

Second Addendum to  
Environmental  
Statement

# Nant Llesg Surface Mine

Incorporating Land Remediation





## **Second Addendum to Environmental Statement**

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# Nant Llesg Surface Mine

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## Chapter 1

### Introduction



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# **Nant Llesg Surface Mine**

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**Second Addendum to the Environment Statement**

**Chapter 1 - Introduction**

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# 1 Introduction

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- 1.1 Miller Argent (South Wales) Limited ("Miller Argent") of Cwmbargoed Disposal Point, Fochriw Road, Cwmbargoed, Merthyr Tydfil CF48 4AE, applied for planning permission on 10th October 2013 to develop the 'Nant Llesg Surface Mine, Incorporating Land Remediation' ("the Nant Llesg scheme") on approximately 478 ha of land west of Rhymney in the County Borough of Caerphilly. The application was accompanied by an Environmental Statement.
- 1.2 An Addendum to the Environmental Statement and Errata were submitted to the Planning Authority on 9th January 2014.
- 1.3 This is the Second Addendum to the Environmental Statement and is submitted under the Town & Country Planning (Environmental Assessment) (England and Wales) Regulations 1999, as amended in Wales ("the EIA Regulations"). It accompanies an Addendum to the Planning Statement and a Second Errata, all of which are to be read in conjunction with the planning application, environmental statement and related documentation previously submitted on 10<sup>th</sup> October 2013 and 9<sup>th</sup> January 2014.
- 1.4 The Nant Llesg scheme is 'Schedule 1 Development' under the EIA Regulations, being opencast mining [surface coal mining] where the surface area of the site exceeds 25 hectares.
- 1.5 The Mineral Planning Authority was formally requested to adopt a scoping opinion under Regulation 10 of the EIA Regulations on 6<sup>th</sup> June 2011. In accordance with the provisions of Section 12 of the EIA Regulations, the Authority was simultaneously and formally informed that an Environmental Statement was being submitted with the planning application. A scoping opinion was subsequently adopted by the mineral planning authority on 26<sup>th</sup> August 2011.
- 1.6 Environmental assessment being an iterative process, a revised scheme was submitted along with a corresponding Scoping Report on 31<sup>st</sup> December 2011, together with a request for the mineral planning authority to review its scoping opinion. A revised scoping opinion was adopted on 9<sup>th</sup> March 2012.
- 1.7 Following further pre-planning and community consultations and on-going environmental assessment, substantial revisions were made to the proposed development and the mineral planning authority were requested to once again consider their scoping opinion in light of the changes and advise whether any significant environmental effects could be identified that were not included in their previous scoping opinion. On 23<sup>rd</sup> August 2012 the Mineral Planning Authority confirmed that it did not foresee any new issue being raised by the amendments.
- 1.8 There has been no further review of the scoping opinion to date. This Second Addendum to the Environmental Statement has been prepared to assess certain minor changes to the proposal, additional information provided for clarification and additional mitigation and compensation proposed in response to post-applications representations by the Mineral Planning Authority, statutory and non-statutory consultees, other bodies, other organisations and individuals.
- 1.9 The post-application representations are addressed in detail in the accompanying Addendum to the Planning Statement. The Appendices to this Second Addendum of the ES are also referred to in the Addendum Planning Statement. For that reason the Appendices are labelled as Appendices to the Planning Statement and the Second Addendum Environmental

Statement. However, for clarity, such Appendices form a part of the Second Addendum Environmental Statement.

## Health Impact Assessment

- 1.10 Although not a requirement of the EIA Regulations, a Health Impact Assessment (HIA) was submitted with the planning application and the key findings of the HIA were summarised in the 'Health and Well-being' chapter of the ES. The HIA included a Health Action Plan summarising committed mitigation, monitoring and community support initiatives to support local communities and the uptake of potential health benefits.

## Sustainability and Climate Change

- 1.11 Although not a requirement of the EIA Regulations, a Sustainability and Climate Change chapter was included in the Environmental Statement submitted with the planning application. This, together with an appended Sustainability and Carbon Statement, addressed the requirement in MTAN2 for applications for coal working to demonstrate actions to reduce carbon emissions from the extraction and transportation of coal. It also addressed the request in the scoping opinion for such information to be provided.

## Publication

- 1.12 Submission of the Applicant's composite response to the Planning Authority as an Addendum to the Planning Statement, together with this Second Addendum to the Environmental Statement and Second Errata, have been publicised by the Applicant under the provisions of the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 and the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, as amended in Wales. Publications have been placed in the Western Mail, Rhymney Express and Merthyr Express to coincide with their submission to the local planning authority. These publications by the Applicant are separate to those to be subsequently made by Caerphilly County Borough Council on receipt of the addenda.

**Nant Llesg  
Surface Mine**  
Incorporating Land Remediation

**Chapter 2**  
Applicant's Response  
to Post-Application  
Representations



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# **Nant Llesg Surface Mine**

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**Second Addendum to the Environment Statement**

**Chapter 2 – Applicant’s Response to Post-Application  
Representations**

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## 2 Applicant's Response to Post-Application Representations

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- 2.1 In response to the statutory and non-statutory post-application consultations carried out by Caerphilly County Borough Council ("the Planning Authority"), a large number of representations have been submitted to the Planning Authority. These have been copied to the Applicant upon request.
- 2.2 At the time of preparing this response, the Planning Authority's consideration of the application is on-going. As part of the determination process, the Planning Authority has raised certain queries and requests for additional information from the Applicant to clarify the proposal. Other representations have been submitted to the Planning Authority by statutory and non-statutory consultees, other bodies, other organisations and individuals.
- 2.3 The Applicant's Response to post-application representations are set out in the accompanying Addendum to the Planning Statement, which should be read in conjunction with its appendices, attached drawings, First and Second Errata, and the First and this Second Addenda to the Environmental Statement.
- 2.4 Where post-application representations relate to the findings of the HIA, the Sustainability and Climate Change Chapter of the ES, or the Sustainability and Carbon Statement, they are also addressed in the accompanying Addendum to the Planning Statement and, where appropriate, referred to in the 'Health and Well-being' and the 'Sustainability and Climate Change' sections of this addendum.
- 2.5 Should subsequent queries and/or representations arise, they will be responded to separately, if required by the Mineral Planning Authority.



# Nant Llesg Surface Mine

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## Chapter 3

### Consultant Experts Acting for the Applicant



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# **Nant Llesg Surface Mine**

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**Second Addendum to the Environment Statement**

**Chapter 3 – Consultant Experts Acting for the Applicant**

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### 3 Consultant Experts Acting for the Applicant

3.1 The response on behalf of the Applicant incorporates input from its consultant experts. Where appropriate, responses on the topics listed in the following Table ESA3.1 have been largely prepared by, or incorporate input and advice from, the expert consultant indicated:

**Table ESA3.1 List of Consultant Experts**

Topic	Consultant	Address
Socio Economics	Russell Porter	Peter Brett Associates LLP 10 Queen Square Bristol BS1 4NT
	Tom Dearing	RPS 6-7 Lovers Walk Brighton East Sussex BN1 6AH
	Gavin C. Wright	GW Regulatory Affairs Services Limited
	Adam M. Slater	Quality Options Limited
Recreation and Tourism	Eunice Stephenson	RPS 20 Western Avenue Milton Park Abington Oxfordshire OX14 4SH
Traffic and Transport	Paul Goodenough	Mott MacDonald Group Integrated Transport Division Fitzalan House Fitzalan Road Cardiff CF24 0EL
Ecology and Nature Conservation	Dr Keith Jones	RPS 20 Western Avenue Milton Park Abington Oxfordshire OX14 4SH

Topic	Consultant	Address
Agricultural Land Use and Soils	Julia Tindale	RPS 20 Western Avenue Milton Park Abington Oxfordshire OX14 4SH
Hydrogeology	Dr Shaun Salmon	AMEC Environment & Infrastructure UK Ltd Partnership House Regents Farm Road Gosforth Newcastle Upon Tyne NE3 3AF
Hydrology and Drainage	Dr Richard Breakspear	AMEC Environment & Infrastructure UK Ltd 155 Aztec West Park Avenue Almondsbury Bristol BS32 4UB
Air Quality and Dust	Dr Claire Holman	Brook Cottage Consultants Brook Cottage Elberton Bristol BS35 4AQ
Noise	Colin English	Sustainable Acoustics 5 Charlecote Mews Staple Gardens Winchester Hampshire SO23 8SR
Blasting and Vibration	Bill Birch	Blastlog Ltd Upton House Market Street Charlbury Oxford OX7 3PJ
Cultural Heritage	Richard Hughes	IHCM, 45 Crescent Lane London SW4 9PT
Landscape and Visual Impact	Mary O'Connor	White Young Green 5th Floor Longcross Court 47 Newport Road Cardiff CF24 0AD

Topic	Consultant	Address
Waste	Andrew Lawrance	Mott MacDonald Group Prince House 43-51 Prince Street Bristol BS1 4PS
Health Impact Assessment	Dr Andrew Buroni	RPS 6-7 Lovers Walk Brighton East Sussex BN1 6AH
Sustainability and Carbon	Charlotte Brewin	RPS 20 Western Avenue Milton Park Abington Oxfordshire OX14 4SH
Need Case	John Rhodes	QUOD QUOD Ingeni Building 17 Broadwick Street London W1F 0AX
Planning Policy	Graham Jenkins	SLR Consulting Fulmar House Beignon Close Ocean Way Cardiff CF24 5PB



# Nant Llesg Surface Mine

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## Chapter 4

Proposed changes,  
mitigation, compensation  
and additional  
information for  
clarification of the  
Nant Llesg scheme





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# **Nant Llesg Surface Mine**

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**Second Addendum to the Environment Statement**

**Chapter 4 – Changes and Mitigation**

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## 4 Proposed changes, mitigation, compensation and additional information for clarification of the Nant Llesg scheme

- 4.1 The accompanying Addendum to the Planning Statement (“the PS Addendum”) deals with the issues raised in certain post-application representations received by the planning authority. The representations are numbered in the order they were received by the Applicant from the planning authority, as explained in the PS Addendum.
- 4.2 Where the Applicant’s response to a representation involves a change to the Nant Llesg proposal; further mitigation or compensation for the effects of the proposal; or additional information for clarification of the proposal, the assessment set out in the Environmental Statement (ES) submitted with the planning application has been revisited and the findings set out in this Second Addendum to the Environmental Statement (“the ES Addendum”).
- 4.3 The findings in this ES Addendum should therefore be read in conjunction with the accompanying PS Addendum. To facilitate this, the applicant makes appropriate reference in this addendum to relevant chapters of the PS Addendum and to the numbered representations. A list of bodies, organisations and individuals who submitted post-application representations to the mineral planning authority is set out at Chapter 4 of the PS Addendum. This list identifies the relevant ‘Representation Number’.
- 4.4 The following Table ESA4.1 to Table ESA4.3 set out the changes to the Nant Llesg proposal; further mitigation or compensation for the effects of the proposal; and additional information for clarification of the proposal, as set out in the accompanying PS Addendum, the likely significant environmental effects of which are considered in this Second Addendum to the Environmental Statement.
- 4.5 The changes to the proposal listed in Table ESA4.1 are of a relatively minor nature and the overall design of the scheme remains unchanged.
- 4.6 Where individual chapters of this Second Addendum to the Environmental Statement make no reference to a matter set out in Table ESA4.1 to Table ESA4.3 it should be assumed that there is no change to the assessment in the ES and the ES Addendum

**Table ESA4.1 Changes to the Nant Llesg proposal**

Changes to the Proposal
Proposed Method Statement (Draft) for Great Crested Newt Licence Application, incorporating additional receptor ponds and revision of their locations on site.
Further proposals for reptile receptor sites.
Further consideration of the availability of ponds on site for Odonata.

Changes to the Proposal
Detailed proposals for peat handling, storage, water supply and monitoring and restoration with examples of other sites.
Revision of proposed areas for restoration habitats and the production of a Habitats Restoration Strategy Drawing to supplement the existing Restoration Strategy Drawing.
Proposed changes to the noise fence at Halfway House and the provision of a new noise screening bund on north west corner of the working area.
Introduction of potential for coal exports to Europe and implications for the claimed lower carbon footprint of delivering Nant Llesg coal when compared to imported coal.
Given the passage of time since the planning application was submitted on 10 <sup>th</sup> October 2013, the anticipated start date for the Nant Llesg Scheme has changed from 2014 to 2016.

**Table ESA4.2 Further Mitigation/Compensation**

Proposed Further Mitigation or Compensation
Review of the mitigation and compensation proposals for the impact of the Nant Llesg scheme on the biodiversity of the area, including the provision of a 'Wet Heath National Vegetation Classification and Condition Assessment' and a 'Biodiversity Offsetting Report', additional ponds forming part of the restoration proposals and offsetting or compensation by way of funding for the Pumlumon Project in Mid-Wales or the offer of an equivalent sum to CCBC for local deliverable nature conservation or biodiversity enhancement within the county borough.
Introduction of further noise modelling demonstrating the mitigating effect of building the outer face of the overburden mound first to act as a screening bund during construction of each level of the overburden mound. This was not previously built into the original noise modelling, which only considered the worst case scenario when all plant on the overburden mound would be unscreened.

**Table ESA4.3 Additional Information for Clarification**

<b>Additional Information Provided for Clarification of Proposal</b>
Consideration of Bute Town as a Tourist Resource and further consideration of both direct and indirect effects on tourist resources outside the site, incorporating consideration of the effects on air quality and dust, noise, cultural heritage, and landscape and visual impact.
Capacity considerations of the Bogey Road/Fochriw Road junction with further modelling of hypothetical traffic levels using PICADY software to demonstrate the theoretical capacity of the junction and the ability of the junction to accommodate any bunching of coal delivery traffic.
Clarification of areas of vegetation and habitat disturbance.
Location of Terrestrial Invertebrate 'hotspots' and trapping points referred to in survey data with provision of revised Appendix 1 to Terrestrial Invertebrate Report.
Consideration of effects on SACS, SPA and Ramsar sites with provision of a Habitats Regulations Assessment Report as additional information to assist the County Borough Council in preparing a Habitats Regulations Assessment.
Revision of data for migrant waders and other waterfowl with desk study providing additional ornithological data.
Provision of Cliff Bat Survey Report (2014) and clarification that there are no open old mine shafts and adits on the Nant Llesg site.
Provision of Auger Boring Data and Von Post Data used for the ES soils analysis.
Clarification of depth of clay beneath peaty topsoils.
Assessment of potential carbon loss associated with peat handling.
Information about source, quantity and storage of Soil Forming Materials with confirmation of commitment by the Applicant to recover sufficient quantity of such materials to secure restoration of the site.
Review and clarification of soil resources for Land Use Units A and B.
Clarification of soil type and resource in Soil Unit 2.
Clarification of quality and suitability of materials for building peat storage cells.
Submission of revised drawing showing corrected detail of drainage channels associated with proposed drainage works north of Fochriw to address the silting of Cwm Darran Park Lake.

### Additional Information Provided for Clarification of Proposal

Provision of Water Framework Directive Assessment, extending the baseline environment dataset by presenting additional information on Water Framework Directive aspects of the surface and groundwater bodies at the site.

Further modelling and assessment of predicted dust deposition at residential receptor sites using a hypothetical lower mitigation factor as requested by Caerphilly County Borough Council.

Correction of average dust deposition data in ES.

Consideration of new guidance on assessment of construction impacts published since the ES was prepared.

Clarification of current dust events above 80mg/m<sup>2</sup>/day dust deposition at Heads of the Valleys Industrial Estate.

Consideration of potential dust impacts along mineral railway to the south of Cwmbargoed Disposal Point.

Consideration of train pass-by noise levels to the south of Cwmbargoed Disposal Point.

Consideration of the possible deflection of noise towards Fochriw by the Nant Llesg overburden mounds.

Provision of contemporaneous notes of noise surveys and train pass-by surveys along the Mineral Railway Line south of Cwmbargoed Disposal Point with plans showing survey locations.

Information on manufacturer's further research on plant noise to justify sound power levels used in the ES Noise Assessment.

Provision of the rendered images used to compile photomontages from Viewpoints 1A, 2, 3A, 3B and 23 as part of the ES Landscape and Visual Impact Assessment.

Provision of Cross Sections through overburden mound from Viewpoints 1A, 2, 3A, 3B and 23 of the ES Landscape and Visual Impact Assessment.

Provision of enhanced Disposition Drawings 1 to 5 showing additional ground contour information both within and outside the site. The site layout, plant list and all other information on the dispositions remaining the same.

Provision of sight lines through overburden mound during construction from highest and lowest points in Rhymney and Fochriw.



### Additional Information Provided for Clarification of Proposal

Provision of drawing showing lighting lux level contour plots for lighting columns to be used on site with further consideration of potential night-time lighting effects on surrounding residential properties.

Further information and assessment relating to the effect of the Nant Llesg scheme on designated landscapes.

Further consideration of the artificial lighting to be used at Cwmbargoed Disposal Point.

Consideration of cumulative landscape and visual effects relating to the proposed 'Circuit of Wales' motorsport complex in the neighbouring county borough of Blaenau Gwent and dualling of the Heads of the Valleys Road.

Clarification on the Health Impact Assessment and its compliance with Wales Health Impact assessment guidance.

Provision of further information about water usage on-site for dust suppression, coal preparation peat storage and other needs and the availability of water resources for such uses, particularly during a dry year.

Review of WERU report and provision of further information about Richards and Appleby's operations.

- 4.7 The above changes and considerations represent a further stage in the iterative site design that results from the Applicant's willingness to respond to extensive pre and post-planning consultation as an integral part of the design process.
- 4.8 All other aspects of the development proposals, as set out in the planning application and assessed in the Environmental Statement remain unchanged.



# Nant Llesg Surface Mine

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## Chapter 5

### Social Impact Assessment



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# **Nant Llesg Surface Mine**

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**Second Addendum to the Environment Statement**

**Chapter 5 – Social Impact**

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## 5 Social Impact

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### Chapter Summary

- 5.1 This ES Addendum chapter provides additional information with respect to Social Impact Assessment that forms part of the ES. Post-application representations to CCBC that relate to Social Impact have been specifically addressed in the Addendum to the Planning Statement. The purpose of this chapter is to consider any effect on the Social Impact Assessment in the ES of changes to the proposal or additional mitigation, compensation or information arising out of the Applicant's Response to post-application representations, as set out on the Addendum to the Planning Statement.
- 5.2 Having considered the effect on the assessment made in the ES, no material change to the social impact assessment findings and conclusions are considered to be necessary.

### Introduction

- 5.3 This ES Addendum chapter provides additional information with respect to the Social Impact Assessment that forms part of the ES. Post-application representations received with respect to Social Impact have been addressed in the Addendum to the Planning Statement.
- 5.4 The purpose of this chapter is to consider any effect on the Social Impact Assessment in the ES of changes to the proposal or additional mitigation, compensation and to consider information arising out of the Applicant's Response to post-application representations, as set out on the Addendum to the Planning Statement.
- 5.5 This chapter specifically considers the impact of representations by –
- the Welsh Economy Research Unit (WERU) (which is referred to by a number of objectors);
  - Richards & Appleby Objection (which is also referred to by a number of objectors);
  - Green Valleys Alliance Objection;

and the expert opinion by Wright and Slater obtained on behalf of Miller Argent.

### Methodology

- 5.6 ES Chapter 5, paragraphs 5.16 to 5.27 explain the background to the methodology used in the assessment: the assessment was carried out under the HM Treasury's 'Green book' and Welsh Government (2009) 'Minerals Technical Advice Note 2' (MTAN 2).
- 5.7 The guidance and policy advice used to inform the Social Impact Assessment has not changed since publication of the ES. No change has been accordingly made to the methodology outlined in the ES, nor to the significance criteria presented in the ES.

## Baseline Environment

- 5.8 There has been no material change to the baseline environment with respect to the Social Impact Assessment outlined in paragraphs 5.46 to 5.79 of the ES, which provided the latest data available at the time that the ES was being prepared
- 5.9 A report entitled "The State of the Coalfields" was completed in July 2014 by the Centre for Regional Economic and Social Research at Sheffield Hallam University (Appendix MA/NL/PA/A05/005). The study investigated how the high profile contraction of the British coal industry throughout the 1980s has impacted on the current state of the coalfields. It presents statistics on a sample of 16 coalfields the across Great Britain, which includes South Wales, and analyses wards that have been mapped to the sample of coalfields to find that thirty years on from the miner's strike, the legacy of this decline in this industry is still very evident across a number of social and economic determinants. An important finding was that the decline in the South Wales coalfield is greater across a number of social and economic factors than the sample average.
- 5.10 In terms of health, the share of the residents in the South Wales coalfield area reporting bad or very bad general health and the proportion of the total population claiming Disability Living Allowance (DLA) was the highest of the 16 coalfields in the sample. The study also finds that job density, measured as the number of jobs per 100 residents of working age, is lower in the South Wales coalfield area than both the coalfield sample and Great Britain averages. The South Wales coalfield demonstrated notably higher out-of-work benefit claimant rates than for the coalfield sample average, with 1 in 6 of adults collecting out of work benefits.
- 5.11 The Sheffield Hallam report ranked the South Wales coalfields as the most deprived of all the coalfields in their sample across a range of social and economic determinants. This conclusion is consistent with and supports the description of the baseline situation in the ES.

## Impact Assessment

### Overview

- 5.12 The ES set out that the Nant Llesg scheme is estimated to support between 173 and 249 net additional local jobs based on on-site surface mining operations and land remediation, supplier spending created by the operation and spending by the on-site workers. 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 to local prosperity.
- 5.13 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 the majority of these jobs are expected to be filled from residents already living locally.
- 5.14 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 will have a negative visual impact on their location, the neighbouring Ffos-y-fran Land Reclamation Scheme site 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.

- 5.15 Overall, the economic impacts associated with job creation were assessed in the ES as having a major magnitude in an area with moderate sensitivity, equating to a beneficial impact of major significance. For the local training/re-training impacts, these were assessed as having a minor to moderate sensitivity (local level impact) and major magnitude, giving a moderate beneficial impact.

## Review of Assessment in the Environmental Statement

### Further Information Put forward by Objectors to the Proposal

- 5.16 A submission by the Welsh Economy Research Unit (WERU) (Cardiff University) forms part of representations made by the Green Valleys Alliance and Richards & Appleby, and are also referred to by other objectors. The submission sought to challenge the Social Impact assessment findings and conclusions. Peter Brett Associates (PBA) and RPS have commented on the WERU report and the objections by the Green Valleys Alliance and Richards & Appleby and others on behalf of Miller Argent and their responses can be found at Appendix MA/NL/PA/A05/002 - 'PBA Comments on WERU Study - April 2014' and Appendix MA/NL/PA/A05/003 "RPS Critique of Welsh Economy Research Unit Study and Green Valley Alliance Objections" These documents were submitted to the planning authority on 17th April 2014 and are summarised below.
- 5.17 The Welsh Economy Research Unit (WERU) study pre-dates the planning application for the Nant Llesg scheme and fails to properly consider the full scheme, its benefits and its proposed mitigations and enhancements aimed at the local area.
- 5.18 The PBA and RPS reports agree with the WERU study commentary that the Heads of the Valleys (HoV) has suffered a legacy of employment decline, out migration of young working residents and high deprivation. However, the WERU study fails to reflect that such trends and current conditions are symptomatic of the long term national declines in the manufacturing sector and also the recent national downturn in the economy more generally.
- 5.19 PBA and RPS therefore disagree with the WERU study inference that mining activity at the Ffos-y-fran Land Reclamation Scheme (FLRS) is causing and that mining activity at Nant Llesg would cause an overall detriment to the HoV area. Importantly, the information on recent local area economic performance in the WERU report, when compared with other parts of the HoV, presents a relatively healthier performance in the local economy in recent years and this has largely arisen during the time FLRS has been operating. This trend casts doubt on WERU's assertion that the Nant Llesg scheme would have an overall detrimental effect on the local economy and suggests that the conclusions in the ES are more likely.
- 5.20 Furthermore, the Sheffield Hallam referred to above runs contrary to WERU's inference that present-day surface mining activity causes overall detriment to the HoV area. The Sheffield Hallam research suggests that such problems are the legacy of disinvestment in the coalfields nationally.
- 5.21 Both the PBA and RPS reports concur with WERU's deductions and recommendations about the need for jobs. Given the long term decline of the HoV economy, it is logical that any job should be valued. Yet, WERU ignore the impacts of Miller Argent's investments which are likely to have positive influences on the vibrancy in the area by creating new jobs, expanding supply chain links, supporting more skills development and more local spending. This probably reflects WERU's omission of Miller Argent in their consultation with major employers

- in the local area, and its failure to consider how well the Nant Llesg proposal fits in with their conclusions about the need for better paid jobs. The Nant Llesg scheme is likely to contribute to providing more of these better paid jobs.
- 5.22 The WERU study appears to consider the views presented by a few local businesses opposing the operational FLRS and proposed Nant Llesg schemes and appears to draw its findings and conclusions from opinion. It does not properly evidence the perception it presents.
- 5.23 The example of the Shotton Appeal does provide evidence which counters that reported by WERU. The similar proposal for a surface mine at Shotton, Northumberland was objected to by five local businesses and refused by the local planning authority, partly because of negative perceptions associated with surface mining jeopardising those businesses and their role in a nearby settlement. The Shotton Appeal was successful and later evidence showed that after operating for some two years, there were no significant complaints from nearby land users, including none from the original five opposing companies. Evidence also showed that there had been no negative impact on the development or prices of housing or employment land.
- 5.24 The WERU research provides no indication of being objectively assessed or of using tangible evidence. The quality of evidence and research presented in the WERU study must be queried before attaching any weight to its findings in considering the Nant Llesg proposal.
- 5.25 Further to the WERU report, there are numerous points made in the Richard & Appleby objection that are based on statements made without any evidential support. The suggestion made by Richard & Appleby that they would relocate outside the HoV if the Nant Llesg proposal is successful, assumes that the whole of the HoV would be affected, and affected significantly enough that the company would relocate outside it despite alternative sites within it. Aligned to this, is the objector's concern for the health and well-being of its workers, when they have stated that they would move outside of the HoV. The statement might suggest that the objector is over-reacting. This would also apply to the objector's suggestion that their outsourced jobs in Italy would be brought back if the Nant Llesg scheme is refused. It is unclear what the rationale for this move would be, and no evidence to evaluate this position is provided.
- 5.26 References to the WERU assessment are presented to support the Richard & Appleby objection, and they are one of the main sponsors of the WERU study. As already commented on above, the WERU reports conclusions appear to be based on speaking with objectors about their concerns without any tangible evidence to support the assertions. Without this evidence, it is very hard to substantiate or evaluate such statements. However, as mentioned above, both the experience with FLRS and the Shotton Appeal does present evidence which counters these assertions and which suggests that the conclusions in the ES are robust.
- 5.27 Richards and Appleby do not limit their objection to their own premises, and they repeat the contentions of the WERU report. Those contentions are again largely dealt with in the critique of the WERU report by PBA and RPS.
- 5.28 The objection from the Green Valleys Alliance (GVA), which includes Richard & Appleby, reflects largely the same points put forward separately by Richard & Appleby and WERU. Again, this objection regarding economic impacts lacks any tangible evidence other than conjecture to back up its statements. We therefore do not repeat our objection to them here.

- 5.29 Richards & Appleby suggest that their business, which they say employs 124 people at their Heads of the Valley's Industrial Estate site, with up to a further 12 agency staff on a fluctuating, seasonal basis and plans to take on the agency staff and increase the number of permanent employees to 140, is even more sensitive to dust than local residents. They believe that their clients will seek alternative suppliers in the event that Nant Llesg proceeds and that it would be cheaper for them to relocate than to make the improvements required to bring their facility up to supplier standards. They suggest that a move to a less polluting atmosphere would be the result of Nant Llesg proceeding and that the proposal will jeopardise the retention of existing jobs in the area and curtail further inward investment. They conclude that the number of employment opportunities created by Nant Llesg will be unlikely to make up for jobs lost from existing businesses.
- 5.30 Richards and Appleby make a number of suggestions about the impact of Nant Llesg on their own business. To put the position of Richards & Appleby as a cosmetic business into context, an expert opinion by Wright and Slater on behalf of Miller Argent has been provided (found at Appendix MA/NL/PA/A05/004) and this concludes:
- "The dust modelling carried out by Miller Argent has demonstrated that the mine will be compliant with all local and national environmental legislation and standards. Any cosmetic manufacturing operation operating to Good Manufacturing Practice (GMP) does not require more stringent air quality standards.*
- There is a requirement to carry out changes to the Richards and Appleby manufacturing facility in order for it to comply with the GMP principles as required by EC 1223/2009 and ISO 22716:2007. This would be required regardless of whether the proposed surface mine proceeds.*
- On this basis it is our professional expert opinion that with the necessary controls which should already be in place there is negligible risk to the Richards and Appleby cosmetic factory due to dust from the Nant Llesg Surface Mine. Richards and Appleby should not be concerned about product contamination (due to airborne dust) if they are GMP compliant, which they are obliged to be regardless of whether or not Nant Llesg proceeds.*
- We in our professional judgement see no real reason why, in respect of the impact of dust on a cosmetics manufacturing process, permission should not be granted to Miller Argent to operate the Nant Llesg surface mine and there is no real reason (related to the operation of the Nant Llesg Surface Mine) as to why Richards and Appleby need to move their business elsewhere."*
- 5.31 The Wright and Slater report comments that the EC controls for cosmetic producers are becoming more stringent and manufacturers must have a mind-set for "continuous improvement". This includes inward investment and upgrade to factory facilities including maintaining and replacing surfaces, replacing and maintaining equipment and facilities. This tightening of the controls and standards is expected to increase over time. These greater expectations of a modern cosmetic manufacturer to achieve may prove challenging and too difficult to attain by older manufacturing facilities without a firm commitment to an upgrade to existing facilities. However, it would be wrong to attribute the need for such upgrade on the Nant Llesg proposal.
- 5.32 The Wright & Slater expert opinion report is a material consideration when answering the 'what if' question - deadweight assessment - in the economic impact assessment which was undertaken as part of the social impact chapter of the Environmental Statement. That is, would the loss of Richards & Appleby from the Heads of the Valley's area be a likely

significant consequence of the Nant Llesg scheme's impact on the Richards & Appleby operation?

- 5.33 The expert opinion of Wright & Slater suggests that the opening of the Nant Llesg scheme would not impact on the Richards & Appleby business operation if they were working to GMP principles, as required by EC 1223/2009 and ISO 22716:2007. If they do not currently comply with GMP then that will need to be addressed regardless of the Nant Llesg proposal. On the basis of the statements made by Richards and Appleby, and the joint expert opinion expressed by Wright & Slater, it is reasonable to assume that unless there is investment in the factory, even without the Nant Llesg scheme going ahead, there is a risk of the Richards & Appleby operation either closing or relocating.
- 5.34 On the basis that there is no net difference between the position of the Richards & Appleby operation with Nant Llesg going ahead or not going ahead, there is no change to the social impact assessment conclusions in the Environmental Statement and no further assessment has been necessary. As such, we would confirm our conclusion in the ES, which is that the Nant Llesg scheme has potential to support between 173 and 249 net additional local jobs in the HoV area.

#### Changes to the Proposal

- 5.35 Nothing has changed within the proposal or its mitigations and compensations that would result in any change with respect to the anticipated social impacts documented in the ES. This includes the passage of time since the application was submitted and the likelihood now that the development would not commence before 2016. In spite of this shift in the starting time, no material change to the social impact assessment findings and conclusions are necessary because this impact assessment has not relied on any specific years in any way.

#### Additional Information or Clarification

- 5.36 An erratum is being produced and submitted which lists a number of corrections to the Social Impact chapter of the ES. However these corrections do not, and need not, reflect any other changes to the Application since the ES was submitted.

### **Conclusions**

- 5.37 No change has been made to the Application, its mitigation and compensation and further information has been provided through representations made on the Application, which will impact on the findings and conclusion of the Social Impact assessment contained the ES.

Overall, the economic impacts associated with job creation remain as being of major magnitude in an area with moderate sensitivity, equating to a beneficial impact of major significance. For local training/re-training impacts, these remain as being of minor to moderate sensitivity (local level impact) and major magnitude, giving a moderate beneficial impact.

# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 6

### Recreation and Tourism





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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 6 – Recreation and Tourism**

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## 6 Recreation and Tourism

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### Chapter Summary

- 6.1 This ES Addendum chapter provides additional information with respect to the Recreation and Tourism Assessment which forms part of the ES. Post-application representations to CCBC that relate to Recreation and Tourism have been specifically addressed in the Addendum to the Planning Statement. These include the potential for indirect effects on tourism resources outside the Nant Llesg site.
- 6.2 The purpose of this chapter is to provide clarification of these potential indirect environmental effects, taking into account the environmental assessments provided in Chapters 16 (Landscape and Visual), Chapter 12 (Air Quality and Dust) and Chapter 13 (Noise) of the ES and subsequent addenda on these topics.
- 6.3 The majority of the Brecon Beacons National Park is over 5km from the site boundary where visual effects would be, at most, Minor and there would be no greater than Moderate visual effects at Parc Bryn Bach. Bute Town is the closest tourist resource to the site and it is not anticipated that the visual amenity of the village itself would be greatly affected, as views towards the Nant Llesg site are restricted by buildings and vegetation. The enhancement of field boundaries and the establishment of new woodland planting in the north of the site would provide a long term benefit to the setting of Bute Town.
- 6.4 Neither the Brecon Beacons National Park nor Parc Bryn Bach will experience any significant air quality or dust deposition impacts due to their distance from any Nant Llesg emission sources. Bute Town is closer to the proposed mine and is predicted to experience a negligible impact with respect to air quality but a minor adverse impact on dust deposition. None of these resources are expected to experience noise impacts, other than negligible or minor impacts, as a result of the Nant Llesg scheme. Taking the above assessments into account it is not anticipated that effects on the amenity or relative pleasantness of tourist resources outside the site would be such that there would be a significant indirect effect on visitor numbers.
- 6.5 There are no changes to the assessments set out in the Recreation and Tourism chapter of the Nant Llesg ES (Chapter 6), including the assessment of direct effects (i.e. physical impacts) on tourist resources outside the site.

### Introduction

- 6.6 This ES Addendum chapter considers the additional information provided at paragraphs 6.8 – 6.13 of Chapter 6 of the accompanying Addendum to the Planning Statement with respect to the post-application Representation 16 by the Rhymney Area Residents Group (RARG). This additional information relates to the potential for indirect effects on tourist resources outside the Nant Llesg site by reference to the Landscape and Visual; Air Quality and Noise assessments undertaken for the scheme.
- 6.7 RARG make the comment that “If this open cast development is allowed to take place the beautiful setting of this village [Bute Town] could be completely destroyed”.

- 6.8 Bute Town is acknowledged as a tourist resource outside the site in Chapter 6 'Recreation and Tourism' of the Nant Llesg ES, at paragraphs 6.79 to 6.80 inclusive. The chapter also states at paragraph 6.176 that no tourist resources are located within the Nant Llesg site (although it acknowledges the well-known landmark known as the Bent Iron) and that there would be no direct effects (i.e. physical impacts) on resources outside the site. This includes resources such as the Brecon Beacons National Park, Bute Town, Parc Bryn Bach and Parc Cwm Darran. The direct environmental effects on recreation and tourism resources outside the site have been assessed as Negligible (Chapter 6, paragraphs 6.176 – 6.178 and 6.206 of the Nant Llesg ES). There is no change to this assessment.
- 6.9 The potential for indirect effects on Bute Town and other resources outside the operational area are considered further below.

## Methodology

- 6.10 No changes have been made to the methodology outlined in paragraphs 6.9 to 6.11 of the ES, or to the significance criteria presented in Tables 6.2, 6.3 and 6.4 of the ES.

## Baseline Environment

- 6.11 There have been no material changes to the baseline environment with respect to Recreation and Tourism as outlined in paragraphs 6.38 to 6.103 of the ES.

## Impact Assessment

### Additional Information or Clarification

- 6.12 The Recreation and Tourism chapter of the Nant Llesg ES (Chapter 6) states at paragraph 6.176 that no tourist resources are located within the Nant Llesg site (although it acknowledges the well-known landmark known as the Bent Iron) and that there would be no direct effects (i.e. physical impacts) on resources outside the site. This includes resources such as the Brecon Beacons National Park, Bute Town, Parc Bryn Bach and Parc Cwm Darran.
- 6.13 Indirect impacts on these receptors relate to changes to their amenity or relative pleasantness during the operational phase of the Nant Llesg scheme. In the Recreation and Tourism ES chapter it states at paragraph 6.8 that *"Information in relation to the potential effects on the amenity, or relative pleasantness, of recreational and tourist resources or sensitive receptors within local communities are set out in Chapters 16 (Landscape and Visual), Chapter 12 (Air Quality and Dust) and Chapter 13 (Noise), where appropriate"*.
- 6.14 Chapter 16 of the ES includes a description of viewpoint locations selected for visual assessment purposes and agreed with Caerphilly County Borough Council (CCBC). These include viewpoints within Rhymney (viewpoints 2 and 3); on the public bridleway at Mynydd Fochriw (viewpoint 10); on National Cycle Route 46 at Parc Bryn Bach (viewpoint 12); at Bute Town Pond/National Cycle Route 46 (NCR 46) (viewpoint 13) and at Twynau Gwynion on the southern edge of the Brecon Beacons National Park (viewpoint 18). The visual effects of the proposed scheme were assessed by reference to the identified viewpoints, including those listed above (see paragraph 16.189 of Chapter 16).

- 6.15 Chapter 16 states that for users of “access land on the more distant uplands of the Brecon Beacons National Park to the north, the visual effects would be reduced by distance from the site and the greater elevation, which affords wide ranging panoramic views, in which the site and the features of the development would be relatively small elements” (paragraph 16.199) with “at most, Minor adverse visual effect for viewers in the national park” (paragraph 16.271).
- 6.16 For users of public open spaces and local recreational facilities, Chapter 16 states that “The assessment identified no more than Moderate, adverse medium term, visual effects during the phases of greatest changes, for the Parc Bryn Bach Country Park and users of the ridges of Mynydd Fochriw and Mynydd Cilfach yr Encil for paragliding. For local amenity open spaces and golf courses, the effects assessed in the phases of greatest change were Minor to Moderate, adverse” (paragraph 16.205).
- 6.17 This ES chapter states that for users of promoted cycle routes near the site (including NCR 46), the “features of the development would have varying visual effects: from None to Moderate, medium to long term adverse for the route through Abertysswg and route 46 to the north of the site” (paragraph 16.202). NCR 46 is close to Bute Town Pond to the north-east of the site. The pond is described in ES Appendix MA/NL/ES/A16/002 as elevated from the surrounding landform by the containing embankments, and located to the west of Bute Town, with busy roads intruding on the potential tranquillity of the pond and its local context.
- 6.18 It is noted in paragraph 16.32 of the Landscape and Visual Impact ES Addendum that Bute Town “was a model village to accommodate workers in the local ironworks and its historic industrial landscape context has been lost in the process of regeneration and with modern urban and transport developments”. The Cultural Heritage ES Addendum states that “this area of the Rhymney Valley has to be seen in relationship to the synergy and continuum with the coal mining industry, also with modern day on-going exciting industrial activities” (paragraph 15.10) and further notes that “The landscape restoration scheme for Nant Llesg promotes the preservation of five areas (as addressed in Chapter 15 of the Environmental Statement, Paragraphs 15.219 to 15.230), on the east side of the site nearest to Rhymney’s traditional residential and commercial areas, where assets of historic mining (both coal and ironstone) survive. Elsewhere, over large areas of the scheme the 19<sup>th</sup> century and 20<sup>th</sup> century industrial landscape has previously nearly been obliterated. The five areas will be made safe and surface features conserved and displayed for tourism and as educational resources.....As a result there is then the potential to forge viable heritage and cultural tourism networks, creating a ‘sense of place’ - a ‘place of destination’ focussed on the local industrial history but including some older remains and links south to Gelligaer Common. This will benefit the community and be a magnet for sustainable cultural tourism. Within this opportunity the former resources of Drenwydd Museum could have a new use. Overall, the result of the Nant Llesg scheme would therefore considerably support and give ‘added-value’ to tourism - leisure - recreation in Rhymney, providing a matching heritage and impetus now evidenced in the Ffos-y-fran scheme to the immediate west” (paragraphs 15.11 – 15.12).
- 6.19 There is currently a Bute Town Heritage Trail leaflet and a website dedicated to its history. The Drenwydd Museum closed in 2006 due to low visitor numbers and the development of the County Borough museum at new Tredegar. The former premises of the Drenwydd museum has since been marketed by CCBC for residential use and whilst the Council have no current plans to develop the tourism element at the site [ES Chapter 6 – paragraph 6.80] the Nant Llesg restoration scheme has the potential to encourage a new use for this resource as outlined above, should it remain available.
- 6.20 In relation to potential impacts on the visual amenity of Bute Town, the Landscape and Visual Impact ES Addendum states at paragraph 1.35 that “Views towards the site from within Bute Town itself are restricted, because of the orientation of the buildings, screening by buildings within and vegetation on the southern edge of the village”, indicating that the visual amenity of the village itself would not be greatly affected, with open uninterrupted views of the site only

available from Bute Town Pond due to its elevation and openness. At paragraph 1.36 it is further stated that *“The enhancement of field boundaries and the establishment of new woodland planting in the north of the site is designed to offset the adverse landscape effects within the site during operations. As noted, they would serve to provide a Moderate benefit in the long term to the visual amenity of visitors to Bute Town Pond, and hence to the setting of Bute Town itself”*.

- 6.21 The Air Quality ES chapter (Chapter 12) concludes that *“the overall impact of air emissions from the mine is considered to be minor adverse”* (paragraph 12.334). Specifically with respect to Bute Town, the air quality impact at a representative receptor in Lower Row is predicted to be negligible. The mine will not result in Bute Town becoming dusty.
- 6.22 The Noise ES chapter (Chapter 13) concludes that *“Noise from the mine will be audible in surrounding areas and this has been assessed and generally found to be of negligible or minor significance in the Rhymney area. The increases in noise at Fochriw and some isolated properties to the north of the site are of minor or moderate significance”* (paragraph 13.77).

### Conclusion

- 6.23 The majority of the Brecon Beacons National Park is over 5km from the site boundary where visual effects would be, at most, Minor and there would be no greater than Moderate visual effects at Parc Bryn Bach. Bute Town is the closest tourist resource to the site and the visual assessment illustrates that the setting and visual amenity of the village would not be greatly affected as views are restricted by buildings and vegetation. The enhancement of field boundaries and the establishment of new woodland planting in the north of the site would also provide a long term benefit to the setting of Bute Town itself.
- 6.24 There are also opportunities arising from the Nant Llesg scheme to develop cultural tourism within Bute Town. None of these resources are expected to experience any air quality or noise impacts that are greater than Minor as a result of the Nant Llesg scheme.
- 6.25 Taking the above assessments into account it is not anticipated that effects on the amenity or relative pleasantness of tourist resources outside the site, including Bute Town, would be such that there would be a significant indirect effect (i.e. Moderate or greater) on visitor numbers.

### Review of Assessment in the Environmental Statement

- 6.26 There is no change to the assessment of direct effects set out in Chapter 6 of the ES.
- 6.27 Chapter 6 of the ES states at paragraph 6.8 that *“Information in relation to the potential effects on the amenity, or relative pleasantness, of recreational and tourist resources or sensitive receptors within local communities are set out in Chapters 16 (Landscape and Visual Resources), Chapter 12 (Air Quality) and Chapter 13 (Noise), where appropriate”*. Therefore, the additional information in this addendum has been provided by reference to the assessments set out in these ES Chapters and subsequent addenda on these topics. Taking these into account, it is considered that indirect effects on tourist resources outside the Nant Llesg site would not be significant (i.e. of Minor or lesser significance)



# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 7

### Traffic and Transport



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 7 – Traffic and Transport**

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## 7 Traffic and Transport

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### Chapter Summary

- 7.1 This ES Addendum chapter provides additional information with respect to the traffic and transport assessment which forms part of the ES. Post-application representations received with respect to the traffic and transport assessment have been specifically addressed in the Addendum to the Planning Statement. The purpose of this chapter is to consider the impacts with respect to traffic and transport of a shift in the likely project start date from 2014 to 2016 and present the results of further capacity assessment undertaken at the Bogey Road/Fochriw Road junction for hypothetical traffic flow scenarios.
- 7.2 The shift in the project start date from 2014 to 2016 will result in small changes to the baseline traffic flows presented in ES Tables 7.5, 7.7 and 7.10. The baseline flows used in the ES for assessment purposes were 2014 (site enabling works), 2015 (site operation) and 2029 (site decommissioning, restoration and aftercare) respectively and these will change to 2016, 2017, and 2031 respectively, with slight increases in baseline flows predicted. The levels of traffic which are forecast to be generated by the project during site enabling works, site operation and site decommissioning, restoration and aftercare are unchanged. The overall traffic flows stated in ES Tables 7.5, 7.7 and 7.10 respectively will increase as a result of the shift in the project start date from 2014 to 2016, but the percentage increase in traffic resulting from the proposal will likely reduce slightly, as a result of the slight increase to baseline flows. Given the slight changes it is expected that there will be no significant change to the anticipated impacts of the Nant Llesg project to that stated in ES Tables 7.14, 7.15 and 7.16.
- 7.3 The hypothetical traffic flow scenarios considered for the Bogey Road/Fochriw Road junction involve a substantial number of HGV movements, being considerably more than those predicted and assessed in the ES for the Nant Llesg scheme. They are intended to address concerns expressed about managing the number of HGV vehicles on the unclassified road between Nant Llesg and the CDP (See Chapter 7 'Traffic and Transport' of the Addendum to the Planning Statement) in the event that HGV movements are bunched, even though in reality that is unlikely. The results of the capacity assessment indicate that the junction would continue to operate satisfactorily even with considerably greater traffic levels than those which are anticipated as part of the Nant Llesg project. As a result, even if bunching were to occur, there will be no significant change to the anticipated impact of the Nant Llesg project.

### Introduction

- 7.4 This ES Addendum chapter provides additional information with respect to the traffic and transport assessment which forms part of the ES. Post-application representations received with respect to the traffic and transport assessment have been specifically addressed in the Addendum to the Planning Statement.
- 7.5 The purpose of this chapter is to:
- Consider the impacts with respect to traffic and transport of the shift in the project start date from 2014 to 2016; and
  - Consider the impact on the capacity of the local highway network, specifically the Bogey Road/Fochriw Road junction, of hypothetical traffic flow scenarios associated with coal imports by HGV to Cwmbargoed

Disposal Point (CDP), to address concerns expressed about HGV traffic bunching. These scenarios involve a substantial number of HGV movements, being considerably more than those predicted and assessed in the ES for the Nant Llesg scheme. They are hypothetical because they are unlikely to occur but have been included to consider whether in the unlikely event of bunching of HGV movements, there will be any significant change to the impact of the scheme.

## Policy & Guidance

- 7.6 There has been no material change with respect to the guidance and policy advice used to inform the traffic and transport assessment in the ES.

## Methodology

- 7.7 No change has been made to the methodology outlined in paras. 7.13 to 7.35 of the ES, nor to the significance criteria presented in ES Tables 7.1 and 7.2.

## Baseline Environment

- 7.8 The baseline scenario outlined in paras. 7.77 to 7.79 will change as a result of the shift in the project start date from 2014 to 2016. TEMPRO/NTM traffic growth factors were used to forecast traffic flows for 2014, 2015 and 2029, as presented in ES Table 7.4. With the project start date moved back two years, use of revised TEMPRO/NTM growth factors should be applied. Table ESA7.1 shows the growth factors for the assessment years as presented in Table 7.4 in the ES, alongside growth factors for the assessment years of 2016, 2017 and 2031, which would be appropriate to use with the later start of the proposal. The growth factors which should be applied given the later start of the scheme are highlighted in **bold**.

**Table ESA7.1 TEMPRO/NTM (version 6.2) traffic growth factors**

Years	Rhymney			Merthyr Tydfil		
	00PK10 - Minor	00PK10 - Principal	00PK10 - Trunk	00PH1 - Minor	00PH1 - Principal	00PH1 - Trunk
2010-2014	1.0206	1.0175	1.0143	1.0337	1.0305	1.0273
<b>2010-2016</b>	<b>1.0405</b>	<b>1.0387</b>	<b>1.0348</b>	<b>1.0540</b>	<b>1.0521</b>	<b>1.0482</b>
<b>Change</b>	<b>1.95%</b>	<b>2.08%</b>	<b>2.02%</b>	<b>1.96%</b>	<b>2.10%</b>	<b>2.03%</b>
2010-2015	1.0263	1.0224	1.0184	1.0394	1.0355	1.0314
<b>2010-2017</b>	<b>1.0548</b>	<b>1.0549</b>	<b>1.0511</b>	<b>1.0683</b>	<b>1.0684</b>	<b>1.0646</b>
<b>Change</b>	<b>2.78%</b>	<b>3.18%</b>	<b>3.21%</b>	<b>2.78%</b>	<b>3.18%</b>	<b>3.22%</b>
2010-2029	1.233	1.242	1.2431	1.2373	1.2463	1.2475
<b>2010-2031</b>	<b>1.2658</b>	<b>1.27110</b>	<b>1.2744</b>	<b>1.2670</b>	<b>1.2722</b>	<b>1.2755</b>
<b>Change</b>	<b>2.66%</b>	<b>2.34%</b>	<b>2.52%</b>	<b>2.40%</b>	<b>2.08%</b>	<b>2.24%</b>
2011-2014	1.0167	1.0143	1.012	1.0171	1.0148	1.0124
<b>2011-2016</b>	<b>1.0364</b>	<b>1.0354</b>	<b>1.0323</b>	<b>1.0372</b>	<b>1.0361</b>	<b>1.0330</b>
<b>Change</b>	<b>1.94%</b>	<b>2.08%</b>	<b>2.01%</b>	<b>1.98%</b>	<b>2.10%</b>	<b>2.03%</b>



Years	Rhymney			Merthyr Tydfil		
	00PK10 - Minor	00PK10 - Principal	00PK10 - Trunk	00PH1 - Minor	00PH1 - Principal	00PH1 - Trunk
2011-2015	1.0222	1.0191	1.016	1.0228	1.0197	1.0165
<b>2011-2017</b>	<b>1.0507</b>	<b>1.0517</b>	<b>1.0487</b>	<b>1.0512</b>	<b>1.0522</b>	<b>1.0492</b>
<b>Change</b>	<b>2.79%</b>	<b>3.20%</b>	<b>3.22%</b>	<b>2.78%</b>	<b>3.19%</b>	<b>3.22%</b>
2011-2029	1.2282	1.2381	1.2402	1.2175	1.2273	1.2294
<b>2011-2031</b>	<b>1.2609</b>	<b>1.2670</b>	<b>1.2713</b>	<b>1.2467</b>	<b>1.2528</b>	<b>1.2570</b>
<b>Change</b>	<b>2.66%</b>	<b>2.33%</b>	<b>2.51%</b>	<b>2.40%</b>	<b>2.08%</b>	<b>2.24%</b>

- 7.9 Table ESA7.1 shows that the calculated baseline flows would increase if later years were assessed, but it must be appreciated that the increases are slight.

## Impact Assessment

### Change in start date from 2014 to 2016

- 7.10 Estimates of traffic generation associated with the Nant Llesg project during the site enabling works, operational and restoration phases were developed based on a work programme and assumed staffing levels provided by Miller Argent. Impacts during these phases were identified in terms of the effect of development traffic on road capacity and safety and presented in the ES.
- 7.11 The ES assumes the transportation of 750,000 tonnes of coal per annum by HGV between the extraction area and CDP via the public highway network, together with the export of coal from CDP by HGV of up to a limit of 50,000 tonnes per annum, with the remainder being dispatched by rail. These tonnages, and all other traffic movements forecast to be generated by the project, remain unchanged despite the change in start date for the proposal.
- 7.12 The overall traffic flows stated in ES Tables 7.5, 7.7 and 7.10 respectively will increase slightly as a result of the shift in the project start date from 2014 to 2016 and the corresponding increase in anticipated baseline flows combined with development traffic. However, the anticipated percentage increase in traffic as a result of the scheme will likely reduce slightly from that stated in ES Tables 7.6, 7.8 and 7.11, as a result of the anticipated increase in baseline flows albeit that such a change would be so small as to not result in any significant change to the assessment in the ES.

### Hypothetical Coal Import Scenarios

- 7.13 To quantify the extent of spare traffic capacity available on the local highway network, in response to suggestions that “*bunching*” of HGV traffic could occur, various **hypothetical** coal import scenarios have been considered, **which do not form part of the Nant Llesg project proposal**, but are explored here to demonstrate the likely capacity of the Bogey Road/Fochriw Road junction.
- 7.14 Various hypothetical coal import scenarios from the coal extraction area to the CDP have been considered, on the assumption that all other traffic flows are unchanged from the scenario outlined in para. 7.105 of the ES, coal import deliveries by HGV would be distributed evenly through the 12 hour working day and that HGVs would return empty to their origin location. Three scenarios have been considered in detail:

- **Scenario 1** – Additional 2.0 million tonnes per annum (i.e. 2.75 million tonnes per annum), equating to an additional 32 HGV deliveries per hour relative to the scenario tested in the ES;
- **Scenario 2** – Additional 8.0 million tonnes per annum (i.e. 8.75 million tonnes per annum), equating to an additional 126 HGV deliveries per hour;
- **Scenario 3** – Additional 9.0 million tonnes per annum (i.e. 9.75 million tonnes per annum), equating to an additional 142 HGV deliveries per hour.

7.15 Capacity assessments were undertaken at the Bogey Road/Fochriw Road junction using the PICADY modelling software to test the impact of the three hypothetical coal import scenarios. Other than the additional HGV movements associated with coal imports, all assumptions are identical to those outlined in para. 7.105 of the ES, i.e. a 2020 assessment year and AM peak period (0800 to 0900).

7.16 A maximum threshold of 0.85 is normally considered the desirable Ratio of Flow to Capacity (RFC) at which a junction can operate satisfactorily. The Bogey Road/Fochriw Road junction has been subject to capacity testing both for the existing layout and also with the junction improvements volunteered by the Applicant (outlined in para. 7.120 of the ES). The results of the capacity assessments are presented in Table ESA7.2 below and the full PICADY output files are included as Appendix MA/NL/ES2/A07/002.

**Table ESA7.2 PICADY junction capacity assessment, Bogey Road/Fochriw Road**

Arm		A	B	C
Description		Fochriw Road (S)	Bogey Road	Fochriw Road (N)
2020 Development & Scenario 1 (Existing Layout)	RFC	-	0.301	0.505
	Queue	-	0	1
2020 Development & Scenario 1 (Improved Layout)	RFC	-	0.276	0.466
	Queue	-	0	1
2020 Development & Scenario 2 (Existing Layout)	RFC	-	0.63	<b>0.894</b>
	Queue	-	2	<b>7</b>
2020 Development & Scenario 2 (Improved Layout)	RFC	-	0.575	0.823
	Queue	-	1	5
2020 Development & Scenario 3 (Existing Layout)	RFC	-	0.679	<b>0.944</b>
	Queue	-	2	<b>10</b>
2020 Development & Scenario 3 (Improved Layout)	RFC	-	0.627	<b>0.887</b>
	Queue	-	2	<b>7</b>

- 7.17 Table ESA7.2 indicates that HGV movements associated with Scenario 1, i.e. an additional 32 HGV deliveries per hour to those resulting from the Nant Llesg project which were tested in the ES, can be accommodated by the junction without any significant impact on its operation (whether the existing or improved layout).
- 7.18 For the existing layout, the Bogey Road/Fochriw Road junction only approaches capacity (i.e. exceeds an RFC of 0.85) in Scenario 2, i.e. with an additional 126 HGV deliveries per hour to those resulting from the Nant Llesg project. The junction is, nevertheless, still below its theoretical maximum capacity. With the junction improvements volunteered by the Applicant (specifically carriageway re-profiling), visibility to the right (i.e. south) of Bogey Road would improve from the current 70m to 160m. This improvement to the junction sightline visibility would increase capacity, and so under Scenario 2 the junction would continue to operate below the desirable capacity threshold, with an RFC of 0.823 and maximum queue length of five vehicles on the Fochriw Road (North) approach to the junction (Table ESA7.2).
- 7.19 Table ESA7.2 shows that it is only in Scenario 3 that the junction would operate above the desirable capacity threshold. This represents 9.0 million tonnes of imported coal per annum or a further 142 HGV deliveries per hour in addition to those resulting from the Nant Llesg project. For the existing layout, the Fochriw Road (North) approach to the junction would operate close to, but still below, its theoretical maximum capacity (i.e. an RFC of 1.0). The forecast RFC of 0.944 and maximum queue length of 10 vehicles on this approach (caused by vehicles waiting to turn right into Bogey Road) would, with the junction improvements volunteered by the Applicant, reduce to 0.887 and seven vehicles respectively, i.e. slightly above the desirable capacity threshold of 0.85. On the Bogey Road approach to the junction, the forecast maximum queue for vehicles turning left is just 2 vehicles, and this approach would continue to operate well within the desirable capacity threshold with or without junction improvements.
- 7.20 It must be appreciated that the three scenarios outlined above form no part of the Nant Llesg application, and will not result from a grant of permission for the scheme. Bunching of HGV traffic is unlikely because of the way in which HGV vehicles transporting coal to the CDP are loaded sequentially, and the Scenarios above are presented to show that the junction has substantial spare capacity in any event, and that the spare capacity is such that bunching could occur without any significant change to the anticipated impact of the Nant Llesg project..

## Mitigation

- 7.21 No changes have been made to the measures proposed by the Applicant to mitigate the transport impacts of the development. These are outlined in paras. 7.116 to 7.127 of the ES.

## Summary

- 7.22 The traffic and transport assessment within the ES confirmed that the local highway network is anticipated to remain well within capacity with the addition of traffic generated by the Nant Llesg project. To quantify the extent of this spare traffic capacity, this ES Addendum has considered various coal import scenarios. **These scenarios are purely hypothetical as they do not form part of the Nant Llesg project proposal and so represent additional traffic to that forecast to be generated by that project. They have only been explored to demonstrate the capacity of the Bogey Road/Fochriw Road junction, as a result of an allegation that bunching of HGV movements could occur.**
- 7.23 The results of capacity assessments undertaken at the Bogey Road/Fochriw Road junction suggest that, with the highway improvements volunteered by the Applicant, the junction would continue to operate adequately even with an additional 142 HGV deliveries to CDP per hour to those anticipated as part of the Nant Llesg project. As a result, even if bunching were to

occur, which is considered to be unlikely, there will be no change to the assessment of significance of impact of the Nant Llesg project to that set out in the ES. The shift in the project start date from 2014 to 2016 will result in slight increases to the baseline traffic flows presented in ES Tables 7.5, 7.7 and 7.10. However, the levels of traffic which are forecast to be generated by the project are unchanged. While the overall traffic flows will increase, the traffic flow impact of the development (in percentage terms) will likely reduce slightly from that stated in the ES. However, such a change is expected to be so small as to not result in any change to the assessment of significance of the impact of traffic set out in the ES.

# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 8

### Ecology and Nature Conservation



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 8 – Ecology and Nature Conservation**

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## 8 Ecology and Nature Conservation

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### Chapter Summary

- 8.1 This ES Addendum chapter provides additional information with respect to the Ecology and Nature Conservation assessment which forms part of the ES.
- 8.2 The following additional studies and surveys have been undertaken which provide additional baseline information:
- Ornithological Data Review 2014 (Appendix MA/NL/PA/A08/005);
  - Breeding Wader Survey 2014 (Appendix MA/NL/PA/A08/004);
  - Bat Survey of Cliffs 2014 (Appendix MA/NL/PA/A08/008);
  - Great Crested Newt Update Survey 2014 (Annex J2 of Appendix MA/NL/PA/A08/007); and
  - Wet Heath NVC and Condition Survey 2014 (Appendix MA/NL/PA/A08/009).
- 8.3 In addition to these reports of studies and surveys, the following additional reports have been submitted which are relevant to the assessment of the ecological and nature conservation effects of the Nant Llesg proposals:
- Habitats Regulations Assessment Report (Appendix MA/NL/PA/A08/006);
  - Biodiversity Offsetting Report (Appendix MA/NL/PA/A08/003);
  - Revised Great Crested Newt Method Statement (Appendix MA/NL/PA/A08/007);
  - Additional Invertebrate Survey Information (Appendix MA/NL/PA/A08/001); and
  - Peat Handling and Wet Heath Restoration (Appendix MA/NL/PA/A08/010).
- 8.4 The findings of the additional surveys and reports have been taken into account in the review of the ecological effects of the proposed surface mine. The majority of ecological effects would be of Negligible or Minor significance.
- 8.5 Exceptions as a result of the land take of the project would be an impact of Moderate significance on breeding birds (taking into account the findings of the 2103 and 2014 breeding wader surveys indicating a reduced value of the site for Little ringed plover and Ringed plover). There would also be impacts of Moderate significance on non-statutory designated sites (loss of much of the Cefn Gelligaer SINC), 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).

- 8.6 During operation of the site no adverse effects would be of greater than Minor significance. There would be beneficial effects on fish and potentially on amphibians and bats as a result of habitat creation, and to otter as a result of improvements to downstream water quality.
- 8.7 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 (Cefn Gelligaer SINC) and habitats (in particular wet heath), breeding and wintering/passage birds (as a result of uncertainties regarding the effectiveness and timescale of habitat restoration). There could be beneficial effects on reptiles, bats and Otter as a result of habitat creation, and fish and potentially Otter through long term benefits to downstream water quality.
- 8.8 The nature of the proposed development means that it is not possible to fully mitigate these effects within the site boundary. In order to off-set these effects it is proposed to implement ecological enhancements in an area to the south west of the site. The land to be used is part of the holding known as Bryn Caerau Farm which is owned by Miller Argent (South Wales) Limited and farmed by tenants.
- 8.9 The change in 'Biodiversity units' has been calculated using guidance produced for Defra's biodiversity offsetting pilot as a tool to enable the biodiversity value of the different habitats within Cwm Golau and the Nant Llesg site to be compared. The assessment supports the original conclusion in the ES that the overall balance of biodiversity would be maintained, notwithstanding that there would be a substantial gain for linear habitats measured in metres.
- 8.10 Opportunities for further compensation and biodiversity benefit have been considered in discussion with Caerphilly CBC and NRW. Despite such discussions, no suitable and deliverable local opportunities have been identified. Miller Argent has therefore looked further afield and the Pumlumon Project in central Wales has been identified as a potential option. Should the Nant Llesg project be consented then Miller Argent would fund the restoration and ongoing management of 50 ha of upland bog as part of the Pumlumon Project over the 14 year life of the Nant Llesg Project.
- 8.11 Discussions with CCBC and NRW have also identified potential projects in the local area that have the potential to allow more local biodiversity improvements than the Pumlumon project. Should any more local suitable alternatives be identified by CCBC or NRW that do provide deliverable compensation opportunities, then Miller Argent would be pleased for its funding to be targeted towards these as alternatives to the Pumlumon Project. In either event, whether funding was provided to the Pumlumon Project, or local projects within Caerphilly, there would be a benefit to biodiversity on restoration of the scheme and a balance of biodiversity despite the loss of habitats resulting from the land take and operation of the scheme.

## Introduction

- 8.12 This chapter has been prepared by RPS Planning and Development Limited.
- 8.13 The effects of the Nant Llesg proposals on ecology and nature conservation were assessed in Chapter 8 of the Environmental Statement (ES) which was submitted with the planning application in October 2013. An ES Ecology Addendum was submitted on 9<sup>th</sup> January 2014. This set out the findings of additional surveys of Odonata and breeding waders which had been carried out in 2013.
- 8.14 Chapter 8 of the ES described and assessed the ecology and nature conservation effects of the proposed Nant Llesg Surface Mine including Land Remediation. The habitat types at the

- site and in its vicinity were described, and the protected and other notable species and areas of nature conservation interest which would be affected by the development of the site were identified. This information was used to identify likely ecological effects and the measures to avoid or mitigate such effects. The likely significant effects on ecology and nature conservation, taking into account the proposed mitigation measures, were described.
- 8.15 The Nant Llesg site includes the northern part of Gelligaer and Merthyr Common (C38) and farmland to the north of the common. Areas proposed to mitigate for the loss of grazing and public access across the section of the common within the site were also described and the ecological effects of these uses on this land were assessed.
- 8.16 Measures for the ecological enhancement of an area of land at Bryn Caerau Farm to the south west of the Nant Llesg site to offset the ecological effects of the Nant Llesg development were also described.
- 8.17 The ES Ecology Addendum summarised the findings of the Odonata and breeding wader surveys carried out in 2013 and in so far as there were any changes to the data and assessments presented in the ES Chapter 8 Ecology and Nature Conservation these were also considered.
- 8.18 Following submission of the planning application with the ES, and the subsequent ES Ecology Addendum, a number of meetings have been held with Caerphilly County Borough Council and Natural Resources Wales (NRW). There have also been a number of other consultation responses to the scheme. Through these discussions and in responding to these responses, additional information has been submitted to Caerphilly County Borough Council to clarify the proposals. There have also been some changes to the proposals as a result of these discussions.
- 8.19 This chapter of this ES Addendum sets out the additional information provided which is relevant to consideration of the effects of the Nant Llesg proposals on ecology and nature conservation, and, where appropriate, sets out any changes to the proposals together with an updated assessment of the effects of the proposals which arise.

## Methodology

- 8.20 As for the ES, the methodology for the assessment of ecological effects takes account of the following relevant guidance:
- Institute of Environmental Assessment (1995) Guidelines for Baseline Ecological Assessment;
  - Department for Transport (2004) Transport Analysis Guidance (TAG): The Biodiversity Sub-Objective (TAG Unit 3.3.10); and
  - Institute of Ecology and Environmental Management (2006) Guidelines for Ecological Impact Assessment in the United Kingdom.
- 8.21 In accordance with this guidance, any changes to the assessment have been considered in the context of four main stages for each relevant ecological and nature conservation feature:
- Baseline studies (review of existing conditions);
  - Identification of ecological receptors;

- Identification and characterisation of likely effects, including suitable mitigation/compensation measures; and
- Assessment of significance of effects.

## Baseline Environment

8.22 The following additional studies and surveys have been undertaken which provide additional baseline information:

- Ornithological Data Review 2014 (Appendix MA/NL/PA/A08/005);
- Breeding Wader Survey 2014 (Appendix MA/NL/PA/A08/004);
- Bat Survey of Cliffs 2014 (Appendix MA/NL/PA/A08/008);
- Great Crested Newt Update Survey 2014 (Annex J2 of Appendix MA/NL/PA/A08/007);

and

- Wet Heath NVC and Condition Survey 2014 (Appendix MA/NL/PA/A08/009).

8.23 The results of these additional baseline ecological investigations are summarised in the relevant sections of this chapter and the full reports of the surveys are appended as referenced above.

8.24 In addition to these reports of studies and surveys, the following additional reports have been submitted which are relevant to the assessment of the ecological and nature conservation effects of the Nant Llesg proposals:

- Habitats Regulations Assessment Report (Appendix MA/NL/PA/A08/006);
- Biodiversity Offsetting Report (Appendix MA/NL/PA/A08/003);
- Revised Great Crested Newt Method Statement (Appendix MA/NL/PA/A08/007);
- Additional Invertebrate Survey Information (Appendix MA/NL/PA/A08/001); and
- Peat Handling and Wet Heath Restoration (Appendix MA/NL/PA/A08/010).

## Statutory Designated Sites

8.25 In a letter dated 20<sup>th</sup> July 2011 attached to Caerphilly County Borough Council's Scoping Opinion, the Countryside Council for Wales (CCW) (now part of Natural Resources Wales (NRW)) indicated that the Nant Llesg site is less than 10 km from the Usk Bat Sites and Aberbargoed Grasslands SACs and indicated that a Habitats Regulations Assessment should be undertaken, the first stage of which should be a test of likely significance. If it appears from that test that the development would have a likely significant effect, the regulations require that a more detailed assessment would be required to enable appropriate

- assessment of the implications for those sites, in view of their conservation objectives, to be carried out. The development could then only be consented if the development would not adversely affect the integrity of those sites. While referring to this requirement, CCW indicated that an impact on these European Sites was unlikely and measures could be put in place to avoid or minimise impact, and that the assessment regarding likely significant effect should be recorded.
- 8.26 A letter from the Environment Agency Wales (now also part of NRW) dated 29<sup>th</sup> July 2011, also attached to the Scoping Opinion, advised that the Environmental Statement would need to address the cumulative effects of air emissions on air quality affecting the nearest SACs, these being Aberbargoed Grasslands SAC, Usk Bat Sites SAC, Cwm Cadlan SAC and Blaen Cynon SAC.
- 8.27 On the basis of this advice, the likelihood of significant effects on these European Sites was assessed in the Environmental Statement (see paragraphs 8.233 to 8.239 of the ES) and the implications for the integrity of the sites considered.
- 8.28 The Environmental Statement identified that the only potential for effects on these European Sites would be during the operation of the development, resulting from changes in air quality. This potential is reflected in the request from CCW and EAW that the potential effects of dust deposition be considered on the Aberbargoed Grasslands, Usk Bat Sites, Cwm Cadlan and Blaen Cynon SACs.
- 8.29 Chapter 12 Air Quality of the ES reports that the impact of the exhaust emissions from the coal trucks, Nant Llesg traffic, the remediation of land, and the operation of the mine and the Coal Disposal Point on the Tair Carreg SINC (which is adjacent to the site) was modelled using ADMS (Atmospheric Dispersion Modelling System) and ADMS-Roads. In addition the dust emissions were modelled using ADMS. Based on this modelling it was concluded that there would be no likely significant effect on the European Sites and Appropriate Assessment under the Habitats Regulations was not required. Furthermore, there was no doubt that there would be no adverse effect on the integrity of any SAC as a result of the development.
- 8.30 During consultation on the Nant Llesg planning application, and notwithstanding the conclusions in the Environmental Statement, Caerphilly County Borough Council and NRW requested that a separate Habitats Regulations Assessment (HRA) report be produced setting out the findings with respect to the potential effects of changes in air quality on these European Sites. They also requested that consideration should be given to the potential effects on the Severn Estuary SPA and Ramsar Site as a result of effects on migratory bird species from the estuary which may visit Rhaslas Pond.
- 8.31 An HRA report was prepared as requested (Appendix MA/NL/PA/A08/006).
- 8.32 In undertaking the assessment of the potential effects of the proposed Nant Llesg Surface Mine on the European Sites, due regard has been paid to the guidance provided in:
- Managing Natura 2000 Sites – the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2000); and
  - Assessment of Plans and Projects Significantly Affecting Natura 2000 sites – Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2001).
- 8.33 The potential effects on the Aberbargoed Grasslands SAC, Usk Bat Sites SAC, Cwm Cadlan SAC and Blaen Cynon SAC are considered first in the HRA report. This is followed by an assessment of the potential effects on the Severn Estuary SPA and Ramsar Site.

Assessment of the potential effects of the proposed Nant Llesg Surface Mine on Aberbargoed Grasslands SAC, Usk Bat Sites SAC, Cwm Cadlan SAC and Blaen Cynon SAC

- 8.34 Figure 1 of the HRA report shows the locations of the relevant SACs. The distances from the Nant Llesg site are as follows:
- Aberbargoed Grasslands SAC (7.9km);
  - Usk Bat Sites / Safleodd Ystlumod Wysg SAC (8km);
  - Cwm Cadlan SAC (12.5km); and
  - Blaen Cynon SAC (14km).
- 8.35 The closest European Site (Aberbargoed Grasslands SAC) is 7.9km from the Nant Llesg site. The only potential mechanism by which there could be effects over such a distance or greater would be by reason of effects on air quality and consequent deposition of emissions.
- 8.36 Assessment of the predicted concentrations of NO<sub>x</sub>, and nitrogen and acid deposition against the relevant critical levels and loads for terrestrial habitats, shows that operation of the proposed Nant Llesg surface mine is not likely to have significant effects on any of the four SACs as a result of emissions to air, and further, there is no doubt that there would be no adverse effect on the integrity of any of the SACs as a result of the Nant Llesg project.
- 8.37 The potential for in-combination effects with other major projects in the area were also considered. For those major projects which have considered the potential effects of air quality on the SACs in the area, some of which are much closer to the SACs (in the case of Section 2 of the A465, within the Usk Bat Sites SAC) that whilst it is accepted that current air quality, in particular nitrogen and acid deposition, is sufficiently high to result in damage to sensitive habitats, in all cases the effects of the proposals have been considered either not likely to have a significant effect on the SACs on the basis of preliminary screening, or following more detailed appropriate assessment have been found to not have an effect on the integrity of the SACs, either alone or in combination with other projects.
- 8.38 Similarly consideration of the modelled effects of air quality of the proposed Nant Llesg Surface Mine leads to the conclusion that on the basis of the information available the proposal is not likely to have a significant effect on the SACs in the surrounding area either alone or in combination with other projects and further, there is no doubt that there would be no adverse effect on the integrity of any SAC as a result of the Nant Llesg project.
- 8.39 To the extent that the possibility of in-combination effects could arise with other developments in the area, any such development would itself be subject to assessment under the Habitats Regulations and this will ensure that all other such developments will only be able to proceed if the appropriate tests for the protection of European Sites are satisfied.
- 8.40 Given the rapid decrease in modelled dust deposition with distance from the Nant Llesg Surface Mine, the likely concentrations at the SACs are likely to be so low that there is no potential for a significant contribution to in-combination effects with other projects.



### Assessment of the potential effects of the proposed Nant Llesg Surface Mine on the Severn Estuary SPA and Ramsar Site

- 8.41 At its closest point the Severn Estuary SPA and Ramsar Site is some 31km from the Nant Llesg site (see Figure 2 of the HRA Report – Appendix MA/NL/PA/A08/006). The only potential mechanism by which the Nant Llesg surface mine could cause effects on the Severn Estuary SPA and Ramsar Site over such a distance would be by reducing the survival rates of wintering waterbirds forming part of the SPA/Ramsar Site populations that might make use of the Nant Llesg site during migration.
- 8.42 The assessment set out in the HRA report shows that no likely significant effects on the Severn Estuary SPA and Ramsar Site as a result of the proposed Nant Llesg Surface Mine alone are predicted. Furthermore there is no doubt that no adverse effects on the integrity of the SPA and Ramsar sites would occur.
- 8.43 The potential for cumulative impacts with other projects has been assessed based on a desk-based review of proposed or permitted development within Caerphilly County Borough and the Heads of the Valleys area. No proposed or permitted developments were identified which are likely to have an impact on the medium and large waterbodies in the region that provide habitat for waterbirds and could lead to cumulative impacts.
- 8.44 On the basis of the above, no significant effects are likely on the Severn Estuary SPA and Ramsar Site as a result of the Nant Llesg Surface Mine development, alone or in combination with other projects. Further, there is no doubt that there would be no adverse effect on the integrity of the Severn Estuary SPA or Ramsar Site.
- 8.45 The HRA report thus supports the findings already reported in the ES that there would be no likely significant effect on any of the SACs. It further concludes that there would be no likely significant effects on the Severn Estuary SPA and Ramsar Site. There is thus no requirement for further appropriate assessment in relation to any of these sites. NRW have confirmed (email of 8/7/14) that they agree with the conclusions of the HRA report.

### **Non-Statutory Designated Sites**

- 8.46 Non-Statutory designated sites in the vicinity of the Nant Llesg site are shown on Drawing MA/NL/ES/08/002 of the ES. These are Sites of Importance for Nature Conservation (SINCs) and are of importance at the County Borough level. The Cefn Gelligaer, West of Deri SINC is almost entirely within the Nant Llesg site in the area south of Rhaslas Pond extending to the south east of the site and also around the eastern margin into the centre east of site.
- 8.47 Subsequent to issue of the ES the extent to which land outside the operational area of the mine would be disturbed has been considered in more detail (see Figure 1 of the Biodiversity Offsetting Report at Appendix MA/NL/PA/A08/003) and revised figures for habitat disturbance have been produced and are set out in the section on habitats below. This would also reduce the extent of habitat loss within the Cefn Gelligaer, West of Deri SINC. However the extent of loss of the SINC would still be of high magnitude and the effects of land take would remain as Moderate adverse.
- 8.48 All other matters remaining equal, the significance of effects resulting from the operation of the mine would remain as Minor adverse as assessed in the ES.
- 8.49 For the subsequent restoration, all other matters remaining equal, if restoration achieves sufficient ecological value to be designated as a SINC then the effects of restoration on non-

- statutory sites would be of negligible magnitude and Negligible significance as assessed in the ES,. To the extent that this was not achieved then the impact would remain as of high magnitude and Moderate significance as assessed in the ES,
- 8.50 Subsequent to submission of the ES, Miller Argent has undertaken further investigations of the methods and experience of restoration of wet heath which has provided additional confidence that successful restoration can be achieved. The findings of this work are set out in the report entitled Peat Handling and Wet Heath Restoration (see Appendix MA/NL/PA/A08/010). This further work has provided additional assurance that restoration can achieve results worthy of designation in so far as the restored wet heath at the former Bleak House surface mine has been designated as part of the Chasewater and the Southern Staffordshire Coalfield Heaths SSSI by Natural England. .
- 8.51 The reasons for notification of the SSSI state that it is nationally important for its wet and dry lowland heath and that the heathland has largely developed on land heavily influenced by past and more recent coal mining activities and, as a consequence, varies considerably in both age and origin. Whilst some of the heathland has been associated with the site for a considerable time, some is relatively recent in origin with the youngest having been established in the last twenty years as part of a derelict land reclamation scheme, a restoration scheme on an exhausted open-cast mine (the Bleak House site) and a translocation associated with the construction of the M6 Toll motorway.
- 8.52 Following restoration, the wet heath will be largely self-managing, as is currently the case, in that grazing animals tend to avoid wet areas, but in any event, on completion of restoration and aftercare the agreement between Miller Argent and the Commoners provides that, following the aftercare period, they will not carry out drainage works, agricultural improvement, fencing, walling, gates, cattle grids, or other matters within the area restored to wet heath, and they will provide for shepherding or stock control of the area.

### Vegetation and Habitats

- 8.53 The habitats within the Nant Llesg site are shown on the Phase 1 Habitat Survey plan at ES Drawing MA/NL/ES/08/003. Following a request from Caerphilly County Borough Council, a survey to provide updated data on the habitats of greatest ecological significance within the site, the area of wet heath and marshy grassland in the south, was carried out in July 2014.
- 8.54 In order to confirm the current status of community identity of the wet heath habitats originally surveyed in 2008 and 2011, four areas were resampled in July 2014 using standard NVC methodology and data entered into MATCH to provide a quantitative assessment of the communities represented in wet heath habitats across the site. Five 2m x 2m quadrats were recorded in each of the sample areas A–D using Domin values. Additional data were also collected to enable two forms of habitat condition assessment be carried out in the same areas.
- 8.55 The report of the survey (see Appendix MA/NL/PA/A08/009) has been submitted to Caerphilly CBC and the results are summarised here.
- 8.56 Three of the four areas sampled returned results showing the vegetation being of the community M15 *Scirpus cespitosus* - *Erica tetralix* wet heath with the other showing M6 *Carex echinata* – *Sphagnum fallax/denticulatum* mire, but with M15 being compositionally very close.
- 8.57 At sub-community level M15d *Scirpus cespitosus-Erica tetralix* wet heath: *Vaccinium myrtillus* subcommunity was the best fit in all but one of the samples, but again it was very close to the best fit of undifferentiated M15.

- 8.58 Although the analysis did not distinguish between the areas previously mapped as M15 and M16, these communities are very closely linked and there had been no significant change in the vegetation since the previous NVC surveys in 2008 and 2011.
- 8.59 As part of this survey, further assessments of vegetation condition were carried out based on two methods:
- Assessing Vegetation Condition in the English Uplands (ENRR264); and
  - Higher Level Stewardship Farm Environment Plan Manual
- 8.60 The condition assessment was 'Unfavourable' under the Natural England system and 'B' under the Stewardship system as a result of the high percentage cover of grasses and low cover of dwarf shrubs, confirming the previous assessment in the ES of Moderate condition for this habitat.
- 8.61 The areas of each habitat (or lengths where appropriate, and in the case of ponds, the number of ponds) within the application boundary were set out in the ES at Table 8.7. The table also indicated the extent of the habitats within the identified operational areas of the site. The ES stated that the actual extent of loss of habitat would be between the two figures depending on how much of the site outside the identified operational areas remained undisturbed. In the worst case the entire application area would be disturbed.
- 8.62 Subsequent to issue of the ES the extent to which land outside the operational area of the mine would be disturbed has been considered in more detail (see Figure 1 of the Biodiversity Offsetting Report at Appendix MA/NL/PA/A08/003). It can be seen from the figure that extensive areas in the west, south and east of the site would remain largely undisturbed, in particular areas of wet heath, marshy grassland and unimproved acid grassland.
- 8.63 Based on this revised figures for habitat disturbance have been produced and are set out in the following Tables ESA8.1a and ESA 8.1b:

**Table ESA8.1a Extent of habitats at Nant Llesg within the application site, the extent of disturbance and the extent following restoration (ha)**

Habitat	Extent within application site (ha)	Extent of disturbance (ha)	Extent following restoration (ha)	Value
Acid dry dwarf shrub heath	0.62	0.32	0.33	County Borough (Medium)
Wet dwarf shrub heath	47.5	35.4	62.6	County Borough (Medium)
Acid/neutral flush	3.2	2.6	0.74	County Borough (Medium)
Lakes and reservoirs (standing water including 18 ponds)	12.7	12.3	9.8	County Borough (Medium)
Swamp (predominantly wetland margin north of restored)	0.00	0.00	5.1	County Borough (Medium)

Habitat	Extent within application site (ha)	Extent of disturbance (ha)	Extent following restoration (ha)	Value
Rhaslas Pond)				
Unimproved acid grassland	134.5	54.4	67.4	County Borough (Medium)
Semi-improved acid grassland	45.3	38.1	169.1	Community (Low)
Poor semi-improved grassland	7.2	2.8	0.0	Community (Low)
Improved grassland	133.1	87.8	100.4	Community (Low)
Marshy grassland (includes Purple moor-grass marsh)	57.6	40.1	24.8	County Borough (Medium)
Semi-natural broadleaved woodland	0.01	0.00	17.3	Community (Low)
Conifer plantation/including mixed plantation	3.33	0.88	2.4	Community (Low)
Ephemeral/short perennial	15.6	0.70	15.6	Community (Low)
Hard standing and linear features	17.2	13.9	2.6	Community (Low)
<b>Total area (ha)</b>	<b>478</b>	<b>289</b>	<b>478</b>	

**Table ESA8.1b Extent of habitats at Nant Llesg within the application site, the extent of disturbance and the extent following restoration (m)**

Habitat	Extent within application site (m)	Extent of disturbance (m)	Extent following restoration (m)	Value
Rivers and streams (running water)	5807m	2598m	6800m	Community (Low)
Hedgerows	3198m	1709m	4788m	Community (Low)
Inland Rock Outcrop and Scree Habitat (natural inland cliff and quarry)	1424m	44m	1520m	Community (Low)
Dry ditch	4399m	2474m	1925m	Community (Low)
Stone Walls	116m	0m	2552m	Community (Low)

- 8.64 It can be seen that the area of wet heath would increase from the existing 47.5ha to 62.6ha post restoration. Of the existing 47.5ha, 35ha would be disturbed leaving 12.5ha undisturbed. The restored area would include 50.1ha of wet heath. As explained in section 9 Agricultural Land Use and Soils the peaty topsoils in Soil Type A (these being the soils currently under wet heath and adjoining grassland) which would be stripped amount to 195,000 m<sup>3</sup> giving a depth of some 0.35m over the area of restored wet heath (allowing for use of some of the resource in areas to be restored to marsh). Thus the area of wet heath on final restoration of the site would be some 15ha greater than the baseline position.
- 8.65 There are other changes in the measurement of the extent of restored habitats between Table ESA8.1a above and Table 8.7 in the ES. Table ESA8.1a includes a measure of swamp habitat. This is predominantly the wetland margin at the north of the restored Rhaslas Pond. This was previously included in the 'Lakes and Reservoirs' measurement. The extent of unimproved grassland in the revised measurements has reduced and the extent of semi-improved grassland has increased. This results from a more precautionary approach which assumes that the upland grassland shown on the restoration plan would be semi-improved rather than unimproved other than where this grassland would be undisturbed unimproved grassland around the margins of the site.
- 8.66 It can be seen that the most extensive disturbance of habitat would be as follows (with previous worse case figure from the ES in brackets):
- unimproved acid grassland - 54.4ha (120ha);
  - improved grassland – 87.8ha (134ha);
  - semi-improved acid grassland – 38.1ha (62ha);
  - wet dwarf shrub heath – 35.4ha (48ha); and
  - marshy grassland – 40.1ha (58ha).
- 8.67 The wet dwarf shrub heath and marshy grassland are important features of the Cefn Gelligaer, West of Deri Site of Importance for Nature Conservation (SINC) referred to above.
- 8.68 The area of lakes and reservoirs (some 12.3ha) is primarily Rhaslas Pond but includes the area of the other ponds within the area of the site which would be disturbed.
- 8.69 In view of the extent of loss of the habitats of County Borough importance the magnitude of impact of the land take of the Nant Llesg proposals remains as high and the significance as Moderate.
- 8.70 Notwithstanding the consideration of remediation areas in more details and the reduced impact on habitats, there would be no change in the assessment of the significance of impacts of the operation of the surface mine on habitats in the area surrounding the site and these would remain as Negligible.
- 8.71 Drawing MA/NL/ES/016/12-2 of the ES showed the Restoration Strategy for the Nant Llesg site. There have been some minor changes to these proposals relating to provision of additional ponds, and changes in grassland areas in the north east and south east of the site. The revised Habitat Restoration Plan is at Drawing MA/NL/PA/059.

- 8.72 The significance of the effects of the restoration proposals, given the ecological significance of the habitats lost to the scheme, and the uncertainty regarding the effectiveness of restoration of these habitats of county importance, was assessed in the ES as Minor to Moderate adverse. Whilst, if all other matters remained equal, this assessment would not change, subsequent to submission of the ES, Miller Argent has undertaken further investigations of the methods and experience of restoration of wet heath which has provided additional confidence that successful restoration can be achieved. The findings of this work are set out in the report entitled Peat Handling and Wet Heath Restoration (see Appendix MA/NL/PA/A08/010). The experience elsewhere indicates that, following restoration and aftercare, an assessment of Minor significance would not be unreasonable. However, taking a precautionary approach, the assessment for EIA purposes has not been changed and remains Minor to Moderate adverse.

## Amphibians

- 8.73 The ES reported that ponds in the area around the site are known to support Great crested newts. A single juvenile Great crested newt was recorded during the surveys of the Nant Llesg site in 2011 and a possible adult Great crested newt was seen. A second individual was reported close to the south of the site. This was sufficient to confirm that the species is present. It is typical of the area that only small populations are present in individual ponds.
- 8.74 Palmate newts were present in 20 of the ponds surveyed and smooth newt may be present. Common frog and/or Common toad were also present in 20 of the ponds surveyed. At the junction of the Fochriw Road and the South Tunnel Road toads regularly cross the road in the spring to reach their breeding ponds. On the basis of the information available this was considered to be a moderate population of Great crested newts.
- 8.75 It was agreed in consultation with NRW and CCBC that further detail would be provided in the form of a draft of a Method Statement such as would be submitted with an application for a licence to disturb Great crested newts following a grant of planning permission. A draft Method Statement has been prepared and submitted to NRW and CCBC. The draft Method Statement is attached at Appendix MA/NL/PA/A08/007. A further Great crested newt survey was carried out in Spring 2014 to inform the Method Statement. The report of the survey is attached at Annex J2 of Appendix MA/NL/PA/A08/007.
- 8.76 The proposed Nant Llesg site contains six water-bodies which might be suitable for the presence of Great crested newts. In 2011, a single immature newt was identified at a small pond on the western fringes of the proposed scheme (in a pond which would be retained and enhanced). A further possible sighting of a mature Great crested newt was made in a pond and a further possible sighting of a Great crested newt was reported by others in a large water-body on Gelligaer Common to the south of the site (in an area which would not be affected by the proposed scheme). The update survey carried out in spring 2014 has identified a small population of Great crested newts located at the pond where the juvenile was previously identified and in another pond some 450m to the north west. Both of these ponds would be retained and enhanced. No additional evidence of Great crested newts was identified in operational areas of the site, and a review of the quality of the ponds present in these areas suggests that they are of lower suitability for Great crested newts (the 2014 survey found that Great crested newts were present only in the 2 ponds with the highest Habitat Suitability Indices within the survey area).
- 8.77 Experience from the neighbouring Ffos-y-fran Land Reclamation Scheme suggests that Great crested newts in this marginal vicinity tend to live at low population densities extended over quite large areas of terrestrial habitat, often covering several ponds and utilising whichever of these is in most favourable condition in a given year. The evidence from the 2011 and 2014 surveys together serves to build a picture of the use of the Nant Llesg site

and adjacent areas by Great crested newts. It is now considered unlikely that Great crested newts would occur over much of the site to the east of Rhaslas Pond and to the south and east of the disused railway cutting.

8.78 On the basis of the additional data now available this is considered to be a low population of Great crested newts.

8.79 In order to maintain the species at a favourable conservation status, and in order to try and improve conditions for this species in the area, the following mitigation measures are proposed in the draft Method Statement that has now been prepared and which is attached at Appendix MA/NL/PA/A08/007:

- Creation of three self-contained receptor site cells, including restoration and improvement of three existing ponds (including the two identified as currently supporting Great crested newts) and incorporating the creation of fourteen new ponds, all to be designed specifically to contain features likely to be of value to newts for breeding and foraging. Provision of these ponds in closer proximity to the existing ponds supporting great crested newts will substantially increase the value of the marginal habitats available in this area, and increase opportunities for Great crested newt breeding success. Terrestrial habitats and features of benefit to Great crested newts would also be incorporated into the receptor areas.
- Implementation of a capture and relocation exercise to ensure any individual newts which may be present in areas of the site at threat from the proposed works will be removed and placed into safe receptor areas. Such capture exercises will utilise sufficient trapping effort to be effective, as stipulated in the relevant guidance.
- Inclusion of testing for signs of amphibian chytridiomycosis during capture and translocation of amphibians, with attendant modification of mitigation if this should prove to be present (including a review of the appropriateness of improving connectivity between this population and others known in the vicinity).
- Prevention of re-entry into operational areas of the site would be ensured by the erection of suitable amphibian-proof fencing, and its maintenance for the duration of any works which would be likely to injure newts.
- Implementation of additional measures to ensure newts are not affected by small scale localised land remediation works (and to include installation of a power cable diversion) to areas beyond the operational area which are included in the package of development proposals. These works would also see the creation of additional ponds intended to improve connectivity for newts and other amphibians between the Nant Llesg site and populations known to occur to the south and west, particularly those associated with the Ffos-y-fran Land Reclamation Scheme.
- Further such measures to enhance connectivity will include provision of dedicated amphibian crossings allowing connections between individual receptor site cells, and linking back to other measures included in the scheme design to be of assistance to other species, such as the toad crossings included in the scheme design across South Tunnel Road and Fochriw Road.
- Monitoring of the translocation exercise, including populations of newts and habitats they have been introduced into will be carried out on regular basis throughout the life of the scheme and a management plan for the receptor areas will ensure that they are managed in a way which will be of benefit for Great crested newts.

- 8.80 On completion of the mining operations the scheme restoration strategy would result in the creation of an additional nineteen ponds and there would be approximately 106ha of terrestrial habitats likely to be of benefit to Great crested newts within the application site (in addition to a further approximately 329ha of unimproved, semi-improved and improved grasslands). The comparable figures for the existing site are 110ha of suitable terrestrial habitat and 324ha of unimproved, semi-improved and improved grasslands grassland.
- 8.81 As explained in the draft Method Statement (at Appendix MA/NL/PA/A08/007), ten ponds would be lost as a result of the operation of the site; fourteen ponds would be created within the receptor cells and a further nineteen ponds would be created as part of the restoration of the site. There would thus be an overall net increase of twenty three ponds on completion of restoration compared with the baseline.
- 8.82 On completion of remediation works, early on in the scheme programme (to be completed within the first two years of coaling), additional "*linking ponds*" would be formed to ensure a stronger link between the receptor site and the existing Great crested newt meta-population known to occur to the south-west, associated with the Ffos-y-fran development, as shown in Figure E2.4.3 of the draft Method Statement. Timing for completion of this element is shown in Section G of the same draft statement.
- 8.83 Although the scheme presents some risks to newts initially, the mitigation measures proposed would provide sufficient improvement in breeding pond habitat availability in this marginal area for Great crested newts, particularly in the lower lying areas of the site, to ensure that they remain at their current population levels, and increase sufficiently to inhabit the restored areas of the site in greater numbers than is currently the case, notwithstanding the minor reduction in terrestrial habitat.
- 8.84 Previous work carried out locally by Miller Argent as part of the Ffos y fran Land Reclamation Scheme has shown that Great crested newts can be successfully translocated to new ponds and viable breeding populations maintained.
- 8.85 NRW have confirmed that, subject to some minor revisions, they consider that the proposed methodology addresses their concerns regarding Great crested newts (email of 9/7/14).
- 8.86 The disturbance to amphibians as a result of the land take for the scheme, taking into account the mitigation measures, which are of proven effectiveness, was assessed in the ES as of low magnitude and Minor significance. The further survey work set out above, together with the Method Statement which has now been prepared, does not affect this assessment.
- 8.87 During the operation of the site the effects on amphibians was assessed in the ES as at worst as being of Negligible magnitude and significance, but to the extent that the Great crested newt population may well increase (as could other amphibian species), and toad crossings would protect the animals from both the existing traffic as well as the additional traffic resulting from the Nant Llesg project, it could well be Beneficial. This assessment remains unchanged, notwithstanding the further survey work and Method Statement which has now been prepared.
- 8.88 The ES explained that the restoration of the site would result in overall benefits to the amphibian populations of the site, and in turn this would be beneficial to the wider metapopulation of Great crested newts in the area as a result of the restoration of the site. The significance of this was assessed as Minor beneficial. This assessment remains unchanged, notwithstanding the revised Habitat Restoration Plan.



## Reptiles

- 8.89 As set out in the Environmental Statement submitted with the Nant Llesg Planning Application, one species of reptile, Common lizard, was recorded within the site in areas of rough grassland and scattered rocks around a disused tip, a pond, the southern bank of Rhaslas Pond and a stone wall. These areas were to a degree connected and Common lizards are likely to move between them.
- 8.90 The ES assumed as a worst case that all of the areas of higher quality habitat within which the reptiles were found which were within the site would be lost. Subsequent to issue of the ES the extent to which land outside the operational area of the mine would be disturbed has been considered in more detail (see Figure 1 of the Biodiversity Offsetting Report at Appendix MA/NL/PA/A08/003). It can be seen that most of the areas where Common lizard was recorded at the western margin of the site would not be affected by the scheme. In addition, although within the operational area, the southern embankment of Rhaslas Pond where the species was also recorded would also be retained.
- 8.91 Whilst the areas surveyed, and which would largely be retained, were those considered most likely to support reptiles, it is the case that reptiles will also occur at low densities in areas of less suitable habitat in other areas of the site, and this was taken into account in the assessment of the effects of the scheme in the ES.
- 8.92 In their letter of 21 February 2014, NRW refer to matters which should be addressed through Planning Conditions. One such matter is Biodiversity (Reptiles). NRW state that to comply with the protection afforded to reptiles under the Wildlife and Countryside Act 1981 (as amended); it will be necessary to draw up an appropriate trapping and translocation plan. This requirement should be made a condition of the planning consent in the event that consent is granted. Miller Argent confirm that prior to commencement of the scheme they would commission a further reptile survey to provide additional detail of the distribution and numbers of reptiles across the site and would be agreeable to a Planning Condition to this effect.
- 8.93 During consultation on the planning application, Caerphilly County Borough Council requested further detail of the proposals for mitigation of effects on reptiles.
- 8.94 The receptor sites for reptiles would in part be the same as those used for great crested newt. These are described in the Draft Great Crested Newt Method Statement referred to above and found at Appendix MA/NL/PA/A08/007. The location of the receptor cells are shown on Figure E2.4.2 of the draft method statement.
- 8.95 The indicative layout of Receptor Cell 1 is shown on Figure E2.4.3 of the draft Method Statement which explains that this cell would contain five new ponds, seven artificial hibernacula and six wood-pile refugia. Existing terrestrial habitats on site would be retained as far as possible and would be protected during the construction activities. Arisings from the excavation of the ponds would be used to form a bank with gentle south-facing slopes along the northern boundary of the cell as shown on Figure E2.4.3 of the Method Statement (Appendix MA/NL/PA/A08/007). The bank would incorporate artificial hibernacula structures and are intended to improve the value of the area for basking by reptiles. In order to retain local plant assemblages as much as possible, the bank would utilise turves removed from the initial stages of pond construction (and those at the base of the bank itself) to clad the bank. No additional seeding of terrestrial habitat is proposed. The northern boundary of receptor cell 2 would be formed by the amphibian/reptile-proof exclusion fence to be retained around the scheme during works which would prevent reptiles entering areas of risk.
- 8.96 The indicative layout of Receptor Cell 2, to the south of the proposed new site entrance off Fochriw Road is shown on Figure E2.4.4 of the draft method statement. An existing wet

- area adjacent to the road would be improved to form a pond. An additional three new ponds, eight hibernacula and four wood-pile refugia would be created. Two banks incorporating south-facing slopes of benefit to reptiles would be formed using arisings from pond creation. These would be finished using retained turves from the pond excavation and from the base of the mounds to retain as much of existing vegetation as possible.
- 8.97 Proposed Receptor Cell 3 lies to the north of Cell 2 and consists of the area of land between the existing Fochriw Road and the proposed operational site boundary to the east. The indicative layout of this cell is shown on Figure E2.4.5. The area selected contains three existing ponds. The proposals include the creation of five additional ponds, formed as the others using locally-occurring clay linings. The receptor cell will also include thirteen artificial hibernacula, some incorporated into banks with south-facing slopes to benefit reptiles, and four wood-pile refuge areas. As with other cells, the arisings from the new ponds will be used to create three areas with pronounced south-facing banks suitable for reptile basking.
- 8.98 Thus each receptor cell will provide artificial hibernacula and wood pile refuges and areas of south facing slopes which will enhance the value of these areas for reptiles and increase their suitability to receive reptiles translocated from the operational area of the Nant Llesg site.
- 8.99 In addition to these receptor areas for reptiles created alongside the measures to provide receptor sites for Great crested newt, further south facing earth banks would be constructed in the area of land in the east of the site, outside the operational area of the mine, where works would be carried out to ensure the safety of disused mine shafts and adits. These banks would be created in areas of vegetation that would not otherwise be affected by the development which would provide good cover and feeding areas for reptiles. This area would also be used as a receptor site for reptiles.
- 8.100 The assessment of the significance of the effects of land take on reptiles (Minor), operations (Negligible) and restoration (Negligible/potentially Beneficial) remain as set out in the ES, notwithstanding the consideration of the extent to which land outside the operational area of the mine would be disturbed in more detail.

## Bats

- 8.101 The Environmental Statement explains that an inspection of potential bat roosts was carried out in 2008. This included inspection of exposed cliff faces within the site for evidence of roosting bats and for roosting potential. The exposed cliff faces were assessed as having low potential for summer and winter roosts.
- 8.102 As reported in the ES, the daytime ground-based inspection was repeated in June 2011. The rock faces were inspected for features that may support a bat roost, such as cavities, cracks and splits which could provide access to sheltered cavities. No evidence of bat roosts in the cliffs was identified.
- 8.103 During consultation on the planning application, Caerphilly County Borough Council requested that further inspection of those cliffs which would be affected by the scheme be carried out for any evidence of use by bats.
- 8.104 The further survey was carried out on 10th March 2014. The report of the survey is attached at Appendix MA/NL/PA/A08/008. Each cliff was re-inspected in detail for features that may support a bat roost, such as gaps, cracks and cavities. Signs of bat presence were also searched for, such as tiny scratches or staining around the entry point and bat droppings in or around the entrance.

- 8.105 All cracks and splits identified within the cliff faces were inspected with a high powdered torch and endoscope to determine whether they had evidence of roosting bats or any potential for them. No evidence of roosting bats were found within any gaps or cavities identified along the cliff faces. The cliffs had limited potential for roosting bats due to the lack of suitable cavities within the rock face and the cool conditions experienced as they were exposed and north facing.
- 8.106 In their response to consultation NRW also requested:
- “Clarification of whether the adits and shafts associated with old mine workings to be impacted were included in the bat survey and if so the results of this survey. If this was not the case we would advise that an inspection of these features and assessment their suitability for use by roosting bats is sought. Please note that if potential or evidence of bat use is identified further survey may need to be undertaken and suitable mitigation measures provided as appropriate.”*
- 8.107 In preparation of the Nant Llesg scheme a considerable number of walk-over surveys of the land have been carried out, including a number of recent additional surveys to update data. The site has also been drilled to explore the coal reserve and to inform the geotechnical design of the site. Prior to drilling operations, the recorded positions of known mine entrances were marked on site to be avoided by the drill rigs. None were found to be open. Had an open mine entrance been found during any of the above investigations, the Coal Authority would have been immediately notified of the hazard. Those that have previously collapsed and been reported to the Coal Authority, on both Ffos-y-fran and Nant Llesg, have already been sealed. As there is little or no evidence of shafts and adits at the surface prior to any collapse, Miller Argent's proposals for their remediation include systematic geophysical ground investigations to locate them so that each can be investigated and any necessary remediation designed and carried out in liaison with the Coal Authority. Miller Argent is therefore able to confirm that no shaft or adit recorded within the Nant Llesg site has been found to be currently open and consequently none would be available as bat roosts.
- 8.108 The additional survey has confirmed so far as practicable the absence of any bat roosts within the Nant Llesg site.
- 8.109 The significance of the effect of the loss of bat foraging habitat as a result of the land take of the scheme remains as Minor as assessed in the ES. During the operation of the mine and on restoration the effects on bats are assessed as Negligible to potentially Beneficial as reported in the ES, notwithstanding the further survey and investigation work carried out. .

## Breeding Birds

- 8.110 The ES reports that 61 species were recorded during the breeding bird survey; 37 species were confirmed to be breeding. Little ringed plover was present in numbers of importance at the Welsh geographical scale; Lapwing was present at numbers of Welsh importance and the population is part of the wider Heads of the Valleys metapopulation. Ringed plover and snipe were present in numbers of County Borough importance. Other species of note were Skylark, Dunnock, Song thrush, Starling, House sparrow, Linnet, Bullfinch, Reed bunting and Willow warbler.
- 8.111 Since the ES was issued, further surveys have been carried out of breeding waders in the vicinity of Rhaslas Pond and the area to the south. The survey reports are attached at Appendix MA/NL/PA/A08/004. Table ESA8.2 below summarises the results of all of the surveys carried out.

**Table ESA8.2 Status of breeding waders recorded during the 2011, 2013 and 2014 surveys**

Species	Year		
	2011	2013	2014
Little Ringed Plover	2	1	0
Ringed Plover	2	0	0
Lapwing	9	6-8	10
Snipe	1-2	2	1-2
Curlew	0	1	0

- 8.112 It can be seen that Little ringed plover, Ringed plover and Curlew did not breed in 2014. Little ringed plover shows a decrease over the period of the surveys from two pairs in 2011, 1 pair in 2013 and none in 2014. Only Lapwing and Snipe bred in 2014. All of the Lapwing were in the area of land owned by Caerphilly CBC in the south of the Nant Llesg site in 2014, an area undisturbed by the scheme other than for drainage improvements which will be carried out on behalf of Caerphilly CBC outside the Lapwing breeding season. It is evident that the ES assessment of the importance of the site for breeding waders, particularly with respect to Little ringed plover, as of national importance, over-values the site.
- 8.113 Since Little ringed plover has declined from two pairs in 2011 to none in 2014 the site is clearly of less importance to the species than was considered to be the case when the ES was prepared. Since the species does not breed every year, the importance of the site is now considered to be of county rather than national importance. The ES assessment was that there would be an impact of high magnitude on a population of national importance which would be of Major significance. This has been reassessed as an impact of high magnitude on a population of county importance and thus of Moderate significance, as a result of the further survey work carried out.
- 8.114 There is the potential to provide suitable habitat for Little ringed plover in the Central Ecological Area of the Ffos y Fran Land Reclamation Scheme. However, Little ringed plover have already nested in this general area, and this may not result in sufficient replacement habitat for both of the pairs recorded at Rhaslas Pond.
- 8.115 The ES reports that eight pairs of Lapwing bred on the open level area of Fochriw Tip in the south of the site. This area is only included within the site boundary to enable works to be carried out to remedy erosion problems on the eastern side. The area used by the Lapwings would not be affected. In 2013, seven pairs of Lapwing bred in this area and in 2014 ten pairs
- 8.116 In 2011, one pair of Lapwing bred on the western edge of Rhaslas Pond. This area would be affected by the works. This was assessed as an impact of medium magnitude on the population of national importance and thus of Moderate significance in the ES. In 2013 one pair again bred in this area. In 2014, none bred in the vicinity of Rhaslas Pond. All of the Lapwings in 2014 nested in the area owned by Caerphilly CBC where the only works which would be carried out would be improvements to the drainage of colliery spoil tips. Given that the surveys show that Lapwing do not regularly nest in the area around Rhaslas Pond and since all of the work in the area owned by Caerphilly CBC would be carried out outside the bird breeding season to avoid disturbance of breeding Lapwings, the significance of the effects on Lapwing has been reduced from Moderate adverse to Minor adverse, as a result

- of the further survey work carried out. This assessment acknowledges the potential risk that some people who currently visit Rhaslas Pond will instead use this land for recreation and dog walking, as well as commitments requested by the RSPB to improve the management of the area to the south for Lapwings.
- 8.117 The Applicant has confirmed its commitment to improve and manage land in the southern part of the application site in a manner sympathetic to Lapwing. These works would start on commencement of operations on the Nant Llesg scheme and continue throughout the early remediation works, which would be completed within two years of the commencement of coaling. The detailed design, and the development and management of the Lapwing nesting area for the duration of the Nant Llesg scheme would be agreed with CCBC in liaison with NRW and RSPB. As the land reverts to urban common on the completion of restoration, the Applicant will liaise with CCBC and the commoners association about the ongoing management of the land.
- 8.118 An obligation to this effect will be included in the Applicant's Section 106 Agreement for the Nant Llesg scheme.
- 8.119 As reported in the ES in 2011 two pairs of Ringed plover bred on the margins of Rhaslas Pond in an area that would be lost to the development of the site. This was assessed as an impact of high magnitude on the population of County Borough importance and thus of Moderate significance. No Ringed plover bred at the site in 2013 or 2014. The site is clearly not of importance for breeding Ringed plover and the population should be considered to be of no more than Community importance. The effects on Ringed plover would thus be reassessed as being of Minor significance.
- 8.120 The ES reports that in 2011 two pairs of Snipe were recorded, one in the area of Fochriw Tip which would not be affected by the development, and the other in the area between Rhaslas Pond and the South Tunnel Road which would be lost. This would be an impact of high magnitude on the population of County Borough importance and thus of Moderate significance. Similar numbers of Snipe were reported in 2013 and 2014 and the assessment of effects on snipe remains unchanged from the ES.
- 8.121 The assessment of the effects of the proposals on other breeding bird species remains as set out in the ES.
- 8.122 On the basis of the changes in the assessment of the effects on breeding waders described above, the overall effects of land take on breeding birds as a result of loss of habitat is now assessed as of high magnitude and Moderate significance (reduced from Major significance in the ES).
- 8.123 The assessment of the significance of the effects on breeding bird populations during the operation of the site remains as in the ES as of low magnitude and thus of Minor significance.
- 8.124 The effects of restoration compared to the current baseline are assessed overall as being of medium magnitude and of Moderate adverse significance as for the ES.

### Wintering/passage birds

- 8.125 The winter bird assemblage recorded at the site in 2008/2009 was a mixture of common, lowland, wider-countryside or urban species such as Wren, House sparrow, Robin, Buzzard, Carrion crow, Blue tit, Rook, Jackdaw, Magpie and Blackbird, and more typical upland species such as Meadow pipit, Raven and Stonechat. Several declining species often associated with lowlands such as Skylark, Song thrush and Starling were also seen, many of

- which were also present in the areas of rougher grassland. Reed buntings were observed feeding in and around the tree planting belts and the allotments at Fochriw. Five specially protected species, seven UK BAP Priority species, five red-listed species of high conservation concern and sixteen amber-listed species of medium conservation concern were observed at the site.
- 8.126 The diversity and abundance of species recorded during the 2011/2012 survey was similar to that previously found during 2008/2009. However, counts of Lesser black-backed gull, Herring gull and Starling were significantly greater in 2011/2012 possibly as a result of changes in landfill activity adjacent to the survey area.
- 8.127 An updated desk study of ornithological data for the site was carried out in 2014 and the report is at Appendix MA/NL/PA/A08/005. The dataset contains records relating to 88 species of conservation interest/importance from within the Nant Llesg survey area and a buffer of 2 km surrounding the site. No species was recorded as present on site in numbers approaching national significance (i.e. 1% of the UK population).
- 8.128 Accurate Welsh or local population estimates are unavailable for many of the species of conservation importance recorded during the survey. However, Little ringed plover, Lapwing, Lesser black-backed gull and Herring gull have been recorded in numbers potentially important at a Welsh scale although both gull species are indirectly attracted to the area due to the presence of the adjacent Trecatti Landfill and their abundance on site is dependent on continued waste disposal activity.
- 8.129 Wigeon, Tufted duck, Goldeneye, Goosander, Red kite, Hen harrier, Merlin, Jack Snipe, Snipe, Curlew and Short-eared owl in numbers suggesting importance at a county/local scale. In addition, the assemblage of waterbirds using Rhaslas Pond is important at a county/local scale.
- 8.130 The further review in 2014 thus confirms the ES assessment that the site is of County importance for winter/passage birds and the assessment of the significance of effects of the land take for the scheme on wintering/passage birds remains as Moderate adverse.
- 8.131 The assessment of the significance of the effects of the operation of the site remains as Minor adverse.
- 8.132 On restoration, the time taken for the recovery of the full functionality of the ecosystems established and the loss of complexity means that the full range and size of populations may not recover for a considerable time after restoration. As for the ES, the effects of restoration on wintering birds compared to the current baseline are assessed overall as being of Moderate adverse significance.

### Terrestrial Invertebrates

- 8.133 The Environmental Statement explains that a survey of terrestrial invertebrates was carried out over the period June to October 2011 using a variety of techniques including direct observation, sweep netting, beating vegetation, pitfall trapping, MV light trapping and actinic light trapping. During consultation on the planning application Caerphilly County Borough Council asked for further detail of the invertebrate sampling locations.
- 8.134 The full Terrestrial Invertebrate Report is included at ES Appendix MA/NL/ES/A08/012. This explains that an initial site visit was made on 20th June 2011, when a walk-over survey of the entire site was undertaken in order to determine the nature and scope of detailed survey work required in order to undertake an assessment of overall terrestrial invertebrate interest.



- 8.135 On all visits, terrestrial invertebrates were recorded during daylight across the site as a whole by direct observations of both species and their signs (such as leaf mines and plant galls). Direct observational recording and active sampling methods (sweep-netting and beating vegetation) were applied, more or less at random, in all areas across the site wherever suitable places were observed.
- 8.136 Based on the initial walkover, the area around Rhaslas Pond was selected for detailed passive sampling as it contained a range of vegetation types including areas likely to be of most value for invertebrates.
- 8.137 Pitfall trapping was carried out with a view to sampling ground beetles (Carabidae). Twenty pitfall traps were established in a broad perimeter around Rhaslas Pond and affecting the following four broad NVC habitat types:
- U5: Nardus stricta – Galium saxatile: west of the lake;*
- U4: Festuca ovina – Agrostis capillaris – Galium saxatile: north-east of the lake;*
- M23: Juncus effusus – Galium palustre rush pasture: further east;*
- M15: Scirpus cespitosus – Erica tetralix wet heath: south of the lake.*
- 8.138 The locations of pit fall traps in the area of Rhaslas Pond are shown on the drawing entitled 'Invertebrate Survey Sampling Areas' at Appendix MA/NL/PA/A08/001. The traps were established on 22nd August and remained in position until 3rd October. Unfortunately, several traps were lost to trampling by cattle or horses and two were excavated – probably by a fox. The remaining samples from all the traps were pooled to provide a single species list for the wider grassland macro-habitat.
- 8.139 The Terrestrial Invertebrate report explains that a total of six light traps were operated during each of three overnight periods. These were randomly positioned on the west, south and north sides of Rhaslas Pond in positions also shown on the drawing entitled 'Invertebrate Survey Sampling Areas' at Appendix MA/NL/PA/A08/001. The precise positions of the traps were altered on each occasion to accommodate wind direction in particular and the results are, therefore, pooled as a single list for the whole site.
- 8.140 The conclusion of the reports was that in terms of terrestrial invertebrates the Nant Llesg site provides a typical example of an upland acid grassland area. Much of the ground is of very low invertebrate interest, including all of the MG7 neutral grassland to the north.
- 8.141 Acid grasslands are specifically poor in nectar-bearing flowers, particularly in spring and early summer when post-hibernation insects are seeking feeding sites. Surrounding flower-rich habitats may be of greater importance in supporting populations of some invertebrates, such as solitary bees and so it is of importance that any relatively enriched edge habitats, such as roadside verges, with umbellifers and patches of disturbed ground with ragwort or thistles are identified, as they will probably make a significant contribution to the wider ecological picture.
- 8.142 The Terrestrial Invertebrate Report at Appendix MA/NL/ES/A08/012 of the ES referred to small and very localised invertebrate "hot-spots" identifiable here and there – that of greatest interest being, on the basis of available data, the relatively flower-rich patch of H12 *Calluna vulgaris – Vaccinium myrtillus* heath north of Rhaslas Pond. However, invertebrate species associated with the plants in this and other hot-spot areas are usually low in number simply because there are not extensive areas of the plants which they find attractive. Because these "hot-spots" are small and very localised it has not been possible to map them, but in general, wherever there are areas of more distinctive relatively species-rich vegetation within

- the general acid grassland, they will be of relatively more invertebrate interest, subject to the qualification referred to above that the small extent of such areas does itself limit their value. As explained in the invertebrate report, the survival of the invertebrate fauna that affects these isolated hot-spots may involve a relationship with the wider, open grassland area that demonstrates little or no intrinsic invertebrate interest at present.
- 8.143 Appendix 1 of the Terrestrial Invertebrate Report at Appendix MA/NL/ES/A08/012 of the ES listed the invertebrate species recorded during the surveys and provided information on habitat preferences. The plan included as Figure 1 of Appendix MA/NL/PA/A08/001 shows the subdivision of the site for the invertebrate survey which was as follows:
- A *The south west margin of the Nant Llesg site north of South Tunnel Road and including the north and west margins of Rhaslas Pond and a number of smaller ponds.*
  - B *The southern and eastern margins of Rhaslas Pond with adjoining wet heath and acid grassland.*
  - C *Wet heath, marshy grassland and acid grassland south and south east of Rhaslas Pond*
  - D *Area of largely improved grassland in the north of the site.*
  - E *Area of acid grassland in the east of the site.*
- 8.144 A revised version of Appendix 1 is appended to this ES Addendum as Appendix MA/NL/PA/A08/002. This indicates in which of the above areas of the site the species listed were recorded.
- 8.145 The assessment of impacts on terrestrial invertebrates at Chapter 8 'Ecology and Nature Conservation', paras 8.338 - 8.340 assumed that all terrestrial invertebrate habitat within the application site would be lost. As explained in the section on 'Habitats' above, subsequent to issue of the ES the extent to which land outside the operational area of the mine would be disturbed has been considered in more detail and revised areas of disturbance have been calculated, given that not all habitat would be lost in the areas identified for early remediation. As can be seen from Figure 1 of the Biodiversity Offsetting Report at Appendix MA/NL/PA/A08/003, extensive areas in the west, south and east of the site, including much of the land owned by Caerphilly CBC south of the South Tunnel Road, would remain largely undisturbed, in particular areas of wet heath, marshy grassland and unimproved acid grassland of relatively greater importance to terrestrial invertebrates.
- 8.146 However as explained in the ES, land take for the site would remove large areas of habitat for invertebrates, including that of the more notable species such as Small heath and Grayling butterflies, and Broom moth. The overall effect was assessed as being of high magnitude on features of up to County Borough importance and thus of Moderate significance. This assessment remains unchanged, notwithstanding the more detailed consideration of and revision of areas of disturbance.
- 8.147 Similarly the assessment of the effects of the operation of the site on terrestrial invertebrates outside the operational areas would remain as of negligible magnitude and Negligible significance.
- 8.148 The effects of restoration on invertebrates compared to the current baseline remain as assessed in the ES as of low magnitude and of Minor adverse significance.



## Odonata - Dragonflies and damselflies

- 8.149 The ES reported that fourteen species of Odonata were identified as occurring, or having occurred, within the Nant Llesg survey area boundary. A further survey carried out in 2013 recorded thirteen species of Odonata. In combination with the desk study and previous survey undertaken in 2011, fifteen species have been identified as occurring, or having occurred within the last ten years, within the Nant Llesg survey area boundary.
- 8.150 In their response to consultation NRW noted that:
- “Section 8.343 of the ES confirms that much of most valuable Odonata habitat on site would be lost. Given our concerns above regards habitat restoration, it may be difficult to recreate the current site conditions that support such a diverse range of Odonata species and would likely damage an important Regional Odonata site. Given that the ES recognises significant impacts are likely to Odonata, appropriate mitigation for these impacts should be prepared.”*
- 8.151 During consultation on the planning application, Caerphilly County Borough Council also asked for further information on the opportunities for habitat creation for Odonata during the operation of the site.
- 8.152 The greatest diversity and abundance of Odonata were found to occur in those parts of the survey area adjacent to Rhaslas Pond, between Rhaslas Pond and the minor South Tunnel Road to the south, and to the south of the road. Those ponds in this area along the western margin of the site and to the south of South Tunnel Road would be retained. They would continue to provide suitable habitat for Odonata during the life of the mine.
- 8.153 The ES reports that much of the habitat of most value to Odonata would be lost to the development of the site and that whilst a number of ponds suitable for breeding would be retained around the margin of the site, and additional ponds created for amphibians would also be of value to Odonata, the extensive wetland areas which provide foraging habitat for the adult insects would be lost.
- 8.154 The ES also reports that restoration of the site would reinstate vegetation of similar character to that which currently exists across the site. Additional ponds would be established which would provide new breeding sites for Odonata, in addition to the ponds which would have been established early in the scheme. The area of most potential for Odonata would be the area to be restored to wet heath and marsh south of Rhaslas Pond. This remains the case in the revised Habitat Restoration Plan.
- 8.155 The draft Great Crested Newt Method Statement at Appendix MA/NL/PA/A08/007 describes the pond creation which would be carried out prior to the commencement of the operation of the site in further detail than was contained in the ES. Receptor sites for Great crested newts would include creation of new ponds, which would also be suitable breeding sites for Odonata. The proposed locations are shown in Figure E 2.4.2 of the draft Method Statement.
- 8.156 The receptor sites would consist of three cells, each with a complex of ponds. All new ponds would be constructed with ledges approximately as shown in the sections on Figure E2.4.3 of the draft Method Statement. They would be lined with locally-occurring clay and planted as shown. Where it may be possible to introduce aquatic vegetation from existing ponds to be lost, this would be considered where there was no risk of transmission of fish or their eggs.
- 8.157 Receptor Cell 1 would contain five new ponds constructed using locally-occurring clay to line them, and planted with the aquatic species shown in Figure E2.4.3 of the draft Method Statement.

- 8.158 Proposed Receptor Cell 2 is to the south of the proposed new site entrance off Fochriw Road. An existing wet area adjacent to the road would be improved to form a pond, by increasing its size, reducing out-flow into road drainage (it would be separated from the road-drain system) and by improving sectional shape to allow for shallow shelving ledges to improve establishment of vegetation. An additional three new ponds would be created.
- 8.159 Receptor Cell 3 lies to the north of Cell 2 and consists of the area of land between the existing Fochriw Road and the proposed operational site boundary to the east. The area selected contains three existing ponds. Existing ponds P14 and P24 would be enhanced by modifying their connections to the existing drainage features to maintain better water levels and some re-modelling to enlarge them and offer shelving ledges or other sectional features. Where this work involves removal of aquatic vegetation, it would be retained and used to assist with planting of other new ponds in this receptor cell. Existing pond P8 is also within this receptor cell, but is not appropriate for modification as it is a flooded small quarry feature and is generally formed in solid rock.
- 8.160 The proposals for this receptor cell also include the creation of three additional ponds, formed as the others using locally-occurring clay linings and planted as shown in Figure E2.4.3, to reinforce the use of vegetation removed from existing ponds P14 and P24 during their improvement.
- 8.161 As explained in the draft Great Crested Newt Method Statement, ten ponds would be lost as a result of the operation of the site; fourteen ponds would be created within the receptor cells and a further nineteen ponds would be created as part of the restoration of the site. There would thus be an overall net increase of twenty three ponds on completion of restoration compared with the baseline.
- 8.162 Additional “*linking ponds*” would be formed to ensure a stronger link between the receptor site and the existing Great crested newt meta-population known to occur to the south–west, associated with the Ffos-y-fran development. These would become available to Odonata on completion of remediation works, within the first two years of coaling. They are shown on Figure E2.4.3 of the draft Method Statement (Appendix MA/NL/PA/A08/007) and their timing for completion is provided in Section G of the same draft statement.
- 8.163 It can be seen that there would be considerable opportunities for Odonata to colonise suitable new ponds during the operation of the site and on subsequent restoration. These ponds would be in a variety of topographical settings around the site and will thus provide a range of habitat conditions. The overall increase in the number of ponds on completion of the scheme would be of considerable benefit to Odonata.
- 8.164 The ES explains that much of the habitat of most value to Odonata, including the Scarce blue-tailed damselfly south of Rhaslas Pond, would be lost to the development of the site. Whilst a number of ponds suitable for breeding would be retained around the margin of the site, and additional ponds created for amphibians would also be of value to Odonata, the extensive wetland areas which provide foraging habitat for the adult insects would be lost. The effects of land take are thus assessed as being of high magnitude and as the overall Odonata community is assessed as of County Borough importance the significance is assessed as Moderate adverse. The assessment of the effects of land take remains as in the ES, notwithstanding the overall increase in the number of ponds.
- 8.165 As stated in the ES, during the operation of the site there would be no particular further effects on Odonata outside the operational areas of the site and thus the area already affected by the land take for the scheme. The effects would thus be of negligible magnitude and Negligible significance. That assessment remains unchanged.

- 8.166 The effects of restoration on Odonata compared to the current baseline are assessed overall as being of low magnitude and of Minor adverse significance as stated in the ES and that assessment remains unchanged.

### Summary of Impacts

- 8.167 For the other Valued Ecological Resources (VERs) considered in the ES (otter, aquatic invertebrates and fish) there have been no changes in the baseline data or assessment since the ES was issued in 2013.
- 8.168 Table ESA8.3 below summarises the ecological effects of the proposed development, updated where necessary to take account of the further information and changes to the scheme contained in this addendum to the ES. The majority of effects would be of Negligible or Minor significance.
- 8.169 Exceptions as a result of the land take of the project would be an impact of Moderate significance on breeding birds (taking into account the findings of the 2103 and 2014 breeding wader surveys indicating a reduced value of the site for Little ringed plover and Ringed plover). There would also be impacts of Moderate significance on non-statutory designated sites (loss of much of the Cefn Gelligaer SINC), 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).
- 8.170 During operation of the site no adverse effects would be of greater than Minor significance. There would be beneficial effects on fish and potentially on amphibians and bats as a result of habitat creation, and to otter as a result of improvements to downstream water quality.
- 8.171 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 (Cefn Gelligaer SINC) and habitats (in particular wet heath), breeding and wintering/passage birds (as a result of uncertainties regarding the effectiveness and timescale of habitat restoration). There could be beneficial effects on reptiles, bats and Otter as a result of habitat creation, and fish and potentially Otter through long term benefits to downstream water quality.

**Table ESA8.3 Summary of the Significance of Ecological Impacts**

<b>Feature</b>	<b>Land take</b>	<b>Additional Effects During Operation</b>	<b>Restoration</b>
<i>Statutory Designated Sites</i>	<i>Negligible</i>	<i>Negligible</i>	<i>Negligible</i>
<i>Non-Statutory designated sites</i>	<i>Moderate adverse</i>	<i>Minor adverse</i>	<i>Moderate adverse (potentially Negligible)</i>
<i>Habitats</i>	<i>Moderate adverse</i>	<i>Negligible</i>	<i>Minor/Moderate adverse</i>
<i>Amphibians</i>	<i>Minor adverse</i>	<i>Negligible (potentially Beneficial)</i>	<i>Minor beneficial</i>
<i>Reptiles</i>	<i>Minor adverse</i>	<i>Negligible</i>	<i>Negligible (potentially Beneficial)</i>
<i>Bats</i>	<i>Minor adverse</i>	<i>Negligible (potentially Beneficial)</i>	<i>Negligible (potentially Beneficial)</i>
<i>Otter</i>	<i>Minor adverse</i>	<i>Negligible (potentially Beneficial)</i>	<i>Negligible (potentially Beneficial)</i>

<b>Feature</b>	<b>Land take</b>	<b>Additional Effects During Operation</b>	<b>Restoration</b>
<i>Breeding birds</i>	<i>Moderate adverse</i>	<i>Minor adverse</i>	<i>Moderate adverse</i>
<i>Wintering/passage birds</i>	<i>Moderate adverse</i>	<i>Minor adverse</i>	<i>Moderate adverse</i>
<i>Terrestrial invertebrates</i>	<i>Moderate adverse</i>	<i>Negligible</i>	<i>Minor adverse</i>
<i>Dragonflies and damselflies</i>	<i>Moderate adverse</i>	<i>Negligible</i>	<i>Minor adverse</i>
<i>Aquatic invertebrates</i>	<i>Minor adverse</i>	<i>Negligible</i>	<i>Negligible</i>
<i>Fish</i>	<i>Minor adverse</i>	<i>Minor beneficial</i>	<i>Minor beneficial</i>

## Bryn Caerau Biodiversity Compensation Area

- 8.172 The assessment of the ecological impacts of the Nant Llesg proposals set out above concludes that the majority of effects would be of Negligible or Minor significance. Exceptions as a result of the land take of the project would be an impact of Moderate significance on breeding birds. There would also be impacts of Moderate significance on non-statutory designated sites (Cefn Gelligaer SINC), habitat loss (particularly wet heath), wintering/passage birds, terrestrial invertebrates, and dragonflies and damselflies.
- 8.173 The nature of the proposed development means that it is not possible to fully mitigate these effects within the site boundary. In order to off-set these effects it is proposed to implement ecological enhancements in an area to the south west of the site. The land to be used is part of the holding known as Bryn Caerau Farm which is owned by Miller Argent (South Wales) Limited and farmed by tenants, the location of which is shown on the plan at Drawing MA/NL/ES/08/008 of the ES.
- 8.174 The ES recognised that the land at Bryn Caerau already contains a variety of habitats of value and supports protected and notable flora and fauna. However, it identified that 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. To achieve that, management of the land at Bryn Caerau would be secured by means of a S106 agreement.
- 8.175 The ES concluded that following completion of the Nant Llesg project, the site itself would have been restored and would be managed by the landowner in the north and the commoners in the south. In addition, the Bryn Caerau offsetting area would have had some 20 years of habitat improvement and management, and an agreement would be in place to ensure that the key habitats would continue to be managed in an appropriate manner. While the wet heath habitats within the Nant Llesg site would take a long time to recover, the likelihood is they would recover in the long term, given the alternative grazing available. The ES also acknowledged that there are current threats to the wet heath if grazing pressure is increased and this would also be the case when the site is recovering.
- 8.176 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, the ES concluded that the overall balance of biodiversity of the area would be maintained.
- 8.177 In September 2013 the UK Government consulted on its proposals for an offsetting system for England, and is currently considering the responses it received. Subsequent to preparation of the ES, Miller Argent have submitted a report entitled "*Nant Llesg – Biodiversity Offsetting*" (see Appendix MA/NL/PA/A08/003) to Caerphilly CBC which sets out the calculations of biodiversity value of the Nant Llesg site and the Bryn Caerau offsetting area as they currently exist and following the enhancement of Bryn Caerau and restoration of the Nant Llesg site following the Defra methodology set out in the guidance for the offsetting pilots.
- 8.178 The construction and operation of the mine would result in the temporary loss of habitats currently present on the Nant Llesg site. The loss of habitats would be offset by the restoration of the land on completion of the mining operations and by implementation of habitat enhancement within the area of land at Bryn Caerau which is owned by Miller Argent (South Wales) Limited.
- 8.179 Biodiversity units have been calculated using the following guidance produced for Defra's biodiversity offsetting pilot:

- Biodiversity Offsetting Pilots – Technical Paper: The Metric for the Biodiversity Offsetting Pilot for England (Defra 2012);
- Biodiversity Offsetting Pilots: Guidance for Developers (Defra 2012); and
- Biodiversity Offsetting Pilots: Guidance for Offset Providers (Defra 2012)

8.180 Miller Argent acknowledges that biodiversity is a devolved matter and there is currently no formalised offsetting scheme in Wales. The methodology has been used solely as a tool to enable the biodiversity value of the different habitats within Cwm Golau and the Nant Llesg site to be compared. Table 8.4 below summarises the overall changes in Defra biodiversity units which would result from the Nant Llesg project.

**Table ESA8.4 Overall changes in Defra biodiversity units**

Area	Biodiversity units (ha)	Biodiversity Units (m)
<i>Nant Llesg site existing</i>	2560	141973
<i>Nant Llesg site following restoration</i>	2142	141856
<i>Nant Llesg change</i>	-418	-117
<i>Bryn Caerau existing</i>	720	100842
<i>Bryn Caerau following enhancement</i>	1249	193005
<i>Bryn Caerau change</i>	+529	+92163
<i>Nant Llesg and Bryn Caerau existing combined</i>	3280	242815
<i>Nant Llesg and Bryn Caerau following restoration/enhancement combined</i>	3391	334861
<i>Overall change</i>	+111	+92046

Area	Biodiversity units (ha)	Biodiversity Units (m)
<i>Overall change %</i>	+3.38%	+38%

- 8.181 The report supports the original conclusion in the ES that the overall balance of biodiversity would be maintained, notwithstanding that there would be a substantial gain for linear habitats measured in metres.

### Additional Offsetting

- 8.182 Opportunities for further compensation and biodiversity benefit have been considered in discussion with Caerphilly CBC and NRW.
- 8.183 Despite such discussions, no suitable and deliverable local opportunities have been identified. Miller Argent has therefore looked further afield and the Pumlumon Project in central Wales has been identified as a potential option. The Pumlumon Project is a flagship Living Landscape project of the Royal Society of Wildlife Trusts. It is led by the Montgomeryshire Wildlife Trust and supported by the Welsh Government, Natural Resources Wales, The Crown Estate, Welsh Water, Statkraft, Biffa and other local businesses and landowners. Established in 2007, the Pumlumon Project is a radical rethink of how the landscapes of upland Britain could work. The project is pioneering an upland economy built around wildlife, ecology and long-term sustainability across 150 square miles of the Cambrian Mountains. The project has been successfully piloted over an area of 500 ha over five years and is now inviting companies, organisations and individuals to help restore the remaining project area over ten years.
- 8.184 One of the elements of the project is carbon storage. Pumlumon includes extensive areas of peat. In the 1950s and 60s, much of it was drained in a largely unsuccessful attempt to improve grazing. This degraded the wildlife habitats and, as the drying peat oxidised, released large amounts of stored carbon into the atmosphere.
- 8.185 The project will reduce these emissions by blocking drainage ditches. As the bogs become wet again the mosses start to grow, absorbing carbon each summer and locking it away as new peat. At the same time, the existing stores of peat are protected from further erosion, and species marginalised by the original drainage can return. Bogs are one of the six key habitats which the project aims to restore.
- 8.186 Recognising that during the operation of the Nant Llesg Site there would be a temporary reduction in the area of wet heath habitat to the extent of some 35ha, and in response to NRW's request for benefit, Miller Argent has met with the Montgomeryshire Wildlife Trust to discuss possible involvement in the Pumlumon Project.
- 8.187 The Trust has indicated that, whilst it would remain entirely neutral with respect to the Nant Llesg project (and thus would neither support nor oppose the proposals), should the project be consented then the Trust would be prepared to accept funding from Miller Argent to be targeted on the restoration of some 50ha of wet heath/bog habitat. Funding for the restoration and ongoing management of 50 ha of upland bog has accordingly been agreed with the



- Montgomeryshire Wildlife Trust in the sum of £112,550 payable in stages over the 14 year life of the Nant Llesg Project.
- 8.188 The funding would support the Trust's restoration of the damaged peatland habitat including an initial habitat restoration phase supported by subsequent on-going habitat management over a total period of 14 years, this being the operational life of the Nant Llesg Project.
- 8.189 The habitat restoration would include any of the following activities: ditch blocking and rewetting, introduction of cattle grazing, the restoration of erosion features, grazing exclusion and heather cutting.
- 8.190 On-going habitat management would ensure that the habitat creation and repair works undertaken within the restoration phase were maintained. This management may initially include the exclusion of grazing animals and the maintenance of ditch plugs. However, over an extended time scale the majority of on-going habitat management would be associated with the maintenance of sympathetic grazing regimes.
- 8.191 Miller Argent's funding over the 14 years would restore and maintain 50ha of wet heath/bog habitat that would then be suitable for longer-term management under the Pumlumon Project. Current proposals under the Pumlumon Project are for 30 years.
- 8.192 The proposed funding is of course in addition to the reconsideration of areas that may be impacted upon by the Nant Llesg proposal and is in addition to the proposal to restore those areas of the Nant Llesg site that would be impacted upon by the scheme. Consequently, Miller Argent's involvement in the Pumlumon scheme would mean that, on restoration of Nant Llesg, there would be a total of 112ha of restored wet heath/bog habitats associated with the Nant Llesg scheme, some 62ha of which would be re-established and undisturbed wet heath on the restored Nant Llesg site and 50ha of which would be in the Mid Wales uplands. This equates to a significant ecological benefit, once all of the impacts, mitigation and compensation is taken into account. Furthermore the restoration of the wet heath/bog habitats during the operation of the scheme compensates for the loss of habitats resulting from the land take and the operation of the scheme. The funding of the Pumlumon project, together with the Bryn Caerau compensation, enables a conclusion of biodiversity balance to be reached during these stages of the scheme.
- 8.193 Discussions with CCBC and NRW have also identified potential projects in the local area that have the potential to allow more local biodiversity improvements than the Pumlumon project. These are not yet at a certain stage, but there is a possibility that they could come forward and could provide alternative suitable opportunities for biodiversity benefits. Should any more local suitable alternatives be identified by CCBC or NRW that do provide deliverable compensation opportunities, then Miller Argent would be pleased for its funding to be targeted towards these as alternatives to the Pumlumon Project. Thus Miller Argent would be happy to include provision in the Section 106 Agreement for the sum of £112,550 to be made available in stage payments over the coaling life of the Nant Llesg scheme for CCBC to fund local and deliverable enhancement of biodiversity interests within the County Borough as an alternative to the Pumlumon Project. In either event, whether funding was provided to the Pumlumon Project, or local projects within Caerphilly, there would be a benefit to biodiversity on restoration of the scheme and a balance of biodiversity despite the loss of habitats resulting from the land take and operation of the scheme. This conclusion is able to be reached as a result of the inclusion of this additional compensation.

## References

Defra (2012) Biodiversity Offsetting Pilots. Guidance for offset providers. Defra

Defra (2012) Biodiversity Offsetting Pilots. Guidance for developers. Defra

Defra (2012) Biodiversity Offsetting Pilots. Technical Paper: the metric for the biodiversity offsetting pilot in England. Defra

# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 9

### Agricultural Land Use and Soils



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 9 – Agricultural Land Use and Soils**

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## 9 Agricultural Land Use and Soils

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### Chapter Summary

- 9.1 This ES Addendum chapter provides additional information with respect to the Agricultural Land Use and Soils assessment which forms part of the ES.
- 9.2 In response to comments from National Resources for Wales (NRW) and Welsh Government National Resources and Food, the addendum contains clarifications with regard to:
- the identification of the natural soil resources from the detailed soil survey work that has been undertaken on the site
  - the generation of natural soil resources and soil forming materials from the site that can be used in the restoration strategy; and
  - the proposals for the stripping, storage and restoration and peaty soils. An additional report has been submitted entitled Peat Handling and Wet Heath Restoration (Appendix MA/NL/PA/A08/010) that deals with this particular aspect of the Nant Llesg proposals.
- 9.3 The additional clarifications provided do not change the original baseline data in the ES or the proposals for measures to be adopted as part of the Project provided in the ES for the stripping, handling or restoration of the soils and agricultural land on the site as described in the Peaty and Non Peaty Soil Handling Methodologies (ES Appendices MA/NL/ES/A009/002 and MA/NL/ES/A009/003).
- 9.4 Based on the fact that there are no changes to the baseline data provided or the proposals for the stripping storage and restoration of soils and agricultural land on the site, there is no change in the assessment of the effects of the Nant Llesg Scheme on Agricultural Land Use and Soils as provided in the ES.

### Introduction

- 9.5 This chapter has been prepared by RPS Planning and Development Limited.
- 9.6 The effects of the Nant Llesg proposals on agricultural land use and soils were assessed in Chapter 9 of the Environmental Statement (ES) which was submitted with the planning application in October 2013.
- 9.7 Chapter 9 of the ES considered the likely environmental effects on agricultural land use and soil resources arising from the site enabling, operation (mining), remediation, restoration and aftercare phases of the project. The agricultural land use and soil receptors considered included effects on mineral and peaty soil resources, agricultural land quality, farm holdings and the agricultural use of Merthyr and Gelligaer Common.
- 9.8 The Nant Llesg site includes the northern part of Gelligaer and Merthyr Common (C38) and farmland to the north of the common. Areas proposed to mitigate for the loss of grazing and public access across the section of the common within the site were also described and the agricultural effects of these uses on this land were assessed.

- 9.9 Following submission of the planning application with the ES, a number of meetings have been held with Caerphilly County Borough Council (CCBC) and Natural Resources Wales (NRW), and there have also been a number of points raised in post-application representations. Through these discussions and in responding to the representations, additional information has been submitted to Caerphilly County Borough Council to clarify the proposals.
- 9.10 This chapter of this ES Addendum sets out the additional information provided which is relevant to consideration of the effects of the Nant Llesg proposals on agricultural land use and soils, and, where appropriate, sets out any changes to the assessment of the effects of the proposals which arise.

## Policy Guidance

- 9.11 The Policy Guidance described in Chapter 9 of the ES remains unchanged.

## Methodology

- 9.12 The methodology described in Chapter 9 of the ES for the assessment of the effects of the proposal on agricultural land use and soils remains unchanged.

## Consultation

### Further Consultations following the submission of the Application

- 9.13 In addition to the pre-application meetings and discussions, following the submission of the planning application the following meetings have taken place with Caerphilly County Borough Council; Welsh Government Department for Natural Resources and Food; and National Resources Wales, that have considered issues relevant to the agricultural land use and soils assessment work.
- 27<sup>th</sup> March 2014 – CCBC and NRW regarding peaty soils and restoration
  - 11<sup>th</sup> July 2014 – CCBC and NRW regarding peaty soils and restoration
  - 17<sup>th</sup> July 2014 – Meeting with Welsh Government Department for Natural Resources and Food, regarding soil forming materials

## Baseline Environment

- 9.14 A number of clarifications of the baseline information provided in Chapter 9 of the ES are provided in the appropriate sections of the ES Addendum below. These are in response to comments from:
- (1) NRW in their response letter to CCBC on 21st February 2014; and
  - (2) Welsh Government, Natural Resources and Food in their comments to CCBC (email of 15<sup>th</sup> January 2014)
- 9.15 The information provided to NRW on peaty soils, as discussed in this Chapter of the ES addendum forms part of a larger response document which discusses all aspects of the NRW

response, entitled Peat Handling and Wet Heath Restoration, which is attached as Appendix MA/NL/PA/A08/010.

## Soil Survey – Main Site

### Soil Survey Data and Von Post Classification

- 9.16 In addition to the survey data provided in the ES, the detailed auger boring information for the peaty and mineral soils has been provided in response to a request from NRW. This data is attached at (Appendix MA/NL/PA/A09/002) and includes the Von Post classification for each of the profiles with peaty topsoils recorded during the detailed site survey.

### Clarification on the Identification of Soil Type 2

- 9.17 In their response to the application (21<sup>st</sup> February 2014), NRW stated that they disagree with aspects of the assessment of Unit 2 Loamy over clayey soils due to significant depths of peat demonstrated by supporting augering data.
- 9.18 The original description of this soil type from the ES is as follows:

*“Unit 2 Natural Soils - Loamy over Clayey*

*9.82 This soil type corresponds more or less to the Wilcocks series as recognised by the Soil Survey of England and Wales.*

*9.83 At depths of approximately 25 – 35cm on average, most of the profiles are clayey and similar to the entirely clayey profiles (Soil 1 or Roddlesworth series) described above but the uppermost part of the mineral profile is more loamy i.e. a medium clay loam or sandy clay loam rather than a heavy clay loam or clay. This material is more permeable and, probably as a result, the surface horizons remain wet for less time than in the heavier textured soils and accordingly the build up of peat is less. In addition many have what is thought to be a mineral, as opposed to a purely peat, topsoil but whether or not this is due to some previous period of cultivation is not known. Profiles are typically in Wetness Class IV or V as compared to the V or VI of the more clayey Soil Type 1 or Roddlesworth series. However, the vegetation is little different and is also dominated by Molinia, Nardus, mosses and rushes.*

*9.84 A typical profile has about 5cm of black, acid, well decomposed peat at the surface. This is followed by a dark brown, medium clay loam or sandy clay loam horizon i.e. the possible topsoil mentioned above, about 25-30cm thick. This passes down into a yellowish brown, heavy clay loam or clay subsoil. As noted above, the subsoil tends to become more clayey with depth and most of the profiles encountered during the auger boring survey had this sequence of textures. However, in a few cases and in the example found when the inspection pit was dug, the material at depth is a broken sandstone i.e. such profiles are formed in a relatively thin layer of glacial till or similar over a sandstone band. Unfortunately access difficulties prevented the digging of a pit representative of the more clayey variety.*

*9.85 This soil type is found as a fringe to and between the main areas of the heavier, wetter and more peaty soils (Clayey, Soil Type 1 or Roddlesworth series).”*

- 9.19 It is agreed that there are a number of auger borings within the Unit 2 that do have peaty topsoils. There are a group of 7 auger boring locations, as described, on the fringe of Unit 1, where there is a thickness of approximately 20cm peaty topsoil on the eastern fringe of the Soil Type 1 soil unit. However, the identification of this Soil Unit is not based on the identification of the topsoil alone, but on the nature of the whole soil profile and in particular on the nature of the underlying subsoil and lower subsoil.
- 9.20 In Soil Type 1, the peaty topsoils directly overlay a heavy textured and poorly structured slowly permeable clay subsoil. In Soil Type 2, the topsoils, a number of which are peaty overlay, a lighter textured clay loam subsoil which in turn overlays a clay lower subsoil. Soil Type 2 has therefore been identified as a separate soil unit as it contains soil profiles that comprise different physical characteristics and are notably better drained than those in Soil Type 1. The different Soil Types have therefore been correctly identified in terms of the overall soil profile characteristics.

## Measures Adopted as Part of the Project

### Restoration Strategy - Soil Handling Methods

- 9.21 The ES contained soil handling methodologies for peaty and non-peaty soils (ES Appendices MA/NL/ES/A09/002 and MA/NL/ES/A09/003 respectively). Additional evidence has been collated since the production of the ES in response to a request from NRW to provide further evidence of the successful implementation of the methodologies that are proposed for the stripping, handling, storage and replacement of peaty soils on the site. The response document contained at Appendix MA/NL/PA/A08/010 provides the full record of the evidence that has been collated by Miller Argent for a number of key sites. The sites that are discussed in the document include the following local and national examples.
- 9.22 The local examples include:
- (1) Aberpergwm. A surface mine located approximately 20km to the west of the site where peaty soils have recently been restored to form a number of developing peat bogs. Techniques being applied to the storage and replacement of peaty soils in the depressions created as bogs are similar to those proposed at Nant Llesg.
  - (2) Ffos y Fran Land Reclamation Scheme. This is the current reclamation scheme being operated by Miller Argent immediately to the west of the Nant Llesg site where organic soils are currently being stored in heaps for use in the restoration scheme.
  - (3) Nant Helen. This is a surface mine being operated by Celtic Energy and located approximately 20km to the west of Nant Llesg where areas of peat bog have recently been created as part of the restoration scheme.

- 9.23 The national examples include:

#### Plenmeller

- 9.24 Plenmeller is a former surface coal mine situated at an altitude of some 300m AOD in the north Pennines. The planning consent issued by British Coal in 1987 included a condition that some 190ha of the site must be restored to cotton-grass, mat-grass, heath rush, heather and Sphagnum moorland plant communities. Mining commenced in 1988.

- 9.25 The restoration of wet heath areas on peaty soils on this site is directly comparable in many respects to the proposed restoration of wet heath habitat at Nant Llesg. The site is located south of Haltwhistle in Northumberland and covers a total of approximately 450 hectares, including 190ha excavation area. Coaling finished in 1998 and the final restoration of the site was completed in 2002. The site was restored to a mixture of hill farmland, upland grazing and moorland, including areas of wet heath habitat. Annual aftercare monitoring has been carried out on the site with the site being released from aftercare following the monitoring inspection in May 2012.

### Bleak House

- 9.26 The Bleak House opencast mine near Cannock in Staffordshire was granted planning permission by Staffordshire County Council in 1993. The mine was worked within an area of existing heathland (SSSI), agricultural land, woodland and large water bodies. SSSIs were retained at the edges of the site and re-incorporated upon restoration, having been managed to enhance the area. Within the surface mining site, selected areas of the wet heathland were trans-located in order to provide the restored site with suitable material to use during the rehabilitation phase. This was assisted by the formation of an extensive network of pools, ponds, fen and wetland. The development of the rehabilitation scheme has encouraged breeding populations of dragonfly on the site, a valuable enhancement to the biodiversity of the area. A major element of the Bleak House site was the provision of a storage system capable of supplying Biddulph's Pool SSSI with adequate volumes of suitable water for a full year, until the natural hydrological regime was re-established during the rehabilitation phase.
- 9.27 In summary, the local and national examples discussed above confirm that these habitats and peaty soils can be successfully restored. Key points arising with regards to the restoration of peaty soils include the following:
- Establishment of the habitats on peaty soils is more successful than on mineral soils;
  - Notwithstanding this, Bleak House demonstrates that wet heath can be successfully established on mineral soils;
  - Where peat is to be used, an impermeable clayey substrate should be created prior to peat placement;
  - The clayey substrate should be roughened to promote "*keying*" in of the peat;
  - Contour ridges in the clay assist in the containment of the restored peat;
  - Containment of peat in rock and clay bunds has been successful;
  - Peat stripping methods similar to those proposed in the Nant Llesg PHM have been successfully applied on other sites;
  - Peat soils can be successfully restored with limited settlement using appropriate roughening of the clay substrate on moderately sloping sites (1 in 10 to 1 in 20);
  - Avoid thinning out on the edges of the restored peat, particularly on sloping areas;

- Prompt establishment of vegetation is important for stabilisation of the surface and to prevent drying out;
- It may be possible to apply tracked or low ground pressure machinery onto the restored peats, although this is not proposed in the current Nant Llesg methodology;

9.28 The evidence that has been collated for the sites above demonstrates that the methods proposed for the handling of peaty soils on Nant Llesg are appropriate and that they can be successfully implemented on the site.

### **Restoration Strategy – Quantity and Suitability of Material for Building Peat Storage Cells**

9.29 NRW requested additional confirmation on the quantity and suitability of materials to create the storage areas for the peaty soils as described in the ES Appendix MA/NL/ES/A09/002.

9.30 The areas identified for storage are located within areas where clayey with peaty topsoils have been identified. Pits have been dug on site in this area as part to the soils survey, which extended to approximately 2.0m in depth. These identified that the depth of low permeability clay extends to at least that depth below the surface of the ground. In addition geological borehole data across the site identify a thickness of between 0.7m up to 5.8m of clay across most of the excavation area.

9.31 The area where Soil Types 1 and 2 are located contains clayey upper and lower subsoil material that is available for use in the formation of the containment areas as required. This provides a total area of 85.4 ha where sources of clayey material have been identified on site. Based on a conservative average of 1m depth of clayey material within this area this would provide a resource of 850,000m<sup>3</sup> of suitable material for containment of peat resources on site.

9.32 The excavated clay can be used to create bunded areas to a suitable depth to contain the peaty material as indicated in the Soil Handling Methodology. Where bedrock is encountered beneath the clayey till, clayey material would be used to line the containment areas, to ensure that the peat resources can be suitably contained.

### **Restoration Strategy – Water Monitoring in Soil Storage Areas for Peaty Soils**

9.33 The Peat Handling Methodology (PHM) at ES Appendix MA/NL/ES/A09/002, identified that the levels within the peat storage areas would be monitored by piezometers and taking into account the high rainfall amounts at Nant Llesg and the current status of the soil bunds on Ffos y fran which remain moist throughout the year, the PHM raised the possibility that excess water may have to be drained away from the containment areas.

9.34 In addition, NRW requested further information on the availability of water resources to be used to keep the peat in the storage areas moist on the surface, if required.

9.35 It is confirmed that there would also be sufficient water available on site during the operational period to ensure that the peat storage area can be kept suitably moist, if any drying out on the surface becomes apparent. The water would be pumped from the retained section of Rhaslas Pond, storage within the void or as a last resort Water Treatment Areas. Water from these sources would also be used for other operations on Nant Llesg but there will always be more than sufficient water to keep the peat storage areas moist. Chapter 11 Hydrology and

Drainage of the Second ES Addenda considers water availability in more detail and shows that even in times of drought, there is sufficient water available for all requirements.

## Soil Resource Generation

### Additional Information – Unit 2 Loamy over Clayey

- 9.36 In the response to the application, NRW commented that a small number of profiles in this soil type comprised a deeper horizon of peaty material and raised concern that it was not the intention of the applicant to preserve all peaty material, as far as possible (see Appendix MA/NL/PA/A08/010).
- 9.37 Miller Argent are committed to stripping all of the available peat resources on the site separately to be stored and re-used as part of the restoration strategy. In this respect, as NRW have identified, there is a group of 7 auger borings (described in the Paragraph above) where a depth of an average thickness of 20cm peaty topsoil has been identified and it is confirmed that this topsoil material would be stripped together with the other peaty topsoils within Soil Unit A. It is estimated that this would provide an additional approximate maximum volume of 10,000m<sup>3</sup> of peat resource which can be used within the restoration strategy for the site. It is further confirmed that this additional material can be accommodated within the peat storage areas identified as part of the Scheme Proposal.

### Additional Information - Soil Forming Materials

- 9.38 For the purposes of clarification, Welsh Government Department for Natural Resources and Food have requested, in an email to Caerphilly County Borough Council dated 15<sup>th</sup> January 2014 that it would be helpful if additional information could be provided on the nature of potential soil forming materials (SFMs) and volumes that are considered likely to be available for restoration of upland grassland areas where there are no natural soil materials. In response to this request, the following additional information on sources of soil forming materials has been provided:

#### Types of Soil Forming Materials

- 9.39 Materials selected as SFM should be as “soil-like” as possible. They should, ideally, have a mixture of particle sizes and, while not necessarily being a “loam” in the strict sense, they should not be extremely sandy, clayey or silty. They should not contain appreciable amounts of boulders or large stones (more than 6cm diameter) and, ideally, the total stone content (less than 6cm) should be no more than about 20%. They should show some signs of having, or the potential to develop, a form of soil structure in that the material will break up fairly readily into smaller coherent lumps. They should be free of any contaminants, in particular high levels of heavy metals or actual or potential harmful substances e.g. pyrites (which produces “acid shales”), or high levels of salts.

#### Sources of SFM at Nant Llesg

- 9.40 On open-cast coal sites, there are three main sources of SFMs likely to be encountered and used as restoration materials:

- (1) Brown weathered shales near the top of the sequence or similar weathered material from the upper part of any locally derived glacial tills.
- (2) A further source of SFM is the "*inter-burden*" between the actual coal seams and this has proved to be an important source of SFMs on the adjacent Ffos-y-fran site.
- (3) Restoration profiles consisting largely or even entirely of relatively "*raw*" unweathered shales. These materials can perform well, but should ideally have as high a proportion of "*finer*" as possible, should be free of large boulders and should be placed with minimum compaction.

- 9.41 At Nant Llesg, the soil pits dug across the area of land previously restored identify that there are no surface based soil forming materials likely to be recovered across this part of the site. The pits dug to 2-3m show that the historical restoration areas currently are based on a base of predominantly raw shale material, although any areas where recoverable materials are encountered in this area would be stripped and stored as soil resources to be used as soil forming material.
- 9.42 The existing use of the restored area as agricultural grazing land illustrates that restoration can be achieved using the raw shale materials. However, the placement and treatment of these materials as part of a future restoration profile could be improved by applying the principles mentioned in ES Appendix MA/NL/ES/A09/003 'Non-Peaty Soil Handling Methodology' documents attached to the Environmental Statement, so that the materials are of a more consistent nature than present, with the appropriate placement of such material to reduce the potential for compaction and to remove large boulders or stones.
- 9.43 However, Miller Argent have in addition identified that there are areas of inter-burden materials that would become available within the Nant Llesg excavation that can be retained and used to form part or, if possible, of up to 0.5m depth of the restored profile in these areas. The use of these materials in accordance with best practice methods for stripping, storage and replacement, as laid out in the Non-Peaty Soil Handling Methodology document attached to the Environmental Statement would constitute an improvement in the quality of the restoration profiles across the 123ha, compared to the existing situation, following the aftercare period. These materials would also be used in the preparation of the woodland planting areas (Area F in the 'Non-Peaty Soil Handling Methodology') across an area of approximately 4.4ha.
- 9.44 In order to provide further clarification of the potential volumes of inter-burden materials likely to be generated within the Nant Llesg excavation MA has carried out an exercise to compare the location and volumes of inter-burden materials recovered to date within the Ffos-y-fran (FLRS) scheme with the locations and thicknesses of these materials relative to the geological sequence at Nant Llesg. Table ESA9.1 below identifies the location of these materials within the sequence and estimates of likely recovery based on the areas and quantities recovered from FLRS within these same interfaces.



**Table ESA9.1 Inter-burden Soil Forming Material Generation Between Seam and Rockhead**

<b>Nant Llesg SFM Inter-burden Generation Between Seam and Rockhead - Modelled on Volumes Recovered from Areas on FLRS within Same Interfaces</b>			
<b>Location of Potential resource</b>	<b>5m Depth Volume Estimate m<sup>3</sup></b>	<b>7.5m Depth Volume Estimate m<sup>3</sup></b>	<b>10m Depth Volume Estimate m<sup>3</sup></b>
<b>Above R seam</b>	83,000	124,500	166,000
<b>Above S seam</b>	53,000	79,500	106,000
<b>Above Q2 seam</b>	19,000	28,000	38,000
<b>Above PB seam</b>	16,000	24,000	32,000
<b>Above N seam</b>	56,500	84,750	113,000
<b>Above LT2 seam</b>	72,500	108,750	145,000
<b>Estimate Totals</b>	<b>300,000</b>	<b>450,000</b>	<b>600,000</b>
<b>Depth of Restoration of Inter-burden SFM Generated from Interfaces</b>	<b>24cm</b>	<b>36cm</b>	<b>48cm</b>

- 9.45 A recent inventory of stored soil and soil forming materials on Ffos-y-fran have identified that the materials collected from these inter-burden sources are relatively uniform in nature and have enabled the successful establishment of upland grassland across an initial area of approximately 18 ha on the western part of the site.
- 9.46 Despite the fact that large parts of the Nant Llesg site are worked there remain considerable areas of original crop edge coal, albeit in the upper seams. Experience from Ffos-y-fran indicates that there would be a minimum of 5m thickness up to a maximum thickness of 10m weathered shale material likely to be recovered between the seam and rockhead. Based on the current recovery of materials from Ffos-y-fran it is estimated that the recovery within the Nant Llesg excavation above the L2 seam would be from a minimum of approximately 300,000m<sup>3</sup> (up to 5m thickness) up to a maximum of approximately 600,000m<sup>3</sup> (up to 10m thickness) of inter-burden. Based on an average outcome, it is considered that the generation of inter-burden material is likely to be in the region of 450,000m<sup>3</sup> across the Nant Llesg site.
- 9.47 Estimates of materials that may be encountered deeper within the excavation area and their suitability as SFM are more uncertain and therefore have not been included within the figures given here. However, wherever such materials are identified they would be excavated, stored separately and reused as SFM.
- 9.48 Based on a recovery of an average volume of 450,000m<sup>3</sup> this would provide a depth of approximately 36 cm of inter-burden material to be placed as the upper horizon across the area of both the upland grassland area (123ha) and Area F, the woodland area (4.4ha).

- 9.49 Based on a recovery of a greater than average thickness of 10m of inter-burden and the generation of 600,000<sup>2</sup>of material from this source, this would provide the full depth of approximately 48cm to be potentially replaced as the whole SFM restoration profile across the area of grassland (123.1ha) and Area F, the woodland area (4.4ha).
- 9.50 Based on a recovery of a less than average volume of 300,000m<sup>3</sup> this would provide a depth of approximately 24 cm of inter-burden material to be placed as the upper horizon across the area of both the upland grassland area (123ha) and Area F, the woodland area (4.4ha).
- 9.51 In summary therefore, it is proposed, based on the evidence base presented, that the restoration of the 123.1 ha of upland grassland would be carried out in the same way as the current SFM placement on Ffos y fran, including the following key elements:
1. 0.5m of selected backfill material. This would be loosened by a multi-tined ripper in two directions. Large boulders would be removed (>300mm) in diameter.
  2. Placement of a likely average of 36cm (minimum of 24 cm and a maximum of 48 cm) of inter-burden material SFM onto the prepared backfill SFM material using best practice soil handling methods as outlined in the Non-Peaty Soil Handling Methodology (ES Appendix MA/NL/ES/A009/003)
  3. Removal of stones greater than 150mm from the inter-burden materials in this upper layer.

### **Miller Argent Commitment to recovery of Inter-burden Soil Forming Material**

- 9.52 Miller Argent has successfully identified, recovered and stored SFM within the Ffos-y-fran excavation. An initial area of approximately 18ha on Ffos-y-fran was subject to the preliminary placement of SFM in the summer of 2013, where an upper horizon of brown weathered shales and inter-burden materials (35cm depth) has been placed over suitably prepared raw shale materials. The result of the preliminary placement and seeding of similar SFM on Ffos y fran has shown good results in the first season. A similar approach is being proposed with regards to the upland grassland at Nant Llesg and Miller Argent is committed to this.
- 9.53 The inter-burden materials that are identified will be recovered and stored separately within the areas designated for overburden storage. The location of the proposed storage area is shown on Drawing MA/NL/PA/056. The volumes of such materials being recovered in the initial phase of the excavation (Disposition 1 and Disposition 2) can be monitored on an annual basis to provide a more accurate estimate of the final total volumes of inter-burden materials likely to be recovered. Following the identification of the total volume of inter-burden materials likely to be recovered, the specification for the placement of the different soil forming materials within the restoration profile can be agreed with the Local Planning Authority and Welsh Government. The agreed restoration profile would then be restored in accordance with best practice methodology as identified in the Non-Peaty Soil Handling Methodology that forms part of the Environmental Statement.

### **Soil Resource Generation - Summary**

- 9.54 The total volumes of soil materials to be generated within the Soil Units from the Nant Llesg site were identified in the ES as shown below:

**ES Table 9.10 Soil Resource Generation**

Soil Unit	Approximate Average Thickness (cm)	Area (m <sup>2</sup> )	Volume (m <sup>3</sup> )
1. Clayey with Peaty Surface	30cm peaty topsoil	65.0	195,120
2. Loamy over clayey	30cm sandy clay loam/medium clay loam	21.4	64,210
3. Loamy shallow Topsoil	25cm sandy clay loam/medium clay loam	7.2	17,940
Subsoil	50cm moderately to very stony medium clay loam	7.2	35870
4. Restored Opencast	No available topsoil	No natural soil resource	
5. Restored Opencast With Recognisable Topsoil	20cm heavy clay loam topsoil	11.0	21,970
6. Disturbed and tipped areas	No available topsoil	No quantifiable natural soil resources	
7. CDP – Stored Soils		20.0	28,000

9.55 Whilst the total generation of soil volumes within each of the units remains the same, the following additional information has been provided in relation to the generation of the following soils and soil forming materials:

- Unit 2 – Loamy over clayey soils. Where areas of this soil type include soil profiles with a significant depth of peaty topsoil (20cm), this resource would be stripped and stored as part of the peaty soil resource.
- Soil Forming Materials – As described above, it is estimated, based on an average thickness of 7.5m, that the generation of inter-burden SFM for use in restoration profiles from the Nant Llesg site would be approximately 450,000m<sup>3</sup>.

## Soil Resources – Restoration

9.56 In the ES, Drawing MA/NL/ES/09/007 showed the approximate distribution of the restored land uses within the stripped area and the ES Table 9.11 below provided the restoration specification for the different restoration areas based on the this drawing.

**ES Table 9.11 Restoration of Soil Units**

Restoration	Area for restoration (ha)	Specification	Volumes (m <sup>3</sup> )	Soil Unit
A Peat land	48.7 ha	35cm Peaty Topsoil (above in situ clays)	170,620	Unit 1
B Wetland Area	7.0 ha	35cm Peaty Topsoil (over in situ or placed clay base)	24,500	Unit 1
C1 Upland Grassland (southern area)	29.0 ha	22- 23 cm Topsoil (overlying in situ clays)	64,210	Unit 2
C2 Upland Grassland (southern area)	7.2 ha	25cm Topsoil 50cm Subsoil	17,940 35,870	Unit 3
C3 Upland Grassland (northern area)	11 ha	20cm Restored Topsoil (overlaid onto minimum of 0.8m suitable excavated material)	21,970	Unit 5
C4 Upland Grassland (northern area – previously opencast)	123.1 ha	0.5 of suitable excavated material (soil forming material)	615,500	Unit 4
C5 Upland Grassland (CDP)	20 ha	14cm Stored topsoil overlaid onto suitably restored base following removal of CDP	28,000 (storage mounds)	Previously stored soil materials

Restoration	Area for restoration (ha)	Specification	Volumes (m <sup>3</sup> )	Soil Unit
		infrastructure.		
D Area of landfill within the disused railway	4ha	Excavated materials to cover and restore landfill.		Excavated capping and restoration materials.
E Woodland (previously opencast)	4.4 ha	0.5m of suitable excavated material (soil forming material) that comprises	22,000	Unit 4
F Rhaslas Pond	12.3 ha	No soils required	0	

9.57 Following the implementation of some minor changes to the overall restoration strategy as is shown on Drawing MA/NL/PA/059. This updated strategy, together with the additional information provided in paras 9.32 to 9.47 on soil resource generation, require an update of the information provided in ES Table 9.11. These updates are described below.

#### Clarification on restoration of Land Use A and Land Use B

9.58 ES Table 9.11 above identifies that the peaty soils to be stripped would be required for restoration of a total area of approximately 55.7ha to establish both the Land Use Type A wet heath areas and Land Use Type B, wetland or marsh areas.

9.59 Further clarification of the restoration strategy, as set out in Chapter 9 of the Addendum to the Planning Statement at paras 9.30 to 9.35, has identified that there would be a slight increase in the total area of Land Use type A and B, 56.5ha compared to the original 55.7ha figure where the peaty topsoils would be re-used. Based on the total generation of 195,120m<sup>3</sup> of peaty topsoil, this would enable a similar depth of approximately 34-35 cm of peaty topsoil to be restored onto Land Use Type A and B as originally indicated in ES Table 9.11.

9.60 However, if in addition to this total figure, limited areas of peaty topsoils are also stripped from the Soil Unit 2 adjoining the eastern fringe of Soil Unit 1 where the thickness of the peaty soils gradually thins out, the overall specification for the depth of the peaty topsoil within the restored soil profiles on the wet heath and wetland (marsh) areas would remain the same or could marginally increase. If an additional 5,000m<sup>3</sup> of peaty topsoil is generated from this area then the depth of peaty topsoil may be increased to just over 35cm depth and if an additional maximum of 10,000m<sup>3</sup> is generated then the depth of peaty topsoil may be increased to 36cm depth.

### Additional Information on the Restoration of Land Use Type C 4 – Grassland and Land Use Type E- Woodland

- 9.61 The ES identified that Land Use Area (C4), approximately 123.1ha, includes the restoration of the remaining area to the north of the area stripped of natural soils for Nant Llesg, which was previously subject to opencast operations, where no natural soil materials remain. This land would be restored using suitable materials (soil forming materials) identified during the excavation process.
- 9.62 Similarly Land Use Type E includes areas of woodland, which would be established on land which was previously subject to opencast operations, where no natural soil materials remain. This land would be restored using suitable materials (soil forming materials) identified during the excavation process.
- 9.63 Further detail on the restoration of this area has been provided, based on the clarification of the likely generation of inter-burden SFM from the Nant Llesg excavation.
- 9.64 Based on a minimum recovery of an average volume of 450,000m<sup>3</sup>, this would provide a depth of approximately 36 cm depth cm of inter-burden material to be placed as the upper horizon within the 50cm of the SFM restoration profile across the area of both the C4 grassland area (123ha) and Area F, the woodland area (4.4ha).
- 9.65 Based on a recovery of a greater average thickness of 10m of inter-burden and the generation of 600,000m<sup>3</sup> of material from this source, this would provide the full depth of approximately 48cm to be potentially replaced as the whole SFM restoration profile across the area of grassland 123.1ha and Area F, the woodland area (4.4ha).
- 9.66 The updates to the restoration strategy for Land Use areas A, B, C4 and E can be summarised in the update to ES Table 9.11 provided below at Table ESA9.2.

**Table ESA9.2 - Restoration of Soil Units (Updated ES Table 9.11)**

Restoration	Area for restoration (ha)	Specification	Volumes (m <sup>3</sup> )	Soil Unit
A Peat land (Shown as Wet Heath on Drawing MA/NL/PA/059)	50.1 ha (Previously 48.7ha approx.)	34 - 35cm Peaty Topsoil (above in situ clays)	172,845 (Previously 170,620)	Unit 1
B Wetland Area (Shown as Marshy Grassland on Drawing MA/NL/PA/059)	6.4 ha (Previously 7ha approx.)	34 - 35cm Peaty Topsoil (over in situ or placed clay base)	22,275 (Previously 24,500)	Unit 1
C1 Upland Grassland (southern area)	29.0 ha No change	22- 23 cm Topsoil (overlying in situ clays)	64,210	Unit 2
C2 Upland Grassland (southern area)	7.2 Ha No Change	25cm Topsoil  50cm Subsoil	17,940  35,870	Unit 3
C3 Upland Grassland (northern area)	11 ha No Change	20cm Restored Topsoil (overlaid onto minimum of 0.8m suitable excavated material)	21,970	Unit 5
C4 Upland Grassland (northern area – previously opencast)	123.1 ha No Change	0.5 of suitable excavated material (soil forming material)	615,500, (of which approx. 435,000m <sup>3</sup> likely to be generated from inter-burden material as described above)	Unit 4
C5 Upland Grassland (CDP)	20 ha No Change	14cm Stored topsoil overlaid onto suitably restored base following	28,000 (storage mounds)	Previously stored soil materials

Restoration	Area for restoration (ha)	Specification	Volumes (m <sup>3</sup> )	Soil Unit
		removal of CDP infrastructure.		
D Area of landfill within the disused railway	4ha No Change	Excavated materials to cover and restore landfill.		Excavated capping and restoration materials.
E Woodland (previously opencast)	4.4 ha No Change	0.5m of suitable excavated material (soil forming material)	22,000, (of which approx. 16,000m <sup>3</sup> likely to be generated from inter-burden material as described above)	Unit 4
F Rhaslas Pond	12.3 ha No change	No soils required		

### Soil Restoration – Depth of Clayey materials replaced beneath Peaty Topsoils

9.67 NRW requested additional confirmation on the depth of clay to be placed beneath peaty topsoils on the wet heath and marsh areas.

9.68 The peaty topsoils would either be replaced over in-situ clayey soils where possible, or over a layer of compacted impermeable clayey material above the final overburden level. The key requirements in ensuring that this is a suitable material over which to place the peaty topsoils are:

- The clay horizon is suitably impermeable; and
- The clay is suitably prepared to enable the peaty topsoils to “key” into the clayey horizon.

9.69 The clay horizons identified in the soil survey are very poorly structured and “*slowly permeable*” throughout. These materials if compacted by machinery would form a suitable impermeable substrate for the placement of the peaty topsoils. The examples considered in the next section of the report provide evidence that this technique has been successfully applied on other sites where there was no set thickness of clay stipulated to be replaced as it was not considered to be a limiting factor on the creation of the impermeable substrate. However, it is suggested that a depth of 30cm would be sufficient to create the impermeable horizon.



## Carbon Balance

- 9.70 Additional information on the carbon content of the peaty soils to be disturbed on the site was requested by NRW. The carbon content and potential release of carbon that would be associated with any losses of peaty resources is discussed at Chapter 19 of this addendum: 'Sustainability and Climate Change'.

## Environmental Assessment

- 9.71 The information provided in this addendum provides clarification and additional supporting information in response to comments and requests in the post-application representations and takes into account the changes to the scheme as set out in Chapters 3 (Changes to the Nant Llesg Project) and 4, (Additional Mitigation, Compensation and Clarification).
- 9.72 Neither the changes to the scheme or the additional clarifications provided change the original baseline data in the ES or the proposals for measures to be adopted as part of the Project provided in the ES for the stripping, handling or restoration of the soils and agricultural land on the site as described in the Peaty and Non Peaty Soil Handling Methodologies (ES Appendices MA/NL/ES/A009/002 and MA/NL/ES/A009/003).
- 9.73 Based on the fact that there are no changes to the baseline data provided or the proposals for the stripping storage and restoration of soils and agricultural land on the site, there is no change in the assessment of the effects of the Nant Llesg Scheme on Agricultural Land Use and Soils as provided in the ES.

## Summary and Conclusions

- 9.74 The summary and conclusions section from the ES remains the same.



# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 10

### Hydrogeology



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 10 – Hydrogeology**

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## 10 Hydrogeology

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- 10.1 The purpose of this Environmental Statement Addendum chapter is to summarise the further information provided in response to representations made by various parties on the submitted Environmental Statement Hydrogeology chapter, and to assess the consequences (if any) of this information with respect to the findings of the environmental impact assessment.

### Chapter Summary

- 10.2 The key consideration is the findings of the Water Framework Directive Assessment requested by, and subsequently reviewed by, Natural Resources Wales. In addition, account has been taken of the groundwater concerns of various third parties.
- 10.3 No changes to the findings of the original ES are required. The Water Framework Directive Assessment study in fact further supports the conclusions of the original Environmental Statement, and emphasises that the proposed development not only would not reduce the current status of the water environment, or the ability to improve it, but would itself contribute towards improvements to that environment.

### Introduction

- 10.4 The purpose of this Environmental Statement (ES) Addendum chapter is to summarise the further information provided in response to representations made by various parties on the submitted ES Hydrogeology chapter, and to assess the consequences (if any) of this information with respect to the findings of the environmental impact assessment (EIA).
- 10.5 The key consideration is the findings of the Water Framework Directive (WFD) Assessment (WFDA) requested by Natural Resources Wales (NRW), and which is documented at Appendix MA/NL/PA/A11/002. The findings of the WFDA presented in this Addendum relate to the single groundwater body (South East Valleys Carboniferous Coal Measures – WFD ref: GB40902G201900), whilst those relating to the three surface water bodies, namely the River Rhymney (WFD ref: GB109057033130), the Nant Bargod Rhymni (WFD ref: GB109057033120) and the Taf Bargoed (WFD ref: GB109057033140), are detailed separately in the Hydrology and Drainage Environmental Statement Addendum. The WFDA brings together information already presented in the ES in the context of a WFD-specific assessment.
- 10.6 In addition, account has been taken of the groundwater concerns of various third parties.

### Methodology

- 10.7 The same assessment methodology as described in paragraphs 10.19 to 10.27 of the ES has been used in this Addendum.
- 10.8 Sections 10.67 to 10.78 of the original ES set out the regulatory and planning context.

- 10.9 The significance criteria are described in the ES in paragraphs 10.86 to 10.92 and in ES Tables 10.7-10.9. The same approach has been used in this Addendum.
- 10.10 Overall, the methodology remains unchanged from that reported in the original ES chapter.

## Baseline Environment

- 10.11 The baseline hydrogeology information, as outlined in the ES in paragraphs 10.32-10.66 and 10.79-10.85 and ES Tables 10.3-10.6, is unlikely to have materially changed beyond the normal year-to-year variation.
- 10.12 The WFDA effectively extends the baseline environment dataset by presenting additional information on WFD aspects of the single groundwater body at the site (the South East Valleys Carboniferous Coal Measures). The WFDA provides more detailed characterisation of the chemical and quantitative elements of the groundwater body.
- 10.13 The supporting methodology behind the WFD used by the environmental regulators to classify water bodies compares the quality of these elements against what would be expected for a natural groundwater body. For a water body in natural condition, all of these elements should be at 'Good Status'. Where an element is identified as being of poorer quality than the expected standard, targets (timescales and measures) are set for that element to achieve 'Good Status'. Where it is considered not feasible (technically infeasible/disproportionately expensive) to achieve 'Good Status', alternative measures and longer timescales are set out. This information is presented in the WFDA for the groundwater body at the Site.
- 10.14 In the context of a proposed development, the development should not result in a) a reduction in current status for an element, and b) where an element is in a degraded state, a development should not result in a reduced ability to implement measures to bring that element up to 'Good Status'. Further, developments should, where possible, contribute towards improvements to a water body's status.
- 10.15 The WFDA (see Section 2 therein) provides the following information on the groundwater body's baseline status:
- GB40902G201900 SE Valleys Carboniferous Coal Measures (Table 2.4): with regards to current and 2015 quantitative status, the Environment Agency (EA) has classed this groundwater body as 'Good'; and
  - GB40902G201900 SE Valleys Carboniferous Coal Measures (Table 2.4): with regards to chemical quality, the EA has classed this groundwater body as currently 'Poor', predicted for 2015 is 'Poor'.
- 10.16 With reference to the proposed development, the key finding of the WFDA is the impacts of groundwater contributions on the chemical quality of the surface water bodies. This is specifically an issue associated with historical mine water discharges, in particular the Bute Level which discharges into the River Rhymney WFD water body. A measure to investigate options for remediating these is identified as having been completed (River Basin Management Plan Severn River Basin District Annex C: Actions to deliver objectives, Table C10). However, due to the costs of the required measures, the remediation would be implemented over three cycles of river basin planning, to be completed by 2027.

10.17 Typically, mine water discharges are dealt with via a water treatment area featuring cascades and reed beds set up to promote oxidation, precipitation and collection of the dissolved substances before the flow enters a watercourse. Periodic maintenance needs to be undertaken to remove accumulated material and to pay for the disposal of this material. Ideally, systems function by gravity ('passive'), and water falls downhill through the works, an example being the nearby Taff Merthyr mine water treatment facility on the Taff Bargoed (5 km south of the Site). However, at Nant Llesg/Rhymney mine water enters the River Rhymney at depth within the Rhymney Culvert. Considering this and the volumes of mine water currently discharged into the culvert, if the proposed development does not proceed, a significant pumped system would be required to remediate this discharge successfully, costing considerably more (with both plant and running costs in addition to the maintenance costs referred to above) than a typical solution. The combined mine water and River Rhymney flows cannot be easily treated at the exit of the culvert due to the even larger volumes of water and the need to avoid excessive engineering intervention into the main river channel.

### Development Phases and Incorporated Mitigation

10.18 The development phases and incorporated mitigations remain the same as those set out in paragraphs 11.141 and 10.93-10.103 (including ES Table 10.10) of the ES respectively.

10.19 Various third parties have expressed groundwater concerns relating to the proposed development, including the following:

- Drying out and collapse of shafts and adits (United Valleys Action Group (UVAG) and Groundwater Solutions Limited (GSL));
- Derogation (quality and quantity) of aquifers (Rhymney Area Residents Group (RARG));
- Discharge of coal washing waters into groundwater (RARG);
- Effects of the Overburden Storage Area on groundwater (Green Valleys Alliance (GVA));
- Impacts and mitigation should a larger volume of groundwater be encountered during working (GSL);
- Suspended sediment loading in the Dowlais Free Drainage System (DFDS) (GSL);
- Insufficient information relating to underground workings and adits (GSL), leading to ineffectual monitoring;
- Occurrence of acid mine drainage related to backfilling and restoration (GSL);
- Little consideration of sulphate treatment (GSL); and
- Derogation of local springs (GSL).

10.20 These and other concerns relating to the wider water environment have been addressed in the Applicant's Planning Statement Addenda. The response is not repeated here; suffice it

to say that the majority of the concerns can be resolved with respect to data and/or mitigation already provided in the ES.

10.21 The only points of clarification required regarding the mitigation are as follows:

- in relation to sediment in the DFDS, during working the DFDS exit in the base of the void would be temporarily obstructed, such that any sediment would be encouraged to settle out in the base of the void or the Water Treatment Areas, before discharge from the site; and
- in relation to the risk of shaft and adit collapse, 'relief' boreholes could be installed and used to intercept any trapped mine water identified by on-site monitoring, if required.

## Impact Assessment

10.22 The information presented in the WFDA is not re-presented here (please refer to the WFDA at Appendix MA/NL/PA/A11/002). The WFDA does not alter the conclusions drawn within the original ES. The conclusions do though lend further support to the benefits that the proposed scheme would have in assisting with improvements to the status of specific elements of several of the WFD units. In particular, an improvement to the existing mine discharge to the River Rhymney is predicted, addressing a major reason for the current failure of the River Rhymney WFD unit and the groundwater WFD unit to meet 'Good' quality status, at no cost to the public purse. There is accordingly no change to the assessment in the ES.

10.23 NRW has confirmed that it is satisfied with the information presented within the WFDA, subject to one comment which has been addressed in the final WFDA appended at Appendix MA/NL/PA/A11/002.

## Summary

10.24 This ES Addendum has presented the findings of the WFDA undertaken subsequent to the submission of the original ES, and taken account of the groundwater concerns of various third parties.

10.25 The WFDA requested by NRW provides some additional baseline information on the existing water environment at Nant Llesg, whilst some minor points of clarification with respect to mitigation have resulted from the consideration of third party concerns. No changes to the findings of the original ES are required. The study in fact further supports the conclusions of the original ES, and emphasises that the proposed development not only would not reduce the current status of the water environment, or the ability to improve it, but would itself contribute towards improvements to that environment.

# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 11

### Hydrology and Drainage



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 11 – Hydrology and Drainage**

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## 11 Hydrology and Drainage

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### Chapter Summary

- 11.1 The purpose of this Environmental Statement Addendum chapter is to summarise the further information provided in response to representations made by various parties on the submitted Environmental Statement Hydrology and Drainage chapter, and to assess the consequences (if any) of this information with respect to the findings of the environmental impact assessment.
- 11.2 Received comments focussed in particular on water availability for dust suppression. This Addendum reports on further analysis of water availability at the site. The analysis has found that with the provision of suitable water storage on the site, a reliable supply of water suitable to meet dust suppression and other needs in a year equivalent to 1984 (one of the driest years on record) will be available. As a result, Miller Argent is confident that there will be more than adequate on-site water resource availability for dust suppression alongside other water uses on site to meet the needs of Nant Llesg even during an extreme dry spell.
- 11.3 Following submission of the Environmental Statement, Natural Resources Wales (formerly Environment Agency Wales) requested a Water Framework Directive Assessment be completed to supplement the Environmental Statement. This Assessment has since been prepared and submitted. It found that, with suitable mitigations, the proposed scheme could be undertaken without detriment to the ecological and chemical status of the four water body units at the site. As the Water Framework Directive takes a catchment approach, and the site is situated on a watershed, the River Rhymney, the Nant Bargod Rhymni and the Taf Bargoed form three surface water body units. The findings in respect of these are set out in this Addendum. The findings of the Water Framework Directive Assessment for the groundwater body that forms the fourth water body unit (South East Valleys Carboniferous Coal Measures) are detailed separately in the Hydrogeology Environmental Statement Addendum. The Water Framework Directive Assessment brings together information already presented in the Environmental Statement in the context of a Water Framework Directive specific assessment.
- 11.4 The Water Framework Directive assessment has already been separately submitted to the Natural Resources Wales, which has reviewed the document, and confirmed it's satisfaction with the information presented. The final Water Framework Directive Assessment includes a set of indicative drawings showing the different types of water feature and the typical restoration designs that would be applied following completion of coaling.

### Introduction

- 11.5 The purpose of this Environmental Statement (ES) Addendum is to summarise the further information provided in response to representations made by various parties on the submitted ES Hydrology and Drainage chapter, and to assess the consequences (if any) of this information with respect to the findings of the environmental statement. Key considerations are the findings of the Water Framework Directive (WFD) Assessment (WFDA) requested by Natural Resources Wales (NRW), and which is documented at

Appendix MA/NL/PA/A11/002, and an assessment of the availability of water supply to meet dust suppression and other needs in a dry year, as requested by various third parties.

## Methodology

- 11.6 The same assessment methodology as described in paragraphs 11.22 to 11.41 of the ES has been used in this Addendum.
- 11.7 Sections 11.42 to 11.57 of the original ES set out the planning and regulatory context.
- 11.8 The significance criteria are described in the ES in paragraphs 11.131 to 11.137 and in ES Tables 11.11, 11.12 and 11.13. The same approach has been used in this Addendum.
- 11.9 Overall, the methodology remains entirely unchanged from that reported in the original ES chapter.

## Baseline Environment

- 11.10 The baseline hydrology and drainage information as outlined in the ES in paragraphs 11.58 to 11.130, and ES Tables 11.4 to 11.10, is unlikely to have materially changed beyond the normal year-to-year variation.
- 11.11 The WFDA effectively extends the baseline environment dataset by presenting additional information on WFD aspects of the surface water bodies at the Site (the River Rhymney, Nant Bargod Rhymni, and the Taf Bargod). The WFDA provides more detailed characterisation of the quality of the ecological and physico-chemical elements of the three surface water bodies.
- 11.12 The supporting methodology behind the WFD used by the environmental regulators to classify water bodies compares the quality of these elements against what would be expected for a natural watercourse of that typology. For a water body in natural condition, all of these elements should be at 'Good Status'. Where an element is identified as being of poorer quality than the expected standard, targets (timescales and measures) are set for that element to achieve 'Good Status'. Where it is considered not feasible (technically infeasible/disproportionately expensive) to achieve 'Good Status', alternative measures and longer timescales are set out. This information is presented in the WFDA for all three WFD surface water body units at the Site.
- 11.13 In the context of a proposed development, the development should not result in a) a reduction in current status for an element, and b) where an element is in a degraded state, a development should not result in a reduced ability to implement measures to bring that element up to 'Good Status'. Further, developments should, where possible, contribute towards improvements to a water body's status.
- 11.14 The WFDA (see Section 2 therein) provides the following information on the three surface water bodies baseline status:

### Surface Water - Ecological Status:

- GB109057033130 River Rhymney: ecological status is currently 'Moderate', and the EA/NRW predict that, on the basis of the range of identified measures

and actions underway to address the current status, for 2015<sup>1</sup> it will be 'Good'. The main issues are fish and hydrology. It is noted that the River Rhymney is affected by the existing Bute Level mine water discharge and a WFD measure is also listed, associated with providing a solution to the existing mine water pollution;

- GB109057033120 Nant Bargod Rhymni: ecological status is currently 'Poor', and the EA/NRW predict that, on the basis of the currently identified measures, for 2015 it will not change and will remain as 'Poor'. The main issues are fish and morphology - the eroding colliery spoil on the slopes above Fochriw are noted as causing problems as far downstream as Cwm Darran Park. No specific measures are listed, but the need for an investigation into the background for the 'Poor' classification for fish is noted; and
- GB109057033140 Taff Bargoed: ecological status is currently 'Poor', and the EA/NRW predict that, on the basis of identified measures and actions underway, for 2015 it will not change and will remain as 'Poor'. The main issues are fish and morphology. No specific measures are listed, but the need for an investigation into background for the 'Poor' classification for fish is noted, in particular with respect to barriers to fish migration.

### Surface Water – Chemical Status:

- GB109057033130 River Rhymney: with regards to current and 2015 status, the EA/NRW has classed this watercourse as 'Does Not Require Assessment';
- GB109057033120 Nant Bargod Rhymni: with regards to current and 2015 status, the EA/NRW has classed this watercourse as 'Does Not Require Assessment'; and
- GB109057033140 Taff Bargoed: with regards to current and 2015 status, the EA/NRW has classed this watercourse as 'Good'. Monitoring has been undertaken for one pesticide.

11.15 With reference to the proposed development, the key finding of the WFDA is that the Nant Bargod Rhymni is noted as having 'poor' morphology, due to the eroding colliery spoil on the slopes above Fochriw causing problems as far downstream as Cwm Darran Park. Fish populations are indicated as being affected by physical barriers (i.e. weirs and dams) present further downstream within the watercourses.

11.16 The existing WFD status also notes that the River Rhymney is affected by the existing Bute Level mine water discharge. As set out in the Hydrogeology ES chapter, the three surface water bodies above are affected by contaminated groundwater flow contributions. This is specifically an issue associated with historical mine water discharges, in particular the Bute Level which discharges into the River Rhymney WFD water body. A measure to investigate options for remediating these is identified as having been completed (River Basin Management Plan Severn River Basin District. Annex C: Actions to deliver objectives. Table

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<sup>1</sup> The first WFD follows a 6 year cycle, with the first planning period running from 2009 to 2015.

C10). However, due to the costs of the required measures, the remediation would be implemented over three cycles of river basin planning, to be completed by 2027.

- 11.17 Typically, mine water discharges are dealt with via a water treatment area featuring cascades and reed beds set up to promote oxidation, precipitation and collection of the dissolved substances before the flow enters a watercourse. Periodic maintenance needs to be undertaken to remove accumulated material and to pay for the disposal of this material. Ideally, systems function by gravity ('passive') and water falls downhill through the works, an example being the nearby Taff Merthyr mine water treatment facility on the Taff Bargoed (5 km south of the Site)<sup>2</sup>. However, at Nant Llesg/Rhymney mine water enters the River Rhymney at depth within the Rhymney Culvert. Considering this and the volumes of mine water currently discharged into the culvert, if the proposed development does not proceed, a significant pumped system would be required to remediate this discharge successfully, costing considerably more (with both plant and running costs in addition to the maintenance costs referred to above) than a typical solution. The combined mine water and River Rhymney flows cannot be easily treated at the exit of the culvert due to the even larger volumes of water and the need to avoid excessive engineering intervention into the main river channel.

### Development Phases and Incorporated Mitigation

- 11.18 The development phases and incorporated mitigations remain the same as those set out in paragraphs 11.138 to 11.177 of the ES.
- 11.19 However, for scheme component D 'Surface Mining Operations – Dispositions (phases) 1 to 5' (see original ES paragraph 11.141), further details of dust suppression measures have been requested by several third parties. Since a key part of effective dust suppression is water supply, additional supplementary information on water supply is provided in the following section.
- 11.20 It should be noted that a water supply to support dust suppression is required at all stages of the scheme. However, the water supplies and demands would vary during the various Dispositions. The water supply and demand issues are set out in some detail below to show when the worst case scenario would arise.
- 11.21 During Disposition 1, from the start of site establishment to the commencement of coaling at year 1, water demands would be minimal for the first three months, with a very limited requirement for dust suppression, no peat storage requirement and no coal processing requirement. The demands from dust suppression and peat storage would begin to increase during the next three months, with requirements then relatively constant for the six months to the start of coaling at year 1 and beyond.
- 11.22 From the commencement of coaling at year 1, feedstock would be stockpiled and not processed, with the barrel wash facility and an associated water requirement only being introduced at approximately year 2.5. Water requirements would remain relatively constant

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<sup>2</sup> See section 3.4.1 in the following document for further details:  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/291482/LIT\\_8879\\_df7d5c.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291482/LIT_8879_df7d5c.pdf)

- from then until year 11, when coaling ends. At this time the barrel wash facility, with its associated water requirement, would be decommissioned, and the remaining requirements for water for dust suppression and peat storage would begin to decrease from that time as restoration is completed.
- 11.23 The primary source of water supply to meet these requirements would be Rhaslas Pond, which would be available from the outset of the scheme, once it is reconfigured. In addition, runoff and groundwater would be used to top up supplies as required. As a means of last resort, water stored in Water Treatment Areas (WTAs) would be able to be used. Water supply would however vary, as groundwater would not be encountered until approximately year 4, at the completion of the box-cut when groundwater would be intercepted. Runoff would be subject to normal fluctuations, with more water being available at wetter times.
- 11.24 Water supply would not be an issue once groundwater is encountered at the end of year 4 and until groundwater is no longer available when restoration commences in Disposition 5. Kevan Walton acknowledges in his report that once groundwater is encountered "*Water inflows into the pit are expected to be 5-31 Ml/day (ES para 10.112) which appears more than adequate*". As such, the times water supply is likely to be most vulnerable is during parts of Disposition 1 and 5, before groundwater is encountered and after groundwater ceases to be available.
- 11.25 However, as set out above, water requirements are more limited during the first year of Disposition 1 and all of Disposition 5, when the barrel wash is not running and when suppression requirements would be either increasing (in the case of the first year of Disposition 1) or diminishing (in the case of Disposition 5). As such, the most vulnerable period would be from year 2.5 (when a coal processing requirement arises once the barrel wash is commissioned and when dust suppression and peat requirements have reached their maximum) and year 4, when groundwater would be encountered.
- 11.26 The following analysis considers water requirements in more detail during this period of Disposition 1 (between year 1.5 and year 4), as this is the time when water supplies are at their most vulnerable.

## Water Requirements

### Dust Suppression

- 11.27 For dust suppression purposes the primary source of water supply would be Rhaslas Pond. Miller Argent is proposing to use three water bowsers (two x 55 m<sup>3</sup> and one x 40 m<sup>3</sup>) supplemented by slurry slaves as required. They would collect water from any of the in-pit water storage areas, the remodelled Rhaslas Pond and, very much as a last resort, the WTAs. The amount of time the bowsers would need to run varies, and site management would make judgements as to how much water is needed to effectively suppress dust for different activities and at different times.
- 11.28 It has been estimated by the Green Valleys Alliance's (GVA's) consultant, 'Kevan Walton Associates', that just less than 600 m<sup>3</sup> of water per day would be used by the water bowsers for each of the Nant Llesg and FLRS sites. The Applicant does not disagree with this estimate, as it could be as much as this with dust suppression operating at full capacity all day.

- 11.29 Four Fog Cannon<sup>®</sup> units are proposed for the site. Two would be semi-static and require filling by the bowsers, and two would be mobile. The amount needed to keep the two semi-static Fog Cannon<sup>®</sup> units supplied with water would be up to 288 m<sup>3</sup>/day (200 l/min x two units running full time over a twelve hour shift), giving a total, including the amount used by the bowsers themselves, of up to approximately 900 m<sup>3</sup>/day with dust suppression operating at full capacity all day.
- 11.30 The other two Fog Cannon<sup>®</sup> units would not be dependent on the water bowsers for supply of water, as they are to be self-propelled and therefore mobile. They would carry their own water supply and travel to the filling point to refill. If it is assumed that they run for the full twelve hour shift on full power with a discharge time of approximately 40 minutes and travel and filling time taking approximately 20 minutes (i.e. twelve cycles a day), then the total daily water usage for these two mobile units would be up to approximately 144 m<sup>3</sup> (200 l/min + 100 l/min x 40 min x twelve cycles)<sup>3</sup> with dust suppression operating at full capacity.
- 11.31 The total maximum water requirement for dust suppression would therefore be 600 m<sup>3</sup> per day for water bowsers, 288 m<sup>3</sup>/day for semi static Fog Cannon<sup>®</sup> and 144 m<sup>3</sup>/day for mobile Fog Cannon<sup>®</sup>, a total of 1032 m<sup>3</sup> /day. However, from experience of conditions on the adjacent FRLS, the maximum water requirement for dust suppression is a rare occurrence - for the vast majority of the time water usage is much lower, or not required at all, as weather conditions requiring the full dust suppression capacity would only occur on a limited proportion of days.
- 11.32 Each day is different, and rather than simply running all mitigation at maximum capacity all of the time, mitigation would be dynamically managed by site management and operators who would make judgements on how much water is needed to effectively suppress dust. In the event that this cannot be achieved, the ultimate precaution would be to stop work on part or the whole of the site. It is therefore in the Applicant's interest to ensure that adequate dust suppression facilities are maintained and kept available at all times. The water requirement of 1032 m<sup>3</sup>/day is accordingly very much a worst case scenario.

### Peat Requirements

- 11.33 There is also a requirement for water supply on site to keep the stored peat moist within the storage areas. Details of peat handling and storage are provided in ES Appendix MA/NL/A09/001. As part of the scheme, peat would be stored in open, clay lined lagoons totalling c 4.7 hectares (ha) in area. Peat would be placed to a depth of 6 m, with the surface being covered with vegetation attached to the excavated peat. Miller Argent currently has peat storage areas (raised mounds) at the adjacent FLRS site. These are not provided with any additional water in summer months, but rely on retained water absorbed within the body of peat. These have been inspected by the ES Soil Specialist, and the peat and surface vegetation found to be in good condition. Since, at Nant Llesg peat would be stored in lined lagoons; these areas would not be raised above ground as at FLRS. Water retention would therefore be enhanced in comparison. Monitoring equipment would be installed within the lagoons to identify when water needs to be removed or added to the

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<sup>3</sup> Note that it is likely that three Fog Cannons<sup>®</sup> would have a capacity of 0.2 m<sup>3</sup>/min and the other one 0.1 m<sup>3</sup>/min.



storage areas to maintain a suitable degree of water content within the peat. When required, Miller Argent would irrigate the storage areas to maintain good conditions for the stored peat.

- 11.34 Water for this purpose would be taken primarily from Rhaslas Pond. The peat storage areas on site cover an area of 47,000 m<sup>2</sup>, and evaporation rates as a percentage of annual rainfall average around 40%. Rates are typically higher than this in the east of the UK and lower in the north and west, but also correlate with exposure and wind, and 40% is therefore considered representative for the site. The majority of evaporative losses tend to occur during summer months, and in a worst case this would mean 40% of the annual average rainfall (1509 mm), i.e. 600 mm, of evaporation could occur. Assuming the peat storage areas are full, multiplying by the area gives a maximum evaporative loss of 28,370 m<sup>3</sup> per annum. In a drought period of 183 days (see paragraph 1.48), this would mean a maximum water supply requirement of 155 m<sup>3</sup>/day (3mm per m<sup>2</sup> of storage area).

### Coal Preparation

- 11.35 Water supply is also required for the preparation of coal at the Barrel Wash facility, and all water for this facility would also primarily be taken from Rhaslas Pond. The amount of water required by this process would be directly comparable to that used at Ffos-y-fran; the proposed plant at Nant Llesg would be the same as the existing plant at Ffos-y-fran.
- 11.36 It should be noted that coal processing in the new coal wash at the Cwmbargoed Disposal Point (CDP) has its own dedicated water supply from water stored adjacent to the CDP, and this does not need to be factored in to the Nant Llesg calculations for coal processing. The CDP's separate supply could also be topped up with mains water if required.
- 11.37 During the barrel wash process, water is absorbed by the coal and discard material. As part of the process, discard material would be passed through a filter press prior to disposal to reduce water loss, and water recovered is recycled back for use in the plant. Based on Ffos-y-fran the water usage is up to a maximum of 8% of input tonnage.
- 11.38 The annual input tonnage at Nant Llesg varies over the life of the scheme, but the maximum annual tonnage would be approximately 400,000 tonnes, and at 8% this equates to 32,000 tonnes of water per year, or about 667 tonnes per week or 121 tonnes per day over 5.5 working days. This maximum usage equates to a requirement of 121 m<sup>3</sup> of water per day.
- 11.39 Again, during Disposition 1 the barrel wash would not be running all of the time. Although coaling commences in year 1, any feedstock produced would initially feed in to a stockpile. The barrel wash would become operational from year 2.5, and would run until the end of coaling (approximately year 11). As such, the water requirement for the barrel wash would be from year 2.5 during disposition 1. The barrel wash would not run at all during Disposition 5.

### FLRS Requirements

- 11.40 Some representations have implied that the major source of water for dust suppression for FLRS is Rhaslas Pond, but this is incorrect. Miller Argent does have an abstraction licence, but usage for FLRS is explained further below.
- 11.41 Whilst water from Rhaslas Pond has been used in the early stages of operations, surface water runoff and groundwater are now the most important source of water for FLRS, and

Miller Argent stores a proportion of this within the operational area of the FLRS site for dust suppression. Recently, this capacity has been increased, and consequently the amount of water required from Rhaslas Pond has decreased. FLRS has never run out of water during the first seven years of working.

- 11.42 In April 2014 Miller Argent intercepted groundwater at FLRS, and now has an additional source of water to supplement run off stored in the void. As it is now necessary for water to be continuously pumped from the void and discharged from the site, it is unlikely that water required for dust suppression at FLRS would be needed from Rhaslas Pond.
- 11.43 During the final restoration phase of FLRS, water stored on FLRS in the restored Longtown Pond and water treatment areas would be used for dust suppression of the site. During the restoration phase of FLRS there would be sufficient water to meet the needs of both mines for dust suppression, since Nant Llesg would be operational with the water storage available on site (Rhaslas Pond as an operational resource, run off from the Nant Llesg void, groundwater, and, as a last resort, water from the WTA lagoons) and FLRS would be self-sufficient and would not require water from Rhaslas Pond.

### Nant Llesg Requirements

- 11.44 Adding the maximum water bowser, mobile fog cannon<sup>®</sup>, peat storage areas and barrel wash plant usage together gives a total maximum daily water usage at Nant Llesg of approximately 1308 m<sup>3</sup>.
- 11.45 On the Nant Llesg site, the primary source of water would be Rhaslas Pond; even in its reduced form it would have over five times the available capacity of that currently available at FLRS. However, this would not be the only source of water available for dust suppression. Water would be collected from within the operational area of the site and pumped to lagoons. Water would also be collected in the void, from surface water runoff. Furthermore, if required, the WTAs would be able to be used as a source of water to supplement the available water. The total available water storage within the Nant Llesg site would be up to 150,000 m<sup>3</sup> (from both Rhaslas Pond, and water retained in the void and, as a last resort, the WTA lagoons).
- 11.46 It has been suggested in the Kevan Walton Associates' report that Rhaslas Pond "...is already showing significant depletion...". Miller Argent is responsible for weekly visual inspections of the reservoir. During 2013, when Miller Argent did extract water from Rhaslas Pond for the FLRS, the water level dropped below the level of the outlet weir, but from September the water level had increased back up to the weir level, and water was discharging over the weir for prolonged periods after this. At a recent statutory inspection of the reservoir, on the 24th of May 2014, the records show the reservoir was "full". As set out above, the operating regime at FLRS is such that water is unlikely to be needed from Rhaslas Pond.

### Drought Conditions

- 11.47 Assuming that the water supply was full at the start of a dry period and no runoff from rainfall was collected on the site, at a consumption rate of 1,308 m<sup>3</sup>/day, this would equal around 114 days water supply.

- 11.48 The Kevan Walton Associates' report gives details of the most severe drought of recent times that occurred during 1984. The drought began in March and continued through to August, a total of 183 days or approximately six months. The suggestion is that it did not rain for four to five months. Whilst Miller Argent accepts that 1984 was one of the driest years in South Wales on record, both the average rainfall figures quoted and the suggestion it did not rain are misleading. Cwmbargoed was, for many years, a Meteorological Office (MO) weather station, and records are available for 1984, as detailed in Table ESA11.1 below.

**Table ESA11.1 Rainfall for 1984 recorded at Cwmbargoed MO Weather Station**

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Rainfall (mm)	244	106	53	10	52	51	29	53	140	217	259	139	1,353

- 11.49 As Table ESA11.1 shows, there was rainfall in every month of the year, and in only two months, April and July, was there less than 50 mm of rainfall. It is therefore inappropriate to use average rainfall figures to make assumptions at this location. The available data indicates that the 1984 drought would more correctly be classified as a 'hydrological drought'<sup>4</sup> (lack of effective rainfall leading to reduced runoff), rather than a meteorological drought (absence of rainfall). The distinction is important when considering water supply at the site.
- 11.50 The operational area of the proposed site is approximately 223 ha and the rainfall total between March and August in 1984 was 248 mm. If this drought condition were to be repeated during the working of Nant Llesg, this would still result in a total of over 553,000 m<sup>3</sup> of water falling onto the site over this period. Depending on the type of rainfall (heavy torrential summer convective storms may produce runoff, whilst light frontal rainfall would largely be absorbed by the dry soils); a proportion of this flow could end up making its way to Rhaslas Pond and other water storage areas. It is considered that a proportion of this 553,000 m<sup>3</sup> could therefore be available subsequently. For example, if it is assumed that only 5% (27,650 m<sup>3</sup>) of this reached the storage areas it would support 21 days of the site's water requirements.
- 11.51 If runoff did become available that would further extend the water supply from the 114 days storage referred to in paragraph 1.47. The example above shows that with 5 % of any rainfall reaching storage areas, a further 21 days would be added, giving a total water supply of 135 days (177,650 m<sup>3</sup>).

<sup>4</sup> See: <http://www.ceh.ac.uk/data/nrfa/nhmp/whatisadrought.html>

### Working Weeks

- 11.52 It must also be appreciated that on non-working days water supply requirements are more limited, as the lack of site operations and plant movement significantly reduces water requirements, and this would mean that if the number of days referred to above is converted to weeks, it would be appropriate to consider a week consisting of 5.5 days. On this basis, 135 working days supply would be the equivalent of 24.5 weeks of water supply available on site.

### Other factors

- 11.53 This 24.5 weeks supply does not factor in days with rainfall to suppress dust, days with wet ground at the start of a drought, days with damp/foggy/still conditions when dust generation is subdued, or times when dew conditions effectively suppress dust. In addition, the 24.5 weeks supply does not factor in that during drought conditions, wind speeds are generally subdued, or are from the south/east i.e. continental Europe. Dust generation that has the potential to cross the site boundary, and impact on receptors in the absence of any suppression would be limited in those meteorological conditions – the nearest receptors are situated to the south and east of the site.
- 11.54 All of these factors mean that the maximum water supply requirements for dust suppression referred to above are unlikely to exist continuously for six months, and this means that water supplies would be extended to well beyond the 24.5 weeks calculated above.

### **Conclusions on Water Availability**

- 11.55 From Table ESA1, it can be seen that the 1984 drought lasted 183 days, or approximately six months, or 26 weeks. Further, it can be seen that the total overall rainfall in 1984 was still comparable to a typical year's rainfall (see ES Table 11.4 – annual rainfall 2005 to 2011). Large quantities of runoff from the volume of rainfall that falls at this location would be available to refill storage areas at other times of the year, and water storage would be likely to be full at the commencement of any drought period.
- 11.56 It can be seen that the volume of stored water available on site is such that sufficient water would be available for dust suppression and other on-site needs, even in the event that the worst case drought conditions coincided with the most vulnerable water supply situation in part of Disposition 1 (years 2.5 to 4), once all factors are taken into account.
- 11.57 At other times the water supply situation would be an improvement on this as groundwater would be available to top up supplies, whilst water demands remain equal, or alternatively, water supplies remain equal to the above whilst water demands are lower. Years 2.5 to 4 are accordingly very much the worst case scenario, i.e. when water supply is at its most vulnerable, and there is no need to assess the extent of water availability beyond this period.
- 11.58 There is accordingly enough water available on the Nant Llesg site to supply all operational requirements for a prolonged dry spell that might be experienced, and substantially longer than any experienced to date on FLRS.
- 11.59 Finally, as a failsafe, dusty operations could be reduced or stopped if water supply ever became a limiting factor.

## Summary of Mitigation

- 11.60 No change has been made to the measures proposed by the Applicant to mitigate the air quality and dust impacts of the proposed mine. These are outlined in paragraphs 12.176 to 12.187 of the ES. However, additional information on the extent of water available for dust suppression and all other needs on site are provided above. This information is also in the Planning Statement Addendum.

## Impact Assessment

### Water Supply

- 11.61 The presented supplementary information indicates that suitable quantities of water would be available on the Nant Llesg site even in the advent of a drought event similar to that of 1984. No further impacts are identified, as the original ES assessment was undertaken on the basis of Rhaslas Pond becoming an operational water storage area for the duration of the development. Rhaslas Pond would become the scheme's principal water supply, with back up available from storage within the void and, in the worst case scenario, the WTA lagoons.
- 11.62 The effect of utilising water stored in the WTA lagoons on downstream watercourses in a drought would be negligible. This is because the small watercourses draining the Nant Llesg site are naturally ephemeral, and regularly dry-up during dry periods. Flow in the larger watercourses would be supported by the remaining baseflow inputs from the overall groundwater body beneath local river catchments.
- 11.63 As the original ES considered that Rhaslas Pond would become part of the operational site for the duration of the scheme, no further assessment of Rhaslas Pond is required.

### WFD Assessment

- 11.64 The information presented in the WFDA is not re-presented here (please refer to the WFDA at Appendix MA/NL/PA/A11/002). The WFDA does not alter the conclusions drawn within the original ES. The conclusions do, though, lend further support to the benefits that the proposed scheme would have in assisting with improvements to the status of specific elements of several of the WFD units. Some temporary negative effects associated with the removal of lengths of watercourse during the scheme are noted (this conclusion having also been made in the ES). However, significant positive effects are identified associated with the stabilisation of eroding spoil, particularly in the Nant Bargod Rhymni water body unit, and in assisting with the improvements to the quality of mine water inflow to the River Rhymney water body unit, these conclusions also having been made in the ES. There is, accordingly, no change to the assessment in the ES.
- 11.65 NRW has confirmed that it is satisfied with the information presented within the WFDA, subject to one comment which has been addressed in the final WFDA appended at Appendix MA/NL/PA/A11/002.
- 11.66 It remains the case that the scheme proposed by Miller Argent would contribute to tackling the mine water flow from the Bute Level into the River Rhymney. This would occur as part of the operational scheme, and would be undertaken at no cost to the public purse. The

alternative WFD solution, absent the scheme, would be to use cascades and reed beds to promote precipitation/oxidation and deposition of the substances in the mine water. Given the constraints of the existing Bute Level discharge, which is situated in an adit below local ground level, and discharges into the River Rhymney Culvert at a point where the culvert is buried underground below the urban area of Rhymney, a pumping scheme would be required. This would need to bring deep mine water to the surface, route it to a suitable area of land outside of urban Rhymney for treatment, and then discharge treated flows to the River Rhymney. A treatment scheme would therefore not be a straightforward passive cascade/reed-bed system (such as on the Taff Bargoed at Taff Merthyr). Tackling a portion of flows that derive from/pass through the Site, which would be the result of the Nant Llesg scheme, represents a practical means of achieving benefits without the need for implementing a mine water treatment solution, and at no cost to the public purse.

## Summary

- 11.67 This ES Addendum has presented further information on water supply at the Nant Llesg site, and the findings of the WFDA undertaken subsequent to the submission of the original ES. The WFDA provides some additional baseline information on the existing water environment at Nant Llesg.
- 11.68 The findings of the WFDA do not change the findings of the original ES. The study in fact further supports the original ES findings.
- 11.69 Miller Argent is confident that there would be more than enough water available for on-site dust suppression alongside other water demands at Nant Llesg, even during the occurrence of an extremely dry spell equivalent to the 1984 drought. This water can be supplied from storage areas, principally Rhaslas Pond, but also, if need be, from water storage lagoons within the site. As the original ES considered that Rhaslas Pond would become part of the operational site for the duration of the scheme, no further assessment of Rhaslas Pond is required.

# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 12

### Air Quality and Dust





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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 12 – Air Quality and Dust**

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## 12 Air Quality and Dust

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### Chapter Summary

- 12.1 This ES Addendum chapter provides additional information with respect to the air quality and dust assessment which was reported in the ES. The purpose of this chapter is primarily to present the results of further modelling undertaken and to provide clarification regarding the baseline dust flux data requested by Caerphilly County Borough Council.
- 12.2 The dust assessment included in the ES is robust. The MTAN2 criterion of 80 mg/m<sup>2</sup>/day is for coal dust, i.e. **black dust**. It is achieved even though the vast majority of the dust that potentially could cross the boundary of the site would be from the lighter coloured overburden material. The modelling shows that the proposed mine will not cause a loss of amenity due to dust deposition in the local community.
- 12.3 The use of the MTAN2 criterion is considered to be overly stringent. This criterion takes account of the dark colour of coal dust. Any dust from the proposed mine that may have potential to deposit in the local communities will virtually all be the lighter coloured overburden material, with very little coal dust. Therefore the custom and practice value of 200 mg/m<sup>2</sup>/day, commonly used in dust assessments of mineral sites, is considered to be more appropriate to determine whether or not there is likely to be dust complaints during the operation of the proposed mine. This criterion is achieved, by a wide margin, at all receptors.
- 12.4 Caerphilly County Borough Council has requested that the modelling of dust deposition be carried out using a mitigation factor of 75% for the haul roads. The use of the 95% mitigation factor in the ES is appropriate and accords with the methodology in MTAN2. The application of a 75% mitigation factor is considered in this addendum as a hypothetical scenario only. The custom and practice criterion of 200 mg/m<sup>2</sup>/day is achieved by a wide margin even when the mitigation factor for the haul roads is reduced from 95% to a hypothetical 75%.
- 12.5 Miller Argent is confident that there will be more than adequate on-site dust suppression resources, including water, to meet the needs of Nant Llesg, even during an extreme dry spell. This is discussed further in Chapter 11 on Hydrology and Drainage.
- 12.6 Miller Argent is also confident that the Heads of the Valley Industrial Estate and the residential areas of Rhymney, Pontlottyn and Fochriw will not become dusty environments due to this development.
- 12.7 The construction of the additional noise screening bund, described in paragraph 13.14 of Chapter 13 'Noise' in this ES Addendum, which reduces the required height of the noise barrier at Halfway House from 3m to 2m, will not lead to a significant air quality and dust impact.

### Introduction

- 12.8 This chapter provides additional information with respect to the air quality and dust assessment reported in the ES in response to requests and representations from Caerphilly County Borough Council (CCBC) and others. It also provides an assessment of the impact of the construction of an additional noise bund, as described below.

- 12.9 The main purpose of this chapter is to present the results of further modelling undertaken at the request of Caerphilly County Borough Council (CCBC) as follows:

***“Para 12.60 You have discussed the US EPA AP42 emissions factors - can you fully explain how you achieved a 95% reduction in dust emissions for haulage routes. This assumption seems particularly high? Given that dust from haulage routes will be a major factor of the project, we would be interested to see how the results would be affected if this figure was reduced to around 75-80%, we would like to see this re-modelled with this parameter changed to 75%.”***

- 12.10 MTAN2 recommends, in the absence of data from Defra, that the emission calculations should use the guidance for Western Surface Coal Mining (MTAN2 paragraph 145). The methodology is contained in Chapter 11 and 13 of USEPA AP42. This methodology was used, including relevant local data, to derive the 95% efficacy of dust mitigation for the haul roads, and therefore use of 95% efficacy in the ES assessment is fully justified. This is described in the ES Appendix MA/NL/ES/A12/002. Therefore modelling of the 75% mitigation factor, as requested by CCBC, is considered to be a hypothetical scenario.
- 12.11 The results of this modelling have been assessed against the MTAN2 criterion (80 mg/m<sup>2</sup>/day averaged over a week) in the same way as in the ES (ES paragraphs 12.139 to 12.155, and specifically ES Tables 12.16 and 12.17). However, the results of the modelling of the hypothetical scenarios have additionally been assessed using the custom and practice guide value of 200mg/m<sup>2</sup>/day more commonly used to assess dust from mineral sites, as the MTAN2 criterion is considered to apply to coal dusts and not to dust from the haul roads.
- 12.12 This chapter also provides clarification on the dust flux monitoring data from adjacent to the railway line, additional data on baseline dust deposition at the Heads of the Valleys Industrial Estate, and corrects minor errors regarding the data capture rate for PM<sub>10</sub> and PM<sub>2.5</sub>, and the modelled average dust deposition. These corrections do not change the conclusions of the ES.
- 12.13 The dust and airborne particle (PM<sub>10</sub>) impacts of the construction of the additional noise screening bund to enable the height of the noise barrier at Halfway House (see paragraphs 13.15 and 13.16 of Chapter 13 'Noise' in this ES Addendum) to be reduced has also been assessed.

## Dust Assessment Criteria

- 12.14 There is no statutory limit for dust deposition, but the 'custom and practice' level of 200 mg/m<sup>2</sup>/day, averaged over one month, is widely used to assess dust impacts. This value was suggested by Vallack and Shillito in 1998<sup>1</sup> as the level where complaints are likely and is based on the average UK background dust deposition in residential areas and the outskirts of towns. Examples of its use include:
- The Environment Agency's technical guidance note M17 on 'Monitoring of particulate matter in ambient air around waste facilities' (2013) states "in the absence of any other criteria, the 'custom and practice' guidance of 200 mg m<sup>-2</sup> day<sup>-1</sup> is widely used for general (i.e. non-toxic and non-corrosive) dust deposition measured by Frisbee gauges".

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<sup>1</sup> Vallack H.W. and Shillito D.E., 1998. Atmospheric Environment, Vol 32, No 16, pp 2737-2744.

- The Institute of Air Quality Management's 'Guidance on air quality monitoring in the vicinity of demolition and construction sites' (2012) states "in the absence of other information, the Site Action Levels set out below are recommended. These will be reviewed in the future as additional information becomes available... dust deposition Frisbee-type deposition gauges: 200 mg/m<sup>2</sup>/day, averaged over a four week period."
  - The sustainable aggregates website (previously 'Good Quarry') states that "the limit of nuisance dust customarily accepted in the UK ... is 200 mg/m<sup>2</sup>/day measured as an annual mean". It also reports standards and guidance from other countries which range from 133 to 650 mg/m<sup>2</sup>/day as a monthly mean.
- 12.15 Neither the National Planning Practice Guidance for England (2014), Scottish Planning Policy (2010) nor the Scottish PAN 50: Controlling the Environmental Effects of Surface Mineral Workings (1996) sets limits for dust deposition.
- 12.16 MTAN2 (paragraph 155) suggests that the value of 200 mg/m<sup>2</sup>/day is too high for amenity purposes when the colour of coal dust is taken into account. MTAN2 (page 60) states that "amenity relates to the qualities, characteristics and attributes people value about a place and which contribute to their quality of life". Dust modelling was carried out and the results were assessed in the ES against this, more stringent, value of 80 mg/m<sup>2</sup>/day suggested for coal dust by MTAN2.
- 12.17 Using the value of 80 mg/m<sup>2</sup>/day as the assessment level in the ES is however a conservative approach for the following reasons:
- The assessment treats all dust as coal dust. In reality the potential for coal dust to be deposited in residential areas is low for the following reasons: (1) The ratio of overburden to coal excavated (m<sup>3</sup>/m<sup>3</sup>) is estimated to be 17:1, i.e. the potential dust **in the excavation area** would therefore comprise approximately 95% overburden and only approximately 5% coal. (2) The visual and acoustic screening bund and the overburden mound will be constructed from overburden not from coal. (3) The haul roads will also be constructed from overburden. As the haul roads are the main potential sources of dust in the local communities the dust will be virtually all lighter coloured overburden.
  - The MTAN2 value of 80 mg/m<sup>2</sup>/day is derived from Bates and Coppin (1991)<sup>2</sup> who say "A **monthly average** deposition rate of 200 mg/m<sup>2</sup>/day is often considered as a threshold for serious nuisance... For black coal dust, which has a higher contrast with its background, a deposition rate of 80 mg/m<sup>2</sup>/day is likely to give rise to complaints" (our emphasis). 80 mg/m<sup>2</sup>/day averaged over **one week** is much more stringent than the same value averaged over **one month**. Despite this, the ES has assessed all dust as if it were coal dust, by adopting the value of 80 mg/m<sup>2</sup>/day for assessment purposes.
- 12.18 With the surface mine operational there was predicted to be a minor impact when assessed using the MTAN2 coal dust criterion at most receptors. However, it must be remembered that the majority of dust will not be coal dust, and there would be no significant change if the assessment had used the custom and practice criterion of 200 mg/m<sup>2</sup>/day averaged over a month<sup>3</sup> using the Cwmbargoed Disposal Point (CDP) meteorological data<sup>4</sup>. It is clear that the

<sup>2</sup> Bate K. and Coppins N.J., 1991, Dust impacts from mineral workings, Mine and Quarry, pp 31-35.

<sup>3</sup> The model results were actually averaged over 4 weeks.

<sup>4</sup> Using this criteria and the St Athan meteorological data there was predicted to be a minor adverse impact at one receptor under the worst case scenario (Disposition 3 plus FLRS overburden mounds removal). Overall this would not be considered a significant effect.



Heads of the Valley Industrial Estate and the residential areas of Rhymney, Pontlottyn and Fochriw will not become dusty environments due to this development.

- 12.19 During Disposition 3 and the removal of the FLRS overburden mounds a moderate impact was identified in the ES at one receptor using the MTAN2 criterion of 80mg/m<sup>2</sup>/day and the St Athan meteorological data. This, in effect, treated the removal of the overburden mounds and the use of the haul roads as having the potential to generate coal dust, which clearly will not be the case. The 80 mg/m<sup>2</sup>/day criterion applies explicitly to coal dust and therefore using it to assess overburden dust is not appropriate.

## Methodology

- 12.20 The same modelling methodology as described in paragraphs 12.47 to 12.93 of the ES and Appendix MA/NL/ES/12/002 was used with the exception of the mitigation factor for dust emissions from vehicles driving over unpaved haul routes. In the original assessment the dust suppression factor for the haul routes was 95% (ES paragraph 12.60 and ES Appendix MA/NL/A12/002 section 2.2).
- 12.21 The recommended methodology in MTAN2 was followed to derive the efficacy of the dust mitigation for the haul roads. The unmitigated emissions were estimated using local data for the weight of the vehicles, silt content and rainfall. AP42 (AP42 Figure 13.2.2-2) provides information on the effectiveness of watering unpaved roads based on the moisture ratio (M)<sup>5</sup>. When M=1 the control efficiency is 0; when M=5 it is 95% efficient. The surface water content of dry and wet roads at FLRS were measured using the AP42 recommended procedures in May 2012 following a period of dry, hot weather. The measured values of M were in the range 5.5 to 7.9, with an average value of 6.9. As these figures were all greater than M=5 a value of 95% mitigation was appropriately used in the model. Therefore the data from FLRS supports the dust suppression factor used in the model, and operational experience at this mine shows that a high mitigation factor is fully justified.
- 12.22 At the request of CCBC the effect of reducing the efficiency of the dust suppression to 75% was modelled. This was applied to the two worst case dispositions. As the 95% mitigation factor was determined using the MTAN2 recommended methodology, these scenarios are considered hypothetical.
- 12.23 The two hypothetical scenarios are:
- Disposition 2. During this disposition the impacts were minor or negligible at all receptors (see ES Tables 12.34 and 12.35), and the MTAN2 criterion was predicted to be achieved using the 95% mitigation factor. However, it was chosen to be modelled with the hypothetical 75% mitigation factor because the initial modelling showed that it is the disposition with the highest predicted dust deposition when considered in isolation.
  - The cumulative impacts of the operation of Nant Llesg with the removal of the overburden mounds from Ffos-y-fran Land Reclamation Scheme (FLRS). In the ES the cumulative impacts of Disposition 3 and Disposition 4 with the removal of the FLRS overburden mound were modelled. However, only the cumulative impact of Disposition 3 and the removal of the FLRS overburden mounds were modelled

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<sup>5</sup>  $M = (\text{surface moisture content of the watered road}) / (\text{surface moisture content of the uncontrolled road})$ .

using the hypothetical 75% mitigation factor. This is because when the original air quality assessment was undertaken it was assumed that the scheme would commence in 2014. This is now unlikely to happen prior to 2016 (see Table PSA3.1, Chapter 3 of the PS Addendum), and therefore there will be no possibility of Disposition 4 occurring at the same time as the removal of the FLRS overburden mounds. These mounds will be removed before the start of Disposition 4. As such there is no need to model the cumulative impact of Disposition 4 together with removal of the FLRS overburden mound.

- 12.24 The delay in the likely start of the project has no impact on the air quality and dust assessment of the other Dispositions presented in the ES chapter. The background concentrations used in the assessment were for 2012 (See ES paragraph 12.54, and Section 5 of ES Appendix MA/NL/ES/A12/002). The background concentrations are predicted by Defra to decline in future years and therefore the use of 2012 data will result in a conservative estimate of concentrations in future years.
- 12.25 The significance criteria are described in the ES in paragraphs 12.137 to 12.155 and in ES Tables 12.16 and 12.17. The same approach was used to assess the predicted dust deposition in the hypothetical scenarios.
- 12.26 The generic criteria in ES Table 12.16 (second column) have been used to derive an assessment criteria, based on the use of the both the MTAN2 value of 80 mg/m<sup>2</sup>/day and the custom and practice value of 200 mg/m<sup>2</sup>/day. Table ESA12.1 below shows the descriptors of the magnitude of change: column 2 gives the generic descriptors, based on the percentage of the environmental assessment level (EAL); column 3 uses the MTAN2 criterion, and column 4 uses the custom and practice criterion. Column 3 was used in the ES, but column 4 is also used in this addendum to the ES for the reasons set out above.

**Table ESA12.1 Descriptors for Magnitude of Change for Human Receptors**

Magnitude of Change	Percentage of EAL	Dust deposition (mg/m <sup>2</sup> /day)	
		MTAN2 coal dust criterion (80)	Custom and practice dust criterion (200)
Large	> 10%	>8	>20
Medium	5-10%	4-8	10-20
Small	1-5%	0.8-4	2-10
Imperceptible	<1%	<0.8	<2

- 12.27 It should be noted that the MTAN2 criterion of 80mg/m<sup>2</sup>/day is a weekly average whereas the custom and practice criterion of 200 mg/m<sup>2</sup>/day is a monthly average. While it is clear that the criterion of 80 mg/m<sup>2</sup>/day used in MTAN2 was based upon the darker colour of coal dust, it is unclear from both MTAN2 and the scientific literature why this criterion uses a weekly average. The original scientific paper that introduced the value of 80 mg/m<sup>2</sup>/day used a monthly average (see paragraph 12.17 above). To be consistent with MTAN2 the additional assessment using the custom and practice criterion of 200mg/m<sup>2</sup>/day also used a weekly average. This has the effect of making the assessment more stringent than it should be but it has the benefit of ensuring that the results can be easily compared.
- 12.28 The descriptors of the magnitude of change are combined with the absolute concentration in relation to the environmental assessment level (EAL) at each individual receptor. This is shown in Table ESA12.2 below, which replicates Table 12.17 in the ES. It should be noted

that in determining the overall significance of the proposed mine a number of other factors need to be taken into consideration as described in paragraph 12.152 of the ES.

**Table ESA12.2 Air Quality Impact Descriptors**

Absolute concentration in relation to EAL*	Magnitude of change		
	Large	Medium	Small
Above EAL with scheme	Major	Moderate	Minor
Just below EAL with scheme (i.e. within 90% of EAL)	Moderate	Moderate	Minor
Below EAL with scheme (i.e. 75-90% of EAL)	Minor	Minor	Negligible
Well below EAL with scheme (i.e. <75% of EAL)	Minor	Negligible	Negligible
* Concentration/deposition with scheme where there is an adverse impact, and without scheme where there is a beneficial impact			

- 12.29 To assess the impact of construction of the additional noise bund, which is to be positioned on the north western edge of the proposed excavation area to screen Halfway House, the same assessment methodology has been used as described in Paragraphs 12.137 to 12.138 and Tables 12.13 and 12.14 of the ES. This method of assessing the construction impacts is that published by the Institute of Air Quality Management (IAQM) in 2012.
- 12.30 In 2014 updated guidance was published by IAQM (*Guidance on the assessment of dust from demolition and construction, IAQM, 2014*). The methodology is similar to the original IAQM guidance but has greater emphasis on mitigation and further guidance is provided regarding the sensitivity of different types of receptor.
- 12.31 In the context of the proposed Nant Llesg mine the most significant change in the new IAQM guidance is in relation to the distance between works and the nearest ecological receptor(s). The distance where there is potential for a significant impact has been reduced from that used in the previous IAQM guidance.
- 12.32 The early works on site have been re-assessed against the new guidance.

## Baseline Environment

- 12.33 The baseline air quality and dust deposition, as outlined in the ES in paragraphs 12.94 to 12.126, and Tables 12.4 to 12.8, have not materially changed beyond the normal year to year variations.
- 12.34 The PM<sub>10</sub> and PM<sub>2.5</sub> data presented in the ES for Rhymney is for the calendar year 2012; i.e. for the period 1<sup>st</sup> January to 31<sup>st</sup> December 2012. Monitoring commenced in November 2011 and is ongoing. Miller Argent use AQ Data Services of Port Talbot to independently prepare monthly and annual summaries of the data.

- 12.35 The Environment Statement (ES) paragraph 12.96 states that the data capture was 72% for PM<sub>10</sub> and 70% for PM<sub>2.5</sub>. This is incorrect, and unfortunately it was not updated from an earlier draft of the chapter when data for a shorter period was presented. The data capture for 2012 was 89% and 84% for PM<sub>10</sub> and PM<sub>2.5</sub> respectively. The verified data is attached as Appendix MA/NL/PA/A12/001.
- 12.36 CCBC requested further information on the dust flux measurements close to the railway line.
- 12.37 The dust data presented in the ES for the locations near the railway are quantitative dust flux measurements collected using DustScan directional sticky pad samplers, and analysed using their proprietary software to determine the absolute area coverage (AAC) and the effective area coverage (EAC) for 24 x 15° sectors, thus enabling the direction of the dust source(s) to be determined. AAC provides data on total dust collected whereas the EAC takes account of the colour of the dust.
- 12.38 The DustScan data presented in the ES covers the period from 5th April 2012 to 19th April 2013, during which coal deliveries from FLRS were taking place along the railway line. For the sampler to the east of the railway four samples (equivalent to 96 data points) were lost due to the sampler being vandalised. Whilst this is unfortunate this has no impact on the conclusion that dust is not emitted from the waggons, due to the number of samples successfully taken. The samples were typically collected over a seven day period. All samples were collected over a period of between 3 to 10 days except for 3 samples which were collected over 14 days and one sample which was over 21 days.
- 12.39 The dust complaints risk matrix referred to in Table 12.2 of the ES has been produced by DustScan Ltd. based on the results of a large number of monitoring programmes around mineral and waste sites. Table ESA12.3 below provides a summary of the dust data from the two samplers adjacent to the railway, using the dust complaints risk matrix. These results were reflected in the data in Table 12.8 of the ES.

**Table ESA12.3 Baseline Dust Flux Measurements**

Dust Complaints Risk Category	East of railway		West of railway	
	Number	Percent	Number	Percent
Very Low	1032	100	1128	100
Low	0	0	0	0
Medium	0	0	0	0
High	0	0	0	0
Very High	0	0	0	0

- 12.40 During approximately one year of monitoring all the samples were in the very low risk of dust complaints category
- 12.41 The ES reports the results of the dust flux (DustScan) measurements. This is because DustScan Ltd has developed a risk assessment matrix that provides a method of assessing the potential for complaints using dust flux measurements (ES Table 12.2). MTAN 2 (paragraph 153) also notes that monitoring should be directional (i.e. dust flux not dust deposition).

- 12.42 However baseline dust deposition (DustDisk) samples were collected at the Heads of Valley Industrial Estate (location 2A on Drawing MA/NL/ES/12/001). As paragraph 12.80 of the ES explains, the mass of dust collected on the DustDisk is too small to measure for the vast majority of samples. However, using a locally derived relationship between %EAC/day and mg/m<sup>2</sup>/day has allowed the quantification of the baseline dust deposition in terms of mg/m<sup>2</sup>/day for some samples. Table ESA12.4 presents the data for the seven samples collected between 4<sup>th</sup> November 2011 to 19<sup>th</sup> April 2013 that exceed 80 mg/m<sup>2</sup>/day.

**Table ESA12.4 Dust Deposition at Heads of the Valley Industrial Estate Greater than 80 mg/m<sup>2</sup>/day**

Sampling period		Dust Deposition mg/m <sup>2</sup> /day
Start	Finish	
24 May 2012	31 May 2012	217
23 March 2012	30 March 2013	212
4 November 2011	11 November 2011	146
18 November 2011	25 November 2011	109
16 March 2012	23 March 2012	102
2 December 2011	9 December 2011	101
22 March 2013	28 March 2011	85

- 12.43 The dust flux data for these periods show that the dust came from the direction of Rhymney, not the direction of FLRS or Nant Llesg. Any potential dust deposition due to Nant Llesg operations will come from a different direction and therefore the impacts are not simply additive.
- 12.44 The modelled baseline **average** daily dust deposition at each receptor, averaged over a week, is presented in the ES in Table 12.10. Minor errors to this data have been identified. The correct data is presented in Table ESA12.5 below. As this average data is not used in the impact assessment these errors have no material effect on the conclusions of the ES.

**Table ESA12.5 Corrections to ES Table 12.10: Baseline - Predicted Dust Deposition at Residential and Commercial Receptors**

Receptor (number on Drawing MA/NL/ES/12/003)	Average daily dust deposition, averaged over one week mg/m <sup>2</sup> /day	
	St Athan*	CDP
Cwm Nant (1)	0.6	1.4
Lower Row, Bute Town (2)	0.5	1.2
The Rhymney House, Llechryd (3)	0.5	1.2
Sand Crest Lodge, Rhymney (4)	0.8	2.0
26 Glan Yr Afon, Rhymney (5)	0.9	2.3
3 Old Brewery Lane, Rhymney (6)	1.2	2.9
Valletta Lodge, Hill Road, Pontlottyn (7)	6.6	5.6

Receptor (number on Drawing MA/NL/ES/12/003)	Average daily dust deposition, averaged over one week mg/m <sup>2</sup> /day	
	St Athan*	CDP
Bali Hai, Bryhyfryd (8)	7.2	5.8
72 Pontlottyn Road, Fochriw (9)	10.0	8.5
Cae Glas Fochriw (10)	10.2	11.0
Ty Nazareth, Guest Street Fochriw (11)	8.7	9.8
Blaen Carno Farmhouse (12)	0.3	0.4
Gypsy Castle (13)	0.2	0.4*
<b>Commercial Receptors</b>		
Heads of Valley Industrial Estate (14)	1.2	3.2*
Heads of Valley Industrial Estate (15)	1.8	4.4*
Capital Valley Eco Park (16)	3.9	5.5*
<b>EAL for protection of public amenity: 80 mg/m<sup>2</sup>/day averaged over a week.</b>		
St Athan data for 2007-2011; CDP data for 2007, 2009-2011		
*Corrected data		

## Impact Assessment

### Corrections to Environmental Statement

- 12.45 Some minor errors in the average dust deposition data presented in the ES have been identified. These are in Table 12.30, Table 12.42, Table 12.57, and Table 12.59 of the ES. The corrected data is presented below in Tables ESA12.6 to ESA12.10 respectively. This data was not used in the assessment of the impacts, but was presented to provide some context. Therefore this data has not impacted on the conclusions of the ES.

**Table ESA12.6 Corrections to ES Table 12.30: Disposition 1 During Construction of Visual and Acoustic Screening Bund: Predicted Dust Deposition**

Receptor (number on Drawing MA/NL/ES/12/003)	Average daily dust deposition, averaged over one week mg/m <sup>2</sup> /day	
	St Athan	CDP*
Cwm Nant (1)	4.3	8.9
Lower Row, Bute Town (2)	1.5	3.4
The Rhymney House, Llechryd (3)	1.5	3.1
Sand Crest Lodge, Rhymney (4)	4.8	7.7
26 Glan Yr Afon, Rhymney (5)	5.7	7.8
3 Old Brewery Lane, Rhymney (6)	7.1	7.7
Valletta Lodge, Hill Road, Pontlottyn (7)	9.5	6.7
Bali Hai, Bryhyfryd (8)	9.6	6.7
72 Pontlottyn Road, Fochriw (9)	13.3	9.9
Cae Glas Fochriw (10)	16.4	14.2
Ty Nazareth, Guest Street Fochriw (11)	13.3	11.5
Blaen Carno Farmhouse (12)	1.9	1.1
Gypsy Castle (13)	1.3	1.2
<b>Commercial Receptors</b>		
Heads of Valley Industrial Estate (14)	20.9	19.5
Heads of Valley Industrial Estate (15)	11.0	10.7
Capital Valley Eco Park (16)	7.5	7.2
<b>Note: EAL for protection of public amenity = maximum 80 mg/m<sup>2</sup>/day averaged over a week.</b>		
St Athan data for 2007-2011; CDP data for 2007, 2009-2011		
* Corrected data		

**Table ESA12.7 Corrections to ES Table 12.42: Disposition 4 - Predicted Dust Deposition at Residential and Commercial Receptors**

Receptor (number on Drawing MA/NL/ES/12/003)	Average daily dust deposition averaged over one week mg/m <sup>2</sup> /day	
	St Athan	CDP*
Cwm Nant (1)	3.5	8.0
Lower Row, Bute Town (2)	1.7	3.9
The Rhymney House, Llechryd (3)	1.9	4.2
Sand Crest Lodge, Rhymney (4)	5.6	10.2
26 Glan Yr Afon, Rhymney (5)	7.5	11.4
3 Old Brewery Lane, Rhymney (6)	11.7	14.5

Receptor (number on Drawing MA/NL/ES/12/003)	Average daily dust deposition averaged over one week mg/m <sup>2</sup> /day	
	St Athan	CDP*
Valletta Lodge, Hill Road, Pontlottyn (7)	16.1	11.3
Bali Hai, Bryhyfryd (8)	13.1	9.3
72 Pontlottyn Road, Fochriw (9)	13.5	9.4
Cae Glas Fochriw (10)	12.4	10.4
Ty Nazareth, Guest Street Fochriw (11)	10.8	9.4
Blaen Carno Farmhouse (12)	2.4	1.8
Gypsy Castle (13)	1.7	1.7
<b>Commercial Receptors</b>		
Heads of Valley Industrial Estate (14)	23.6	26.2
Heads of Valley Industrial Estate (15)	22.9	25.4
Capital Valley Eco Park (16)	17.9	15.2
<b>EAL for protection of public amenity: 80 mg/m<sup>2</sup>/day averaged over a week.</b>		
St Athan data for 2007-2011; CDP data for 2007, 2009-2011		
*Corrected data		

**Table ESA12.8 Corrections to ES Table 12.57: Cumulative Impact of Disposition 3 and the Removal of the FLRS Overburden Mounds: Dust Deposition**

Receptor (number on Drawing MA/NL/ES/12/003)	Average daily dust deposition averaged over one week mg/m <sup>2</sup> /day	
	St Athan	CDP*
Cwm Nant (1)	4.1	8.7
Lower Row, Bute Town (2)	2.3	5.2
The Rhymney House, Llechryd (3)	2.3	5.3
Sand Crest Lodge, Rhymney (4)	5.4	10.6
26 Glan Yr Afon, Rhymney (5)	6.6	11.6
3 Old Brewery Lane, Rhymney (6)	10.0	14.2
Valletta Lodge, Hill Road, Pontlottyn (7)	21.5	14.8
Bali Hai, Bryhyfryd (8)	18.4	12.9
72 Pontlottyn Road, Fochriw (9)	19.6	13.8
Cae Glas Fochriw (10)	17.7	15.0
Ty Nazareth, Guest Street Fochriw (11)	15.5	13.6
Blaen Carno Farmhouse (12)	2.7	2.9
Gypsy Castle (13)	1.8	2.5
<b>Commercial Receptors</b>		



Receptor (number on Drawing MA/NL/ES/12/003)	Average daily dust deposition averaged over one week mg/m <sup>2</sup> /day	
	St Athan	CDP*
Heads of Valley Industrial Estate (14)	19.0	24.2
Heads of Valley Industrial Estate (15)	22.8	25.9
Capital Valley Eco Park (16)	22.0	18.4
<b>EAL for protection of public amenity:</b> 80 mg/m <sup>2</sup> /day averaged over a week.		
St Athan data for 2007-2011; CDP data for 2007, 2009-2011		
* Corrected data		

**Table ESA12.9 Corrections to ES Table 12.59: Cumulative Impact of Disposition 4 and the Removal of the FLRS Overburden Mounds: Dust Deposition**

Receptor (number on Drawing MA/NL/ES/12/003)	Average daily dust deposition averaged over one week mg/m <sup>2</sup> /day	
	St Athan*	CDP*
Cwm Nant (1)	4.3	9.9
Lower Row, Bute Town (2)	2.4	5.4
The Rhymney House, Llechryd (3)	2.5	5.5
Sand Crest Lodge, Rhymney (4)	6.6	12.1
26 Glan Yr Afon, Rhymney (5)	8.8	13.5
3 Old Brewery Lane, Rhymney (6)	13.6	17.0
Valletta Lodge, Hill Road, Pontlottyn (7)	19.7	13.6
Bali Hai, Bryhyfryd (8)	16.1	11.4
72 Pontlottyn Road, Fochriw (9)	15.9	11.3
Cae Glas Fochriw (10)	14.1	11.9
Ty Nazareth, Guest Street Fochriw (11)	12.3	10.7
Blaen Carno Farmhouse (12)	3.1	3.4
Gypsy Castle (13)	2.2	2.9
<b>Commercial Receptors</b>		
Heads of Valley Industrial Estate (14)	25.8	29.3
Heads of Valley Industrial Estate (15)	26.6	29.0
Capital Valley Eco Park (16)	21.7	17.5
<b>EAL for protection of public amenity:</b> 80 mg/m <sup>2</sup> /day averaged over a week.		
St Athan data for 2007-2011; CDP data for 2007, 2009-2011		
* Corrected data		

### Early Works

- 12.46 The ES assessed the impact of the early Nant Llesg works, including the site establishment works, land remediation and the construction of the CDP water treatment facility and the coal washing plant, in ES paragraphs 12.189 to 12.206 and the impacts are shown in ES Tables 12.18 to 12.25. The impacts were negligible.
- 12.47 As new guidance on the assessment of construction impacts has been published since the ES was prepared (*Guidance on the assessment of dust from demolition and construction, IAQM, 2014*) (see paragraph 12.30 above), the impact of these early works on the site have been re-assessed against the 2014 guidance, and have also been found to be negligible and therefore there is no change to the conclusions of the ES.

### Hypothetical Scenarios: Modelled Dust Deposition

- 12.48 Table ESA12.10 shows the results of the modelling of the hypothetical scenario for Disposition 2. It shows that using the hypothetical 75% mitigation factor to model the dust deposition during Disposition 2 the MTAN2 criterion of 80 mg/m<sup>2</sup>/day is predicted to be achieved at all but two residential receptors (Cwm Nant and Valletta Lodge). The custom and practice criterion of 200 mg/m<sup>2</sup>/day is achieved by a wide margin at all receptors including the industrial ones.
- 12.49 Table ESA12.10 also shows that the average dust deposition will be significantly lower than the maximum and generally less than 15% of the custom and practice guide value at the residential receptors.

**Table ESA12.10 Hypothetical Scenario: Impact of Disposition 2**

Receptor (number on Drawing MA/NL/ES/12/003)	Maximum daily dust deposition averaged over one week		Average daily dust deposition averaged over one week	
	mg/m <sup>2</sup> /day		mg/m <sup>2</sup> /day	
	St Athan	CDP	St Athan	CDP
<b>Residential Receptors</b>				
Cwm Nant (1)	71.2	94.1	11.2	24.5
Lower Row, Bute Town (2)	37.4	49.3	5.1	11.8
The Rhymney House, Llechryd (3)	32.2	45.0	5.2	11.4
Sand Crest Lodge, Rhymney (4)	70.6	79.8	14.8	26.1
26 Glan Yr Afon, Rhymney (5)	64.9	74.3	18.8	27.6
3 Old Brewery Lane, Rhymney (6)	66.0	70.9	28.9	31.8
Valletta Lodge, Hill Road, Pontlottyn (7)	85.8	83.7	28.4	19.2
Bali Hai, Bryhyfryd (8)	65.3	53.3	20.1	14.1
72 Pontlottyn Road, Fochriw (9)	44.7	48.7	18.5	12.7
Cae Glas Fochriw (10)	63.2	47.6	16.4	13.8
Ty Nazareth, Guest Street Fochriw (11)	54.1	40.5	14.1	12.2
Blaen Carno Farmhouse (12)	46.4	34.0	8.2	5.4
Gypsy Castle (13)	26.7	32.7	5.1	5.5
<b>Commercial Receptors</b>				

Receptor (number on Drawing MA/NL/ES/12/003)	Maximum daily dust deposition averaged over one week		Average daily dust deposition averaged over one week	
	mg/m <sup>2</sup> /day		mg/m <sup>2</sup> /day	
	St Athan	CDP	St Athan	CDP
Heads of Valley Industrial Estate (14)	145.8	156.9	67.8	68.3
Heads of Valley Industrial Estate (15)	140.4	146.0	64.3	61.8
Capital Valley Eco Park (16)	98.6	91.6	39.6	29.9

- 12.50 Table ESA12.11 shows the results of the impact assessment for individual receptors using the two criteria of 80 and 200 mg/m<sup>2</sup>/day with the hypothetical 75% mitigation factor. The assessment based on the MTAN2 criterion (80 mg/m<sup>2</sup>/day) shows that the impact at most residential receptors is predicted to be minor. A major impact is predicted at one residential receptor using the St Athan meteorological data. Using the more realistic CDP data there is predicted to be a moderate adverse impact at two residential receptors and a major impact at two residential receptors during this hypothetical scenario. However, if the 'custom and practice' guide value is used there is predicted to be a minor or negligible impact at all receptors irrespective of which meteorological data is used.
- 12.51 A major adverse impact is also predicted at the commercial receptors, but it should be noted that the MTAN2 criterion is set for amenity purposes (MTAN2 paragraph 155), and that industrial estates are not typically considered to be sensitive receptors with respect to loss of amenity.
- 12.52 In reality, in adverse weather conditions for dust generation and propagation, Miller Argent would instigate a partial or full shut down of the site (with the exception of dust mitigation measures), which would result in 100% mitigation of emissions from the haul routes.

**Table ESA12.11 Impact of Disposition 2 Hypothetical Scenario: Significance of the Predicted Dust Deposition Impacts**

Receptor (number on Drawing MANL/ES/12/003)	Impact Maximum daily dust deposition averaged over one week mg/m <sup>2</sup> /day		Significance at individual receptors			
	St Athan	CDP	80 mg/m <sup>2</sup> /day		200 mg/m <sup>2</sup> /day	
			St Athan	CDP	St Athan	CDP
<b>Residential Receptors</b>						
Cwm Nant (1)	66.9	86.8	Minor Adverse	Major Adverse	Minor Adverse	Minor Adverse
Lower Row, Bute Town (2)	33.9	43.7	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
The Rhymney House, Llechryd (3)	28.6	39.2	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
Sand Crest Lodge, Rhymney (4)	64.7	70.4	Minor Adverse	Moderate Adverse	Minor Adverse	Minor Adverse
26 Glan Yr Afon, Rhymney (5)	58.2	65.0	Minor Adverse	Moderate Adverse	Minor Adverse	Minor Adverse
3 Old Brewery Lane, Rhymney (6)	57.3	59.6	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
Valletta Lodge, Hill Road, Pontlottyn (7)	62.4	61.2	Major Adverse	Major Adverse	Minor Adverse	Minor Adverse
Bali Hai, Bryhyfryd (8)	43.1	25.0	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
72 Pontlottyn Road, Fochriw (9)	12.3	8.1	Minor Adverse	Minor Adverse	Negligible	Negligible
Cae Glas Fochriw (10)	9.2	6.7	Minor Adverse	Minor Adverse	Negligible	Negligible
Ty Nazareth, Guest Street Fochriw (11)	7.8	5.1	Minor Adverse	Minor Adverse	Negligible	Negligible
Blaen Carno Farmhouse (12)	44.3	31.1	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
Gypsy Castle (13)	24.2	29.8	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
<b>Commercial Receptors</b>						
Heads of Valley Industrial Estate (14)	136.8	141.5	Major Adverse	Major Adverse	Minor Adverse	Minor Adverse
Heads of Valley Industrial Estate (15)	127.2	128.7	Major Adverse	Major Adverse	Minor Adverse	Minor Adverse
Capital Valley Eco Park (16)	79.0	67.7	Major Adverse	Major Adverse	Minor Adverse	Minor Adverse

- 12.53 Table ESA12.12 presents the dust deposition under the hypothetical scenario for the cumulative impact of Disposition 3 and the removal of the FLRS overburden mounds. It shows that the MTAN2 criterion of 80 mg/m<sup>2</sup>/day is met at most residential receptors, while the more appropriate custom and practice guide value of 200 mg/m<sup>2</sup>/day for overburden is met by a wide margin at all receptors. With the more realistic CDP wind data the model predicts that five residential receptors would exceed 80 mg/m<sup>2</sup>/day, but generally by less than 10%.

**Table ESA12.12 Hypothetical Scenario: Cumulative Impact of Disposition 3 and the Removal of the FLRS Overburden Mound - Predicted Dust Deposition**

Receptor (number on Drawing MA/NL/ES/12/003)	Maximum daily dust deposition averaged over one week		Average daily dust deposition averaged over one week	
	mg/m <sup>2</sup> /day		mg/m <sup>2</sup> /day	
	St Athan	CDP	St Athan	CDP
<b>Residential Receptors</b>				
Cwm Nant (1)	59.1	80.7	8.1	19.8
Lower Row, Bute Town (2)	37.2	47.6	5.1	11.7
The Rhymney House, Llechryd (3)	33.2	46.2	6.6	11.5
Sand Crest Lodge, Rhymney (4)	64.4	78.0	12.6	23.0
26 Glan Yr Afon, Rhymney (5)	62.9	71.7	16.7	24.6
3 Old Brewery Lane, Rhymney (6)	65.5	81.1	26.2	28.8
Valletta Lodge, Hill Road, Pontlottyn (7)	94.3	106.4	34.2	23.7
Bali Hai, Bryhyfryd (8)	86.5	87.4	29.2	20.1
72 Pontlottyn Road, Fochriw (9)	74.6	80.5	27.3	20.2
Cae Glas Fochriw (10)	99.3	67.6	23.9	20.6
Ty Nazareth, Guest Street Fochriw (11)	84.5	61.4	18.6	18.9
Blaen Carno Farmhouse (12)	27.0	28.9	5.8	7.1
Gypsy Castle (13)	17.0	26.2	14.3	6.0
<b>Commercial Receptors</b>				
Heads of Valley Industrial Estate (14)	114.0	128.6	48.6	54.9
Heads of Valley Industrial Estate (15)	129.7	137.4	48.0	50.5
Capital Valley Eco Park (16)	96.7	91.2	31.1	30.4

- 12.54 In reality, in adverse weather conditions for dust generation and propagation, Miller Argent would instigate a partial or full shut down of the site (with the exception of dust mitigation measures), which would result in 100% mitigation of emissions from the haul routes.
- 12.55 For the vast majority of the time the dust disposition will also be significantly lower than the more stringent MTAN2 criterion, which assumes all the dust is dark coal dust. The average dust deposition is also shown in Table ESA12.12 and is less than 25% of the custom and practice criterion at all the residential receptors.
- 12.56 Table ESA12.13 presents the results of the impact assessment using both the 80 mg/m<sup>2</sup>/day and 200 mg/m<sup>2</sup>/day criteria. The impacts are predicted to be similar to those predicted to occur during Disposition 2, but with additional major impacts predicted using the 80 mg/m<sup>2</sup>/day criterion and the hypothetical 75% mitigation factor at 3 Old Brewery Lane, Bali Hai and 72 Pontlottyn Road.

- 12.57 The modelling of both hypothetical scenarios shows that if the **custom and practice criterion** of 200 mg/m<sup>2</sup>/day is used to assess the impacts of Nant Llesg **and** it is assumed hypothetically that the dust suppression from the vehicles using the haul routes is only **75% effective**, there is predicted to be a **minor or negligible impact** on amenity at all receptors. If, on the other hand, the MTAN2 coal dust criterion is used **and** it is assumed that the dust suppression from the vehicles using the haul routes is only **75% effective** there is predicted to be a major or moderate impact at several residential receptors. A major adverse impact is predicted at the commercial receptors, but it should be noted that the MTAN2 criterion is set for amenity purposes (MTAN2 paragraph 155), and that industrial estates are not typically considered to be sensitive receptors with respect to loss of amenity.
- 12.58 It must be reiterated that these were hypothetical scenarios, as it is more appropriate to use a 95% dust mitigation factor, as was used in the original ES, than the 75%, which has been applied at CCBC's request. The application of a 95% mitigation factor leads to a conclusion of either negligible or minor adverse impacts at all receptors, when compared against the more stringent MTAN2 criteria of 80 mg/m<sup>2</sup>/day. The results using a 95% mitigation factor have not been compared to the custom and practice criteria of 200 mg/m<sup>2</sup>/day, but it would be anticipated that the results would be a prediction of an even lesser impact than was set out in the ES. **The ES conclusions are accordingly robust.**
- 12.59 Notwithstanding the inappropriateness of the use of the 75% mitigation factor, and the application of the MTAN2 criterion of 80 mg/m<sup>2</sup>/day, to understand the predicted impacts, consideration has been given to how many weeks the MTAN2 criterion may be exceeded.
- 12.60 In the hypothetical scenario of Disposition 2 with the more realistic CDP wind data, at the worst affected residential receptor the 80 mg/m<sup>2</sup>/day criterion would only be exceeded up to four times during the two year duration of the disposition (see Table 3.2 of the ES). At the other residential receptors the 80 mg/m<sup>2</sup>/day criterion is only predicted to be exceeded once or, more commonly, not at all during this disposition.
- 12.61 In the hypothetical scenario of Disposition 3 with the removal of the FLRS overburden mounds, with the more realistic CDP wind data, at the worst affected residential receptor the 80 mg/m<sup>2</sup>/day criterion would only be exceeded twice. The duration of Disposition 3 is anticipated to be 3.5 years (Table 3.2 of the ES). At the other residential receptors the MTAN2 criterion is predicted to be exceeded only once, or not at all, during this disposition.
- 12.62 During periods of adverse weather conditions Miller Argent would ensure that the most appropriate mitigation measures are applied including, if necessary, a partial or full shutdown of the site, with the exception of dust mitigation. If no vehicles are using the haul routes the mitigation of dust due to vehicles driving over unpaved surfaces would be 100%, not the 75% modelled. Therefore the **hypothetical scenarios are unrealistic, and unlikely** to occur in reality.
- 12.63 In conclusion, the hypothetical scenarios modelled at the request of CCBC are not considered realistic as the MTAN2 recommended methodology for mitigation and local data used in the ES are more appropriate.

**Table ESA12.13 Cumulative Impact of Disposition 3 and the Removal of the FLRS Overburden Mound Hypothetical Scenario: Significance of the Predicted Dust Deposition Impacts**

Receptor (number on Drawing MA/NL/ES/12/003)	Impact Maximum daily dust deposition averaged over one week mg/m <sup>2</sup> /day		Significance at individual receptors			
	St Athan	CDP	St Athan	CDP	200 mg/m <sup>2</sup> /day	
					St Athan	CDP
<b>Residential Receptors</b>						
Cwm Nant (1)	54.8	73.4	Minor Adverse	Major Adverse	Minor Adverse	Minor Adverse
Lower Row, Bute Town (2)	33.8	42.0	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
The Rhymney House, Llechryd (3)	29.7	40.4	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
Sand Crest Lodge, Rhymney (4)	58.5	68.6	Minor Adverse	Moderate Adverse	Minor Adverse	Minor Adverse
26 Glan Yr Afon, Rhymney (5)	56.2	62.4	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
3 Old Brewery Lane, Rhymney (6)	56.8	69.9	Minor Adverse	Major Adverse	Minor Adverse	Minor Adverse
Valletta Lodge, Hill Road, Pontlottyn (7)	70.9	84.0	Major Adverse	Major Adverse	Minor Adverse	Minor Adverse
Bali Hai, Bryhyfryd (8)	64.3	59.1	Major Adverse	Major Adverse	Minor Adverse	Minor Adverse
72 Pontlottyn Road, Fochriw (9)	42.2	39.9	Moderate Adverse	Major Adverse	Minor Adverse	Minor Adverse
Cae Glas Fochriw (10)	45.3	26.7	Major Adverse	Minor Adverse	Minor Adverse	Minor Adverse
Ty Nazareth, Guest Street Fochriw (11)	38.2	25.9	Major Adverse	Minor Adverse	Minor Adverse	Minor Adverse
Blaen Carno Farmhouse (12)	24.8	25.9	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
Gypsy Castle (13)	14.6	23.3	Minor Adverse	Minor Adverse	Minor Adverse	Minor Adverse
<b>Commercial Receptors</b>						
Heads of Valley Industrial Estate (14)	105.1	113.1	Major Adverse	Major Adverse	Minor Adverse	Minor Adverse
Heads of Valley Industrial Estate (15)	116.6	120.2	Major Adverse	Major Adverse	Minor Adverse	Minor Adverse
Capital Valley Eco Park (16)	77.1	67.2	Major Adverse	Major Adverse	Minor Adverse	Minor Adverse

- 12.64 In addition, the results in the ES were compared against more stringent assessment criteria, based on the MTAN2 criterion for darker coal dust, than that which would likely be generated at the site and potentially experienced by residential receptors. Virtually all the potential dust that may have potential to travel beyond the site boundary and deposit in the local communities will be the lighter coloured overburden, and a more appropriate criterion would be the custom and practice value. This criterion is achieved at all modelled residential receptors, even under the unrealistic hypothetical scenarios and the impacts would be of no more than minor significance across all receptors.
- 12.65 Local communities will not become dusty environments as a result of the proposed surface mine.

### Noise Bund

- 12.66 An alternative noise mitigation solution has been proposed to enable the height of the noise barrier to be erected to the south east of Halfway House to be reduced. As this involves the construction of an additional bund (see para 13.14, Chapter 13 'Noise' of the ES Addendum) the impacts of its construction have been assessed using the IAQM guidance.
- 12.67 The 2012 IAQM assessment methodology screens out the need for an assessment within 350m of any human receptor and 100m of any ecological receptor, as outside these distances the impact will be negligible. The 2014 IAQM assessment methodology has reduced the screening distance for ecological receptors to 50m.
- 12.68 The nearest human receptor is Halfway House, which is approximately 380m at its closest from the bund, and there are no sensitive ecological receptors within 50m of the bund. As these distances are greater than the IAQM screening criteria for human and ecological receptors, no further assessment is required and it can be concluded that the construction of the noise bund will not have a significant effect on air quality and dust deposition.
- 12.69 If the 2014 IAQM Guidance had been used for the assessment of the site establishment works (see ES paragraphs 12.189 to 12.195 and ES Tables 12.18 to 12.22), land remediation works (ES paragraphs 12.196 and 12.197 and ES Table 12.23), the CDP water treatment facility (ES paragraphs 12.201 to 12.203 and ES Table 12.24), and the coal washing plant (ES paragraphs 12.204 to 12.206 and ES Table 12.26), the conclusions would have been the same as detailed in the ES. That is, with appropriate mitigation there will not be a significant air quality and dust effect.

### Impacts along the Railway

- 12.70 The residents of Bedinog have expressed concern regarding dust. The only potential source at this distance (nearly 5 km) from the proposed mine is dust from the coal wagons being deposited in the local community close to the railway. The baseline dust flux measurements from either side of the railway (described in paragraph 12.37 to 12.40 and in ES Table 12.3) show that it is very unlikely that there will be any significant dust emissions from the railway wagons used to transport the coal from Nant Llesg and it is therefore considered that there is a very low risk of dust complaints from residential receptors adjacent to the railway.



## Mitigation

- 12.71 The measures proposed by the Applicant to mitigate the air quality and dust impacts of the proposed mine are outlined in paragraphs 12.176 to 12.187 of the ES.
- 12.72 Miller Argent is confident that there will be more than adequate on-site dust suppression resources, including water, to meet the needs of Nant Llesg, even during an extreme dry spell. The adequacy of the water supply for dust suppression is discussed in Chapter 13 'Hydrology and Drainage' of this ES Addendum.
- 12.73 The visual and acoustic screening bund will be constructed over a four month period at the beginning of the works. During this period special attention will be given to ensuring that dust is properly mitigated as it is closer to Rhymney than the mining operations. A minor change has been made to the mitigation of wind-blown dust from this bund, as described below.
- 12.74 Hydro-seeding of the side slopes and upper surface would take place on the completion of the bund. This would take less than a week to complete. Given that the exact start date and season of the site is as yet unknown, it is difficult to say how long the grass cover would take to establish. Experience from FLRS shows that, with favourable conditions, the bund could have grass growing on it within a matter of weeks. One benefit of hydro-seeding is that, once down, the mulch used to hold the grass seed mixture is a very effective dust suppressant. The mulch forms a crust that suppresses dust even during dry weather.
- 12.75 In addition to hydro-seeding, the brash material harvested from the wetland heath to the south of Rhaslas Pond (see Chapter 8 'Ecology and Nature Conservation' of this ES Addendum) will be placed on top of the hydro seed crust.

## Summary

- 12.76 At the request of CCBC two hypothetical scenarios have been modelled in which it was assumed that the dust suppression on the haul routes will be only 75% efficient. The scenarios are Disposition 2, and the cumulative impact of Disposition 3 together with the removal of the FLRS overburden mounds. However, as the MTAN2 recommended methodology was followed and local site specific data used, the use of the 95% mitigation factor in the ES is fully justified, as are the corresponding conclusions reached on the predicted impacts on dust deposition.
- 12.77 The MTAN2 criterion of 80 mg/m<sup>2</sup>/day, averaged over a week, used in the ES is considered to be overly stringent. This criterion takes account of the dark colour of coal dust. Any dust from the proposed mine that may have potential to cross the boundary of the site and deposit in Rhymney, Fochriw, and neighbouring communities will virtually all be the lighter coloured overburden material, with very little coal dust. Therefore the custom and practice value of 200 mg/m<sup>2</sup>/day, commonly used in dust assessments of mineral sites, is considered to be more appropriate to determine whether or not it is likely there will be dust complaints during the operation of the proposed mine.
- 12.78 The fact that the MTAN2 criterion, used in the ES, is exceeded in these hypothetical scenarios does not mean that local residents will experience a loss of amenity in reality. Local communities will not become dusty environments as a result of the proposed surface mine.
- 12.79 The construction of the additional noise bund which reduces the required height of the noise barrier at Halfway House, will not lead to a significant air quality and dust impact.

- 12.80 In summary, the dust assessment included in the ES is robust. The stringent **black coal dust** criteria is achieved even though the vast majority of the dust that potentially could cross the boundary of the site and be deposited in the local community would be the lighter coloured overburden, which will be used in the construction of the screening bund, overburden mounds and on the haul roads. The modelling shows that the proposed mine will not cause a loss of amenity due to dust deposition in the local community.
- 12.81 The more commonly used custom and practice criterion for lighter coloured dust is achieved at all receptors by a wide margin even if it is assumed that mitigation on the haul roads is only 75% efficient. The impact would be minor or negligible at all the residential receptors. It should be noted that in reality, if adverse weather conditions occur, Miller Argent would instigate a partial or full shut down of the site (except dust mitigation). If there are no trucks on the haul roads the mitigation will be 100%.
- 12.82 Miller Argent is confident that there will be more than adequate on-site dust suppression resources to meet the needs of Nant Llesg, including water, even during an extreme dry spell.
- 12.83 Miller Argent is also confident that the Heads of the Valley Industrial Estate and the residential areas of Rhymney, Pontlottyn and Fochriw will not become dusty environments due to this development.

# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 13

### Noise



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 13 – Noise and Vibration**

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## 13 Noise and Vibration

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### Introduction

- 13.1 Following submission and publication of the Nant Llesg Planning Application and Environmental Statement in October 2013, further design work for the site and plant has been undertaken to further mitigate the effects of noise from the site. In addition, clarification and expansion of information has been provided to interested parties. Much of the additional information and clarification has been in response to post-application representations received by Caerphilly County Borough Council (CCBC). The Applicant's response to representations is set out in the Addendum to the Planning Statement that this document accompanies. This chapter assesses the effects of the new design work and additional information in terms of noise emitted from the site.

### Methodology

#### The Surface Mine Including Remediation

- 13.2 The methodology used to calculate the noise from the surface mine and remediation was described at paragraph 13.11 of the ES. These calculations were designed to provide a worst case for each Disposition, but the modelling of the construction of the overburden mound was not fully understood by the consultant for Richards and Appleby and the Green Valleys Alliance, objectors to the scheme. A more detailed explanation is provided at paragraphs 13.88 to 13.93 of the Addendum to the Planning Statement and the relevant representations from the Green Valleys Alliance and Richards & Appleby can be found at Appendices MA/NL/PA/A018 and MA/NL/PA/A019 of that addendum.
- 13.3 For the modelling presented in the ES it was assumed as a worst case scenario that there was no mound created at the outer edge of the overburden mound and therefore no screening was included for the plant constructing the mound. Plant was distributed across the surface of the mound to represent movements to and from the haul roads, but concentrated at the outer edge to represent the worst case when the outer edge was being constructed. The mound will, however, be constructed in layers by first building an outer edge mound and then backfilling behind the screen mound. Further analysis of this has been carried out to show the noise levels during construction and removal of the outer edge, and the workings behind the screen mound and the results are presented at 13.15 below.
- 13.4 Concern was expressed by third parties that the presence of the overburden mound might cause noise from Cwmbargoed Disposal Point (CDP) to be deflected towards Fochriw (See Planning Statement Addendum, Chapter 13, and 'Representation 1'). The model used to calculate noise propagation from the site included a topographical model of the intervening land and any screening or reflection of sound by it is included in the modelling. The noise of vehicles travelling to and from the surface mine to the CDP is included in the model. The CDP itself is not included in the modelling as it is an existing facility and is part of the background noise; however, professional judgement has been applied to consider the potential reflection of noise from the CDP and is discussed in the assessment below at 13.12. The noise from the proposed new wash building and plant at the CDP was not included in the model. This is because the proposed new plant at the CDP is in a four sided building, with a number of access doors, the largest of these being 6m wide and 5m high. Using professional judgement, it is considered that noise from the plant would thereby be

- screened by 10 - 15 dB. This means that there is no increase in effective sound power and no increase in noise propagation towards the south and Fochriw in particular. The ES considers significant changes and there is none caused by the additional wash plant at the CDP. It was for this reason that it was not modelled.
- 13.5 Concern was also expressed by third parties that any reflections from the overburden mound would cause amplification of noise at Fochriw. The topographical model includes the overburden mound to a height appropriate for each Disposition and any reflection is included in each calculated scenario. Again, noise from the CDP was not included in the model and professional judgement has been applied to consider potential effects.
- 13.6 The categories of noise producing plant to be used on the surface mine were identified at Table 13.2 of the ES. The sound power levels for each plant item were listed in terms of dB(A) levels for continuous operation and these were used in the IMMI noise model to calculate the noise levels at the surrounding community. Some of the plant items include sources of intermittent noise such as reversing sounders and horns; however, these do not contribute significantly to the overall noise of the plant item when the hourly  $L_{Aeq}$  noise level is evaluated. For example, reversing sounders are designed to be audible close to the vehicle due to the character of their sound rather than volume. The sound power level of a reversing sounder is usually selected and set up to be slightly less than the sound power level of a truck or excavator, 107 dB(A) would be used when a truck develops a sound power level of 111 dB(A). If used for 10 seconds in a 5 minute loading cycle the 5 minute  $L_{Aeq}$  of the sounder would be 19 dB lower than that caused by the excavator. While the reversing sounder would be noticeable in the immediate area, it would make no difference to the overall noise level from the loading operation.) In addition, it is noted that the vehicles to be used at Nant Llesg will be fitted with white noise reversing sounders which are designed to be noticeable in the area directly behind of the vehicle, but the broad band nature of the noise means that they are not intrusive at long propagation distances, due to the masking provided by broadband noise from the entire site.
- 13.7 The list of plant sound power levels given in the ES at Table 13.2 included levels for major plant items that were lower than the standard plant available at the time of writing. It was known however that the required sound power levels had been achieved by operators using post-delivery noise mitigation measures and it was considered that similar results could be achieved by plant manufacturers. This reflected the work being put in by manufacturers to deliver quieter equipment than standard, which would be used at Nant Llesg. It was noted at paragraph 13.49 of the ES that Caterpillar had developed a quieter version of its 777F dump truck and discussions with manufacturers had identified further noise mitigation measures which could be incorporated. The design work has progressed and results have now become available to show that the sound power levels used for the major plant items are achievable. These are discussed below.

## Dump Truck

- 13.8 In 2012 Caterpillar had one noise suppressed 777G dump truck in the UK and their initial noise survey results indicated that it was approximately 7 dB quieter than the standard trucks when moving uphill under full load. These results formed the basis for discussion of further improvements and these are summarised in the following Table ESA13.1.

**Table ESA13.1 Sound power level reductions for noise mitigation to be fitted to Caterpillar 777G dump trucks**

Further improvements to noise suppression	dBA
Baseline sound level	113
New/Current Rockford fan with modified software logic	-0.3
Rear bottom engine panel	-0.5
Torque Converter Insulation	-0.8
Louvres in front of radiators	-0.6
Transmission insulation	-0.5
Additional sound suppression in engine compartment	-0.3
Exhaust Noise reduction (New/Modified muffler)/Body heat resonators	-0.6
Absorption on body front wall	-0.3
<b>Total Sound Power</b>	<b>109.1</b>

## Excavator

- 13.9 Discussions have been held with manufacturers of large excavators and Komatsu has provided results of a noise suppression package it has developed that reduces the sound power level of their PC3000-6 excavator to 109 dB(A). The noise suppression shows a reduction of 13 dB over the standard machine. The test results are given for operational engine speed without load, however, the noise from the engine is the most significant source of noise on the excavator and does not vary when under load as the engine is run continuously to drive hydraulic pumps. The results of various configurations are shown below at Table ESA13.2. The figure quoted in the ES is 111 dB(A). In the UK it is possible to operate this plant with lower cooler fan speeds without it overheating, and at these speeds the sound power levels are likely to be below those quoted in the ES. The sound power level used in the ES is accordingly robust and represents the worst case scenario.

**Table ESA13.2 Sound power levels for Komatsu PC300-6 excavator**

<b>Model</b>	PC3000-6 without sound suppression kit	PC3000-6 with sound suppression kit	PC3000-6 with sound suppression kit	PC3000-6 with sound suppression kit
<b>Engine Type</b>	SSA12V159	SSA12V159	SSA12V159	SSA12V159
<b>Weather</b>	humid, no wind	humid, no wind	humid, no wind	humid, no wind
<b>Engine rated speed</b>	1800 rpm (without load)	1800 rpm (without load)	1800 rpm (without load)	1800 rpm (without load)
<b>Oil and water cooler</b>	Cooler fan speed 1360 rpm	Cooler fan speed 1360 rpm	Cooler fan speed 1300 rpm	Cooler fan speed 1100 rpm
<b>Sound Power Level* LWA in dB(A)</b>	<b>122</b>	<b>111</b>	<b>110</b>	<b>109</b>

### Dozer

- 13.10 The first major item of plant to be delivered to the FLRS site fitted with the new noise suppression kit is a D9 dozer. This was tested on 6 May. A sound power level of 114 dB(A) was used in the calculations in the ES for this dozer (see ES Table 13.2). This was a reduction of about 4 dB(A) from the standard dozer with a sound power level of 118 dB(A), however the tests show that the sound power level has been reduced to 110 dB(A) in second gear and 107 dB(A) in first gear. These are very significant reductions and importantly they have reduced the clanking that came from the tracks. Whilst this noise was included within the overall sound power levels, it was attention-drawing, and that reduction is therefore important.

### Noise Generated at the Site

- 13.11 The calculated noise levels propagated from the site were dependent upon the predicted sound power levels for the major sources of plant noise. It was noted at paragraph 13.49 of the ES that the predicted sound power levels had either been achieved by plant operators using post-delivery noise suppression measures or that such measures were being developed. It is on the results of discussions and test results like the above that MA is confident that noise mitigation will be designed by the manufacturers to be incorporated in their products. Full production testing could not take place at the time of the ES as development was ongoing, but further discussions with the manufacturers and further testing of noise suppressed prototype machines by the manufacturers have shown that the figures quoted in the ES are achievable.

## Mitigation Measures Adopted as Part of the Project

- 13.12 At paragraph 13.45 of the ES it was noted that the proposed noise limits for the site would be exceeded by 1 dB at the nearest isolated house off Fochriw Road to the north of the site during the working of Dispositions 1B, 2HR1 and 2HR2 and a 3 m acoustic fence to the south of this house was proposed to ensure that noise limits were met at the house throughout the working of the site. This was necessary because all practical on-site screening options would not completely meet the noise limits of 51.0 dB derived from the MTAN 2 requirements for normal daytime working (0700- 1900 Monday to Friday excluding public holidays) of background noise plus 10dB  $L_{Aeq, 1hr}$  or 55dB  $L_{Aeq, 1hr}$  (free field), whichever is the lesser.
- 13.13 Further assessment work has shown that the provision of a 3 m screening bund at the northern edge of the working void would allow this acoustic fence to be reduced to 2 m.
- 13.14 The location and proportions of the 3 m high screening bund to be positioned on the north-western edge of the operational area are set out on Drawing MA/NL/PA/057. The bund would be formed as part of the site establishment works and its outer faces seeded to grass. It would remain in place for the duration of mining operations, backfilling of the void and soil replacement.
- 13.15 The 2 m high acoustic fence would conform to BS EN 1793–2 (category B3). It would be of timber construction with 34 mm 'tongue and groove' horizontal boarding set between timber posts. Typical construction detail of the acoustic fence is shown on Drawing MA/NL/PA/058 and illustrated in Figures ESA13.1 and ESA13.2 below.

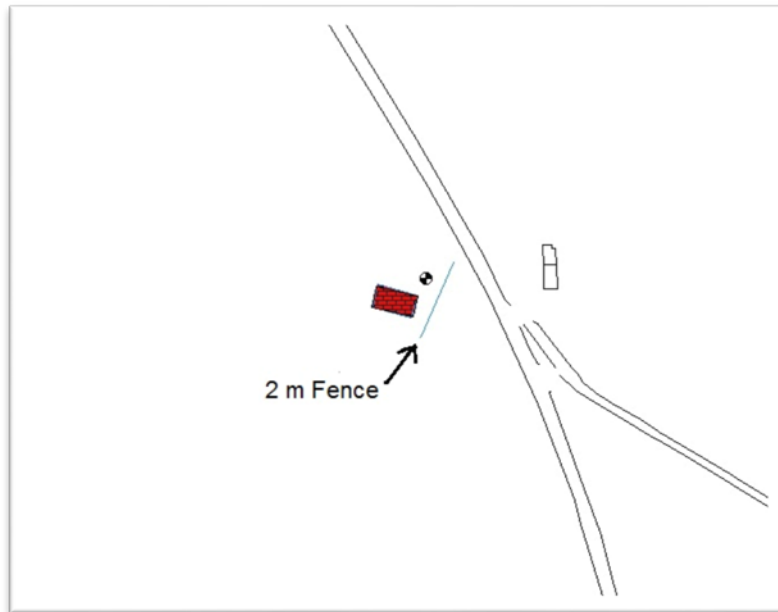


**Figure ESA13.1**  
**Typical Appearance of Acoustic Fence**



**Figure ESA13.2**  
**Detail of Acoustic Fence Boarding**

- 13.16 The 2 m high noise fence would be erected on a south-west to north-east alignment along the south-eastern boundary of Halfway House. It would be positioned immediately south-east of the existing stand of conifers and would replace the previously proposed 3 m high fence on the alignment indicated by a thin blue line on Figure ESA13.3 below..



**Figure ESA13.3 Location of 2 m high noise fence at Halfway House**

## Baseline Environment

- 13.17 The baseline noise survey was discussed at paragraphs 13.20 to 13.25 of the ES and more details were presented at ES Appendix MA/NL/ES/A13/001. The information provided for the railway noise survey was restricted to  $L_{Aeq}$  and  $L_{A90}$  noise levels as these were required for the assessment, however, details of maximum noise levels were requested by CBCC and are presented below. In addition, CBCC requested contemporaneous notes taken during the surveys to be provided and these are presented at Appendix MA/NL/PA/A13/001 to the Addendum to the Planning Statement. The locations for the train noise surveys are presented at Appendix MA/NL/PA/A13/002.

**Table ESA13.3 Coal Train Pass-by Noise Levels from Logging Meter in Bedlinog**

Date	Time	Duration, Seconds	Distance from track, m	Noise Level, dB $L_{Aeq}$	Max noise level, dB $L_{Amax, f}$
08-Aug-12	14:17	90	12	71.9	78.2
08-Aug-12	16:03	50	12	75.5	87.2
08-Aug-12	20:51	50	12	74.7	82.6
09-Aug-12	06:49	50	12	75.7	87.1

Date	Time	Duration, Seconds	Distance from track, m	Noise Level, dB LAeq	Max noise level, dB LAmax, f
09-Aug-12	07:48	50	12	74.0	84.8
09-Aug-12	10:23	50	12	75.9	80.7
09-Aug-12	14:18	50	12	74.4	81.5
09-Aug-12	16:18	60	12	74.5	87.4
09-Aug-12	20:26	90	12	74.8	79.5

**Table ESA13.4 Coal Train Pass-by Noise Levels from at Trelewis**

Date	Time	Duration, Seconds	Distance from track, m	Noise Level, dB LAeq	Max noise level, dB LAmax, f
09-Aug-12	10:22	50	14	74.9	78.1
09-Aug-12	10:22	50	21	67.5	70.1

**Table ESA13.5 Noise Levels from night-time Coal Train at Coed y Graig**

Date	Time	Duration, Seconds	Distance from track, m	Noise Level, dB LAeq	Max noise level, dB LAmax, f
09-Aug-12	14:27	130	13	75.9	87.6
09-Aug-12	14:46	100	13	75.2	80.0
09-Aug-12	20:34	70	13	80.6	88.1



## Environmental Assessment

### Main Site

- 13.18 The possible reflection of noise from the CDP towards Fochriw was not discussed in the ES, but has been raised since submission of the Nant Llesg planning application (See Addendum to Planning Statement, Chapter 13, 'Representation 1'). The propagation of sound from any noise source on the ground is by pressure fluctuations (sound waves) which spread out from the source in expanding hemispheres. It is, however, often simpler to consider the sound moving as rays, or straight lines radiating outwards in all directions from the source. The strength of the sound decreases with distance from the source. The "rays" directly between the CDP and Fochriw would be unaffected by the presence of the overburden mound which is located to the north of the line of propagation. Some of the rays propagating towards the overburden mound could be reflected from the outer face of the mound, although the strength of the sound would be reduced, both because of the distance travelled and because some sound would also be absorbed by the surface of the mound (see paragraph 13.20 below). The angle of reflection would be equal to the angle of incidence. It is therefore important to consider the slope of the overburden face, and assuming it is approximately 1 in 2, or about 30° from the horizontal, a horizontal ray would therefore be reflected upwards at about 60° from the horizontal. Given the fairly level topography of the site between the CDP and the overburden storage mound, any reflected sound would therefore be predominantly deflected upwards into the atmosphere and would not be expected to contribute significantly to any receiver on the ground at Fochriw or elsewhere. In summary, while noise from the CDP was not included in the model it is concluded that the overburden mound will not cause any increase in noise from the CDP at Fochriw. It is also noted that the additional plant to be installed at the CDP is to be installed in a building and would not cause a significant increase in sound power level of the CDP: consequently the CDP was not included in the modelling for community noise levels.
- 13.19 The noise from coal lorries serving the CDP is included in the modelling and the overburden mound is also included in the model. The results of noise calculations at Fochriw presented in the ES therefore include any contribution from these vehicles.
- 13.20 The surfaces of the overburden mound are not perfect reflecting surfaces, particularly the surface being worked which would be irregular and open textured. This would cause a small proportion of the incident sound to be absorbed or scattered, rather than be reflected upwards. Any sound scattered from the face of the overburden mound would be insignificant compared with the direct sound propagation. The relative location of the mound and large propagation distance between the face of the overburden mound and Fochriw also means that there would be no impact of both direct sound and sound reflected or scattered from the mound heard at Fochriw. Since the modelling was undertaken in the ES, which assumed no screening of sources constructing and removing the overburden mound was provided by the outer edge of the overburden mound, further analysis has been undertaken in the noise model to quantify the attenuation that this may provide. The results of this analysis at Fochriw are shown in Table ESA13.6 below, and confirm reduced noise levels at times when such screening will be in place, due to the working methodology of constructing outer faces first and working behind that face, until such time as the next level of works commences.



**Table ESA13.6 Predicted noise levels at Fochriw from construction of overburden mound with and without screening at the outer edge**

Location	Limit	ES results	Screened OB workings	Change
Fochriw	49	47.4	44.7	-2.7
SW Fochriw	47	44.5	43.5	-1.0

### Alternative screening option to property on Fochriw Road

- 13.21 In the ES a 3 m screen was proposed at the boundary of the closest isolated house just off Fochriw Road to the north of the site. An alternative solution has been proposed to allow the height of this barrier to be reduced to 2 m by use of an additional 3 m noise bund at the northern edge of the workings. The position and profile of the proposed screening bund can be seen on Drawing MA/NL/PA/057. The calculated noise levels for Dispositions 1B, 2HR1 and 2HR2, with and without the noise fence and/or screening bund, are shown in the following Table ESA13.7.

**Table ESA13.7 Calculated noise levels at Halfway House, Fochriw Road (dB L<sub>Aeq, 1 hr</sub>)**

Disposition	Noise Limit Derived from MTAN2	No Noise Fence at House	3 m Noise Fence at House	2 m Noise Fence at House plus 3 m Bund on site
1B	51.0	51.7	46.9	49.0
2HR1	51.0	52.0	46.2	48.9
2HR2	51.0	52.0	48.9	50.2

- 13.22 The proposed alternative screening also allows the proposed noise limit of 51 dB L<sub>Aeq, 1 hr</sub>, which was derived from MTAN2, to be met at this isolated property during all phases of the work, including Dispositions 1B, 2HR1 and 2HR2 when the limit would have been marginally exceeded without any screening. The significance of changes on noise are described in the Environmental Statement at ES Table 13.6 and during these three phases the significance of the impact remains unchanged as moderate adverse, with the new mitigation proposal in place.

## Cumulative Effects

- 13.23 The work carried out since submission of the Nant Llesg planning application has served to increase confidence in the initial predictions of community noise. The revised screening arrangement for the nearest isolated house off Fochriw Road that results in marginally different noise levels during three Dispositions than presented in the ES, but the proposed noise limits are met and there is no change in the impact assessment. The resulting noise levels do not cause any change to the cumulative effects at any community location, described in the ES at paragraphs 13.66 to 13.71. The only area where cumulative impacts were predicted was in the area of Rhymney close to the permitted woodchip plant and the changes in mitigation proposed for the house off Fochriw Road do not have any effect on the noise propagation to Rhymney.

## Summary

- 13.24 The design work carried out since submission of the planning application and the additional information now provided for clarification and/or expansion of that provided in the ES has confirmed that the predictions made regarding sound power levels of major items of plant were realistic and this confirms that the calculations of community noise presented in the ES are robust.
- 13.25 The calculation methodology was not fully understood by some objectors and the methodology has been clarified. The calculations presented in the ES for the construction of the overburden mound are for a worst case which assumes no screening of noise of plant working on the overburden mound. In practice the outer edge of the mound will provide acoustic screening of plant and for the majority of time the noise propagating towards the south will be lower than the levels shown in the ES and this has now been confirmed with additional modelling. It is confirmed that the presence of the overburden mound was included in the topographical model used for the calculations and the results take any screening by or reflections from it into account.

## Conclusions

- 13.26 The noise predictions and the assessment of these levels presented in the ES have not been affected by any of the work carried out since submission of the Nant Llesg planning application. The only exception is the very minor increase in noise that would result locally on Fochriw Road to the north of the site with the revised screening proposals, however the limits are still met and the assessment of this impact is unaltered.

# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 14

### Blasting and Vibration



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 14 – Blasting and Vibration**

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## 14 Blasting and Vibration

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- 14.1 The changes to the scheme, the further mitigation, compensation and additional information provided in the Addendum to the Planning Statement have been reviewed and no change to the environmental impact assessment is required.



# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 15

### Cultural Heritage



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 15 – Cultural Heritage**

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## 15 Cultural Heritage

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- 15.1 The changes to the scheme, the further mitigation, compensation and additional information provided in the Addendum to the Planning Statement have been reviewed and no change to the environmental impact assessment is required.



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 16 – Landscape and Visual Impact**

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# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 16

### Landscape and Visual Impact Assessment



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## 16 Landscape and Visual Impact

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### Chapter Summary

- 16.1 This ES Addendum chapter provides additional information with respect to the Landscape and Visual Impact Assessment (LVIA) which forms part of the ES. Post-application representations to CCBC that relate to the LVIA have been specifically addressed in the Addendum to the Planning Statement.
- 16.2 The purpose of this chapter is to consider any LVIA effects of any changes to the proposal, additional mitigation, compensation and information arising out of the Applicant's Response to post-application representations as set out on the Addendum to the Planning Statement. Of relevance to the LVIA are:
- Additional assessment of lighting effects
  - Additional assessment of effects on the setting of Bute Town;
  - Additional assessment of cumulative effects;
  - Change in date of commencement of operations;
  - Effects on landscape and visual amenity of additional elements included in a Revised Great Crested Newt Method Statement<sup>1</sup> and Habitats Restoration Plan, and additional information regarding soils handling is provided in ES Addendum Chapter 9;
  - Effects on landscape and visual amenity of additional mitigation proposed in relation to noise effects at Halfway House.
- 16.3 The guidance used to inform the LVIA has changed with the publication of 3<sup>rd</sup> Edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA3) in April 2013. Following the advice of the Landscape Institute, the assessment was completed using GLVIA2 which was current when most of the LVIA was carried out.
- 16.4 The additional LVIA set out below found that there would be **no change in the overall assessment** of landscape and visual effects in Chapter 16 of the ES and the effects of the additional habitats and acoustic mitigation and change in commencement date would be **not significant**.

### Introduction

- 16.5 This ES Addendum chapter provides additional information with respect to the LVIA that forms part of the ES. Post-application representations received with respect to the LVIA have been

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<sup>1</sup> Nant Llesg Surface Mine Incorporating Land Reclamation, Revised Great Crested Newt Method Statement, RPS, June 2014

addressed in the Addendum to the Planning Statement (PS). Within the PS Addendum there is a discussion, in response to Representation 2 of Caerphilly CBC, of enhanced disposition plans and cross sections through some viewpoint locations. These are provided as additional aids to interpretation of the description of the development proposals and of the LVIA and do not represent any change to the proposals. The same model was used for producing these cross sections as for the photomontages and assessment in the submitted LVIA and there is **no change** in the assessment of landscape or visual effects.

16.6 This chapter considers the following matters and assesses their landscape and visual effects:

### Changes to the Proposal or Scope of the Assessment

- (1) Arising out of responses to comments made by CCBC and others on the proposal and the assessment of landscape and visual effects, additional information about lighting the development has been provided and its effects assessed.
- (2) The potential for adverse effects on the setting of Bute Town has been assessed, arising out of representations by Rhymney Area Residents Group (RARG).
- (3) Arising out of responses to comments made by Blaenau Gwent CBC on the cumulative assessment of landscape and visual effects, the cumulative effects of the Nant Llesg proposal with the proposed Circuit of Wales and the dualling of the A465 have been considered.
- (4) Change in projected date of commencement of operations.

### Additional Mitigation or Compensation Proposed

- (5) Arising out of responses to comments by Natural Resources Wales in regard to effects on biodiversity, additional elements have been included in the Revised Great Crested Newt Method Statement and Habitats Restoration Plan and additional information about soils handling has been provided in ES Addendum Chapter 9, and their effects on landscape and visual amenity have been assessed.
- (6) Additional mitigation is proposed in relation to noise effects at Halfway House, the residential property nearest the site, to the north-west, in the form of a 2 metre acoustic fence near the property boundary and a 3 metre mound near the operational area of the site. The potential for landscape and visual effects of these proposals has been assessed.

### Changes to Assessment Guidance

#### Methodology

16.7 ES Chapter 16 paragraphs 16.5 – 16.11 explain the background to the methodology used in the assessment. The assessment was carried out under the 2<sup>nd</sup> Edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA2) but was completed after publication of GLVIA3. As advised by the Landscape Institute, the assessment was completed using GLVIA2 guidance. No changes have been made to the methodology outlined in paragraphs 16.5 to 16.15 of the ES, nor to the significance criteria presented in Tables 16.3 to 16.6 of the ES.

### Assessing significance of effects

- 16.8 Since publication of GLVIA3, the process has been refined so that a statement is made as to which of the effects assessed are significant or not significant. GLVIA3 para 3.34 advises:

*“When more distinction between levels of significance is required (beyond significant/not significant) a word scale for degrees of significance can be used (for example a four point scale of major/ moderate/ minor/ negligible). Descriptions should be provided for each of the categories to make clear what they mean, and with a clear explanation of which categories are considered to be significant and which are not. It should also be made clear that effects not considered to be significant will not be completely disregarded.”*

- 16.9 In the ES Chapter 16, degrees of significance are assigned to the effects identified, ranging from Major to Negligible. For the purposes of identifying whether an effect is significant or not significant, the effects assessed in the ES can be judged in accordance with the following principles:

- Effects assessed as Major which are also long term, whether beneficial or adverse are considered to be significant and likely to be key factors in the decision-making process;
- Effects assessed as Moderate and which are long term, whether beneficial or adverse, may be considered significant and are likely to be important in the decision-making process;
- Other effects are considered not significant; they may influence, but are unlikely to be important to, the decision-making process.

### **Baseline Environment**

- 16.10 There have been no material changes to the baseline environment with respect to the LVIA as outlined in paragraphs 16.22 to 16.57 of the ES.

### **Additional Assessment Information or Clarification**

#### **1. Lighting lux levels on site and effects on the surrounding areas**

- 16.11 Caerphilly County Borough Council (Representation 3) requested a “*footprint map*” showing lighting lux levels on site and an assessment of effects on surrounding areas.
- 16.12 Chapter 16 of the ES, the LVIA, provided a qualitative assessment of lighting effects, based upon the guidance provided by the Institute of Lighting Engineers (ILE) and the former Department of Communities and Local Government. Supplementary technical assessment of lighting lux levels, with accompanying “*footprint maps*” showing the spread of light from the lighting installations to be used in the operational areas of the proposed development (see Drawing MA/NL/ES/16/022) is set out below.

#### Guidance

- 16.13 General guidance for proposals which include artificial lighting is found in ‘Planning Policy Wales’ (edition 7, 2014) which states in regard to light pollution (paragraph 13.13.2):

'There is a need to balance the provision of lighting to enhance safety and security to help in the prevention of crime and to allow activities like sport and recreation to take place with the need to:

- protect the natural and historic environment including wildlife;
- retain dark skies where appropriate;
- prevent glare and respect the amenity of neighbouring land uses; and
- reduce the carbon emissions associated with lighting.'

16.14 At paragraph 13.14.2 it states:

'Local planning authorities should adopt policies for lighting, including the control of light pollution, in their development plans.'

16.15 In terms of a quantitative assessment of light spill, the generally accepted method for assessing obtrusive light into windows is the 'Environmental Zone Criteria' developed by the Institute of Lighting Professionals, summarised in Table ESA16.1 and Table ESA16.2 below.

**Table ESA16.1 Environmental Zone Classification**

Category	Description	Examples
E0	Dark landscapes	UNESCO Starlight Reserves, IDA Dark Sky Parks
E1	Intrinsically dark landscapes	National Parks, Areas of Outstanding National Beauty, etc
E2	Low district brightness areas	Village or relatively dark outer suburban urban locations
E3	Medium district brightness	Small town centres or suburban locations
E4	High district brightness areas	Town/city centres with high levels of night-time activity

16.16 For each Environmental Zone, recommended obtrusive light limits for exterior lighting installations have also been determined:

**Table ESA16.2 Obtrusive Light Limitations for Exterior Lighting Installations**

Environmental Zone	Max Sky Glow ULR <sup>(a)</sup> (%)	Light Trespass (into Windows) $E_v$ (lx) <sup>(b)</sup>		Source Intensity $I$ (kcd)		Building Luminance Pre-curfew
		Pre-curfew <sup>(d)</sup>	Post-curfew <sup>(e)</sup>	Pre-curfew <sup>(d)</sup>	Post-curfew <sup>(e)</sup>	Average $L$ <sup>(c)</sup> (Cd.m <sup>-2</sup> )
E0	0	0	0	0	0	0
E1	0	2	1 <sup>(f)</sup>	2.5	0	0
E2	2.5	5	1	7.5	0.5	5
E3	5.0	10	2	10	1.0	10
E4	15.0	25	5	25	2.5	25

- NOTE:**
- (a) Upward light ratio of the installation - maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky.
  - (b) Vertical Illuminance measured flat at the glazing at the centre of the window.
  - (c) Luminance.
  - (d) Typically considered to be between 07:00 and 23:00
  - (e) Typically considered to be between 23:00 and 07:00
  - (\*) Permitted only from public road light installations

- 16.17 Based on a desktop review of the site and aerial photography of the closest houses to the site, it is likely that the area in the vicinity of the site should be classified '**E2 – Low district brightness**'. Environmental Zone E2 is considered representative of dark outer suburban locations, with the lighting characteristics specified in Table ESA16.1. For the majority of the works, plotting a fixed lux contour plot would not be possible.

#### The proposal

- 16.18 As set out in greater detail in the PS Addendum in response to Representation 139, lighting of the operational areas would consist of:
- On the storage mounds, within the cut at each working face and at each coaling area within the void: small mobile units, about 9m high with 4 x 1000w clear halogen bulbs, angled towards the working area, facing into the site and away from residential areas; a maximum of 3 of these units on the tip at any one time.
  - Within the working void and to light major junctions on the haul roads: larger semi permanent lighting sets, 13m high, with 8 x 400w clear halogen bulbs, directed vertically downwards;
  - Around the workshop, truck park and barrel wash area: 2 or 3 of the 13m high units, with 8 x 400 w clear halogen bulbs directed vertically downwards;
  - Apart from the lighting of major road junctions within the working void (as set out above), the haul roads would not be lit and vehicles making their way between working areas and other parts of the site would rely on their headlights.

#### Modelling and assessment

- 16.19 Initial worst case modelling has been undertaken based on 4x1000w bulbs mounted on a 9m column, as specified by Miller Argent (email to John Forrester, Development Management Group, CCBC, 17/01/2014, see Appendix MA/NL/ES/A16/004) as being the typical worst case scenario at the site, with lighting angled at 25 degrees to equate to lighting being directed towards site works and away from residential receptors. Other lighting within the void, at major road junctions and around the workshop truck park and barrel wash area, lighting on the overburden mound and lighting of major road junctions is likely to be less intrusive than this worst case scenario, due to less light being generated and the lighting being angled directly downwards. The worst case modelling has been assumed for each point source for the purposes of assessment, notwithstanding that it would over-estimate the effect of light on surrounding areas.
- 16.20 The normal extent of the working area to be lit by each of the worst case point light sources would be about 30m x 30m;

- 16.21 Based on this worst case modelling, it seems very unlikely that the ILP Environmental Zone E2 pre-curfew criteria of 5 lux (the standard for which light into windows is generally assessed at times before 23:00) would be exceeded as a result of point sources from any lighting used in the construction or operation at the site at surrounding residential receptors which are generally 500m from any site works.
- 16.22 Plot 1 on Drawing MA/NL/ES/16/022 shows that backwards light spill from these point sources is unlikely to exceed the 5 lux pre-curfew criteria at distances of over approximately 10m at locations behind the columns. Even as a worst case scenario, if the lighting columns were all facing the residential units, light levels would be below 5 Lux at a distance of approximately 117m, also shown on Plot 2 on Drawing MA/NL/ES/16/022. As the nearest residential receptor is approximately 500m away, there is unlikely to be any negative impact.
- 16.23 In addition, the visual and acoustic screening bund to the north and north-east of the operational area and the method of working of the overburden mound with bunds formed on the outer edges of the working area first would serve to further mitigate light spill from any installations within the working void or on the overburden mound (other than when the outer faces of the overburden mound are being formed).

### Assessment of Impacts

- 16.24 The assessment has concluded that the backwards light spill from the lighting columns is unlikely to exceed the 5 lux pre-curfew criteria at distances of over approximately 10m behind the column and, as the nearest residential receptor is about 500m away, it is likely there will be no negative impact.
- 16.25 Given the results of this initial worst case modelling, it is concluded that there are unlikely to be any effects from lighting that would be material to the decision to grant planning permission.

### Mitigation

- 16.26 No change has been made to the measures already proposed by the Applicant to mitigate adverse effects from lighting within the proposed development through choice of lighting to limit the spread of light and focus it on the working areas and through the screening mounds (see paragraphs 16.122 to 16.127 of the ES).

## **2. Effects on the setting of Bute Town**

- 16.27 An issue was raised by Rhymney Area Residents Group (RARG) (Representation 16) that is relevant to the landscape and visual considerations: *"If this open cast development is allowed to take place the beautiful setting of this village [Bute Town] could be completely destroyed."*
- 16.28 The LVIA identifies Bute Town in several contexts: as a Conservation Area 350m north-east of the site containing 3 rows of listed terrace houses; as the start or end point of the Rhymney Valley Ridgeway Walk; as part of the cycle route NCR46; and in relation to the nearby Bute Town Pond. Effects on Bute Town are also assessed in regard to air quality (ES Chapter 12), noise (ES Chapter 13), cultural heritage (ES Chapter 15), and as a tourist facility (ES Chapter 6).
- 16.29 The potential for the effects on the amenity of the setting of the village are addressed in the ES under effects on landscape and visual amenity, particularly on visual amenity represented

by Viewpoint 13 at Bute Town Pond, see ES Appendix MA/NL/A16/002, ES Table A16/003/ 3 and ES Table A16/003/ 4.

### Landscape effects

- 16.30 The description of the landscape context of viewpoint 13 at Bute Town Pond (ES Appendix A16, Table A16/003/ 2) notes its location:

*"...to the west of Bute Town (a conservation area with listed buildings)... There is a strong sense of openness, and the pond is a relatively large and dominant feature in the local context. The elevation provides distant panoramic views of the surrounding uplands and an overview of Rhymney in the left of the view and down the Rhymney valley to the south. Busy roads in the immediate surroundings intrude on the potential tranquillity of the pond and its local context. It is a popular local recreation amenity".*

- 16.31 In the LANDMAP assessment, Bute Town lies within Historic Landscape (HL) and Cultural Landscape (CL) areas evaluated High and a Visual & Sensory (VS) area evaluated Low. The description of the HL Area, CynonHL701, notes that *"although the coherence of the aspect area has been significantly impacted by modern housing and industrial development, the Rhymney Valley remains a diverse, historically important communications corridor with evidence of human activity dating back to the Neolithic period"*. The CL area, CynonCL045, is extensive covering Rhymney Sirhowy Ebbw Valleys, *"because of the similarity of their contemporary cultural essence, predominantly regeneration activity: new-build housing, business and industrial parks, designated green spaces, creation of country parks from derelict land as local leisure amenities, and improvements to roads and traffic systems. The latter are especially injurious to the landscape, but help to reinforce the all-pervasive culture of regeneration"*. The VS area is CynonVS193 Rhymney, its low evaluation explained as due to *"little to distinguish village in upland valley setting apart from moderate sop [sense of place] (75% criteria low)"*. (ES Appendix A16, Tables 3 – 5)

- 16.32 Bute Town, as noted, was a model village to accommodate workers in the local ironworks and its historic industrial landscape context has been lost in the process of regeneration and with modern urban and transport developments, as described in the LANDMAP HL and CL descriptions.

### Visual effects

- 16.33 In the ES, the changes in the context and view from the Bute Town Pond area are assessed as Major adverse during the periods of greatest change and Major to Moderate during the main period of operations. These would occur during the initial operations to establish the soil storage mounds and water treatment facilities in the north of the site, during formation of the visual and acoustic screening mound in the first four months of the operational phase, and intermittently during deposition of the more distant overburden mound to year 5, and, later, removal of first the main overburden mound from year 9.5 and of the other features in year 14. There would be no further change during years 6-9.5.
- 16.34 After restoration, the fieldscape in the northern part of the site, extending through the middle ground of the view, would be restored with new planting of hedgerows and woodland bands rising up the slope and stone walls on the upper slopes. The Bent Iron would be reinstated on the high point in the view. Taken together with the long term growth of the additional woodland planting proposed, this was assessed as a Moderate beneficial effect on the visual amenity, over the baseline condition.

- 16.35 Views towards the site from within Bute Town itself are restricted, because of the orientation of the buildings, screening by buildings within and vegetation on the southern edge of the village. Views are available from the sitting area on the edge of the village, at the west end of Middle Row, and from the west end of Lower Row, which would be similar to the view from Bute Town Pond, although interrupted by nearer features on the southern edge of Bute Town.

#### Mitigation

- 16.36 The enhancement of field boundaries and the establishment of new woodland planting in the north of the site is designed to offset the adverse landscape effects within the site during operations. As noted, they would serve to provide a Moderate benefit in the long term to the visual amenity of visitors to Bute Town Pond, and hence to the setting of Bute Town itself.

#### Conclusion

- 16.37 The effects on the landscape and visual amenity of Bute Town, its residents and users of its recreational resources were taken into consideration in the LVIA in the ES and there would be **no change to the overall assessment** after considering these effects in relation to the setting of Bute Town.

### **3. Additional assessment of cumulative landscape and visual effects**

- 16.38 Blaenau Gwent County Borough Council (BGCBC) requested additional assessment of cumulative effects of the proposed development in relation to the proposed the proposed Circuit of Wales, dualling of A465 and the then proposed wind turbines at Pen Bryn Oer (Representation 142). The Pen Bryn Oer proposal was subsequently withdrawn and cumulative effects in respect of the proposals for Circuit of Wales (CoW) and the dualling of the A465 are considered.
- 16.39 The criteria for projects to be included in a cumulative effects assessment are (GLVIA3 paragraph 7.13):
- Existing (relevant) developments and those under construction;
  - Those with consent but not yet constructed;
  - Those the subject of a valid planning application, when it may be expected that sufficient detail is available to enable the effects to be assessed and there is some certainty about what the project would comprise if consented and constructed.
- 16.40 CoW was accompanied by an Environmental Statement, as required by BGCBC in their Screening Opinion of 19th July 2011. Sufficient detail is therefore available to enable the effects of the development to be identified and considered. Sufficient certainty also appears to exist about what the projects would comprise if consented. The likely significant cumulative effects have been reviewed below, drawing on the assessment in the CoW ES as appropriate.
- 16.41 Planning permission for the Pen Bryn Oer Wind Farm was subsequently refused in April 2014 and it has therefore been excluded from the review. (CCBC Planning Ref: 13/0483/FULL).
- 16.42 The ES for the Nant Llesg proposal (NL ES) followed guidance on best practice for cumulative landscape and visual impact assessment (CLVIA) in Minerals Technical Advice Note 2: Coal 2009 (MTAN2) Appendix G. This advises that the appropriate spatial boundaries for the study



- area should be defined in relation to the distance the environmental effects travel (G3). The assessment of cumulative impacts should be based on available data (and further survey work if needed) and should focus on the most important environmental aspects (G4, G5). Having established the baseline, the assessment should identify past and future projects and their environmental effects and assess interactions between them and the project (G5) (NL ES para 16.67).
- 16.43 Assessment study areas were defined and agreed through the scoping process with Caerphilly County Borough Council (CCBC) and Natural Resources Wales: for the landscape assessment, up to 5 kilometres of the site, modified by topographic features to extend to the ridges to west, south and east and the rising land to the north (NL ES Drawings MA/NL/ES/16/001 and 002). As demonstrated on these figures, the topographic features modified the landscape context study area to a distance of about 3.5km to the north-east, beyond which is the site of the proposed Circuit of Wales. For the visual impact and the cumulative landscape and visual impact studies, the study area extended up to a distance of 5 kilometres from the site boundary. (NL ES para 16.13). Effects on visual amenity beyond this distance would not be significant - see the discussion at paragraphs 16.7 - 16.8 above.
- 16.44 The “*other developments*” to be included in the CLVIA were agreed through the scoping process to include developments taking place within 5 kilometres of site or likely to take place during or extending beyond the lifetime of the development (NL ES para 16.207):
- The operational Ffos-y-fran Land Reclamation Scheme (FLRS)
  - Cwmbargoed Disposal Point (CDP)
  - Merthyr Industrial Services landfill operations (MIS)
  - Trecatti Landfill Site
  - NET Wood Pellet Plant, Rhymney.
- 16.45 In the request for a scoping opinion submitted on 31st December 2011, CCBC were asked to indicate whether other developments should be included, but no suggestions were made in the scoping opinion (dated 13 March 2012). It made reference to the then proposed wind turbines immediately adjacent to the site (now within the site), but the planning permission for the proposal by Eco2 on the inert landfill site north of South Tunnel Road subsequently expired.
- 16.46 The majority of the Circuit of Wales site lies beyond the 5km cumulative impacts study area, only its western edge extends into the study area, and the whole of the site lies beyond the zone of influence of the site, defined by topographic features<sup>2</sup>. The western end of the current phase of A465 Dualling is also at the limit of the zone of influence of the site. The previously dualled section lies to the north of the site and was described as part of the baseline, noting its effects on the landscape character from movement, sounds of traffic, and lighting.

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<sup>2</sup> The general 5km landscape context study area was modified by topographic features: the ridges to west, south and east and the rising land to the north, which restrict the zone of influence on the landscape context of the site. These are shown on Drawing MA/NL/ES/16/002 in the NL ES.

### CLVIA in Nant Llesg ES

- 16.47 The CLVIA considered effects on the immediate and wider landscape context. Effects on Blaenau Gwent are summarised in NL ES para 16.269: *“The boundary of Blaenau Gwent is 1.5km to the east of the site at its nearest point, but is generally more than 2km distant. The ridges that are followed by the county boundary act as visual barriers in the ZTV of the proposed development, so that visual impacts are limited to areas where the elevation of the land allows views to the site, represented by VPs 11 on the Rhymney to Tredegar Road and 19 on the Sirhowy Valley Walk. The greatest visual effect assessed was for the nearer VP11, Moderate to Minor, medium term, and Minor for more distant views. (VP11 also represents views from a SLA.)”*
- 16.48 VP 11, on the Rhymney to Tredegar Road, is about 0.5km west of the Blaenau Gwent boundary and 1.6km east of the site. It represents views from a ridgeline within the Special Landscape Area, of users of access land and of travellers between Rhymney and Tredegar. VP 19 Sirhowy Valley Walk represents views from the long distance footpath and an area with a high LANDMAP Visual and Sensory evaluation, and is just over 5km from the site. VP12 on NCR 46 in Parc Bryn Bach represents viewers on the national cycle route and the country park, both with a SLA, for which the visual effects of the Nant Llesg development were assessed as Moderate adverse during the periods of greatest change during overburden formation and removal and Moderate to Minor adverse during the main period of operations.
- 16.49 The cumulative visual assessment considered views available to people at different locations, including:
- Residents;
  - Travellers on A465 Heads of the Valleys Road;
  - Users of public rights of way, access land and cycle routes, including those extending into Blaenau Gwent: NCR46 and Sirhowy Valley Walk LDFP;
  - Visitors to Parc Bryn Bach;
  - Visitors to Special Landscape Areas.
- 16.50 The assessment found that, for residents within 2km with direct open views, the development would cause Major, adverse medium term effects, intermittently and especially when the overburden and screening mounds were being formed and later being removed, reducing to Moderate for residents with oblique or indirect views and for more distant residents. The screening mound on the eastern and north-eastern sides of the excavation area, formed in the first 4 months, would screen views of the excavation area from most of Rhymney, and partial screening from more elevated points on the east of Rhymney to Princetown area. For other residents, the visual effects would be Negligible or none in this phase.
- 16.51 For users of public rights of way and recreation resources within 1km, the effects during these phases would be Major, adverse and medium term, reducing to Moderate medium term. At intermediate distances, the effects would be reduced to Moderate during the phases of greatest change and Negligible during initial operations and restoration aftercare. The assessment found that for more distant viewers to the east, north-east and south-east – extending into Blaenau Gwent – where the Nant Llesg void and overburden mound and the FLRS overburden mounds (but not the void) would be theoretically visible, the combined additive visual effects of Nant Llesg with FLRS would be Negligible. (NL ES para 16.233).

### CLVIA: CoW

- 16.52 An outline planning application for the Circuit of Wales development proposal was submitted on 15th February 2013 to Blaenau Gwent CBC.
- 16.53 The assessment of cumulative landscape and visual effects of the proposed CoW is found in the CoW ES chapters 13 LVIA and 21 Cumulative Impacts. The CoW LVIA took a 10km study area for both landscape and visual impacts. It does not include the Ffos-y-Fran development, and existing development within the study area, although the Archaeology chapter does. The CLVIA in chapter 13 assesses the cumulative effects of the CoW proposal with a number of planning applications for wind turbines within 5km of the CoW site.
- 16.54 Paragraph 13.4.19 of the CoW ES notes that *“the extent of potential visibility [of the CoW proposal] increases to the south and east of the site ... Between 5km and 10km, visibility extends predominantly to the ridgelines running south ... The full extent of visibility to the west is around Merthyr Common at approximately 7km”*. Figure 13.8 of the CoW ES, ZTV and Viewpoint Locations, shows that the Nant Llesg site is at the limit of the ZTV to the south-west, lying between 6 and 8km from the centre of the ZTV.
- 16.55 The LVIA for the CoW used a viewpoint near Rhaslas Pond (Viewpoint 09) and found that:
- There are open views of the site in the far distance, which is viewed against Carno Forest, defining the south-eastern boundary of the site. Due to the distance of the viewpoint from the site, the site forms only a small proportion of the view experienced from this location (CoW ES p 383);
  - The planned development once completed would be a permanent but insignificant change within the context of the view due to the distance of the viewpoint from the development resulting in only a small and minor change within the wider panoramic view that is experienced from this location ... Residual effects from this viewpoint are considered to be not significant due to the screening and filtering of views by the proposed planting on site. (CoW ES p 384)
- 16.56 The conclusion of the CoW ES regarding cumulative landscape and visual effects of it and the A465 Dualling is:
- With respect to the Dualling of the A465 (Tredegar to Brynmawr) and The Works both schemes have commenced development. The planning consent associated with these schemes considers that neither scheme has unacceptable significant detrimental impact. (CoW ES para 21.5.4)
- 16.57 The overall conclusions of the CoW ES regarding cumulative effects is:
- This chapter provides a summary of the environmental impacts associated with the Circuit of Wales, and also sets out when these potential impacts will be cumulatively experienced. Paragraph 13.7.2 states that *“the cumulative landscape and visual impact of proposed development along the National Parks southern boundary and within the study area is considered to be **not significant**”*, during either the construction or operational phases. Rather it is considered that through its economic benefits it will have a positive cumulative impact on the local area.
  - The chapter also sets the Circuit of Wales within the context of other prominent local developments and development proposals and concludes that the cumulative impact of the development alongside existing identified prominent local development will not result in a significant cumulative impact. (CoW ES para 21.6.1)

### Cumulative landscape effects: Nant Llesg, CoW and A465 Dualling

- 16.58 The CoW assessment concluded it would not have significant cumulative effects with the A465 Dualling or with other "*prominent local development*" and, at over 5km from Nant Llesg, it is considered that the CoW and the A465 Dualling would not have a cumulative landscape effect with Nant Llesg either. The Nant Llesg LVIA found that the main sources of cumulative landscape effects would be likely to be with the FLRS development, being similar in scale, with similar characteristics, and in close proximity, resulting in a medium to long term, Major landscape effect on the landscape context.

### Cumulative visual effects: Nant Llesg, CoW and A465 Dualling

- 16.59 As summarised in Chapter 16 of the ES at Table 16- 17 'Summary of Visual Effects Assessment', the LVIA found for resident viewers within 2km with direct open views and users of PRow and recreation resources within 1km, the development would cause Major, adverse medium term effects, intermittently when the overburden and screening mounds were being formed and later being removed, but from more than 5km from the site the visual effects would be no more than Minor, adverse, medium term, during these phases of greatest change. These levels of effect are considered to be **not significant** – see the discussion at paragraphs 16.7 - 16.8 above. At intermediate distances, the effects would be Moderate during these phases and Negligible during initial operations and restoration aftercare. .
- 16.60 The NL ES found that for more distant viewers to the east, north-east and south-east – extending into Blaenau Gwent – where the Nant Llesg void and overburden mound and the FLRS overburden mounds (but not the void) would be theoretically visible, the combined additive visual effects of Nant Llesg with FLRS would be Negligible. (NL ES para 16.233). Again, these levels of effect are considered **not significant** - see the discussion at paragraphs 16.7 - 16.8 above.
- 16.61 The CoW ES concluded in relation to Viewpoint 09 near Rhaslas pond on the western side of the Nant Llesg site, that the CoW development "*once completed would be a permanent but insignificant change within the context of the view due to the distance of the viewpoint from the development*". The Nant Llesg site, as viewed from the Circuit of Wales site, would be a temporary, albeit long term, negligible element in the view. This is confirmed by NL ES representative viewpoint VP 18. Part of the boundary to CoW is contiguous with that of the Brecon Beacons National Park. In views from that part of the National Park, the CoW would dominate the foreground, which Nant Llesg would be small element in the background. Similarly, the change would not be significant in the context of the view, due to the distance from the viewpoint – see the discussion at paragraphs 16.7 - 16.8 above relating to significance.

### Temporal cumulative effects: Nant Llesg, CoW and A465 Dualling

- 16.62 CoW ES paragraph 13.4.26 states that "*the anticipated year for full completion for the Circuit of Wales is 2021 which constitutes an 8 year construction period based on the planned year of commencement of 2013. The anticipated core construction phase for the primary motorsports area is two years, aiming for completion with a major event in 2015. By 2015, key structures will include the grandstands, paddock, pit area, camping area, medical centre and dirt oval. A number of retail units, brand centres, and 4\* hotel will be in place*".
- 16.63 The proposed Nant Llesg development would be a temporary albeit long term development, the coaling operations completed within 11 years, backfilling and restoration within 14 years

with aftercare continuing for a further 5 years. If consent were granted for the Nant Llesg proposal and development commenced in 2016, then coaling operations would cease in 2027 and backfilling and restoration would be completed in 2030. Then, the openness of the upland of Merthyr and Gelligaer Common would be restored and restoration of the land cover and landscape features would be under way across the area (NL ES para 16.252). At this point, the Ffos-y-fran LRS and Cwmbargoed Disposal Point developments would also have ceased and their sites been restored. After that, the developments at the Circuit of Wales, the Trecatti Landfill Site and the completed A465 dual carriageway, would continue to be in operation.

### Conclusion

16.64 These levels of cumulative landscape and visual effect are considered to be **not significant**.

## **4. Change in commencement date**

16.65 The LVIA included as Chapter 16 of the ES was based upon a commencement date of 2014. That has been changed to 2016, with consequential changes in periods of time when the Nant Llesg development would exist together with elements of other developments, in particular at FLRS. ES Drawing MA/NL/ES/16/021-2 has been amended to reflect the proposed change in date of commencement. The revised cumulative LVIA timeline is provided on Drawing MA/NL/ES/16/021-2A.

### Visual Effects

16.66 In ES Chapter 16, Appendix MA/NL/ES/A16/002 'Landscape & Visual Impact Assessment: Viewpoint Details' describes only one viewpoint, VP16 Merthyr Common, where the progress of the FLRS development combined with the delay in commencing the Nant Llesg development would affect the view available:

- Until part way through the final void phase, end of year 9 rather than end of year 11, the existing overburden mounds at FLRS would screen most of the site from this view.
- The overburden mounds at FLRS would be removed during the period to the end of coaling at Nant Llesg, which would open up the view to the features of the Nant Llesg site.

16.67 However, the two-year difference in the duration of the effects assessed is small and does **not change** the assessment of:

- Operations, years 9.5-14: Medium change;
- Aftercare, years 15-19: Negligible change.

### Cumulative Effects

16.68 ES Chapter 16 assessed the cumulative effects of Nant Llesg with FLRS, amongst other developments, on the basis of a ten-year overlap when the main features of both developments (excavation voids and overburden mounds) would exist together. That period

- would be reduced to eight years by the proposed change in the date of commencement of the Nant Llesg development.
- 16.69 The change in the date of commencement would also require the operations at the CDP to be extended by a further two years, four in total beyond the current end date.
- 16.70 The combined cumulative effect of the change in the date of commencement would be a small reduction in the period when excavation void and overburden mounds would exist at both FLRS and Nant Llesg and a small extension of the period of activity in the landscape and in views, until the Nant Llesg and CDP sites would be restored.
- 16.71 This small change does **not change** the assessment conclusions in the original LVIA in ES Chapter 16, that *“the contribution of Nant Llesg to additive effects [is] assessed as Minor to Moderate, adverse and medium term, generally; locally Major adverse and medium term, e.g. in views from local roads and from cycle route 46 where it passes a short distance to the north of the site”*.

## 5. Additional elements in Revised Great Crested Newt Method Statement, amendments to Habitats Restoration Plan and further information on Soils Handling

- 16.72 The Revised Great Crested Newt Method Statement at Appendix MA/NL/PA/A08/007 and Drawing MA/NL/PA/059 'Habitat Restoration Plan' describe the provision of additional ponds, with low banks associated with them constructed of the material excavated for the ponds, and small areas of habitats such as Dry Heath and Acid Flushes, which are not detailed in the Restoration Strategy (ES Drawing MA/NL/ES/16/012-2). The pond and low bank features would be formed as part of the Great Crested Newt and other reptile mitigation during operation of the site and would continue in existence for the duration of operations and albeit with some variations, beyond as a part of the overall restoration strategy. They represent small variations within the principles and framework set out in the overall mitigation and restoration strategy and would not change the overall assessment of the landscape or visual effects of the proposed development contained in the ES.
- 16.73 ES Addendum Chapter 9 describes details of methods of soil handling, especially peat, used in other developments, as an evidence base for the proposals for the Nant Llesg development. They do not result in any change in the landscape mitigation or restoration strategy nor, hence, in the LVIA.

## 6. Proposed acoustic fence and mound

- 16.74 It is proposed to mitigate effects of noise intrusion on the isolated residential property to the north-west of the site, 'Halfway House', by means of a 2m high acoustic fence of timber board construction to the south-east of the property and a 3m high screening mound on the north-western edge of the operational area, within the development site (details on Drawings MA/NL/PA/058 and MA/NL/PA/057 and illustrated at Figures ESA13.1 and ESA13.2 of the Second ES addendum). As described in Chapter 13 of the ES Addendum, under the heading *Mitigation Measures Adopted as Part of the Project*, a 3m fence at the property without a mound in the site had initially been considered. An alternative of a noise-screening mound closer to the source of the noise was modelled, which allowed the height of the acoustic fence to be reduced to 2m.
- 16.75 Potential effects on landscape character and visual amenity would arise from the introduction of the fence rather than from the mound.

- 16.76 The garden surrounding Halfway House is oriented on a north-east to south-west alignment, with strong vegetative boundaries enclosing and screening most of the house and other buildings from view from the road and the public access land and footpaths. The south-eastern boundary is marked by a row of conifers and it is proposed to locate the acoustic fence alongside these.
- 16.77 The fence would be seen by travellers along the Fochriw Road, mainly those travelling in a northerly direction, as they descended the hill towards the underpass under the A465 to the north of the property. It would also be visible to users of access land and short lengths of public footpaths as they passed to the south of the property. As noted in Chapter 13 of the ES Addendum, the need for the acoustic fence would occur within the first two phases of operations but is likely to remain in place for the duration of the operations.

### Mitigation

- 16.78 The use of a noise-screening mound on the edge of the operational area allows the fence height to be reduced from 3 metres to 2 metres, reducing its potential visual prominence. The mound would be grassed.
- 16.79 A preservative-treated timber fence is proposed in accordance with BS EN 1793-2 (category B3), with tongued and grooved horizontal boarding set between timber posts (examples are illustrated in ES Addendum Chapter 13). The proposal is illustrated at figures ESA13.1 and ESA13.2 of the Second ES addendum. The timber would weather to a neutral grey within a short period, helping to reduce its potential visual prominence further. To the south of the proposed location of the fence the land falls gently to a pond with marginal aquatic vegetation. Intermittent planting of shrubby willows in front of the fence is proposed which would interrupt and filter it in the view and it would be seen against the backdrop of the higher and evergreen conifers on the property boundary.
- 16.80 The garden and boundary vegetation around the house, especially the row of conifers, would screen the fence from view from the house, avoiding visual intrusion for the residents.

### Assessment

- 16.81 There would be no additional effect on the landscape or visual amenity caused by the proposed acoustic mound on the north-western edge of the excavation area. The fence would be a small and medium term change<sup>3</sup> in the open landscape character of the area surrounding the properties. The potential intrusive effect of the fence on the Moderate to Low sensitivity landscape character (ES Table 16-10) would be very localised and Negligible with the proposed planting.
- 16.82 The change in the view due to the fence would be small and localised, although the fence is likely to be in place for the duration of the operational period of the development, a Minor although long term at most visual effect for High sensitivity viewers using the access land or public footpaths, and Negligible for Low sensitivity viewers while travelling on the road.

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<sup>3</sup> Durations of effects are defined in ES paragraph 16.117: "Temporary - Short term: a period of months, up to one year; Temporary - Medium term: a period of more than one year, up to five years; Temporary - Long term: a period of greater than five years but not beyond the lifetime of the Project; Permanent - a period beyond the lifetime of the Project".

## Conclusion

- 16.83 These levels of landscape and visual effect of the 2 metre fence and 3 metre mound are considered to be **not significant** and would **not change** the overall assessment of the landscape or visual effects of the proposed development contained in the ES.

## **Review of the Assessment in the Environmental Statement**

- 16.84 The assessment of lighting effects in the ES is **not changed** by the supplementary technical assessment presented in this Addendum.
- 16.85 The effects on the landscape and visual amenity of Bute Town, its residents and users of its recreational resources were taken into consideration in the LVIA in the ES and there would be **no change** to the overall assessment after considering these effects in relation to its setting.
- 16.86 The cumulative effects of the proposed development in combination with the Circuit of Wales and the A465 dualling would be **not significant**.
- 16.87 The two-year difference in the start date for the site does **not change** the assessment conclusions in the original LVIA in the ES Chapter 16.
- 16.88 The small variations in restoration vegetation cover and the additional ponds with associated low banks provided during operations and continuing in existence after restoration set out in the Revised Great Crested Newt Method Statement and the updated Habitats Restoration Plan would **not change** the overall assessment of the landscape or visual effects of the proposed development contained in the ES. There is **no change** to the restoration proposals within the additional information provided on methods of soil handling in ES Addendum Chapter 9.
- 16.89 The effects of the changes to the acoustic screening from a 3 metre fence to a 2 metre fence and a 3 metre mound would be **not significant**.



# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 17

### Waste



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 17 – Waste**

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## 17 Waste

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- 17.1 The changes to the scheme, the further mitigation, compensation and additional information provided in the Addendum to the Planning Statement have been reviewed and no change to the environmental impact assessment is required.





# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 18

### Health and Wellbeing



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 18 – Health and Wellbeing**

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## 18 Health and Wellbeing

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### Chapter Summary

- 18.1 Following submission of the Nant Llesg Planning Application and Environmental Statement (ES) in October 2013, a series of Post-Application Representations were made which sought clarification and expansion of information for specific technical disciplines within the ES.
- 18.2 All health representations were fully addressed in the original Health Impact Assessment (HIA), and via a formal review and position statement from the Wales Health Impact Assessment Support Unit (WHIASU).
- 18.3 However, given the delay to project commencement, and the expansion of information to specific ES Sections that informed the HIA, it was deemed prudent for the HIA team to further review the ES Addendum to determine whether there might have been any change to the HIA assessment protocols applied; the conclusions drawn and the mitigation and support initiatives detailed in the Health Action Plan (HAP).
- 18.4 As demonstrated below, neither the delay in project commencement nor any of the additional information outlined in the Traffic and Transport; Air Quality and Dust; Noise and Vibration, Landscape and Visual or Social Impact Addendum Chapters materially influence the HIA, its findings or recommendations.
- 18.5 On this basis, no new health information or assessment is required. The HIA remains compliant with current UK and Wales HIA Guidance. The baseline data applied remains appropriate. No new health pathways have been identified; and the assessment protocols applied remain conservative (accounting for local circumstance and relative sensitivity).

### Methodology

#### Guidance

- 18.6 No new HIA guidance has been published since the finalisation of the HIA that would affect the methodology applied or require revisiting or updating the HIA, its results, conclusions or recommendations.

#### Approach

- 18.7 In keeping with best practice, the HIA was commissioned at the onset of the project to investigate and address the potential impact of the proposed Nant Llesg Surface Mine, including land remediation.
- 18.8 The scope and focus of the HIA was defined and iteratively refined through engagement with key stakeholders: initially through the formal EIA scoping exercise with statutory consultees; and subsequently through a separate HIA scoping exercise and health themed workshop with key health stakeholders and local communities. This was then further informed via an integrated engagement strategy, where the HIA team attended every public exhibition.

- 18.9 The HIA benefited from iterative input from the WHIASU in the discussion and implementation of appropriate assessment protocols and influence on the development of the final HAP.
- 18.10 The assessment scope focused on the key health issues raised during formal consultation and informal engagement, and implemented an integrated approach with the ES, to ensure that the HIA was based upon realistic changes in environmental and socio-economic conditions, that are directly attributable to the proposed project.
- 18.11 The WHIASU independent review of the HIA concluded that:

*“A comprehensive quality review was completed by the Wales Health Impact Assessment Support Unit (WHIASU) of the health impact assessment contained within the Environmental Statement supplied to it for the proposed Nant Llesg open cast mining development, Caerphilly. WHIASU used the respected HIA review tool ‘The review package for Health Impact Assessment reports of development projects’ (Ben Cave Associates, 2009) to critique the HIA report.*

*The Unit supplied the findings of this review in a summary document which was shared with local communities, the local authority and Local Health Board, colleagues in Public Health Wales and the developer appointed consultants. Within this document a section was included which was headed ‘suggested improvements’.*

*This was information for the consultants and the developer, and to highlight to them how their practice may be further improved if required to undertake one again in Wales in the future. It also highlights the same to Planning Officers.*

*Overall, WHIASU found that the quality of the HIA itself is sound, assesses the majority of the health impacts well and is of a good standard in its assessment of the proposed Nant Llesg development”. (Our emphasis) (Appendix MA/NL/PA/A18/001)*

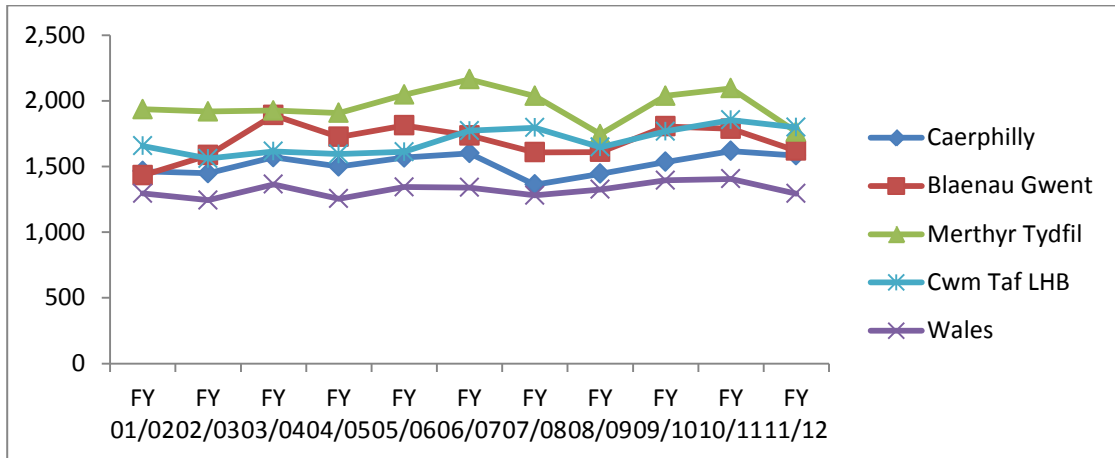
- 18.12 On the above basis, and given no change to current HIA guidance, the approach and methodology is consistent with current HIA guidance and best practice, was subject to a comprehensive independent review, and found to be of a good standard. No amendment to the approach or methodology is required, and there is no requirement for additional health information or assessment.

## Baseline

- 18.13 The Community Profile within the HIA presents an in-depth depiction of local demography and health circumstance contrasted at a regional and national level to define burdens of poor health, relative sensitivity and health trends. More recent health data has been reviewed in order to respond to representations, this data remains consistent with that reported in the HIA, and reinforces the conservative approach taken.
- 18.14 The more recent data reviewed includes further interrogation of the hospital admissions data to consider asthma and Chronic Obstructive Pulmonary Disease (COPD) with potential causal mechanisms that could credibly be associated with current operations at Ffos-y-fan Land Reclamation Scheme (FLRS), it is the case that rates have been on the decline since 2001; are the lowest they have been for over a decade; that Blaenau Gwent, Merthyr Tydfil and the Cwm Taf LHB currently have rates lower than Caerphilly, and the gap from the national rate is closing.



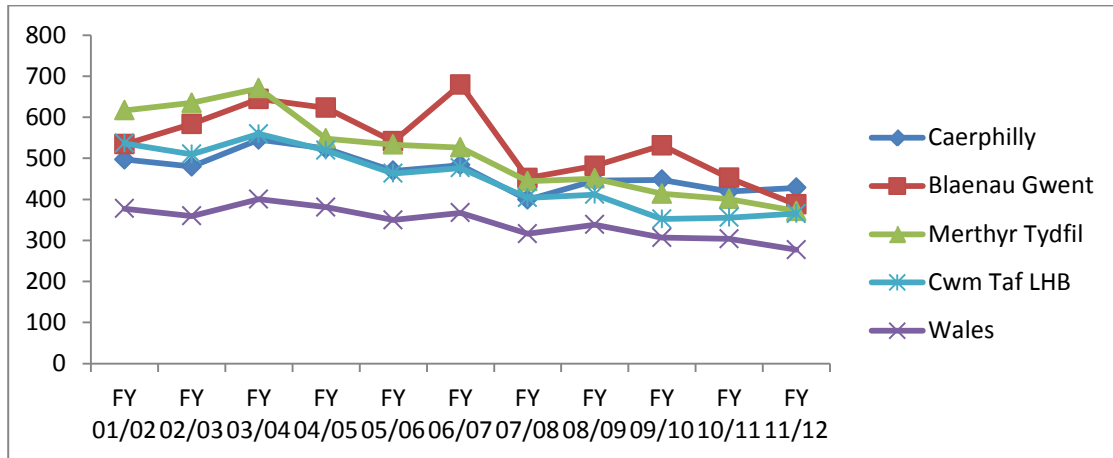
**Figure PSA18.1 All emergency respiratory disease admissions 2001/2 to 2011/12, per 100,000 population, age-standardised**



Source: Table 3.10 of the Health Impact Assessment modified to include the 2011/2012 data set. Appendix MA/NL/ES/A18/001 of the ES

- 18.15 As shown above in Figure PSA18.1, while variation is expected for health endpoints with multiple risk factors, the total respiratory hospital admission trend since 2001 remains relatively consistent, with Caerphilly and Blaenau Gwent being in keeping with the Cwm Taf Local Health Board (LHB) rate for the region.
- 18.16 Caution is recommended when attempting to associate a trend from this dataset to the commencement of mining activities at FLRS in 2007, as there will always be natural variation; and it combines all respiratory hospital admissions, including those that either have no causal mechanism attributable to mining activities and/or have wider risk factors (e.g. pneumonia, COPD and Asthma).
- 18.17 When further interrogating the hospital admissions data to consider asthma and COPD with potential causal mechanisms that could credibly be associated with current operations at FLRS, it is the case that rates have been on the decline since 2001; are the lowest they have been for over a decade; that Blaenau Gwent, Merthyr Tydfil and the Cwm Taf LHB currently have rates lower than Caerphilly, and the gap from the national rate is closing – see figure PSA18.2 below.

**Figure PSA18.2 Asthma and COPD emergency admissions 2001/2 to 2011/12, per 100,000 population, age-standardised**



Source: Asthma and COPD Emergency Admissions 2001/2 to 2011/12, per 100,000 population, age-standardised. Cymru Information Services. Health Maps Wales. Available at [www.healthmapswales.wales.nhs.uk](http://www.healthmapswales.wales.nhs.uk)

- 18.18 This is contrary to the representation’s unsupported suggestion of an increase in chest complaints, indicating that local respiratory health is in fact, improving. When further considering that the Ffos-y-Fran mine was downgraded from a Medium to a Low Dust Risk within its permit to operate from Caerphilly Borough Council (2012) and Merthyr Tydfil Borough Council (2013), and continues to operate within environmental standards set to protect health, there is neither evidence of an increase in chest complaints, nor a sufficient causal mechanism to infer an adverse health impact from current operations.
- 18.19 On the above basis, as reported in the HIA, and further supported through a review of the independent and routinely updated Patient Episode Database for Wales, while life expectancy and health is improving, local respiratory health remains lower than the national trend, and is closely associated with pockets of socio-economic deprivation, poor lifestyles and risk taking behaviour. A similar trend is also evident for cardiovascular health.

## Health Impact Assessment

### Delay in Commencement

- 18.20 None of the health assessment protocols applied were date sensitive, and the HIA does not make reference to a specific commencement date. On this basis, the delay in commencement does not influence any of the conservative health assessment protocols applied.
- 18.21 However, as the HIA was informed by the individual ES technical disciplines, it was deemed prudent to review each of the ES Addendum Chapters to determine if any additional information, delay in commencement or change in cumulative impact would materially alter the conservative assessment protocols applied or the findings and recommendations of the HIA.

## Environment Statement Inputs

- 18.22 While the HIA was fully integrated with the ES, the core disciplines that informed the HIA included:
- a. Traffic and Transport (Addendum Chapter 7);
  - b. Air Quality and Dust (Addendum Chapter 12)
  - c. Noise and Vibration (Addendum Chapter 13);
  - d. Social Impact (Addendum Chapter 5); and
  - e. Landscape and Visual Impact (Addendum Chapter 16).
- 18.23 The review of each core discipline pertinent to the HIA is discussed below.

### Traffic and Transport Addendum

- 18.24 The overall traffic flows stated in the ES will increase as a result of the shift in the project start date from 2014 to 2016, but the percentage increase in traffic resulting from the proposal will likely reduce slightly, as a result of the slight increase to baseline flows. Given that this change in traffic flows is expected to be slight, it is expected that there will be no significant change to the anticipated impacts from traffic from the Nant Llesg project to that stated in the ES.
- 18.25 The Addendum to the ES also sets out a number of hypothetical coal import scenarios, but it is clear that these scenarios form no part of the scheme and are presented to illustrate that in the event of "bunching" of predicted coal import traffic there is ample junction capacity. There is accordingly no change to the coal import traffic to that considered in the HIA.
- 18.26 The traffic and transport chapter of the Addendum to the ES does not materially influence the health assessment conclusion. Vehicle movements do not present a risk of community severance or impact upon available capacity. Road and rail noise is not considered to be significant, and not of an order of magnitude sufficient to quantify any change in cognitive function, sleep disturbance or annoyance. Vehicle and plant emissions to air (PM<sub>10</sub> and NO<sub>2</sub>) are not of an order of magnitude or do not present a mode of exposure sufficient to quantify any measurable impact upon community health.
- 18.27 The road link does however, currently have restricted visibility, as stated in the HIA, as part of the proposed development, Miller Argent proposes permanent road improvements (to improve visibility and safety). Following such mitigation, and when coupled with a site environmental management plan which manages the safe passage of site vehicles to the CDP there is limited risk of road traffic incidence between road users, staff and site vehicles, and a permanent enhancement to the local road link.
- 18.28 On the above basis, there is no information within the Traffic and Transport Addendum that would influence the HIA, and no further health information or assessment is required.

### Air Quality and Dust Addendum

- 18.29 The Air Quality Addendum addressed recent changes in guidance and responded to a CCBC request to apply additional conservative assessment parameters on two hypothetical scenarios for dust.

- 18.30 The additional information does not influence the quantitative exposure response assessment within the HIA which considers the worst case change in exposure to PM<sub>10</sub> and PM<sub>2.5</sub> to quantify changes in morbidity and mortality. Please note that the exposure response assessment applied a highly conservative approach, which not only over estimated population exposure, but applied a high burden of poor health as a constant for the entire population; and applied the higher risk ratio used in the US, as opposed to that recommended by the UK Department of Health's Committee on the Medical Effects of Air Pollutants (COMEAP).
- 18.31 As detailed in the HIA, total concentrations 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 during the mining and remediation stages of the proposed project.
- 18.32 Regarding the additional hypothetical dust assessment scenarios, these do not materially influence the conclusions of the HIA, where the proposed project seeks to draw from and build upon the experience and dust management best practice established at FLRS, which has led to the FLRS being downgraded from a medium to a low dust risk within its permit to operate from Caerphilly Borough Council (2012) and Merthyr Tydfil Borough Council (2013).
- 18.33 Following mitigation (including extensive dust suppression, mitigation, and the temporary stoppage of operational activities during high dust generation risk), and the provision of additional dust monitoring stations, potential dust impacts are not of a level to result in any measurable adverse health outcome. Miller Argent will also continue to investigate every dust complaint lodged and if validated through meteorological monitoring data, will seek to further refine operational activities and mitigation to address/manage such complaints.
- 18.34 On the above basis, the Air Quality Addendum does not materially influence the HIA, and no further health information or assessment is required.

#### Noise and Vibration Addendum

- 18.35 As detailed in the Noise and Vibration Addendum, the design work carried out since submission of the planning application and the additional information now provided for clarification and/or expansion of that provided in the ES has confirmed that the predictions made regarding sound power levels of major items of plant were realistic and this confirms the calculations of community noise presented in the ES are robust. The Addendum includes mitigation proposals in the form of a 2 metre high fence and 3 metre high bund to replace proposals for a 3 metre high fence adjacent to one property. The Addendum cumulative effects assessment concludes that that the resulting noise levels do not cause any change to the cumulative effects at any community location described in the original ES.
- 18.36 On the above basis, the Noise and Vibration Addendum does not materially influence the HIA, and no further health information or assessment is required.

#### Social Impact Addendum

- 18.37 Similar to HIA, the Social Impact Addendum reviews the wider ES technical disciplines to determine if any additional information modifies the assessment applied, the conclusions drawn and recommendations made. As detailed in the Social Impact Addendum, there has been no additional information that would materially change the findings of the social impact assessment within the original ES.
- 18.38 On the above basis, there is no information within the Social Impact Addendum that would influence the HIA, and no further health information or assessment is required.

### Landscape and Visual Impact Addendum

- 18.39 Following the introduction of new guidance, the landscape and visual impact assessment was revisited and assessed. As concluded in the Landscape and Visual Impact Addendum, there is no change to the conclusion within the ES, and the effect from the change in commencement date would not be significant.
- 18.40 On the above basis, the Landscape and Visual Impact Addendum does not materially influence the HIA, and no further health information or assessment is required.

### **Cumulative Effects**

- 18.41 As detailed in each of the ES technical disciplines informing the HIA, cumulative impacts have been revised where appropriate and the findings applied to inform the ES Addendum. On this basis, cumulative impacts are inherently addressed through the information supporting the HIA, and no further health information or assessment is required through the HIA.

### **Conclusions**

- 18.42 As demonstrated above, neither the delay in project commencement nor any of the additional information in the ES Addendum materially influences the HIA, its findings or recommendations.
- 18.43 On this basis, no new health information or assessment is required. The HIA remains compliant with current UK and Wales HIA Guidance. The baseline data applied remains appropriate. No new health pathways have been identified. The assessment protocols applied remain conservative and the assessment outputs factor in local circumstance and relative sensitivity.



# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 19

### Sustainability and Climate Change





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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 19 – Sustainability and Climate Change**

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## 19 Sustainability and Climate Change

### Chapter Summary

The ES sets out in detail how the evolved design of the proposed Nant Llesg scheme (since the submission of the original planning application) responds to each of the themes, sustainability objectives and key considerations of the sustainability framework, and thus how the revised project meets the objectives of sustainable development throughout its lifetime. Table ESA19.1 below summarises the main ways in which the proposed Nant Llesg scheme meets each of the objectives. The final column below sets out the additional sustainability measures that have been incorporated within the scheme proposals following evolution of the proposed scheme design since the submission of the October 2013 Planning Application.

**Table ESA19.1 Summary table**

Theme	Policy Objective	Key Considerations for Nant Llesg	How the Proposed Scheme Meets the Objective	Additional Sustainability Measures
Economy and Skills	To promote a resilient and stable economy	<ul style="list-style-type: none"> <li>• Employment opportunities</li> <li>• Educational development of employees</li> <li>• Indirect stimulation of the local economy</li> </ul>	<ul style="list-style-type: none"> <li>• Employment of between 144 and 239 workers</li> <li>• Outline training strategy</li> <li>• Use of local suppliers and increased level of local income and job security</li> </ul>	<ul style="list-style-type: none"> <li>• No additional measures</li> </ul>
Social Well Being	To provide mineral resources to meet society's needs	<ul style="list-style-type: none"> <li>• Supply for energy generation</li> <li>• Supply for manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• UK/Wales based supply of Welsh dry steam coal for electricity and steel manufacture industries.</li> </ul>	<ul style="list-style-type: none"> <li>• Reconfirmed demand for Welsh Dry Steam Coal</li> <li>• Confirmed demand for exports</li> </ul>
	To minimise the impact on health and wellbeing	<ul style="list-style-type: none"> <li>• Health impact</li> <li>• Access to recreational opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Active site management procedures to minimise potential impact on health and well-being of local community</li> </ul>	<ul style="list-style-type: none"> <li>• Confirmation on methods to control dust</li> <li>• Clarification on measures to minimise noise emissions from site plant</li> </ul>

Theme	Policy Objective	Key Considerations for Nant Llesg	How the Proposed Scheme Meets the Objective	Additional Sustainability Measures
			<ul style="list-style-type: none"> <li>• Temporary provision of alternative land for public access and grazing, incorporating areas of common land and public rights of way.</li> <li>• Early remediation works to provide additional areas for public access and recreation, together with the provision of considerable areas of temporary common grazing and public access land for the duration of the scheme.</li> <li>• Long term and enhanced restoration strategy to provide additional land for recreation, new public rights of way and improved linkages to existing recreational facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of a new noise bund and reduction of acoustic fence at Halfway House</li> <li>• Confirmation of slight increases to traffic levels and slight reduction in traffic impact</li> </ul>
Climate Change	To reduce carbon emissions from the extraction and transportation of coal	<ul style="list-style-type: none"> <li>• Carbon emissions arising from extraction methods and associated operations</li> <li>• Transport related carbon emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Maximising fuel efficiency through mine design and operation</li> <li>• Offset methane emissions through onsite and offsite tree planting</li> </ul>	<ul style="list-style-type: none"> <li>• Increased confidence in strategy to preserve peat and thereby minimise carbon emissions on site</li> </ul>

Theme	Policy Objective	Key Considerations for Nant Llesg	How the Proposed Scheme Meets the Objective	Additional Sustainability Measures
			<ul style="list-style-type: none"> <li>• Coal transported by rail</li> <li>• Site Travel Plan to minimise carbon emissions from employee and visitor transport</li> </ul>	<ul style="list-style-type: none"> <li>• Further information on carbon offsetting by planting of trees</li> <li>• Optimise cargo shipments to minimise carbon emissions where coal is exported</li> <li>• Acknowledgement of loss of carbon benefits where coal is exported</li> </ul>
	<p>To minimise vulnerability and adapt to a changing climate</p>	<ul style="list-style-type: none"> <li>• Flood risk</li> <li>• Adaptation to a changing climate</li> </ul>	<ul style="list-style-type: none"> <li>• Attenuation of surface water for up to a 1 in 100 years storm event with 10% allowance for climate change</li> <li>• Weather monitoring and site procedures minimise effects of increased adverse weather conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Confirmation of water supplies in the event of drought</li> </ul>
<p>Natural and Cultural Heritage</p>	<p>To protect areas of importance to natural or cultural heritage</p>	<ul style="list-style-type: none"> <li>• Protection and enhancement of ecological resources</li> <li>• Protection and enhancement of the landscape</li> <li>• Protection and enhancement of cultural heritage</li> </ul>	<ul style="list-style-type: none"> <li>• Retention and avoidance of existing natural and cultural heritage features</li> <li>• Early remediation work in first two years from the start of coaling</li> <li>• Long-term Restoration strategy and enhancement work</li> </ul>	<ul style="list-style-type: none"> <li>• Revised Restoration Strategy, including additional ponds</li> <li>• Greater clarity on proposed mitigation for protected species</li> </ul>

Theme	Policy Objective	Key Considerations for Nant Llesg	How the Proposed Scheme Meets the Objective	Additional Sustainability Measures
				<ul style="list-style-type: none"> <li>Investment in biodiversity enhancement projects to deliver benefit in biodiversity on restoration and balance during land take and operations</li> </ul>
Pollution	To minimise the environmental impact of mineral extraction and related operations	<ul style="list-style-type: none"> <li>Traffic</li> <li>Noise and Vibration</li> <li>Air Quality and Dust</li> <li>Light</li> <li>Water Quality</li> </ul>	<ul style="list-style-type: none"> <li>Stringent environmental management procedures to minimise potential pollution risks</li> <li>Economic, social and environmental benefits of improving local water quality as a result of the proposed scheme</li> </ul>	<ul style="list-style-type: none"> <li>Further details on lighting proposals, confirming compliance with ILP guidance</li> </ul>
Resources and Waste	To encourage the efficient use of resources and minimise the production of waste	<ul style="list-style-type: none"> <li>Use of resources within mining operations</li> <li>Waste and Recycling</li> <li>Soil management and remediation</li> </ul>	<ul style="list-style-type: none"> <li>Specification of construction material with low environmental impact</li> <li>Recycling of water on site</li> <li>Minimisation and management of waste from operations</li> <li>Soil handling strategy to protect soil resource</li> </ul>	<ul style="list-style-type: none"> <li>Management of water resources for dust suppression and other uses</li> <li>Increased confidence in strategy to preserve the peat and restore peaty topsoils</li> </ul>



## Introduction

- 19.1 This ES Addendum chapter, with the Addendum to the Nant Llesg Sustainability and Carbon Statement (see MA/NL/ES/A19/002), provides additional information with respect to the Sustainability and Climate Change chapter which forms part of the ES.

## Approach

- 19.2 There has been no change to the approach taken to the Sustainability and Climate Change Assessment set out in the ES. The Nant Llesg Sustainability and Carbon Statement has been updated (see MA/NL/ES/A19/002) using the same methodology in the original document.

## Sustainability

- 19.3 The Addendum to the Nant Llesg Sustainability and Carbon Statement (see MA/NL/ES/A19/002) further demonstrates the sustainability aspects that have been considered for the scheme following recent amendments to the original Nant Llesg scheme proposal, and changes to and further details of the mitigation and compensation measures to be adopted to those submitted with the planning application in October 2013.
- 19.4 The key scheme changes that have had an influence on the sustainability performance of the proposed Nant Llesg scheme are set out in this Addendum to the ES and the Addendum to the Sustainability and Carbon Statement (see MA/NL/ES/A19/002) demonstrating how the evolved design of the proposed Nant Llesg scheme (since the submission of the original planning application) responds to each of the themes, sustainability objectives and key considerations of the sustainability framework, and thus how the revised project meets the objectives of sustainable development throughout its lifetime.

## Climate Change

- 19.5 Further work has been undertaken to calculate the potential carbon emissions that theoretically could arise during the soil stripping activities. A range of scenarios are presented to demonstrate the theoretical carbon emissions should a) 5%, b) 25% or c) all of the peat be degraded. These are worst case scenarios as the intention is to follow the recommended strategy to preserve the peat and restore the peaty topsoils on the site and therefore to retain this resource in its entirety.
- 19.6 Clarification has been provided on calculations which form the basis of the decision to plant 30 hectares of woodland to compensate carbon emissions from the extraction of coal so as to make the activity carbon neutral, demonstrating that the project is taking a precautionary approach in following the MTAN2 guidance.
- 19.7 Additionally, the potential carbon emissions associated with the transportation of coal have also been considered. Owing to the potential European market demand for Welsh Steam Dry Coal, the potential transportation of Nant Llesg coal by other modes such as boat is a new consideration. It is acknowledged that if the coal was exported, the claimed carbon reductions that would result from Nant Llesg, which was compared to use of imported coal, would not necessarily arise.

## Conclusion

- 19.8 The ES together with the Sustainability and Carbon Statement (Appendix MA/NL/ES/A19/002 to the ES) set out in detail how Miller Argent's existing policies and procedures and the evolved design of the proposed Nant Llesg Scheme responded to each of the themes, sustainability objectives and key considerations of the sustainability framework, and thus demonstrated how the Nant Llesg project would meet the objectives of sustainable development through its lifetime.
- 19.9 The Nant Llesg Sustainability and Carbon Statement appended to the ES has been updated (see MA/NL/ES/A19/002) following recent amendments to the original Nant Llesg scheme proposal, and changes to and further details of the mitigation and compensation measures to be adopted to those submitted with the planning application in October 2013.
- 19.10 The ES together with Appendix MA/NL/ES/A19/001, this ES Addendum and the Addendum to the Sustainability and Carbon Statement (Appendix MA/NL/ES/A19/002) continue to demonstrate how the Nant Llesg project would meet the objectives of sustainable development through its lifetime.

# Nant Llesg Surface Mine

Incorporating Land Remediation

## Chapter 20

### Summary and Overview



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# **Nant Llesg Surface Mine**

**Incorporating Land Remediation**

**Second Addendum to the Environment Statement**

**Chapter 20 – Summary and Overview**

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## 20. Summary and Overview

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### Introduction

- 20.1. A planning application for the development of a surface mine with associated land remediation works was submitted by Miller Argent (South Wales) Ltd (Miller Argent) to Caerphilly County Borough Council (CCBC) on 10th October 2013. The application was accompanied by a Planning Application Statement, application plans, an Environmental Statement (ES) setting out the results of an Environmental Impact Assessment (EIA), a series of appendices and figures, and a Non Technical Summary of the ES.
- 20.2. The ES reflected the results of a comprehensive EIA which was undertaken in accordance with Scoping Opinions issued by CCBC which confirmed the issues which should be addressed as part of the EIA. A short Addendum to the ES and Errata was submitted to the Planning Authority on 9th January 2014 which provided clarification of a number of minor issues.
- 20.3. Following submission of the planning application, the Planning Authority consulted the public and various other interested bodies and organisations in accordance with conventional practice. A considerable number of representations were received in response to the consultation exercise and Miller Argent has responded to those representations in an 'Addendum to the Planning Statement' (PS Addendum).
- 20.4. In responding to issues which have been raised, a number of minor changes to the original scheme have now been proposed, together with additional mitigation and compensation measures designed to further reduce the environmental effects of the development and further information. The changes, mitigation and compensation and further information are summarised below. There have been no material changes to the scheme itself in terms of the application site boundary, surface mine area, overburden mound, use of the Cwmbargoed Disposal Point (CDP), and the associated land remediation works. However, for completeness, the likely environmental effects of these changes and additional mitigation and compensation measures have been assessed, and the findings have been presented in this 'Second Addendum to the Environmental Statement' (Second ES Addendum).
- 20.5. This chapter provides a summary of the changes to the likely environmental impacts that would arise from the proposed changes and additional mitigation / compensation measures and further information, with an overview as to whether any material changes to the overall conclusion of the original ES would result. In so doing it highlights what are perceived to be the main issues which enter into the balance of the need for the development and the socio economic and other benefits it will bring against the environmental effects that would be associated with the development.

### Development proposals

- 20.6. A description of the Nant Llesg scheme is contained in Chapter 3 of the original ES. Chapter 3 of this Second ES Addendum provides a description of the changes to the scheme, additional mitigation and compensation and further information provided in response to representations. The issues which have been assessed in the ES Second addendum fall into three categories of:

- (i) changes to the Nant Llesg proposal;
- (ii) further mitigation or compensation for the effects of the proposal; and
- (iii) additional information for clarification of the proposal.

20.7. Where the Applicant's response to a representation falls into one of these categories, then the environmental effects of have been considered in the individual technical chapters of the Second ES Addendum.

20.8. The description of the development remains substantially unchanged to that contained in the original ES, with the principal changes to the scheme confined to:

- Proposed Method Statement (Draft) for Great Crested Newt Licence Application, incorporating additional receptor ponds and revision of their locations on site.
- Further proposals for reptile receptor sites.
- Further consideration of the availability of ponds on site for Odonata.
- Detailed proposals for peat handling, storage, water supply and monitoring and restoration with examples of other sites.
- Revision of proposed areas for restoration habitats and the production of a Habitats Restoration Strategy Drawing to supplement the existing Restoration Strategy Drawing.
- Proposed changes to the noise fence at Halfway House and the provision of a new noise screening bund on North West corner of the working area.
- Introduction of potential for coal exports to Europe.
- Anticipated start date for the Nant Llesg Scheme revised from 2014 to 2016.

20.9. It is apparent from this list that the changes are of a relatively minor nature and the overall design of the scheme remains unchanged.

20.10. The additional mitigation / compensation measures comprise:

- Review of the mitigation and compensation proposals for the impact of the Nant Llesg scheme on the biodiversity of the area, including the provision of additional ponds forming part of the restoration proposals and compensation by way of funding for the Pumlumon Project in Mid-Wales or the offer of an equivalent sum to CCBC for local deliverable nature conservation or biodiversity enhancement within the county borough
- Further noise modelling demonstrating the mitigating effect of building the outer face of the overburden mound first to act as a screening bund during construction of each level of the overburden mound.

20.11. In addition, the Second ES addendum includes a schedule of additional information which has been provided to clarify certain elements of the original ES (Ref Second ES Addendum Chapter 4, Table ESA4.3).

## Summary of Changes to EIA

- 20.12. The respective effects of these changes, mitigation / compensation measures and provision of additional information are considered in Chapters 5.0 – 19.0 of this Second ES Addendum. The conclusions of the Second ES Addendum for each of the topics are set out below. The respective chapters confine their attention to the changes to the proposal or additional mitigation / compensation or information arising out of the Applicant's response to the post-application representations, as set out on the Addendum to the Planning Statement. The content of the Second ES Addendum thus needs to be read in conjunction with the original ES.

## Social Impact Assessment

- 20.13. Chapter 5.0 reviews an objection by the Welsh Economic Research Unit, which is referred to by various objectors, is critiqued. The inference that present-day surface mining activity is causing, and that Nant Llesg would cause, overall detriment to the Heads of the Valleys area is discounted, and it is concluded that such problems as exist are the legacy of disinvestment in the coalfields nationally.
- 20.14. The Welsh Economy Research Unit (WERU) study pre-dates the planning application for the Nant Llesg scheme and fails to properly consider the full scheme, its benefits and its proposed mitigations and enhancements aimed at the local area.
- 20.15. It is concluded that there is no evidence to support statements made about potential detrimental impact of Nant Llesg. The WERU research provides no indication of being objectively assessed or of using tangible evidence. The quality of evidence and research presented in the WERU study must be queried before attaching any weight to its findings in considering the Nant Llesg proposal.
- 20.16. The objection made by Richards and Appleby, who operate a cosmetic manufacturing business on the nearby Heads of the Valleys Industrial Estate are reviewed in detail in the PS Addendum, which concludes on the basis of a report prepared by Wright and Slater that there is no net difference between the position of the Richards & Appleby operation with Nant Llesg going ahead or not going ahead. On that basis there is no change to the social impact assessment conclusions in the original ES and no further assessment has been necessary. The conclusion in the ES that the Nant Llesg scheme has potential to support between 173 and 249 net additional local jobs in the Heads of the Valleys area is confirmed.

## Recreation and Tourism

- 20.17. Chapter 6.0 provides additional information with respect to the Recreation and Tourism Assessment which forms part of the ES, with particular reference to the potential for indirect effects on tourism resources outside the Nant Llesg site.
- 20.18. Clarification of these potential indirect environmental effects is provided, taking into account the environmental assessments provided in Chapters 16 (Landscape and Visual), Chapter 12 (Air Quality and Dust) and Chapter 13 (Noise) of the ES and subsequent addenda on these topics.
- 20.19. The majority of the Brecon Beacons National Park is over 5km from the site boundary where visual effects would be, at most, Minor and there would be no greater than Moderate visual effects at Parc Bryn Bach. Bute Town is the closest tourist resource to the site and it is not anticipated that the visual amenity of the village itself would be greatly affected, as views towards the Nant Llesg site are restricted by buildings and vegetation. The enhancement of

field boundaries and the establishment of new woodland planting in the north of the site would provide a long term benefit to the setting of Bute Town.

- 20.20. Neither the Brecon Beacons National Park nor Parc Bryn Bach will experience any significant air quality or dust deposition impacts due to their distance from any Nant Llesg emission sources. Bute Town is closer to the proposed mine but is predicted to experience a negligible impact with respect to air quality and only a minor adverse impact on dust deposition. None of these resources are expected to experience noise impacts, other than negligible or minor impacts, as a result of the Nant Llesg scheme.
- 20.21. Taking the above assessments into account it is not anticipated that effects on the amenity or relative pleasantness of tourist resources outside the site would be such that there would be a significant indirect effect on visitor numbers.
- 20.22. There are no changes to the assessments set out in the Recreation and Tourism chapter of the Nant Llesg ES (Chapter 6), including the assessment of direct effects (i.e. physical impacts) on tourist resources outside the site.

### **Traffic & Transport**

- 20.23. Chapter 7.0 provides additional information with respect to the traffic and transport assessment with particular reference to a delay in the likely project start date from 2014 to 2016, and the results of further capacity assessment undertaken at the Bogey Road/Fochriw Road junction for hypothetical traffic flow scenarios, to address concerns about management of coal delivery traffic between Nant Llesg and the CDP.
- 20.24. The delay in the project start date from 2014 to 2016 will result in small changes to the baseline traffic flows presented in ES Tables 7.5, 7.7 and 7.10. The baseline flows used in the ES for assessment purposes were 2014 (site enabling works), 2015 (site operation) and 2029 (site decommissioning, restoration and aftercare) respectively. These will change to 2016, 2017, and 2031 respectively, with slight increases in baseline flows predicted. However, the levels of traffic which are forecast to be generated by the project during site enabling works, site operation and site decommissioning, restoration and aftercare are unchanged.
- 20.25. The overall traffic flows stated in ES Tables 7.5, 7.7 and 7.10 respectively will increase as a result of the shift in the project start date from 2014 to 2016 (as a result of the slight increase in base flows), but the percentage increase in traffic resulting from the proposal will likely correspondingly reduce slightly, as a result of the slight increase to baseline flows. Given the slight changes it is expected that there will be no significant change to the anticipated impacts of the Nant Llesg project to that stated in ES Tables 7.14, 7.15 and 7.16.
- 20.26. The hypothetical traffic flow scenarios considered for the Bogey Road/Fochriw Road junction involve a substantial number of HGV movements, being considerably more than those predicted and assessed in the ES for the Nant Llesg scheme. They are intended to address concerns expressed about managing the number of HGV vehicles on the unclassified road between Nant Llesg and the CDP in the event that HGV movements are bunched, even though in reality that is unlikely. The results of the capacity assessment indicate that the junction would continue to operate satisfactorily even with considerably greater traffic levels than those which are anticipated as part of the Nant Llesg project. As a result, even if bunching were to occur, there will be no significant change to the anticipated impact of the Nant Llesg project.

## Ecology & Nature Conservation

- 20.27. Chapter 8.0 confirms the additional studies and surveys which have been undertaken and which provide additional baseline information comprising:
- Ornithological Data Review 2014;
  - Breeding Wader Survey 2014;
  - Bat Survey of Cliffs 2014;
  - Great Crested Newt Update Survey 2014; and
  - Wet Heath (National Vegetation Classification) NVC and Condition Survey 2014.
- 20.28. In addition to these reports of studies and surveys, the following additional reports have been submitted which are relevant to the assessment of the ecological and nature conservation effects of the Nant Llesg proposals:
- Habitats Regulations Assessment Report;
  - Biodiversity Offsetting Report;
  - Revised Great Crested Newt Method Statement;
  - Additional Invertebrate Survey Information; and
  - Peat Handling and Wet Heath Restoration.
- 20.29. The findings of the additional surveys and reports have been taken into account in the review of the ecological effects of the proposed surface mine. The majority of ecological effects would be of Negligible or Minor significance.
- 20.30. Exceptions as a result of the land take of the project would be an impact of Moderate significance on breeding birds. This is a reduction from the 'major adverse' impact predicted in the original ES after taking into account the findings of the 2103 and 2014 breeding wader surveys indicating a reduced value of the site for Little ringed plover and Ringed plover. As per the original ES, there would also be impacts of Moderate significance on non-statutory designated sites (loss of much of the Cefn Gelligaer SINC), 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).
- 20.31. During operation of the site no adverse effects would be of greater than Minor significance. There would be beneficial effects on fish and potentially on amphibians and bats as a result of habitat creation, and to otter as a result of improvements to downstream water quality.
- 20.32. Comparing the restored site with current conditions (the baseline), the majority of effects would be of Negligible or Minor significance. There would be potential Moderate adverse effects on non-statutory sites (Cefn Gelligaer SINC) and habitats (in particular wet heath), breeding and wintering/passage birds (as a result of uncertainties regarding the effectiveness and timescale of habitat restoration). However, there could be beneficial effects on reptiles,

- bats and Otter as a result of habitat creation, and fish and potentially Otter through long term benefits to downstream water quality.
- 20.33. The change in 'Biodiversity units' resulting from the scheme has been calculated using guidance produced for Defra's biodiversity offsetting pilot as a tool to enable the biodiversity value of the different habitats within Bryn Caerau biodiversity offsetting area and the Nant Llesg site to be compared. The assessment supports the original conclusion in the ES that the overall balance of biodiversity would be maintained, notwithstanding that there would be a substantial gain for linear habitats measured in metres.
- 20.34. The nature of the proposed development means that it is not possible to fully mitigate the effects of the scheme within the site boundary. In order to off-set the effects it is proposed to implement ecological enhancements in an area to the south west of the site. The land to be used is part of the holding known as Bryn Caerau Farm which is owned by Miller Argent (South Wales) Limited and farmed by tenants.
- 20.35. Opportunities for further compensation and biodiversity benefit have been considered in discussion with CCBC and National Resources Wales (NRW). Despite such discussions, no suitable and deliverable local opportunities have been identified. Miller Argent has therefore looked further afield and the Pumlumon Project in central Wales has been identified as a potential option. Should the Nant Llesg project be consented then Miller Argent would fund the restoration and ongoing management of 50 ha of upland bog as part of the Pumlumon Project over the 14 year life of the Nant Llesg Project.
- 20.36. Discussions with CCBC and NRW have also identified potential projects in the local area that have the potential to allow more local biodiversity improvements than the Pumlumon project. Should any more local suitable alternatives be identified by CCBC or NRW that do provide deliverable compensation opportunities, then Miller Argent would be pleased for its funding to be targeted towards these as alternatives to the Pumlumon Project. In either event, whether funding was provided to the Pumlumon Project, or local projects within Caerphilly, there would be a benefit to biodiversity on restoration of the scheme and, with the mitigation / compensation measures at Bryn Caerau, a balance of biodiversity during the scheme, despite the loss of habitats resulting from the land take and operation of the scheme.

## Agriculture and Soils

- 20.37. Chapter 9.0 provides additional information and clarification with regard to:
- the identification of the natural soil resources from the detailed soil survey work that has been undertaken on the site
  - the generation of natural soil resources and soil forming materials from the site that can be used in the restoration strategy; and
  - the proposals for the stripping, storage and restoration and peaty soils, with the preparation of an additional report entitled Peat Handling and Wet Heath Restoration that deals with this particular aspect of the Nant Llesg proposals.

- 20.38. The additional clarifications provided do not change the original baseline data in the ES or the proposals for measures to be adopted as part of the original scheme for the stripping, handling or restoration of the soils and agricultural land on the site as described in the original 'Peaty and Non Peaty Soil Handling Methodologies' submitted as part of the original ES.
- 20.39. Based on the fact that there are no changes to the baseline data provided or the proposals for the stripping storage and restoration of soils and agricultural land on the site, there is no change in the assessment of the effects of the Nant Llesg Scheme on Agricultural Land Use and Soils as provided in the ES.

### Hydrogeology

- 20.40. Chapter 10.0 provides additional information with respect to hydrogeology assessment which forms part of the ES.
- 20.41. The key consideration is the findings in relation to groundwater of the Water Framework Directive Assessment requested by, and subsequently reviewed by, NRW. The Water Framework Directive Assessment brings together information already presented in the ES in the context of a Water Framework Directive specific assessment. In addition, account has been taken of the groundwater concerns of various third parties.
- 20.42. No changes to the findings of the original ES are required. The Water Framework Directive Assessment study in fact further supports the conclusions of the original ES, and emphasises that the proposed development would not only not reduce the current status of the ground water environment, or the ability to improve it, but would itself contribute towards improvements to that environment.

### Hydrology and Drainage

- 20.43. Chapter 11.0 summarises the further information provided in response to representations made by various parties and assesses the consequences (if any) of this information with respect to the findings of the original EIA.
- 20.44. Received comments focussed in particular on water availability for dust suppression. The analysis has found that with the provision of suitable water storage on the site, a reliable supply of water will be available suitable to meet dust suppression and other needs in a year equivalent to conditions in 1984 (one of the driest years on record). As a result, Miller Argent is confident that there will be more than adequate on-site water resource availability for dust suppression alongside other water uses on site to meet the needs of Nant Llesg even during an extreme dry spell.
- 20.45. The findings in relation to surface water of the Water Framework Directive Assessment requested by, and subsequently reviewed by, NRW are also presented. Again, the Water Framework Directive Assessment brings together information already presented in the ES. .
- 20.46. No changes to the findings of the original ES are required. The Water Framework Directive Assessment study in fact further supports the conclusions of the original ES, and emphasises that the proposed development would not only not reduce the current status of the surface water environment, or the ability to improve it, but would itself contribute towards improvements to that environment.



## Air Quality and Dust

- 20.47. Chapter 12.0 provides additional information with respect to the air quality and dust assessment which was reported in the ES, with particular reference to the results of further modelling which has been undertaken, and to provide clarification regarding the baseline dust data.
- 20.48. The updated assessment concludes that the dust assessment included in the original ES is robust. The Welsh Government Minerals Technical Advice Note 2: Coal (MTAN2) criterion of 80 mg/m<sup>2</sup>/day is for coal dust, i.e. black dust. Compliance with this criterion would be achieved even though the vast majority of the dust that potentially could cross the boundary of the site would be from the lighter coloured overburden material. The modelling shows that the proposed mine will not cause a loss of amenity due to dust deposition in the local community.
- 20.49. The use of the MTAN2 criterion is considered to be overly stringent. This criterion takes account of the dark colour of coal dust. Any dust from the proposed mine that may have potential to deposit in the local communities will virtually all be the lighter coloured overburden material, with very little coal dust. Therefore the custom and practice value of 200 mg/m<sup>2</sup>/day, commonly used in dust assessments of mineral sites, is considered to be more appropriate to determine whether or not there is likely to be dust complaints during the operation of the proposed mine. This criterion is achieved, by a wide margin, at all receptors.
- 20.50. CCBC has requested that the modelling of dust deposition be carried out using a mitigation factor of 75% suppression for dust generation on the haul roads, notwithstanding the fact that the use of the 95% mitigation factor in the ES is appropriate and accords with the methodology in MTAN2. The application of a 75% mitigation factor is thus considered in the ES Addendum as a hypothetical scenario only. However, the custom and practice criterion of 200 mg/m<sup>2</sup>/day which applies to the lighter coloured dust that could potentially result from haul roads is achieved by a wide margin even when the mitigation factor for the haul roads is reduced from 95% to a hypothetical 75%.
- 20.51. Miller Argent is also confident that the Heads of the Valley Industrial Estate and the residential areas of Rhymney, Pontlottyn and Fochriw will not become dusty environments due to this development.
- 20.52. The construction of an additional noise screening bund, described in Section 13 below which reduces the required height of the noise barrier at Halfway House from 3m to 2m, will not lead to a significant air quality and dust impact.
- 20.53. Existing dust events at the Heads of the Valleys Industrial Estate are identified.

## Noise

- 20.54. Chapter 13.0 sets out the results of further design and modelling work for the site and additional measures which have been proposed to further mitigate the effects of noise from the site. In addition, clarification and expansion of information has been provided to interested parties.
- 20.55. In response to concerns raised by interested parties, the Chapter confirms that the development will not cause amplification or reflection of noise towards Fochriw or any other receptor.
- 20.56. For the modelling presented in the ES it was assumed as a worst case scenario that there was no mound created at the outer edge of the overburden mound and therefore no screening was included for the plant constructing the mound. Plant was distributed across the surface of



the mound to represent movements to and from the haul roads, but concentrated at the outer edge to represent the worst case when the outer edge was being constructed. The mound will, however, be constructed in layers by first building an outer edge mound and then backfilling behind the screen mound. Further analysis of this has been carried out to show the noise levels during construction and removal of the outer edge, and the workings behind the screen mound. The results confirm that whilst the noise limits would not be exceeded based upon a worst case assumption of no noise screening, the noise bund would further minimise noise levels and secure lower noise levels further within the criterion levels which have been set.

- 20.57. At paragraph 13.45 of the ES it was noted that the proposed noise limits for the site would be exceeded by 1 dB at the nearest isolated house off Fochriw Road to the north of the site Halfway House during operations in the northern area of the site (Dispositions 1B, 2HR1 and 2HR2). A 3 m acoustic fence to the south of this house was thus proposed to ensure that noise limits were met at the house throughout the working of the site. Further assessment work has shown that the provision of a 3 m screening bund at the northern edge of the working void would allow this acoustic fence to be reduced to 2 m. The bund would be formed as part of the site establishment works and its outer faces seeded to grass. It would remain in place for the duration of mining operations, backfilling of the void and soil replacement.
- 20.58. Subject to these two main issues, the ES Addendum confirms noise predictions and the assessment of these levels presented in the ES have not been affected by any of the work carried out since submission of the Nant Llesg planning application. The only exception is the very minor increase in noise that would result locally on Fochriw Road to the north of the site with the revised screening proposals, however the limits are still met and the assessment of this impact is unaltered.

### **Blasting and Vibration**

- 20.59. Chapter 14.0 confirms that the changes to the scheme, the further mitigation, compensation and additional information provided in the Addendum to the Planning Statement result in no change to the assessment of blast vibration, and no further assessment is required.

### **Cultural Heritage**

- 20.60. Similarly, Chapter 15.0 confirms that the changes to the scheme, the further mitigation, compensation and additional information provided in the Addendum to the Planning Statement result in no change to the assessment of cultural heritage, and no further assessment is required.

### **Landscape & Visual Impact Assessment**

- 20.61. Chapter 16.0 addresses key issues which arise from the Applicant's Response to post-application representations as set out on the Addendum to the Planning Statement. Of relevance to the LVIA are:
- Additional assessment of lighting effects
  - Additional assessment of effects on the setting of Bute Town;
  - Additional assessment of cumulative effects;
  - Change in date of commencement of operations;

- Effects on landscape and visual amenity of additional elements included in a Revised Great Crested Newt Method Statement and Habitats Restoration Plan, and additional information regarding soils handling is provided in ES Addendum Chapter 9;
- Effects on landscape and visual amenity of additional mitigation proposed in relation to noise effects at Halfway House.

20.62. The guidance used to inform the LVIA has changed with the publication of 3rd Edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA3) in April 2013. Following the advice of the Landscape Institute, the assessment was completed using GLVIA2 which was current when most of the LVIA was carried out. However clarification is provided as to which effects are considered significant, as is required by GLVIA3.

20.63. In response to the above six key issues of relevance to the LVIA, the additional studies found that:

- No change has been made to the measures already proposed by the Applicant to mitigate adverse effects from lighting within the proposed development through choice of lighting to limit the spread of light and focus it on the working areas and through the screening mounds. The assessment of lighting effects in the ES is not changed by the supplementary technical assessment presented in this Addendum.
- The enhancement of field boundaries and the establishment of new woodland planting in the north of the site is designed to offset the adverse landscape effects within the site during operations. As noted, they would serve to provide a Moderate benefit in the long term to the visual amenity of visitors to Bute Town Pond, and hence to the setting of Bute Town itself. The effects on the landscape and visual amenity of Bute Town, its residents and users of its recreational resources were taken into consideration in the LVIA in the ES and there would be no change to the overall assessment after considering these effects in relation to the setting of Bute Town.
- The “other developments” to be included in a cumulative LVIA were agreed with CCBC to include developments taking place within 5 kilometres of site or likely to take place during or extending beyond the lifetime of the development, comprising:
  - The operational Ffos-y-fran Land Reclamation Scheme (FLRS)
  - Cwmbargoed Disposal Point (CDP)
  - Merthyr Industrial Services landfill operations (MIS)
  - Trecatti Landfill Site
  - NET Wood Pellet Plant, Rhymney.

20.64. Blaenau Gwent County Borough Council (BGCBC) subsequently requested additional assessment of cumulative effects of the proposed development in relation to the proposed Circuit of Wales, dualling of A465 and the then proposed wind turbines at Pen Bryn Oer. The Pen Bryn Oer proposal was subsequently withdrawn but the cumulative effects in respect of the proposals for Circuit of Wales (CoW) and the dualling of the A465 have been considered. These levels of cumulative landscape and visual effect are considered to be not significant.

- The effect of the change in the date of commencement would be a small reduction in the period when the excavation void and overburden mounds would exist at both FLRS and Nant Llesg and a small extension of the period of activity in the landscape and in views, until the Nant Llesg and CDP sites would be restored. This small change does not change the assessment conclusions in the original LVIA in ES.
- The ES Addendum Chapter 9 describes details of methods of soil handling, especially peat, and they do not result in any change in the landscape mitigation or restoration strategy nor, hence, the conclusions of the original LVIA.
- There would be no additional effect on the landscape or visual amenity caused by the proposed acoustic mound on the north-western edge of the excavation area. The fence at Halfway House would be a small and medium term change in the open landscape character of the area surrounding the properties. These levels of landscape and visual effect of the 2 metre fence and 3 metre mound are considered to be not significant and would not change the overall assessment of the landscape or visual effects of the proposed development contained in the ES.

20.65. The additional LVIA thus concludes that there would be no change in the overall assessment of landscape and visual effects in Chapter 16 of the ES, and the effects of the additional habitats and acoustic mitigation and change in commencement date would be not significant.

## **Waste**

20.66. Chapter 17.0 confirms that the changes to the scheme, the further mitigation, compensation and additional information provided in the Addendum to the Planning Statement result in no change to the assessment of waste, and no further assessment is required.

## **Health and Wellbeing**

20.67. Chapter 18.0 confirms that all health representations were fully addressed in the original Health Impact Assessment (HIA), and via a formal review and position statement from the Wales Health Impact Assessment Support Unit (WHIASU).

20.68. However, given the delay to project commencement, and the expansion of information to specific ES Sections that informed the HIA, a further review of the ES Addendum has been undertaken to determine whether there might have been any change to the HIA assessment protocols applied, the conclusions drawn and the mitigation and support initiatives detailed in the Health Action Plan (HAP).

20.69. However, the various changes to the Nant Llesg proposal; further mitigation or compensation for the effects of the proposal; and additional information for clarification of the proposal do not materially influence the HIA, its findings or recommendations.

20.70. On this basis, no new health information or assessment is required. The HIA remains compliant with current UK and Wales HIA Guidance. The baseline data applied remains appropriate. No new health pathways have been identified; and the assessment protocols applied remain conservative (accounting for local circumstance and relative sensitivity).

## Sustainability and Climate Change

- 20.71. Chapter 19.0 notes that the original ES sets out in detail how the evolved design of the proposed Nant Llesg scheme (since the submission of the original planning application) responds to each of the themes, sustainability objectives and key considerations of the sustainability framework, and thus how the revised project meets the objectives of sustainable development throughout its lifetime. The sustainability and carbon statement has been updated to take into account the various changes to the Nant Llesg proposal; further mitigation or compensation for the effects of the proposal; and additional information provided for clarification of the proposal.

### Conclusions: The balance of effects

- 20.72. The original ES concludes that the most significant environmental effects relate to ecology, notably the land take within the SINC and the effect on breeding birds. However, the ES addendum has clarified the extent of the land take within the SINC and has confirmed that less is required than was assumed in the original ES. In addition, the importance of breeding birds has been downgraded following the results of updated surveys, with the anticipated impact now categorised as 'moderate adverse' rather than 'major adverse'.
- 20.73. Further compensation measures have been introduced in the form of a contribution to the Pumlumon Project or suitable local biodiversity project alternatives. The original ES concluded that there would be a negative biodiversity impact during the operation of the mine (notwithstanding the mitigation and compensation incorporated into the scheme including the Bryn Caerau scheme), but a biodiversity balance in the long term. With the inclusion of further mitigation and compensation referred to above, these biodiversity conclusions have been updated to a balance during operations and a now anticipated benefit in the long term.
- 20.74. Visual and landscape impacts were also identified in the original ES as significant, particularly during the short term of the construction of the visual and acoustic mound. That remains the case.
- 20.75. The underlying conclusion of the original ES (ref 20.260) is that the mitigation measures incorporated within the project design have achieved residual impacts that fall within environmental limits. The Second ES Addendum has served to confirm the success of the iterative design approach. Whilst there have been changes to the scheme, further mitigation and compensation and further information provided in response to representations, these have been relatively minor given the scale of the proposal.
- 20.76. It remains the case that with the exception of ecology and landscape / visual impact, there are no major or moderate adverse effects predicted. Despite the conclusions on those topics, the effects would be temporary and fully mitigated via the restoration scheme / and adequately compensated for during the development
- 20.77. The temporary negative effects can be contrasted with significant positive permanent environmental effects including remediation of mine hazards, improvements in mine water quality, improvements to discharges to the water course feeding Parc Cwm Darren. Overall it was concluded at paragraph 20.260 of the original ES that the project can be rendered environmentally acceptable by the imposition of suitable planning conditions and/or planning obligations that reflect government guidance and local planning policy. That remains the case, and increasingly so via the positive changes to the scheme and additional mitigation and compensation measures which have been proposed in response to representations.
- 20.78. Paragraphs 20.261 to 20.266 of the original ES analyse the scheme against the development plan policies. There have been no material changes to policy since publication of the ES. The

Nant Llesg proposal continues to accord with relevant county wide and site specific plan policies and with the development plan as a whole. The changes to the ecology balance make that even more the case than was originally concluded in the ES.

20.79. The scheme continues to bring substantial local community benefits including the following:-

- 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 with significant savings to public funds which would be required 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 biodiversity conservation) as part of the restoration scheme, together with substantial off site biodiversity benefits at the Bryn Careau area and as a part of the Pumlumon project; and
- demonstrable employment and economic benefits associated with direct and indirect employment and the overall contribution to the local economy.

20.80. It follows from the above that the minor positive changes to the scheme and the beneficial additional mitigation / compensation measures which have been proposed re-enforce the conclusions of the original ES that the overall balance of need and benefits against environmental effects weighs heavily in favour of planning permission being granted.







**Contact Us**

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