

Penderyn Quarry: East Twyn-y-Glog Ridge, Flood Consequence Assessment



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Penderyn Quarry: East Twyn-y-Glog Ridge, Flood Consequence Assessment

Prepared for

Hanson UK Hanson House Castle Hill Maidenhead SL6 4JJ

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Penderyn Quarry: East Twyn-y-Glog Ridge, Flood Consequence Assessment

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- Appendix A 2018 Topographic Survey and Development Plan
- Appendix B Site Restoration Plan
- Appendix C Discharge Consents



1 Introduction

1.1 Background

Hanson UK (Hanson) is submitting an application for full planning permission to work limestone mineral from the eastern half of the Twyn-y-Glog Ridge at the existing Penderyn Quarry. Penderyn Quarry is an active limestone quarry located immediately east of the village of Penderyn and 5.5 km north-west of Aberdare in Rhondda Cynon Taf, South Wales.

Hanson is proposing to give up rights to quarry the western half of the Twyn-y-Glog ridge as part of the application (an area of 2.35 ha) and instead is proposing a reserve swap to quarry the eastern part of the ridge (approximately 1.77 ha). The application area lies within the existing Penderyn Quarry land ownership boundary. Figure 1.1 shows a map of the area around Penderyn Quarry showing the eastern Twyn-y-Glog Ridge application area in red ("the Site"). The western ridge area which is to be preserved (where Hanson is proposing to give up the rights to quarry) is shown in green ("the Preserved Area") and the land ownership boundary is shown in blue.

The Site is currently un-developed and covers approximately 1.77 ha. The Site would be worked to a level of not less than 265 m AOD. Once quarrying ceases, the whole quarry void will be restored to a large lake as per the proposed restoration plan shown in Appendix B. Details of the proposed development and restoration are set out in the Section 2.2.

This report constitutes a Flood Consequence Assessment (FCA) that has been prepared on behalf of Hanson in support of the planning application to extract limestone from the eastern half of the Twyn-y-glog Ridge, as part of wider quarry proposals at Penderyn Quarry. A Hydrogeological Impact Assessment (HIA) also supports the application and this has been produced as a separate document (Stantec, 2018).

1.2 Scope of work

Hanson instructed Stantec UK Limited (Stantec) in May 2018 to undertake an FCA in support of the planning application for the Site. This FCA has been written in line with Technical Advice Note (TAN) 15 (Welsh Assembly Government, 2004) and Good Practice Guide (GPG) 101 and Guidance Note (GN) 008 to satisfy both Natural Resources Wales (NRW) and the Lead Local Flood Authority (LLFA) (Rhondda Cynon Taff CBC) that all potential flood risks to and from the proposed development have been considered.

This assessment includes a review of the surface water management strategy at Penderyn Quarry with respect to the proposed development of the Site as well as the proposed restoration scheme to ascertain their suitability with regards to flood risk.

1.3 Data sources

The principal sources of data used in this assessment are summarised below:

- Latest site survey provided by Hanson (Appendix A);
- site development plans provided by Hanson (Appendix A);
- proposed restoration plan provided by Hanson (Appendix B);
- NRW flood risk data;
- Rhondda Cynon Taf CBC Flood Risk Management Plan (Rhondda Cynon Taff CBC, 2013);
- Rhonda Cynon Taf Local Flood Risk Management Strategy (Rhondda Cynon Taff CBC, 2013);
- Ordnance Survey mapping;
- rainfall and catchment characteristics from the Centre for Ecology and Hydrology (CEH) Flood Estimation Handbook (NERC, 2009); and



• geology and ground conditions data from on-site boreholes, historical site reports and BGS data.

1.4 Report structure

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This report constitutes the FCA for the proposed development, and includes the following:

- A description of the Site conditions and proposed development (Section 2);
- an assessment of flood risk to the development (Section 3);
- an assessment of the Site suitability for the development (Section 4);
- an assessment of flood consequences from the development to the surrounding area (Section 5); and
- The proposed drainage strategies for the Site to alleviate any potential increase in flood consequences (sections 6).



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2 Site description

2.1 Site setting

The Site is located approximately 1.1 km east of the village of Penderyn in the Cynon Valley and 2.8 km north of Hirwaun in Rhondda Cynon Taf (postcode: CF44 OTX and NGR: SN 961090). The Site forms part of the Twyn-y-Glog ridge, which runs along the southern edge of the existing quarry void. The Site is currently un-developed – covered with scrub and bare rock - and covers approximately 1.77 ha.

The topography of the Site is fairly uneven, with elevations between 350 and 362 m AOD. At present, approximately half of the Site drains into the quarry void. Surface water flow directions and subcatchment areas over the Site under current conditions (based upon 2018 site survey data) are shown in Figure 2.1.

Other than Penderyn Quarry, land use in the area around the Site is predominantly rural with various small settlements, agricultural land, woodland and moorland. Land immediately around the Site to the north and west forms part of Penderyn Quarry, and to the south and east is moorland named Mynydd-y-Glog. A number of small industrial developments are located in the surrounding area, the closest of which is Penderyn Distillery which is located 1 km south-west of the Site.





Figure 2.1 Surface water flow directions and sub-catchment areas over the Site under current conditions (based on LiDAR data)

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2.2 Proposed development

The Site would be worked to a level of not less than 265 m AOD. It is proposed to work the mineral dry with operations being above the water table. Mineral extraction is defined within TAN15 as "Less Vulnerable" in terms of flood risk.

As material is excavated, the topography of the site will change to a series of shallow benches dipping north towards the centre of the quarry void. As this occurs, all runoff from the Site which formerly ran south (an area of 0.95 Ha.) would be redirected into the quarry void.

Once the mineral has been excavated, the Site will be restored as part of the overall restoration strategy for Penderyn Quarry shown on the plan in Appendix B.

2.3 Geology

2.3.1 Bedrock geology

The bedrock geology of the area around the Site consists of Carboniferous strata, comprising limestones and sandstones. Most prevalent at the Site are the Twrch Sandstone Formation (of the Marros Group), Oxwich Head Limestone Formation and Dowlais Limestone Formation. The Marros Group is the youngest strata at the Site and stratigraphically overlies the limestone units.

The strata generally dip to the southeast at an angle of between 10 and 25°. The limestone strata below the Marros Group is karstic and well faulted/fractured.

Greater detail of the geology at the Site is available in Stantec (2018).

2.3.2 Superficial geology

Quaternary deposits cover the bedrock geology across much of the surrounding region. Glacial till is the primary superficial lithology and this covers most of the surrounding area, with the closest mapped outcrop being 140 m south of the Site. Approximately 150 m to the south and at various other locations in the surrounding region, peat deposits crop out in isolated patches. Peat appears to be associated with high ground in moorland settings.

No superficial deposits are mapped as overlying the Site, likely owing to the Site's location along the Twyn-y-Glog ridge. The spatial distribution of the superficial deposits in the area shows that they are generally confined to the lower elevations within the valley features.

2.3.3 Hydrogeology

Hydraulic properties of the Limestone are expected to vary spatially and with depth. Limestone will be most permeable where karst is present and this is expected to be the case at shallow depths. Permeability will also be enhanced along fractures, although may be lower than might be expected due to fracture infills from later sedimentation.

The Twrch Sandstone is reported to be well cemented meaning that intergranular permeability is expected to be low. Permeability may be enhanced around fractures and faults.

2.4 Hydrology

2.4.1 Rainfall

Rainfall is continuously monitored using two automated gauges; one in the SSSI just to the north of Penderyn Quarry and one within Penderyn Quarry itself. The mean annual rainfall collected between 1996 and 2017 was 1833 mm. Mean annual potential evapotranspiration (PE) data over this time (as calculated by MORECS) was 538 mm.

2.4.2 Surface water features

Figure 2.2 shows surface water features in the vicinity of the Site. The Site lies within the catchment of the Nant Cadlan, which becomes the River Cynon approximately 2 km downstream of Penderyn Quarry. The River Cynon is the principal surface water feature in the area and constitutes a major tributary of the River Taff. The Nant Cadlan is an ordinary watercourse in the vicinity of the Site.





The River Cynon becomes a main river 2.2 km downstream of the Site, at the confluence with the River Bwllfa.

Figure 2.2 Surface water features in vicinity of the Site

The Nant Cadlan is a moderately small river/large stream in a well-defined channel passing to the north and west of Penderyn Quarry. A photograph of the river adjacent to the Site is presented in Figure 2.3. Nant Cadlan stage data has been collected since 2002 using a data logger. This data is converted to flow data using an established stage-discharge relationship. A flow-duration curve is presented in Figure 2.4 which shows the flow characteristics of the watercourse in this location between 2002 and 2017; the mean flow rate over this time was 22,788 m³/d.

The Bodwigiad Stream exists a short distance to the south of the Site. This is sourced from an area of moorland located 300 m south of the Site. From its source, the Bodwigiad Stream flows south-westwards to its confluence with the Nant Cadlan approximately 1 km to the south-west of the Site. A minor, unnamed stream is located 550 m north-west of the Site and immediately north of Penderyn Quarry and flows south-westwards to its confluence with the Nant Cadlan.





Figure 2.3 The Nant Cadlan – photo taken from Site access road – see Figure 2.2



Figure 2.4 Flow duration curve for the Nant Cadlan

Penderyn Quarry is now a topographical depression caused by several decades of mineral extraction. This has resulted in an independent catchment area with the majority of runoff within the quarry catchment flowing towards the lowest part of the quarry void (the quarry sump). Figure 2.1 shows elevation data for the Site with calculated runoff directions and sub-catchment areas. Approximately half of the Site area drains into the quarry void at present with the remainder draining southwards to the Bodwigiad Stream.

Within the Penderyn Quarry boundary, rainfall-runoff and dewatered groundwater enter the Site's surface water management system and is eventually discharged to the Nant Cadlan. The water management scheme and discharge permit are described in detail in Section 2.5.



2.4.3 Catchment descriptors

Representative hydrological catchment descriptors for the Nant Cadlan catchment upstream of Penderyn Quarry have been derived from the Flood Estimation Handbook (FEH) CD-ROM (NERC, 2009) and are provided in Table 2.1.

Table 2.1 Catchment descriptors for Nant Cadlan

Descriptor	Abbreviation	Value
Area (of catchment)	AREA	9.56 km ²
Mean Altitude	ALTBAR	343 m
Mean direction of all drainage path slopes	ASPBAR	211 degrees
Base Flow Index associated with each HOST soil class	BFIHOST	0.365
Proportion of time when soil moisture deficit was equal to, or below, 6mm during 1961-90	PROPWET	0.62 (i.e. 62% of the time)
Average Annual Rainfall (1961 – 1990)	SAAR	1710 mm
Standard Percentage Runoff associated with each HOST soil class	SPRHOST	46%
Extent of urban and suburban land within catchment	URBEXT ₂₀₀₀	0.0097

2.5 Site drainage and water management

Runoff from the northern part of the Site discharges to the north, into Penderyn Quarry, where it is managed by the existing quarry water management scheme. Runoff in the southern part of the Site discharges to the south. Some of this southwards flowing runoff recharges the underlying limestone aquifer, whilst the remainder discharges to the Bodwigiad Stream. The existing Penderyn Quarry water management scheme is described below and Figure 2.5 shows the aspects of the water management scheme applicable to the Site.

The quarry sump collects surface water runoff from the quarry void catchment (including the northern part of the Site) and some groundwater ingress. The portion of groundwater is considered to be a minor component of dewatering relative to surface water runoff. Water abstracted from the quarry sump is transferred to the Nant Cadlan and is discharged under consent AN0272901 (Appendix C). This discharge passes through a 300 mm diameter pipe. A manually adjustable stopcock allows this flow to be diverted to a series of storage tanks from which water is used for dust suppression and wheel washing purposes.

Post restoration, runoff from the Site will attenuate in the large open water feature which constitutes part of the proposed restoration scheme for Penderyn Quarry (see Appendix B).









3 Flood risk to the proposed development

3.1 Flood map for planning

The Development Advice Map (DAM) is a screening tool for determining which sites may be in areas where flood risk may be of concern. The respective zones included in the map are as follows:

- Zone C1: Areas of the floodplain which are developed and served by significant infrastructure, including flood defences.
- Zone C2: Areas of the floodplain without significant flood defence infrastructure.
- Zone B: Areas known to have been flooded in the past evidenced by sedimentary deposits.
- Zone A: Considered to be at little or no risk of fluvial or coastal/tidal flooding

Figure 3.1 shows that the Site lies within Zone A i.e. is considered to be at little or no risk of flooding from fluvial or coastal flooding. This may be expected given the Site's elevated position above the valley floor.

The valley floor adjacent to the Nant Cadlan and River Cynon, is classed as being in Zone C2 – an area within a floodplain but not benefitting from flood defence infrastructure – and the area adjacent to river where it intersects the access road to Penderyn Quarry is in Zone B – an area known to have flooded in the past.



Figure 3.1 TAN15 flood zone map for planning

3.2 Historical fluvial flooding

The Site has not experienced any historical flooding according to NRW data.



3.3 Flood defences

There are no known flood defences in the vicinity of the site.

3.4 Surface water (pluvial) flooding

Surface water (pluvial) flooding is usually associated with extreme rainfall events but can also occur when rain falls on land that is already saturated or is of low permeability. Rainfall that is unable to infiltrate, either due to high rainfall intensity or ground conditions, generates overland flow. Runoff can cause flooding or ponding in localised topographic depressions before run-off can enter a drainage system or watercourse.

Figure 3.2 shows that the risk of surface water flooding within the Site is predominantly very low (transparent). Two small isolated pockets of high risk (greater than 1 in 30 chance of flooding on a given year) are present which are likely to be associated with topographical depressions. The risk of surface water flooding in this area will decrease as material is excavated and the surface gradient is increased.

Surface water runoff at Penderyn Quarry enters the surface water management scheme described in Section 2.5.

Further areas of low to high risk of surface water flooding are present along the Nant Cadlan to the west of the Site.



Figure 3.2 NRW pluvial flood risk data

3.5 Groundwater flooding

Groundwater flooding occurs when the water table rises above the ground surface or into man-made ground.



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Report Reference: 61190R14Rev01 Report Status: Final Report Operations at Penderyn Quarry have been undertaken partly below the water table within the quarry void for a number of years. The water table is exposed within the quarry sump. The sump is a known hazard and the water management scheme at the site and health and safety measures (such as barriers) are design to mitigate against risk posed by the open water body.

As the sump fills with water from rainfall runoff and groundwater, it is automatically emptied when the water elevation reaches a set trigger level (250 m AOD). In this way the water level in the base of the void is prohibited from rising above the maximum level within the sump.

The ground elevation of the of the Site is currently approximately 100 m above the sump level (which is in connection to the groundwater) and therefore the risk of groundwater flooding at this location is negligible. The Site will be worked to a level not lower than 265 m AOD so that the excavations will be above what is understood to have been the pre-quarrying water table (Stantec, 2018). Therefore, the risk of groundwater flooding within the Site would not be increased during the operational phase of development.

3.6 Flooding in the event of reservoir failure

According to the NRW data there is no flood risk to the Site in the unlikely event of reservoir failure.



4 Suitability of the proposed development

4.1 Justification test

Welsh planning policy aims to direct development towards low risk zones with regards to flood risk. This is principally achieved through application of the Justification test.

Given that the Site is within Flood Zone A, the Site is considered appropriate for all types of development and no Justification test is required in this case.

The only constraint for developments in this area is that they do not increase off-site flood risk. This is addressed in Section 5 and Section 6.



5 Flood risk from the proposed development

5.1 Identified receptors

Water features

Rainfall runoff from approximately half of the Site is ultimately either discharged to the Nant Cadlan or used for on-site dust suppression or wheel washing purposes after entering the water management system at Penderyn Quarry. The remainder drains towards the Bodwigiad stream to the south - a tributary of the Nant Cadlan.

Property

Penderyn Quarry itself is located just to the north and upstream of the village of Penderyn. Several buildings, including residential dwelling and the distillery exist within relatively close proximity to the Nant Cadlan.

Infrastructure

The A4059 (Chapel road) runs from north to south - parallel to the Nant Cadlan - past the entrance to Penderyn Quarry.

Flood risk to the receptors named above should not increase as a result of the proposed development.

5.2 Site runoff

5.2.1 Current/Operational

As described in Section 2.5, approximately half of the Site (an area of 0.95 ha) drains to the south and the remainder predominantly drains north into the quarry void. As material within the Site is excavated, the topography will be altered such that eventually all runoff will drain into the main quarry void. This will result in a reduction in off-site runoff to the south.

The runoff regime at Penderyn Quarry as a whole will continue to be controlled by the on-site surface water management scheme that is currently in place (see Section 2.5). Discharge from Penderyn Quarry is in accordance with the discharge consents (included in Appendix C). Site discharge over the lifetime of the proposed development will continue to be undertaken in accordance with the limits of the consents.

5.2.2 Comparison with Preserved Area

The Preserved Area is around 0.58 ha larger in area than the Site and topography is steeper, varying from 290 to 353 m AOD and sloping to the south and south west. At present, the majority (2.01 ha) of this area drains to the south, to the Bodwigiad Stream catchment (1.86 ha) and to the south-west to the Nant Cadlan (0.15 ha).

The net change of working the Site rather than the Preserved Area would be that the Bodwigiad Stream catchment area is reduced by a lesser amount. The loss in catchment would be 0.95 ha for the Site compared to 1.86 ha for the Preserved Area.

The redirection of runoff from the Preserved Area towards the void is a feature of the currently permitted scheme and the net effect of the change in the proposed area of mineral extraction on local flood risk would be negligible.

5.2.3 Restored Site

The proposed restoration scheme was included in the Review of Old Mineral Permissions (ROMP) application for Penderyn Quarry submitted in March 2011 and is shown in Appendix B. This includes a large lake feature (estimated surface area 13.72 ha) filling the old quarry void. The lake will be in continuity with groundwater (see White Young Green, 2011) and will provide a considerable volume of potential storm water attenuation capacity. The restored lake is expected to have a freeboard in



the order of 10 m – the difference between expected water elevation of 265 m AOD and lowest bank level of approximately 275 m AOD in the western extent of the lake. Following completion of the proposed restoration, all runoff from the Site will enter the lake and ultimately either evaporate or infiltrate to ground.

Given the high permeability of the fractured carboniferous bedrock in the area, no overflow from the lake has been proposed. Rapid responses to groundwater levels in some of the on-site boreholes as well as areas of no returns in borehole logs confirm both a high hydraulic conductivity as well as the presence of voids in the sub-surface. See the accompanying HIA for further details on the hydrogeological properties of the bedrock (Stantec, 2018).

There is no need to undertake runoff calculations for the restored scenario due to the very large capacity for storage provided by the restored quarry void which would provide ample storage from any design storm event including allowances for climate change.

During and following times of high rainfall, the lake water level may become temporarily elevated, causing an increase in discharge to the surrounding aquifer via infiltration. Elevated levels are expected to be short lived given the high permeability of the geology and of a very low magnitude given the very large lake area. The lake feature, with its large area and freeboard, will have ample capacity to attenuate storm water runoff water prior to infiltration to ground.

5.3 Climate Change

Projections of future climate change in the UK suggest that short-duration, high-intensity rainfall and periods of long duration rainfall will become more frequent. Given that all runoff from the Site will enter the water management system at Penderyn Quarry and discharge will be controlled by the discharge consent for pumped water during the operational phase, no runoff calculations have been undertaken. For this reason, climate change allowances have not been required in this assessment.

5.4 Flood risk mitigation measures

No flood risk measures are deemed necessary in this case.



6 Drainage strategy

6.1 Outline drainage design

As discussed above, off-site runoff to the south will reduce over the lifetime of the proposed development and all discharge from Penderyn Quarry (to the Nant Cadlan) will continue within the limits of the current discharge consents over this time.

Following restoration, all runoff from the Site will enter the lake formed in the quarry void and would ultimately either evaporate or infiltrate to ground. The Penderyn Quarry restoration proposal includes various treatments that will be applied to quarry benches to promote natural regeneration of plant life.

6.2 Operational phase

All runoff from the Site during the operational phase will drain to the sump in the existing quarry void which will serve as an attenuation feature, allowing ample time for settlement prior to offsite discharge. All pumped discharge is controlled by a turbidity meter and no discharge can take place other than when levels of suspended solids are within the limit specified by the discharge consent for water pumped from the sump. Water quality impacts would be dealt with as per current practices at Penderyn Quarry and additional SuDS features would therefore not be required.

6.3 Restored Site

An illustrative design is shown in Figure 6.1 demonstrating an outline strategy for management of surface water at the Site post restoration. The restored Site will eventually become covered with vegetation and scrub, achieved through the promotion of natural regeneration. Rainfall will runoff to the lake via vegetated surfaces and will subsequently either infiltrate to the limestone aquifer or evaporate. There will be no direct runoff to off-site surface water features and therefore further water quality treatment measures are not required.

The restoration schemes present an opportunity to enhance habitat for wildlife onsite and with the aim of improving biodiversity in the Site vicinity. Ponds, constructed wetlands and other surface water features are landscape assets that have amenity value and improve the aesthetics more than conventional drainage systems.

Ecological diversity will be maximised through the restoration strategy for Penderyn Quarry, creating a range of habitat types, including habitat within shallow water margins.

Channels and engineered inlets and outlets are not proposed as part of the restoration scheme. Therefore, maintenance requirements for the proposed scheme will be minimal. Invasive maintenance work such as vegetation removal would only be required intermittently, but it should be sympathetic to the requirements of wildlife in the lake. An access road will be retained to provide access for maintenance crews.

The proposed restoration scheme is passive in nature and has adequate storage in place for high magnitude storm events. Failure of the proposed SuDS measures is considered extremely unlikely to result in any significant increase in flood risk to the proposed development or adjacent receptors.









7 Conclusions

Hanson is proposing to extract limestone from the eastern part of Twyn-y-Glog ridge at the existing Penderyn Quarry. The Site is to be worked to a level of not less than 265 m AOD and the excavations at the Site will not require groundwater dewatering. As part of this application, the western part of the ridge, which Hanson has planning permission to work, is to be preserved ("the Preserved Area").

Stantec has reviewed the potential flood risk to the Site and from the proposed development to neighbouring receptors. Runoff from approximately half the Site flows to the Bodwigiad Stream catchment with the remaining runoff discharging to the quarry void. The Site lies entirely within fluvial flood Zone A and is at little or no risk of fluvial flooding. Pluvial flood risk as the Site is predominantly low although there are some areas at a high risk.

Runoff during the operational phase of the Site development would be directed to the sump in the Penderyn Quarry void. From here it would be transferred to the Nant Cadlan in accordance with existing water management practices at the Site.

Following restoration, runoff will be attenuated in the proposed restored lake in the quarry void. From here it would infiltrate to the limestone aquifer or evaporate.



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APPENDICES

Appendix A

2018 Topographic Survey and Development Plan





Appendix B Site Restoration Plan



Appendix C Discharge Consents

creating a better place



Mr R Griffiths Principal Geologist South The Ridge Chipping Sodbury Bristol BS37 6AY

Our ref: AN0238501 Your ref:

Date: 13 June 2011

Dear Mr Griffiths

Copy of information sent to your client about an application received under the Environmental Permitting (England and Wales) Regulations 2010

Permit reference: AN0238501 Applicant: Hanson Quarry Products Facility: Penderyn Quarry

I enclose for your information, copies of a letter and permits sent to your client about their application for an environmental permit. The information is important and should be kept safe.

Please quote our reference if you contact us. If you have any questions please phone me on 03708 506 506 or email psc-waterquality@environment-agency.gov.uk.

Yours sincerely

Kalow Cel

Kathy Nowell Permitting Support Advisor





MCrow

creating a better place



Solie Rultigs Sheppled

1 5 JUN 2011

Our ref: AN0238501 Your ref:

Date: 13 June 2011

Dear Mr Tyson

Mr R Tyson

Hanson House

14 Castle Hill Maidenhead Berkshire

SL6 4JJ

Issue of variation notice

Permit reference: AN0238501 Applicant: Hanson Quarry Products Facility: Penderyn Quarry

I enclose a variation notice that gives legal information about the variation and shows the changes to your permit.

If you are 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 our website at <u>http://www.environment-agency.gov.uk/business/topics/permitting/32320.aspx</u>

If you do not have internet access please telephone our Customer Contact Centre.

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

then
you can get the forms you need from our website <u>http://www.environment-</u> agency.gov.uk/business/topics/waste/32176.aspx
If you do not have web access phone our Customer Contact Centre
send these to your area office. Speak to your area officer to check local arrangements.
we've enclosed the pollution inventory letter, notice and fact sheet

Permitting Support Centre, Quadrant 2, 99 Parkway Avenue, Parkway Business Park, Sheffield, S9 4WF Customer services line: 08708 506 506 Email: enquiries@environment-agency.gov.uk www.environment-agency.gov.uk



Rights of appeal

If you are not happy with any permit condition that has been imposed by the variation you may appeal to the Secretary of State for permits in England or Welsh Ministers for permits in Wales. You must make your appeal by 9 December 2011. If you are appealing against conditions imposed as a result of your application you must make your appeal by 9 December 2011. If you are appeal by 9 December 2011. If you are appealing against any other conditions we have added at the same time as an Environment Agency initiated variation you must make your appeal by 9December 2011.

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.

For England:

The Planning Inspectorate, Room 4/04 Kite Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN. Phone: 0117 3728726 Email: <u>environment.appeals@pins.gsi.gov.uk</u>

For Wales:

The Planning Inspectorate, Crown Buildings, Cathays Park, Cardiff, CF10 3NQ. Phone: 029 2082 3866 / 389, Fax: 029 2082 5150, Email: <u>wales@pins.gsi.gov.uk</u>

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

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 Secretary of State or Welsh Ministers in writing and sending a copy of that notification to us.

If you have any questions about this permit please phone our Customer Contact Centre on 08708 506 506. They will put you in touch with a local area officer.

Yours sincerely

Kathy Nowell Permitting Support Advisor



Notice of variation and consolidation with introductory note

Environmental Permitting (England & Wales) Regulations 2010

Hanson Quarry Products Europe Limited

Penderyn Quarry site drainage Penderyn Near Aberdare Mid Glamorgan CF44 0TX

Variation application number AN0238501/V001

Permit number AN0238501

Variation and consolidation application number AN0238501/V001

233_08_SD69

Penderyn Quarry site drainage Permit number AN0238501

1

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.

This variation is to add a storm overflow on to the attenuation lagoon.

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.

Status log of the perm	nit	
Description	Date	Comments
Permit determined AN0238501	02/11/92	
Application AN0238501/V001 (variation and consolidation)	Duly made 13/01/11	Application to add a storm discharge
Variation determined AN0238501	09/06/11	Varied and consolidated permit issued in modern condition format and to include storm overflow.

End of introductory note

Notice of variation and consolidation

Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies and consolidates

Permit number AN0238501

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

whose registered office is

Hanson House 14 Castle Hill Maidenhead Berkshire SL6 4JJ

company registration number 00300002

to operate a regulated facility at

Penderyn Quarry Penderyn Near Aberdare Mid Glamorgan CF44 0TX

to the extent set out in the schedules.

The notice shall take effect from 9th June 2011

 Name
 Date

 Christopher Hall
 9th June 2011

Authorised on behalf of the Environment Agency

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.

Variation and consolidation application number AN0238501/V001

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number AN0238501

This is the consolidated permit referred to in the variation and consolidation notice for application AN0238501 authorising,

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

whose registered office is

Hanson House 14 Castle Hill Maidenhead Berkshire SL6 4JJ

company registration number 00300002

to operate a regulated facility at

Penderyn Quarry Penderyn Near Aberdare Mid Glamorgan CF44 0TX

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

Name	Date		
Christopher Hall		9 th June 2011	

Authorised on behalf of the Environment Agency

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 discharge shall be made at the point marked on the site plan at schedule 7 to this permit and as listed in table S3.2 (discharge points).

3 Emissions and monitoring

3.1 Emissions to water

- 3.1.1 There shall be no point source emissions to water except from the sources and emission points listed in schedule 3.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan;
- (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.3 Monitoring

3.3.1 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

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 the Environment Agency, 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 the Environment Agency.

4.2 Reporting

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

4.3 Notifications

- 4.3.1 The Environment Agency 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 the permit; 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 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 The Environment Agency 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
 i 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.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
 - (a) the Environment Agency shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.

4.4 Interpretation

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

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.

^{4.4.2}

Schedule 1 - Operations

Table S1.1 Activities		
Activity reference	Description of activity	Limits of specified activity
A1	Discharge of trade effluent consisting of site drainage via outlet A or A1	
A2	Discharge of trade effluent consisting of storm site drainage via outlet 1	The discharge shall only occur when all the attenuation volume is utilised and only for as long as the flow passed forward as part of Activity reference A1is equal to or greater than the overflow setting indicated in table S3.1.

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.

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
A1:Discharge of trade effluent consisting of site drainage via outlets A and A1	Suspended solids (measured after drying at 105° C)	100 mg/l	Instantaneous (spot sample)	N/A		Maximum
A1:Discharge of trade effluent consisting of site drainage via outlets A and A1	pH	5 to 9	Instantaneous (spot sample)	N/A		Minimum and maximum
A1:Discharge of trade effluent consisting of site drainage via outlets A and A1	Visible oil or grease	No significant trace present	Instantaneous (spot sample)	N/A	N/A	No significant trace
A2:Discharge of trade effluent consisting of storm site drainage via outlet 1	Attenuation lagoon volume	550 m ³	Instantaneous (spot sample)	N/A	N/A	Minimum
A2: Discharge of trade effluent consisting of storm site drainage via outlet 1	Overflow setting	368 l/s	Instantaneous (spot sample)	N/A	N/A	Minimum
A2:Discharge of trade effluent consisting of storm site drainage via outlet 1	Visible oil or grease	No significant trace present	Instantaneous (spot sample)	N/A	N/A	No significant trace

Schedule 3 – Emissions and monitoring

Permit Number AN0238501

Table S3.2 Discharge points						
Effluent Name	Discharge Point	Discharge point NGR	Receiving water/Environment			
Discharge of trade effluent consisting of site drainage	Outlet A	SN 94912 08906	Nant Cadlan			
Discharge of trade effluent consisting of site drainage	Outlet A1	SN 94923 08858	Nant Cadlan			
Discharge of trade effluent consisting of storm site drainage	Outlet 1	SN 94953 08758	Nant Cadlan			

Emilient(s) and discharge point(s)	Monitoring type	Monitoring point NGR
Discharge of trade effluent consisting of site drainage via outlet A	Effluent sample point	SN 94912 08906
Discharge of trade effluent consisting of site drainage via outlet A1	Effluent sample point	SN 94923 08858
Discharge of trade effluent consisting of storm site drainage via outlet 1	Storm effluent sample point	SN 94953 08758

Schedule 4 – Reporting

There is no reporting under this schedule.

Permit Number AN0238501

Page 10 of 14

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 nonconfidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

ame of operator cation of Facility	ermit Number
Location of Facility	Name of operator
	Location of Facility
Time and date of the detection	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 24 hours of detection		
Date and time of the event	and a set of the set o	
Reference or description of the	The second second second second second second	
location of the event	The second barries that a second s	
Description of where any release	A phone in the construction of the phone in the second sec	
into the environment took place		
Substances(s) potentially		
released	1	
Best estimate of the quantity or	Province (m)	
rate of release of substances	101	
Measures taken, or intended to	and the set of the last on the set of the set of the	
be taken, to stop any emission		
Description of the failure or		
accident.	10 4	

(b) Notification requirements for the breach of a limit		
To be notified within 2	24 hours of detection unless otherwise specified below	
Emission point reference/ source		
Parameter(s)		
Limit		
Measured value and uncertainty		
Date and time of monitoring		
Measures taken, or intended to		
be taken, to stop the emission		

Time periods for notification following detection of a breach of a limit		
Parameter	Installe F. Neilficelien	Notification period
	3	
John State	and the second	

(c) Notification requirements for the detection of any significant adverse environmental effect To be notified within 24 hours of detection		
the environment was detected	the second s	
Substances(s) detected	and the second	
Concentrations of substances		
detected	A suff	
Date of monitoring/sampling		

Part B - to be submitted as soon as practicable

In the second
ing a second state of the second s
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and the second

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Permit Number AN0238501



Schedule 7 - Site plan

© Crown copyright. All rights reserved. Environment Agency, 100026380, 2011.

END OF PERMIT

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.

"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.

"emissions of substances not controlled by emission limits" means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit..

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

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

"year" means calendar year ending 31 December.

Water Resources Act 1991 as amended by the Environment Act 1995 **Consent to Discharge Certificate of Holder**



ENVIRONMENT AGENCY

Part A

To: HANSON QUARRY PRODUCTS EUROPE LTD THE COMPANY SECRETARY THE RIDGE CHIPPING SODBURY BRISTOL **BS37 6AY** NB: For a body corporate the job title is a point of contact. Holder Start Date: 26/08/00 The Environment Agency ("the Agency") hereby confirm that the above named person is a/the registered holder of consent AN0272901 Consent Issued: 06/06/97 TMWC Trade - Minewater - Continuous Nature of Discharge(s); SN9494008710 PENDERYN QUARRY PENDERYN ABERDARE Note: This certificate should be kept with the consent document for future reference. If you transfer responsibility for the discharge

to somebody else you must pass the consent to them and tell the Agency within 21 days. Responsibility for the consent cannot be disclaimed by the holder but the registration of holder may be transferred to a successor. To do this please complete the form below, then tear it off and return it to the address shown. If you fail to transfer the consent, even though you are no longer on the site, you may still be liable for prosecution for pollution. If you transfer the consent but do not tell us, you will be committing an offence. In case of any queries please contact your local Environment Agency office. A MARKET IN AN AND A DATE OF A

Part B Please complete in block capitals or type.

To:

at

Water Resources Act 1991: Notice of transfer of consent to discharge

AN0272901 **Consent:** Consent Issued:

Name: Address: 06/06/97

HANSON QUARRY PRODUCTS EUROPE LTD THE COMPANY SECRETARY

THE RIDGE CHIPPING SODBURY BRISTOL. BS37 6AY

I/We* hereby serve notice on the Agency that I/we* am/are* no longer a/the* Holder of the above consentwhich will be/was* transferred to: * delete as appropriate

1

Name(s) of new holder(s): Address:

Post Code:

Date of Transfer to new Holder(s);

Signed:.....

JWE/5/96

Name (block capitals):

Dated:....

Position: (to be completed when signing on behalf of corporate bodies)



Deddf Adnoddau Dwr 1991 fel y'i diwygiwyd gan Ddeddf yr Amgylchedd 1995 **Caniatâd Gollwng Tystysgrif Daliwr**



ASIANTAETH YR AMGYLCHEDD

Rhan A

At:

HANSON QUARRY PRODUCTS EUROPE LTD

 THE COMPANY SECRETARY THE RIDGE CHIPPING SODBURY BRISTOL **BS37 6AY**

DS: I gorff corfforedig mae teitl y swydd yn bwynt cysylltu. Dyddiad Cychwyn Daliwr: 26/08/00

Mae Asiantaeth yr Amgylchedd ("yr Asiantaeth") yn cadarnhau drwy hyn mai/bod y sawl a enwyd uchod yw/yn ddaliwr cofrestredig uy caniatâd AN0272901 Cyhoeddwyd Caniatâd: 06/06/97

Natur y gollwng: TMWC Trade - Minewater - Continuous yn PENDERYN QUARRY PENDERYN ABERDARE SN9494008710

Nodyn: Dylid cadw'r dystysgrif hon gyda'r ddogfen ganiatâd i gyfeirio ati yn y dyfodol. Os byddwch yn trosglwyddo cyfrifoldeb y gollwng i rywun arall, rhaid i chi gyflwyno'r caniatâd iddo ef neu hi a dweud wrth yr Asiantaeth cyn pen 21 diwrnod. Ni all y daliwr wadu cyfrifoldeb y gollwng, ond gall cofrestriad y daliwr gael ei drosglwyddo i olynydd. I wneud hynny, byddwch cystal â llenwi'r ffurflen isod, ei datgysylltu a'i dychwelyd i'r cyfeiriad a nodir. Os methwch drosglwyddo'r caniatâd, hyd yn oed os nad ydych ar y safle mwyach, gallwch fod yn agored yr un fath i gael eich erlyn am lygru. Os trosglwyddwch y caniatâd ond heb ddweud wrthom, byddwch yn cyflawni trosedd. Os bydd gennych ymholiadau, byddwch cystal â chysylltu â swyddfa Asiantaeth yr Amgylchedd yn lleol.

Rhan B Llenwch mewn priflythrennau bras neu deipio.

At:

Deddf Adnoddau Dwr 1991: Hysbysiad am drosglwyddo caniatâd gollwng

Caniatâd:

AN0272901

Enw: **Cyfeiriad:**

HANSON QUARRY PRODUCTS EUROPE LTD

Cyhoeddwyd Caniatâd:

06/06/97

THE COMPANY SECRETARY THE RIDGE CHIPPING SODBURY

BRISTOL

BS37 6AY

Yr wyf fi/Yr ydym ni* drwy hyn yn hysbysu'r Asiantaeth nad fi/ni/nad wyf/ydym mwyach yw/yn* Ddeiliad y caniatâd uchod. Caiff/Cafodd hwnnw ei drosglwyddo i: *dilewch yn ôl yr angen

Enw(au) y Daliwr/Dalwyr newydd: **Cyfeiriad:**

Cod Post:	
Dyddiad Trosglwyddo i'r Daliwr/Dalwyr newydd:	
Llofnodwyd:	Dyddiedig:
Enw Enw (priflythrennau bras):	Safle:



ran cyrff corfforaethol)

CONSENT NO.



Asiantaeth yr Amgylchedd Environment Agency

WATER RESOURCES ACT 1991

SECTION 88 - SCHEDULE 10

(AS AMENDED BY THE ENVIRONMENT ACT 1995)

CONSENT TO DISCHARGE

TO: THE COMPANY SECRETARY ARC SOUTH WALES LTD CANAL ROAD CWMBACH ABERDARE CF44 0AG

The ENVIRONMENT AGENCY ("The Agency") in pursuance of its powers under the Water Resources Act 1991 HEREBY CONSENTS to the making of a discharge OF TRADE EFFLUENT, as follows:

PUMPED GROUNDWATER /SITE DRAINAGE

FROM: EFFLUENT TREATMENT PLANT

AT: PENDERYN QUARRY, PENDERYN ABERDARE

TO: THE RIVER CYNON

SUBJECT TO the conditions set out in the following schedule:

PUMPED GROUNDWATER/SITE DRAINAGE SCHEDULE NO. AN027290101

Subject to the provisions of Paragraphs 7 and 8 of Schedule 10 of the Water Resources Act 1991, no notice shall be served by the Agency, altering this consent, without the agreement in writing of the consent holder, during a period of 4 years from the date this consent takes effect.

This consent is issued and takes effect on the 6th day of June 1997

Signed. Area Water Quality Manager

Asiantaeth yr Amgylchedd Plas yr Afon, Parc Busnes Llaneirwg, Llaneirwg, Caerdydd CF3 0LT. Ffon 01222 770088, Ffacs 01222 798555

Environment Agency Rivers House, St. Mellons Business Park, St. Mellons, Cardiff CF3 0LT. Tel 01222 770088, Fax 01222 798555

3 . Se

CONSENT NO.	AN02	7290	1
SCHEDULE NO.	AN02	7290	101
DATE ISSUED	6	6	97



Asiantaeth yr Amgylchedd Environment Agency

CONDITIONS OF CONSENT TO DISCHARGE

PUMPED GROUNDWATER /SITE DRAINAGE ("the Discharge")

FROM: EFFLUENT TREATMENT PLANT, PENDERYN QUARRY

- 1. (a) The Discharge shall not contain any poisonous, noxious or polluting matter or solid waste matter.
 - (b) Provided that the Discharge hereby consented is made in accordance with the following conditions of this consent, such discharge shall not be taken to be in breach of condition

 (a) above by reason of containing substances or having properties identified in and controlled by those conditions.

NATURE

2. The Discharge shall consist solely of trade effluent comprising of pumped groundwater and site drainage from a total drainage area of 202300 square metres for the prevention of interference with quarrying.

LOCATION

3. The Discharge shall be made in the manner and at the place specified as:

(a) discharging via a 300mm dia pipe set in concrete headwall.

(b) discharging to the River Cynon

- (c) at National Grid Reference SN 9494 0871
- (d) shown marked "Consent Point" on Drawing No P7d/2 attached as Annex 1

SAMPLE POINT

4. The outlet to the watercourse shall be constructed and maintained so that a representative sample of the Discharge may be obtained at National Grid Reference SN 9494 0871 as shown marked 'Consent Point' on Drawing No P7d/2





Asiantaeth yr Amgylchedd Environment Agency

CONSENT NO	AN0272901
SCHEDULE NO	AN027290101
DATE ISSUED	6/6/97

VOLUME

- 5. The volume of the Discharge shall be dependent on rainfall.
- 6. The rate of discharge shall not exceed 50 litres per second.

COMPOSITION

- 7. The discharge shall not contain more than:
 - (a) 25 milligrammes per litre of suspended solids (measured after drying at 105°C.);
 - (b) 10 milligrammes per litre of mineral oil.
 - (c) a pH value of 9.0pH units or less than a pH value of 6.0 pH units.
 - (d) 2 milligrammes per litre of total iron (as Fe)
- 8. The effluent treatment facility shall be maintained in an efficient operational manner at all times.
- 9. As far as is reasonably practicable, the effluent treatment area shall be operated to prevent:
 - (i) any matter being present in the Discharge to such an extent as to cause the receiving waters, or any waters of which the receiving waters are a tributary, to be poisonous or injurious to fish in those waters, or to the spawning grounds, spawn or food of fish in those waters, or otherwise cause damage to the ecology of those waters; and
 - (ii) the Discharge from having any other adverse environmental impact.

