagoons as part of the WTAs. In fact, flood risk would be slightly reduced for regular storm events (between the 1 in 1 year and 1 in 100 year + climate change), since the outflow from these attenuation facilities would actually be less than the baseline greenfield rates. This low rate is required for operational reasons to ensure appropriate settlement and treatment of the runoff to meet agreed water quality standards. In addition, during the Operational period of the site, the routing of overflow from Rhaslas Pond during the largest flood events into the mine void would result in a reduction in flood risk posed to receptors along the Nant Carno compared to the current baseline.

12.5 Predicted Effects

Following the incorporation of operational mitigation measures, the residual effects relate to the reduction in size of Rhaslas Pond and its incorporation into the Site's surface water management system during the operational phase. During this phase the upper reaches of several watercourses would be removed, although all of these watercourses would be reinstated during the restoration phase.

The scheme has two key and important positive effects on the surface water environment, which are:

- Minor Positive significance - Some of the underground manmade minewater drainage network would be interrupted by the void during the operational phase of the scheme; this would result in reduced minewater discharges entering the Bute Level. Subsurface drainage pathways would be reinstated during backfill to prevent unintended new flow-paths being created. However, since a large proportion of the remaining coal would have been removed (including the sulphur within it), it is considered that the acidity of groundwater would be reduced. Overall it is expected that the works would contribute to an improvement in downstream water quality in the River Rhymney, an important surface water receptor;
- Moderate Positive significance - Works to stabilise, retain and revegetate the eroding colliery spoil along the Nant Bargod Rhymni would result in reduced siltation of the lake at Parc Cwm Darran. These works would be carried out in the early stages of the scheme providing a rapid improvement in this area.

An extensive surface water and groundwater monitoring scheme will be agreed with NRW, which is anticipated to incorporate existing stream monitoring locations. Appropriate consents for the discharge of treated water will be obtained together with abstraction licences for dewatering of the excavation and dust suppression operations.

Overall the predicted adverse effects are considered to be of minor significance.

Nant Llesg Surface Mine

Incorporating Land Remediation

13.1 Overview

The air quality impacts of the project were assessed. It included the operation of the Cwmbargoed Disposal Point (CDP), the proposed remediation works and the export of coal from the site. The impact on nitrogen dioxide (NO₂), airborne particulate matter and dust deposition was modelled using well recognised models.

13.2 Existing air quality

Air quality in the area surrounding Nant Llesg is currently good with the national air quality objectives being achieved by a wide margin. The baseline dust data, collected over six years, identify that there have only been very occasional dust events in Fochriw, i.e. times when people may complain about dust. In Rhymney, where monitoring has been undertaken for more than one year, there have been occasional dust events at the Heads of the Valley Industry Estate, but not at the two Primary Schools, suggesting a local source, most likely from within Rhymney, affecting the industrial estate.



13.3 Mitigation

The assessment of the impacts of the project has assumed that there would be best practice dust mitigation at all stages of the development. Key to this is proactive management of the site including forecasting when dust generating conditions may occur and putting appropriate mitigation in place before complaints are received. The main method of suppressing dust emissions is through the application of water using water bowsers on the unpaved haul routes, Fog Cannons® which spray a fine mist over a large area and are very effective at grounding dust, and mist sprays on coal handling equipment and at coal stocking areas. An integral part of the management of dust emissions is monitoring in the local community, and a monitoring programme would be agreed with Caerphilly County Borough Council and appropriate actions taken, including investigation and ceasing dust making activities implemented when appropriate. A proactive approach to dust management is envisaged by Miller Argent.

Air quality & dust

13.4 Predicted impacts

It is predicted that the air quality objectives would be achieved during all phases of the project. Using the Institute of Air Quality Management criteria, the magnitude of the change in concentrations at residential receptors as a result of the proposed mine is generally small to medium, but due to the good baseline air quality in the area, the significance of the impact at most residential receptors is negligible. However, for a small number of receptors, notably in Rhymney and Fochriw, a minor adverse air quality impact is predicted during site operations.

The most significant impact predicted is dust deposition. During stages 1 – 4 of the project there is predicted to be a minor adverse impact at most receptors. At one receptor a moderate adverse impact is predicted during stages 3 due to the cumulative impact of the mine operations and the removal of the FLRS overburden mounds. In contrast, residential receptors in Fochriw are predicted to see a small improvement in dust deposition during phases 4 and 5 as a result of the end of cooling at Ffos-y-fran Land Reclamation Scheme, and an associated reduction in operations at the CDP.

13.5 Conclusion

Taking account of the duration of the operation of the surface mine (approximately 14 years) the overall impact following mitigation is predicted to be of minor adverse significance using the Institute of Air Quality Management's significance criteria. This is considered to be a long term, albeit temporary, impact.

The decommissioning of the CDP may result in dust emissions. The modelling suggests that after decommissioning there will be a reduction in dust deposition, and that this will be a minor benefit to the local community. However, the directional dust measurements and complaints records suggest that dust deposition will very rarely be an issue in Fochriw.



Nant Llesg Surface Mine

Incorporating Land Remediation

14.1 Overview

Surface mining and land remediation necessarily involves the use of large diesel-powered plant operating in the open and is therefore a noise generating operation. The main noise producing activities associated with the proposed surface mine are: soil stripping, removal of overburden and creation of the overburden mound, coaling and haulage within the site, backfilling the void, returning overburden to the void, and site restoration. Noise may also be experienced in surrounding areas by the export of coal from the site and by road traffic generated by the working of the site.

14.2 Mitigation

The mobile plant required to operate the proposed surface mine and land remediation scheme has the potential to cause noise in the surrounding communities. The plant to be used on the site would be manufactured and bought to the strictest noise specifications and would incorporate additional noise attenuation equipment this would allow the mine to be operated within the limits recommended by the Welsh Government in MTAN2.

A visual and acoustic screening bund is to be placed between the working void and properties in Rhymney to the north and east. The construction of the screening bund will be planned in a manner that will minimise the short term effects during construction of the mound by constructing the outer edge of the mound first and then back-filling to complete the screen mound behind the outer face. The screening bund will be constructed during the first 4 months of excavation works.



14.3 Predicted effects

Noise would be audible in the surrounding communities of Rhymney and Fochriw and the significance of this noise depends upon the change in noise compared with the existing background noise. Surveys have been carried out to establish the existing noise conditions and the noise from the proposed development has been predicted for all surrounding areas. Comparison of these two sets of data has allowed the significance of the increases in noise to be assessed and any noise increases do not exceed the MTAN2 guidelines of background noise plus 10dB. The increases in noise are generally negligible or minor, but are assessed to be moderate in quieter and more exposed locations.

Prior to the commencement of the surface mine working there will be land remediation work carried out on an area of land immediately north of Fochriw and south of the land required for the mine. The noise from this work has been calculated and assessed against the guidance in the relevant British Standard, BS 5228, and shown to meet this guidance.

The dispatch of coal by rail could potentially cause up to a 70% increase in the number of coal trains using the route from the Cwmbargoed Disposal Point (CDP). These trains would be permitted to use only the train paths already available for coal trains. The worst-case noise impact for a daytime or night-time period would be no worse than currently experienced as there are days and nights when the maximum permitted numbers of train movements are already used. The impacts of increased train movements are therefore considered to be either negligible or of low significance.

Coal would be moved by road from the surface mine to the CDP. This route is approximately 700 metres long, but is remote from any housing and consequently would not increase noise at any residential property.

Blasting & vibration

15.1 Overview

A blasting impact assessment was undertaken for the proposed Nant Llesg site to determine any potential impact of vibration and air overpressure produced from blasting operations at the site on buildings and structures close to the proposed site. This assessment was carried out by determining the potential receptors in the immediate vicinity of the proposed site and assessing the underlying and surrounding geology and historic workings.

Sixteen representative receptors were identified. The types of buildings and structures included five residential properties, two un-occupied properties, six industrial buildings and three structures. Cwm Nant, a residential property to the north-east of the proposed site, was determined as the nearest sensitive property to proposed blasting operations at a distance of 433m from the limit of blasting. Although blasting operations would be carried out closer than 500m to the nearest structure, no blasting would be carried out within 500m of the settlement boundary.

15.2 Existing conditions

No historic vibration or air over pressure results were available from the Nant Llesg site and so test blast and historic blasting data collected from the nearby FLRS was used instead. The use of this data was based on the logical expectation that the vibration and air overpressure levels produced would be similar, given that both sites have common geology and that blasting practices employed on the Nant Llesg site would be the same as those currently employed on the FLRS. A series of vibration and air overpressure predictions were calculated for each receptor using specifically designed blast monitoring exercises at the FLRS, and corroborated by the comprehensive blast monitoring data available at that site.

15.3 Predicted impacts

The magnitude of the vibration predictions generated for the nearest residential and industrial buildings to the site were very low. Predicted vibration levels, to a 50% confidence level, were near to the human perception threshold of 0.50 millimetres per second but well below the MTAN2 maximum vibration limit guide of 6 millimetres per second. Based on a 95% confidence, the highest calculated vibration prediction is 5.47 millimetres per second at the closest building which is an unoccupied property, below the MTAN2 maximum vibration limit guide.

Air overpressure levels are also predicted to be very low, with the nearest sensitive property, Cwm Nant predicted to receive levels of 7.38 Pascals (111 decibels linear) to a 50% confidence. All predicted levels for the various properties identified were below the MTAN2 maximum level guidance of 120 decibels linear (18.90 Pascals), with 95% confidence.

15.4 Conclusion

Given that the current blast design, execution and monitoring regime employed at Ffos-y-Fran would be adopted at Nant Llesg and based on the vibration and air overpressure predictions generated for the Nant Llesg site, the potential impact from blast induced vibration and air overpressure on all of the identified potential receptors is considered to be long term temporary of negligible to low significance. An extensive blast monitoring and management schedule will be developed as part of on-going assessment of the effects of blasting on the local community.

Nant Llesg Surface Mine

Incorporating Land Remediation

16.1 Overview

The archaeological assessment was based on exhaustive desk study research, field walking and some site evaluation, undertaken to the standards of the Institute for Archaeologists. The objectives of the cultural heritage assessment were to assess the proposed development site in terms of its archaeological and historic environment potential, to assess the potential impacts of the development upon the cultural heritage resource; and to propose measures to mitigate any predicted significant adverse effects.



16.2 Existing conditions

The Nant Llesg site is a landscape of hills with a distinctive historic character which, along with the area around the site evidences human activities from prehistoric to recent times. Today, the surrounding landscape mostly bears testament to mediaeval and post-mediaeval rural farming, including some farmhouse sites, associated fields, and open animal husbandry on Gelligaer and Merthyr Common. Superimposed on this are visible and buried features of 18th to 20th century industry. The substantial numbers of archaeological features (assets) spread throughout the site and setting are remains of the once vast South Wales mining industry, of ironstone then coal.

As a result of the site's industrial heritage there are remains of coal mines, including locations of pit heads with shafts, adits, arrangements of buildings and complex infrastructure. Associated with these are former quarries, coal spoil tips, rail networks, and surface drains. Notable elements of the landscape today are the leats and ponds of the Dowlais Free Drainage System (DFDS). This was a complex mechanism for collecting together surface rain runoff and underground mine waters and delivering it to the Dowlais Iron Works. Rhaslas Pond is the largest of the reservoirs and one of the oldest elements of the DFDS. Some leats of the DFDS still support drainage of the landscape.

The project site is rich in archaeological remains, especially from the industrial period, many of which have a surface expression that help to create the distinctive landscape. The archaeological remains have been assessed to determine their function, character, age, cultural value and likely condition. The only site of National Importance within the Nant Llesg site is Rhaslas pond. It is currently not scheduled although Cadw has expressed an intention to schedule the southern embankment (not the northern embankment which is considered to be of lesser value given its degraded reworked condition).

In total, the site was found to have some 298 cultural heritage assets of varying importance.

Cultural heritage

16.3 Mitigation

An archaeological programme for mitigating adverse impacts of the scheme would be developed in consultation with Caerphilly County Borough Council.

Where possible, the programme would support in situ preservation of significant archaeological remains (i.e. preserved where they lie). There would be 'added value' opportunities, principally related to the areas outside topsoil stripping, mostly to the east and west of the central area for mining excavation and spoil mounding.

Where in situ preservation cannot be achieved, and assets have to be removed, then there would be a programme of archaeological field work carried out as follows:

- Excavations and recording at times when mine shafts and adits are being made safe;
- Major and minor archaeological excavations prior to and integrated with top soil and subsoil stripping;
- A watching brief during the scheme. This is when a qualified archaeologist surveys areas as they are excavated to 'watch' for and report on any unearthened finds.

The northern embankment of Rhaslas pond would be fully investigated before being removed and the materials stored on-site for use in the restoration design for this part of the site. On completion of the project the southern embankment would be incorporated within the restored landscape. The northern embankment would not be reinstated but would be commemorated in the landscape to the north of the wetland with materials from the original stone armouring used to depict its original outline.

16.4 Use as a Cultural Heritage resource

In addition to the programme of mitigation the scheme would support activities that would have beneficial effects to cultural heritage concerns including:

- Use of Miller Argent facilities for school education;
- Undertaking community-based archaeological excavations;
- Running an experimental project with schools addressing preservation of archaeological artefacts – this would be by burying new objects in controlled environments and later carrying out archaeological excavation recovery for scientifically assessing their condition;
- Incorporating in situ remains and reconstructions within the restored landscape, supporting 'Place Making'.

16.5 Predicted Effects

Given this programme of mitigation there would be no significant residual adverse effects on the cultural heritage of the site and permanent minor to moderate beneficial effects due to the 'added value' research, data accumulation, publication of findings and educational uses of the programme of archaeology results. No significant cumulative effects have been identified.



Nant Llesg Surface Mine

Incorporating Land Remediation

17.1 Overview

Landscape and visual impact are related but separate topics:

- Effects are assessed on the landscape as a resource; how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character, and the key characteristics that contribute to it.
- Effects on visual amenity arise from changes in the content and character of the views that people have of the landscape and the overall pleasantness of the views they enjoy of their surroundings.

The Landscape and Visual Impact Assessment (LVIA) establishes the existing conditions for the landscape context and visual amenity, and identifies potential effects on features and aspects of the landscape and on views of the site.

The study area for the LVIA includes the site itself and extends up to 5km from the site boundary.

17.2 Existing conditions - Landscape

The site is located on a broad ridge between the Fochriw Road to the west and the upper slopes of the Rhymney Valley to the east. The ridge falls gently north, to enclosed agricultural land, then falling more steeply towards the A465 heads of the Valleys Road. To the south, the land rises to Mynydd Fochriw. It is largely on open land, with enclosed fields bordering its northern and eastern edges. The majority of the site is urban common as shown on the CROW access maps, and is crossed by several public rights of way including the Rhymney Valley Ridgeway Walk on a north-south alignment in the eastern part of the site.

17.3 Existing conditions – Visual Amenity

In order to assess the visual effects of the development proposals, the geographic extents within which views may be available of the features of the proposed development were computer generated. They show both the existing and likely views of:

- The main areas from which the overburden and screening mounds would be visible;
- The overburden and screening mounds would themselves screen visibility of the operational void from the south and south-west, and the existing mounds at Ffos-y-Fran would screen views from further west.
- From some locations, views of features of the proposed development would become visible once the storage mounds at the Ffos-y-Fran site would be removed.

Landscape & visual impact assessment



View from Upper Rhymney without screening bund



View from Upper Rhymney with screening bund

Nant Llesg Surface Mine

Incorporating Land Remediation

17.4 Mitigation

Remediation and restoration of operational areas would aim to mitigate and/or offset adverse landscape and visual effects and achieve benefits to the landscape character and amenity for local communities in the long term through:

- Early treatment of the eastern, southern and western margins of the site to enhance the existing landscape, providing additional access and information to improve people's connection with landscape, wildlife, and heritage early in the development timeframe.
- Re-establishing the open upland character of the main operational areas of the site, with a variety of habitats, integrating features of historic interest or marking their locations, incorporating new features from this development (with potential for a "heritage trail"), restoring and enhancing public access to the area, reinstating the Bent Iron as a landmark and add other landmark or way-marking features, information signs, seats etc.

Before the site layout was finalised, initial studies showed that the excavation void would be visible from the west facing slopes of the Rhymney valley and the rising land to the north and further to the north-east and, as the void progressed eastwards, it would become visible from areas further to the south-east. Therefore, the site design was amended to include a screening mound along the eastern and northern edges of the area of extraction, which would reduce the areas, especially in Rhymney, from where the void would be visible (see before and after images on page 38).

The construction of the screening bund and overburden mound will be planned in a manner that will minimise the short term effects during construction of the mound by constructing the outer edge of the mound first and then back-filling to complete the screen mound behind the outer face. The screening bund will be constructed during the first 4 months of excavation works.

17.5 Predicted Effects – landscape

In the parts of the site that lie within the main operational area, the landscape effects are assessed as medium to long term and adverse during operations, of Major or Major to Moderate significance. Smaller scale operations are proposed in parts of the site outside the main operational area to the east, south and west to remediate old mine hazards and enhance landscape features and character, and the ecological and heritage aspects of the landscape. These would result in Minor short term adverse effects during the remedial operations, but with long term benefits of Major significance.

The comprehensive restoration strategy for the whole site, would integrate future land use, public access and amenity for local communities, nature conservation and cultural heritage, with a landscape character appropriate to the location and context. The restoration strategy would be implemented progressively as operations proceeded. The landscape effects would be long term, beneficial, of Moderate significance in the operational area and long term, beneficial, of Major significance in the remediation area.

17.6 Predicted Effects - Visual

The main areas from which the development would be visible would be along the Rhymney Valley and onto the uplands to the north, and on the ridges to the east, north-east and south. The overburden mound would screen visibility of the operational voids from the south, especially from Fochriw and the design of the screening mound along the eastern and north-eastern edges of the area of extraction would screen views from much of Rhymney.

Visual effects would vary during the lifetime of the development, and depending on the relative elevation, distance and angle of view, from Major significance in near views during the periods of greatest change, when overburden and screening mounds were being constructed, reducing to Moderate or Minor significance for more distant viewers. The remedial and landscape enhancement works on the eastern valley side were assessed as being of Moderate beneficial significance in the long term when compared to the existing conditions for viewers from the Rhymney conservation area.

18.1 Overview

International legislation affecting the handling of waste during the scheme includes the European Waste Framework Directive 2008/98/EC, implemented by the Waste (England and Wales) Regulations 2011, and the European Mining Waste Directive 2006/21/EC. The proposals for reuse of materials on site and the instigation of a Material Management plan mean the scheme would comply with the objectives set by these directives.

Waste is defined in Section 75 of the Environmental Protection Act 1990 by reference to Article 3.1 of the Waste Framework Directive 2008, namely “any substance or object which the holder discards or intends or is required to discard”.

The project aims to focus on the on-site recovery of waste. Where waste is to be removed offsite for disposal to landfill, Waste Acceptable Criteria (WAC) testing is to be undertaken in order to correctly determine the appropriate waste treatment facility.

The Nant Llesg Surface Mine including Land Reclamation scheme is expected to generate various waste streams during the different stages of works; with key waste streams produced during enabling works and during stages one to five.

Key receptors identified as being susceptible to waste impacts are controlled waters, construction workers and businesses and residents along any waste haulage routes.



18.2 Existing conditions

Ground investigations on site have identified contamination within an inert landfill to the east of Rhaslas Pond. This landfill is owned by Merthyr Industrial Services (MIS) and comprises two segregated areas. An area outside of the permitted landfill boundary is also believed to contain landfilled materials. Through liaison with NRW and necessary remedial works, it is intended to surrender the landfill permit prior to the commencement of works on site.

18.3 Mitigation

Human health risks to construction workers from potentially harmful landfilled materials within the MIS landfill can be mitigated through the correct use of PPE and best practice working methods. It should also be noted that exposure of construction workers to these materials would be temporary, thus the human health risk posed by these materials is considered to be negligible. Similarly, risks to human health from management of waste streams during stages one to five shall be minimised through best practice operational procedures and these risks are also considered to be negligible.

The bulk of exported waste from the scheme would likely be delivered to the adjacent Trecatti landfill site and would therefore not pass any businesses or residents within the site vicinity. A small quantity of hazardous waste (e.g. generated from the MIS landfill) would be delivered to the appropriate disposal point in Swindon, passing one residential property before accessing the A465 Heads of the Valleys Road and subsequently travelling along major trunk roads and motorways. Best working practices would reduce the risk of odours and spillages. Alongside best practice working methods, the implementation of a Material Management Plan for the scheme would specify the appropriate waste storage, disposal, haulage and handling measures to be undertaken on site. The scheme would thus be compliant with relevant planning policies and legislation.

Nant Llesg Surface Mine

Incorporating Land Remediation

18.4 Predicted effects

Some of the landfilled materials to the north of the licenced MIS landfill would require excavation and removal. Consultation with NRW shall be undertaken to ensure suitable waste removal and stabilisation of residual wastes is undertaken to facilitate surrender of the permit. Materials identified during ground investigation at the MIS landfill include asbestos and biodegradable material, which would require careful handling by appropriately qualified personnel.

Preliminary operations and subsequent land remediation works are expected to generate minimal waste streams, which would mainly consist of the removal of apparatus associated with the existing land uses across the site (e.g. agriculture and former mine adits).

Coaling works through stages one to four would generate the key waste streams of the scheme; predominantly from plant maintenance (at the workshop area) and process water treatment silt (at the barrel wash, Cwmbargoed Disposal Point product wash and water treatment areas). This would be inert waste, as defined by the mine waste Directive.

The final restoration and aftercare stages are not anticipated to produce any significant waste streams as major works comprise redistribution of overburden material and topsoils across the voids created by the preceding surface mining operations. Opportunities for recycling, e.g. offices, fencing and site accessories, are to be utilised where possible during this stage. Temporary concrete hardstanding on site is to be broken up, crushed and sent off site for reuse. This would aid the minimisation of waste during this stage of the scheme.

The Cwmbargoed Disposal Point is to be removed and restored as part of the works. This is likely to generate a large waste stream in the form of plant, machinery and demolition materials all of which would be reused where possible.

On-going consultation with NRW would determine the necessary materials and volumes to be removed from the area of the MIS landfill as part of the landfill permit surrender process.

The removal of material from the MIS landfill and the proposed reduction in the size of Rhaslas pond would reduce the potential for horizontal / vertical migration of leachable contaminants from the MIS landfill; the significance of the risk to proximal controlled waters from the MIS landfill is therefore considered as minor. Risks posed to controlled waters from waste streams generated during stages one to five (e.g. sediment) would be mitigated by the production of a surface water management plan as detailed in the Hydrology Assessment. The residual risk is therefore considered to be minor.

Health & welfare

A Health Impact Assessment was carried out to investigate and address the potential impact of the Nant Llesg scheme. The scope and focus of the HIA built upon experience at FLRS and was defined and iteratively refined through engagement with key stakeholders and local communities through an integrated engagement strategy and is in compliance with national guidance provided by WHIASU

The assessment drew from and built upon the technical outputs of the ES to investigate each of the potential health pathways directly associated with the mining, remediation and final restoration stages of the proposed Project.

The principal community health concern raised during public engagement was the potential risk from changes in air quality. Following a review of the available scientific evidence base and based on an exposure response assessment of worst case hypothetical scenarios applying the highest burdens of poor health in the area, it is concluded that changes in concentrations of PM₁₀, PM_{2.5} and NO₂ air pollutants would remain within air quality standards set to protect health and would not be of a magnitude sufficient to quantify any significant adverse health outcome. Such a conclusion is consistent with the findings from FLRS, where monitoring data has remained within all air quality standards set to protect health since the start of operations.

Concerns of dust impacts were also voiced. The proposed project seeks to draw from and build upon the experience and dust management best practice established at FLRS (categorised as a Low Dust Risk within its permit to operate from Caerphilly Borough Council (2012) and Merthyr Tydfil Borough Council (2013). Following mitigation, and the provision of additional dust monitoring stations, potential dust impacts are predicted to also be minor, and not of a level to result in any measurable adverse health outcome.

Concerns of visual impact were also voiced, and primarily addressed through design by pulling the mining area away from the settlement boundary and through the inclusion of a visual and acoustic bund at a cost to the mining area.

Following the extraction of coal, the proposed remediation work would help to address existing environmental hazards including making safe disused mine shafts, remediating old coal tips, inspecting and treating the Merthyr Industrial Services inert landfill site and removing old underground workings to reduce the mine water pollution that presently discharges into the River Rhymney. This work would benefit the surrounding area with a final reclamation scheme that makes positive changes and helps to meet the needs of the local community.

A comprehensive education, training, employment and procurement strategy is proposed, alongside on-going community support initiatives and community benefit fund to address local circumstance, barriers to benefit uptake, and to support local health improvement.

On the basis that all regulatory environmental standards set to protect health have been achieved at FLRS, and are predicted to be achieved at Nant Llesg; that the assessment from relative changes in air quality, noise and transport upon existing burdens of health are not sufficient to quantify any adverse health outcome; and when considering the approach proposed to address community concerns, perceptions and priorities; operational procedures; and the commitment for on-going community engagement, the proposed project does not constitute a significant risk to local community health.

When further considering the significant underlying factors defining local burdens of poor health in the area (largely socio-economic and lifestyle related), and the direct, indirect and induced socio-economic benefits from the proposed project, the immediate and final land reclamation (removing existing environmental hazards and supporting regeneration) and the catalogue of committed community support initiatives (summarised within the HAP) to optimise local health benefit uptake, the proposed project is considered to constitute a net health benefit.

Nant Llesg Surface Mine

Incorporating Land Remediation

20.1 Sustainability

Sustainability is an important element of Miller Argent's proposal for the Nant Llesg scheme, and the proposed design and operations have been developed to ensure that the three pillars of sustainability: social, economic and environmental outcomes, are promoted.

During the development of the project proposals, the project was reviewed against a series of sustainability objectives, termed the 'sustainability framework'. This highlighted areas where changes could be made to the project design in order to enhance the contribution being made to sustainable development. Such changes were therefore made iteratively during project design. The framework was also used to demonstrate that the scheme complies with relevant policies for sustainability promoted at relevant national, regional and local levels of Government.

Overall, the sustainability framework demonstrates how sustainable development has been integral to the planning of this project, and how it would be delivered during the construction, operation and eventual decommissioning of the proposed facilities

20.2 Climate change

Climate change is widely acknowledged as the most pressing challenge for sustainable development and the project has included consideration of necessary climate change mitigation (i.e. proposals to minimise the impact of the project on climate change) and also adaptation to changing climate, (i.e. how the project activities will respond to any changes that occur in the climate during the life of the project).

In terms of climate change mitigation, the following has been proposed:

- Maximising fuel efficiency in mine design and operation, significantly reducing carbon emissions associated with the extraction of coal;
- Carbon emissions associated with both transportation of the coal, and also use of transport by employees working at the site will be minimised;
- Soil handling methodologies will be followed to ensure the soil is appropriately management in order to reduce the potential for carbon emissions release.
- Tree planting proposals have been included which form part of the ecological enhancement at Bryn Caerau and are included in the restoration strategy. This will offset the methane emissions associated with the extraction of coal.

In terms of adaptation to a changing climate, the following is included within the Nant Llesg scheme:

- The potential for changes in the baseline conditions as a result of climate change has been included within the ecological assessment;
- A Surface Water Management Strategy has been proposed which sets out how this will make appropriate allowance for the potential increases in rainfall or severe storm events due to climate change.
- Local weather conditions will be closely monitored and a range of dust mitigation measures have been proposed for adoption in the event of a drought.

Cumulative effects

The EIA Regulations and Welsh Planning Policy confirm that developments within a local area need to be considered in combination in order that cumulative effects would not lead to increased environmental impacts.

Other developments which are existing within 5km of the proposed Nant Llesg project or likely to take place during the life of the Nant Llesg development include the existing Ffos-y-fran Land Reclamation Scheme, Trecatti Landfill, and the recently permitted NET Wood Pellet Plant at Rhymney. The area of the existing CDP which lies outside the application boundary and sits within the Borough of Merthyr Tydfil is also included within the cumulative effects assessment. Timescales vary between the developments, e.g. Trecatti Landfill commenced in 1999 and is likely to continue beyond the life of Nant Llesg, while FLRS commenced in 2007, and would be completed three years before Nant Llesg; NET is likely to commence operation in 2014 and to continue indefinitely.

The cumulative assessment concludes that there are very few cumulative effects. Those identified include:

Cumulative effect	Impact significance
Loss of urban common resource for recreational use	Long term, temporary, adverse minor/moderate significance
Loss of urban common and the agricultural use of it	Long term, temporary, adverse minor/moderate significance.
Disruption to Public Rights of Way	Long term, temporary, adverse minor significance
Dust deposition from the removal of the FLRS overburden mound	Temporary, adverse minor significance
Cumulative landscape feature (alongside FLRS) for a period of 8 years (general landscape)	Medium term, adverse minor/moderate significance

Nant Llesg Surface Mine

Incorporating Land Remediation

The ES has been prepared in order to assist in reaching a decision as to the merits of the proposed development and the environmental implications associated with it. The ES summarises the results of very careful, detailed and systematic research into each of the potential environmental effects of the development and, where relevant, sets out modern and well-designed methods of mitigating the effects. Wherever possible, mitigation measures to reduce the magnitude of adverse effects have been integrated into project design or alternatively proposed for implementation during site establishment, operations and restoration.

The general conclusion reached by the ES is that there are adequate mitigating measures available to ensure that the development can proceed without giving rise to unacceptable environmental effects. It also demonstrates that the proposed scheme brings about a number of substantial community benefits, including:

- remediation of historic mining dereliction associated with the treatment of mining shafts and adits which will improve public amenity and create safe conditions for public access to extensive areas of land;
- restoration of land to open mountain grassland, interspersed with woodland belts and a substantial package of new paths as a public amenity;
- improvement in the second worst mine water discharge in Wales which is unlikely to be rectified with public funds in the absence of the scheme;
- improvement in the run off of siltation to the lake in Darran Valley Country Park;
- improvement of visibility along the southern approach to the junction of Bogey Road and Fochriw Road to improve highway safety;
- remediation and/or removal of waste from the MIS landfill;
- a superior restoration of an area previously subjected to former and somewhat pioneering 'opencast' mining;
- the creation of areas of nature conservation (and geo diversity conservation) as part of the restoration scheme, together with substantial off site biodiversity benefits at the Bryn Careau area; and
- demonstrable employment and economic benefits associated with direct and indirect employment and the overall contribution to the local economy.

In a wider context the accompanying Planning Statement concludes that the development can proceed in terms of the requirements of national and local planning policies for the area.



Contact Us

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These details will put you in touch with PPS Group which coordinates our Nant Llesg public consultation activity.