CRAIG YR HESG QUARRY
Western Extension

Environmental Statement
Appendices
Volume 2

May 2015

APPENDICES

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1. INTRODUCTION

1.1 Environment Act Review Schedule of Conditions (ref 08/1380/10), 24th April 2013.

Rhondda Cynon Taf County Borough Council

ENVIRONMENT ACT 1995
REVIEW OF MINERAL PLANNING PERMISSION - INITIAL REVIEW
DETERMINATION OF CONDITIONS

Client's Name and Address
M M Frampton
Hanson Aggregates
Machen Quarry
Commercial Road
Machen
CF83 8YP

Applicant's Name and Address (if different)

ARC Western Ltd
Hanson House
14 Castle Hill
Maidenhead
Berkshire
SL6 4JJ

Part I - Particulars of Application Number 08/1380/10

Proposal:	Application for determination of conditions for mineral site. The Environmental Act 1995 (Section 96 and paragraph 9 of schedule 13).
Location:	CRAIG-YR-HESG QUARRY, BERW ROAD, PONTYPRIDD, CF37 3BG
Grid Ref:	307979, 191738

Part II - Particulars of decision
Under Schedule 13, paragraph 9 of the above Act, the County Borough Council as Local Planning Authority HEREBY DETERMINES, in consequence of the Application for Determination of Conditions received from you on 19th August 2008 for Craig Yr Hesg Quarry, Berw Road, Pontypridd, CF37 3BG that the following conditions apply in substitution for the previous conditions applied to the "mineral site" as identified in the application.

CONDITIONS:

1 This consent for the winning and working of minerals or depositing of mineral waste shall expire on 31st December 2022.

Reason: To define the consent granted.

2 Following the expiry of the planning consent all extraction, processing and stockpiling of minerals and depositing of mineral waste shall cease.

Reason: To ensure that all forms of minerals development cease.

3 No later than 12 months following the expiry of the planning consent, or the earlier permanent cessation of winning and working of minerals, as agreed between the mineral operator and the Local Planning Authority, all plant, machinery, hard standings, ancillary workshops, buildings, structures or other works associated with the development shall be dismantled and removed from the site unless otherwise agreed in writing with the Local Planning Authority.

Reason: To ensure that all works associated with the development are removed, in the interests of the amenities of the local area, in accordance with Policy CS10 of the Rhondda Cynon Taf Local Development Plan.

4 No later than 12 months following the expiry of the planning consent or the earlier permanent cessation of winning and working of minerals, as agreed between the mineral operator and the Local Planning Authority, the sale and transportation of any residual stocks from the site shall cease.

Reason: To ensure that all mineral activities cease in the interests of the amenities of the local area in accordance with Policy CS10 of the Rhondda Cynon Taf Local Development Plan.

5 Unless otherwise agreed in writing by the Local Planning Authority, the working and restoration of the site shall be carried out only in accordance with the quarry phasing plans, drawing numbers A057337 SR02 – 05 inclusive dated July 2009. The sequence of mineral extraction shall be undertaken as illustrated on submitted plan ref numbers A057337 SR001 – 05 inclusive, with the final extraction limits to be confined to those shown on plan ref A057337 SR05. No extraction shall take place outside the limits shown by the Green line on plan Ref SR05a.

Reason: To enable the Local Planning Authority to control the development and to minimise its impact on the amenities of the local area in accordance with Policy CS10 of the Rhondda Cynon Taf Local Development Plan.

6 No excavation or extraction of minerals shall take place below 100m A.O.D. other than those works necessary for the construction of the quarry sump.

Reason: To define the consent granted.

7 The recovery, storage and management of soils encountered during the course of excavation and development of the north eastern part of the site shall be undertaken in accordance with the details provided on Plan Ref C/10m/0075 dated Aug 2007. Prior to the excavation or development of the site which would disturb any additional suitable overburden or

soil-making materials, a scheme for the recovery, storage and management of such materials (until such time as they shall be used in the restoration proposals for the site to be approved in accordance with Condition 45) below shall be submitted to and approved in writing by the Local Planning Authority. All works shall be carried out in accordance with the approved scheme, unless otherwise approved in writing by the Local Planning Authority.

Reason: To ensure the availability of the adequate material for the landscaping and restoration of the site in accordance with Policy CS10 of the Rhondda Cynon Taf Local Development Plan.

8 A copy of this consent and the approved plans showing the method and direction of working and restoration shall be displayed in the operator's site office at all times during the life of the site. Any subsequent approved amendments shall also be displayed.

Reason: To ensure the operator and site contractors are aware of the working programme and the conditions attached to carrying out the development.

9 The developer shall submit a revised working programme and phasing plans for the approval of the Local Planning Authority five years from the date of this consent, unless otherwise agreed in writing by the Local Planning Authority, should the Working Programme as previously agreed by the virtue of Condition 5 be proposed to be changed within this time.

Reason: To enable the Local Planning Authority to control the development and to minimise its impact on the amenities of the local area in accordance with Policy CS10 of the Rhondda Cynon Taf Local Development Plan.

10 Except in the case of emergency to maintain safe quarry working, no blasting shall take place at the site except between 10.00 a.m. – 16.00 p.m. Monday to Friday inclusive and there shall be no blasting on Saturdays, Sundays and Public Holidays, or unless otherwise agreed in writing by the Local Planning Authority.

For the purpose of this Condition 10, "emergency" means any circumstances in which the operator has a reasonable cause for apprehending injury to persons or serious damage to property.

Reason: To protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

11 In any part of the quarry in excess of 180m A.O.D., drilling operations shall be only be carried out between the hours of 10.00 and 16.00 on Monday to Friday, and not at any time on Saturdays or Sundays or Statutory Public Holidays unless otherwise agreed beforehand in writing with the Local Planning Authority.

Reason: To protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

12 In any part of the quarry below 180m A.O.D., drilling operations shall only be carried out between the hours of 07.00 and 18.00 Monday to Friday, and not at any time on Saturdays or Statutory Public Holidays unless otherwise agreed beforehand in writing with the Local Planning Authority.

Reason: To protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

13 Unless required to fulfil a specific contract, in which case notification shall be given to the Local Planning Authority at least two working days in advance of the contract being fulfilled, no vehicles associated with the production of ready mixed concrete shall enter or leave the area which is the subject of this planning permission on Sundays or Statutory Public Holidays unless otherwise agreed beforehand in writing with the Local Planning Authority.

Reason: To protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

14 Except in emergencies, to maintain safe quarry working (which shall be notified to the Local Planning Authority as soon as practicable), or unless the Local Planning Authority has otherwise agreed before hand in writing, quarrying operations shall only be carried out between the hours of 07.00 and 19.00 Monday to Friday and 07.00 and 16.00 on Saturday and not at any time on Sundays or Statutory Public Holidays.

For the purposes of this condition 14, 'quarrying operations' shall mean the operation of the primary crusher, the stockpiling and loading or unloading of materials associated with the primary crusher and the haulage of rock from the quarry faces to the primary crusher or any stockpile.

Reason: To protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development

	Close		shop Garth Avenue	
Criteria	49dB $L_{Aeq,1hr}$	47 dB $L_{Aeq,1hr}$	54 dB $L_{Aeq,1hr}$	55 dB $L_{Aeq,1hr}$

Reason: To ensure that the noise emitted is not a source of nuisance, and to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

19 Between the hours of 19:00 and 07:00 the free field Equivalent Continuous Noise Level $L_{Aeq,T}$ due to operations in the site shall not exceed 42 dB $L_{Aeq,1hr}$ at each selected noise sensitive property specified in Table 1 above.

Reason: To ensure that the noise emitted is not a source of nuisance, and to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

20 Noise levels attributable to operations of a temporary nature on the periphery of the site such as the formation , removal or alteration of spoil tips, screening and storage embankments, measured at any noise sensitive property specified in Table 1 above , shall not exceed a level of 67dB $L_{Aeq,1hr}$ (free field) These noise limits shall only apply for a maximum of 8 weeks in any calendar year.

Reason: To ensure that the noise emitted is not a source of nuisance, and to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

21 Noise monitoring shall be undertaken at the properties listed in Table 1 or other representative properties biannually for the first 2 years from the date of this consent, then annually for the following three years. Thereafter, the frequency of monitoring shall be agreed with the Local Planning Authority. The results of monitoring shall be submitted to the Local Planning Authority, together with confirmation of action taken to remedy any breach of the limits set out in Table 1.

Reason: To ensure that the noise emitted is not a source of nuisance, and to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

22 Within three months of the date of this consent a noise management

Plan.

15 No vehicles other than those associated with the manufacture of coated road stone, the production of ready mix concrete or the servicing, maintenance and testing of plant and machinery shall enter/leave the Quarry except during the hours of 07.00 and 19:00 Mondays to Friday and 07.00 and 16.00 on Saturday.

Reason: To protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

16 No soils shall be stripped or replaced, no topsoil or subsoil mounds shall be formed or removed except between the following times:

08.00 to 17.00 hours Mondays to Fridays.
08.00 to 13.00 hours on Saturdays.

Reason: To protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

17 Except in the case of an emergency, to maintain safe quarry working, or with the prior written agreement of the Local Planning Authority, no development or activities other than water pumping, environmental monitoring, servicing, maintenance and testing of plant and equipment, activities associated with the production of coated roadstone or ready mixed concrete shall be undertaken on Sundays or Statutory Public Holidays.

Reason: To ensure that the noise emitted is not a source of nuisance, and to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

18 Between the hours of 07:00 and 19:00 the free field Equivalent Continuous Noise Level $L_{Aeq,T}$ due to operations within the site shall not exceed the relevant noise limit specified in Table 1 below at each selected noise sensitive property. Measurements taken to verify compliance shall have regard to the effects of extraneous noise and shall be corrected for any such effects.

Table 1

Receptor	No 36 Conway	No 3 Pen y Bryn	Flat above	No 1 Rogart Terrace

scheme for the site shall be submitted to and approved in writing by the Local Planning Authority, which shall, if practicable, include the provision of measures to reduce noise levels from site operations including the provision of any perimeter bunds/barriers, and specify the locations and methodology for monitoring carried out as required by condition 21 above. All site operations and noise monitoring shall be carried out in accordance with the approved scheme, unless otherwise approved in writing by the Local Planning Authority.

Reason: To ensure that the noise emitted is not a source of nuisance, and to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

23 Blasting shall be undertaken in such a manner to ensure that ground vibration, measured as a maximum of three mutually perpendicular directions taken at the ground surface, does not exceed a peak particle velocity (ppv)of 6mms^{-1} per second in 95% of all blasts measured over any continuous six month period, and no single blast shall exceed a ppv of 10mms^{-1} per second. The measurement is to be taken at or near the foundations of any vibration sensitive building in the vicinity of the quarry existing at the date of this consent.

Reason: To limit ground vibration from blasting operations so as to protect the amenities of local residents and the structure of buildings in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

24 Blasting shall be designed in such a manner that air over pressure resulting from any blast does not exceed 120dB at any residential property.

Reason: To limit air overpressure from blasting operations so as to protect the amenities of local residents and the structure of buildings in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

25 Each individual blast shall be monitored in accordance with a Blast Monitoring Scheme to be submitted to the Local Planning Authority within 3 months of the date of this consent. That scheme shall include provision for the recording of details which shall include the location of the monitoring station(to be provided at a minimum of one of the properties listed at Para 10.3.1 of the Environmental Statement, or such other location previously agreed in writing with the Local Planning Authority); the position of the blast holes; weather conditions; the specification of the blast in terms of MIC, ppv data and total charge weight, and provision for the results to be made

available immediately to the Local Planning Authority on request. All monitoring shall be undertaken in accordance with the terms of the approved scheme for the duration of mining operations at the site.

Reason: To ensure adequate monitoring of blasting operations in the interests of the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

26 Blasting times shall be clearly advertised at the Quarry and a warning, audible at the site boundary, shall be sounded prior to any blasting operations taking place, and shall be sounded again immediately after blasting has finished.

Reason: To give reasonable warning of blasting operations in the interests of public safety and the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

27 There shall be no secondary breakage of stone by the use of explosives.

Reason: To limit blasting operations so as to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

28 The best practicable means shall be used to restrict the generation of dust: on the haul roads and access road and within the remainder of the quarry, as a result of the storage and transportation of any material at the site e.g. pre-coated bituminous road stone or as a result of blasting. The best practicable means shall include the provision for haul roads and access roads to be watered during dry weather to lay the dust.

Reason: To ensure that dust emitted is not a source of nuisance so as to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

29 At all times during the carrying out of operations, a water bowser or similar equipment shall be available on site, and shall be used to minimise the emission of dust from the operational area.

Reason: To ensure that dust emitted is not a source of nuisance so as to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

30 Measures shall be taken to minimise dust emissions from quarrying operations, in accordance with the following protocols:

(i) Soils and overburden shall not be handled during dry conditions which could result in the emission of visible dust unless the material has been suitably treated with water or other suitable agents.
(ii) Drilling of shot holes shall be undertaken by drilling rigs fitted with a suitable dust collection system;
(iii) Site roads within the quarry shall be dampened down as appropriate, using a water bowser, in accordance with the requirement of Condition 29;
(iv) The speed of haulage vehicles at the site will be restricted to 10mph.
(v) All site vehicles will be fitted with upswept exhausts and radiator fan shields.
(vi) Lorries will be loaded to avoid spillages.
(vii) All site traffic will be kept to the designated haul routes.
(viii) Any product or waste spillages will be cleared to avoid accumulations.
(ix) Drop heights will be minimised at loading and discharge points.
(x) Measures shall be taken to ensure that mud and other detritus from site operations shall not accumulate onto the public highway. Such measures shall include the weekly cleaning/sweeping of the public highway used to access the site, as well as additional cleaning/sweeping of the public highway, if, in the opinion of the Local Planning Authority, significant accumulations have occurred which require action.
(xi) Regular compaction, grading and maintenance of all on site non metalled roads used as a consequence of the quarrying operations.
(xii) All product and waste stockpiles shall be watered as and when necessary to minimise the suspension of dust.
(xiii) Existing vegetation along the site boundary to the north of the site which provides screening protection from dust shall be maintained unless a suitable screening replacement is otherwise approved in writing by the Local Planning Authority.
(xiv) Before entering onto the public highway the wheels, of all lorries travelling from the site shall be cleaned and, their loads shall be secured and fully covered and in such a condition as to avoid the deposit of slurry, mud, or other material upon the public highway.

Reason: To ensure that dust emitted is not a source of nuisance so as to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

31 Six months prior to the commencement of any alternative means of access from the plant area to the primary crusher there shall be submitted to and approved in writing by the Local Planning Authority a scheme for additional dust minimisation measures which shall include the provision of additional screening along the site boundary in the vicinity of the primary crusher. All

works shall be carried out in accordance with the approved scheme, unless otherwise agreed in writing by the Local Planning Authority.

Reason: To ensure that dust emitted is not a source of nuisance so as to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

32 The operator of the mineral activity shall undertake a further study of Fine Particulate Matter PM 10 at Craig Yr Hesg over a twelve consecutive month period to obtain 90% data capture, or less if agreed in writing with the Local Planning Authority, to assist in the evaluation of existing and new abatement techniques deployed at Craig Yr Hesg. The method, to be based upon previous assessment monitoring utilising Dutscan, and the monitoring location and commencement date, shall be agreed in writing in advance with the Local Planning Authority. The results of the exercise shall be reported to the Local Planning Authority within eight weeks of the end of the twelve month period. The need to continue the monitoring beyond the 12 month period shall be reviewed by the Local Planning Authority with the operator following submission of the aforementioned report. The 12 month period of monitoring shall commence within 3 months of the date of this consent.

Reason: To ensure informed management of the operations at the site to ensure that dust emitted is not a source of nuisance so as to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

33 The operator of the mineral activity shall maintain and operate an automatic weather monitoring station at the primary crusher, in a manner to ensure the accurate measurement of atmospheric temperature, wind direction, wind speed and precipitation. All data shall be recoded in an accessible format, to be agreed in writing by the Local Planning Authority, and kept at the site by the Operator for at least two years and made available for examination by any authorised officer as determined by the Local Planning Authority.

Reason: To ensure informed management of the operations at the site to ensure that dust emitted is not a source of nuisance so as to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

34 No floodlighting other than that in existence at the date of this consent, shall be used on the site without the prior written approval of the Local Planning Authority.

Reason: To prevent any unacceptable light pollution and to protect the amenities of local residents in accordance with Policies CS10 and AW10 of the Rhondda Cynon Taf Local Development Plan.

35 Any facilities for the storage of oils, fuels or chemicals on the site shall be sited in impervious bases and surrounded by impervious bund walls. The volume of the bunded compound shall be at least equivalent to the capacity of the tank plus 10%. If there is multiple tankage, the compound shall be at least equivalent to the capacity of the largest tank, or the combined capacity of inter-connective tanks, plus 10%. All filling points, vents, gauges and site glasses shall be located within the bund. The drainage system of the bund shall be sealed with no discharge to any water course, land or underground strata. Associated pipe work shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets shall be detailed to discharge downwards into the bund.

Reason: To prevent pollution of nearby watercourses and drainage systems in accordance with Policy AW10 of the Rhondda Cynon Taf Local Development Plan.

36 Throughout the period of working, restoration and aftercare, the operator shall protect and support any ditch, stream, water course or culvert passing through the site and neither impair the flow nor render less effective drainage onto and from adjoining land. Satisfactory provision will be made to deal with any surface water run-off from the site and, in particular, no run-off water from the site shall be permitted to flow down the quarry access road and onto the Berw Road.

Reason: To prevent pollution of nearby watercourses and drainage systems in accordance with Policy AW10 of the Rhondda Cynon Taf Local Development Plan.

37 Settlement ponds at the site shall be kept clear of mud and silt as necessary so as to keep them in good order, and the discharge of waste, oil or other pollutant to any settlement pond, ditch, steam, watercourse or other culvert is not permitted.

Reason: To prevent pollution of nearby watercourses and drainage systems in accordance with Policy AW10 of the Rhondda Cynon Taf Local Development Plan.

38 No excavation shall take place below the depth of the water table until a Hydro geological Impact Appraisal for dewatering and a scheme of working has been submitted to and approved in writing by the Local Planning

Authority. All works shall be carried out in accordance with the approved scheme, unless otherwise approved in writing by the Local Planning Authority.

Reason: To prevent derogation of the ground water resource at the site in accordance with Policy AW10 of the Rhondda Cynon Taf Local Development Plan.

39 All the site, including topsoil and subsoil dumps shall, so far as practicable be kept free from noxious weeds, and all necessary steps shall be taken to suppress such weeds at an early stage of growth to prevent seeding and spreading.

Reason: To protect the environment in accordance with Policy AW10 of the Rhondda Cynon Taf Local Development Plan.

40 Unless otherwise agreed beforehand in writing with the Local Planning Authority all vehicular access to or from the site shall be via the existing entrance and exit points on the B4273 road.

Reason: To define the accesses on to the highway.

41 At least 14 days notice of commencement of soil stripping operations shall be given to the Local Planning Authority, and the developer shall afford access at all reasonable times to archaeologists nominated by the Local Planning Authority who shall be allowed to observe the excavations and record any items of interest and finds.

Reason: To facilitate recording of the sites archaeology so as to accord with Policy AW7 of the Rhondda Cynon Taf Local Development Plan.

42 Within 3 months of the date of this permissionn a Wildlife Protection Plan for the protection of existing landscaping, vegetation or woodland areas to be retained within (or immediately adjoining, the site shall be submitted to and approved in writing by the Local Planning Authority. The plan shall include the following matters:

a) An appropriate scale plan showing 'Wildlife Protection Zones' where protective measures will be installed or implemented if necessary ;

b) Details of any protective measures necessary (either physical measures and/or sensitive working practices) to avoid unacceptable impacts on wildlife;

c) Persons responsible for:

Compliance with legal statutory provisions relating to nature conservation, planning conditions relating to nature conservation, installation of physical protection measures, implementation of any sensitive working practices, regular inspection and maintenance of any physical protection measures provision of training and information about the importance of any 'Wildlife Protection Zones' to all personnel on site.

The approved Wildlife and Protection Plan shall be implemented for the duration of the permission.

Reason: To afford protection to animal and plant species in accordance with Policies AW5 and AW8 of the Rhondda Cynon Taf Local Development Plan.

43 Within 3 months of the date of this consent a scheme for the interim restoration of benches located outside active quarrying, additional woodland planting along the south western boundary of the quarry and the timescales for implementing the works shall be submitted to and approved in writing by the Local Planning Authority to include the following matters:-

- Locations for the proposed various treatments of the quarry benches
- Use of soils and native woodland restoration, natural regeneration, and heath land restoration to achieve the proposed restoration treatments shown within the green hatched areas of the quarry phasing drawings SR02 – SR05.

The restoration works shall be carried out in accordance with the approved interim restoration scheme, unless otherwise agreed in writing by the Local Planning Authority

Reason: In the interests of the amenity of the local area in accordance with Policy CS10 the Rhondda Cynon Taf Local Development Plan.

44 Unless modified by conditions and schemes under this consent the interim restoration scheme for quarry benches under condition 43 above and the final restoration scheme under condition 45 below shall be based upon the restoration concept plan ref A057337/9a.

Reason: In the interests of the amenity of the local area in accordance with Policy CS10 the Rhondda Cynon Taf Local Development Plan.

45 Not later than 31st December 2022 or the expiry of 6 months following the permanent cessation of the winning and working of minerals and the depositing of mineral waste, whichever is the sooner, the operator shall

submit for the written approval of the Local Planning Authority a detailed final restoration scheme, including drawings to illustrate the proposals for the final restoration of the quarry. The final restoration scheme shall be based upon the restoration concept plan ref A057337/9a and include, inter alia the following matters:

a) the nature of the intended after use of the site;
b) the location, depth and treatment of any dust/fine aggregate on the site;
c) the ripping of the quarry floor (other than where comprised of bedrock) and the re-spreading over the floor of the excavated area of any overburden, subsoil and topsoil previously stripped from the site, in that order;
d) the ripping of any compacted layers of final cover to ensure adequate drainage and aeration; such ripping should normally take place before placing of the topsoil;
e) the machinery to be used in soil re-spreading operations;
f) the final proposed levels of the site on a contour plan at 5m intervals and the gradient of the restored slopes which shall be graded to prevent ponding of, or erosion by surface water and to conform with the surrounding land;
g) the drainage of the restored land including the formation of suitably graded contours to promote natural drainage and the installation of artificial drainage where necessary, the position and design of ditches and watercourses where all such features shall be designed to achieve maximum ecological diversification;
h) the reinstatement of the plant site and access roads by clearing plant, buildings, machinery and concrete or brickwork, and other obstructions, replacing of subsoil and then topsoil previously stripped form the site;
i) details of the spreading of soils previously stripped and stored on the site including depths and placement areas;
j) the method of soil replacement and soil handling;
k) the provision of site security;
l) position and erection of boundary fencing,
m) The position of any roadways, footpaths and bridleways to be provided linked with existing Public Rights of Way, including the crossing and surfacing of such routes;

Unless otherwise approved in writing by the Local Planning Authority, the restoration works shall be carried out in accordance with the approved restoration scheme.

Reason: In the interests of the amenity of the local area in accordance with Policy CS10 the Rhondda Cynon Taf Local Development Plan.

46 The scheme detailed in Conditions 45 above shall be fully implemented

within two years of the date of approval of the scheme or by 31.12.2024, whichever is the sooner, unless otherwise agreed in writing by the Local Planning Authority.

Reason: In the interests of the amenity of the local area in accordance with Policy CS10 the Rhondda Cynon Taf Local Development Plan.

47 Prior to the commencement of the Final Restoration Scheme, the operator shall submit a scheme to deal with any potential contamination on the site. The scheme shall include such of the following steps as the Local Planning Authority shall reasonably deem necessary:

i) A desk-top study and walk-over survey shall be carried out by a competent person to identify and evaluate all potential sources and impacts of contamination relevant to the site. A report of the desk-top study and walk over survey shall be submitted to the Local Planning Authority without delay upon completion.

ii) Unless the report supplied under i) above satisfies the Local Planning Authority that it is not required, a site investigation shall be carried out by a competent person to fully and effectively characterise the nature and extent of any contamination and its implications.

iii) A scheme containing a written method statement for the remediation of any contamination revealed by the site investigation in ii) above shall be agreed in writing with the Local Planning Authority prior to commencement and all requirements shall be implemented and completed by a competent person in accordance with a timescale to be approved in writing by the Local Planning Authority.

iv) A suitable validation report of any remedial works carried out under iii) above shall be submitted to and approved by the Local Planning Authority.

If during restoration works any contamination should be encountered which was not previously identified and is derived from a different source and/or of a different type to those included in any remediation proposals in sub paragraph iii) of this condition then revised remediation proposals shall be submitted to and approved in writing by the Local Planning Authority, and thereafter implemented in accordance with an agreed timescale with the Local Planning Authority.

Reason: In the interests of health and safety and environmental amenty in accordance with Policy AW10 the Rhondda Cynon Taf Local Development Plan.

48 An aftercare scheme, for amenity after use that promotes the use of the site for nature conservation through a restoration strategy shall be submitted for the approval of the Local Planning Authority not less than 6 months prior to the date specified in Condition 46 above as the date by which the final restoration of the site is to be completed. The aftercare scheme shall include the following elements:

i) A five year period of aftercare following restoration;

ii) The inclusion of all areas affected by the quarrying activities, and areas outside the extraction area that have been used to store soil or overburden and areas subject to trafficking by mobile plant and equipment;

iii) The steps to be taken and the period during which they are to be undertaken and who shall be responsible for taking those steps;

iv) The timing and pattern of vegetation establishment (including grass seeding of restored areas with a suitable herbage mixture and application rates to achieve species rich grassland and heath land restoration, the distribution of native tree and shrub planting including stock types, sizes, spacing, method and position of planting.

v) cultivation practices for the preparation of soils;

vi)fertilising and lime application based on soil analysis, weed control

vii) land management techniques;

viii) the provision of boundary treatment.

ix) Entry onto the site shall be granted to officials of the Welsh Government at all times during soil stripping or replacement operations, restoration and aftercare of the site.

x) A habitat management plan which shall include;

a) The details of the provision of areas to be restored to nature conservation and their application to local biodiversity objectives(to include nesting sites for peregrine falcon and raven, roosting and hibernation areas for bats, native woodland restoration, natural species –rich grassland and heath land restoration
b) Description and evaluation of features to be managed.
c) Ecological trends and constraints that may influence management.
d) Aims and objectives of management.

e) Appropriate management options for achieving aims and objectives.
f) Prescription for management actions.
g) Work Schedule.
h) Personnel responsible for implementation of plan.
i) Monitoring and remedial/contingency measures triggered by monitoring.

Aftercare operations shall be carried out in accordance with the approved aftercare scheme, unless otherwise approved in writing by the Local Planning Authority.

Reason: In the interests of the amenity of the local area in accordance with Policy CS10 the Rhondda Cynon Taf Local Development Plan.

49 Before 31st March of every year during the aftercare period, unless otherwise agreed in writing with the Local Planning Authority, the site operator shall arrange a formal site meeting to review the aftercare operations which have taken place on the site during the previous year, and also the programme of management for the following year. The parties invited to this meeting shall include the site operator, the owners of the land (if not the operator), any other relevant occupiers, the Local Planning Authority and such relevant advisors and/or representatives of the Local Planning Authority as it shall nominate. At least one month before the date of each annual review meeting, the site operator shall provide a written report to the Local Planning Authority. The report shall contain details of the management and other operations carried out on the site in the previous year and those which are planned for the ensuing year.

Reason: In the interests of the amenity of the local area in accordance with Policy CS10 the Rhondda Cynon Taf Local Development Plan.

Dated: 24/04/2013 Signed _____
Service Director Planning

NOTES TO APPLICANT:

1 It is considered that the Site Liaison Committee is resurrected, as it provides a valuable forum for regular discussion and explanation of matters arising at the quarry, for the operator, the Local Planning Authority and local residents.

2 Any future amendments affecting ordinary watercourses will require an Ordinary Watercourse Consent from the Consulting Authority (Rhondda Cynon Taf) for the protection and/or support if necessary.

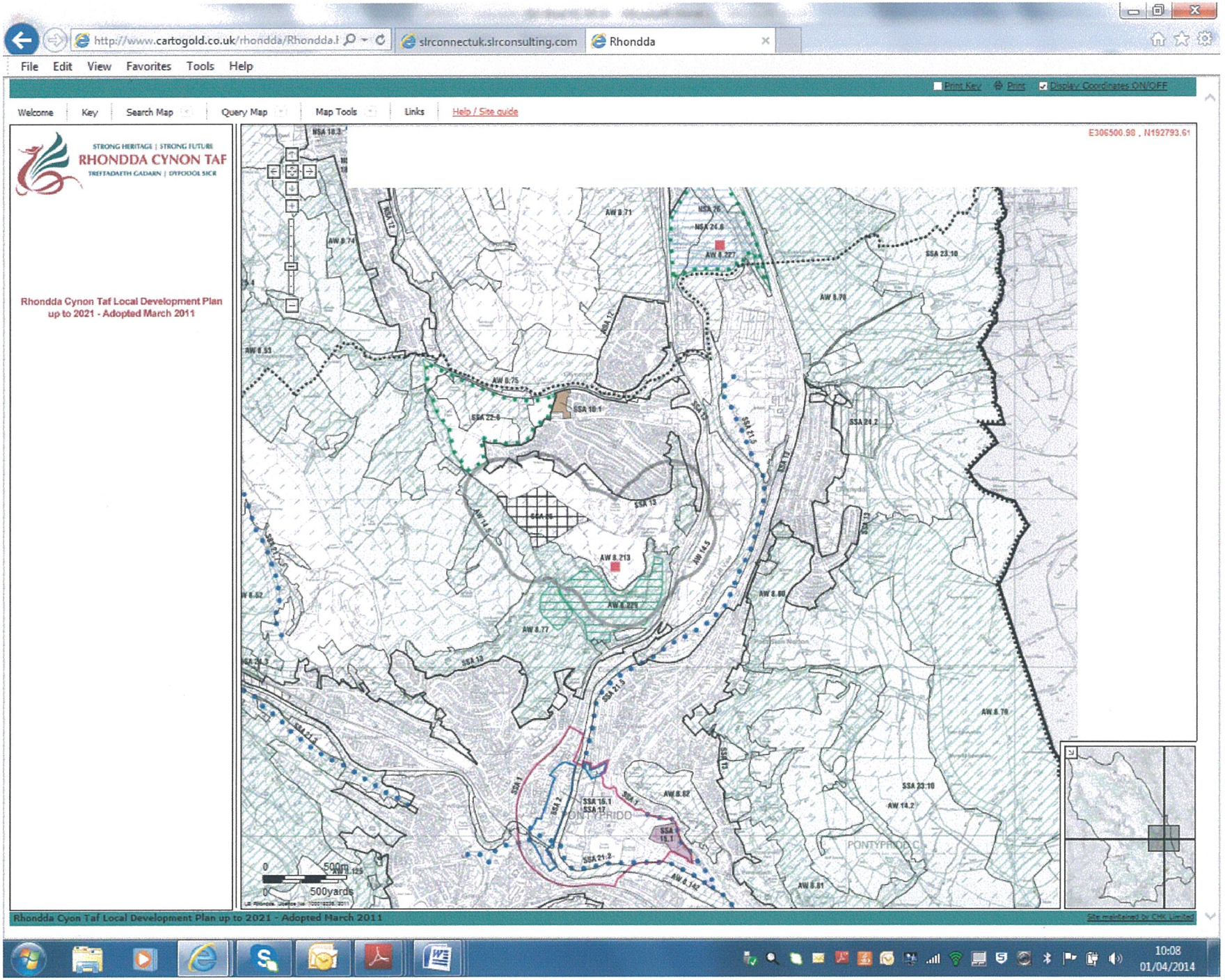
3 The site operator is reminded of their responsibility under the Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009.

4 The Environment Agency Wales consider that a permit may be required under the Mining Waste Directive (Environment Protection Regulation 2010) for the management of waste generated at the site.

5 If any controlled waste is to be removed off site then the site operator must ensure a registered waste carrier is used to convey the waste material off site to a suitably authorised facility, in line with the Duty of Care regulations.

6 If the Applicant is aggrieved by the decision of the Local Planning Authority he/she may appeal to the National Assembly for Wales within 6 months of the date of this Notice. Appeals should be made on a form available from the Planning Inspectorate, Crown Buildings, Cathays Park, Cardiff, CF10 3NQ.

1.2 Extract from Rhondda Cynon Taf Local Development Plan 2011 Proposals Map.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STRONG HERITAGE | STRONG FUTURE
RHONDDA CYNON TAF
TREFTADAETH GADARN | DYFODOL SICR
Rhondda Cynon Taf Local Development Plan up to 2021 - Adopted March 2011
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Rhondda Cynon Taf Local Development Plan up to 2021 - Adopted March 2011
Site maintained by CMK Limited
10:08
01/04/2014

1.3 Rhondda Cynon Taf EIA Scoping Opinion, November 2014

Graham Jenkins
Technical Director
SLR Consulting Limited
Fulmar House
Beignon Close
Ocean Way
Cardiff
CF24 5HF

Please ask for: Donna Bowhay

Our Ref 14/5193/36/DMB Your Ref 407.00027.00385 Date: 26 November 2014

Dear Sir,

Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (As Amended)
Regulation 10 Scoping Opinion.
Craig Yr Hesg Quarry Extension
Craig Yr Hesg Quarry Ynysbwl Road Pontypridd CF37 3BG

I refer to your letter dated 4 June 2014 enclosing a scoping report, of the same date, for the Environmental Impact Assessment (EIA) to accompany the forthcoming application for an extension to Craig Yr Hesg Quarry.

Having consulted statutory consultees, and other interested parties, I would advise you that the content of the scoping report is acceptable, subject to clarification of some issues and the inclusion of additional matters, as set out below. There are also suggestions included below regarding the details required of the proposed development.

Section 1 Introduction

It is considered that the application supporting statement should include an analysis of existing national policies and guidance and of the local development plan policies relevant to the consideration of the application. Any variations from national policy and guidance or from the local development plan will require to be comprehensively justified, particularly taking into account the environmental effects of such variations. One such variation already apparent is where development is proposed within 200 metres of existing sensitive development.

Consideration should be given to the Regional Technical Statement (RTS) First Review dated 01.04.14. which has been endorsed by member Authorities of the South Wales Regional Aggregate Working Party (SWRAWP). Welsh Government has clarified that this document is capable of being a material consideration when determining relevant planning applications.

Section 5.0 Quarry development scheme

Full details of the design, phasing and timescale assumptions (based upon anticipated output/markets) of all the works proposed within the proposed extension area should be provided, i.e. the design of each phase of the quarry development, provision of screening bunds, fencing, access routes, vegetation removal/planting and/or ecological mitigation, diversion of water mains and how the aggregate dust generation is to be dealt with. Any implications on the existing quarrying features such as the plant, stockpiles, machinery and storage areas should be provided.

The Environmental Statement (ES) should include an outline of the main alternatives studied within the proposed quarry design and mitigation measures providing an indication of the main reasons for the choices made, taking into account the environmental effects.

It is suggested that the red line of the application should be drawn around all previous mineral permissions, related operations, accesses and facilities, in the event that the application is proposed as a consolidation application.

Section 6.0 Potential Environmental Effects

Landscape and Visual Impact Assessment

It is considered that a detailed assessment of landscape and visual effects should be undertaken in accordance with good practice guidance. The current versions of guidance include the LVIA Guidelines (LVIA3 2013) and LANDMAP Information Guidance Note 3, NRW dated April 2013.

The assessment should also include the impact on the adjacent Special Landscape Area (SLA) identified in Policy NSA 25 of the Rhondda Cynon Taf Local Development Plan (LDP) and known as Cwm Clydach. Details of the SLA are contained in the Rhondda Cynon Taf Special Landscape Area Study (2007). A copy of this document is available to view on the Council's web site, as a background paper for the LDP Ref No. EB49.

The Zones of Theoretical Visibility (ZTV) should be OS based. A comprehensive set of viewpoints should consider nearby designated landscapes, public spaces in settlements, key residential areas as well as nearby individual residential properties, public footpaths, promoted routes, access land and roads, to include worst case and representative viewpoints.

A ZTV should be carried out to establish the potential for significant effects and to define the key landscape and visual receptors that may undergo significant effects in the defined study area and then define a number of viewpoints for assessment and where photomontages are necessary, all for agreement with the Council.

A summary table would be useful to get a full picture of effects quickly and easily.

Restoration Strategy

A high quality restoration and aftercare scheme should be integral to the application proposals and should aim to achieve phased restoration at the earliest opportunity and the use and suitable treatment of all available soils and natural regeneration to achieve a suitable beneficial use of all the land involved in the application. The ES should include the restoration and aftercare requirements as set out in Section D of MTAN 1. The re-instatement of the existing derelict dry stone walls and provision of new similarly constructed walls should be considered as a site specific landscape feature. Also, the connections to adjacent nature walks and the Pontypridd Circular Walk should be considered.

The means for the management of the ecological and landscape mitigation measures should be considered to secure their long term provision over the life of the permission.

Ecology

The extent of ecological survey is considered acceptable and should be carried out at an appropriate time of the year by a suitably experienced surveyor using recognised survey methodology. The ecological assessment should assess the impact of the quarry workings on the immediately adjacent site of importance for nature conservation,(SINC), identified in Policy AW8.77 of the LDP and known as Craig Yr Hesg/Lan Wood.

The ES should also consider the impact on UK and Local Biodiversity Action Plan (BAP) Habitats and Species, any ancient semi-natural woodland and legally protected species.

The assessment should consider the following matters, where appropriate: -

- identify any rare, declining, protected or otherwise important flora, fauna or habitats within the site;
- assess the importance of the above features at a local, regional and national level;
- identify the impacts on those features;
- propose mitigation for any adverse ecological impacts or compensation for loss;
- demonstrate how the development will avoid or minimise adverse impacts;
- propose wildlife habitat enhancement measures;
- propose management plans and management responsibilities with details of how biodiversity enhancement will be incorporated into the restoration scheme and maintained over the long term.

It is noted that a Phase 1 habitat survey of the quarry area is to take place together with an assessment of the presence of any protected or notable species. The Council's Ecologist would be willing to provide further advice on suitable mitigation

measures following completion of the survey work. It is considered that the existing grassland should be surveyed using Phase II Vegetation methodology and referral to the national Vegetation Classifications of grassland communities.

A tree survey should accompany the application to include all trees to be affected and the proposals should prevent any unnecessary losses due to access, vehicular movements, fencing along the boundary and wind blow.

It is considered that the survey should also include non native invasive species such as Japanese Knotweed and Himalayan Balsam. If found, a management plan for their control and/or eradication would be required.

It is noted that cross reference will be made to the approved restoration scheme within planning permission Ref 08/1380/10 but it is considered that opportunities for biodiversity gain should be considered. In particular, it is considered that the development of calcareous grasslands, the natural regeneration for woodland/trees, the planting of locally native species of certified local origin and the safeguarding of areas for the protection of nesting bird and bat habitats should be sought within the final restoration of the site.

Agricultural Land Quality and soil resources

It is noted from the scoping report at Paragraph 6.4.1 that the ES will include an Agricultural Land Classification of the extension area and an assessment of the soil resource for re-use in the restoration of the site. The 5 hectare extension area lies within an area of agricultural land of generally Agricultural Land Classification grades 4 and 5 (poor and very poor), so it is unlikely that best and most versatile agricultural land will be affected. However, as the mineral development affects agricultural land, account should be taken of Paragraphs 32 and 33 of Minerals Planning Policy Wales. Further, the handling of soils during mineral operations should be undertaken in accordance with Annexes B and C of Minerals Planning Policy (Wales) Minerals Technical Advice Note (Wales) 1: Aggregates.

The approved after use of the existing quarry, under Condition 48 of the 08/1380/10 permission, is amenity to promote the use of the site for nature conservation. The after use of the extension area has not been specified in the scoping report, but it is perhaps likely to extend the amenity after use of the existing quarry working area. This should be clarified in order to determine whether consultation will be required if an agricultural after use is to be proposed for all or part of the quarry workings, under Schedule 5 of the Town and Country Planning Act 1990, and as per consultation arrangements described at Annex B3 of Technical Advice Note 6:Planning for Sustainable Rural Communities.

Hydrology and hydrogeology

The EIA scoping report indicates that impacts on ground and surface water are to be included as part of the EIA. It is recommended that the scope of the study should include water quality elements.

Paragraphs 6.5.7 and 6.5.8 of the Scoping Opinion confirm the intended approach to the hydrology / hydrogeology study, and, as set out in these paragraphs, the ES should provide information to verify the current understanding that there will be no increase in flood risk, both to and off site, and that there will be no requirement to alter the existing surface water management arrangements.

Any suggested use of infiltration drainage techniques to achieve compliance with the requirements of TAN 15 will need to be accompanied by a preliminary site investigation report confirming that the underlying ground conditions will support the use of infiltration techniques and that seasonal groundwater levels will not encroach within 1 metre of the underside of the infiltration structure.

The assessment should detail whether any works would affect any existing watercourses within the site boundary or immediately adjacent. If so, this will require provision of a detailed hydrological/ hydro-geological assessment. In the first instance, a plan detailing any hydrological features within the development boundary and within a buffer of 50m of the development site should be provided to determine their existence.

As the lead Local Flood Authority, the County Borough Council advise that as part of the detailed proposals, the following matters should be addressed:-.

The rate of discharge should be agreed with Natural Resources Wales. However, the County Borough Council will require this information for review. The discharge rate will be subject to the nature of the proposed surface water management regime and the utilisation or otherwise of infiltration drainage techniques.

Any works impacting on open or culverted sections of ordinary watercourse may require the consent of the County Borough Council under the Land Drainage Act 1991 and the Public Health Act 1936.

Any works impacting on open or culverted sections of any ordinary watercourse may require provision of a detailed Water Framework Directive assessment.

Noise

The Public Health and Protection Division of the Council has advised that the proposed monitoring locations as set out below would seem appropriate, and that the focus of the assessment should relate to those sensitive developments within the 200 metre buffer area. The Noise Consultant needs to ensure that all noise measurements /assessments are undertaken in accordance with MTAN 1, as well as having regard to the current planning conditions regulating noise at the existing quarry (Conditions 18 – 22 of 08/1380/10). The additional locations (5, 6 and 7 below) need to be representative of the nearest noise sensitive properties to the extended quarry area.

1. Conway Close
2. Pen Y Bryn
3. Garth Avenue
4. Rogart Tce

5. Cefn Lee Farm
6. Cefn Primary School
7. Daren Ddu Road

Blast Vibration

The blast vibration assessment should comply with the requirements of MTAN1 and take into account the existing conditions regulating vibration from blasting, which are referred to in Para 6.7.1 of the scoping report. The Public Health and Protection Division of the Council has advised that there needs to be a degree of flexibility in the choice of location for monitoring vibration, as the proposed noise monitoring locations may not be the most appropriate in respect of the suitability for measuring vibration. The Consultant will need to visit and identify the suitability of such locations, particularly, in respect of the assessment of vibration from blasting within the 200m buffer area. In addition, it is considered that details of the procedure for dealing with complaints concerning vibration should be provided within the study.

Dust and Air Quality

Local Air Quality Management

The Public Health and Protection Division of the Council has advised that the ES should detail any changes to ambient levels of local particulate matter. In particular, regard should be had to the impact upon local levels of PM_{10} and, consideration should also be given, if relevant, to levels of $PM_{2.5.}$

In determining impact, consideration should be given to the influence of the proposed development on the future compliance with the relevant Air Quality Objectives [AQOs], set in regulations, within the immediate locality. Account should also be taken account of all available relevant information on existing local air quality including the 2014 Detailed Assessment of Fine Particulate Matter at Glyncoch, dated April 2014.

In undertaking this consideration it may be appropriate to have regard to the 'proposed development/no proposed development' assessment method and its direct (i.e. new worse case exposure locations) and incidental consequences (i.e. the extension of life expectancy of the related current development. To assist in this evaluation, it would be appropriate to consider relevant baseline data and published interpretation. In consideration of the potential impact of the development, consideration could be had of the possible similar situation observed with the existing development. Monitoring of the situation associated with the current working quarry area could provide an empirical base in the consideration of the potential impact of the proposed development.

The method for undertaking air quality monitoring should be provided to facilitate its documented approval. If indicative monitoring methods are proposed to be used, it would be desirable for the methods to be proportionate to the required resolution of uncertainty associated with the significance of the impact. The locations of any air quality monitoring equipment should be agreed in advance and should be evidenced to confirm they represent the 'worse case' locations taking account of the proximity

of potential future receptors and, in addition, particularly sensitive classes of receptors which may be affected.

Where air quality monitoring data is used, the data should as far as possible be validated, ratified and representative, with regard to any seasonal influence. Where it is necessary to extrapolate monitoring data, the method used should be in accordance with that stated in Box 3.2 of LAQM.TG (09).

Should it be deemed necessary to undertake modelling (stochastic simulation), the model should be recognised as appropriate and, where possible, verified against local monitoring data. Where meteorological data is used, every effort should be made to either use local representative meteorological data or, if that is not possible, correction of regional meteorological data.

In having regard to the understanding of any potential adverse impact, the ES should provide informed recommendations about potential mitigation measures, including evidence of their effectiveness. Should there be uncertainty associated with the proposed mitigation measures; details of any continued surveillance should also be provided.

Dust Nuisance

The scoping report acknowledges that whilst there is adequate PM10 data available for the site, there is no existing information on levels of nuisance dust deposition and no monitoring for the areas adjacent to the primary school or Conway Close. It is considered that short term nuisance dust monitoring should be undertaken at locations to the north and west of the existing void with the opportunity to collect a sufficient period of monitoring data to be representative of future conditions. It is considered that the short term dust monitoring exercise should include the potential impacts of dust sources that are not regulated under other regimes and mitigate any such impacts. For instance, it should be noted that the remit of the Permit does not extend to initial mineral extraction activities such as blasting.

As suggested, the locations for such monitoring and suitable assessment methodology should to be agreed with the Public Health and Protection Division of the Council, before it commences.

Contaminated Land/Site Restoration

There are no specific comments with regards to the proposed extension subject to any existing contaminated land /site restoration planning conditions being re applied to cover the extended area.

Traffic

The Transportation Section of the Council has advised that any planning application should include a Transport Assessment (TA) and the Traffic Impact Assessment (TIA) should be carried out in compliance with IHT Guidelines. As well as the seven bullet points set out in Para 6.9.4, the Traffic Study should include all the traffic

generation of the site with consented planning permissions (08/1380 and 13/0825 - Asphalt Plant).

Traffic management proposals should be included indicating the impact and any mitigation measures which may be proposed for the existing highway network.

Cultural Heritage

It is noted that the existing archaeological desk-based assessment will be updated and the work undertaken to the Standards of the Institute for Archaeologists (www.archaeologists.net) and that this will inform the mitigation strategy following consultation. This is considered appropriate by the Council's Archaeological Advisors, Glamorgan Gwent Archaeological Trust.

Other Matters

Community benefits

It is considered that the identification and timescales for the provision of any community enhancements/benefits should be provided within the application supporting statement.

Trunk/distribution water main

It is considered that the impact on the trunk/distribution water mains should be clearly indicated within the submission, as there is a 250mm trunk/distribution water main which runs along the western boundary and one which crosses through the extension area. The EIA should indicate whether it is feasible to divert these pipelines and take into account the environmental effects of doing so. Dwr Cymru Welsh Water (DCWW) have advised that these pipelines should be adequately protected from the impacts of blasting and that they should be located and marked up accurately in order to provide a minimum separation distance from the development to allow a 3m distance from the centre line of DCWW's apparatus

Yours faithfully

Helen Winsall
Special Projects Team Leader

6. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

6.1 Rhondda Cynon Taf Local Development Plan Landscape and related policies.

Appendix 6.1 – Policy

Rhondda Cynon Taf County Borough Local Development Plan

Core Policies

Policy CS 10 - Minerals

- The Council will seek to contribute to the regional and national demand for a continuous supply of minerals, without compromising environmental and social issues, by;
- 4. Ensuring that adequate restoration and aftercare measures are incorporated;
- 6. Ensuring that impacts upon residential areas from mineral operations and the transportation of minerals are limited to an acceptable proven safe limit through community amenity protection buffer zones.

Area Wide Policies

Policy AW 7 - Protection and Enhancement of the Built Environment

- Development proposals which impact upon sites of architectural and/ or historical merit and sites of archaeological importance will only be permitted where it can be demonstrated that the proposal would preserve or enhance the character and appearance of the site. Development proposals which affect areas of public open space, allotments, public rights of way, bridleways and cycle tracks will only be permitted where it can be demonstrated that :-
- 1. There is a surplus of such facilities in the locality, or;
- 2. The loss can be replaced with an equivalent or greater provision in the immediate locality; or
- 3. The development enhances the existing facility.

Policy AW 8 - Protection and Enhancement of the Natural Environment

- Rhondda Cynon Taf's distinctive natural heritage will be preserved and enhanced by protecting it from inappropriate development.
- Development proposals will only be permitted where:-
- a) They would not cause harm to the features of a Site of Importance for Nature Conservation (SINC) or Regionally Important Geological Site (RIG) or other locally designated site, unless it can be demonstrated that:-
- 1. The proposal is directly necessary for the positive management of the site; or
- 2. The proposal would not unacceptably impact on the features of the site for which it has been designated; or
- 3. The development could not reasonably be located elsewhere and the benefits of the proposed development clearly outweigh the nature conservation value of the site.
- b) There would be no unacceptable impact upon features of importance to landscape or nature conservation, including ecological networks, the quality of natural resources such as air, water and soil, and the natural drainage of surface water.
- All development proposals, including those in built up areas, that may affect protected and priority species will be required to demonstrate what measures are proposed for the protection and management of the species and the mitigation and compensation of

potential impacts. Development proposals must be accompanied by appropriate ecological surveys and appraisals, as requested by the Council.

- Development proposals that contribute to the management or development of Ecological Networks will be supported.

Policy AW 14 – Safeguarding of Minerals

- The following mineral resources shall be safeguarded from any development which would sterilise them or hinder their extraction.
- 5. The Limestone and Sandstone quarries at Forest Wood, Hendy and Craig yr Hesg, will be further safeguarded from development that would adversely affect their operations by 200 metre buffer zones as shown on the proposals maps

Policy AW 15 - Community Amenity Protection Buffer Zones

- In order to protect the amenity of residential areas, no mineral extraction or activity directly related to the extraction of minerals will be permitted within the defined settlement boundaries or other established settlements. In accordance with the following community amenity protection buffer zones;
- b) No sandstone or limestone extraction or activity directly related to the extraction of sandstone or limestone will be permitted within 200 metres of defined settlement boundaries, or other established settlements.
- Strategy Area Policies

Policy NSA 25 - Special Landscape Areas

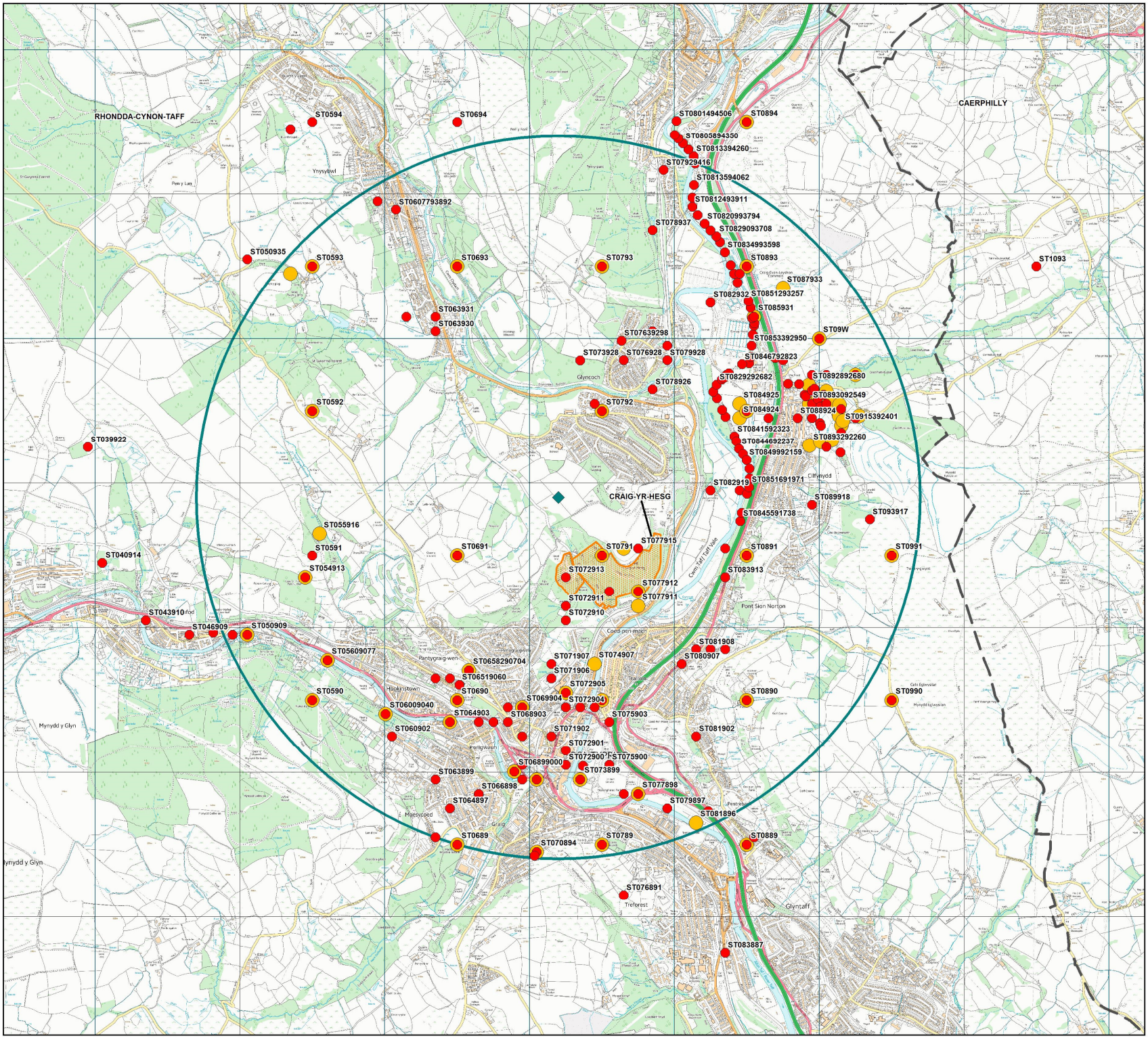
- Special Landscape Areas are identified at the following locations:
- 4. Cwm Clydach;
- Development within the defined Special Landscape Areas will be expected to conform to the highest standards of design, siting, layout and materials appropriate to the character of the area.

Policy SSA 26 - Preferred Area of Known Mineral Resource

- Land adjacent to Craig yr Hesg Quarry, Pontypridd is identified as a Preferred Area of Known Mineral Resource.

7. ECOLOGY

7.1 Site information / extracts from Sewbrac Report.



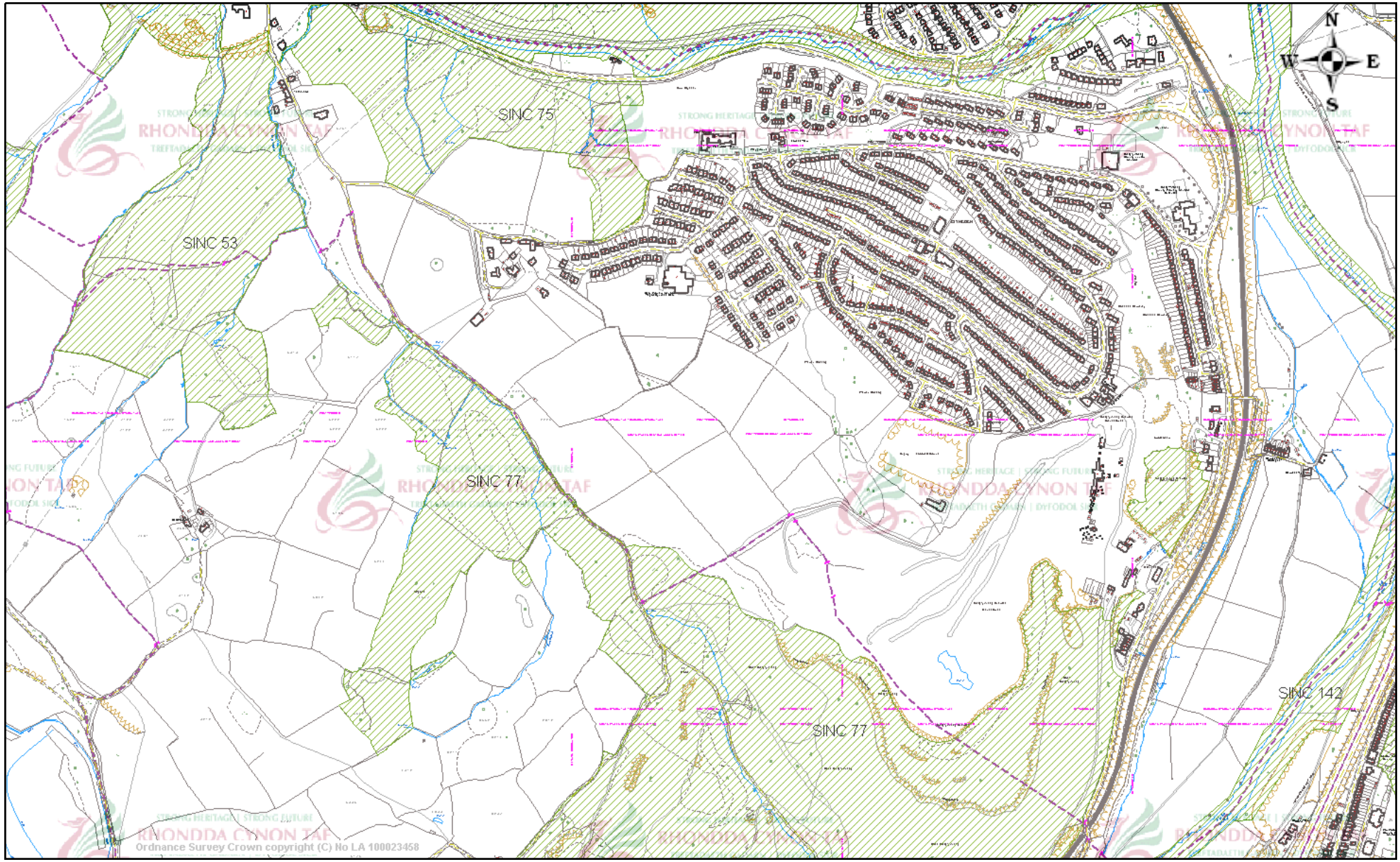
BIODIVERSITY INFORMATION SEARCH (SPECIES & DESIGNATED SITES):

CRAIG YR HESG QUARRY (ST072919)

- Centre of Search Area
- 2km Search Buffer
- Priority & Protected Species
- Other Species of Conservation Concern
- Local Nature Reserve
- Candidate Local Nature Reserve
- Unitary Authority Boundary

Plot produced on 17/06/2014 on behalf of SLR Consulting Ltd by

SEWBReC
SOUTH EAST WALES BIODIVERSITY RECORDS CENTRE
CANOLFAN COFNODI FIOAMRYWIAETH DE DWYRAIN CYMRU



Craig Yr Hesg SINC June 14

Scale 1/9230

Centre = 307246 E 191993 N

Date 24/6/2014

STRONG HERITAGE | STRONG FUTURE
RHONDDA CYNON TAF
TREFTADAETH GADARN | DYFODOL SICR

SINC 142

Number	142	Name	**Taff and Rhondda Rivers**
Description		The River Taff is the main river of the County Borough and a major biodiversity artery. The river and its bank side habitats are extremely diverse and varied. The river supports kingfisher, sand martin, otter, salmon and brown trout. Notable features include shingle banks (which may support important beetle and invertebrate faunas) and sections of undercut bank, and bank side woodland. In places the River Taff SINC extends to include larger areas of associated habitat, this occurs notably at Webb's Timber Yard at Treforest and the modified floodplain grassland and woodland associated with the Cilfynydd Waste Water Treatment Works. The land at Webb's Timber Yard includes large areas of broad-leaved woodland and grassland, both primarily associated with old railway embankments. The woodlands are predominantly secondary in nature but are mature and relatively species-rich, with birch, sycamore and hawthorn the main canopy species, with alder, oak, alder buckthorn, willow, and dog rose all present. In places wet alder carr occur, and along the Nant-y-Fforest stream there is a strip of ancient woodland. In general the drier secondary woodland ground flora supports ivy, male fern, broad buckler fern, herb robert, bramble, enchanter's nightshade, wild strawberry, germander speedwell, wood dock, creeping soft-grass and wood sedge. Where wetter woodland occurs the ground flora includes marsh or swamp ground flora with opposite-leaved golden saxifrage, marsh bedstraw, lesser spearwort, water pepper and marsh violets. Areas with ancient woodland characteristics include hazel coppice, with bluebell, yellow archangel, hard fern, lady fern, scaly male fern, hart's-tongue fern and broad-leaved helleborine. The grasslands occur as grazed glades within the woodland complex. The pastures are heavily over-grazed and their structure and composition suffers as a result, but they still represent relatively diverse semi-improved dry and marshy compositions. Typical species include common bent, Yorkshire fog, rye grass, self heal, autumn hawk bit, sheep's sorrel, field woodrush, common centaury, eyebrights, common knapweed and thyme leaved speedwell. In marshy areas devil's-bit scabious is locally abundant, with sharp flowered rush,	

	water mint, marsh bedstraw, lesser spearwort, marsh pennywort, common sedge and bristle scirpus (*Scirpus setaceus*). The Rhondda River (Fach and Fawr) is a typical 'spatey' upland river, with pools and riffle sequences. The river is clean and supports a diverse invertebrate fauna, with brown trout, and potentially salmon. The river supports a good breeding bird assemblage; dipper and grey wagtail are common breeders, and kingfisher is also frequently reported (although nesting Sites are more limited). Sand martins breed in a number of locations, using drainage holes in retaining walls. In the winter goosanders are a frequent visitors, and herons feed along the river throughout the year. Otter have recently re-colonised the Rhondda. The SINC boundary in the Rhondda closely flows the river corridor, and in urban locations the SINC boundary is tight to the riverbank. Elsewhere the river corridor of the SINC is expanded in areas where a dry heath, marshy grassland or woodland occurs in close association with the river.

Grid Ref	ST 088878	Ward(s)	Taff's well, Hawthorn, Treforest, Trallwng, Pontypridd town, Cilfynydd, Glyncoch, Abercynon, Graig, Rhondda, Cymmer, Porth, Trealaw, Penygraig, Tonypandy, Ynyshir, Llwynypia, Tylorstown, Ferndale, Maerdy, Ystrad, Pentre, Treorchy, Treherbert	
CCW TN		Area (ha)	245.9	
Air photo dates	2003			
Ownership				
Tir Gofal		Tir Gofal date		
TPO		Conservation area		
SINC Qualification Features	Primary Features – H (1), H (3), H (4), H (7), H (8), H (11), H (15), H (16), H (22), S (1) and S (5) Contributory Features – S (2), S (3), S (4), S (6) and S (7)			
RIGS Earth science sites	158 River Taff terrace deposits (score 100)			
Other earth science sites	157, 176, 184, 434, 270, 402, 476			
Survey work undertaken	• CCW Phase I Habitat Survey, 1992-1995 • Site Visits 1997-2008			

	• Church Village By-pass Ecological Surveys/Assessments (various 1998-2005) • Ynysybwl toTaff Trail Links, Ecology Surveys, Pryce Consultants Ecologists (2001) and Michael Woods Associates (2003). • Rhondda Environmental Survey, Michael Littlewood Associates, 1988 • Webb's Timber Yard, Various Ecological Reports, Hyder (1999, 2000) • Earth Science site visits 2003-4 Haycock et al.		
Original Number	142	Original Name	Nant y Fforest

SINC 77

Number	77	Name	**Craig-yr-Hesg / Lan Wood**
Description			Coed Craig-yr-Hesg is an extensive area of ancient semi-natural woodland, supporting crags and old quarries. The woodland supports mixed oak, ash, alder, silver and downy birch canopy with hazel and holly shrub layer. The woodland includes steep sloped open woodland with heather, bilberry and bracken ground flora, and wetter lower lying alder woodland with hazel, guelder rose and alder buckthorn, and an ancient woodland with bluebell, marsh valerian, remote sedge, and ferns. Craig Yr Hesg is a Local Nature Reserve. Lan Wood is the southern part of the SINC. It supports large areas of mixed oak, birch, beech, alder, alder buckthorn, hazel, and willow woodland, with an ancient woodland ground flora, with wood anemone, dog violets, wood sorrel and bluebells. Lan Woods includes important areas of marshy grassland and wet heath. These include relatively large areas of purple moor-grass, devil's-bit scabious, tormentil, heath spotted orchid, petty whin with, in wetter (peaty areas), cross-leaved heath, bog asphodel and sphagnum acid flush and bracken. The SINC includes areas of coal spoil workings, and old quarries and tramroads. These supports areas of dry heath (heather and bilberry) and open coal habitats. It also extends along the south side of the Darren Ddu Lane to include further areas of mature semi-natural mixed oak woodland, including Di-goed, and areas of linking acid grassland and bracken. There is a considerable range of flora and fauna. The site represents excellent woodland bird habitat with breeding wood warbler and tree pipit, wintering woodcock and on the crags raven. The marshy grassland supports small pearl-bordered fritillary and marsh fritillary habitat.

Grid Ref	**(NGR ST 072914)**	Ward(s)	Pontypridd Town, Glyncoch, Rhondda
CCW TN	CCW TN007 and 009 ST09NE	Area (ha)	89.72
Air photo dates	2003		

Ownership				
Tir Gofal			Tir Gofal date	
TPO			Conservation area	
SINC Qualification Features	Primary Features – H (1), H (3), H (6), H (7), H (9), H (10), H (15), H (18), H (20), H (21), and S (6) Contributory Features – S (2), and S (3),			
Earth science sites	No RIGS sites, others to be added: 172, 529, 173, 503, 177			
Survey work undertaken	• CCW Phase I Habitat Survey, 1992-1995 • Craig Yr Hesg Local Nature Reserve Management Plan • Site Visits 1997-2008 • Inventory of Ancient Woodland in Glamorgan (Provisional), NCC (1985) • Woodland Surveys in South Wales Region – Cooke and Saunders, NCC (1990)			
Original Number	77	Original Name	Craig yr Hesg Lan wood	

SINC 75

Number	75	Name	**Lower Clydach Woodlands**
Description		The lower section of the Nant Clydach, and the associated semi-natural woodland and grassland habitats. The Nant Clydach is a fast flowing, clean upland river, running through an incised, steep sided valley with areas of undercut bank and exposed sandstone bedrock. It supports brown trout, dipper, grey wagtail and otter habitat. The SINC includes the extensive mature semi-natural (and largely ancient woodlands), which occurs on either side of the Nant Clydach Valley. These woodlands support canopies of oak, birch, beech, sycamore, alder and ash, with hazel (old coppice), holly, and guelder rose shrub layer. There is an ancient woodland ground flora with bluebell, wood sorrel, dog violets, enchanter's nightshade, male fern, broad buckler fern, hard fern and hart's-tongue fern. The SINC supports associated areas of bracken/dry grassland (National Vegetation Classification U4/MG6) Cefn Pastures (ST068925 and ST069925) supports species rich marshy grassland (National Vegetation Classification M25) with purple moor-grass, tormentil, devil's-bit scabious, articulated rush, compact rush, and cross leaved heath. The pastures include a small area of neutral grassland (National Vegetation Classification MG5c) with devil's-bit scabious, tormentil, bird's-foot trefoil, greater bird's-foot trefoil, and black knapweed. This grassland is potential marsh fritillary butterfly habitat.	

Grid Ref	**(NGR ST 069925)**	Ward(s)	Ynysybwl, Glyncoch, Abercynon
CCW TN	CCW TN005 and 009 ST09SE	Area (ha)	47.79

Air photo dates	2003		
Public access	Limited to Public Rights of Way		
Ownership			
Tir Gofal		Tir Gofal date	
TPO		Conservation area	
SINC Qualification Features	Primary Features – H (1), H (3), H (4), H (6), H (7), H (9), H (15), H (20), and S (1)		

	Contributory Features – S (2), S (3), S (4), S (5) and S (6)		
Earth science sites	No RIGS, others to be added: 191, 196		
Survey work undertaken	• CCW Phase I Habitat Survey 1992-1995 • Inventory of Ancient Woodland in Glamorgan (provisional), NCC (1985) • Strategic Assessment of Marsh Fritillary Habitat in RCT, Richard Smith (2005) • Site Visits 1997-2008 • Ynysybwl toTaff Trail Links, Ecology Surveys, Pryce Consultants Ecologists (2001) and Michael Woods Associates (2003).		
Original Number	75	Original Name	Lower Clydach Woodlands

SINC 53

Number	53	Name	**Llys Nant and Graig Twyn-y-glog Woodlands**
Description		A complex mosaic of habitats, which lie within the catchment of the Llys Nant Valley, and which includes the visually prominent hill of Twyn y Glog, as well as large areas of associated conifer plantation. The upland stream valley of the Llys Nant supports a typical clean, fast flowing stream, which cuts through the sandstone bedrock in a series of mini-cascades and a steep sided gorge. Dipper and grey wagtail occur and there is suitable nesting habitat. The stream will support a variety of aquatic micro-invertebrates and as part of the Nant Clydach catchment supports brown trout and salmon habitat. It is highly suitable otter habitat. The valley is wooded with a species rich mix, which includes oak, alder, sycamore, ash, birch, holly and hazel. There is a strong ancient woodland flora with bluebell, enchanter's nightshade, dog violets, male fern and broad buckler fern. Part of the woodland is mapped as ancient woodland. The SINC extends beyond the valley of the Llys Nant to include the distinctive steep sided slopes of Twyn Y Glog. These slopes are partially wooded with sessile oak, birch, rowan and hazel woodland with bluebells (again part mapped as ancient woodland) and open bracken and acid grassland ffridd with sheep's fescue, common bent, tormentil, bluebell, and gorse. The SINC also includes a large connecting area of conifer plantation (mainly larch and sitka spruce) much of which has been recently felled and supports dense willow, birch and rowan scrub. The standing plantations have potential as conifer bird habitat including goshawk, crossbill and siskin, the clear felled areas are suitable nightjar habitat, and the secondary young woodland is ideal songbird (warbler) habitat.	

Grid Ref	**(NGR ST 055928)**	Ward(s)	Rhondda, Ynysybwl, Glyncoch
CCW TN		Area (ha)	105.8

Air photo dates	2003		
Public access	Limited to Public Rights of Way		
Ownership	Part FCW (leased?)		
Tir Gofal		Tir Gofal date	

TPO		Conservation area	
SINC Qualification Features	Primary Features – H (1), H (3), H (6), H (9), H (15), H (20) Contributory Features – S (2) and S (5)		
Earth science sites	No RIGS, 180, 186 and 197 to be added		
Survey work undertaken	• CCW Phase I Habitat Survey, 1992-1995 • Inventory of Ancient Woodland in Glamorgan (provisional), NCC (1986) • Site Visits 1997-2008		
Original Number	53	Original Name	Llys Nant and Graig Twyn-y-glog woodlands

7.2 Phase 2 Botanical Survey Quadrat Data.

Table A1 – Quadrat Data

Species		Quadrat Number /% cover														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Agrostis capillaris	Common bent	30	35	15	35	30	25	8	15	8	5	15	35	35	15	13
Anthoxanthum odoratum	Sweet vernal grass	20	10	5	5	5	15	0	0	3	0	0	0	25	6	4
Arrhenatherum elatius	False oat grass	1	1	15	1	1	2	0	1	0	2	0	0	0	0	1
Cynosurus cristatus	Crested dog's tail	25	25	20	5	5	30	8	20	35	15	25	25	5	13	7
Dactylis glomerata	Cock's foot	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Festuca rubra	Red fescue	1	1	2	4	4	1	0	1	0	0	1	0	0	0	1
Holcus lanatus	Yorkshire fog	10	10	30	8	8	8	35	30	25	45	30	22	15	45	40
Achillea millefolium	Yarrow	2	1	1	1	1	1	0	0	2	0	1	0	0	0	1
Centauria nigra	Knapweed	0	0	4	0	1	0	0	0	0	0	0	0	0	0	0
Hypochaeris radicata	Cat's ear	0	1	0	0	0	0	1	0	0	1	0	0	0	0	5
Leontodon hispidus	Rough hawkbit	2	1	1	0	0	1	4	15	6	6	2	6	8	3	0
Lolium perenne	Perennial rye grass	0	0	0	0	0	0	25	2	3	0	1	0	0	0	0
Lotus corniculatus	Bird's foot trefoil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Luzula sylvatica	Field woodrush	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
Pilosella officinarum	Mouse ear hawkweed	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
Plantago lanceolata	Ribwort plantain	2	3	1	4	4	3	14	10	12	1	15	3	8	15	8
Ranunculus repens	Creeping buttercup	3	6	3	2	2	1	1	0	0	6	4	2	3	0	0
Rhytidiadelphus squarrosus	Lawn moss	4	3	5	2	8	4	2	8	2	2	1	1	2	1	2
Rumex acetosa	Common sorrel	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Rumex acetosella	Sheep's sorrel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Senecio jacobaea	Ragwort	0	0	0	0	0	0	0	1	3	0	0	0	0	0	0
Stellaria media	Chickweed	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0

Species		Quadrat Number /% cover														
Taraxacum sect.	Dandelion	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Trifolium pratense	Red clover	0	0	0	0	0	14	0	1	1	8	0	0	0	4	3
Trifolium repens	White clover	2	5	3	35	35	6	3	2	4	11	12	8	3	2	3

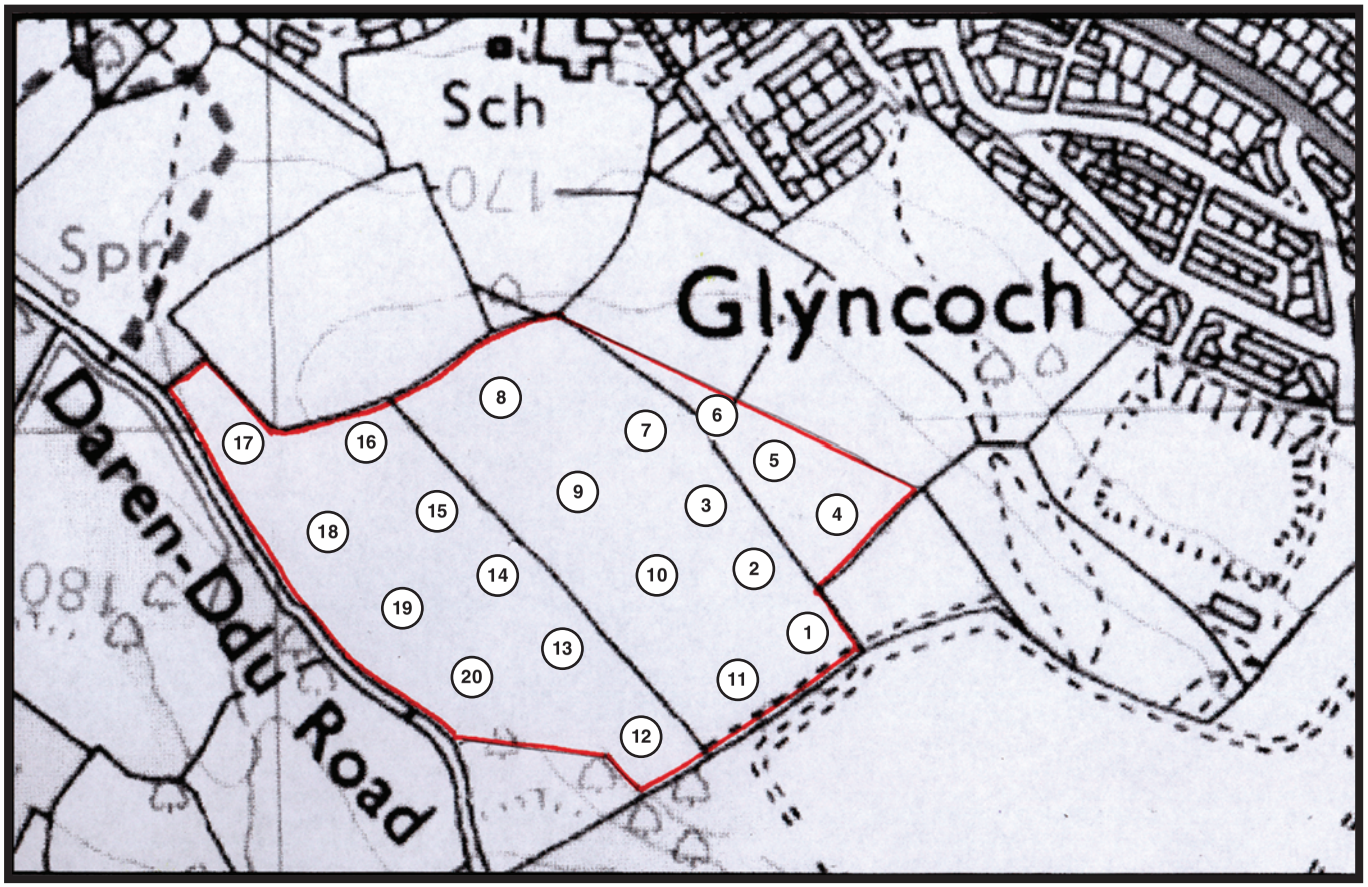
Table Error! No text of specified style in document.**2 – Quadrat Data**

Species		Quadrat Number /% cover														
		16	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
Agrostis capillaris	Common bent	30	35	35	30	30	35	25	25	20	20	8	10	12	10	8
Agrostis stolonifera	Creeping bent	0	0	0	0	0	0	0	3	1	0	2	1	0	0	0
Anthoxanthum odoratum	Sweet vernal grass	8	15	13	6	13	0	0	0	0	5	0	0	1	0	0
Arrhenatherum elatius	False oat grass	0	3	0	0	0	0	0	0	0	1	0	0	0	1	0
Dactylis glomerata	Cock's foot	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
Festuca rubra	Red fescue	0	0	6	0	0	15	0	3	0	0	0	0	0	1	0
Holcus lanatus	Yorkshire fog	15	5	15	4	5	15	30	15	15	12	0	15	8	4	11
Lolium perenne	Perennial rye grass	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3
Poa annua	Annual meadow-grass	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Poa trivialis	Rough-stalked meadow grass	0	0	0	0	0	0	0	0	0	0	3	5	0	0	2
Achillea millefolium	Yarrow	0	0	2	0	0	0	0	1	1	0	0	0	0	0	0
Bellis perennis	Daisy	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
Centauria nigra	Knapweed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cynosurus cristatus	Crested dog's tail	30	20	15	30	23	10	20	30	20	20	5	0	8	12	6
Hypochaeris radicata	Cat's ear	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Leontodon hispidus	Rough hawkbit	0	0	0	0	8	0	1	0	3	2	0	0	0	2	0
Lotus corniculatus	Bird's foot trefoil	0	0	4	15	5	2	1	5	6	0	0	0	0	0	0
Luzula sylvatica	Field woodrush	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0

Species		Quadrat Number /% cover														
Pilosella officinarum	Mouse ear hawkweed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Plantago lanceolata	Ribwort plantain	2	8	3	5	15	2	1	3	2	0	8	10	13	6	8
Pteridium aquilinum	Bracken	0	0	0	0	0	60	55	70	40	70	0	0	0	0	0
Ranunculus repens	Creeping buttercup	1	6	0	0	0	0	0	0	0	1	0	0	2	3	0
Rhinanthus minor	Yellow rattle	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0
Rhytidiadelphus squarrosus	Lawn moss	6	4	4	4	0	0	3	5	2	0	0	0	1	0	7
Rumex acetosa	Common sorrel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rumex acetosella	Sheep's sorrel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Senecio jacobea	Ragwort	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stellaria media	Chickweed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taraxacum sect.	Dandelion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trifolium pratense	Red clover	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0
Trifolium repens	White clover	8	3	2	3	3	1	0	1	0	0	70	60	55	60	55

8. SOILS AND AGRICULTURAL LAND QUALITY

8.1 Soil Survey Locations and ALC Plans C21/1 and C21/2.



LEGEND

Auger location (1)

Survey boundary

CLIENT

Hanson

SITE

Craig-Yr-Hesg Quarry

Northwest Extension

TITLE

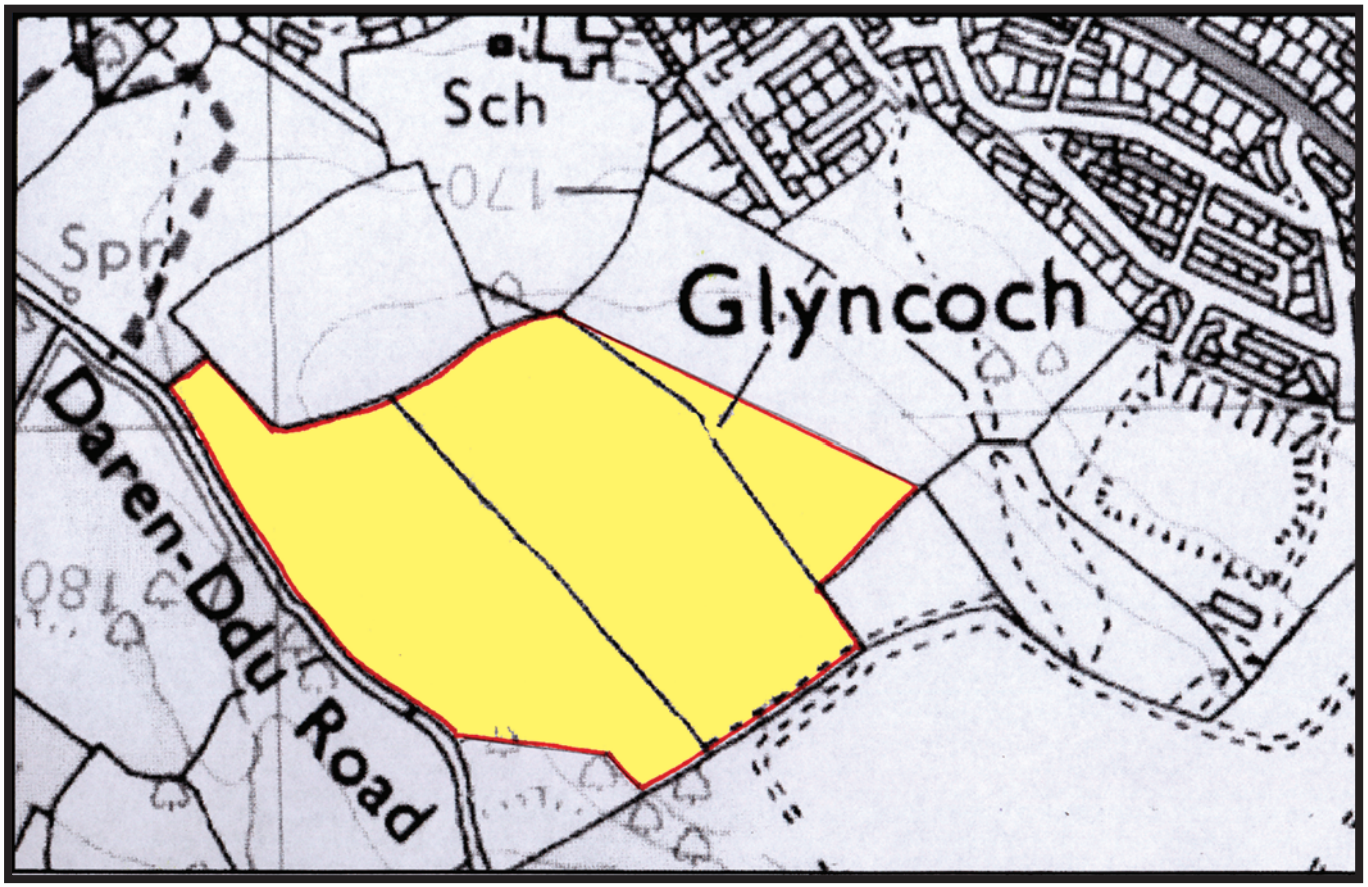
Soil Survey Locations

SCALE NTS

REF C21/1

DATE May 2014

N



LEGEND

Grade 4

Survey boundary

CLIENT

Hanson

SITE

Craig-Yr-Hesg Quarry

Northwest Extension

TITLE

Agricultural Land Classification

SCALE NTS

REF C21/2

DATE May 2014

N

9. HYDROLOGY AND HYDROGEOLOGY

9.1 Craig yr Hesg Quarry Discharge Permit October 2013.

Cyfoeth Naturiol Cymru
Natural Resources Wales

Roger Griffiths
Hanson Quarry products Europe Limited
Hanson House
14 Castle Hill
Maidenhead
SL6 4JJ

Our ref: AF4029101

Date: 24/10/2013

Dear Roger,

Your permit variation is complete

Permit reference: AF4029101
Operator: Hanson Quarry Products Europe Limited
Facility: Craig yr Hesg Quarry

Our determination of your application to vary your permit is complete. We're satisfied that you can continue to carry out your activities in accordance with the variation, without harm to the environment or human health. I enclose a notice showing the changes to your permit. Please keep this in a safe place with your other permit records.

This letter contains web links to other documents. If you aren't able to access these phone our Customer Services Centre for help.

If you're not already familiar with our document 'How to comply with your environmental permit' please look at it, as this will help you understand how to meet the conditions of the permit. You can find this on the Environment Agency's website at

http://publications.environment-agency.gov.uk/pdf/GEHO0410BSFX-e-e.pdf

Ffôn/Tel 029 2046 6253
Ffacs/Fax 029 2046 8874
Ebost/Email laoni.tye@cyfoethnaturiolcymru.gov.uk
laoni.tye@naturalresourceswales.gov.uk

Canolfan Trwyddedu Cymru (Caerdydd), Cyfoeth Naturiol Cymru, Tŷ Cambria, 29 Heol Casnewydd, Caerdydd. CF24 0TP
Wales Permitting Centre (Cardiff), Natural Resources Wales, Cambria House, 29 Newport Road, Cardiff. CF24 0TP

Gwefan/Website www.cyfoethnaturiolcymru.gov.uk
www.naturalresourceswales.gov.uk

Please look at the table below and note any of the information or actions that apply to your permit.

If...	then..
the variation means you are now carrying out a waste operation or activity and need to submit quarterly waste returns on waste movements **Note** This does not apply to permits that only have stand alone water discharge or groundwater activities.	you can get the forms you need from our website www.naturalresourceswales.gov.uk If you do not have web access phone our Customer Services Centre
you need to submit other returns	send these to your area office. Speak to your area officer to check local arrangements.
your variation has added an installation to your permit for the first time	we've enclosed the pollution inventory letter, notice and fact sheet

Rights of appeal

If you are not happy with any permit condition that has been imposed by the variation you may appeal to the Welsh Ministers. If you want to appeal any condition imposed as a result of your application you must make your appeal no later than six months from the date of the variation notice. If you want to appeal any condition we've added as an Natural Resources Wales initiated variation you must make your appeal no later than two months from the date of the notice.

Further information about making an appeal and the forms you will need are available from the Planning Inspectorate website or from the contact details below.

The Planning Inspectorate, Crown Buildings, Cathays Park, Cardiff, CF10 3NQ.

Phone: 029 2082 3866 / 389, Fax: 029 2082 5150, Email: wales@pins.gsi.gov.uk

You must send written notice of the appeal and the documents listed below to the Welsh Ministers to the respective Planning Inspectorate address above. At the same time you must send us a copy of the notice and documents to

Centre Manager, Wales Permitting Centre Cardiff, Natural Resources Wales, Cambria House, 29 Newport Road, Cardiff. CF24 0TP

Phone: 0300 065 3000

The documents are:

- a statement of the grounds of appeal;
- a copy of any relevant application;
- a copy of any relevant environmental permit;
- a copy of any relevant correspondence between the appellant and the regulator;
- a copy of any decision or notice which is the subject matter of the appeal; and
- a statement indicating whether you wish the appeal to be in the form of a hearing or dealt with by way of written representations.

You may withdraw an appeal by notifying the Welsh Ministers in writing and sending a copy of that notification to us.

If you have any questions about this permit phone our Customer Services Centre on 0300 065 3000. They will put you in touch with a local area officer.

Yours sincerely

Laoni Tye
Permitting Officer

Cyfoeth Naturiol Cymru
Natural Resources Wales

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Hanson Quarry Products Europe Limited

Settlement lagoons serving
Craig yr Hesg Quarry
Berw Road
Pontypridd
Mid Glamorgan
CF37 3BG

Variation application number

AF4029101/V001

Permit number

AF4029101

Settlement lagoons serving Craig yr Hesg Quarry Permit number AF4029101

Introductory note

This introductory note does not form a part of the notice.

The following notice gives notice of the variation and consolidation of an environmental permit.

The permit is a variation for a rainfall related discharge consisting of trade effluent from a quarrying site. The effluent consists of site run off and quarry drainage. The discharge is pumped from an attenuation pond before being dosed with flocculants and treated through a series of 6 settlement lagoons. The final effluent then discharges into the River Taff. This variation includes two attenuation ponds and a storm overflow which discharges via a newly constructed outlet to the River Taff.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number. It is not backdated before 6 April 2010.

Status log of the permit		
Description	**Date**	**Comments**
Application received AF4029101/V001 (variation and consolidation)	Duly made 23/07/2013	Application to vary the permit to include a storm overflow.
Variation determined AF4029101	24/10/2013	Varied and consolidated permit issued in modern condition format.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2010

The Natural Resources Body for Wales ("Natural Resources Wales") in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies and consolidates

permit number
AF4029101

issued to:
Hanson Quarry Products Europe Limited ("the operator")

whose registered office is

Hanson House
14 Castle Hill
Maidenhead
SL6 4JJ

company registration number **00300002**

to operate a regulated facility at

Craig yr Hesg Quarry
Berw Road
Pontypridd
Mid Glamorgan
CF37 3BG

to the extent set out in the schedules.

The notice shall take effect from 24/10/2013

Name	Date
Terry Gulliford	**24/10/2013**

Authorised on behalf of Natural Resources Wales

Schedule 1

All conditions have been varied by the consolidated permit as a result of the application made by the operator.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number
AF4029101

This is the consolidated permit referred to in the variation and consolidation notice for application AF4029101/V001 authorising,

Hanson Quarry Products Europe Limited ("the operator"),

whose registered office is

Hanson House
14 Castle Hill
Maidenhead
SL6 4JJ

company registration number 00300002

to operate a water discharge activity at

Craig yr Hesg Quarry
Berw Road
Pontypridd
Mid Glamorgan
CF37 3BG

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Terry Gulliford	**24/10/2013**

Authorised on behalf of Natural Resources Wales

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green and the discharges shall be made at the points marked on the site plan at schedule 7 to this permit and as listed in table S3.2 (discharge points).

2.3 Operating techniques

2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by Natural Resources Wales.

(b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3 Emissions and monitoring

3.1 Emissions to water

3.1.1 The limits given in schedule 3 table S3.1 shall not be exceeded.

3.2 Emissions of substances not controlled by emission limits

3.2.1 The operator shall take appropriate measures to minimise so far as reasonably practicable the polluting effects of the emissions of substances not controlled by emission limits (excluding odour).

3.2.2 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Monitoring

3.3.1 Permanent means of access shall be provided to enable sampling/monitoring to be carried out at the monitoring points specified in schedule 3 table S3.3 unless otherwise agreed in writing by Natural Resources Wales.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.

4.3 Notifications

4.3.1 Natural Resources Wales shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in schedule 3 table S3.1; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

4.3.4 Where the operator proposes to make a change in the nature of the activity by increasing the concentration of, or the addition of, or allowing the introduction of, a pollutant to the activity to an extent that the activity may be liable to cause pollution and the change is not permitted by emission limits specified within schedule 3 table S3.1 or the subject of an application for approval under the EP Regulations or this permit:

(a) Natural Resources Wales shall be notified in writing at least 14 days before the increase or addition or allowing the introduction; and

(b) the notification shall contain a description of the proposed change.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 Activities		
Activity reference	**Description of activity**	**Limits of specified activity**
A1	Discharge of trade effluent consisting of treated quarry drainage via Outlet 1	The effluent must pass through an attenuation pond and a series of settlement lagoons before discharging.
A2	Discharge of trade effluent consisting of quarry drainage from a storm overflow via Outlet 1 and 2.	The discharge shall only occur when the storage in the attenuation ponds is fully utilised and only for as long as the flow passed forward to the settlement lagoons is equal to or greater than 36l/s. The discharge shall only occur through Outlet 1 until flows exceed 50l/s when it will then discharge through Outlet 1 and 2.

Table S1.2 Operating techniques		
Description of documentation	**Parts**	**Date Received**
Hanson Craig Yr Hesg lagoon pumping maintenance agenda	The whole document	22/07/2013
Dosing with cationic flocculants	The whole document	22/07/2013

Schedule 2 - Waste types, raw materials and fuels

Wastes are not accepted as part of the permitted activities and there are no restrictions on raw materials or fuels under this schedule.

Schedule 3 – Emissions and monitoring

Table S3.1 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Discharge source and discharge point ref. & location	**Parameter**	**Limit (including unit)**	**Reference Period**	**Limit of effective range**	**Monitoring frequency**	**Compliance Statistic**
Trade effluent consisting of treated quarry drainage via Outlet 1	Maximum rate of discharge	36 litres per second	Instantaneous (spot sample)	N/A	N/A	Maximum
	Suspended solids (measured after drying at 105° C)	200 mg/l	Instantaneous (spot sample)	N/A	N/A	Maximum
	pH	5 to 9	Instantaneous (spot sample)	N/A	N/A	Minimum and maximum
	Visible oil or grease	No significant trace present	Instantaneous (spot sample)	N/A	N/A	No significant trace

Table S3.2 Discharge points			
Effluent Name	**Discharge Point**	**Discharge point NGR**	**Receiving water**
Discharge of trade effluent consisting of treated quarry drainage	Outlet 1	ST 07890 91165	River Taff
Discharge of trade effluent consisting of treated quarry drainage and storm overflow	Outlet 1 and Outlet 2	ST 07890 91165 ST 07886 91168	River Taff

Table S3.3 Monitoring points			
Effluents and discharge points	**Monitoring type**	**Monitoring point NGR**	**Monitoring point reference**
Discharge of trade effluent consisting of treated quarry drainage via Outlet 1	Effluent sampling	ST 07925 91710	A1
Discharge of trade effluent consisting of treated quarry drainage and storm overflow via Outlet 1 and 2	Effluent sampling	ST 07931 91708	A2

Schedule 4 – Reporting

There is no reporting under this schedule.

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 7 days of detection unless otherwise agreed in writing by Natural Resources Wales	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released/type or nature of effluent released	
Best estimate of the quantity or rate of release of substances and/or duration of discharge	
Best estimate of the environmental impact of the discharge	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit specified in schedule 3 table S3.1	
To be notified as soon as practicable following detection by a reporting system and format specified by Natural Resources Wales	
Monitoring point reference/ source	
Self monitoring regime (where	eg OSM

relevant)	
Type of failure	eg upper tier/other
Date of sample/event	
Parameter	
Result and units	
Limit and units	

Part B - to be submitted as soon as practicable unless otherwise agreed in writing by Natural Resources Wales

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident/breach/exceedance	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

"accident" means an accident that may result in pollution.

"annually" means once every year.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, which are not controlled by an emission or background concentration limit.

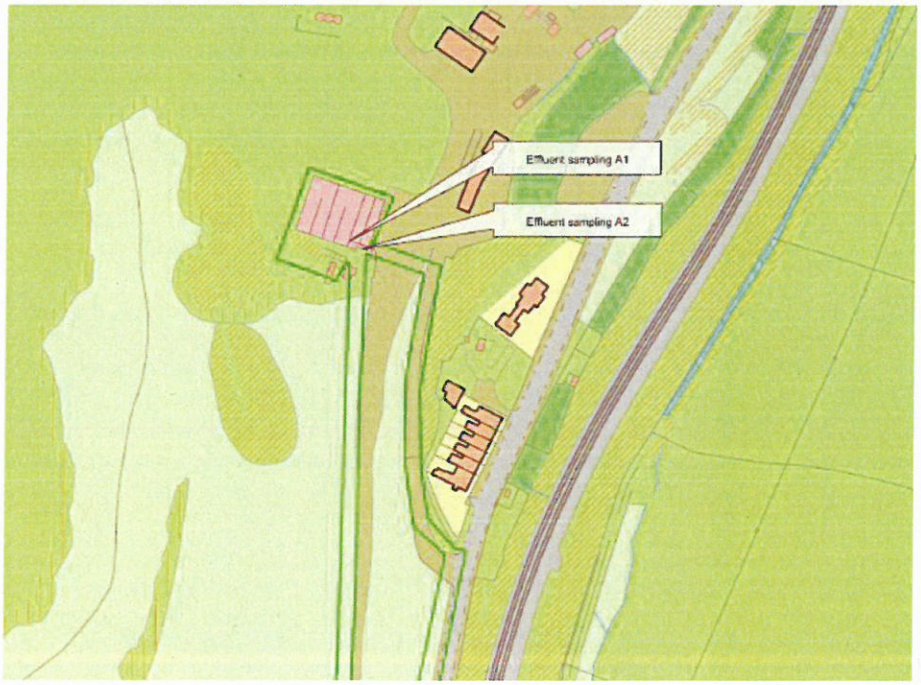
"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

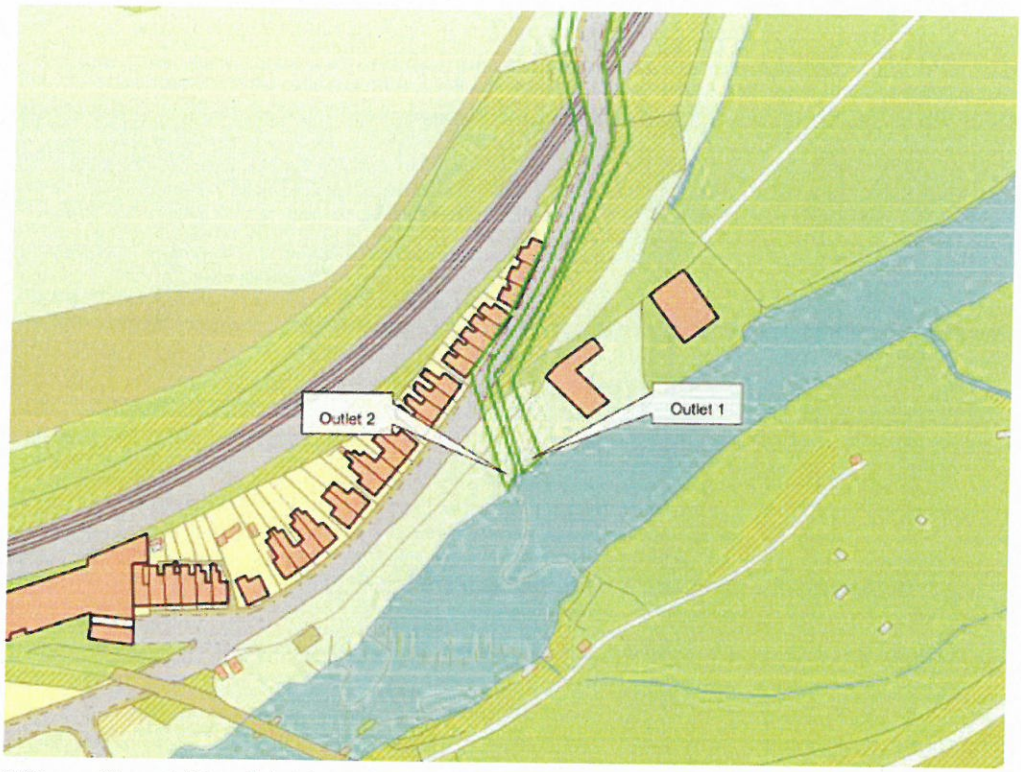
"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"significant pollution" means a category 1 or category 2 incident indicated by the Common Incident Classification Scheme (CICS).

"year" means calendar year ending 31 December.

Schedule 7 - Site plan





END OF PERMIT

9.2 Borehole Logs CYH02 and CYH04.

Location	Craig Yr Hesq	Borehole No.	CYH02
Drill Rig and Method	NQ wireline 48mm	Easting	307294
Bit Type	Impreg	Northing	191981
Drilled By	Drilling 2000	Elevation	189.65
Date Started / Finished	15/08/06 to 17/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
		189.65			48	0	22				Very strong grey lithic arenite. Weathered to grade 3.	
187.15	2.4	187.25			80	0	24				Very strong grey lithic arenite. Weathered to grade 3.	
184.65	5.5	184.15									Very strong grey lithic arenite. Weathered to grade 3.	
	6.5	183.15									Strong mudstone. Weathered to grade 3.	
182.15	7.5	182.15			88	48	50				Very strong grey lithic arenite. Weathered to grade 2.	
179.65	11.8	177.85			100	93	5				Very strong grey lithic arenite, shaley partings towards top of core. Weathered to grade 2.	
177.15	14.8	174.85			100	93	8				Very strong grey lithic arenite, shaley partings in basal 15 cm. Weathered to grade 2.	
174.65	17.8	171.85			100	88	10				Very strong grey lithic arenite. Weathered to grade 1.	
172.15	20.8				100	90	7					

?

Location	Craig Yr Hesq	Borehole No.	CYH02
Drill Rig and Method	NQ wireline 48mm	Easting	307294
Bit Type	Impreg	Northing	191981
Drilled By	Drilling 2000	Elevation	189.65
Date Started / Finished	15/08/06 to 17/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
	20.8	171.85			100	90	7				Very strong grey lithic arenite. Weathered to grade 1.	
		168.85									Very strong grey lithic arenite. Weathered to grade 1.	
167.15					100	85	7					
	23.8											
		165.85									Very strong grey lithic arenite, shaley partings in upper portion of core. Weathered to grade 1.	
164.65					100	98	4					
	26.8											
		162.85									Very strong grey lithic arenite, shaley partings in basal 40cm. Weathered to grade 1.	
162.15					100	95	2					
	29.8											
159.65		159.85									Very strong grey lithic arenite. Weathered to grade 1.	
					100	100	1					
157.15	32.8											
		156.85									Very strong grey lithic arenite. Weathered to grade 1.	
					100	89	3					
154.65	35.3											
		154.35									Moderately strong mudstone. Weathered to grade 1.	
	36.1											
		153.55									Very strong grey lithic arenite. Weathered to grade 1.	
152.15					98	89	2					
	38.8											
		150.85									Very strong grey lithic arenite. 60cm. Siderite? nodules in centre of core. Weathered to grade 1.	
	41.3				98	88	4					

?

Location	Craig Yr Hesq	Borehole No.	CYH02
Drill Rig and Method	NQ wireline 48mm	Easting	307294
Bit Type	Impreg	Northing	191981
Drilled By	Drilling 2000	Elevation	189.65
Date Started / Finished	15/08/06 to 17/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
		150.85									Very strong grey lithic arenite. 60cm. Siderite? nodules in centre of core. Weathered to grade 1.	
	41.3				98	88	4					
		148.35									Moderately strong mudstone. Weathered to grade 1.	
	41.8	147.85									Very strong grey lithic arenite, basal 30cm becoming muddy. 50cm siderite? nodules towards base of core. Weathered to grade 1.	
147.15												
					100	86	5					
	44.8											
144.65		144.85									Very strong grey lithic arenite. 25cm. Mudflake and siderite? conglomerate in middle section of core. Weathered to grade 1.	
					100	93	3					
142.15	47.8											
		141.85									Very strong grey lithic arenite, rare micaceous mudstone partings. Weathered to grade 1.	
					100	96	4					
139.65												
	50.8											
		138.85									Very strong grey lithic arenite. Weathered to grade 1.	
137.15					99	71	2					
	52.8											
		136.85									Moderately strong siltstone/mudstone. Weathered to grade 1.	
	53.8											
		135.85									Very strong grey lithic arenite. Weathered to grade 1.	
134.65					88	75	4					
	56.4											
	56.8	133.25									Moderately strong mudstone. Weathered to grade 1.	
		132.85									Very strong grey lithic arenite. Weathered to grade 1.	
132.15												
					98	79	17					
	59.8											
	62.8	129.85			95	64	21				Very strong grey lithic arenite. Weathered to grade 1 except il	

?

Location	Craig Yr Hesq	Borehole No.	CYH02
Drill Rig and Method	NQ wireline 48mm	Easting	307294
Bit Type	Impreg	Northing	191981
Drilled By	Drilling 2000	Elevation	189.65
Date Started / Finished	15/08/06 to 17/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
		129.85									Very strong grey lithic arenite. Weathered to grade 1 except in basal 20cm. where weathered to grade 4.	
					95	64	21					
127.15	62.8											
		126.85									Very strong grey lithic arenite, conglomeritic (mudstone flakes and siderite?) for 40cm. in centre portion. Weathered to grade 1. Basal 50 cm. weathered to grade 3.	
					92	82	10					
124.65	65.8											
		123.85									Very strong grey lithic arenite. Weathered to grade 1.	
					95	75	8					
122.15	68.8											
		120.85									Very strong grey lithic arenite. Weathered to grade 1.	
					91	94	3					
119.65	71.8											
		117.85									Very strong grey lithic arenite, shaley towards base. Weathered to grade 1.	
					100	79	9					
117.15	74.8											
		114.85									Very strong grey lithic arenite. Shaley partings in centre portion of core.	
					100	87	6					
114.65	77.8											
		111.85									Very strong grey lithic arenite, conglomeritic (mudstone flakes and siderite? nodules) in middle portion of core. Weathered to grade 1.	
					97	77	3					
112.15	80.8											

?

Location	Craig Yr Hesq	Borehole No.	CYH02
Drill Rig and Method	NQ wireline 48mm	Easting	307294
Bit Type	Impreg	Northing	191981
Drilled By	Drilling 2000	Elevation	189.65
Date Started / Finished	15/08/06 to 17/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
	80.8	109.65			97	77	3				Very strong grey lithic arenite, Occasional shale partings and coal flakes. Weathered to grade 1.	
107.15					100	67	3					
	83.8	105.85									Very strong grey lithic arenite, 30 cm. conglomeritic (siderite? nodules) at top of core. Weathered to grade 1.	
104.65	85.3				100	66	10				Moderately strong mudstone. Weathered to grade 1.	
	86.8	104.35									Very strong grey lithic arenite, 50cm. Conglomerate (siderite? nodules in middle of core). Weathered to grade 1.	
		102.85										
102.15					93	75	8					
	89.8	99.85									Very strong grey lithic arenite, 60cm. Conglomerate (siderite? nodules and coal flakes) in middle of core . Weathered to grade 1.	
99.65					100	73	2					
	92.8	96.85									Very strong grey lithic arenite. Weathered to grade 1. Some fractures healed with quartz.	
97.15					100	94	7					
94.65	95.8	93.85									Very strong grey lithic arenite, occasional mudstone flakes and partings. Weathered to grade 1.	
92.15					100	80	8					
	98.8	90.85									Very strong grey lithic arenite, 25cm. Conglomerate (siderite? nodules) at base. Weathered to grade 1. Some fracures healed with quartz.	
	100				100	89	6					

?

Location	Craig Yr Hesq	Borehole No.	CYH02
Drill Rig and Method	NQ wireline 48mm	Easting	307294
Bit Type	Impreg	Northing	191981
Drilled By	Drilling 2000	Elevation	189.65
Date Started / Finished	15/08/06 to 17/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_ 100	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%) 100	RQD (%) 89	FI 8	Notes	W	Legend	Material Description	Samp
87.15												
84.65												
82.15												
79.65												
77.15												
74.65												
72.15												

?

Location	Craig Yr Hesq	Borehole No.	CYH04
Drill Rig and Method	NQ wireline 48mm	Easting	307187
Bit Type	Impreg	Northing	192040
Drilled By	Drilling 2000	Elevation	186.32
Date Started / Finished	22/08/06 to 24/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
		186.32			0						No recovery	
	1.5	184.82										
183.82					100	0	45				Very strong grey lithic arenite. Weathered to grade 2.	
	2.9	183.42										
					69	50	16				Very strong grey lithic arenite. Weathered to grade 2.	
181.32												
	5.9	180.42										
					100	31	18				Very strong grey lithic arenite. Weathered to grade 2.	
178.82												
	8.9	177.42										
176.32					100	43	18				Very strong grey lithic arenite. Weathered to grade 2.Half metre length of core with siderite? nodules at top. Occasional micaceous shale partings.	
	11.9	174.42										
173.82					77	43	18				Very strong lithic arenite. Weathered to grade 2.	
	14.9	171.42										
171.32					100	73	11				Very strong grey lithic arenite. Weathered to grade 2.	
168.82	17.9	168.42										
					100	67	13				Very strong grey lithic arenite. Abundant siderite? nodules top 1.5 metres. Weathered to grade 2.	
	20.9											

?

Location	Craig Yr Hesq	Borehole No.	CYH04
Drill Rig and Method	NQ wireline 48mm	Easting	307187
Bit Type	Impreg	Northing	192040
Drilled By	Drilling 2000	Elevation	186.32
Date Started / Finished	22/08/06 to 24/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
		168.42										
	20.9				100	67	13				Very strong grey lithic arenite. Abundant siderite? nodules top 1.5 metres. Weathered to grade 2.	
		165.42										
											Very strong grey lithic arenite. Weathered to grade 2.	
163.82					100	69	17					
	23.9											
		162.42										
											Very strong grey lithic arenite. Weathered to grade 2.	
161.32												
					79	59	13					
	26.9											
		159.42										
158.82											Very strong grey lithic arenite. Weathered to grade 2.	
					100	70	12					
	29.9											
156.32		156.42									Very strong grey lithic arenite. Weathered to grade 2.	
					100	91	15					
153.82	32.7											
		153.62									Very strong grey lithic arenite. Weathered to grade 2.	
					100	90	9					
151.32												
	35.8											
		150.52									Very strong grey lithic arenite, occasional micaceous shale partings. Weathered to grade 2	
148.82					100	76	13					
	38.9											
		147.42									Very strong grey lithic arenite. Weathered to grade 2.	
	41.9				58	68	9					

?

Figure 1	1:100	Page 2 of 6	Hanson

Location	Craig Yr Hesq	Borehole No.	CYH04
Drill Rig and Method	NQ wireline 48mm	Easting	307187
Bit Type	Impreg	Northing	192040
Drilled By	Drilling 2000	Elevation	186.32
Date Started / Finished	22/08/06 to 24/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
		147.42										
					58	68	9				Very strong grey lithic arenite. Weathered to grade 2.	
	41.9											
		144.42										
143.82											Very strong grey lithic arenite. Weathered to grade 2.	
					69	80	7					
	44.9											
141.32		141.42									Very strong grey lithic arenite. Weathered to grade 2.	
					57	0	50					
138.82												
	47.9											
		138.42									Very strong grey lithic arenite. Weathered to grade 2.	
					31	0	50					
136.32												
	50.6											
		135.72									Very strong grey lithic arenite, occasional thin bands very weak mudstone. Weathered to grade 2.	
133.82				90	0	50						
	53.7											
		132.62									Very strong grey lithic arenite. Weathered to grade 1.	
131.32				90	67	7						
	56.9											
		129.42									Very strong grey lithic arenite. Weathering to grade 2.	
128.82				82	86	6						
	59.7											
	62.9	126.62		100	71	10					Very strong grey lithic arenite. Weathered to grade 1.	

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Location	Craig Yr Hesq	Borehole No.	CYH04
Drill Rig and Method	NQ wireline 48mm	Easting	307187
Bit Type	Impreg	Northing	192040
Drilled By	Drilling 2000	Elevation	186.32
Date Started / Finished	22/08/06 to 24/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start).	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
		126.62										
					100	71	10				Very strong grey lithic arenite. Weathered to grade 1.	
-123.82	62.9											
		123.42									Very strong grey lithic arenite. Weathered to grade 1.	
					98	99	2					
-121.32	65.9											
		120.42									Very strong grey lithic arenite. Weathered to grade 1.	
-118.82					100	76	8					
	68.9											
		117.42									Very strong grey lithic arenite. Weathered to grade 1.	
-116.32					95	85	8					
	71.9											
		114.42									Strong mudstone. Weathered to grade 1.	
-113.82	73.3											
		113.02			100	78	9				Strong lithic arenite and mudstone fragments with siderite nodules	
	74.5											
		111.82									Very strong grey lithic arenite. Weathered to grade 1.	
-111.32					100	71	11					
	77.5											
-108.82		108.82									Strong mudstone. Weathered to grade 1.	
	78.2											
		108.12									Very strong grey lithic arenite. Weathered to grade 1.	
					97	86	9					
	80.6											

?

Location	Craig Yr Hesq	Borehole No.	CYH04
Drill Rig and Method	NQ wireline 48mm	Easting	307187
Bit Type	Impreg	Northing	192040
Drilled By	Drilling 2000	Elevation	186.32
Date Started / Finished	22/08/06 to 24/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%)	RQD (%)	FI	Notes	W	Legend	Material Description	Samp
	80.6	108.12			97	86	9				Very strong grey lithic arenite. Weathered to grade 1.	
		105.72									Strong mudstone. Weathered to grade 1.	
103.82					100	61	15					
101.32	85.4	100.92			100	76	10				Strong fine grain sandstone/siltstone. Weathered to grade 1.	
	86.9	99.42									Very strong grey lithic arenite somewhat shaley towards top. Weathered to grade 1. Fractures healed with quartz? and pyrite.	
98.82					93	86	9					
96.32	89.9	96.42									Very strong lithic arenite apart from 45cm length strong shale. Quartz? and pyrite healing fractures. Weathered to grade 1.	
					90	90	11					
93.82	92.9	93.42									Very strong grey lithic arenite. Weathered to grade 1.	
	94.85				82	98	5					
91.32		91.47									Strong mudstone. Weathered to grade 1.	
	95.7	90.62									Very strong grey lithic arenite. Weathered to grade 1.	
88.82					100	90	6					
	98.8	87.52									Very strong grey lithic arenite. Weathered to grade 1.	
	100				100	99	7					

?

Location	Craig Yr Hesq	Borehole No.	CYH04
Drill Rig and Method	NQ wireline 48mm	Easting	307187
Bit Type	Impreg	Northing	192040
Drilled By	Drilling 2000	Elevation	186.32
Date Started / Finished	22/08/06 to 24/08/06	Inclination	-90
Logged By	Stuart Baskerville Univ of Glamorgan	Azimuth	360

Elevation	To_ 100	Z(Start)	Case (mm)	ROP (m/hr)	Core Rec (%) 100	RQD (%) 99	FI 7	Notes	W	Legend	Material Description	Samp
83.82												
81.32												
78.82												
76.32												
73.82												
71.32												
68.82												

?

9.3 Surface Water and Drainage Assessment Report ESI.

Craig yr Hesg Surface Water and Drainage Assessment

Craig yr Hesg Surface Water and Drainage Assessment

Prepared for

Hanson Aggregates Ltd.
Ashby Road
Shepshed
Nr Loughborough
LE12 9BU

Report reference: 60234R3rev3, May 2015
Report status: Final Report

Confidential
Prepared by
ESI Ltd

New Zealand House,160 Abbey Foregate, Shrewsbury, SY2 6FD, UK
*Tel +44(0)1743 276100 Fax +44 (0)1743 248600 email **info**@esinternational.com*

Craig yr Hesg Surface Water and Drainage Assessment

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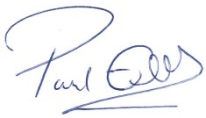
New Zealand House,160 Abbey Foregate, Shrewsbury, SY2 6FD, UK
*Tel +44(0)1743 276100 Fax +44 (0)1743 248600 email **info**@esinternational.com*

60234R3rev3. Final Report

	Name	Signature
Author	Barnaby Harding	
Checked by	Barnaby Harding	
Reviewed by	Paul Ellis	

Revision record:

Issue	Report ref	Comment	Author	Checker	Reviewer	Issue date	Issued to
1	D1	Draft for client comment	SCC/BCH	PAE	PAE	07/11/14	Mark Frampton / Roger Griffiths
2	D2	Draft incorporating client comments	SCC/BCH	PAE	PAE	12/11/14	Mark Frampton / Roger Griffiths
3	R3	Final Report	SCC/BCH	BCH	PAE	18/04/15	Mark Frampton / Roger Griffiths
4	R3rev1	Final Report incorporating additional client comments	SCC/BCH	BCH	PAE	23/04/15	Mark Frampton / Roger Griffiths
5	R3rev2	Final Report incorporating additional client comments	SCC/BCH	BCH	PAE	01/05/15	Mark Frampton / Roger Griffiths
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Confidential
Prepared by
ESI Ltd

New Zealand House,160 Abbey Foregate, Shrewsbury, SY2 6FD, UK
*Tel +44(0)1743 276100 Fax +44 (0)1743 248600 email **info**@esinternational.com*

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1 INTRODUCTION

1.1 Background

Hanson Aggregates Ltd (Hanson) operates Craig yr Hesg quarry located approximately 1.5 km to the north of Pontypridd, South Wales, immediately south of Glyncoch at NGR 307800 191780. The quarry is used for extraction of the sandstone/gritstone of the Pennant Sandstone.

The most recent planning permission for Craig-yr-Hesg Quarry was granted in August 1993. A Section 106 agreement completed at the time relinquished the right to excavate through the edge of the ridgeline to the south and west which forms an important landscape feature and comprised part of the historical permission. The agreement also made provision for the planning conditions to apply to all other historical permissions within the quarry area. The maximum permitted depth of quarrying is 100 mAOD.

A single permission, 56/86/0827, regulates all activities within the quarry and is subject to a review of old mineral permissions (ROMP) as required by the Environment Act (1995). This application was submitted in July 2012 along with an accompanying EIA/ES and was determined in March 2013. A Hydrogeological Assessment was prepared by ESI for the ES in 2009 (ESI, 2009).

As part of the future quarry development Hanson are proposing to extend the quarry approximately 320 m to the north-west over an area of approximately 5.4 ha. A consolidating planning application is being prepared covering the existing quarry and the new quarry extension area. This includes preparation of a revised HIA. Due to its location in Flood Zone A, a Flood Consequence Assessment is not required for the existing quarry or proposed extension area.

Surface water at the site is currently dealt with in one of two ways:

1. Within the processing area, water is collected within the drainage system and directed to attenuation and settling ponds before being discharged to the River Taf. This discharge is regulated by Natural Resources Wales via a consent issued in 2013 (Consent Number AF4029101);
2. Within the main pit area, which lies within a different surface water catchment, water is directed to a sump and then, via overflow, gravity drains to the base of the pit where it infiltrates to the ground.

Of key concern to Hanson is the continued ability to infiltrate to ground surface water collected in the main pit area.

1.2 Aims

The aims of this document are:

1. To review the existing surface water management and carry out runoff calculations to provide information to the main HIA on how the proposed extension affects the amount of runoff diverted to the pit;
2. To provide comment on the likelihood of ongoing infiltration of surface water through the base of the pit and relevant considerations to ensure that it continues.

2 QUARRY DEVELOPMENT

2.1 Current Development

The total area of the existing quarry (excavation and processing areas) is approximately 20 ha. The current quarry layout is shown on the topographic survey in Appendix A and on Figure SR01 in Appendix B (WYG, 2009). This shows the quarry processing plant in the eastern area of the site, comprising a crushing and screening plant. The main quarry area lies to the west, with a series of quarry faces and benches which are being developed in a general north-westerly direction within the limits of the planning permission. Additional reserves lie within land between the processing plant and main quarry void. This area currently contains stockpiles of processed fine aggregate but, following the relocation of those stocks, the area will be quarried as part of the approved development scheme.

Remaining reserves within the current permitted area are some 5.7 million tonnes as of the 1st January 2015.

The deepest part of the quarry is currently around 107 mAOD which is 7 metres above the minimum level permitted to which quarrying can occur.

2.2 Proposed Development

The proposed development will be a continuation of the existing programme of working the quarry benches and faces in a north-westerly direction to the limit of the current excavation footprint and then beyond into the extension area (Figure 1). The base level of the quarry will not extend below the minimum floor level of 100 mAOD, although the area at this level will be significantly enlarged.

The proposed development is described in further detail in SLR (2014, in prep).

2.3 Quarry Decommissioning

The proposed final extent of the quarry under the current planning permission is shown in Figure SR05 in (WYG, 2009). The extension area beyond the current planning permission boundary is shown on Figure 1. The pit would be left open as the proposed final restoration and measures retained to ensure that runoff rates did not exceed pre-development conditions (e.g. through ongoing soakage to ground and other SuDS mechanisms). The faces and benches would be worked back to the limits of the planning permission/extension area, creating a wider floor at the 100 m AOD level. The stockpile of dust/ fine aggregate is still shown on the plan, reflecting some uncertainty regarding the volume which can be marketed. However, the intention will be at least a proportion will be retained for use in profiling the base of the quarry, to provide a gradient to assist final surface water drainage.

3 EXISTING SURFACE WATER MANAGEMENT

The current water management system at Craig-yr-Hesg quarry can be divided into two distinct parts:

- The drainage system for the northern side of the main haul road and processing/ office complex;
- The water management system associated with the main excavation and tip areas.

These are discussed below.

3.1 Processing/office complex

Figures showing the layout of the water management system in the processing/office complex are provided in Appendix C.

A series of eight settlement lagoons are present on the southern side of the processing/office area. Runoff in the processing/office area and from the northern side of the haul is collected within the processing area and discharged to the first lagoon in the series. The lagoons 1 to 6 are arranged so that discharge from one lagoon over-tops to the next in the series. Water is pumped to pits 7 and 8. Overflow from Lagoon 6 is transferred via a subterranean pipeline 250 m to the south to discharge to the River Taf. This discharge is regulated by Natural Resources Wales via a consent issued in 2013 (Consent Number AF4029101 included in Appendix D). The conditions of this permit do not limit the total amount of water than may be discharged but do impose limits on how it may be discharged at various flows. Water stored in the processing area is pumped to the pinnacle of the haul road between the processing and office complex and main excavation for dust suppression. Water used for dust suppression flows back down a small drain at the side of the haul road to the processing area, where it discharges to Lagoon 1 of the settlement system.

3.2 Main excavation and waste tip

Seepage from perched groundwater and rainfall/runoff into the main excavation makes its way to the quarry floor via drainage channels and flows along haul roads (see Figure 1). Runoff from the adjacent tip area (shown on Figure SR01 in Appendix B), immediately east of the second level sump, is collected in a drainage channel at the base of the tip and gravity fed to the base of the quarry. The water collected at the lower floor level freely seeps into the Pennant Sandstone and migrates to the underlying regional or perched water table (this is discussed in more details below).

Prior to the sinking of the lowest level to around 107 mAOD, pumping and removal of collected incident rainfall from the main pit was only occasionally required during very wet periods. However, since reaching this level the method of discharge has been to the lower quarry base level and infiltration to the Pennant Measures. Records of pumped volumes are not available; however, it appears that much of the collected surface water was lost to the Pennant Measures via the base and sides of the quarry sump. Very rough estimates (pers. comms: Roger Griffiths, 25th July 2014) suggest that, up to 60 Ml of water could collect in the base of the quarry (based on filling its area of approximately 6000 m^2 to a depth of 10-12 m) over an unrecorded period. A 6" pump would then run 24/7 for around 4 days to empty this volume.

Since the most recent sinking of the lowest level there has been no need to pump from the main pit as water drains freely through the quarry base at this location.

In 2009 Hanson carried out an investigation of the drainage through the base of the pit (Appendix E). As part of this investigation a borehole was sunk through the lowest floor level terminating at around 63 mAOD (based on 44 m recorded depth). No water strikes or cavities (indicating mine workings) were encountered and cuttings were dry, suggesting that the regional water table is below this level. By comparison, the three site boreholes within which groundwater levels are being monitored show groundwater levels at higher elevations

than the base of the hole. It has been stated in previous work (SLR, 2014 in prep) that two of these (CYH02 and CYH04, where groundwater levels are between 120 mAOD and 170 mAOD) are thought to be perched, it is also possible that CYH01/12 (within which groundwater levels are below 100 mAOD) may also be perched although the levels would not be inconsistent with a regional groundwater table based on the elevation of water in the River Taf 300 m away which is between 50 m AOD and 80 mAOD (based on Taf stage levels at Pontypridd and Abercynon gauges located which are located approximately 0.8 km south and 3.7 km north-north-east respectively). It was suggested that the presence of a low permeability Coal Measures stratum close to the base of the lowest level had, before being excavated, prevented water entering the fault. The investigation concluded that soakage of water was likely to be occurring through the outcrop of a fault in the base of the quarry (see Figure 1).

4 FLOOD RISK AND RUN-OFF

4.1 Flood risk due to the final development

The Quarry itself is located on top of a hill, a significant altitude above the adjacent river Taff and is located in Flood Zone A as defined by the Welsh Government's Development Advice Maps (DAM). It is considered therefore that the site itself is at little or no risk from flooding from fluvial or coastal/tidal sources and a formal Flood Consequence Assessment (FCA) is not required. It is noted, however, that some areas in the vicinity are at risk of flooding including the River Taf immediate east of the site and the urbanised area to the north-east and the 2 small valleys to the north-west and north-east of the site.

It is necessary to ensure that the proposed development does not lead to an increase in flood risk to receptors off site. The extension to the quarry will result in a new, modified sub-catchment that drains towards the lowest ground level created during the mineral extraction; previously this area would drain away from the quarry towards the north-east.

Using rainfall data from the Flood Estimation Handbook (FEH) CD-ROM (NERC ,2009), the potential surface water run-off generated from both the current site, and the proposed site during the design storm event (Defra/Environment Agency (2012)) of a 6 hour 1 in 100 year return period rainfall event plus climate change has been calculated. Whilst the 1 in 100 year 6 hour event is the standard event for planning purposes (Defra/Environment Agency (2012)), for operational purposes longer duration events are also of interest. An additional calculation has been carried out, therefore, using the 48 hour 1 in 100 year plus climate change storm event. The selection of this duration event is not based on any specific planning requirements but gives an indication of the size of longer duration events which would have implications for quarry operations due to the potential for temporary flooding of the quarry floor. In reality, the likelihood of any flooding of the quarry floor will be dependent on antecedent rainfall and soakage rate through the base of the quarry. There is insufficient information on both of these to make an accurate prediction of the duration and degree of quarry floor flooding. The calculation method used was the Rational Formula in the form Q=2.78CiA (National Coal Board, 1982). The Rational Formula assumes the flow (Q) is a function of the permeability and slope of the land surface (C), the rainfall intensity (i) and the area of the land (A). Further details are provided in Appendix F.

4.1.1 Ground conditions

Based on information provided by the client, the quarry (incorporating both processing plant area and quarry pit) covers an area of approximately 20 ha (Figure 1).

The catchment area of the proposed extension area is approximately 5.5 ha in size and is covered by short grass. The soil conditions at this site, as taken from Soilscapes national soil map, indicate freely draining acid loamy soils over rock (NSRI, 2013). This area currently drains to the north/north-west, away from the quarry; following the extension this area will drain to the quarry soakage area (Figure 1). Following the development all soil and bedrock will be removed meaning that the surface conditions post development will be bare rock.

The developed Site (including the extension), during quarrying operations will have an average gradient of c.1%; this is the approximate gradient of the current developed quarry. It was assumed that the stepped nature of the quarry side would encourage most of the run-off to infiltrate into the rock before draining down into the quarry, hence the reason for assigning a low gradient. Run-off coefficients are shown later in Table 4.1.

4.1.2 Catchments, overland flow paths, and run-off

There are significant topographic features that concentrate run-off within the existing Site (namely the steep sides of the quarry). There is no direct discharge of run-off from the site. In its current state, the Site can be considered as two surface water catchments. The first is the smaller catchment comprising the processing and plant area; this area will remain unaffected by the proposed development. The catchment area for this part of the site is

approximately 4.6 ha. The second is the main pit; this western area currently drains into the lowest point of the catchment (Figure 1). All runoff pools in this area and drains relatively rapidly into the bedrock beneath. The catchment area for this part of the site is approximately 15.4 ha. This would increase by 5.5 ha (to 20.9 ha) with the inclusion of the catchment of the extension area.

Due to its location at the head of the local catchment, run-off from off-site locations onto the Site is unlikely to occur. The proposed drainage design during the quarry operations will assume surface water run-off, within the catchment of the western quarry area, will concentrate in the lowest excavated ground levels (one for each sub-catchment) within the Site boundary.

The run-off from the proposed extension area is currently draining into the Nant Tai'r-heol stream to the west of the Site and northwards toward the Afon Clydach. After excavation of the extension, this run-off will drain into the quarry's catchment and discharge through the base of the pit. This development of the quarry extension would therefore reduce flows going toward these watercourses and increase flows through the base of the pit.

The assessment of the topography for the proposed Site has been based upon assumptions that the gradient and form of the quarry side will be similar to that of the current quarry. The current and proposed (extended) surface water catchment characteristics are summarised in Table 4.1. These have been calculated using a 1 in 100 year frequency 6 hour storm event (which is the recommended duration for small catchments in Defra/Environment Agency (2012)). The post development discharge rate and volume has been calculated allowing for a 30% increase due to climate change (based on recommendations in DCLG, 2012a/b).

Table 4.1 Extension catchment characteristics pre and post development

Unexcavated extension	
Land cover	Greenfield agricultural grass underlain by sandstone
Size (ha)	5.5
Average slope gradient	7%
Run-off coefficient:	0.55
Peak flow (l/s)	136
Volume (m^3)	2,938
Excavated extension	
Land cover	Bare Sandstone bedrock
Size (ha)	5.5
Average slope gradient	1%
Run-off coefficient:	0.6
Peak flow (l/s)	148
Volume (m^3)	3,205

Excavated extension (incl. Climate Change)	
Peak flow (l/s)	193
Volume (m^3)	4,167

The run-off rates and discharge volumes from the current quarry pit and processing areas have also been calculated using a 1/100 year frequency, 6 hour storm event with and without and allowance for climate change (Table 4.2).

Table 4.2 Quarry pit and processing area

Quarry pit area	
Land cover	Bare Sandstone bedrock
Size (ha)	15.4
Average slope gradient	1%
Run-off coefficient:	0.53
Peak flow (l/s)	415
Volume (m^3)	8,975
Quarry pit area (incl. Climate Change)	
Peak flow (l/s)	540
Volume (m^3)	11,667
Processing area	
Land cover	Bare Sandstone bedrock
Size (ha)	4.6
Average slope gradient	1%
Run-off coefficient:	0.53
Peak flow (l/s)	124
Volume (m^3)	2,681
Processing area (incl. Climate Change)	
Peak flow (l/s)	161
Volume (m^3)	3,485

Based on the tables above peak runoff rates for the processing area would increase by 30% (from 124 l/s to 161 l/s) purely due to the effects of climate change. Peak runoff rates in the pit would increase by 77% (from 415 l/s to 733 l/s) due to the combination of climate change and an increased catchment incorporating the extension area.

If worst case conditions (100% runoff) and longer duration events are considered then the runoff volumes are estimated to be as shown in Table 4.3. Increase in runoff volume from

current best estimate to future worst case is 136% for the extension area and 116% for the other areas. With the addition of the extension area catchment to the existing pit catchment this would result in a total increase in volume in the quarry pit by 194%.

Table 4.3 Worst case runoff volumes compared with best estimate current

			Quarry area	***Current processing***	***Extension***	***Current quarry pit***
			Area (m^2)	46,000	55,000	154,000
Rainfall Event	**Case**	**Climate change**	**Rainfall (mm)**	**Volume (m^3)**		
6 hour 1 in 100 year	Best estimate current	No	97.05	2,681	2,938	8,975
	Worst case future	+30%	126.17	5,804	6,945	19,445
48 hour 1 in 100 year	Best estimate current	No	191.34	5,285	5,793	17,694
	Worst case future	+30%	248.74	11,451	13,692	38,337

Using the Hydrologically Effective Rainfall (HER) of 1000 mm/year as referenced in Section 9 of the Extension and Consolidation ES (SLR, 2014 in prep), the average daily runoff volumes for each quarry area were calculated, as shown in Table 4.4.

Table 4.4 Average daily runoff rates

Quarry area		***Current processing***	***Extension***	***Current quarry pit***	***% increase (current pit vs current pit + extension)***
Area	m^2	46,000	55,000	154,000	35%
Average daily runoff volume of water likely to infiltrate through quarry floor considering HER of 1000mm/year (m^3/year)	m^3/yr	46,000	55,000	154,000	35%
	m^3/d (l/s)	126 (1.46)	151 (1.74)	422 (4.88)	35%

5 IMPACT OF QUARRY DEVELOPMENT ON DRAINAGE

5.1 Processing/office complex

On the basis that no quarry pit runoff will need to be transferred to the processing area there are no predicted impacts of the quarry extension on surface water management in this area. There will be an increase in the peak flows as a result of climate change which would result in more storm overflow discharge. This is allowed for in the current discharge permit.

5.2 Main quarry pit

The soakage capacity of the main pit appears to be sufficient to cope with the current rates of runoff from the site without any significant build-up of water in the lowest level. Based on Hanson's own investigations there appears to be some evidence that soakage is associated with a fault located in the southern corner of the main pit which has become effective since excavation below a low permeability Coal Measures stratum to a level of around 107 mAOD approximately 5 years ago. However, it is not clear specifically how much capacity is being provided by the fault and how much is being provided by access to the sandstone in general below the low permeability Coal Measures stratum. Whilst it is also unclear what the maximum capacity the lowest level has to accept flows is, it is clearly sufficient to deal with the return period of the rainfall events that have occurred in the last 5 years. Based on the levels in CY01/12, for the current quarry floor level there seems to be several metres of freeboard above the regional groundwater table to accommodate a rise in water table (groundwater mounding). Records show that freeboard has varied between 2.5 m and 17.3 m (averaging around 7.7 m) and that there has been sufficient freeboard to accept flows at all times of year.

The quarry phasing for the area with current planning approval (i.e. excluding the extension area) is shown on Figures SR03 to SR05 (Appendix B). Apart from the increase in runoff to be accommodated, the main issues for drainage will be ongoing access to areas of suitable soakage capacity within the floor of the quarry. Full geological context for this is provided in Chapter 5 of the 2015 Planning Application Statement and the drainage report in Appendix E; however, in summary, soakage appears to be being provided either by:

1. the sandstone below approximately 107 m AOD/the low permeability Coal Measures stratum in general;
2. specifically the fault in the southern corner of the pit; or
3. a combination of the above.

With reference to point 1, whilst the area of quarry excavated to this level would increase over time, the area exposed could decrease as a result of infilling with dust. Additionally, the dip of the beds could mean that the low permeability Coal Measures stratum drops below this elevation and the quarry base. Therefore, if point 1 is the case then reduction in the area excavated to sufficient depth (and left unfilled) may result in some reduction in soakage capacity.

If point 2 is the case and this area were to be lost for soakage then it might lead to reduced soakage capacity. The current phasing plans show that the dust/fine material stockpile would move into this area as the quarry development continues and it is therefore possible that reduced soakage could result, though steps have been taken to maintain the efficiency of the soakage area (see points 5 and 6 of Conclusions and Recommendations Section 6, below). With an increase of catchment area by 35% and a further allowance for climate change of 30% this could lead to a total increase of 77% over current run-off. If worst case future conditions are assumed then run-off volumes in the pit may increase by 192% (116% increase in volume per unit area along with 35% increase in total area).

If point 3 is the case then the loss of the fault beneath the dust/fine material stockpile may require a compensatory increase in the floor level below the low permeability Coal Measures

stratum. This may be required in any case as a result of the doubling of the runoff rates for the 1 in 100 year design storm and increase by 55% of the average daily runoff rates due to climate change and the increased catchment area.

Soakage capacity has the potential to decrease as the result of clogging with fines. Uncontrolled runoff from the dust/fine material pile will increase the risk of clogging and reduction in soakage capacity as would reliance on one soakage area throughout the life of the quarry.

Overall, however, it would seem reasonable to expect that soakage capacity at the existing soakage area would be maintained and that further soakage capacity would become available as the lowest level of the pit is extended.

6 CONCLUSIONS AND RECOMMENDATIONS

According to the DAMs, the existing quarry and proposed extension are at low to negligible risk of flooding and an FCA is not required.

Runoff from the site will increase as a combined result of climate change and the increase in catchment resulting from excavation of the extension area. Peak runoff for the processing area is estimated to increase by 30% (from 124 l/s to 161 l/s) for the design storm event. Peak runoff is estimated to increase by 77% (from 415 l/s to 733 l/s) and average daily runoff by 36% (from 422 m^3/d to 573 m^3/d) in the main pit area. Using longer duration events and worst case assumptions (48 hour event, 30% climate change, 100% runoff) volumes to be accommodated through soakage could increase by up to 194% although an increase of 77% is thought more likely and should be used for planning purposes. The two areas are currently within separate catchments and runoff is dealt with independently.

The wording of the existing discharge permit is such that the increase in runoff from the processing area would remain permitted. There is also the potential for receipt of runoff from the quarry pit should soakage be insufficient.

The soakage capacity of the main pit appears to be sufficient to deal with runoff from the current main pit catchment. There is no evidence to suggest that soakage capacity would reduce over time although it is difficult to estimate capacity under future development precisely. If there are occasional accumulations of water in the base of the pit, then operations could be adjusted to higher levels to provide sufficient time for infiltration.

There are a number of actions that should be taken with regard to water management going forward but, given the uncertainties regarding capacity, it is recommended that an adaptive management approach is also taken. Recommendations for surface water management going forward are provided below:

1. Ongoing assessment of soakage capacity should be undertaken through monitoring of ponding depth in the soakage area and rainfall (by rain gauge);
2. uncontrolled runoff from the dust/fine material pile should be reduced to avoid erosion and reduction of soakage capacity as a result of clogging. This can be done through the use of appropriately located surface water drains;
3. it is possible that current soakage capacity is highly localised and specifically associated with the fault identified in the current soakage area. In any case any new soakage areas should be monitored for effectiveness prior to infilling areas which have proven to be sufficient (also taking into account the likely extensive increase in total soakage area);
4. it is likely that the low permeability Coal Measures stratum identified just above 107 mAOD in the current soakage area would need to be broken through in any new soakage area. With the dip of the beds being to the north / north-east it is possible that this will drop below 100 mAOD (i.e. the minimum permitted floor level) further to the north and so the southern areas of the site should be looked at as preferential for soakage locations;
5. the existing soakage location should be allowed to function for as long as possible, by delaying the movement of the dust/ fine material pile into this area and/or taking the steps referred to in the next point (6);
6. the continued efficiency of the soakaway should be encouraged by installing a drainage blanket (which has already been done);
7. It is possible that there may be occasional accumulations of surface water in the base of the pit. In this case it is understood that the preferred method of dealing with this would be to allow flooding of the base of the pit with subsequent removal of water through a combination of soakage to ground and controlled pumping to the

processing area surface water management system within its existing design capacity.

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SLR (2014 in prep) Environmental Statement Volume 1, Craig-yr-Hesg Quarry Extension and Consolidation Application.

FIGURES

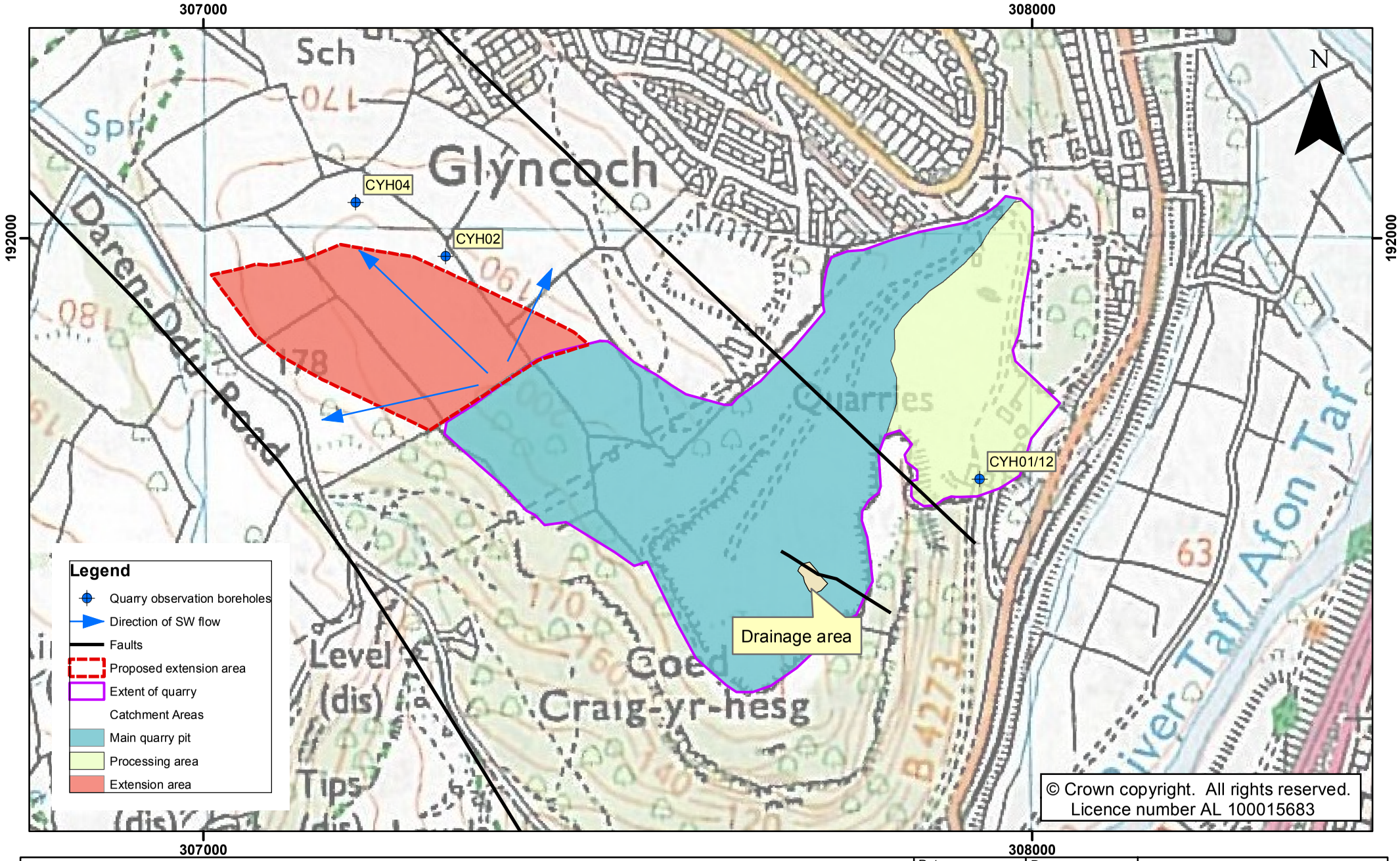


Figure 1
Site location map

Date: Apr 2015	Drawn: HJK
Scale: 1:6,000	Checked: BCH
Original: A4	Revision: 2
File Reference: O:\60234 Craig yr Hesg\reports\60234R3 2014 FCA\Figures\Figure 1 Apr 2015.mxd	

APPENDICES

APPENDIX A

Topographic Survey

Based upon the Ordnance Survey map by permission of Ordnance Survey on behalf of the Controller of HMSO, © Crown Copyright: Licence No. AL100018890

ALL LEVELS IN METRES ABOVE ORDNANCE DATUM

Hanson

Hanson Aggregates

Site	CRAIG YR HESG QUARRY
Title	Site Survey (Contour Interval = 1.0m)
Scale 1:1250	Date January 2014
Drawn by A.Clemence	Checked by
Drawing No.	C10-0001

APPENDIX B

Quarry Phasing Plans

Craig-yr-Hesg Quarry ROMP

Quarry Phasing: Site as Existing

SR01

WYG Planning & Design
part of the WYG group

Hanson
HEIDELBERGCEMENTGroup

Key

- Planning permission boundary
- Settlement of Glyncoch
- Farmland
- Woodland and scrub

Craig-yr-Hesg Quarry

- Current extent of quarry
- Quarry faces
- Quarry plant and offices
- Main quarry haul road
- Lagoons
- Dust / fine material stockpile
- Restored quarry tip
- Stockpiles
- Topsoil storage
- Subsoil storage

Pearson Crescent
Coed y Lan Road
Gardner Close
Glyncoch Football Club
Processing Plant
+100m
Premix
Weighbridge
Office
Railway line
Cardiff to Aberdare / Merthyr Tydfil Railway
Ynysybwl Road (B4273)
Ynysybwl Road
+184m
+168m
+155m
+142m
+126m
+118m
+128m
+167m
Dust / fine material stockpile

North

0 0.2 0.4 0.6 0.8 100m

Scale 1:2,500 @ A3 Do not scale from this drawing

A057337 SR01-05.cdr **July 2009**

21 Park Place, Cardiff, CF10 3DQ
Tel: +44 (0) 29 2072 9000 Fax: +44 (0) 29 2039 5965
Email: info@wyg.com www.wyg.com

Craig-yr-Hesg Quarry ROMP

Quarry Phasing: 2010

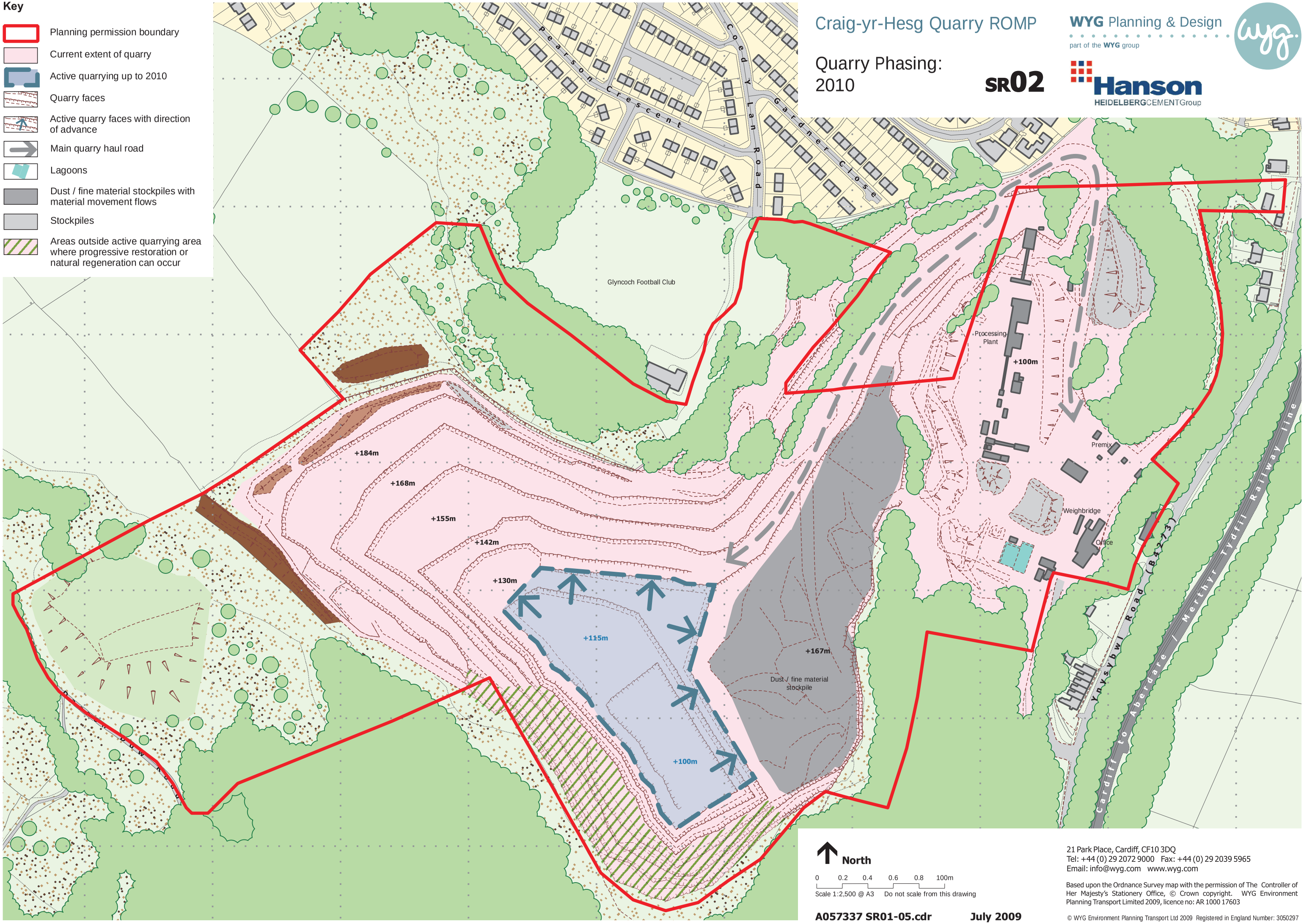
SR02

WYG Planning & Design
part of the WYG group

Hanson
HEIDELBERGCEMENTGroup

Key

- Planning permission boundary
- Current extent of quarry
- Active quarrying up to 2010
- Quarry faces
- Active quarry faces with direction of advance
- Main quarry haul road
- Lagoons
- Dust / fine material stockpiles with material movement flows
- Stockpiles
- Areas outside active quarrying area where progressive restoration or natural regeneration can occur



North

0 0.2 0.4 0.6 0.8 100m

Scale 1:2,500 @ A3 Do not scale from this drawing

A057337 SR01-05.cdr **July 2009**

21 Park Place, Cardiff, CF10 3DQ
Tel: +44 (0) 29 2072 9000 Fax: +44 (0) 29 2039 5965
Email: info@wyg.com www.wyg.com

Craig-yr-Hesg Quarry ROMP

Quarry Phasing: 2014

SR03

WYG Planning & Design
part of the WYG group

Hanson
HEIDELBERGCEMENTGroup

Key

- Planning permission boundary
- Current extent of quarry
- Active quarrying: 2010 - 2014
- Quarry faces
- Active quarry faces with direction of advance
- Main quarry haul road
- Lagoons
- Dust / fine material stockpiles with material movement flows
- Stockpiles
- Areas outside active quarrying area where progressive restoration or natural regeneration can occur
- Movement of fine material stockpile

Pearson Crescent
Coed y Lan Road
Gardner Close
Glyncoch Football Club
Processing Plant
+100m
Premix
Weighbridge
Office
Dust / fine material stockpile
+184m
+168m
+155m
+142m
+130m
+115m
+100m
Dust / fine material stockpile
+145m
Cardiff to Aberdare / Merthyr Tydfil Railway Line
Ynysybwl Road (B4273)
Ynysybwl Road

North

0 0.2 0.4 0.6 0.8 100m

Scale 1:2,500 @ A3 Do not scale from this drawing

A057337 SR01-05.cdr **July 2009**

21 Park Place, Cardiff, CF10 3DQ
Tel: +44 (0) 29 2072 9000 Fax: +44 (0) 29 2039 5965
Email: info@wyg.com www.wyg.com

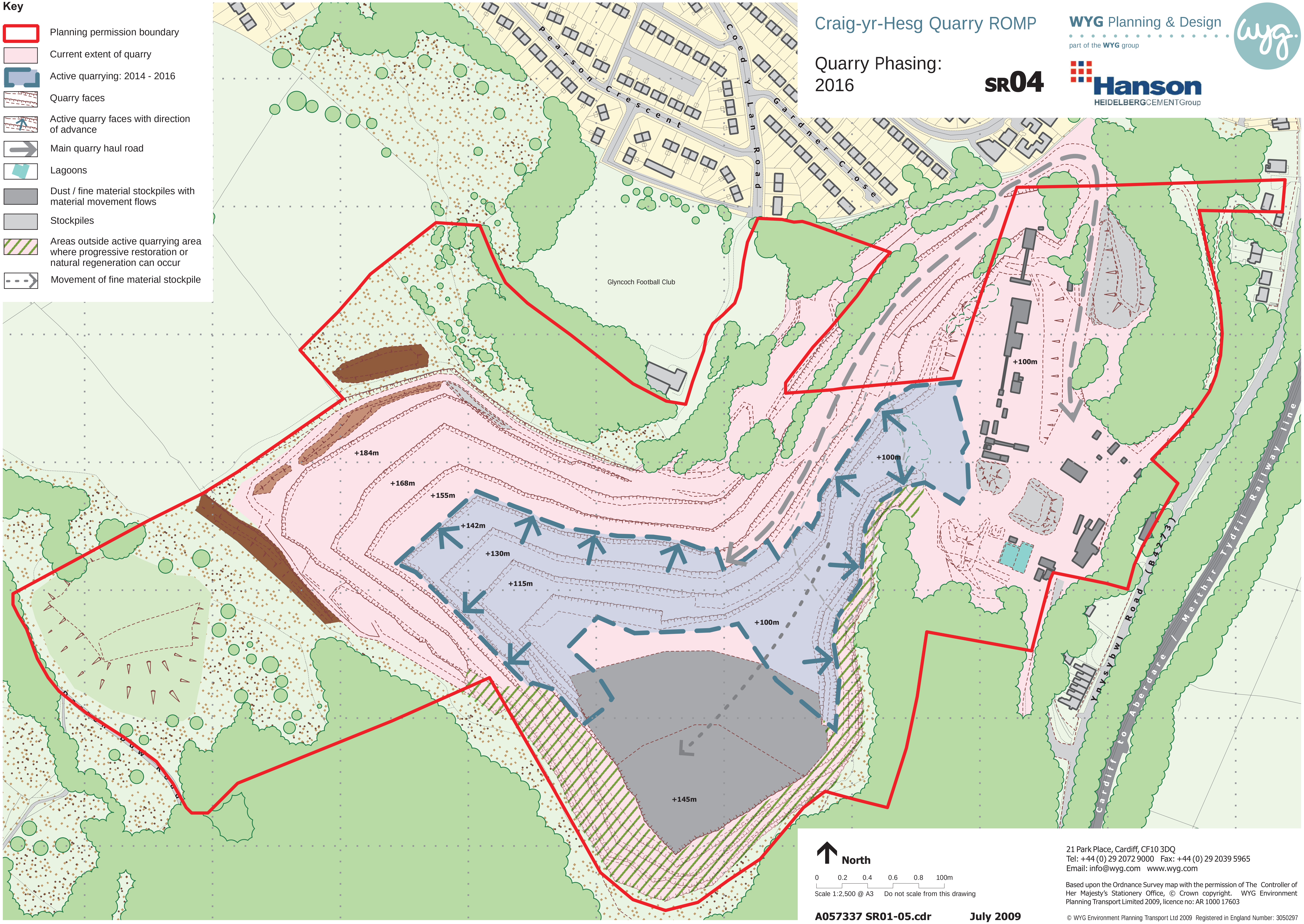
Craig-yr-Hesg Quarry ROMP

Quarry Phasing: 2016

SR04

WYG Planning & Design
part of the WYG group

Hanson
HEIDELBERGCEMENTGroup



Key
Planning permission boundary
Current extent of quarry
Active quarrying: 2014 - 2016
Quarry faces
Active quarry faces with direction of advance
Main quarry haul road
Lagoons
Dust / fine material stockpiles with material movement flows
Stockpiles
Areas outside active quarrying area where progressive restoration or natural regeneration can occur
Movement of fine material stockpile
Pearson Crescent
Coed Y Lan Road
Gardner Close
Glyncoch Football Club
+184m
+168m
+155m
+142m
+130m
+115m
+100m
+100m
+100m
+100m
+145m
Ynysybwl Road (B4273)
Cardiff to Aberdare / Merthyr Tydfil Railway line
North
0 0.2 0.4 0.6 0.8 100m
Scale 1:2,500 @ A3
Do not scale from this drawing

21 Park Place, Cardiff, CF10 3DQ
Tel: +44 (0) 29 2072 9000 Fax: +44 (0) 29 2039 5965
Email: info@wyg.com www.wyg.com

A057337 SR01-05.cdr

July 2009

Craig-yr-Hesg Quarry ROMP

Quarry Phasing:
Final extent of quarry SR05

WYG Planning & Design
part of the WYG group

Hanson
HEIDELBERGCEMENTGroup

Key

- Planning permission boundary
- Current extent of quarry
- Active quarrying after 2016
- Quarry faces
- Active quarry faces with direction of advance
- Main quarry haul road
- Lagoons
- Dust / fine material stockpiles with material movement flows
- Stockpiles
- Areas outside active quarrying area where progressive restoration or natural regeneration can occur

Pearson Crescent
Coed y Lan Road
Gardner Close
Glyncoch Football Club
+100m
+100m
+100m
+100m
+145m
Railway line
Ynysybwl Road (B4273)
Cardiff to Aberdare / Merthyr Tydfil Railway line

North

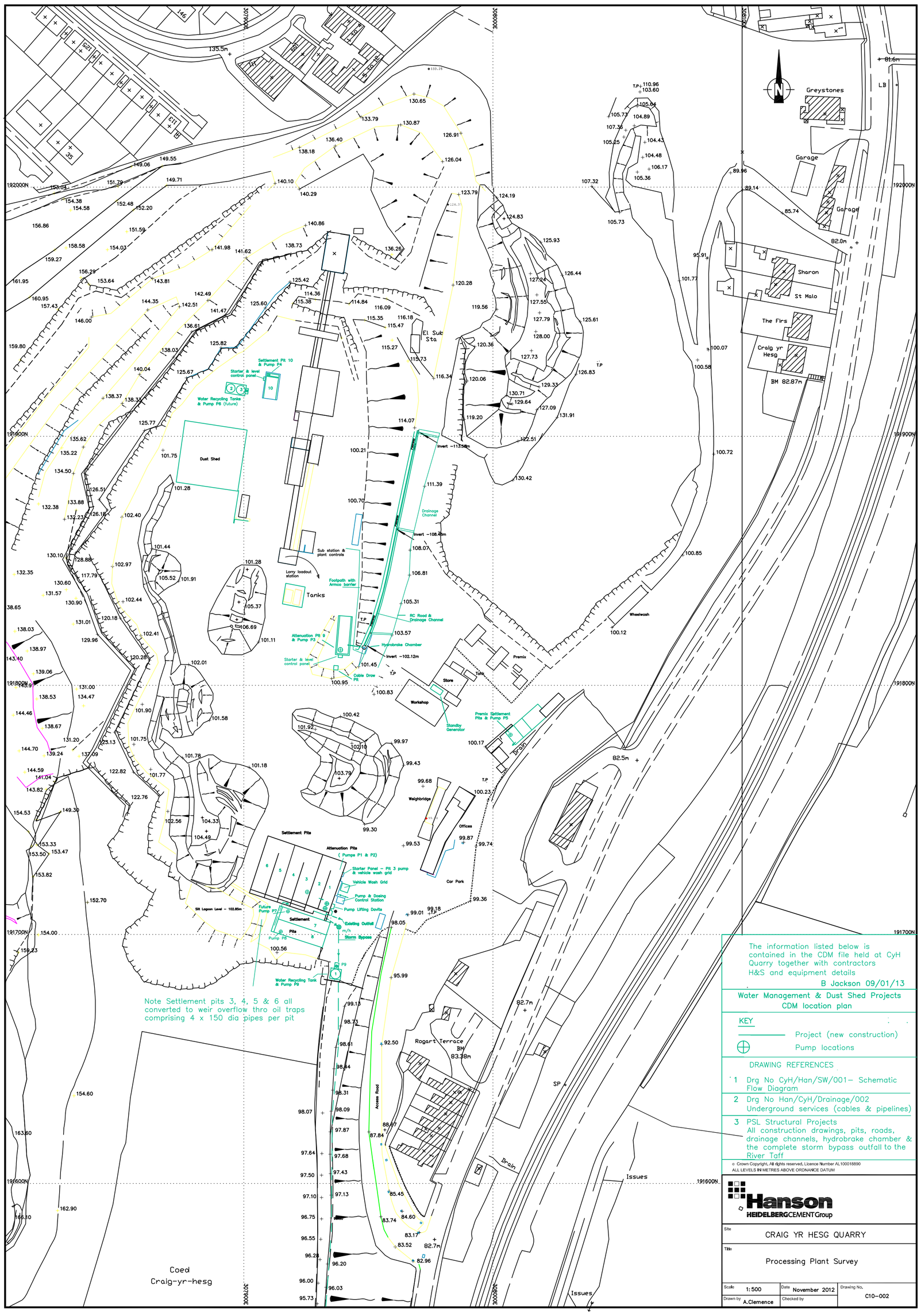
0 0.2 0.4 0.6 0.8 100m

Scale 1:2,500 @ A3 Do not scale from this drawing

A057337 SR01-05.cdr July 2009

21 Park Place, Cardiff, CF10 3DQ
Tel: +44 (0) 29 2072 9000 Fax: +44 (0) 29 2039 5965
Email: info@wyg.com www.wyg.com

APPENDIX C
Surface Water Management Plans



The information listed below is contained in the CDM file held at CyH Quarry together with contractors H&S and equipment details

B Jackson 09/01/13

Water Management & Dust Shed Projects
CDM location plan

KEY

Project (new construction)

Pump locations

DRAWING REFERENCES

1 Drg No CyH/Han/SW/001– Schematic Flow Diagram

2 Drg No Han/CyH/Drainage/002 Underground services (cables & pipelines)

3 PSL Structural Projects All construction drawings, pits, roads, drainage channels, hydrobrake chamber & the complete storm bypass outfall to the River Taff

ALL LEVELS IN METRES ABOVE ORDNANCE DATUM

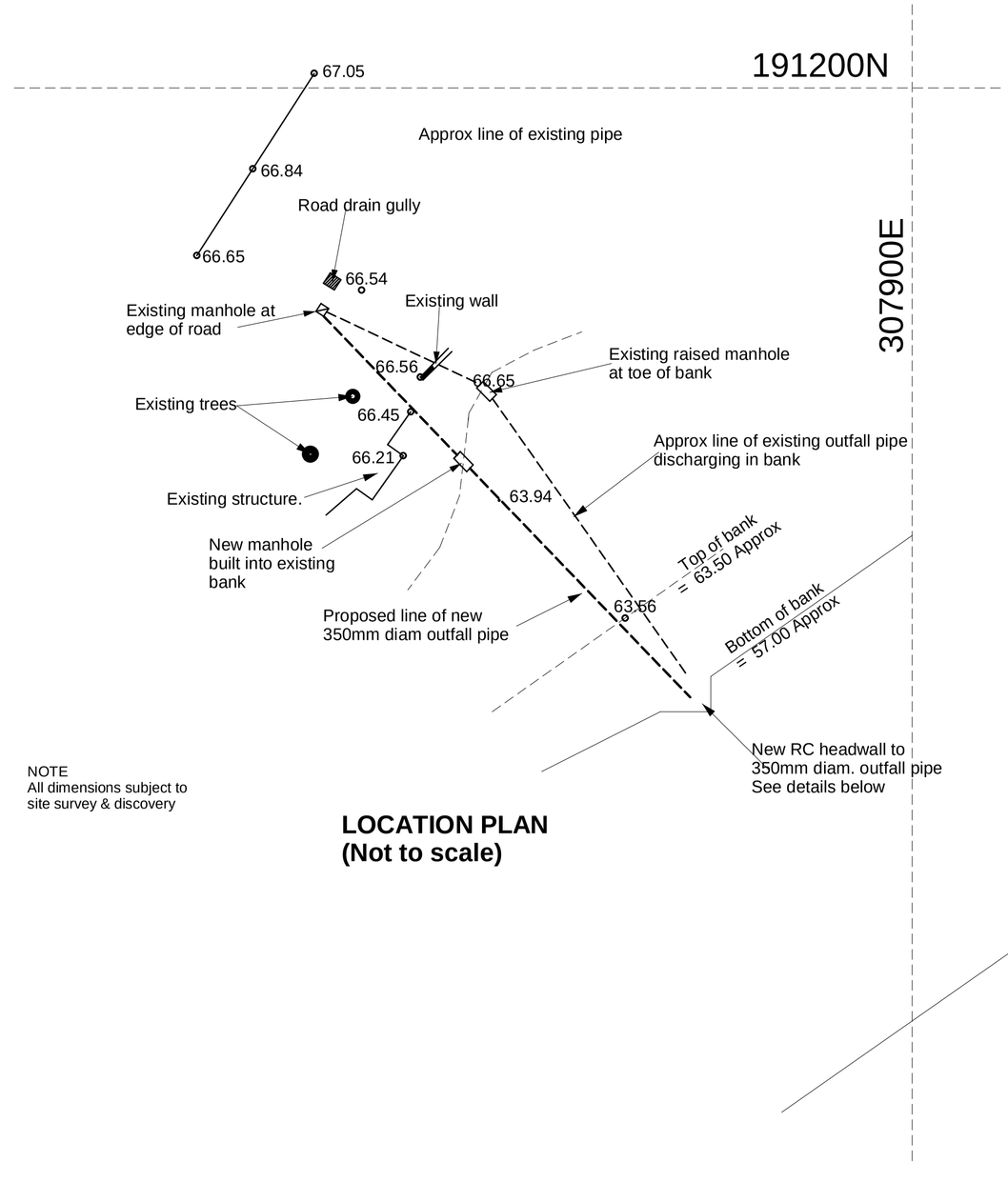
Hanson HEIDELBERGCEMENT Group

Site: CRAIG YR HESG QUARRY

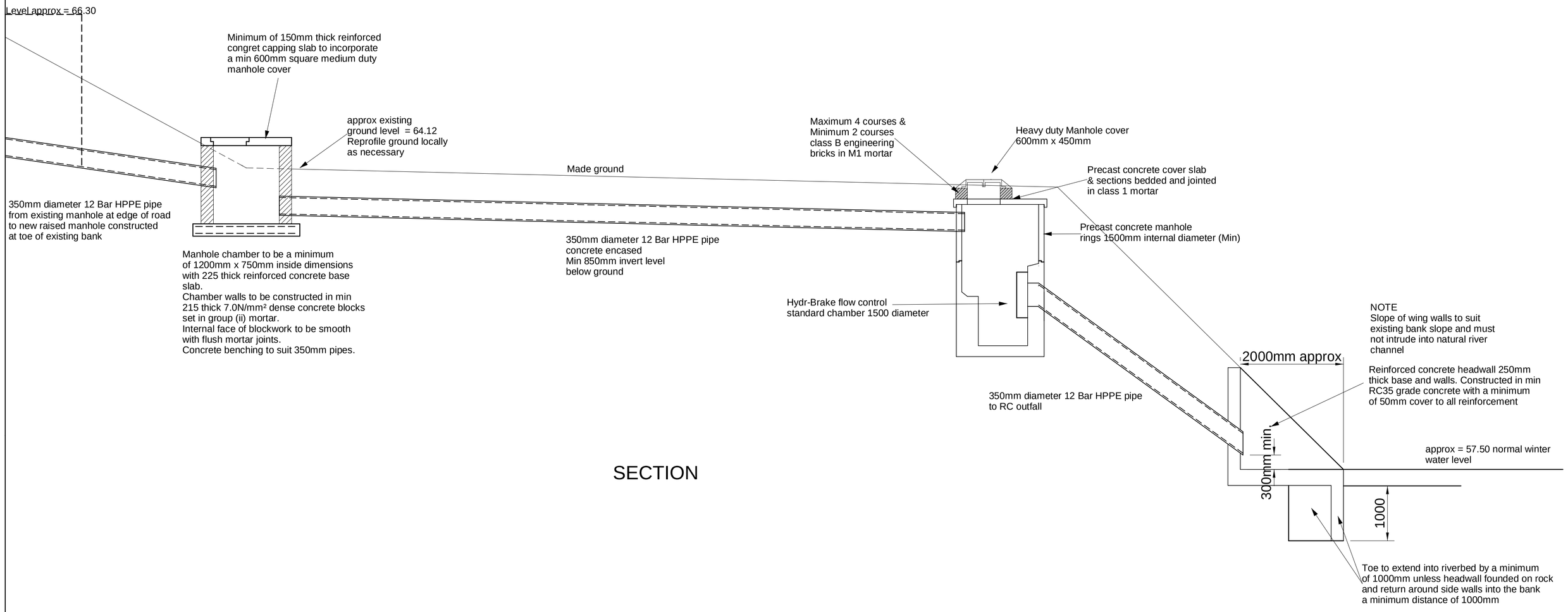
Title: Processing Plant Survey

Scale	Date	Drawing No.
1:500	November 2012	C10–002
Drawn by A.Clemence	Checked by	

PLAN



LOCATION PLAN (Not to scale)



SECTION

Drawing status : **PRELIMINARY**

Rev.	By	Chkd		Date
A	DCP		Hydro-Brake added	01.09.11

Contract: **CRAIG-YR-HESG**

Drg. title: **STORM WATER OUTFALL**

PSL Structural Projects
The Old Forge
Lodway Business Centre Pill
Bristol BS20 0DH
E-mail psl@pslsp.co.uk
Tel 01275 375345 Fax 01275 375441

Con No	Drg No	
P6017	07	
Scale 1:50	Rev A	
Date August 2011	Drawn DCP	Checked

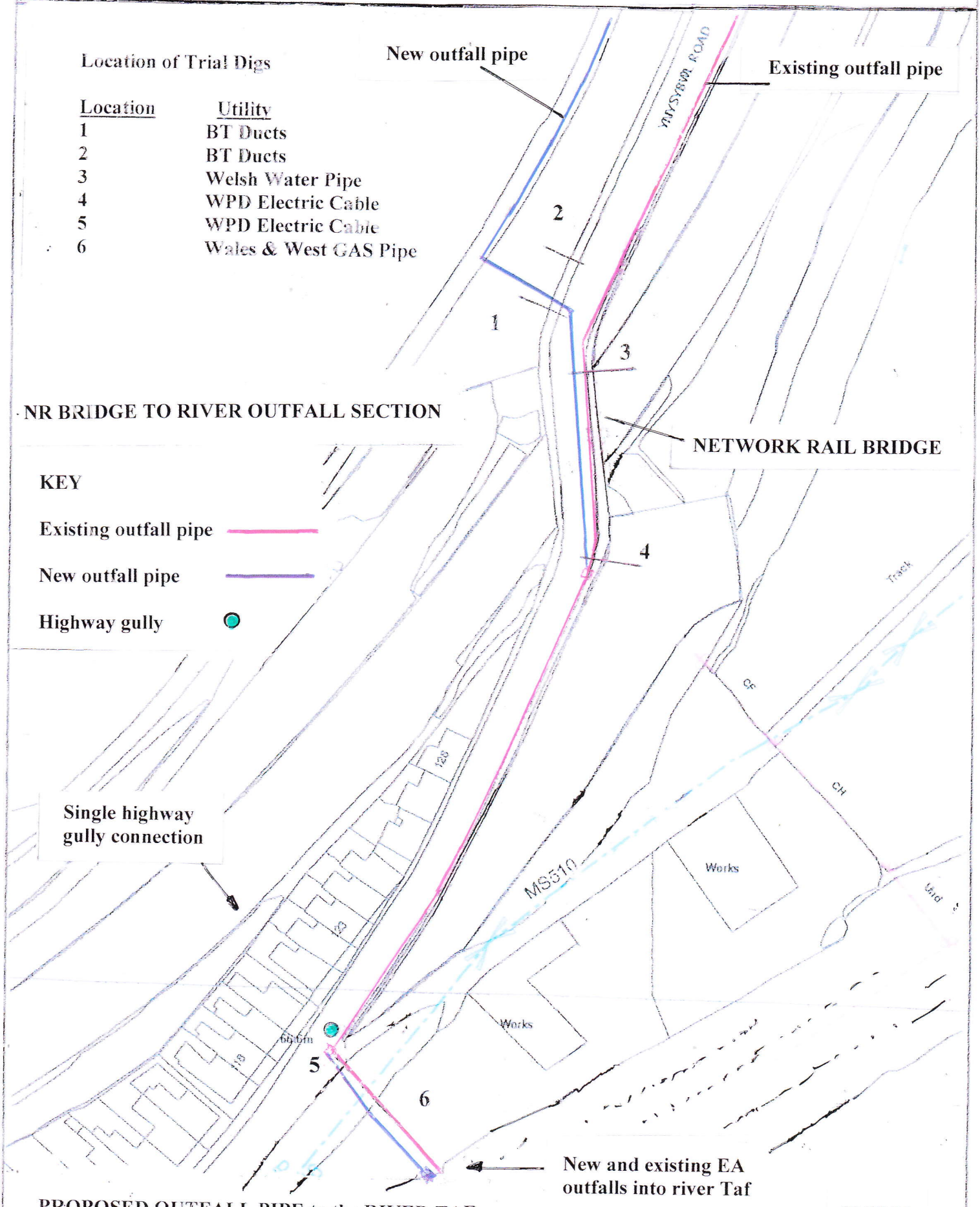
Hanson Aggregates UK

HEIDELBERGCEMENTGroup

CRAIG-YR-HESG QUARRY

Location of Trial Digs

Location	Utility
1	BT Ducts
2	BT Ducts
3	Welsh Water Pipe
4	WPD Electric Cable
5	WPD Electric Cable
6	Wales & West GAS Pipe



PROPOSED OUTFALL PIPE to the RIVER TAF

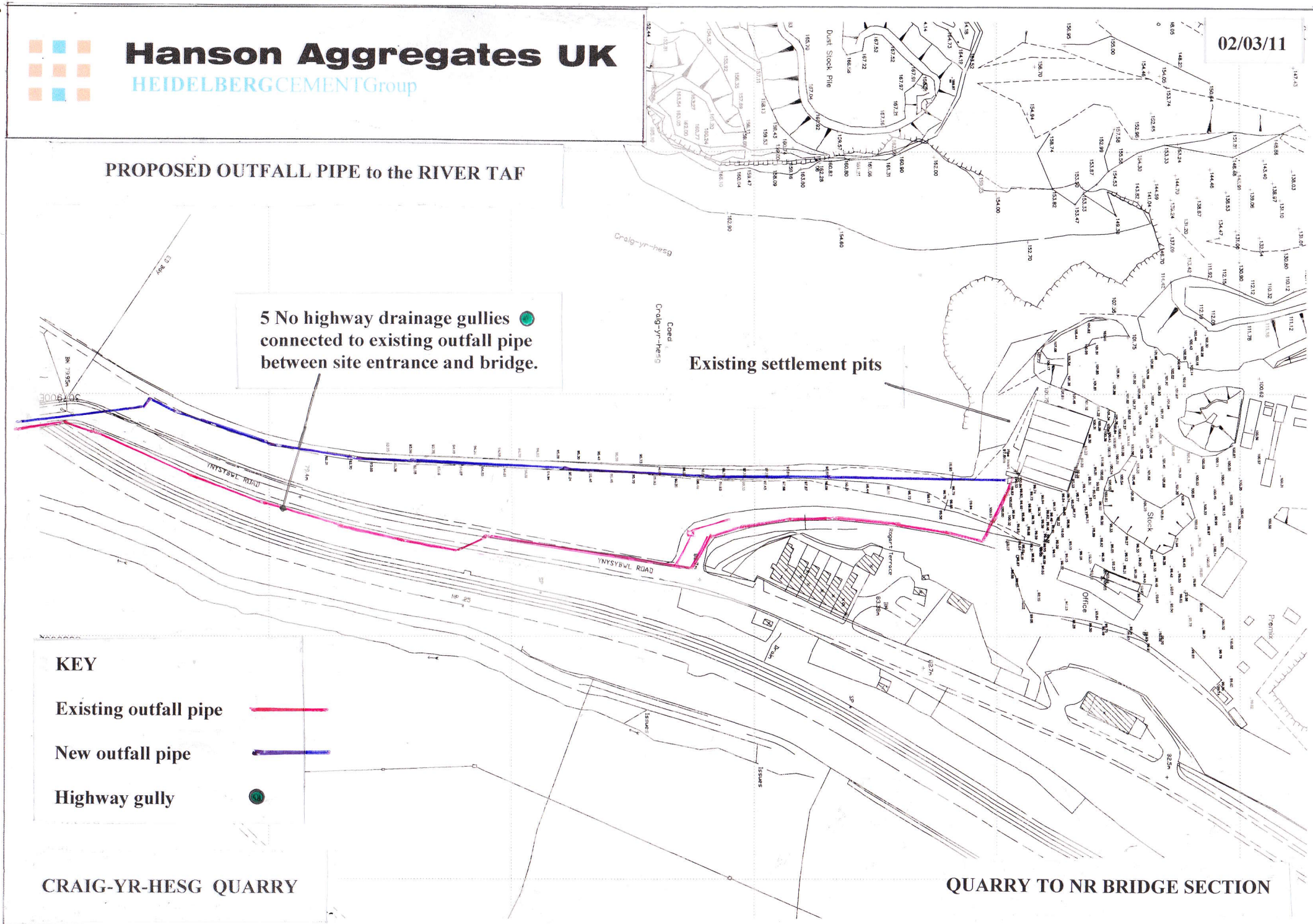
02/03/11

Hanson Aggregates UK

HEIDELBERGCEMENTGroup

02/03/11

PROPOSED OUTFALL PIPE to the RIVER TAF



CRAIG-YR-HESG QUARRY

QUARRY TO NR BRIDGE SECTION

APPENDIX D

Varied Discharge Permit AF4029101

Cyfoeth Naturiol Cymru
Natural Resources Wales

Roger Griffiths
Hanson Quarry products Europe Limited
Hanson House
14 Castle Hill
Maidenhead
SL6 4JJ

Our ref: AF4029101

Date: 24/10/2013

Dear Roger,

Your permit variation is complete

Permit reference: AF4029101
Operator: Hanson Quarry Products Europe Limited
Facility: Craig yr Hesg Quarry

Our determination of your application to vary your permit is complete. We're satisfied that you can continue to carry out your activities in accordance with the variation, without harm to the environment or human health. I enclose a notice showing the changes to your permit. Please keep this in a safe place with your other permit records.

This letter contains web links to other documents. If you aren't able to access these phone our Customer Services Centre for help.

If you're not already familiar with our document 'How to comply with your environmental permit' please look at it, as this will help you understand how to meet the conditions of the permit. You can find this on the Environment Agency's website at

http://publications.environment-agency.gov.uk/pdf/GEHO0410BSFX-e-e.pdf

Ffôn/Tel 029 2046 6253
Ffacs/Fax 029 2046 8874
Ebost/Email laoni.tye@cyfoethnaturiolcymru.gov.uk
laoni.tye@naturalresourceswales.gov.uk

Canolfan Trwyddedu Cymru (Caerdydd), Cyfoeth Naturiol Cymru, Tŷ Cambria, 29 Heol Casnewydd, Caerdydd. CF24 0TP
Wales Permitting Centre (Cardiff), Natural Resources Wales, Cambria House, 29 Newport Road, Cardiff. CF24 0TP

Gwefan/Website www.cyfoethnaturiolcymru.gov.uk
www.naturalresourceswales.gov.uk

Please look at the table below and note any of the information or actions that apply to your permit.

If...	then..
the variation means you are now carrying out a waste operation or activity and need to submit quarterly waste returns on waste movements **Note** This does not apply to permits that only have stand alone water discharge or groundwater activities.	you can get the forms you need from our website www.naturalresourceswales.gov.uk If you do not have web access phone our Customer Services Centre
you need to submit other returns	send these to your area office. Speak to your area officer to check local arrangements.
your variation has added an installation to your permit for the first time	we've enclosed the pollution inventory letter, notice and fact sheet

Rights of appeal

If you are not happy with any permit condition that has been imposed by the variation you may appeal to the Welsh Ministers. If you want to appeal any condition imposed as a result of your application you must make your appeal no later than six months from the date of the variation notice. If you want to appeal any condition we've added as an Natural Resources Wales initiated variation you must make your appeal no later than two months from the date of the notice.

Further information about making an appeal and the forms you will need are available from the Planning Inspectorate website or from the contact details below.

The Planning Inspectorate, Crown Buildings, Cathays Park, Cardiff, CF10 3NQ.

Phone: 029 2082 3866 / 389, Fax: 029 2082 5150, Email: wales@pins.gsi.gov.uk

You must send written notice of the appeal and the documents listed below to the Welsh Ministers to the respective Planning Inspectorate address above. At the same time you must send us a copy of the notice and documents to

Centre Manager, Wales Permitting Centre Cardiff, Natural Resources Wales, Cambria House, 29 Newport Road, Cardiff. CF24 0TP

Phone: 0300 065 3000

The documents are:

- a statement of the grounds of appeal;
- a copy of any relevant application;
- a copy of any relevant environmental permit;
- a copy of any relevant correspondence between the appellant and the regulator;
- a copy of any decision or notice which is the subject matter of the appeal; and
- a statement indicating whether you wish the appeal to be in the form of a hearing or dealt with by way of written representations.

You may withdraw an appeal by notifying the Welsh Ministers in writing and sending a copy of that notification to us.

If you have any questions about this permit phone our Customer Services Centre on 0300 065 3000. They will put you in touch with a local area officer.

Yours sincerely

Laoni Tye
Permitting Officer

Cyfoeth Naturiol Cymru
Natural Resources Wales

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Hanson Quarry Products Europe Limited

Settlement lagoons serving
Craig yr Hesg Quarry
Berw Road
Pontypridd
Mid Glamorgan
CF37 3BG

Variation application number

AF4029101/V001

Permit number

AF4029101

Settlement lagoons serving Craig yr Hesg Quarry Permit number AF4029101

Introductory note

This introductory note does not form a part of the notice.

The following notice gives notice of the variation and consolidation of an environmental permit.

The permit is a variation for a rainfall related discharge consisting of trade effluent from a quarrying site. The effluent consists of site run off and quarry drainage. The discharge is pumped from an attenuation pond before being dosed with flocculants and treated through a series of 6 settlement lagoons. The final effluent then discharges into the River Taff. This variation includes two attenuation ponds and a storm overflow which discharges via a newly constructed outlet to the River Taff.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number. It is not backdated before 6 April 2010.

Status log of the permit		
Description	**Date**	**Comments**
Application received AF4029101/V001 (variation and consolidation)	Duly made 23/07/2013	Application to vary the permit to include a storm overflow.
Variation determined AF4029101	24/10/2013	Varied and consolidated permit issued in modern condition format.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2010

The Natural Resources Body for Wales ("Natural Resources Wales") in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies and consolidates

permit number
AF4029101

issued to:
Hanson Quarry Products Europe Limited ("the operator")

whose registered office is

Hanson House
14 Castle Hill
Maidenhead
SL6 4JJ

company registration number **00300002**

to operate a regulated facility at

Craig yr Hesg Quarry
Berw Road
Pontypridd
Mid Glamorgan
CF37 3BG

to the extent set out in the schedules.

The notice shall take effect from 24/10/2013

Name	Date
Terry Gulliford	**24/10/2013**

Authorised on behalf of Natural Resources Wales

Schedule 1

All conditions have been varied by the consolidated permit as a result of the application made by the operator.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number
AF4029101

This is the consolidated permit referred to in the variation and consolidation notice for application AF4029101/V001 authorising,

Hanson Quarry Products Europe Limited ("the operator"),

whose registered office is

Hanson House
14 Castle Hill
Maidenhead
SL6 4JJ

company registration number 00300002

to operate a water discharge activity at

Craig yr Hesg Quarry
Berw Road
Pontypridd
Mid Glamorgan
CF37 3BG

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Terry Gulliford	**24/10/2013**

Authorised on behalf of Natural Resources Wales

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green and the discharges shall be made at the points marked on the site plan at schedule 7 to this permit and as listed in table S3.2 (discharge points).

2.3 Operating techniques

2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by Natural Resources Wales.

(b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

3 Emissions and monitoring

3.1 Emissions to water

3.1.1 The limits given in schedule 3 table S3.1 shall not be exceeded.

3.2 Emissions of substances not controlled by emission limits

3.2.1 The operator shall take appropriate measures to minimise so far as reasonably practicable the polluting effects of the emissions of substances not controlled by emission limits (excluding odour).

3.2.2 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Monitoring

3.3.1 Permanent means of access shall be provided to enable sampling/monitoring to be carried out at the monitoring points specified in schedule 3 table S3.3 unless otherwise agreed in writing by Natural Resources Wales.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.

4.3 Notifications

4.3.1 Natural Resources Wales shall be notified without delay following the detection of:

(a) any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution;

(b) the breach of a limit specified in schedule 3 table S3.1; or

(c) any significant adverse environmental effects.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

4.3.4 Where the operator proposes to make a change in the nature of the activity by increasing the concentration of, or the addition of, or allowing the introduction of, a pollutant to the activity to an extent that the activity may be liable to cause pollution and the change is not permitted by emission limits specified within schedule 3 table S3.1 or the subject of an application for approval under the EP Regulations or this permit:

(a) Natural Resources Wales shall be notified in writing at least 14 days before the increase or addition or allowing the introduction; and

(b) the notification shall contain a description of the proposed change.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 Activities		
Activity reference	**Description of activity**	**Limits of specified activity**
A1	Discharge of trade effluent consisting of treated quarry drainage via Outlet 1	The effluent must pass through an attenuation pond and a series of settlement lagoons before discharging.
A2	Discharge of trade effluent consisting of quarry drainage from a storm overflow via Outlet 1 and 2.	The discharge shall only occur when the storage in the attenuation ponds is fully utilised and only for as long as the flow passed forward to the settlement lagoons is equal to or greater than 36l/s. The discharge shall only occur through Outlet 1 until flows exceed 50l/s when it will then discharge through Outlet 1 and 2.

Table S1.2 Operating techniques		
Description of documentation	**Parts**	**Date Received**
Hanson Craig Yr Hesg lagoon pumping maintenance agenda	The whole document	22/07/2013
Dosing with cationic flocculants	The whole document	22/07/2013

Schedule 2 - Waste types, raw materials and fuels

Wastes are not accepted as part of the permitted activities and there are no restrictions on raw materials or fuels under this schedule.

Schedule 3 – Emissions and monitoring

Table S3.1 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Discharge source and discharge point ref. & location	**Parameter**	**Limit (including unit)**	**Reference Period**	**Limit of effective range**	**Monitoring frequency**	**Compliance Statistic**
Trade effluent consisting of treated quarry drainage via Outlet 1	Maximum rate of discharge	36 litres per second	Instantaneous (spot sample)	N/A	N/A	Maximum
	Suspended solids (measured after drying at 105° C)	200 mg/l	Instantaneous (spot sample)	N/A	N/A	Maximum
	pH	5 to 9	Instantaneous (spot sample)	N/A	N/A	Minimum and maximum
	Visible oil or grease	No significant trace present	Instantaneous (spot sample)	N/A	N/A	No significant trace

Table S3.2 Discharge points			
Effluent Name	**Discharge Point**	**Discharge point NGR**	**Receiving water**
Discharge of trade effluent consisting of treated quarry drainage	Outlet 1	ST 07890 91165	River Taff
Discharge of trade effluent consisting of treated quarry drainage and storm overflow	Outlet 1 and Outlet 2	ST 07890 91165 ST 07886 91168	River Taff

Table S3.3 Monitoring points			
Effluents and discharge points	**Monitoring type**	**Monitoring point NGR**	**Monitoring point reference**
Discharge of trade effluent consisting of treated quarry drainage via Outlet 1	Effluent sampling	ST 07925 91710	A1
Discharge of trade effluent consisting of treated quarry drainage and storm overflow via Outlet 1 and 2	Effluent sampling	ST 07931 91708	A2

Schedule 4 – Reporting

There is no reporting under this schedule.

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 7 days of detection unless otherwise agreed in writing by Natural Resources Wales	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released/type or nature of effluent released	
Best estimate of the quantity or rate of release of substances and/or duration of discharge	
Best estimate of the environmental impact of the discharge	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit specified in schedule 3 table S3.1	
To be notified as soon as practicable following detection by a reporting system and format specified by Natural Resources Wales	
Monitoring point reference/ source	
Self monitoring regime (where	eg OSM

relevant)	
Type of failure	eg upper tier/other
Date of sample/event	
Parameter	
Result and units	
Limit and units	

Part B - to be submitted as soon as practicable unless otherwise agreed in writing by Natural Resources Wales

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident/breach/exceedance	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

"accident" means an accident that may result in pollution.

"annually" means once every year.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, which are not controlled by an emission or background concentration limit.

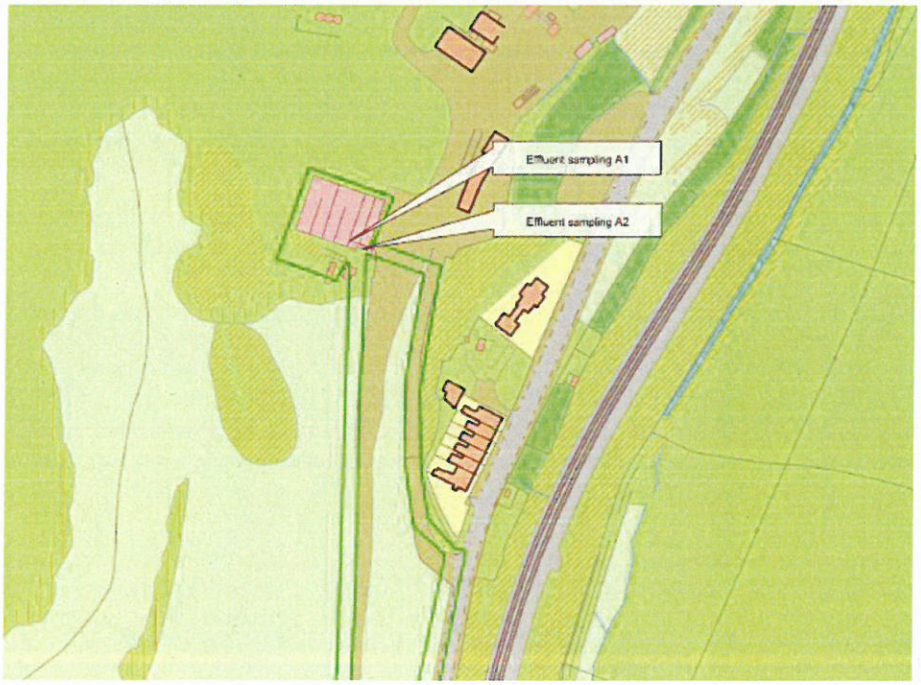
"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

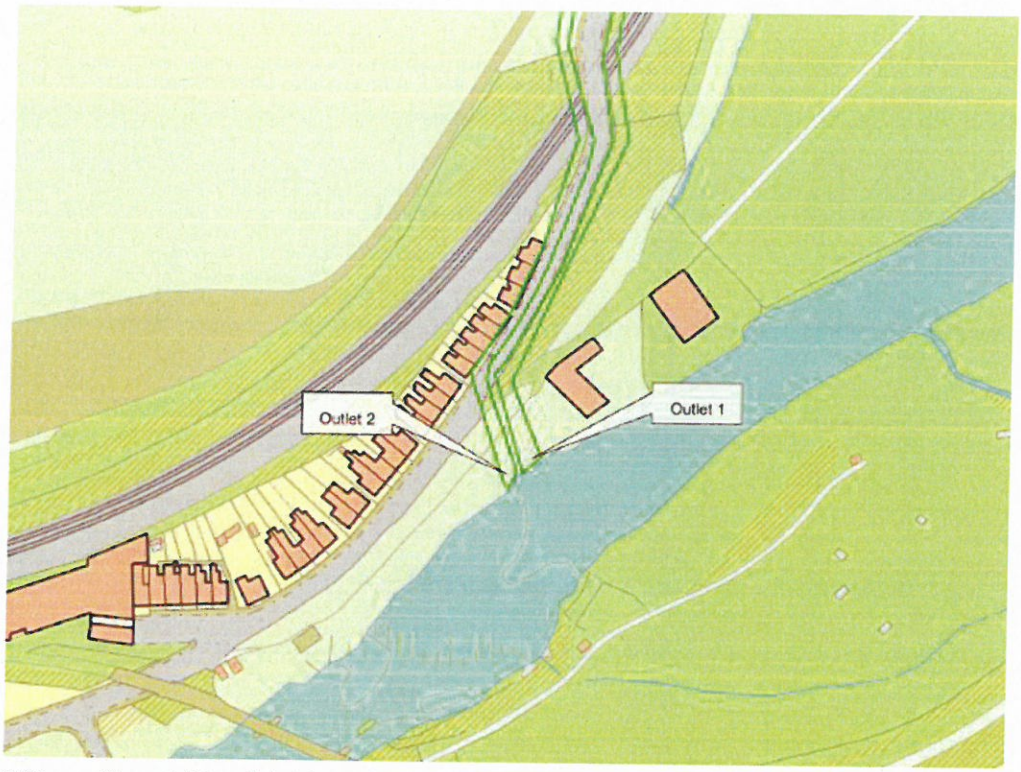
"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"significant pollution" means a category 1 or category 2 incident indicated by the Common Incident Classification Scheme (CICS).

"year" means calendar year ending 31 December.

Schedule 7 - Site plan





END OF PERMIT

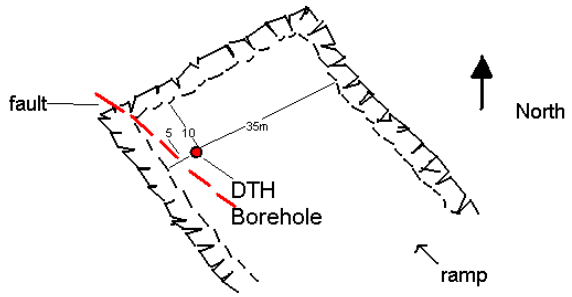
APPENDIX E
Interim Report on Quarry Drainage

Interim Report on Quarry Drainage at CYH Quarry

Date 4th August 2009

A site visit was made on 3rd August 2009 to investigate the disappearance of water through broken ground on the quarry floor sinking at circa 100m AOD. Water continues to be pumped from the 115m AOD level, but instead of raising the water over the “buttress” to the yard settlement system, water is pumped into the sinking.

During the visit a DTH borehole was sunk 44 metres into the floor as illustrated below.



Sketch Plan of 100m AOD Sinking

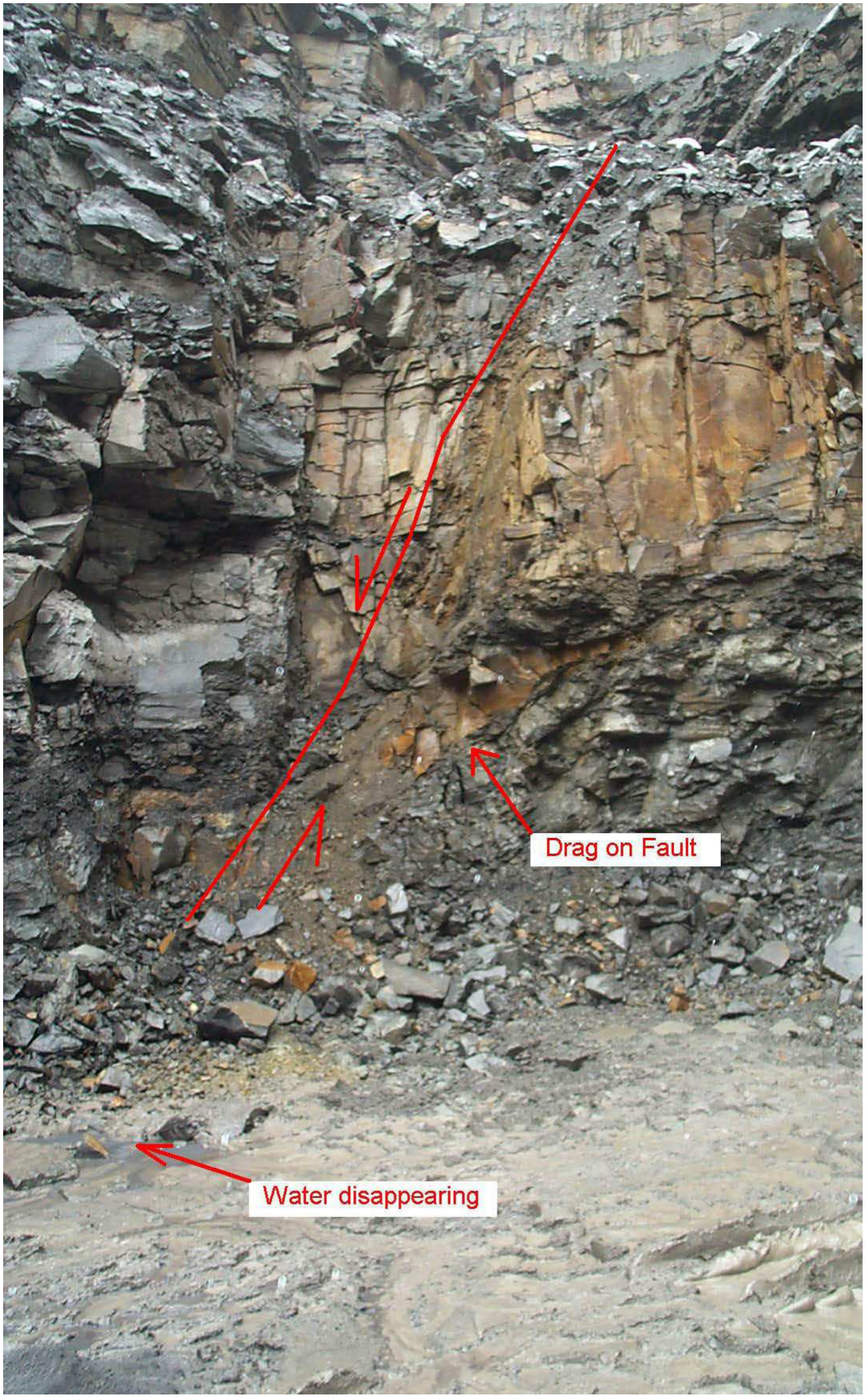
The hole was sunk mainly in sandstone. From 19m depth, the cuttings were coloured from intersection of shale horizons (see photographs). A coal seam was intercepted from 37.0 to 38.5m depth.

During drilling the following observations were made:-

- The drill bit hammer operated continuously
- There was no snatching of the drill bit
- The drill string could be removed from the hole without snagging
- There was no loss of air flush
- The cuttings were dry
- There were no voids

It is therefore concluded that the strata in the floor of the quarry is continuous , competent and unaffected by coal mining.

Observations of the exposed faces revealed a fault (see photographs). The water appeared to be disappearing along the outcrop of this on the quarry floor. A shaley coal seam in the face may have caused a perched aquifer accounting for the need to pump from the 115m AOD level. Breaching the seam and exposure of the fault are the most plausible explanation for the loss of water. The outfall remains unknown.



Quarry floor and face at 100m AOD Level. Fault plane offset slightly to right of red line.

Samples taken from rig dust cyclone. Sample 1 represents 4 metres of strata. Samples 2 – 9 represent 5 metres of sample each. Coal encountered between 37.0 and 38.5 metres depth.

It is recommended:-

- The 6 inch to the mile plan of the area is used to construct a geological succession / section through the base of the quarry.
- Mining records for the site are obtained from The Coal Authority.

JHF Sedman
Engineering Geologist.

APPENDIX F

Runoff Calculations

Pre Development (Best Estimate)

Extension Area

1 in 100 Year run-off Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	0.55	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	5.5	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: freely draining acid loamy soils over rock

Climate change factor (% rainfall increase)

0

Off site discharge rate 0 l/s

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Run-off Volume m^3
0.5	38.33	76.66	645	1,160
0.75	44.61	59.48	500	1,351
1	49.67	49.67	418	1,504
2	64.36	32.18	271	1,948
3	74.9	24.97	210	2,268
4	83.4	20.85	175	2,525
5	90.65	18.13	152	2,744
6	**97.05**	**16.18**	**136**	**2,938**
8	108.06	13.51	114	3,271
10	117.46	11.75	99	3,556
12	125.75	10.48	88	3,807
16	137.19	8.57	72	4,153
20	146.78	7.34	62	4,444
24	155.12	6.46	54	4,696
28	162.53	5.80	49	4,920
32	169.23	5.29	44	5,123
36	175.38	4.87	41	5,309
40	181.06	4.53	38	5,481
44	186.37	4.24	36	5,642
48	**191.34**	**3.99**	**34**	**5,793**

Input values have been highlighted in yellow throughout this appendix.

Post Development (Best Estimate)

Extension Area

1 in 100 Year Run-off Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	0.6	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	5.5	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: soils removed and vegatation removed - the exposed rock surface will be classed as bare ground in the nomogram with a "clay" soil cover. The proposed gradient is 54%

Climate change factor (% rainfall increase)

0

Off site discharge rate 0 l/s

Storage Area 0 m^2

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Attenuation Volume m^3	Rise in attenuation water level m
0.5	38.33	76.66	703	1,266	#DIV/0!
0.75	44.61	59.48	546	1,473	#DIV/0!
1	49.67	49.67	456	1,640	#DIV/0!
2	64.36	32.18	295	2,126	#DIV/0!
3	74.9	24.97	229	2,474	#DIV/0!
4	83.4	20.85	191	2,754	#DIV/0!
5	90.65	18.13	166	2,994	#DIV/0!
6	**97.05**	**16.18**	**148**	**3,205**	**#DIV/0!**
8	108.06	13.51	124	3,569	#DIV/0!
10	117.46	11.75	108	3,879	#DIV/0!
12	125.75	10.48	96	4,153	#DIV/0!
16	137.19	8.57	79	4,531	#DIV/0!
20	146.78	7.34	67	4,848	#DIV/0!
24	155.12	6.46	59	5,123	#DIV/0!
28	162.53	5.80	53	5,368	#DIV/0!
32	169.23	5.29	49	5,589	#DIV/0!
36	175.38	4.87	45	5,792	#DIV/0!
40	181.06	4.53	42	5,980	#DIV/0!
44	186.37	4.24	39	6,155	#DIV/0!
48	191.34	3.99	37	6,319	#DIV/0!

Post Development (Best Estimate)

Extension Area

1 in 100 Year + CC Run-off Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	0.6	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	5.5	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: soils removed and vegatation removed - the exposed rock surface will be classed as bare ground in the nomogram with a "clay" soil cover. The proposed gradient is 54%

Climate change factor (% rainfall increase)

30

Off site discharge rate 0 l/s

Storage Area 0 m^2

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Attenuation Volume m^3	Rise in attenuation water level m
0.5	38.33	76.66	914	1,646	#DIV/0!
0.75	44.61	59.48	709	1,915	#DIV/0!
1	49.67	49.67	592	2,133	#DIV/0!
2	64.36	32.18	384	2,763	#DIV/0!
3	74.9	24.97	298	3,216	#DIV/0!
4	83.4	20.85	249	3,581	#DIV/0!
5	90.65	18.13	216	3,892	#DIV/0!
6	**97.05**	**16.18**	**193**	**4,167**	**#DIV/0!**
8	108.06	13.51	161	4,639	#DIV/0!
10	117.46	11.75	140	5,043	#DIV/0!
12	125.75	10.48	125	5,399	#DIV/0!
16	137.19	8.57	102	5,890	#DIV/0!
20	146.78	7.34	88	6,302	#DIV/0!
24	155.12	6.46	77	6,660	#DIV/0!
28	162.53	5.80	69	6,978	#DIV/0!
32	169.23	5.29	63	7,266	#DIV/0!
36	175.38	4.87	58	7,530	#DIV/0!
40	181.06	4.53	54	7,774	#DIV/0!
44	186.37	4.24	51	8,002	#DIV/0!
48	191.34	3.99	48	8,215	#DIV/0!

Post Development (Worst Case)

Extension Area

1 in 100 Year + CC Run-off Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	1	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	5.5	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: soils removed and vegatation removed - the exposed rock surface will be classed as bare ground in the nomogram with a "clay" soil cover. The proposed gradient is 54%

Climate change factor (% rainfall increase)

30

Off site discharge rate 0 l/s

Storage Area 0 m^2

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Attenuation Volume m^3	Rise in attenuation water level m
0.5	38.33	76.66	1,524	2,743	#DIV/0!
0.75	44.61	59.48	1,182	3,192	#DIV/0!
1	49.67	49.67	987	3,554	#DIV/0!
2	64.36	32.18	640	4,605	#DIV/0!
3	74.9	24.97	496	5,360	#DIV/0!
4	83.4	20.85	414	5,968	#DIV/0!
5	90.65	18.13	360	6,487	#DIV/0!
6	**97.05**	**16.18**	**322**	**6,945**	**#DIV/0!**
8	108.06	13.51	268	7,732	#DIV/0!
10	117.46	11.75	233	8,405	#DIV/0!
12	125.75	10.48	208	8,998	#DIV/0!
16	137.19	8.57	170	9,817	#DIV/0!
20	146.78	7.34	146	10,503	#DIV/0!
24	155.12	6.46	128	11,100	#DIV/0!
28	162.53	5.80	115	11,630	#DIV/0!
32	169.23	5.29	105	12,110	#DIV/0!
36	175.38	4.87	97	12,550	#DIV/0!
40	181.06	4.53	90	12,956	#DIV/0!
44	186.37	4.24	84	13,336	#DIV/0!
48	**191.34**	**3.99**	**79**	**13,692**	**#DIV/0!**

Post Development (Best Estimate)

Main Pit

1 in 100 Year Run-off Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	0.6	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	15.4	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: soils removed and vegatation removed - the exposed rock surface will be classed as bare ground in the nomogram with a "clay" soil cover. The proposed gradient is 54%

Climate change factor (% rainfall increase)

0

Off site discharge rate 0 l/s

Storage Area 0 m^2

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Attenuation Volume m^3	Rise in attenuation water level m
0.5	38.33	76.66	1,969	3,545	#DIV/0!
0.75	44.61	59.48	1,528	4,125	#DIV/0!
1	49.67	49.67	1,276	4,593	#DIV/0!
2	64.36	32.18	827	5,952	#DIV/0!
3	74.9	24.97	641	6,926	#DIV/0!
4	83.4	20.85	536	7,712	#DIV/0!
5	90.65	18.13	466	8,383	#DIV/0!
6	**97.05**	**16.18**	**415**	**8,975**	**#DIV/0!**
8	108.06	13.51	347	9,993	#DIV/0!
10	117.46	11.75	302	10,862	#DIV/0!
12	125.75	10.48	269	11,629	#DIV/0!
16	137.19	8.57	220	12,686	#DIV/0!
20	146.78	7.34	189	13,573	#DIV/0!
24	155.12	6.46	166	14,345	#DIV/0!
28	162.53	5.80	149	15,030	#DIV/0!
32	169.23	5.29	136	15,649	#DIV/0!
36	175.38	4.87	125	16,218	#DIV/0!
40	181.06	4.53	116	16,743	#DIV/0!
44	186.37	4.24	109	17,234	#DIV/0!
48	**191.34**	**3.99**	**102**	**17,694**	**#DIV/0!**

Post Development (Best Estimate)

Main Pit

1 in 100 Year Run-off + CC Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	0.6	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	15.4	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: soils removed and vegatation removed - the exposed rock surface will be classed as bare ground in the nomogram with a "clay" soil cover. The proposed gradient is 54%

Climate change factor (% rainfall increase)

30

Off site discharge rate 0 l/s

Storage Area 0 m^2

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Attenuation Volume m^3	Rise in attenuation water level m
0.5	38.33	76.66	2,560	4,608	#DIV/0!
0.75	44.61	59.48	1,986	5,363	#DIV/0!
1	49.67	49.67	1,659	5,971	#DIV/0!
2	64.36	32.18	1,075	7,737	#DIV/0!
3	74.9	24.97	834	9,004	#DIV/0!
4	83.4	20.85	696	10,026	#DIV/0!
5	90.65	18.13	605	10,898	#DIV/0!
6	**97.05**	**16.18**	**540**	**11,667**	**#DIV/0!**
8	108.06	13.51	451	12,991	#DIV/0!
10	117.46	11.75	392	14,121	#DIV/0!
12	125.75	10.48	350	15,117	#DIV/0!
16	137.19	8.57	286	16,492	#DIV/0!
20	146.78	7.34	245	17,645	#DIV/0!
24	155.12	6.46	216	18,648	#DIV/0!
28	162.53	5.80	194	19,539	#DIV/0!
32	169.23	5.29	177	20,344	#DIV/0!
36	175.38	4.87	163	21,083	#DIV/0!
40	181.06	4.53	151	21,766	#DIV/0!
44	186.37	4.24	141	22,405	#DIV/0!
48	191.34	3.99	133	23,002	#DIV/0!

Post Development (Worst Case)

Main Pit

1 in 100 Year Run-off + CC Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	1	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	15.4	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: soils removed and vegatation removed - the exposed rock surface will be classed as bare ground in the nomogram with a "clay" soil cover. The proposed gradient is 54%

Climate change factor (% rainfall increase)

30

Off site discharge rate 0 l/s

Storage Area 0 m^2

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Attenuation Volume m^3	Rise in attenuation water level m
0.5	38.33	76.66	4,267	7,680	#DIV/0!
0.75	44.61	59.48	3,310	8,938	#DIV/0!
1	49.67	49.67	2,764	9,952	#DIV/0!
2	64.36	32.18	1,791	12,895	#DIV/0!
3	74.9	24.97	1,390	15,007	#DIV/0!
4	83.4	20.85	1,160	16,710	#DIV/0!
5	90.65	18.13	1,009	18,163	#DIV/0!
6	**97.05**	**16.18**	**900**	**19,445**	**#DIV/0!**
8	108.06	13.51	752	21,651	#DIV/0!
10	117.46	11.75	654	23,534	#DIV/0!
12	125.75	10.48	583	25,195	#DIV/0!
16	137.19	8.57	477	27,487	#DIV/0!
20	146.78	7.34	408	29,409	#DIV/0!
24	155.12	6.46	360	31,080	#DIV/0!
28	162.53	5.80	323	32,565	#DIV/0!
32	169.23	5.29	294	33,907	#DIV/0!
36	175.38	4.87	271	35,139	#DIV/0!
40	181.06	4.53	252	36,277	#DIV/0!
44	186.37	4.24	236	37,341	#DIV/0!
48	**191.34**	**3.99**	**222**	**38,337**	**#DIV/0!**

Post development (Best Estimate)

Processing Area

1 in 100 Year Run-off Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	0.6	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	4.6	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: soils removed and vegatation removed - the exposed rock surface will be classed as bare ground in the nomogram with a "clay" soil cover. The proposed gradient is 54%

Climate change factor (% rainfall increase)

0

Off site discharge rate 0 l/s

Storage Area 0 m^2

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Attenuation Volume m^3	Rise in attenuation water level m
0.5	38.33	76.66	588	1,059	#DIV/0!
0.75	44.61	59.48	456	1,232	#DIV/0!
1	49.67	49.67	381	1,372	#DIV/0!
2	64.36	32.18	247	1,778	#DIV/0!
3	74.9	24.97	192	2,069	#DIV/0!
4	83.4	20.85	160	2,304	#DIV/0!
5	90.65	18.13	139	2,504	#DIV/0!
6	**97.05**	**16.18**	**124**	**2,681**	**#DIV/0!**
8	108.06	13.51	104	2,985	#DIV/0!
10	117.46	11.75	90	3,244	#DIV/0!
12	125.75	10.48	80	3,473	#DIV/0!
16	137.19	8.57	66	3,789	#DIV/0!
20	146.78	7.34	56	4,054	#DIV/0!
24	155.12	6.46	50	4,285	#DIV/0!
28	162.53	5.80	45	4,489	#DIV/0!
32	169.23	5.29	41	4,674	#DIV/0!
36	175.38	4.87	37	4,844	#DIV/0!
40	181.06	4.53	35	5,001	#DIV/0!
44	186.37	4.24	32	5,148	#DIV/0!
48	191.34	3.99	31	5,285	#DIV/0!

Post development (Best Estimate)

Processing Area

1 in 100 Year Run-off + CC Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	0.6	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	4.6	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: soils removed and vegatation removed - the exposed rock surface will be classed as bare ground in the nomogram with a "clay" soil cover. The proposed gradient is 54%

Climate change factor (% rainfall increase)

30

Off site discharge rate 0 l/s

Storage Area 0 m^2

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Attenuation Volume m^3	Rise in attenuation water level m
0.5	38.33	76.66	765	1,376	#DIV/0!
0.75	44.61	59.48	593	1,602	#DIV/0!
1	49.67	49.67	495	1,784	#DIV/0!
2	64.36	32.18	321	2,311	#DIV/0!
3	74.9	24.97	249	2,690	#DIV/0!
4	83.4	20.85	208	2,995	#DIV/0!
5	90.65	18.13	181	3,255	#DIV/0!
6	**97.05**	**16.18**	**161**	**3,485**	**#DIV/0!**
8	108.06	13.51	135	3,880	#DIV/0!
10	117.46	11.75	117	4,218	#DIV/0!
12	125.75	10.48	105	4,516	#DIV/0!
16	137.19	8.57	86	4,926	#DIV/0!
20	146.78	7.34	73	5,271	#DIV/0!
24	155.12	6.46	64	5,570	#DIV/0!
28	162.53	5.80	58	5,836	#DIV/0!
32	169.23	5.29	53	6,077	#DIV/0!
36	175.38	4.87	49	6,298	#DIV/0!
40	181.06	4.53	45	6,502	#DIV/0!
44	186.37	4.24	42	6,692	#DIV/0!
48	191.34	3.99	40	6,871	#DIV/0!

Post development (Worst Case)

Processing Area

1 in 100 Year Run-off + CC Calculated using the Rational Formula

Peak Flow Q=2.78CiA l/s

C	1	Coefficient of run-off (dimensionless)
i	see below	Rainfall intensity (mm/hr)
Area	4.6	Catchment area (ha)

C is calculated from Nomogram, including components of gradient of slope and ground conditions

Ground Conditions: soils removed and vegatation removed - the exposed rock surface will be classed as bare ground in the nomogram with a "clay" soil cover. The proposed gradient is 54%

Climate change factor (% rainfall increase)

30

Off site discharge rate 0 l/s

Storage Area 0 m^2

Duration hours	Rainfall 100 yr event mm	Rainfall intensity 100 yr event mm/hr	Flow 100 yr +cc event l/s	Attenuation Volume m^3	Rise in attenuation water level m
0.5	38.33	76.66	1,274	2,294	#DIV/0!
0.75	44.61	59.48	989	2,670	#DIV/0!
1	49.67	49.67	826	2,973	#DIV/0!
2	64.36	32.18	535	3,852	#DIV/0!
3	74.9	24.97	415	4,483	#DIV/0!
4	83.4	20.85	347	4,991	#DIV/0!
5	90.65	18.13	301	5,425	#DIV/0!
6	97.05	16.18	269	5,808	#DIV/0!
8	108.06	13.51	225	6,467	#DIV/0!
10	117.46	11.75	195	7,030	#DIV/0!
12	125.75	10.48	174	7,526	#DIV/0!
16	137.19	8.57	143	8,211	#DIV/0!
20	146.78	7.34	122	8,784	#DIV/0!
24	155.12	6.46	107	9,284	#DIV/0!
28	162.53	5.80	96	9,727	#DIV/0!
32	169.23	5.29	88	10,128	#DIV/0!
36	175.38	4.87	81	10,496	#DIV/0!
40	181.06	4.53	75	10,836	#DIV/0!
44	186.37	4.24	70	11,154	#DIV/0!
48	**191.34**	**3.99**	**66**	**11,451**	**#DIV/0!**

9.4 Discharge Consent details.

WIMS Active Discharge Consents

Consent Number	Version Number	Date Issued	Date Effective	Date Reviewed	Consent Comment	Name	Address	Discharge Site NGR	Discharge Type
AN0156801	2	26-Mar-02	27-Mar-02	25-Mar-06	NON - TIDAL WATERCOURSE	PWLLGWAUN ROAD CSO	PWLLGWAUN ROAD CSO, PWLLGWAUN ROAD, PWLLGWAUN, PONTYPRIDD	ST0675090290	Sewerage Network - Sewers - water company
AN0080101	2	02-Mar-01	03-Mar-01	01-Mar-05	NON - TIDAL WATERCOURSE	MILL ST CSO CAR PK ADJ PLAS CARMEL	MILL ST CSO, CAR PK ADJ PLAS CARMEL, RHONDDA ROAD PONTYPRIDD	ST0704090100	Sewerage Network - Sewers - water company
AN0330401	1	29-Jan-03	31-Mar-03	28-Jan-07		A CSO AT TAFF STREET PONTYPRIDD	TAFF STREET CSO, PONTYPRIDD, RHONDDA CYNON TAFF	ST0730590065	Sewerage Network - Sewers - water company
AG0004501	11	31-Mar-10	31-Mar-10			CILFYNYDD STW CILFYNYDD PONTYPRID	CILFYNYDD STW, CILFYNYDD, PONTYPRIDD, RHONDDA CYNON TAFF	ST0823192861	Sewage Disposal Works - water company
AN0241501	2	19-Mar-03	31-Mar-03	18-Mar-07	NON - TIDAL WATERCOURSE	LOWER MILL STREET CSO PONTYPRIDD	ASSETT NO 71166, CSO LOWER MILL STREET, PONTYPRIDD, RHONDDA CYNON TAFF CBC	ST0712690024	Sewerage Network - Sewers - water company
AN0080401	2	08-Sep-10	08-Sep-10			WEST STREET, PONTYPRIDD	WEST STREET, PONTYPRIDD, CF37 4PD	ST0750090400	Sewerage Network - Sewers - water company
AF4029101	3	26-Oct-93	26-Oct-93	25-Oct-95		CRAIG YR HESG QUARRY BERW ROAD PON	CRAIG YR HESG QUARRY BERW ROAD, PONTYPRIDD	ST0780091250	Extraction of Stone, Gravel, etc
NPSWQD004364	2	27-Jan-09	27-Jan-09	23-Dec-12		PARK PLACE HIGH LEVEL OVERFLOW	PARK PLACE, CILFYNYDD, PONTYPRIDD, MID GLAMORGAN, CF37 4NX	ST0885792662	Sewerage Network - Sewers - water company
AN0249701	1	16-Nov-94	31-Mar-95	15-Nov-96	NON - TIDAL WATERCOURSE	SPS AT REAR OF TAFF ST PONTYPRIDD	SPS AT REAR OF TAFF ST PONTYPR, PONTYPRIDD	ST0733090150	Sewerage Network - Pumping Station - water company
AN0238301	3	11-Jan-06	31-Mar-06	30-Mar-10	NON - TIDAL WATERCOURSE	SION STREET SEWAGE PUMPING STATION	SION ST SEWAGE PUMPING STATION, PONTYPRIDD, RHONDDA CYNON TAFF, CF37 4SD	ST0746390532	Sewerage Network - Pumping Station - water company

Consent Number	Version Number	Date Issued	Date Effective	Date Reviewed	Consent Comment	Name	Address	Discharge Site NGR	Discharge Type
AG0004601	4	23-Oct-13	23-Oct-13	08-Oct-10	NON - TIDAL WATERCOURSE	CILFYNYDD STW CILFYNYDD PONTYPRID	CILFYNYDD STW, PONTYPRIDD	ST0823192861	Sewage Disposal Works - water company
AN0099601	2	17-Feb-00	31-Mar-00	16-Feb-04	NON - TIDAL WATERCOURSE	FLUSHING STATIONS CSO YNYSYBWL	FLUSHING STATIONS CSO, FIELD NEXT TO THE ALLOTMENTS, YNYSYBWL	ST0659092870	Sewerage Network - Sewers - water company
AN0033701	10	26-Jun-09	01-Jan-10		OSM MODIFICATION	CYNON VALLEY STW GLYNCOCH PONTY	CYNON VALLEY STW, GLYNCOCH, PONTYPRIDD, CF37 4WX	ST0814992997	Sewage Disposal Works - water company
AN0332501	1	11-Jun-03	11-Jun-03	10-Jun-07		EGAN WASTE SERVICES OLD COACH WORKS	EGAN WASTE SERVICES, THE OLD COACH WORKS, BERW ROAD, PONTYPRIDD, CF37 2AB	ST0793591195	Other Vehicles
AF4001901	2	27-Mar-06	31-Mar-06	26-Mar-10	NON - TIDAL WATERCOURSE	CYNON VALLEY STW GLYNCOCH PONTY	CYNON VALLEY STW, GLYNCOCH, PONTYPRIDD, CF37 4WX	ST0814992997	Sewage Disposal Works - water company
AN0337101	1	30-Mar-03	30-Mar-03	30-Mar-07		CSO CROSSBROOK STREET PONTYPRIDD	COMBINED SEWER OVERFLOW, CROSSBROOK STREET, PONTYPRIDD	ST0730590331	Sewerage Network - Sewers - water company
AN0057802	2	16-Oct-91	16-Oct-91	16-Oct-93	NON - TIDAL WATERCOURSE	GROVERS FIELD DEVELOPMENT YNYSYBW	GROVERS FIELD DEVELOPMENT, YNYSYBWL	ST0772092630	Sewerage Network - Pumping Station - water company
AN0079801	2	04-Feb-02	31-Mar-02	03-Feb-06	NON - TIDAL WATERCOURSE	CSO AT PWLLGWAUN SHEPHERD STREET	CSO AT PWLLGWAUN, SHEPHERD STREET GARAGE, SHEPHERD STREET, PONTYPRIDD	ST0659090360	Sewerage Network - Sewers - water company
AE2017703	2	19-Mar-03	31-Mar-03	18-Mar-07	NON - TIDAL WATERCOURSE	YNYSANGHARAD HIGH LEVEL RELIEF CSO	YNYSANGHARAD HIGH LEVEL RELIEF, COMBINED SEWER OVERFLOW, PONTYPRIDD	ST0726589971	Sewerage Network - Sewers - water company
AN0156701	2	23-Dec-08	23-Dec-08	23-Dec-12	NON - TIDAL WATERCOURSE	PARK PLACE CSO	PARK PLACE CILFYNYDD , PONTYPRIDD	ST0878092650	Sewerage Network - Sewers - water company

10 NOISE

10.1 Extracts from MTAN1

Appendix 10-1 MTAN1 Paragraphs 85 to 88

Noise

85. Where aggregates extraction and related operations occur close to areas that are sensitive to noise, particularly residential areas, noise impact must be minimised to acceptable levels. The effects of noise should be fully considered in formulating future proposals for aggregates extraction and noise emissions should be monitored throughout the permitted mineral activity. **Where the effects cannot be adequately controlled or mitigated, planning permission should be refused**.

86. Minerals Planning Guidance Note 11: The Control of Noise at Surface Mineral Workings (1993) provides advice on the monitoring and assessment of noise levels and much is still applicable (see paragraph 4 for cancellations). The Technical Advice Note (TAN) for Noise[53] provides advice on how the planning system can be used to minimise the adverse impact of noise. Although the TAN does not deal specifically with noise from surface mineral extraction sites, general points are applicable and explanations of noise measurement terms are also relevant. Noise can also be controlled under Part III of the Environmental Protection Act 1990, which requires local authorities to inspect their areas to detect any statutory nuisances and to investigate complaints. Action can be taken through the courts, if necessary, to secure the abatement of a statutory noise nuisance.

[53]Planning Guidance (Wales) Technical Advice Note (Wales) 11 Noise, Welsh Office, October 1997

87. The aggregates industry should aim to keep noise emissions at a level that reflects the highest possible environmental standards, taking all reasonable steps to achieve quieter working while having regard to the principles of BATNEEC – the best available technique not entailing excessive cost. MPAs should have regard to the background noise levels and the threshold at which significant effects are likely at noise sensitive areas and properties when considering the acceptability of proposals or setting noise limits in a planning condition. Conditions on planning permissions should identify the noise sensitive properties at which noise limits are set and establish a scheme of monitoring that identifies how, where and when noise is to be measured and how the results will be used and assessed.

88. **Noise limits** –noise limits should relate to the background noise levels[54], subject to a maximum daytime noise limit of 55 dB(A) where background noise levels exceed 45 dB(A). 55 dB(A) is the lower limit of the daytime noise levels where serious annoyance is caused. Where background noise is less than 45 dB(A), noise limits should be defined as background noise levels plus 10 dB(A). Night-time working limits should not exceed 42 dB(A) at noise sensitive properties. Daytime working is defined as 0700-1900 hours and night-time as 1900-0700 hours. Noise limits should be set in terms of LAeq,T over a 1-hour measuring period. LAeq, is the noise index used to describe the "average" level of noise that varies with time (T) and should be measured "free-field" that is, at least 3.5 metres away from a façade to prevent reflection of noise by any façade that faces the noise source. During temporary and short-term operations higher levels may be reasonable but should not exceed 67dB(A) for periods of up to 8 weeks in a year at specified noise sensitive properties.

[54]Background noise is normally measured as $L_{A90,T}$ or the noise level exceeded for 90% of the specified measurement period (T).

10.2 Glossary of Acoustic Terms

Appendix 10-2 Glossary of Acoustic Terms

Decibels dB Noise levels are measured in decibels. The decibel is the logarithmic ratio of the sound pressure to a reference pressure (2x10-5 Pascals). The decibel scale gives a reasonable approximation to the human perception of relative loudness. In terms of human hearing, audible sounds range from the threshold of hearing (0 dB) to the threshold of pain (140 dB).

A-weighted Decibels dB(A) The 'A'-weighting filter emulates human hearing response for low levels of sound. The filter network is incorporated electronically into sound level meters. Sound pressure levels measured using an 'A'-weighting filter have units of dB(A) which is a single figure value to represent the overall noise level for the entire frequency range.

Façade Noise Level Façade noise measurements are those undertaken near to reflective surfaces such as walls, usually at a distance of 1m from the surface. Façade noise levels at 1m from a reflective surface are normally around 3 dB greater than those obtained under free field conditions.

Free field Noise Level Free field noise measurements are those undertaken away from any reflective surfaces other than the ground.

Frequency Hz The frequency of a noise is the number of pressure variations per second, and relates to the "pitch" of the sound. Hertz (Hz) is the unit of frequency and is the same as cycles per second. Normal, healthy human hearing can detect sounds from around 20 Hz to 20 kHz.

Octave and Third-Octave Bands Two frequencies are said to be an octave apart if the frequency of one is twice the frequency of the other. The octave bandwidth increases as the centre frequency increases. Each bandwidth is 70% of the band centre frequency. Two frequencies are said to be a third-octave apart if the frequency of one is 1.26 times the other. The third octave bandwidth is 23% of the band centre frequency. There are recognised octave band and third octave band centre frequencies. The octave or third-octave band sound pressure level is determined from the energy of the sound which falls within the boundaries of that particular octave of third octave band.

Equivalent Continuous Sound Pressure Level $L_{Aeq,T}$ The 'A'-weighted equivalent continuous sound pressure level $L_{Aeq,T}$, is a notional steady level which has the same acoustic energy as the actual fluctuating noise over the same time period T. The $L_{Aeq,}$T unit is dominated by higher noise levels, for example, the $L_{Aeq,T}$ average of two equal time periods at 70 dB(A) and 50 dB(A) is not 60 dB(A) but 67 dB(A). The $L_{Aeq,T}$ is the chosen unit of BS 7445-1:2003 "*Description and Measurement of Environmental noise*".

Maximum Sound Pressure Level L_{Amax} The L_{Amax} value describes the overall maximum 'A'-weighted sound pressure level over the measurement interval. Maximum levels are measured with either a fast or slow time weighted, denoted as $L_{Amax,F}$ or $L_{Amax,S}$ respectively.

Sound Power Level dB L_{WA} Sound power is the total power produced by a noise source in all directions. Unlike sound pressure, which is a measurement at a point in space in the vicinity of the noise source, sound power is not distance dependent. The Sound Power Level is the logarithmic ratio of the noise source sound power to a reference sound power and can be used to calculate noise levels at different separation distances for various propagation conditions

Statistical Parameters L_N In order to cover the time variability aspects, noise can be analysed into various statistical parameters, i.e. the sound level which is exceeded for N% of the time. The most commonly used are the $L_{A01,T}$, $L_{A10,T}$ and the $L_{A90,T}$.

$L_{A10,T}$ is the 'A'-weighted level exceeded for 10% of the time interval T and is often used to describe road traffic noise. It gives an indication of the upper level of a fluctuating noise signal. For high volumes of continuous traffic, the $L_{A10,T}$ unit is typically 2–3 dB(A) above the $L_{Aeq,T}$ value over the same period.

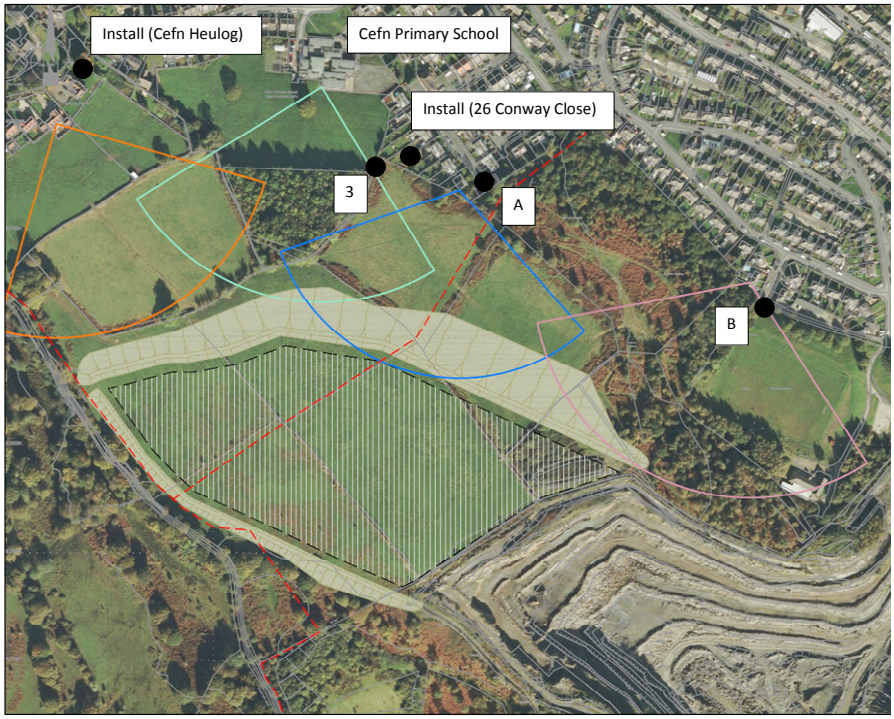
$L_{A90,T}$ is the 'A'-weighted level exceeded for 90% of the time interval T, and is often used to describe the underlying background noise. It is defined in MTAN1 as the background noise level.

10.3 Site plan and survey locations

Appendix 10-3 Site Plan & Survey Locations

The noise survey locations in July 2014 are shown Figures 10-1 to 10-4 and in the associated lists. The locations shown are approximate and are intended to demonstrate that baseline noise survey locations were selected in each direction from the existing site and proposed quarry extension area, close to potentially noise sensitive receivers.

Figure Error! No text of specified style in document.**-1 Site Plan & Survey Locations**



A Conway Close

B Pen y Bryn

3 Cefn Primary School / Rear of Conway Close

Installed Meter Rear garden of 26 Conway Close

Installed Meter Side garden of Cefn Heulog

Figure Error! No text of specified style in document.**-2 Site Plan & Survey Locations**

A Conway Close

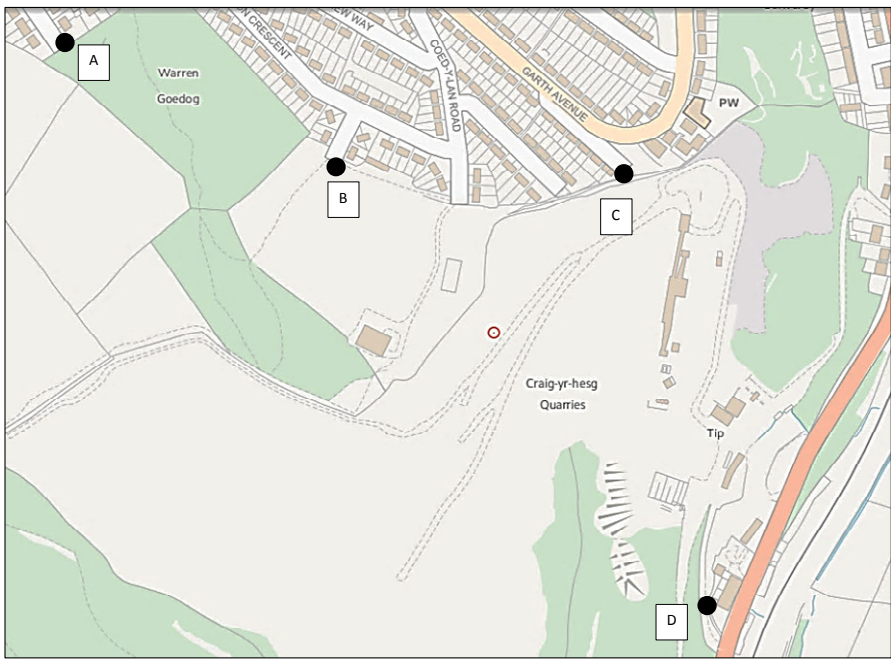
1 Public Footpath south of Cefn Lane, in field west of houses

3 Cefn Primary School / Rear of Conway Close

Installed Meter Rear garden of 26 Conway Close

Installed Meter Side garden of Cefn Heulog

Figure Error! No text of specified style in document.**-3 Site Plan & Survey Locations**



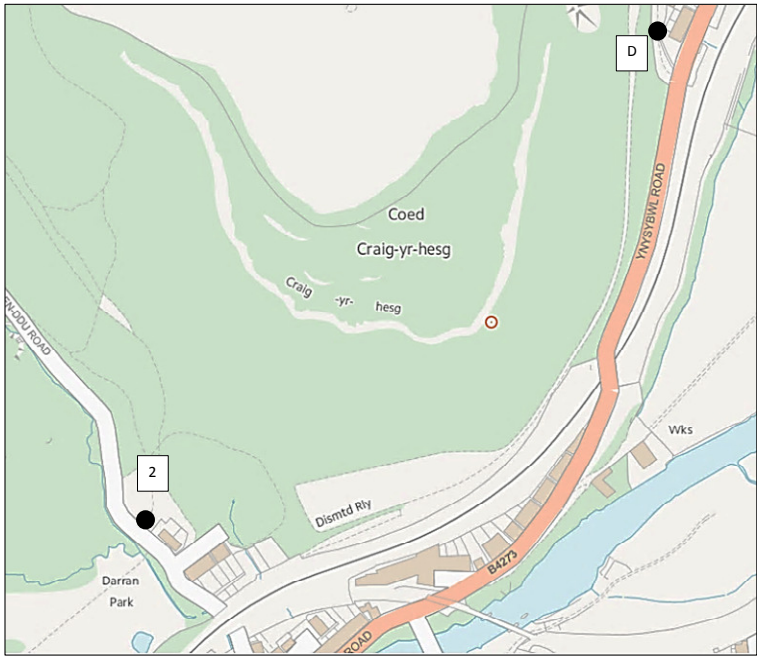
A Conway Close

B Pen y Bryn

C Garth Avenue

D Rogart Terrace

Figure Error! No text of specified style in document.**-4 Site Plan & Survey Locations**



D Rogart Terrace

2 Daren Ddu Road (track / footpath) north of dwellings

10.4 Instrumentation and calibration

Appendix 10-4 Instrumentation & Calibration

Dates and Location of Surveys

Thursday 10 July 2014, Friday 11 July 2014, Tuesday 15 July 2014

In the vicinity of Craig yr Hesg Quarry, Pontypridd, South Wales

Surveys carried out by

Matthew Sweet (WBM)

Instrumentation used (Serial Number)

Norsonic 140 Sound Level Meter (1403137)

Norsonic 1251 Calibrator (31993)

Calibration

The sensitivity of the meter was verified on site immediately before and after each survey. The measured calibration levels were as follows:

Survey Date	Start Calibration	End Calibration
Thursday 10 July 2014	113.6 dB(A)	113.5 dB(A)
Friday 11 July 2014	113.6 dB(A)	113.6 dB(A)
Tuesday15 July 2014	113.7 dB(A)	113.6 dB(A)

The meter and calibrator are tested monthly against a Bruel and Kjaer Pistonphone, type 4220 (serial number 375806) and a Norsonic Calibrator, type 1253 (serial number 22906) with UKAS approved laboratory certificate of calibration.

Survey Details

Attended sample measurements of 15 minute duration were taken at seven locations near to dwellings. The sound level meter microphone was at a height of about 1.4 metre above local ground level, with a windshield used throughout the measurements. Photos of the measurement locations are available if required.

Meters Installed and Collected by

Matthew Sweet (WBM)

Instrumentation used (Serial Number)

Conway Close: RION NL-52 Sound Level Meter (420715) & RION NC-74 Calibrator (34425556). Cefn Heulog: Norsonic 116 Sound Level Meter (21628) and B&K 4230 Calibrator (584690).

Calibration

The sensitivity of the meter was verified on site immediately before and after the survey. The measured calibration levels were as follows:

Install Location	Start Calibration	End Calibration
Conway Close	94.0 dB(A)	94.0 dB(A)
Cefn Heulog	93.9 dB(A)	93.6 dB(A)

The meters and calibrators are tested monthly against a Bruel and Kjaer Pistonphone, type 4220 (serial number 375806) and a Norsonic Calibrator, type 1253 (serial number 22906) with UKAS approved laboratory certificate of calibration. In addition, the meters and calibrators undergo traceable calibration at an external laboratory every two years.

Survey Details

The sound level meter microphone was at a height of about 1.5 metre above local ground level, with a windshield used throughout the measurements. The RION microphone was fitted with a RION WS-15 Outdoor Microphone Protection System and the Norsonic microphone was fitted with a Nor 1212 Microphone Outdoor Protection Kit. Photos of the measurement locations and install positions are available if required.

10.5 Noise survey results

Appendix 10-5 Noise Survey Results

Thursday 10 July 2014. Dry, 24°C, light cloud, wind ~ 1 ms ~NW

Pos	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$	Comment
D	13:14	59	49	60	80	Site activity just audible during lulls in road traffic on B4273. Occasional vehicles on access road to site. Truck movement on high level road adjacent to access road. Aircraft. Breeze in trees.
C	13:38	56	46	53	63	Lorry starting up, moving and tipping into primary crusher hopper. Noise or crusher operating. Road traffic on Garth Avenue.
C	13:53	61	51	58	68	Brief sample of lorry tipping into primary crusher.
B	14:03	43	34	41	61	Quarry activity not audible. Breeze in trees. Aircraft. Motorbike on grassed land between measurement position and quarry, paused out when passing survey position. Occasional car movements on nearby roads.
A	14:28	47	38	44	71	Distant road traffic. Breeze in trees. Site activity not audible. cars turning in road paused out of sample when close. Aircraft.
D	14:52	60	49	62	84	Site activity audible as constant rumble during lulls in road traffic. Passing lorries on access road. Road traffic on B4273. Passing train on railway line. Aircraft. Two lorry movements on high level route adjacent to access road. Cars on access road.
C	15:15 Note: 1-hour sample	57	46	54	71	Site activity audible with primary crusher running, truck movements and tipping operations. Breeze in trees. Road traffic. Children in street. Truck idling before tipping load into hopper of primary crusher. Primary crusher operating. Vehicle turning at end of road paused out of sample. Resident running motorbike and pulling away.
B	16:28	45	35	42	59	Site activity not audible. Road traffic. Aircraft. Breeze in trees. Children playing.
A	16:51	50	40	46	57	Site activity not audible. Breeze in trees. Road traffic.
3	17:12	44	37	42	56	Distant road traffic. Breeze in trees.

Pos	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$	Comment
						Birdsong. Aircraft. No activity at school
1	17:35	42	35	40	52	Breeze in trees. Distant road traffic.
2	18:00	47	46	47	64	Distant road traffic. Wind in trees.

Friday 11 July 2014. Dry, 20°C, light cloud, wind < 1 ms ~N

Pos	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$	Comment
1	07:10	42	30	41	56	Birdsong. Sheep in field. Distant road traffic. Aircraft. Vehicle leaving housing estate. No quarry activity audible.
3	07:34	41	32	37	51	Distant road traffic. Birdsong. Aircraft.
A	07:54	43	38	41	55	Road traffic mainly from the east. Aircraft. Birdsong. Vehicle movements on Conway Close.
B	08:17	42	31	39	55	Distant road traffic. Birdsong. Aircraft.
C	08:49	57	46	54	68	Quarry activity constant with noise from primary crusher. Road traffic. Birdsong. Truck movement and tipping activity.
D	09:14	59	49	55	68	Road traffic. Some noise from quarry activity. Birdsong. Aircraft. Voices at nearby property. No lorry movements on site access road.
2	09:37	44	42	43	65	Distant road traffic. Wind in trees. Water noise from stream. Birdsong.
1	11:28	35	29	34	53	Distant road traffic. Birdsong. Aircraft. Car on access road to dwellings.
3	11:57	48	35	44	65	Distant road traffic. Some strimming activity at school at start of sample only. Aircraft. Birdsong. No site activity audible. Some intermittent construction noise at nearby dwelling.
A	12:24	46	38	43	57	Distant road traffic. Gardening activity. Motorbike idling on Conway Close. Aircraft.
B	12:45	41	32	38	56	Distant road traffic. Aircraft. Car parking at garages.
C	13:20	59	49	56	73	Site activity audible with truck tipping and

Pos	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$	Comment
						primary crusher operating. Distant road traffic. Birdsong. Some construction noise from rear of Spar shop. Noisy lorry on Garth Avenue.
D	13:42	60	49	62	85	Road traffic on B4273. Site activity audible in lulls in road traffic. Aircraft. Trucks and a van passing on access road. Train pass on railway.
2	14:03	44	42	43	58	Road traffic from B4273. Water noise from stream. Light breeze in trees. Aircraft. Quarry not audible. Passing train on railway line.

Tuesday 15 July 2014. Dry, 20°C, moderate cloud, wind < 1 ms ~W

Pos	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$	Comment
1	07:08	38	33	36	48	Distant road traffic. Aircraft. Birdsong. Sheep in field to west. Car leaving estate along access road.
3	07:32	39	36	38	61	Road traffic mainly from east/northeast. Birdsong.
A	07:51	42	38	41	50	Road traffic. Birdsong. Gentle breeze in trees. Aircraft. Car movement on Conway Close.
B	08:14	38	30	35	56	Distant road traffic. Birdsong. Gentle breeze in trees.
C	08:35	54	45	51	62	Primary crusher operating. Distant road traffic. Birdsong. Gentle breeze in trees. Brief siren from direction of school to northeast. Occasional vehicle movement on Garth Avenue.
D	08:59	60	50	61	82	Road traffic on B4273. Three lorries passing on access road. Birdsong. Activity at quarry just audible during lulls in road traffic. Lorry movement on high level haul route.
2	09:20	45	40	43	50	Distant road traffic. Aircraft. Water noise from stream. Birdsong. Some constant plant noise from direction of site.
1	10:58	34	28	32	56	Distant road traffic. Sheep in field. Birdsong.

Pos	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$	Comment
						Car on access road to dwellings.
3	11:23	42	32	41	60	Distant road traffic. Birdsong. No activity at school. Occasional construction activity at nearby dwelling, with circular saw operating for brief periods. Distant barking dogs.
A	11:41	44	34	41	62	Distant road traffic. Aircraft. Birdsong. Occasional construction noise. Car turning in close.
B	12:02	42	30	39	58	Battery failed; sample restarted
B	12:19	41	32	38	60	Distant road traffic. Breeze in trees. Activity at quarry just audible. Aircraft. Discussions in street.
C	12:43	56	47	53	67	Primary crusher operating. Distant road traffic and occasional passing vehicle on Garth Avenue. Birdsong. Some building maintenance at nearby dwelling. Motorbike idling nearby. Dump truck tipping into primary crusher.
D	13:06	60	49	61	81	Road traffic. Site activity just audible in traffic lulls. Birdsong. Aircraft. Four passing lorries on access road.
2	13:27	44	40	42	52	Distant road traffic. Water noise from stream. Train pass. Birdsong.

Installed Meter Results: Rear garden of 26 Conway Close

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Thu	12:00	57	36	53	73
Thu	13:00	55	35	50	68
Thu	14:00	46	35	48	69
Thu	15:00	50	34	51	69
Thu	16:00	44	35	46	69
Thu	17:00	43	37	41	61
Thu	18:00	43	37	41	60

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Thu	19:00	43	34	42	70
Thu	20:00	40	33	38	67
Thu	21:00	37	32	35	56
Thu	22:00	36	30	34	50
Thu	23:00	37	28	34	52
Fri	00:00	33	26	31	48
Fri	01:00	28	25	27	46
Fri	02:00	31	25	29	44
Fri	03:00	32	26	30	45
Fri	04:00	32	27	31	58
Fri	05:00	39	30	39	63
Fri	06:00	41	32	39	62
Fri	07:00	40	32	39	59
Fri	08:00	45	35	44	72
Fri	09:00	56	34	53	72
Fri	10:00	46	33	49	74
Fri	11:00	46	33	47	70
Fri	12:00	60	35	55	74
Fri	13:00	48	31	48	71
Fri	14:00	58	32	53	75
Fri	15:00	64	31	59	75
Fri	16:00	67	30	60	74
Fri	17:00	40	31	41	71
Fri	18:00	39	33	38	64
Fri	19:00	42	33	55	81
Fri	20:00	56	32	63	102

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Fri	21:00	39	32	40	68
Fri	22:00	37	29	36	62
Fri	23:00	37	27	37	66
Sat	00:00	32	27	30	50
Sat	01:00	32	27	30	47
Sat	02:00	31	26	29	52
Sat	03:00	32	26	30	46
Sat	04:00	33	27	31	59
Sat	05:00	40	30	37	64
Sat	06:00	38	32	37	64
Sat	07:00	39	30	37	68
Sat	08:00	41	29	41	75
Sat	09:00	43	30	43	77
Sat	10:00	47	31	48	78
Sat	11:00	47	33	47	80
Sat	12:00	42	32	43	71
Sat	13:00	38	30	36	65
Sat	14:00	39	29	43	74
Sat	15:00	39	31	44	72
Sat	16:00	43	30	39	62
Sat	17:00	38	30	37	62
Sat	18:00	37	30	35	57
Sat	19:00	36	28	34	57
Sat	20:00	33	27	31	55
Sat	21:00	34	28	32	54
Sat	22:00	31	25	29	47

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Sat	23:00	32	25	30	56
Sun	00:00	29	22	26	39
Sun	01:00	27	22	24	36
Sun	02:00	25	21	23	38
Sun	03:00	28	23	26	45
Sun	04:00	32	25	29	50
Sun	05:00	32	22	32	58
Sun	06:00	36	29	40	71
Sun	07:00	39	29	40	69
Sun	08:00	39	30	37	68
Sun	09:00	38	31	36	60
Sun	10:00	40	35	38	56
Sun	11:00	43	36	41	63
Sun	12:00	44	38	42	60
Sun	13:00	50	37	47	72
Sun	14:00	49	38	46	67
Sun	15:00	45	38	42	66
Sun	16:00	49	39	46	65
Sun	17:00	46	38	45	81
Sun	18:00	46	36	43	67
Sun	19:00	44	36	44	74
Sun	20:00	39	31	37	61
Sun	21:00	36	30	33	49
Sun	22:00	36	30	34	61
Sun	23:00	35	30	33	60
Mon	00:00	34	29	32	47

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Mon	01:00	33	27	34	60
Mon	02:00	31	26	29	41
Mon	03:00	32	27	30	40
Mon	04:00	34	29	33	59
Mon	05:00	39	31	38	61
Mon	06:00	42	34	39	57
Mon	07:00	42	33	43	75
Mon	08:00	44	30	41	65
Mon	09:00	45	31	41	64
Mon	10:00	47	32	45	71
Mon	11:00	40	29	38	68
Mon	12:00	48	35	45	71
Mon	13:00	43	34	40	57
Mon	14:00	45	36	43	63
Mon	15:00	41	34	39	61
Mon	16:00	42	34	43	71
Mon	17:00	45	37	43	59
Mon	18:00	46	37	43	68
Mon	19:00	44	37	41	57
Mon	20:00	43	35	40	57
Mon	21:00	43	34	40	59
Mon	22:00	41	31	37	50
Mon	23:00	33	24	29	43
Tue	00:00	28	23	26	44
Tue	01:00	25	20	23	41
Tue	02:00	24	20	23	41

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Tue	03:00	25	21	24	44
Tue	04:00	33	24	32	62
Tue	05:00	39	31	37	59
Tue	06:00	41	36	40	59
Tue	07:00	41	36	39	52
Tue	08:00	43	35	41	65
Tue	09:00	38	33	40	67
Tue	10:00	48	32	45	68
Tue	11:00	43	31	47	68
Tue	12:00	47	34	46	71
Tue	13:00	38	31	44	71
Tue	14:00	47	34	42	57

Installed Meter Results: Side garden of Cefn Heulog

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Thu	13:00	46	33	43	67
Thu	14:00	41	32	43	70
Thu	15:00	41	31	38	68
Thu	16:00	43	32	43	66
Thu	17:00	41	35	39	62
Thu	18:00	47	35	44	62
Thu	19:00	41	31	41	64
Thu	20:00	38	29	36	54
Thu	21:00	37	28	38	74
Thu	22:00	35	27	32	49

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Thu	23:00	34	24	31	51
Fri	00:00	31	23	29	48
Fri	01:00	25	21	24	45
Fri	02:00	27	22	27	54
Fri	03:00	30	23	27	45
Fri	04:00	40	24	39	65
Fri	05:00	45	29	42	63
Fri	06:00	47	33	45	68
Fri	07:00	44	30	42	63
Fri	08:00	44	31	43	64
Fri	09:00	41	31	39	61
Fri	10:00	40	30	38	60
Fri	11:00	42	31	40	66
Fri	12:00	39	31	37	57
Fri	13:00	40	31	40	70
Fri	14:00	42	33	40	62
Fri	15:00	41	32	38	63
Fri	16:00	42	31	40	66
Fri	17:00	42	32	40	66
Fri	18:00	42	32	40	65
Fri	19:00	40	30	46	69
Fri	20:00	49	28	51	72
Fri	21:00	34	27	38	70
Fri	22:00	31	25	29	49
Fri	23:00	33	23	36	62
Sat	00:00	27	22	26	48

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Sat	01:00	29	24	29	58
Sat	02:00	28	22	26	41
Sat	03:00	29	24	28	51
Sat	04:00	42	23	39	61
Sat	05:00	42	28	39	61
Sat	06:00	43	31	40	58
Sat	07:00	41	29	38	67
Sat	08:00	42	28	38	60
Sat	09:00	43	29	40	67
Sat	10:00	50	37	46	64
Sat	11:00	49	40	46	61
Sat	12:00	50	36	47	62
Sat	13:00	42	31	38	61
Sat	14:00	39	29	41	70
Sat	15:00	40	31	37	67
Sat	16:00	46	32	42	61
Sat	17:00	42	31	39	59
Sat	18:00	48	31	46	72
Sat	19:00	42	32	40	63
Sat	20:00	42	30	40	68
Sat	21:00	44	37	42	73
Sat	22:00	40	33	37	54
Sat	23:00	42	33	39	56
Sun	00:00	39	28	35	59
Sun	01:00	36	26	33	53
Sun	02:00	34	26	32	53

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Sun	03:00	39	31	37	53
Sun	04:00	44	33	40	62
Sun	05:00	43	29	40	59
Sun	06:00	43	30	39	58
Sun	07:00	42	29	39	61
Sun	08:00	41	28	39	60
Sun	09:00	42	29	41	63
Sun	10:00	39	32	37	64
Sun	11:00	42	34	41	62
Sun	12:00	43	35	41	61
Sun	13:00	40	34	38	57
Sun	14:00	43	35	40	69
Sun	15:00	44	36	41	61
Sun	16:00	45	36	43	67
Sun	17:00	42	35	40	62
Sun	18:00	41	34	39	58
Sun	19:00	40	33	37	53
Sun	20:00	39	29	36	57
Sun	21:00	35	26	35	67
Sun	22:00	30	25	28	49
Sun	23:00	31	24	30	62
Mon	00:00	29	24	27	51
Mon	01:00	29	24	33	59
Mon	02:00	29	23	27	43
Mon	03:00	35	25	34	70
Mon	04:00	39	29	36	58

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Mon	05:00	43	33	41	61
Mon	06:00	43	34	41	58
Mon	07:00	44	34	42	64
Mon	08:00	44	31	42	62
Mon	09:00	45	33	44	66
Mon	10:00	46	33	43	62
Mon	11:00	45	31	45	65
Mon	12:00	44	32	40	62
Mon	13:00	49	38	45	62
Mon	14:00	47	36	44	72
Mon	15:00	45	34	42	62
Mon	16:00	43	33	40	66
Mon	17:00	51	42	50	73
Mon	18:00	49	41	46	59
Mon	19:00	49	38	45	64
Mon	20:00	50	42	47	70
Mon	21:00	52	43	49	63
Mon	22:00	47	35	44	59
Mon	23:00	37	26	35	62
Tue	00:00	32	24	30	53
Tue	01:00	27	20	25	48
Tue	02:00	26	20	24	47
Tue	03:00	25	20	24	48
Tue	04:00	35	21	36	65
Tue	05:00	40	29	38	57
Tue	06:00	43	33	41	59

Day	Start Time	dB $L_{A10, T}$	dB $L_{A90, T}$	dB $L_{Aeq, T}$	dB $L_{Amax, F}$
Tue	07:00	42	32	41	64
Tue	08:00	42	31	40	60
Tue	09:00	37	30	39	66
Tue	10:00	39	30	39	71
Tue	11:00	37	28	35	61
Tue	12:00	38	30	38	69
Tue	13:00	41	30	38	56

10.6 Noise Calculation methods

Appendix 10-6 Noise Calculation Methods

Specific noise levels are predicted or measured in terms of the Equivalent Continuous Noise Level, $L_{Aeq,T}$ over a given reference time interval, T. In the Planning Practice Guidance the time interval for daytime, evening and night is 1 hour.

The calculation method for any plant which is relatively fixed in location is that set out in BS 5228: 2009 Part 1, Annex F, and is the "*Method for activity LAeq*" described in section F.2.2 or the "*Method for plant sound power level*" described in section F.2.3.

The calculation method for site mobile plant such as lorries and dump trucks is that set out in BS5228: 2009: Part 1, Annex F, and is the "*Method for mobile plant using a regular well defined route (e. g. haul roads)*" described in section F.2.5.

Ground Absorption has been calculated using the technique set out in BS 5228: 2009 Part 1, Annex F, assuming 90% soft ground between the nearest edge of the proposed extraction area and the receiver locations.

The method of assessing screening is that attributed to Maekawa as used in BS 5228: 2009 and various other Government published documents. This method uses the calculated path difference and octave band noise data for each noise source over the frequency range stated in BS 5228: 2009.

The effects of ground absorption are not used in the calculations if screening has been assessed and offers a higher attenuation.

The nearest distances to the respective dwellings, from the various items of plant, have been used in an acoustic model for the site to calculate the reasonable worst case $L_{Aeq,T}$ site noise levels.

A summary site noise calculation sheet for each of the selected receiver locations is included below.

10.7 Summary noise calculation sheets

Hanson Aggregates UK **4264** **10-Apr-15** PWC

Receiver Height : 1.5 m

Craig Yr Hesg Quarry Extension **Includes set back checks for rock drill higher up than nearest edge**

Ref	Plant Item	Comments on Plant	Activity LAeq @ 10 m	Power LWA or LWA / m	1 hour On-time %	Capacity Tonnes	Source Height	2 way flow Q per hour	Speed V kph	10 Plant Set back(m)		BS5228 method	
1	Rock drill on uppermost rock head	WBM Plant Noise Database	88	116	100		2			0	m back	1	Activity
2	Dump truck at working face (one bench down)	WBM Plant Noise Database	84	112	100		2	12	20	10	m back	4	Haul Road
3	Face loading crawler excavator (one bench down)	WBM Plant Noise Database	81	109	100		2			10	m back	1	Activity
4	Secondary breakage at face (one bench down)	WBM Plant Noise Database	90	118	25		2			10	m back	1	Activity
5	Dump truck by primary crusher - tipping & moving off	WBM Plant Noise Database	90	118	25		2			0	m back	1	Activity
6	Source 6		-1027	-999	100		2			0	m back	1	Activity
7	Source 7		-1027	-999	100		2			0	m back	1	Activity
8	Source 8		-1027	-999	100		2			0	m back	1	Activity
9	Source 9		-1027	-999	100		2			0	m back	1	Activity
10	Source 10		-1027	-999	100		2			0	m back	1	Activity
11	Source 11		-1027	-999	100		2			0	m back	1	Activity
12	Source 12		-1027	-999	100		2			0	m back	1	Activity
13	Large excavator associated with bund formation		81	109	100		2			10	m back	1	Activity
14	Large dozer associated with bund formation		83	111	100		2			20	m back	1	Activity
15	Large dump trucks associated with bund formation		84	112	100		2			10	m back	3	Defined Are

Location **No. 36 Conway Close**

Receiver Height 170.5 m AOD

Site Noise Level for Items 1 to 5 **45** dB LAeq, 1 hour, free field

Site Noise Level for Items 13 to 15 **61** dB LAeq, 1 hour, free field 67 dB LAeq, 1 hour, free field For Temporary Operations

Ref	Plant Item	Plan Distance	Working Distance	Ground Height	Working Height/depth	Source Height	Angle Degrees	Range Metres	Barrier -Receiver	Barrier Height	Path Diff.	Barrier Atten.	Soft Ground %	Ground Atten.	Resultant LAeq
1	**Rock drill on uppermost rock head**	175	175	191.0	-0.5	192.5	0	0	155	195.5	0.849	19.3	90.0	3.8	43.8
2	**Dump truck at working face (one bench down)**	175	185	191.0	-7.0	186.0	30	0	155	195.5	2.823	20.7	90.0	3.9	25.6
3	**Face loading crawler excavator (one bench down)**	175	185	191.0	-7.0	186.0	0	0	155	195.5	2.823	20.6	90.0	3.9	35.1
4	**Secondary breakage at face (one bench down)**	175	185	191.0	-7.0	186.0	0	0	155	195.5	2.823	22.4	90.0	3.9	36.2
5	**Dump truck by primary crusher - tipping & moving off**	620	620	137.0	0.0	139.0	0	0	520	150.0	0.207	12.9	90.0	6.3	35.2
6	**Source 6**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
7	**Source 7**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
8	**Source 8**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
9	**Source 9**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
10	**Source 10**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
11	**Source 11**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
12	**Source 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
13	**Large excavator associated with bund formation**	120	130	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	90.0	3.2	55.5
14	**Large dozer associated with bund formation**	120	140	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	90.0	3.4	56.7
15	**Large dump trucks associated with bund formation**	120	130	0.0	0.0	2.0	0	100	0	0.0	-1.000	0.0	90.0	3.2	57.5

Hanson Aggregates UK **4264** **10-Apr-15** PWC

Receiver Height : 1.5 m

Craig Yr Hesg Quarry Extension **Includes set back checks for rock drill higher up than nearest edge**

Ref	Plant Item	Comments on Plant	Activity LAeq @ 10 m	Power LWA or LWA / m	1 hour On-time %	Capacity Tonnes	Source Height	2 way flow Q per hour	Speed V kph	10 Plant Set back(m)		BS5228 method	
1	Rock drill on uppermost rock head	WBM Plant Noise Database	88	116	100		2			0	m back	1	Activity
2	Dump truck at working face (one bench down)	WBM Plant Noise Database	84	112	100		2	12	20	10	m back	4	Haul Road
3	Face loading crawler excavator (one bench down)	WBM Plant Noise Database	81	109	100		2			10	m back	1	Activity
4	Secondary breakage at face (one bench down)	WBM Plant Noise Database	90	118	25		2			10	m back	1	Activity
5	Dump truck by primary crusher - tipping & moving off	WBM Plant Noise Database	90	118	25		2			0	m back	1	Activity
6	Source 6		-1027	-999	100		2			0	m back	1	Activity
7	Source 7		-1027	-999	100		2			0	m back	1	Activity
8	Source 8		-1027	-999	100		2			0	m back	1	Activity
9	Source 9		-1027	-999	100		2			0	m back	1	Activity
10	Source 10		-1027	-999	100		2			0	m back	1	Activity
11	Source 11		-1027	-999	100		2			0	m back	1	Activity
12	Source 12		-1027	-999	100		2			0	m back	1	Activity
13	Large excavator associated with bund formation		81	109	100		2			10	m back	1	Activity
14	Large dozer associated with bund formation		83	111	100		2			20	m back	1	Activity
15	Large dump trucks associated with bund formation		84	112	100		2			10	m back	3	Defined Are

Location **No. 5 Pen y Bryn**

Receiver Height 161.5 m AOD

Site Noise Level for Items 1 to 5 **47** dB LAeq, 1 hour, free field

Site Noise Level for Items 13 to 15 **57** dB LAeq, 1 hour, free field 67 dB LAeq, 1 hour, free field For Temporary Operations

Ref	Plant Item	Plan Distance	Working Distance	Ground Height	Working Height/depth	Source Height	Angle Degrees	Range Metres	Barrier -Receiver	Barrier Height	Path Diff.	Barrier Atten.	Soft Ground %	Ground Atten.	Resultant LAeq
1	**Rock drill on uppermost rock head**	230	290	188.0	6.0	196.0	0	0	220	192.0	0.173	13.3	90.0	4.8	45.5
2	**Dump truck at working face (one bench down)**	230	300	188.0	-7.0	183.0	30	0	220	192.0	1.839	20.0	90.0	4.8	24.2
3	**Face loading crawler excavator (one bench down)**	230	300	188.0	-7.0	183.0	0	0	220	192.0	1.839	19.9	90.0	4.8	31.6
4	**Secondary breakage at face (one bench down)**	230	300	188.0	-7.0	183.0	0	0	220	192.0	1.839	21.5	90.0	4.8	32.9
5	**Dump truck by primary crusher - tipping & moving off**	320	320	137.0	0.0	139.0	0	0	220	152.0	0.256	13.6	90.0	5.0	40.3
6	**Source 6**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
7	**Source 7**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
8	**Source 8**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
9	**Source 9**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
10	**Source 10**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
11	**Source 11**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
12	**Source 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
13	**Large excavator associated with bund formation**	190	200	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	90.0	4.1	50.9
14	**Large dozer associated with bund formation**	190	210	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	90.0	4.1	52.4
15	**Large dump trucks associated with bund formation**	190	200	0.0	0.0	2.0	0	100	0	0.0	-1.000	0.0	90.0	4.1	53.9

Hanson Aggregates UK **4264** **10-Apr-15** PWC

Receiver Height : 1.5 m

Craig Yr Hesg Quarry Extension **Includes set back checks for rock drill higher up than nearest edge**

Ref	Plant Item	Comments on Plant	Activity LAeq @ 10 m	Power LWA or LWA / m	1 hour On-time %	Capacity Tonnes	Source Height	2 way flow Q per hour	Speed V kph	10 Plant Set back(m)		BS5228 method	
1	Rock drill on uppermost rock head	WBM Plant Noise Database	88	116	100		2			0	m back	1	Activity
2	Dump truck at working face (one bench down)	WBM Plant Noise Database	84	112	100		2	12	20	10	m back	4	Haul Road
3	Face loading crawler excavator (one bench down)	WBM Plant Noise Database	81	109	100		2			10	m back	1	Activity
4	Secondary breakage at face (one bench down)	WBM Plant Noise Database	90	118	25		2			10	m back	1	Activity
5	Dump truck by primary crusher - tipping & moving off	WBM Plant Noise Database	90	118	25		2			0	m back	1	Activity
6	Source 6		-1027	-999	100		2			0	m back	1	Activity
7	Source 7		-1027	-999	100		2			0	m back	1	Activity
8	Source 8		-1027	-999	100		2			0	m back	1	Activity
9	Source 9		-1027	-999	100		2			0	m back	1	Activity
10	Source 10		-1027	-999	100		2			0	m back	1	Activity
11	Source 11		-1027	-999	100		2			0	m back	1	Activity
12	Source 12		-1027	-999	100		2			0	m back	1	Activity
13	Large excavator associated with bund formation		81	109	100		2			10	m back	1	Activity
14	Large dozer associated with bund formation		83	111	100		2			20	m back	1	Activity
15	Large dump trucks associated with bund formation		84	112	100		2			10	m back	3	Defined Are

Location No. **Cefn Heulog**

Receiver Height 169.5 m AOD

Site Noise Level for Items 1 to 5 **44** dB LAeq, 1 hour, free field

Site Noise Level for Items 13 to 15 **57** dB LAeq, 1 hour, free field 67 dB LAeq, 1 hour, free field For Temporary Operations

Ref	Plant Item	Plant Distance	Working Distance	Ground Height	Working Height/depth	Source Height	Angle Degrees	Range Metres	Barrier -Receiver	Barrier Height	Path Diff.	Barrier Atten.	Soft Ground %	Ground Atten.	Resultant LAeq
1	**Rock drill on uppermost rock head**	290	350	190.0	3.0	195.0	0	0	270	194.5	0.229	14.3	90.0	5.1	42.8
2	**Dump truck at working face (one bench down)**	290	360	190.0	-7.0	185.0	30	0	270	194.5	1.321	18.8	90.0	5.2	24.6
3	**Face loading crawler excavator (one bench down)**	290	360	190.0	-7.0	185.0	0	0	270	194.5	1.321	18.7	90.0	5.2	31.2
4	**Secondary breakage at face (one bench down)**	290	360	190.0	-7.0	185.0	0	0	270	194.5	1.321	20.2	90.0	5.2	32.7
5	**Dump truck by primary crusher - tipping & moving off**	1000	1000	137.0	0.0	139.0	0	0	900	150.0	0.349	14.8	90.0	7.2	29.2
6	**Source 6**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
7	**Source 7**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
8	**Source 8**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
9	**Source 9**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
10	**Source 10**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
11	**Source 11**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
12	**Source 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
13	**Large excavator associated with bund formation**	200	210	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	90.0	4.1	50.4
14	**Large dozer associated with bund formation**	200	220	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	90.0	4.2	51.9
15	**Large dump trucks associated with bund formation**	200	210	0.0	0.0	2.0	0	100	0	0.0	-1.000	0.0	90.0	4.1	53.4

Hanson Aggregates UK **4264** **10-Apr-15** PWC

Receiver Height : 1.5 m

Craig Yr Hesg Quarry Extension **Includes set back checks for rock drill higher up than nearest edge**

Ref	Plant Item	Comments on Plant	Activity LAeq @ 10 m	Power LWA or LWA / m	1 hour On-time %	Capacity Tonnes	Source Height	2 way flow Q per hour	Speed V kph	10 Plant Set back(m)		BS5228 method	
1	Rock drill on uppermost rock head	WBM Plant Noise Database	88	116	100		2			0	m back	1	Activity
2	Dump truck at working face (one bench down)	WBM Plant Noise Database	84	112	100		2	12	20	10	m back	4	Haul Road
3	Face loading crawler excavator (one bench down)	WBM Plant Noise Database	81	109	100		2			10	m back	1	Activity
4	Secondary breakage at face (one bench down)	WBM Plant Noise Database	90	118	25		2			10	m back	1	Activity
5	Dump truck by primary crusher - tipping & moving off	WBM Plant Noise Database	90	118	25		2			0	m back	1	Activity
6	Source 6		-1027	-999	100		2			0	m back	1	Activity
7	Source 7		-1027	-999	100		2			0	m back	1	Activity
8	Source 8		-1027	-999	100		2			0	m back	1	Activity
9	Source 9		-1027	-999	100		2			0	m back	1	Activity
10	Source 10		-1027	-999	100		2			0	m back	1	Activity
11	Source 11		-1027	-999	100		2			0	m back	1	Activity
12	Source 12		-1027	-999	100		2			0	m back	1	Activity
13	Large excavator associated with bund formation		81	109	100		2			10	m back	1	Activity
14	Large dozer associated with bund formation		83	111	100		2			20	m back	1	Activity
15	Large dump trucks associated with bund formation		84	112	100		2			10	m back	3	Defined Are

Location No. **Cefn Primary School**

Receiver Height 162.5 m AOD

Site Noise Level for Items 1 to 5 **43** dB LAeq, 1 hour, free field

Site Noise Level for Items 13 to 15 **58** dB LAeq, 1 hour, free field 67 dB LAeq, 1 hour, free field For Temporary Operations

Ref	Plant Item	Plan Distance	Working Distance	Ground Height	Working Height/depth	Source Height	Angle Degrees	Range Metres	Barrier -Receiver	Barrier Height	Path Diff.	Barrier Atten.	Soft Ground %	Ground Atten.	Resultant LAeq
1	**Rock drill on uppermost rock head**	240	240	190.0	-0.5	191.5	0	0	220	194.5	0.793	19.1	90.0	4.4	41.3
2	**Dump truck at working face (one bench down)**	240	250	190.0	-7.0	185.0	30	0	220	194.5	2.773	20.7	90.0	4.5	24.3
3	**Face loading crawler excavator (one bench down)**	240	250	190.0	-7.0	185.0	0	0	220	194.5	2.773	20.6	90.0	4.5	32.4
4	**Secondary breakage at face (one bench down)**	240	250	190.0	-7.0	185.0	0	0	220	194.5	2.773	22.4	90.0	4.5	33.6
5	**Dump truck by primary crusher - tipping & moving off**	770	770	137.0	0.0	139.0	0	0	680	150.0	0.426	15.5	90.0	6.7	30.7
6	**Source 6**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
7	**Source 7**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
8	**Source 8**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
9	**Source 9**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
10	**Source 10**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
11	**Source 11**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
12	**Source 12**	10000	10000	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	0.0	0.0	-1087.0
13	**Large excavator associated with bund formation**	180	190	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	90.0	4.0	51.5
14	**Large dozer associated with bund formation**	180	200	0.0	0.0	2.0	0	0	0	0.0	-1.000	0.0	90.0	4.1	52.9
15	**Large dump trucks associated with bund formation**	180	190	0.0	0.0	2.0	0	100	0	0.0	-1.000	0.0	90.0	4.0	54.5

11. BLAST VIBRATION

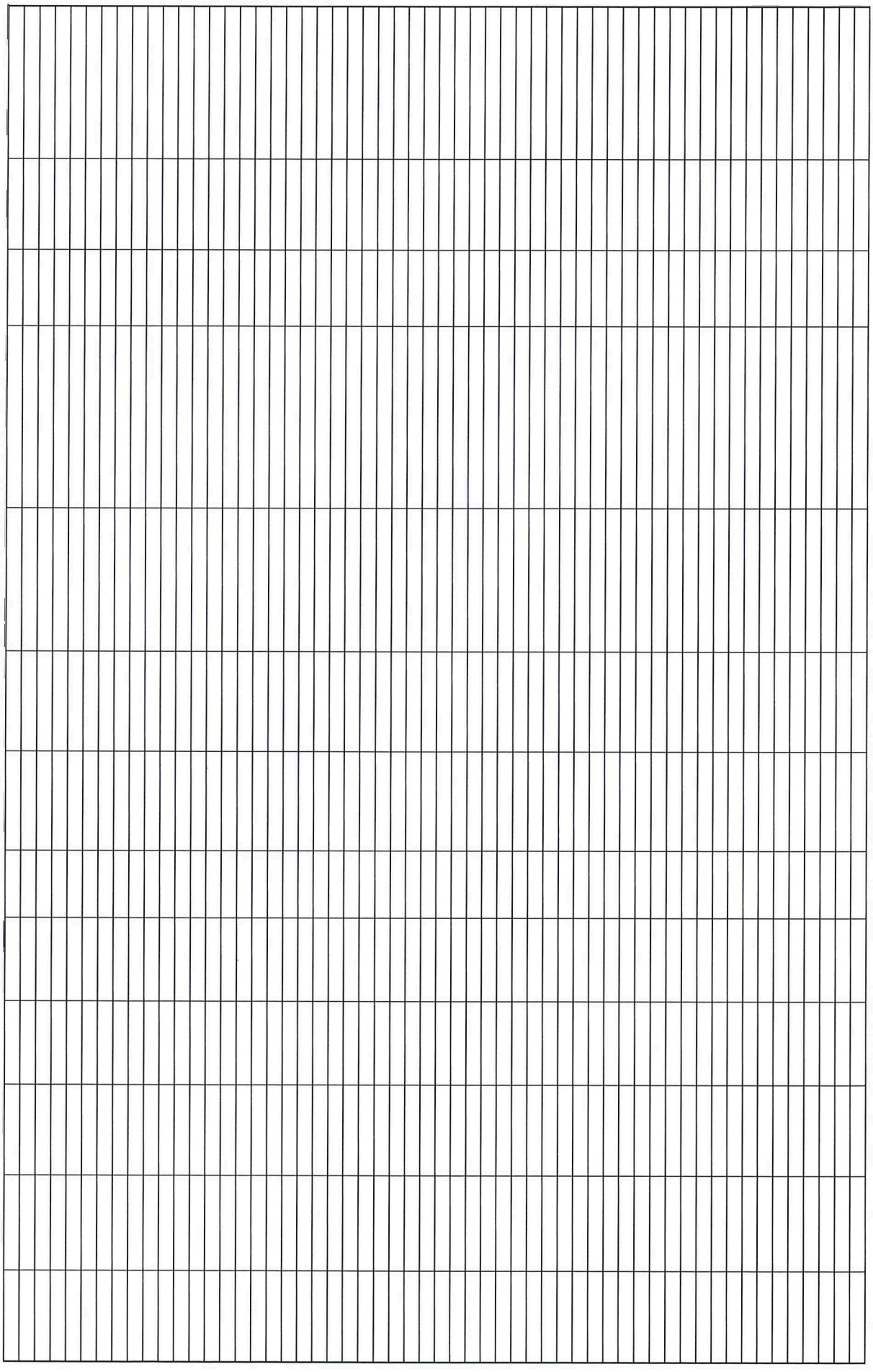
11.1 Production blast data

Blasting Vibration Database

Site: Hansons Craig Yr Hesg Quarry 2012

Blasting Services Ltd

Date	Blast reference	Location	Type of blast	Boxes or MB?	MIC in Kg	Blast Ratio T/kg	Initiation system	Location of seismograph	peak particle velocity in mm/sec	AOP in dBL	Distance in m	Complaints / Comments
13/01/2012	E292	Bench 2	Production	Box/Ammo	125	4.8	Nonel	Pen y Bryn	2.66	117	260	None
26/01/2012	E293	Bench 5	Production	Box/Ammo	105	4.2	Nonel	Rogart	7.7	107	255	yes
07/02/2012	E294	Bench 3	Production	Box/Ammo	110	4.9	Nonel	Pen y Bryn	2.8	109	280	yes
16/02/2012	E295	Bench 5	Production	Box/Ammo	110	4.1	Nonel	Rogart	4.4	106	255	yes
23/02/2012	E296	Bench 3	Production	Box/Ammo	120	5.2	Nonel	Pen y Bryn	3.58	112	270	yes
01/03/2012	E297	Bench 5	Production	Box/Ammo	110	3.51	Nonel	Rogart	6.75	109	255	yes
09/03/2012	E298	Bench 3	Production	Box/Ammo	110	4.9	Nonel	conway/pen y bryn	3.08	106	260	yes
23/03/2012	E299	Bench 5	Production	Box/Ammo	115	3.3	Hotshot	Rogart	2.5	100	255	yes
30/03/2012	E300	Bench 3	Production	Box/Ammo		5.07	Nonel	conway/pen y bryn	2.35	100	260	yes
13/04/2012	E301/E302	Bench 5	Production	Box/Ammo	115	3.64	Hotshot	Rogart	2.2/2.3	106/112	255	yes
20/04/2012	E303	Bench 6	Production	Box/Ammo	125	6.1	Nonel	Rogart	1.8	100	300	None
27/04/2012	E304	Bench 4	Production	Box/Ammo	98	5.6	Nonel	Pen y Bryn	1.9	104	310	None
08/05/2012	E305	Bench 5	Production	Box/Ammo	115	3.8	Hotshot	Rogart	3.2	107	255	yes
17/05/2012	E306	Bench 6	Production	Box/Ammo	110	5	Nonel	Rogart	2.5	107	300	None
21/05/2012	E307	Bench 4	Production	Box/Ammo	96	4.68	Nonel	Rogart	1.62	106	289	None
07/06/2012	E308	Bench 5	Production	Box/Ammo	110	3.69	Hotshot	Rogart	3.2	107	280	yes
14/06/2012	E309	Bench 4	Production	Box/Ammo	93	5.09	Nonel	conway/pen y bryn	1.05	106	220	yes
28/06/2012	E311	Bench 6	Production	Box/Ammo	105	5	Nonel	Rogart	3.17	106	300	yes
05/07/2012	E310	Bench 5	Production	Box/Ammo	100	4.25	Hotshot	Rogart	3.8	105	272	None
25/07/2012	E312	Bench 6	Production	Box/Ammo	125	5.9	Nonel	Rogart	2.5	109	300	None
02/08/2012	E313	Bench 4	Production	Box/Ammo	95	5	Nonel	conway/pen y bryn	1.12	103	220	None
30/08/2012	E314	Bench 4	Production	Box/Ammo	105	5.02	Nonel	conway/pen y bryn	1.5	104	200	None
13/09/2012	E315	bench 6	Production	Box/Ammo	111	6.85	Nonel	Rogart	2.4	105	300	None
04/10/2012	E316	Bench 6	Production	Box/Ammo	120	5.16	Nonel	Rogart	2.15	107	300	None
09/10/2012	E317	Bench 4	Production	Box/Ammo	115	4.6	Nonel	conway/pen y bryn	1.5	105	392	None
18/10/2012	E318	Bench 4	Production	Box/Ammo	105	4.8	Nonel	conway/pen y bryn	Too low to record		392	yes
31/10/2012	E319	Bench 4	Production	Box/Ammo	110	4.78	Nonel	conway/pen y bryn	Too low to record		378	yes
22/11/2012	E320	Bench 4	Production	Box/Ammo	115	5.02	Nonel	Conway Greenfield	0.77 - 1.4	107 -112	400	yes
14/12/2012	E321	Bench 4	Production	Box/Ammo	105	5.92	Nonel	Conway	0.55	113	400	Yes
19/12/2012	E322	Bench 6	Production	Box/Ammo	95	6.6	Nonel	Rogart	2.2	106	300	yes

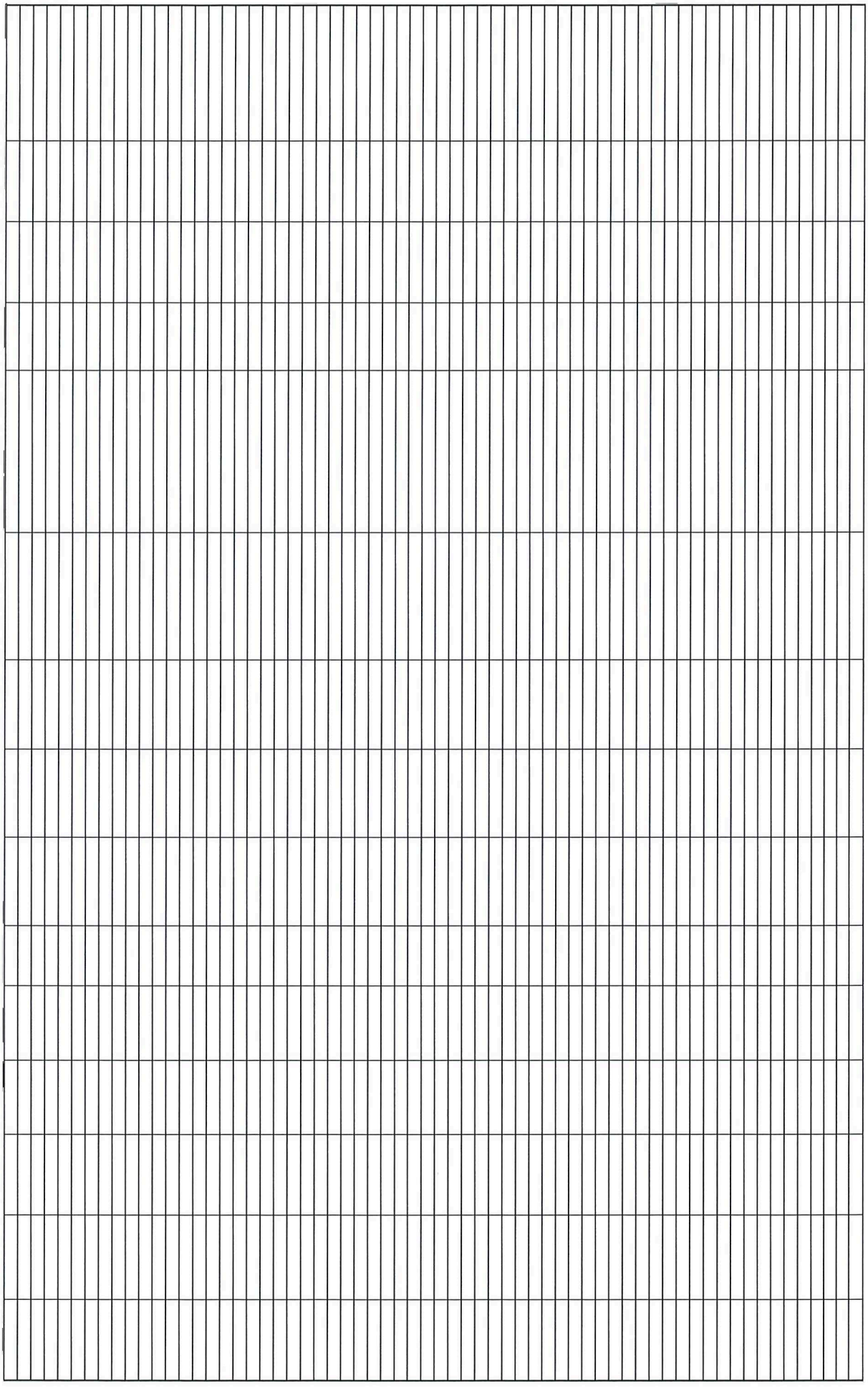


Blasting Vibration Database

Blasting Services Ltd

Site *Hansons Craig Yr Hesg Quarry* *2013*

Date	Blast reference	Location	Type of blast	Boxes or MB?	MIC in Kg	Blast Ratio T/kg	Total Charge Weight kg	Initiation system	Location of seismograph	peak particle velocity in mm/sec	AOP in dBL	Distance in m	Weather	Complaints / Comments
24/01/2013	E323	Bench 4	Production	Boxed/Ammo	110	5.6	2931.5	Nonel	Conway	Too low to record		408	Cold and clear	yes
31/01/2013	E324	Bench 6	Production	Boxed/Ammo	112.5	4.18	1691.4	Nonel	Rogart/Conway	4.2 Rogart 0 conway	106	275	Dry Windy	None
14/02/2013	E325a/b	05-Apr	Test holes	Boxed/Ammo	1019	6.21	164	Nonel	various	TRIAL NO READING OFF SITE		296	Showers	None
14/02/2013	E326	Bench 6	Production	Boxed/Ammo	107.5	3.54	2366	Nonel	Rogart	Too low to record		260	Showers	None
21/02/2013	E327	bench4	Production	Boxed/Ammo	110	6.41	3130.75	Nonel	Conway	2.95	107	379	Sunny and Cold	Yes
05/03/2013	E328	Bench 6	Production	Boxed/Ammo	105	3.84	2751.65	Nonel	Rogart	6.15	105	265	N/K	None
07/03/2013	E329	Bench 4	Production	Boxed/Ammo	105	4.97	2622.55	Nonel	Conway	1.38	105	377	Light Rain	yes
25/03/2013	E330	Bench 4	Production	Boxed/Ammo	85	3.5	3608	Nonel	Conway	2.8	107	370	Dry Cold	yes
05/04/2013	E331	Bench 6	Production	Boxed/Ammo	100	4.1	3366	Hotshot	Rogart	3.58	106	247	Dry light cloud	None
18/04/2013	E332	Bench 4	Production	Boxed/Ammo	110	5	3428.7	Nonel	Conway	2.08	107	375	Windy Easterly	yes
07/05/2013	E333	Bench 6	Production	Boxed /Blendex	65	2.69	5796.05	Hotshot	Rogart	3.1	107	245	Dry Sunny Hot	None
24/06/2013	E334	Bench 4	Production	Boxed/Ammo	110	5.53	3251.65	Nonel	Pen y bryn	2.42	108	335	Dry Windy	yes
06/06/2013	E335	Bench 6	Production	Boxed/blendex	98	2.71	6949	Hotshot	Rogart	4.03	107	245	Hot	None
18/06/2013	E336	Bench 4	Production	Boxed	115	5.43	3295	Nonel	Conway	2.3	126	355	Dry Overcast	yes
04/07/2013	E337	Bench 4	Production	Blendex	72	3.84	3102	Hotshot	Conway	2.07	105	360	Misty Rain	None
11/07/2013	E338	Bench 4	Production	Blendex	72	3.67	9157	Hotshot	Conway	Too low to record		365	N/K	None
02/08/2013	E339	Bench 4	Production	Blendex	78	3.73	5763	Hotshot	Conway	3.73	107	370	Dry Hot Cloudy	None
13/08/2013	E340	Bench 7	Production	Blendex	85	3.42	2493	Hotshot	Rogart	2.4	105	300	Dry Overcast	None
13/08/2013	E341	Bench 4	Production	Blendex	104	4.1	2493	Hotshot	Conway	1	104	510	Dry Cloudy	None
29/08/2013	E342	Bench 7	Production	Blendex	143	3	2808	Nonel	Rogart	5.85	107	280	Overcast Dry	yes
05/09/2013	E343	Bench 5	Production	Blendex	91	3.5	3258	Hotshot	Conway	Too low to record		510	Overcast Dry	None
16/09/2013	E344	Bench 4	Production	Blendex	120	2.9	7000	Hotshot	Conway	Too low to record		550	Cloudy Wet	None
20/09/2013	E345	Bench 4	Production	Blendex	91	2.78	1577	Hotshot	Conway	Too low to record		550	Mild Cloudy	None
27/09/2013	E346	Bench 4	Production	Blendex	136	3	7014	Hotshot	Conway	Too low to record		550	Dry light cloud	None
08/10/2013	E347	Bench 7	Production	Blendex	85	1.4	1836	Hotshot	Rogart	4.28	107	270	N/K	None
11/10/2013	E348	Bench 4	Production	Blendex	130	4.8	2201	Hotshot	Conway	Too low to record		560	Overcast Dry	None
04/11/2013	E349	Bench 5	Production	Blendex	84	2.97	2059	Hotshot	Rogart	2.1		108	Dry light cloud	None
04/11/2013	E350	Bench 7	Production	Blendex	91	2.88	2430	Hotshot	Rogart	1.8	107	260	Dry light cloud	None
25/11/2013	E351	Bench 5	Production	Boxed /Ammo	58	3.99	1897	Hotshot	Conway	Too low to record		550	Dry Clear Sky	None
05/12/2013	E352	Bench 5	Production	Boxed /Ammo	115	4.01	4715	Hotshot	Conway	1.37	105	550	Overcast blustery	None
20/12/2013	E353	Bench 5	Production	Boxed /Ammo	110	4.67	2510	Hotshot	Conway			510	Overcast	None

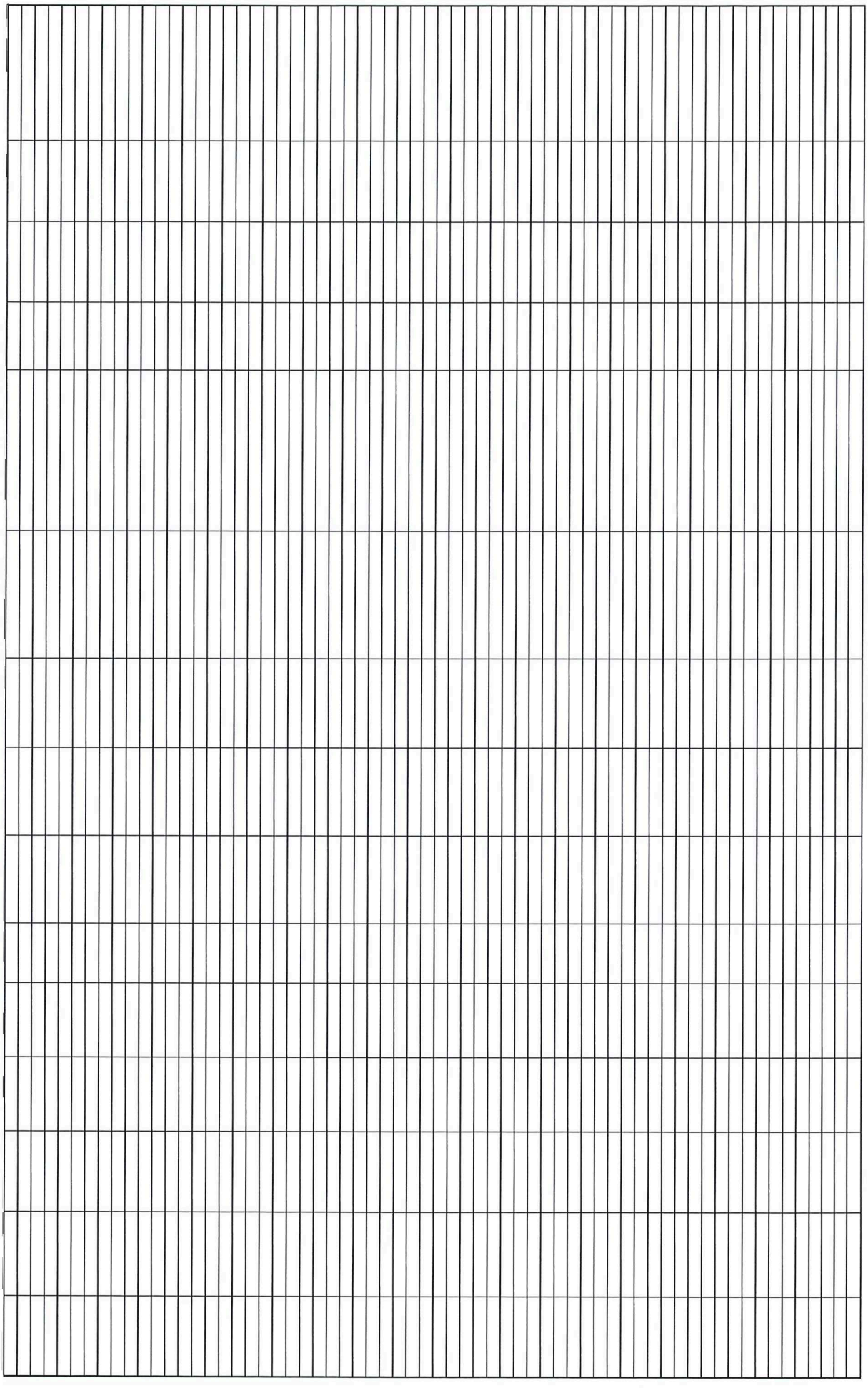


Blasting Vibration Database

Blasting Services Ltd
EPC GROUP

Site: Hansons Craig Yr Hesg Quarry 2014

Date	Blast reference	Location	Type of blast	Boxes or MB?	MIC in Kg	Blast Ratio T/kg	Total Charge Weight kg	Initiation system	Location of seismograph	peak particle velocity in mm/sec	AOP in dBL	Distance in m	Weather	Complaints / Comments
13/01/2014	E354	Bench 6	Production	Boxed	43.75	4.87	1340	Hotshots	Conway	Did not trigger		530	Overcast light	None
23/01/2014	E355	Bench 5	Production	Boxed/Ammobl	106.25	6.89	1665	Hotshots	Conway	Did not trigger		550	Overcast Dry	None
06/02/2014	E356	Bench 6	Production	Boxed/Ammobl	75	4.85	1755	Hotshots	Rogart	1.08	106	290	Heavy Rain	None
13/02/2014	E357	Bench 5	Production	Boxed/Ammobl	100	4.31	1156	Hotshots	Conway	Did not trigger		540	Dry light cloud	None
19/02/2014	E358	Bench 6	Production	Boxed/Ammobl	81.25	4.9	2129	Hotshots	Rogart	2.4	109	290	Heavy Showers	None
27/02/2014	E359	Bench 5	Production	Boxed/Ammobl	100	4.89	2377	Hotshots	Conway	Did not trigger		550	Overcast last	None
06/03/2014	E360	Bench 6	Production	Boxed/Ammobl	87.5	5.21	1975	Hotshots	Conway	1.68	104	550	Dry and clear	None
18/03/2014	E361	Bench 6	Production	Boxed/Ammobl	100	4.62	2255	Hotshots	Conway	Did not trigger		540	Light Rain	None
27/03/2014	E362	Bench 5	Production	Boxed/Ammobl	90	5.52	1919	Hotshots	Rogart	Did not trigger		300	Sunny	None
27/03/2013	E363	Bench 6	Production	Boxed/Ammobl	90	4.23	1463	Hotshots	Rogart	Did not trigger		280	Sunny	None
03/04/2014	E364	Bench 6	Production	Boxed/Ammobl	90	4.93	1359	Hotshots	Rogart	1.1	107	280	Overcast	None
					87.6136364									



12. AIR QUALITY

12.1 PM10 Emissions Action Plan

Hanson Aggregates Craig-yr-Hesg Quarry
PM10 Emissions Action Plan

Background

Following a number of dust complaints from local residents adjacent to the quarry PM10 monitoring has been conducted by the local authority. As a potential source for this type of emission, Hanson Aggregates has been working closely with the local authority to implement control measures to the quarry plant in the second half of 2008. Further improvements are planed for early 2009. The following summary details the works completed and planned for various sections of the quarry processing plant.

Primary Crusher

Completed Works: -

Two sets of curtain drapes have been installed on the opening to the primary crusher building to seal the opening to the primary dump hopper. One set covers the area the as blasted stone leaves the dump truck tipping body with the second set reaching to floor level. This is to control dust when the dump truck is tipping as well as the dust from the primary crusher operation. The primary crusher building has acted a bit like a chimney in the past. Extra steelwork has subsequently been added to help keep the drapes in the correct position. The first curtain was installed in September 2008 with the second set added in December 2008.

A new spray bar has been added to the outside of the primary dump hopper to control dust from the dump truck when tipping and to ensure the haul road area adjacent to the primary is maintained in a damp condition. A new water tank has been installed in this area with three times the water capacity to ensure there is sufficient water for the water suppression system. The spray bar and new water storage system was installed end of October/early November 2008.

A new wet suppression system has been installed on the primary discharge conveyor to control emissions from the bottom of the primary crusher building. This was installed during November 2008.

A high pressure pump is being installed to feed the dump hopper spray system to allow a better “misting” action, the smaller the water droplets the more efficiently they capture fine particulate. The target completion date for this item is end of January 2009. **Completed**

The increased pressure will allow extra haul road sprays to be installed on the dump truck haul route to the primary dump hopper to ensure efficient dust suppression for a greater distance away from the dump hopper. **Completed**

Discharge conveyor (no.1) enclosed to seal where it exits the primary building at the end of **June 2009**.

Further road-sprays added to the primary stock pile haul road in **June 2009**.

Road Load-out

Completed Works: -

Hanson Aggregates Craig-yr-Hesg Quarry
PM10 Emissions Action Plan

Updated and improved dust suppression spray heads have been fitted to the road load-out conveyor discharge point to control dust during the loading of road going delivery lorries. This was completed during November 2008.

Although the road load-out is already within a building on two sides and above there is a large opening at each end to allow for the large site dump trucks to have access for stock management. Curtain drapes are to be fitted each end down a distance of approximately 1 metre from the top to provide a better seal around the road going vehicles whilst still allowing quarry vehicles to gain access to the load-out station. The target completion date for this item is end of January 2009. **Complete**

Secondary Crushing Station

Completed Works: -

Although the secondary crushing station is already fully enclosed within a building there is a number of crushers and screens operating within the building and it is impossible to make the building dust tight due to access points and conveyors going into and leaving the building. The first screen has had improved local dust encapsulation fitted to control the dust at source. This screen was completed during December 2008.

The remaining two screens will also have improved dust encapsulation fitted to them to prevent dust being released into the secondary crushing station building. **Complete**

While there is a dust collection system serving the secondary crushing station, the ductwork within the building is not working as effectively as it could. The internal ductwork is therefore going to be replaced to ensure optimum operation. **H Screen completed, J Screen completed end of May 09, F screen hopefully completed end of July 09.**

Where openings are provided in the building for conveyor access, improvements will be made to close up/seal the apertures as effectively as possible with the use of curtain drapes. The target completion date for this item is end of February 2009. **Order placed completed by the end of July.**

In General

Hanson will continue to visually monitor dust emissions from the site to assess the effectiveness of the above improvements to the sites dust control measures and to identify any other dust sources on site. Where new sources of dust are identified improvement measures will be identified and implemented.

Hanson will also continue to liaise with the local authority to determine any other changes or improvements that can be made to the quarry process to minimise the impact of dust on the local community.

12.2 Dust Deposition Data

1015

OCCUPATIONAL HYGIENE AND ENVIRONMENTAL MONITORING LABORATORY

TEST REPORT

Site:
Smith Grant LLP - Pontypridd

Client:
Ms L Crowe
Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
Clwyd
LL14 6DL

Job Number: 14614

Report Number: FD/ 07104

Report Date: 20/11/2014

Method N°. ENV/FD01: The determination of Fugitive Dust Based on BS 872: 2005 (Mass of dust (mg) is the UKAS accredited test.)
Method N°. ENV/FD03: The determination of pH and conductivity in fugitive dust samples.
Method N°. ENV/FD05: The determination of reflectance values using a smoke stain reflectometer
(% reflectance is the UKAS accredited result reported.)

Environmental Scientifics Group Limited is not UKAS accredited for environmental dust gauge sampling.
The dust samples will be retained at the laboratory for a period of 6 months in case extended analysis is required in future. Liquids associated with dust samples are not normally retained at the laboratory.

Report Comment:

Approved by:

HE Latham

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Helen Latham, Team Leader
Environmental Laboratory
Direct Dial: 01283 554486

TEST REPORT

1015

Report Number FD/ 07104 Job Number 14614 ID Number 083187
Site Description Smith Grant LLP - Pontypridd
Sample 1 (By Crusher)
Date Received 03/11/2014 Sampling Period 03/10/2014 to 31/10/2014 28 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 332
Deposition (mg.m^{-2}d^{-1}) 298

Detection Limit (mg) 0.5 Date Tested 12/11/2014

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 03/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 07/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	5.9	units	5.9	units

Result TDS **LOD** 0.5 **Date Tested** 07/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	24	µS.cm^{-1}	95.0	mg
Conductivity	24	µS.cm^{-1}	85.0	mg.m^{-2}d^{-1}

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 11/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
N	96	%	0.1	%EAC.d^{-1}
NE	97	%	0.1	%EAC.d^{-1}
E	97	%	0.1	%EAC.d^{-1}
SE	96	%	0.1	%EAC.d^{-1}
S	92	%	0.3	%EAC.d^{-1}
SW	91	%	0.3	%EAC.d^{-1}
W	90	%	0.4	%EAC.d^{-1}
NW	93	%	0.3	%EAC.d^{-1}

TEST REPORT

1015

Report Number FD/ 07104 Job Number 14614 ID Number 083188

Site Description Smith Grant LLP - Pontypridd

Sample 2 (Viewing Platform)

Date Received 03/11/2014 Sampling Period 03/10/2014 to 31/10/2014 28 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 29

Deposition (mg.m^{-2}d^{-1}) 26

Detection Limit (mg) 0.5 Date Tested 12/11/2014

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 03/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 07/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	5.6	units	5.6	units

Result TDS **LOD** 0.5 **Date Tested** 07/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	25	µS.cm^{-1}	99.0	mg
Conductivity	25	µS.cm^{-1}	89.0	mg.m^{-2}d^{-1}

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 11/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
N	99	%	0.0	%EAC.d^{-1}
NE	98	%	0.1	%EAC.d^{-1}
E	98	%	0.1	%EAC.d^{-1}
SE	96	%	0.1	%EAC.d^{-1}
S	94	%	0.2	%EAC.d^{-1}
SW	95	%	0.2	%EAC.d^{-1}
W	96	%	0.1	%EAC.d^{-1}
NW	98	%	0.1	%EAC.d^{-1}

TEST REPORT

1015

Report Number FD/ 07104 Job Number 14614 ID Number 083189

Site Description Smith Grant LLP - Pontypridd

Sample 3 (South End)

Date Received 03/11/2014 Sampling Period 03/10/2014 to 31/10/2014 28 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 16

Deposition ($mg.m^{-2}d^{-1}$) 14

Detection Limit (mg) 0.5 Date Tested 12/11/2014

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 03/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 07/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	5.9	units	5.9	units

Result TDS **LOD** 0.5 **Date Tested** 07/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	22	$\mu S.cm^{-1}$	87.0	mg
Conductivity	22	$\mu S.cm^{-1}$	78.0	$mg.m^{-2}d^{-1}$

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 11/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
N	99	%	0.0	$\%EAC.d^{-1}$
NE	100	%	0.0	$\%EAC.d^{-1}$
E	100	%	0.0	$\%EAC.d^{-1}$
SE	99	%	0.0	$\%EAC.d^{-1}$
S	98	%	0.1	$\%EAC.d^{-1}$
SW	97	%	0.1	$\%EAC.d^{-1}$
W	98	%	0.1	$\%EAC.d^{-1}$
NW	99	%	0.0	$\%EAC.d^{-1}$

TEST REPORT

1015

Report Number FD/ 07104 Job Number 14614 ID Number 083190

Site Description Smith Grant LLP - Pontypridd

Sample 4 (Conway Road)

Date Received 03/11/2014 Sampling Period 03/10/2014 to 31/10/2014 28 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 12

Deposition (mg.m^{-2}d^{-1}) 11

Detection Limit (mg) 0.5 Date Tested 12/11/2014

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 03/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 07/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	5.6	units	5.6	units

Result TDS **LOD** 0.5 **Date Tested** 07/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	24	µS.cm^{-1}	95.0	mg
Conductivity	24	µS.cm^{-1}	85.0	mg.m^{-2}d^{-1}

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 11/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
N	99	%	0.0	%EAC.d^{-1}
NE	99	%	0.0	%EAC.d^{-1}
E	99	%	0.0	%EAC.d^{-1}
SE	99	%	0.0	%EAC.d^{-1}
S	97	%	0.1	%EAC.d^{-1}
SW	97	%	0.1	%EAC.d^{-1}
W	99	%	0.0	%EAC.d^{-1}
NW	100	%	0.0	%EAC.d^{-1}

ESG Environmental Scientifics Group

UKAS TESTING 1015

OCCUPATIONAL HYGIENE AND ENVIRONMENTAL MONITORING LABORATORY

TEST REPORT

Site:
Smith Grant LLP - Pontypridd

Client:
Mr A Smith
Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
Clwyd
LL14 6DL

Job Number: 14883

Report Number: FD/ 07223

Report Date: 22/12/2014

Method N°. ENV/FD01: The determination of Fugitive Dust Based on BS 872: 2005 (Mass of dust (mg) is the UKAS accredited test.)

Method N°. ENV/FD03: The determination of pH and conductivity in fugitive dust samples.

Method N°. ENV/FD05: The determination of reflectance values using a smoke stain reflectometer
(% reflectance is the UKAS accredited result reported.)

Environmental Scientifics Group Limited is not UKAS accredited for environmental dust gauge sampling.
The dust samples will be retained at the laboratory for a period of 6 months in case extended analysis is required in future. Liquids associated with dust samples are not normally retained at the laboratory.

Report Comment:

Approved by:

HELatham

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Helen Latham, Team Leader
Environmental Laboratory
Direct Dial: 01283 554486

TEST REPORT

1015

Report Number FD/ 07223 Job Number 14883 ID Number 084636

Site Description Smith Grant LLP - Pontypridd

Sample 1 (By Crusher)

Date Received 27/11/2014 Sampling Period 31/10/2014 to 26/11/2014 26 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 322

Deposition (mg.m^{-2}d^{-1}) 311

Detection Limit (mg) 0.5 Date Tested 08/12/2014

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 27/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 03/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	5.7	units	5.7	units

Result TDS **LOD** 0.5 **Date Tested** 03/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	16	µS.cm^{-1}	63.0	mg
Conductivity	16	µS.cm^{-1}	61.0	mg.m^{-2}d^{-1}

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 15/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
N	95	%	0.2	%EAC.d^{-1}
NE	95	%	0.2	%EAC.d^{-1}
E	93	%	0.3	%EAC.d^{-1}
SE	89	%	0.4	%EAC.d^{-1}
S	87	%	0.5	%EAC.d^{-1}
SW	86	%	0.5	%EAC.d^{-1}
W	88	%	0.5	%EAC.d^{-1}
NW	91	%	0.3	%EAC.d^{-1}

TEST REPORT

1015

Report Number FD/ 07223 Job Number 14883 ID Number 084637

Site Description Smith Grant LLP - Pontypridd

Sample 2 (Viewing Platform)

Date Received 27/11/2014 Sampling Period 31/10/2014 to 26/11/2014 26 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 15

Deposition (mg.m^{-2}d^{-1}) 15

Detection Limit (mg) 0.5 Date Tested 08/12/2014

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 27/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 03/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	5.5	units	5.5	units

Result TDS **LOD** 0.5 **Date Tested** 03/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	16	µS.cm^{-1}	63.0	mg
Conductivity	16	µS.cm^{-1}	61.0	mg.m^{-2}d^{-1}

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 15/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
N	98	%	0.1	%EAC.d^{-1}
NE	96	%	0.2	%EAC.d^{-1}
E	93	%	0.3	%EAC.d^{-1}
SE	91	%	0.3	%EAC.d^{-1}
S	89	%	0.4	%EAC.d^{-1}
SW	94	%	0.2	%EAC.d^{-1}
W	97	%	0.1	%EAC.d^{-1}
NW	98	%	0.1	%EAC.d^{-1}

TEST REPORT

1015

Report Number	FD/ 07223	Job Number	14883	ID Number	084638
Site Description	Smith Grant LLP - Pontypridd				
Sample	3 (South End)				
Comment	No sample - Complete Frisbee gauge stand, bottle & adhesive strip stolen.				
Date Received	27/11/2014	Sampling Period	31/10/2014 to 26/11/2014	26	Days

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested**

Test / Direction	Measured Value	Units	Reported Result	Units
Volume		litres		litres

Result pH **LOD** 0.1 **Date Tested**

Test / Direction	Measured Value	Units	Reported Result	Units
pH		units		units

Result TDS **LOD** 0.5 **Date Tested**

Test / Direction	Measured Value	Units	Reported Result	Units
DS		$\mu S.cm^{-1}$		mg
Conductivity		$\mu S.cm^{-1}$		$mg.m^{-2}d^{-1}$

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested**

Test / Direction	Measured Value	Units	Reported Result	Units
N		%		$\%EAC.d^{-1}$
NE		%		$\%EAC.d^{-1}$
E		%		$\%EAC.d^{-1}$
SE		%		$\%EAC.d^{-1}$
S		%		$\%EAC.d^{-1}$
SW		%		$\%EAC.d^{-1}$
W		%		$\%EAC.d^{-1}$
NW		%		$\%EAC.d^{-1}$

TEST REPORT

1015

Report Number FD/ 07223 Job Number 14883 ID Number 084639

Site Description Smith Grant LLP - Pontypridd

Sample 4 (Conway Road)

Date Received 27/11/2014 Sampling Period 31/10/2014 to 26/11/2014 26 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 22

Deposition (mg.m^{-2}d^{-1}) 21

Detection Limit (mg) 0.5 Date Tested 08/12/2014

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 27/11/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 03/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	5.6	units	5.6	units

Result TDS **LOD** 0.5 **Date Tested** 03/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	17	µS.cm^{-1}	67.0	mg
Conductivity	17	µS.cm^{-1}	65.0	mg.m^{-2}d^{-1}

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 15/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
N	98	%	0.1	%EAC.d^{-1}
NE	98	%	0.1	%EAC.d^{-1}
E	96	%	0.2	%EAC.d^{-1}
SE	94	%	0.2	%EAC.d^{-1}
S	94	%	0.2	%EAC.d^{-1}
SW	96	%	0.2	%EAC.d^{-1}
W	97	%	0.1	%EAC.d^{-1}
NW	98	%	0.1	%EAC.d^{-1}

Environmental Scientifics Group

UKAS TESTING
1015

OCCUPATIONAL HYGIENE AND ENVIRONMENTAL MONITORING LABORATORY

TEST REPORT

Site:
Smith Grant LLP - Pontypridd

Client:
Mr A Smith
Smith Grant LLP
Station House
Station Road
Ruabon
Wrexham
Clwyd
LL14 6DL

Job Number: 15175

Report Number: FD/ 07332

Report Date: 15/01/2015

Method N°. ENV/FD01: The determination of Fugitive Dust Based on BS 872: 2005 (Mass of dust (mg) is the UKAS accredited test.)

Method N°. ENV/FD03: The determination of pH and conductivity in fugitive dust samples.

Method N°. ENV/FD05: The determination of reflectance values using a smoke stain reflectometer
(% reflectance is the UKAS accredited result reported.)

Environmental Scientifics Group Limited is not UKAS accredited for environmental dust gauge sampling.
The dust samples will be retained at the laboratory for a period of 6 months in case extended analysis is required in future. Liquids associated with dust samples are not normally retained at the laboratory.

Report Comment:

Approved by:

J. Perry

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John Perry, Senior Analyst
Environmental Laboratory
Direct Dial: 01283 554488

TEST REPORT

1015

Report Number FD/ 07332 Job Number 15175 ID Number 086242

Site Description Smith Grant LLP - Pontypridd

Sample 1 (By Crusher)

Date Received 23/12/2014 Sampling Period 26/11/2014 to 22/12/2014 26 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 149

Deposition ($mg.m^{-2}d^{-1}$) 144

Detection Limit (mg) 0.5 Date Tested 14/01/2015

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 23/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 24/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	6.2	units	6.2	units

Result TDS **LOD** 0.5 **Date Tested** 24/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	19	$\mu S.cm^{-1}$	75.0	mg
Conductivity	19	$\mu S.cm^{-1}$	73.0	$mg.m^{-2}d^{-1}$

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 12/01/2015

Test / Direction	Measured Value	Units	Reported Result	Units
N	97	%	0.1	$\%EAC.d^{-1}$
NE	98	%	0.1	$\%EAC.d^{-1}$
E	98	%	0.1	$\%EAC.d^{-1}$
SE	97	%	0.1	$\%EAC.d^{-1}$
S	94	%	0.2	$\%EAC.d^{-1}$
SW	95	%	0.2	$\%EAC.d^{-1}$
W	95	%	0.2	$\%EAC.d^{-1}$
NW	96	%	0.2	$\%EAC.d^{-1}$

TEST REPORT

1015

Report Number FD/ 07332 Job Number 15175 ID Number 086243
Site Description Smith Grant LLP - Pontypridd
Sample 2 (Viewing Platform)
Date Received 23/12/2014 Sampling Period 26/11/2014 to 22/12/2014 26 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 22
Deposition (mg.m^{-2}d^{-1}) 21
Detection Limit (mg) 0.5 Date Tested 14/01/2015

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 23/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 24/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	6.1	units	6.1	units

Result TDS **LOD** 0.5 **Date Tested** 24/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	22	µS.cm^{-1}	87.0	mg
Conductivity	22	µS.cm^{-1}	84.0	mg.m^{-2}d^{-1}

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 12/01/2015

Test / Direction	Measured Value	Units	Reported Result	Units
N	97	%	0.1	%EAC.d^{-1}
NE	99	%	0.0	%EAC.d^{-1}
E	99	%	0.0	%EAC.d^{-1}
SE	98	%	0.1	%EAC.d^{-1}
S	97	%	0.1	%EAC.d^{-1}
SW	94	%	0.2	%EAC.d^{-1}
W	95	%	0.2	%EAC.d^{-1}
NW	95	%	0.2	%EAC.d^{-1}

TEST REPORT

1015

Report Number	FD/ 07332	Job Number	15175	ID Number	086244
Site Description	Smith Grant LLP - Pontypridd				
Sample	3 (South End)				
Comment	No samples. - Complete Frisbee gauge stand stolen during previous sampling period.				
Date Received	23/12/2014	Sampling Period	26/11/2014 to 22/12/2014	26	Days

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested**

Test / Direction	Measured Value	Units	Reported Result	Units
Volume		litres		litres

Result pH **LOD** 0.1 **Date Tested**

Test / Direction	Measured Value	Units	Reported Result	Units
pH		units		units

Result TDS **LOD** 0.5 **Date Tested**

Test / Direction	Measured Value	Units	Reported Result	Units
DS		$\mu S.cm^{-1}$		mg
Conductivity		$\mu S.cm^{-1}$		$mg.m^{-2}d^{-1}$

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested**

Test / Direction	Measured Value	Units	Reported Result	Units
N		%		$\%EAC.d^{-1}$
NE		%		$\%EAC.d^{-1}$
E		%		$\%EAC.d^{-1}$
SE		%		$\%EAC.d^{-1}$
S		%		$\%EAC.d^{-1}$
SW		%		$\%EAC.d^{-1}$
W		%		$\%EAC.d^{-1}$
NW		%		$\%EAC.d^{-1}$

TEST REPORT

1015

Report Number FD/ 07332 Job Number 15175 ID Number 086245

Site Description Smith Grant LLP - Pontypridd

Sample 4 (Conway Road)

Date Received 23/12/2014 Sampling Period 26/11/2014 to 22/12/2014 26 Days

Method ENV/FD01 **Gauge Type** Combined Frisbee deposit and Adh

Dust mass (mg) 8

Deposition (mg.m^{-2}d^{-1}) 8

Detection Limit (mg) 0.5 Date Tested 14/01/2015

Method ENV/FD03

Result Volume **LOD** 0.1 **Date Tested** 23/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
Volume	5.9	litres	5.9	litres

Result pH **LOD** 0.1 **Date Tested** 24/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
pH	5.9	units	5.9	units

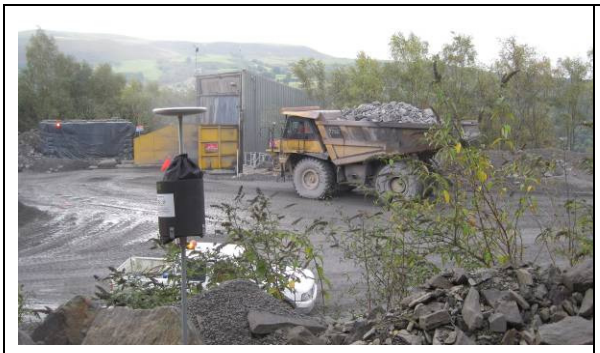
Result TDS **LOD** 0.5 **Date Tested** 24/12/2014

Test / Direction	Measured Value	Units	Reported Result	Units
DS	19	µS.cm^{-1}	75.0	mg
Conductivity	19	µS.cm^{-1}	73.0	mg.m^{-2}d^{-1}

Method ENV/FD05

Result Soiling **LOD** 1 **Date Tested** 12/01/2015

Test / Direction	Measured Value	Units	Reported Result	Units
N	99	%	0.0	%EAC.d^{-1}
NE	99	%	0.0	%EAC.d^{-1}
E	99	%	0.0	%EAC.d^{-1}
SE	98	%	0.1	%EAC.d^{-1}
S	98	%	0.1	%EAC.d^{-1}
SW	97	%	0.1	%EAC.d^{-1}
W	98	%	0.1	%EAC.d^{-1}
NW	99	%	0.0	%EAC.d^{-1}



1. Deposit Gauge 1

2. Deposit Gauge 2

2. Deposit Gauge 3

4. View from proposed extension area towards Conway Close and Deposit Gauge 4 location in house garden