



Taylor Wimpey Limited

Environmental Permit Application – Supporting Notes

Cwrt Sirhowy, Blackwood, NP12 1DA

Project No. 314974 R2 (00)

December 2021





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Notes

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RSK Environment Limited (RSK) has prepared this document at the instruction Taylor Wimpey South Wales.

Author Craig Lewis

Project Manager Andrew Przewieslik

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December 2021	00	For issue

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1 INTRODUCTION

This document is presented in support of an application for an Environmental Permit to discharge surface waters during the construction phase from the Cwrt Sirhowy development site. Additional and supporting information to that provided in the application forms is included, and the application forms reference the various sections herein.

Sections 1 and 2 also provide a non-technical summary of the planned discharge.

The site is located within Cwmgelli, Blackwood, Caerphilly, Wales, NP12 1DA. The site is wholly owned and development by Taylor Wimpey South Wales, a trading name of Taylor Wimpey UK Limited.

The site generally slopes towards the south and west, with the northern portion of the site forming a topographic high point. The north-eastern boundary also slopes down towards the east. It is expected that surface water runoff will follow the topographic gradient towards these boundaries with the principal runoff direction towards the south/south-west due to the greatest change in topography.

An existing stream flows in a westerly/south-westerly direction along the north western boundary of the site. The stream is culverted under the properties associated with Cwmgelli Villas, to the west of the site and enters a tributary of the Sirhowy River some 60m south west. The tributary flows some 400m southeast to its confluence with Sirhowy River. This existing boundary stream receives water from topographically upgradient of the Taylor Wimpey site and no surface water associated with the site enters it.

A site location plan is included as **Figure 1** and a site boundary plan is included as **Figure 2**.

The proposed development will comprise the construction 164 No. traditional low rise residential dwellings and associated infrastructure including access roads, car parking areas and private driveways. The development will also include areas of soft landscaping such as public open space, play space and private gardens.

It is understood that the surface water drainage system will comprise standard highway surface water gullies on roads across the site. These will drain into an attenuation basin in the southwest of the site before being discharged into the proposed drainage network.

The engineering layout indicates that surface water drainage for the site will discharge towards the south of the site into a proposed new pond locate south of the A4048 and ultimately discharge to the River Sirhowy. The site and the pond south of the A4048 will be connected via a culvert beneath the roadway.

These details are presented on drainage drawings set out within **Appendix D**.

2 SURFACE WATER DISCHARGE DESCRIPTION

A plan showing the site boundary and surface water discharge location is presented as **Figure 2** and on engineering drawings presented in **Appendix D**.

At present (December 2021), none of the infrastructure with regards to drainage has been put in place, as the site is still at the enabling phase with grouting of former coal workings being undertaken. Surface waters migrating across the site are currently being inspected and managed for suspended solids and water volume through implementation of a number of measures as detailed with a site-specific 'Surface Water Management Plan' included within **Appendix A**.

Amendments to the silt mitigation as set out in the existing SWMP are that the undeveloped parts of the site have now been upgraded with approximately 3No small ponds being developed to aid settlement. The water is currently being allowed to drain to land and is, as best as possible, being contained and recirculated within the site boundary. Pumps are being utilised to move the water between ponds and upgradient to the larger ponds.

A flocculant dosing trial has been undertaken by RSK to assess the suspended solid content and effectiveness of flocculants to reduce suspended solids to acceptable levels, if necessary, in the future as a silt mitigation measure. The results of the testing are presented in **Appendix C**.

3 ENVIRONMENTAL MANAGEMENT SYSTEMS

Taylor Wimpey have environmental management systems in place. This is detailed below.

Taylor Wimpey HSE management system has been built around the requirements of both ISO14001:2004 and OHSAS18001:2007. Taylor Wimpey seek to minimise the impact of their site operations, particularly in relation to climate change, energy, water, waste biodiversity through compliance with these certified systems. Taylor Wimpey is audited on a regular basis with relevant employees provided with specific environmental training.

4 QUALITY OF DISCHARGE WATER

Prior to development works commencing a Phase 1 & 2 Geo-environmental Desk Study and ground investigation was undertaken to assess environmental risks at the site resulting from any previous and present uses. The results of this were presented in a third party document that can be viewed on the planning portal.

The report confirms that the site was undeveloped and with predominantly agricultural use prior to Taylor Wimpey ownership. Due to the absence of significant previous contaminative uses the report concluded that nearby surface waters, despite their sensitivity, are at only low risk from contamination on site. As such, it is considered unlikely that the surface water to be discharged from site will contain significant concentrations of any hazardous substances.

With enabling works ongoing at the site, storage and use of fuel and lubricating oils and possibly other materials will be necessary. However, all such activities will be undertaken in accordance with current regulations and best practice.

With these controls in place construction activities present a negligible risk of causing hazardous substances to be present in the discharge water.

The only source of potential contamination identified is suspended solids as a result of exposed soils.

A copy of the report is presented within **Appendix B**.

5 RISK ASSESSMENT

An assessment of the environmental risks of the operations covered under this application for discharge consent has been prepared in accordance with the principles of the H1 methodology stated below:

- Step 1 – identify risks
- Step 2 – assess risks
- Step 3 – justify appropriate measures (if needed)
- Step 4 – present the assessment.

The construction of dwellings at the site is envisaged to be completed by November 2022.

Step 1: Identify Risks

The H1 overview document identifies the following different types of risk to the environment.

- odour – there are no potentially odorous activities or chemicals associated with the ongoing construction works
- noise & vibration – construction noise & vibration will occur but be limited to the allowed working hours (0800-1800 Monday to Friday and 0800 to 1400 Saturday). Noise & vibration resulting from the discharge activity are not envisaged as being significantly more noticeable than from the other construction activities at the site
- accidents – the potential for accidents to occur exists. The potential for contamination of the watercourse will be managed to acceptable levels by the control measures put in place for the construction activities and as set out within the surface water management plan
- fugitive emissions to air and water - no significant risks have been identified. The potential for contamination of the watercourse will be managed to acceptable levels by the control measures put in place for the construction activities
- controlled releases to air – there are no point source emissions to air
- controlled discharges to surface water – as discussed, a discharge location has been identified at the outfall from the southern corner to a surface water, see **Figure 2**.
- controlled discharges to ground or groundwater – there are no point source discharges to groundwater
- global warming potential – insignificant at the scale of development at Cwmgelli
- site waste – the quantity of site waste generated will be small and consist primarily of silt/soil. All other plastic and construction related wastes are disposed of off site.

Steps 2/3/4 – Assess Risks etc

In accordance with the H1 methodology guidance the following have been assessed.

- accidents
- surface water discharges.

Due to the low permeability of soils at the site and the proximity of nearby surface waters, it is not considered necessary to consider risks to groundwater.

Accidents

The site is secure with no public access to the location of the discharge point boundary. Only a single access point to the site is present, located in the south of the site off the A4048. There is the potential for surface waters to leave the site boundary via the access point and flow across the public highway (A4048). However, mitigation measures have been installed to manage this risk, including sand bags and a temporary asphalt ramp to divert water into a holding pit close to the site entrance on Taylor Wimpey land. Water from this holding pit is then pumped up to other temporary ponds for dispersal across the wider site to provide attenuation of surface waters.

A number of pumps are present on site to move water between attenuation pits. These are diesel operated and there is always a potential risk for a fuel or hydraulic oil leak or spill. However, all pumps have spill kits, drip trays and fire extinguishers present in standard accordance with their usage.

A risk assessment for accidents, in line with H1 Annex A, follows the next section.

Surface Water Discharges

The water to be discharged comprises rainwater having fallen on the ground within the development area and that flows across the surface into the surface drainage network. It may also at times be necessary to pump rainwater (significant groundwater entry is not anticipated) from excavations into the surface drainage network. The site also intercepts a few land drains that discharge across the site. The amount of surface water run-off requiring discharge will be dependent upon rainfall rates. Surface water run-off will be clean and uncontaminated (after solids removal).

Under conditions prior to development works, rainwater falling across the wider development would follow the topography of the land and flow to the south and south-west, leaving the site boundary and crossing a public footpath and entering the A4048 prior to entry to the highway gully system and its ultimate discharge to the River Sirhowy some 400-500m distant. Anecdotal evidence from nearby residents indicates that the A4048 has historically been subject to surface water flooding during even moderate rainfall events owing to the absence of field ditches or streams on the site boundaries. These flooding issues pre-dated Taylor Wimpey site ownership of the site.

As such, the water to be discharged during the construction period would naturally enter the watercourse identified. Under the proposals for the works there is the potential for additional solids to be mobilised due to the construction activity on site, however as stated, these will be reduced by settlement and filtration methods, and if necessary, the use of a flocculant. The impact of the discharge of clean and uncontaminated water from the site can therefore be considered to be not significant in terms of the impact on the watercourse.

A flocculant dosing trial has been undertaken at early stages to identify and anticipate potential usage and to confirm whether a flocculant is capable of removing suspended solids, based on site specific parameters, to acceptable concentrations. The use of flocculants is also requested as part of the permit application should their application be necessary during the longer term construction phase.

The outfall from the headwall to the river south of the site boundary is controlled via a future hydrobrake valve, which limits the rate of water discharge to Greenfield rates set as part of the planning consultation stage. This is understood to be 45l/s as shown on the engineering drawings in **Appendix D**.

A Siltbuster, or pump and settlement tank/other suitable structure with the potential to use a flocculant will be present during the initial phases of the construction programme. The need to use the pump and flocculant is for backup purposes only, should volumes of water, or the suspended solid content worsen during inclement weather. To avoid risks posed by flocculant use, a pipe reactor is proposed to be applied that avoids the potential human error of using flocculant blocks with the potential to overdose water requiring treatment.

The water discharge to the River Sirhowy is at the location shown in **Figure 2**.

The discharge will be at ambient conditions so there will be no temperature effects as a result of the discharge. As the discharge will not normally contain any hazardous substances, sanitary determinants or other pollutants, detailed assessments in line with H1 Annexes D1 and D2 are not necessary, as indicated in the flow chart of H1 Annex D. The only assessment required is for accidents. This assessment follows.

Risk Assessment for Accidents

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
Leak/spillage of hazardous material on site (e.g. oils and fuels)	Localised ground and local watercourse	Leakage to ground, overland flow or pumped direct	Containment measures for storage. Minimisation of storage volumes.	Unlikely	Contamination of local watercourse with hazardous substances.	Low – due to procedures detailed in environmental management plans (e.g. fuel/oil use and storage, waste/material storage). Distance from surface water course make this implausible.
Leak of oil/fuel from pump	Localised ground and local watercourse	Via surface flow & infiltration	Containment measures for pumps. Spill kit. Sump pallet. Maintenance & inspection	Very unlikely	Contamination of local watercourse with oil/fuel.	Low – due to quantities involved and procedures detailed in environmental management plans (e.g. fuel storage/use). Distance from surface water course make this implausible.
Discharge of water containing solids (silts)	Local watercourse	Pumped direct, discharge via storm drainage system	Monitoring of discharge to be visibly free of silt.	Low likelihood	Contamination of local watercourse with solids (silts).	Low – if water is silty discharge will be suspended until sufficient settlement has occurred either via gravity or chemical applicant. A flocculent may be applied to aid settlement of suspended solids as set out in the flocculant dosing trial and using a reactor pipe, that further reduces human error in dosing concentration
Spillage of collected solids from settlement system	Local watercourse	Via surface flow	Method statement for cleaning settlement system.	Very unlikely	Contamination of local watercourse with solids (silts).	Low – settlement system to be cleaned in such a way as to prevent silt spillage. To be cleaned by specialist settlement tank provider (Siltbuster). Distance from surface water course make this implausible.

Failure of pumping equipment – overflow of water from drainage etc.	Local watercourse	Via surface flow	Discharge is pumped only. If pump fails water will build up on site but not enter watercourse.	Unlikely	Contamination of local watercourse with solids.	Low – water is contained on site if pump fails within the temporary attenuation pits.
Vandalism	Local watercourse	Via surface flow	Site is secure without public access.	Unlikely	Contamination of local watercourse.	Low due to security arrangements (pump is fenced off) and nature of discharge equipment.

6 DISCHARGE VOLUMES

The volume of water requiring discharge is dependent on rainfall. The flow restrictor on the surface water outfall will limit the flow rate to below 45l/s, so this figure is the maximum rate of discharge.

The quantity of water required to be over-pumped is currently unknown and will depend upon rainfall rates. Over-pumping is anticipated to cease prior to, or on completion of the development. On completion of the development, the permit will be surrendered.

Ground conditions at the site have been found to comprise predominantly low-permeability soils. As such, it is not expected that groundwater will contribute significantly to the discharge volumes.

7 EFFLUENT TREATMENT

If required, the discharge water will be treated to remove suspended solids, and the success of this treatment will be monitored. The treatment would comprise passing the water through a 5,000L 'silt trap' settlement tank, allowing silt to settle out. It has been found at this site that the use of a flocculent is required to aid removal of suspended solids. The treatment will be monitored and will only be considered successful if the discharge water does not, by visual inspection, appear to contain silt.

The outflow water from the settlement tanks will be monitored, and if the water appears to contain silt the pumping will be suspended until sufficient additional settlement of solids has occurred.

The proposed flocculent type and its MSDS sheet is appended at **Appendix C**.

As such, following treatment, the discharge water would be free from significant concentrations of suspended solids.

Testing of treated water for total suspended solids and pH would be undertaken at regular intervals to demonstrate that water released will not impact upon the river.

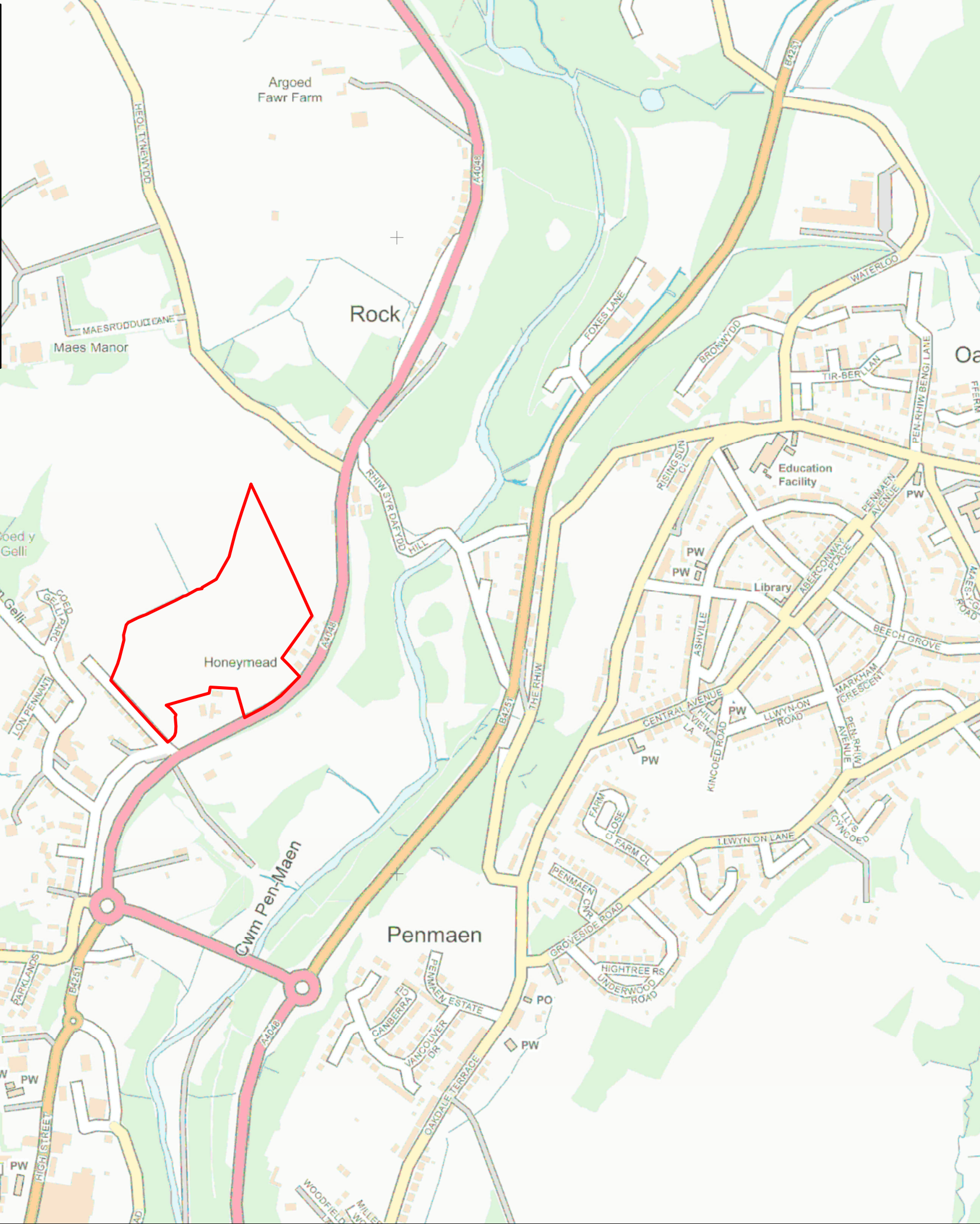
FIGURES

317000

318000

199000

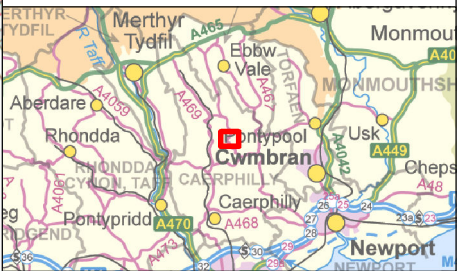
198000



Legend:

Site Boundary

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936
Units: Meter



Rev	Date	Description	Drm	Chk	App
00	11/03/2021	First Draft	DR	CL	CL

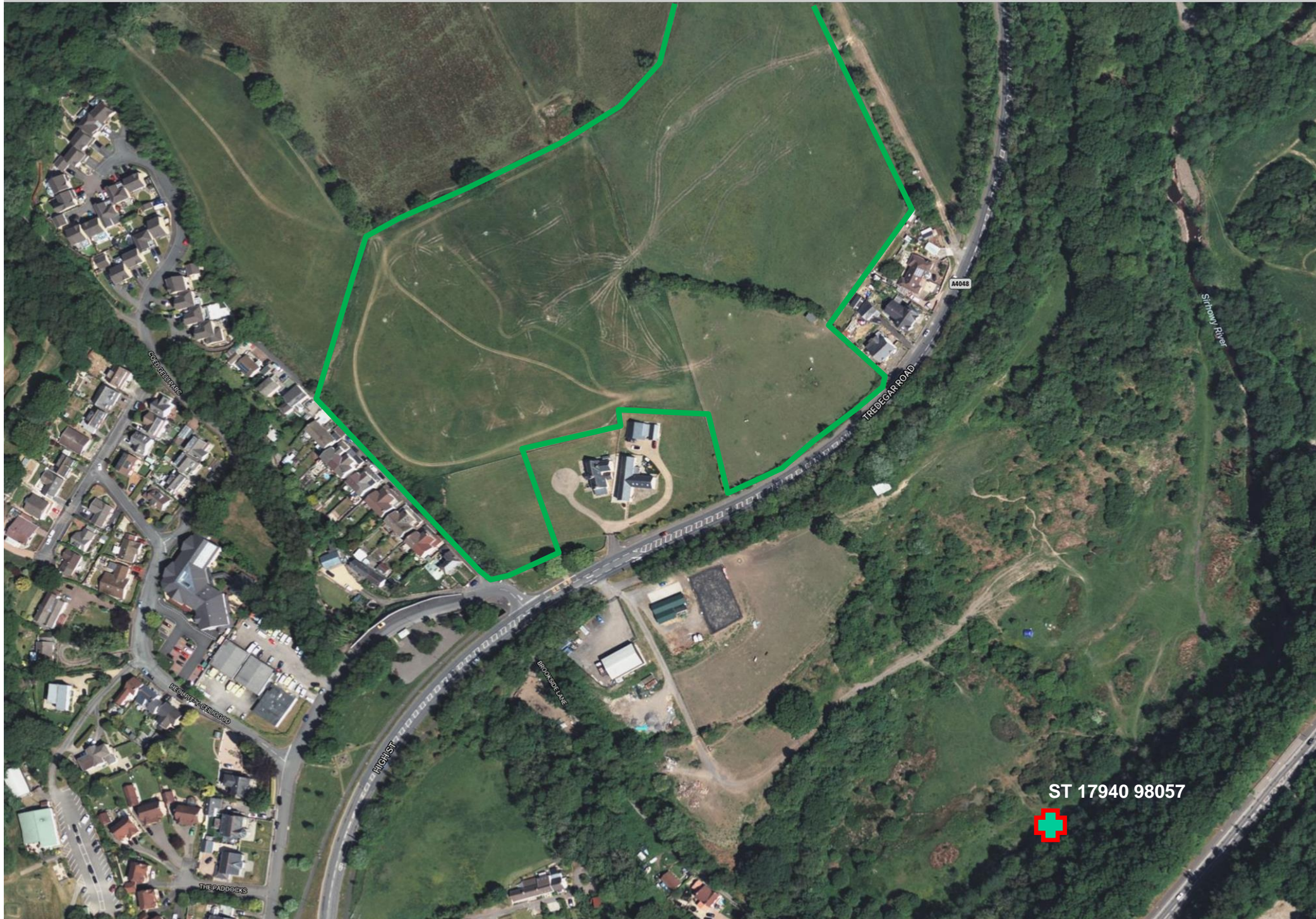
Cwmgelli, Blackwood

RSK

TITLE: Figure 1:
Site Location Plan

0 50 100
Metres
SCALE: 1:7,000 @ A3

N
W E
S
REV 00



Legend:

- Site Boundary
- + Outfall Location

Date Drawn:
01-12-2021

Scale: NTS

Title: Cwrt Sirhowy Outfall Location's

Base Drawing Ref:



Site: Cwrt Sirhowy, Cwmgelli, Blackwood

Client: Taylor Wimpey Ltd

Job No: 314974

Figure 2

APPENDIX A SITE-SPECIFIC CONSTRUCTION SURFACE WATER MANAGEMENT PLAN

15th October 2021

Our reference: 302300-21-040

Taylor Wimpey South Wales
Building 2
Eastern Business Park
Wern Fawr Lane
St Mellons
Cardiff
CF3 5EA

FAO Ben Thomas

SURFACE WATER AND SILT MANAGEMENT, CWMGELLI, BLACKWOOD, NP12 1BZ

Dear Ben,

RSK Environment Limited (RSK) was commissioned by Taylor Wimpey South Wales Ltd to produce a Surface Water and Silt Management Plan (SWSMP) for a proposed development of land at Cwmgelli Farm, Tredegar Road, Cwmgelli, Blackwood, Caerphilly, Wales, NP12 1BZ. An initial surface water management plan (SWSMP) was prepared by RSK in April 2021, prior to site development, report referenced 314972 R01 (01), based on design and drainage details provided at the time of preparing that report.

Introduction and background

The proposed development is located approximately 0.50 km north of Blackwood town centre. The site presently consists of a former agricultural field and is approximately 5.8Ha in area. The centre of the site is located at National Grid Reference (NGR) 317697, 198369. Access is currently off the A4048 (Tredegar Road) on the southern site boundary.

The site currently comprises open fields. The southern area at the site entrance and central parts of the site have been subject to topsoil and subsoil stripping in advance of mineshaft grouting work. These soils have been stockpiled on the northern boundary. A small contractor's compound with gravelled car park and the main Taylor Wimpey site compound (also with gravelled car park) have been installed in the central/south-eastern parts of the site. With the exception of the surface water and silt mitigation measures discussed below, little other work/excavation has been undertaken across the site. To date no mineshaft grouting has been undertaken, with those works scheduled to commence mid to late October 2021.

The site generally slopes steeply towards the south and west, from a topographic high in the north at approximately 200m above Ordnance Datum (aOD), falling to approximately 180m in the south along Tredegar Road and the site entrance). The north-eastern part of the site slopes down towards the

east/south-east. The surrounding land to the north of the site is elevated and contributes to the water catchment and discharge crossing the Taylor Wimpey site.

There are no field boundary ditches, streams or rivers (controlled water receptors) on the hydraulic down-gradient boundaries. A public footpath and the B4048, and residential properties adjoin the southern site boundary. Fields are located east and north/north-west of the site. A small road and further residential properties are located west/south-west of the site. A small, ephemeral ditch is located on the topographically up-gradient north-western site boundary. This ditch is generally dry and holds water only during rainfall, providing drainage/discharge for the fields north/west of the Taylor Wimpey land. This ditch is understood to be culverted beneath the road to the west, before passing beneath residential properties to a stream/river west of the site, which itself is a tributary of the Sirhowry River. The river is located at least 400m south/south-west of the site.

Published British Geological Survey (BGS) geological mapping indicates that the site is underlain by sandstone bedrock associated with the Gravesend Formation. Superficial deposits are noted to be absent across the site. The geologic succession has been confirmed through site-specific ground investigation undertaken by Intégral Géotechnique (Wales) Limited within their report referenced 12553/JJ/20/SI/RevA, dated November 2020. The investigation included infiltration tests (soakaways) across the site that confirmed an absence of infiltration with peak rates measured at $1.9 \times 10^{-6} \text{m/s}$ in the eastern part of the site. Based upon the testing undertaken, infiltration was discounted as a viable drainage option.

Anecdotal evidence obtained from local residents, confirms that prior to Taylor Wimpey's site ownership; and with the site in its original condition (i.e. an agricultural Greenfield setting), localised flooding of the public highway (A4048) to the south of the site boundary occurred during heavy rainfall events. It has therefore been established that the site has historically been subject to surface water flooding during rainfall that effected both the highway (A4048) and the residential properties to the west/south-west.

Surface water and silt mitigation

In advance of September 2021 and in accordance with recommendations set out within the SWSMP (April 2021), silt fencing was installed as a mitigation measure along the site's topographically down-gradient peripheral boundaries. This included the south-western, southern and south-eastern boundaries as protection for the off-site residential properties. At present, there is no surface water outfall location for the site and therefore mitigation measures specified by RSK have been aimed to slow, divert and attenuate rainfall and surface water runoff to prevent flooding of hydraulically down-gradient properties. However, it is noted that given the lack of natural infiltration; owing to the steep topography and in the absence of a surface water outfall, it is not possible to fully retain and attenuate all surface waters migrating across the site.

The construction of the site entrance off the A4048 required the removal of a short section of silt fencing to accommodate a permanent vehicle entrance and haul road into the site. Following rainfall events this resulted in surface water migrating off-site onto the highway via the newly installed site entrance, additional mitigation was installed by Taylor Wimpey. This additional mitigation included shallow ditches and trenches either side of the haul road, supported by silt matting and hay bales close to the site entrance, with the aim

to divert water away from the haul road. The surface water was diverted and retained/attenuated within the Taylor Wimpey site boundary on the southern margin of the site. Vacuum tankers were used to uplift water captured within a temporary pit dug close to the site entrance for the control of surface waters. However, the rate of water ingress to the pit even during normal rainfall, exceeded the tanker uplift capacity and it was concluded that the use of tankers would therefore not be a viable option.

Following a significantly heavy rainfall event in late September 2021, the silt mitigation (silt matting), drainage ditches and parts of the haul road itself, were washed away allowing surface waters onto the public highway (A4048). Furthermore, the volume and discharge rate of surface water crossing the site to the south-west, also compromised the silt mitigation along Taylor Wimpey's south-western margin, allowing water to pass beyond the site boundary onto the road to the west of the site.

Subsequent to this very heavy rainfall event, Taylor Wimpey, with environmental support and advice from RSK, has implemented and installed a significant number of additional mitigation measures to assist with diverting, slowing and attenuating surface waters crossing the site. These are set out within Figure 1 and are discussed below:

- An existing perimeter mitigation ditch on the southern boundary (Figure 1; No. 1) was over-dug to improve water flow; prevent ponding of water in its eastern extent; and to divert surface waters away from residential properties immediately south of the site. To slow and attenuate the surface water flow to help silt settle and decrease turbidity, silt wattles/hay bales have been installed at 25m centres along the ditch.
- The southern mitigation ditch discharges into an excavated pit to store and attenuate water (Figure 1; No. 2). The pit has two outfalls to divert water onto an area of undisturbed grass in the south-western-most corner. Each outfall is spurred to allow water to be dispersed over the largest area possible and is supported by silt matting to help capture suspended solids.
- Silt fencing has been extended in the south-western-most corner to act as a last resort mitigation barrier along the site perimeter.
- The pit has an earth bund on the down-gradient side of the excavation to prevent water overtopping and flowing westwards towards the site boundary and residential properties.
- Two shallow mitigation trenches have been dug trending north of the pit (Figure 1; No. 3) to intercept surface water flows and divert these to the south-western corner. These trenches have silt wattles/bales at 10m centres to slow flows and decrease turbidity.
- Two further shallow mitigation trenches have been excavated across the western part of the site (Figure 1; No. 4). These trenches are designed to intercept and divert water from the central/northern parts of the site and divert/attenuate water onto undisturbed grass areas of the western site. At the end of each trench are silt mats to aid the removal of suspended solids. Silt wattles/hay bales are present along the trenches at 25m centres. These trenches link to small gaps in the silt fences surrounding the northern topsoil and subsoil stockpiles.
- A fifth shallow mitigation trench (Figure 1; No. 5) has been excavated across the central part of the site. This trench terminates over an existing below ground 750mm depth gravel filled service trench. Waters diverted by this fifth trench are directed to the service trench that is designed to act as a French Drain and disperse surface waters to ground. The mitigation trench is supported by silt wattles/bales at 25m centres.

- A sixth shallow mitigation trench (Figure 1; No. 6) has been excavated across the eastern part of the site to intercept the eastern water shed and divert/attenuate water within this catchment area. The mitigation trench is supported by silt wattles/bales at 25m centres.
- Silt fencing has been installed at the base of the topsoil and subsoil stockpiles on the down-gradient boundaries. Small gaps in the fence connect to the afore mentioned mitigation trenches.
- A second pit (Figure 1; No. 7) has been excavated adjacent to the site entrance to store and attenuate surface waters in the south-eastern corner of the site at the site entrance. The pit is supported by perimeter silt fencing and currently drains to a highway gully at the site entrance.
- Sand bags have been installed across the haul road entrance to divert water into the aforementioned pit to the east of the entrance, or into the highway gully.
- All pits are securely fenced off to prevent unauthorised access and for health and safety reasons. Safety signage and a life ring are present at each pit.
- Spare fencing materials, silt mat and hay bales are stored on site to aid rapid deployment if needed.
- In discussion with the local authority, Taylor Wimpey is currently undertaking survey's of the highway gullies on the B4048 and the road to the west of the site to establish the drainage runs and discharge points. Furthermore, Taylor Wimpey has arranged for the highway gullies to be cleared using a vacuum tanker.
- Taylor Wimpey has also committed to ensuring that the highway gullies in the vicinity of the site entrance off the A4048 remain clear and are maintained, until a surface water outfall can be secured. This will ensure that any surface waters leaving the site during adverse storm events, will be captured by the highway storm water system.

Regulator visits have been undertaken by RSK and the Taylor Wimpey site manager, supported by the Taylor Wimpey design team, to review and upgrade or add additional mitigation measures. Ongoing regular monitoring of the mitigation will be undertaken by the site manager and further advice will be provided by RSK. The surface water and silt mitigation measures set out will remain in place until a surface water outfall connection for the site can be satisfactorily established. The surface water and silt mitigation measures established on site are considered by RSK to be in accordance with best practice and industry standards for the dispersal and attenuation of surface waters in the absence of a surface water outfall.

Yours sincerely

For RSK Environment Limited - Geoscience

A handwritten signature in black ink, appearing to read "Andrew Przewieslik".

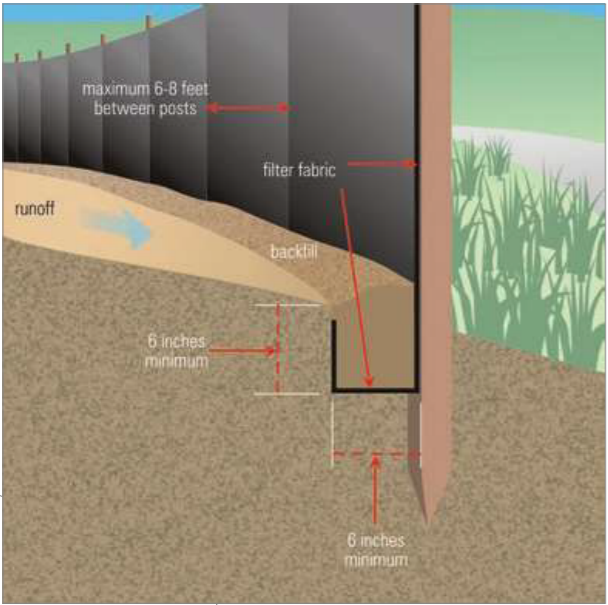
Andrew Przewieslik
Principal

A handwritten signature in blue ink, appearing to read "Tony Morton".

Tony Morton
Associate Director

Enclosed: Figure 1: Surface water and silt mitigation measures

GENERIC SILT FENCE INSTALLATION



An optional grip could be dug down gradient of the new pond and tie into the silt fencing close to the sub-soil stockpile

New temporary holding pond to be excavated in northern POS with drainage spurs.

Soil bund lined with polythene to be added alongside stream and western boundary in advance of grouting work

LEGEND

- Boundary ditch (with outfall to culvert)
- Surface water ditch
- Surface water pit / trench
- Recommended silt matting
- Topsoil and subsoil stockpiles
- Recommended silt fencing
- Surface water flow
- New temporary holding pond to be excavated in northern POS with drainage spurs.
- Soil bund lined with polythene to be added alongside stream and western boundary in advance of grouting work.
- New temporary holding pit has been added

NOTES:

Although best efforts were undertaken to accurately locate the site features in relation to the final construction layout, some of the site features may be in different locations and at a different scale to those illustrated in the drawing. This drawing should be used indicatively, until more accurate surveying of site features is undertaken.

00	14.10.2021	-	AH	APA	-
Rev.	Date	Amendment	Drawn	Chkd.	Appd.



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Email: info@rsk.co.uk
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Client Taylor Wimpey South Wales					
Project Title Cwrt Sirhowy, Blackwood					
Drawing Title Surface Water and Silt Mitigation Plan					
Drawn AH	Date 14.10.21	Checked APA	Date 14.10.21	Approved -	Date -
Dimensions -		Scale NTS		Original Size A3	
Project Number 302300-040			Drawing Number -		
Drawing File -				Rev 00	

APPENDIX B

CWMGELLI EXISTING GROUND

INVESTIGATION REPORT

Taylor Wimpey South Wales

CWMGELLI FARM, BLACKWOOD

Site Investigation Report

12553/JJ/20/SI/RevA

CLIENT: Taylor Wimpey South Wales

PROJECT: Cwmgelli Farm, Blackwood

TITLE: Site Investigation Report

JOB NO: 12553

DOCUMENT REF: 12553/JJ/20/SI/RevA

Revision	Purpose Description	Originated	Reviewed	Authorised	Date
0	Draft	LP/JJ	HP	RB	Jan '20
A	Final	JJ	HP	RB	Nov '20

Geotechnical Engineers:

Intégral Géotechnique (Wales) Limited
Integral House
7 Beddau Way
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Caerphilly
CF83 2AX

Tel: 029 2080 7991

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- 1.4 Limitations

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1.0 INTRODUCTION

1.1 GENERAL

Taylor Wimpey South Wales (Tylor Wimpey) are proposing to develop a site at Cwmgelli Farm in Blackwood for residential end-use.

Intégral Géotechnique (Wales) Limited have been appointed as the Geotechnical Engineers to undertake an intrusive site investigation to enable a geotechnical and geoenvironmental appraisal of the site and provide a basis for design.

This report presents the findings of the intrusive site investigation and gives recommendations for the design of foundations, floor slabs and other geotechnical and geoenvironmental aspects of the project.

A previous draft Site Investigation Report was issued to Taylor Wimpey in January 2020. The draft report was prepared prior to the publication of CIRIA C758 'Abandoned Mine Workings Manual'. Following discussions with Taylor Wimpey and a review of CIRIA C758 we have prepared this updated and revised final report. Note that this final report supersedes the previously issued draft report.

This report (including all appendices to it and any subsequent addendums or correspondence) has been prepared for the sole benefit, use and information of Taylor Wimpey South Wales and no third party is entitled or permitted to rely on it. This report may not be used, reproduced or circulated (in whole or part) for any purpose without the written consent of Intégral Géotechnique (Wales) Limited. Intégral Géotechnique (Wales) Limited shall not be liable to any third party who does not have such express written permission to rely on the report for any losses they may suffer.

1.2 PROPOSED DEVELOPMENT

It is understood that the proposed development will comprise the construction 164 No. residential dwellings and associated infrastructure including access roads, car parking areas and private driveways. The development will also include areas of landscaping, public open space, play space and private gardens.

1.3 SCOPE OF WORKS

The work instructed included a desk study of available information, site reconnaissance and intrusive site investigation. This was followed by laboratory testing and geotechnical and geoenvironmental reporting.

1.3 SCOPE OF WORKS (CONTINUED)

The desk study comprised a review of:

- An Envirocheck Report obtained for the site;
- Old Ordnance Survey maps covering the site, included within the Envirocheck Report;
- A Radon Georeport obtained from the British Geological Survey (BGS);
- A CONS9M Coal Mining Report obtained from the Coal Authority;
- A mine abandonment plan obtained from the Coal Authority (extract from abandoned plan 10593);
- Geological maps of the area provided by the BGS;
- the Natural Resources Wales (NRW) groundwater vulnerability map and aquifer database for the area; and
- Existing site investigation data.

The desk study information was used to make an initial assessment of the site and to design an intrusive site investigation to be carried out by Intégral Géotechnique. The intrusive site investigation was designed in accordance with BS5930+A2:2010, the Code of Practice for Site Investigations, BS10175:2011, the code of practice for investigation of potentially contaminated sites, and 'Development of Land Affected by Contamination: A Guide for Developers' prepared by Welsh Local Government Association (WLGA)/Natural Resources Wales (NRW) Land Contamination Working Group, 2017.

The intrusive site investigation comprised:

- 12 No. rotary probeholes drilled during November 2019 (in order to supplement 15 No. rotary probeholes previously drilled across the site during January 1999);
- 20 No. trial pits excavated during November 2019;
- Soakaway testing undertaken within 7 No. trial pits; and
- Sampling of soil for laboratory chemical and geotechnical testing.

1.4 LIMITATIONS

This document is intended to be a working document for further development in discussion with all concerned including the Local Planning Authority, NRW and the NHBC as appropriate.

1.4 LIMITATIONS (CONTINUED)

“Contamination” is taken throughout the report to mean the “presence of one or more potentially harmful substances as a result of human activity”. The use of the term in this way does not imply that harm is being or might be caused by the contamination. It should be noted that “contamination” can have different meanings under different regulatory regimes, for example, planning, building control and Part IIA of the Environmental Protection Act 1990. Naturally elevated concentrations of potentially harmful substances may also be of concern and the significance of any that have been found is also evaluated in this report.

It is important to recognise that there may be areas of contamination that have not been found, or that contaminants are present at concentrations above those that have been found. It is also important to recognise that contamination may be localised and that no investigation, however comprehensive, is capable of finding such occurrences other than by chance.

It should also be noted that vertical and lateral changes in ground conditions may be present between exploratory hole locations.

2.0 THE SITE

2.1 SITE LOCATION AND DESCRIPTION

The site is located in Cwmgelli approximately 0.5km north of Blackwood town centre at a National Grid Reference of 317720, 198390, see Figure 1.

The site is irregular in shape and occupies an area of approximately 5.8 hectares. The boundaries of the site are defined by an existing road with Cwmgelli Villas beyond to the southwest, the A4048 and existing residential developments to the south and southeast, and undeveloped fields to the north and east.

A site plan is presented in Figure 3.

The topography of the site generally slopes towards the south. The elevation of the site ranges from an approximate maximum elevation of 206m AOD in the north, to an approximate minimum elevation of 179m in the south.

The majority of the site area comprises three undeveloped fields utilised for grazing cattle and horses. A stable building is present in the southeast field.

A small area of the site in the far southwest corner currently comprises part of a lawn/garden associated with an adjacent residential property known as 'Gelli Dywyll'.

A number of mature trees and hedgerows surround the site and are present along internal field boundaries.

Significant areas of the site's surface are extremely waterlogged / marshy.

An existing stream flows in a westerly and southerly direction along the northern and western boundaries of the site.

Active buried services are known to underlie the site. These include a private gas main running roughly north to south beneath the western part of the site, and an electricity cable running roughly east to west beneath the southern part of the site.

2.2 SITE OPERATIONS

The site is currently undeveloped and is predominantly utilised for grazing cattle and horses. A small area in the southwest corner of the site is utilised as part of a residential garden.

2.3 SURROUNDING LAND USE

The surrounding areas are utilised for a combination of agricultural and residential use with existing residential properties to the south and southwest of the site and undeveloped fields extending to the north and east.

2.4 AVAILABLE SITE INVESTIGATION DATA

A previous intrusive ground investigation comprising 15 No. rotary probeholes drilled across the site (and on land comprising the two existing residential plots situated immediately to the south of the site) was undertaken by Intégral Géotechnique (Wales) Limited during January 1999.

The purpose of the previous drilling investigation was to assess the shallow mining risk associated with workings within the Mynyddislwyn coal seam beneath the site,

The previous rotary probehole data has been utilised as part of the current site investigation.

3.0 SITE HISTORY

The recent history of the site has been traced with the aid of an Envirocheck Report, a copy of which is included in Appendix A. The Envirocheck Report includes the following scaled historical maps:

Map Scale	Dates
1:2,500	1879, 1901, 1920, 1961-1962, 1987
1:1,1250	1973, 1993, 2000
1:10,560	1886, 1901, 1922, 1938-1945, 1949 (aerial photo), 1953
1:10,000	1965, 1975, 1995, 1999, 2006, 2019

The earliest edition of the map, dated 1879, indicated the site to be undeveloped fields with a number of field boundaries crossing the site. The nearest development at this time was a collection of farm buildings known as 'Gelli-dywyll' situated immediately to the south of the site. A small outbuilding, likely to be associated with the farm, was located within the southwest area of the site. The buildings were accessed via an existing footpath which crossed approximately through the centre of the site on a north to south orientation. An existing road/track and a railway line running along an embankment ran along the southern edge of the site before turning in a northerly direction to the east of the site. A number of mine entries were located in the vicinity of the site. A mine entry referred to as 'Gelli-dywyll Level (Coal)' was indicated approximately 70m to the northwest of the site and accessed via railway tracks along the southwest edge of the site and connected into the line to the south. An 'Old Level (Coal)' was recorded approximately 120m to the northeast of the site. Another level referred to as 'Maes-ryddid Level' was recorded approximately 230m to the northwest of the site. An 'Air Shaft' was recorded approximately 280m to the northwest of the site. The Sirhowy River flowed to the south of the site and around to the east. The River flowed approximately 130m to the east at the nearest point. A pond feature with a sluice was also indicated adjacent to the northern boundary of the site.

The 1901 edition of the map indicated that the site had remained relatively unchanged apart from the addition of some small outbuildings within the southwest area of the site to the north of the farm buildings. A quarry feature ('Chwarel y Gelli') was indicated approximately 90m to the west of the site adjacent to the Gelli-dywyll coal level. A disused colliery known as 'Forest Colliery', was also indicated in the area.

3.0 SITE HISTORY (CONTINUED)

The 1921 edition of the map recorded the site to have remained unchanged but with new developments indicated in the vicinity of the site. New dwellings were indicated to the southeast of the site, in between the site boundary and the railway line. A row of residential properties had also been constructed to the southwest of the site. The colliery to the northwest was now known as 'Cwm Gelli Colliery' and no longer indicated as disused Spoil mounds were indicated in its vicinity. The quarry was still indicated to be present.

There were no significant changes indicated to the site or the surrounding area over the years until the edition of the map dated 1960-1962. The site still remained unchanged and some additional residential development had taken place in the vicinity of the site. There was no longer evidence of the colliery or the rail tracks which served it, although spoil mounds were still indicated to be present across the colliery area and the land to the south. The quarry was still indicated to be present. A more established road had been constructed to the south and east of the site in between the site and the railway line and running parallel with the railway line. The pond adjacent to the northern boundary of the site was now indicated to be marshy ground. A drainage feature flowed from the north towards the site, with issues indicated within the northern area of the site.

The 1973 edition of the map indicated the site to have remained unchanged and undeveloped, apart from the small buildings within the southwest area. The railway line which ran to the south and east of the site was now indicated to be dismantled. The quarry to the northwest was still evident but indicated to be disused by the early 1980's.

By 2000, 'Chwarel y Gelli' quarry, situated approximately 90m to the west of the site, had been redeveloped for residential end use.

The site and the surrounding areas remained relatively unchanged over the years which followed, up until the present day. The only changes observed were indicated on the Google Earth images which showed a large outbuilding to have been constructed within the southwest area of the site adjacent to the original farm buildings. Additional yard areas were also indicated with grass stripped in between the buildings. By 2010 this large building was no longer evident, and all the grassed areas had been reinstated. The other outbuildings within the southwest area of the site had also been cleared by this time. All these areas once more appeared as undeveloped fields. The farm buildings themselves, which were located to the south of the site, had been modernised and the area around them landscaped and new access driveways created.

4.0 SITE ENVIRONMENTAL SETTING

4.1 PHYSICAL SETTING

The site is situated on the west side of the Sirhowy Valley on ground which generally falls to the south from an approximate maximum elevation of 206m AOD in the north to an approximate minimum elevation of 179m in the south.

A former quarry ('Chwarel y Gelli') which has now been redeveloped for residential end use is situated approximately 90m to the west of the site. The quarry is situated below the topographic elevation of the site. Rock faces within the former quarry are still clearly visible. The exposed rock strata comprises a strong sub-horizontally bedded sandstone with subvertical joint sets. A photograph of the quarry face is shown in Figure 3.

4.2 GEOLOGY

The 1:10,560 scale geological map of the area (Sheet ST 19 NE) indicate that the site is underlain by sandstone bedrock strata of the Grovesend Formation of the Carboniferous period. Based on the observed rock faces at the former 'Chwarel y Gelli' quarry, the bedrock strata underlying the site likely comprises strong non-degradable massive sandstone.

A prominent northeast-southwest trending fault is conjectured to cross the east part of the site. An east-west trending fault is conjectured to terminate against the north-south fault, just to the south of the site.

The geological map indicates that the bedrock strata have generally sub-horizontal southerly dips. There could be locally variable dips in the vicinity of the faults.

A coal seam, known as the 'Small Rider' is conjectured to outcrop within the northern part of the site. Another coal seam, the thicker 'Mynyddislwyn' seam is shown outcropping some 100m to the east and downslope of the site.

The generalised vertical section shown on the geological map shows that the Small Rider is a thin seam that, in this area, lies some 25m above the thicker Mynyddislwyn coal seam in the stratigraphic sequence. The geological map indicates the Mynyddislwyn coal seam to have a thickness of approximately 1.8m and that the seam can take the form of two coal leaves separated by a mudstone parting.

Both the Small Rider and Mynyddislwyn are considered to underlie the site at shallow to moderate depths.

4.2 GEOLOGY (CONTINUED)

Numerous former levels/mine adits are shown entering the Mynyddislwyn seam along or near to its outcrop around the site, including three that are shown orientated directly westwards and north-westwards towards the site. Note that there are no recorded mine entries on site.

The geological map records no superficial deposits overlying the bedrock strata. However, previous ground investigation data does indicate a variable thickness of superficial soils across the site. It is also noted that the geological map indicates that superficial glaciofluvial deposits overlie the bedrock strata to the south and east of the site. These deposits could therefore encroach over these edges of the site.

Made ground deposits should be anticipated within the southwest area of the site in the vicinity of the farms buildings which have been constructed, reconfigured, and subsequently demolished over the years.

A summary of the anticipated geological succession is given below in Table 1.

Table 1: Summary of Anticipated Site Geology		
Geological unit	Horizon	Description
Recent	Topsoil and potential areas of made ground	Various materials of unknown origin
Quaternary	Superficial Deposits (Glaciofluvial Deposits)	Clays, sands and gravels (likely to thicken towards the south, east and west)
Carboniferous	Grovesend Formation	Sandstone with mudstone, siltstone and well-developed coals

4.3 RADON

A BGS Radon Georeport has been obtained for the site, as presented in Appendix B. The report states that the site is within a lower probability radon area, as less than 1% of properties are above action level, and that therefore no radon protective measures would be necessary in the construction of new buildings on the site.

4.4 MINING

The geological map indicates that the Mynyddislwyn coal seam, which is of workable thickness (and present in the form of two leaves separated by a mudstone parting), may underlie the site at shallow to moderate depths.

The Mynyddislwyn coal seam is known to have been extensively mined in the area, and the geological map indicates that there were numerous former levels/mine adits on and near to the seam outcrop (which is situated approximately 100m east and downslope of the site). Three of these former levels/adits were orientated directly towards the site.

Another coal seam, the Small Rider, is also considered to underlie the site at shallow depths and is conjectured to outcrop within the northern part of the site. However, the Small Rider is a thin coal and it not known to be worked in the area.

A CON29M Coal Mining Report for the site has been obtained from the Coal Authority, see Appendix C. The Coal Authority state that “the property is in the likely zone of influence from workings in 8 seams of coal at shallow to 770m depth, and last worked in 1986.”

The shallowest of these recorded workings are in the Mynyddislwyn coal seam. Based on the generalised vertical section shown on the geological map, the next significant and potentially workable coal seam below the Mynyddislwyn lies hundreds of metres further down. Some of the deeper and more recent recorded mineworkings would have been longwall faces which could have potentially affected the site’s surface, but any associated subsidence risk would have ceased long ago. Therefore, only the workings in the Mynyddislwyn seam are considered to present any remaining potential risk to any future development on the site’s surface, since these could underlie parts of the site within shallow depths and consequently there could be an associated risk of ground subsidence affecting the site surface in any such areas.

A coal mining abandonment plan (ref.10593) detailing workings in the Mynyddislwyn coal seam beneath the site has been obtained from the Coal Authority, an extract is presented in Figure 2. The plan shows extensive recorded workings in the Mynyddislwyn coal seam beneath the northern and central parts of the site, with less extensive workings beneath the southern part of the site.

The vast majority of the workings beneath the site originated from ‘Gellydywyll Slope’ situated to the southwest of the site. The abandonment plan also records a single unnamed ‘old level’ to the northeast of the site and shows a heading progressing south-westwards (from the old level) and encroaching upon the north-eastern site boundary. However, workings off this heading are not recorded.

4.4 MINING (CONTINUED)

A vertical section of the Mynyddislwyn coal seam recorded on the abandonment plan confirms it is present in the form of two leaves beneath the site. The top leaf is indicated to be approximately 0.9m thick. The bottom leaf is indicated to be approximately 0.7m thick. The mudstone parting (referred to as 'patch') is indicated to be approximately 1.4m thick. Therefore, the combined thickness of the coal seams is approximately 1.6m. The combined thickness of both leaves and the mudstone parting is approximately 3.0m.

The mine abandonment plan indicates that the workings beneath the site were principally undertaken within the upper leaf of the Mynyddislwyn. However, there are some localised areas where the recorded workings appear to overlap, suggesting that both the top and bottom leaves may have been worked at the same location. The presence of these localised areas of distinct overlapping workings suggests that where the upper and lower leaves were both worked, they were not extracted as a single unit (comprising the upper leaf, the mudstone parting, and the lower leaf).

In addition to the presence of the recorded mineworkings shown on the abandonment plan, the presence of unrecorded workings (i.e. workings not shown on the abandonment plan) cannot be discounted.

Wherever old mineworkings underlie the site at shallow depths and are still uncollapsed, or only partially collapsed, there may be an associated risk of ground subsidence occurring and affecting the site surface. The level of this potential ground subsidence risk will depend on the height and extent of any remnant voids and whether there is sufficient rock cover above these mineworkings to prevent any associated uncollapsed voids migrating up to and affecting the site's surface.

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

There are two coal mining subsidence claims within 50m of the site boundary, to the southwest of the site. However, it is understood that both claims were rejected after inspection.

Although, as discussed above, the geological map shows numerous former levels around the site, the Coal Authority has no record of any recorded mine entries on site, or within 20m of, the site boundary. However, the presence of unrecorded mine entries cannot be discounted.

4.5 HYDROLOGY, HYDROGEOLOGY AND FLOOD RISK

The nearest surface water feature is recorded on site. The Envirocheck report indicates that there are a number of unnamed surface water features which flow along the northwest boundary of the site with issues indicated on the northern boundary. The nearest named surface water feature is the Sirhowy River which flows to the south and east of the site and is 137m to the east of the site at the nearest point.

The Natural Resources Wales groundwater vulnerability map and aquifer database classifies the bedrock beneath the site as a Secondary 'A' Aquifer. Secondary 'A' Aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

The Natural Resources Wales groundwater vulnerability map and aquifer database also classifies the superficial deposits which encroach across the southern boundary of the site as a Secondary 'A' Aquifer.

A perched water body could be encountered within any topsoil and/or made ground. Vertical migration of groundwater is likely to be limited by the high clay content of the superficial deposits which are likely to be present across the site.

It is considered possible that any existing site drainage could act as a pathway for potential surface contaminants.

There are two discharge consents recorded within 250m of the site boundary, but both of the consents have expired. The nearest new consent is recorded 261m to the southeast of the site boundary and is a Dwr Cymru unspecified discharge received by the Sirhowy River.

The Envirocheck Report states that there is one water abstraction recorded within 500m of the site boundary. It is a surface water abstraction from a stream and utilised for spray irrigation of a golf course.

The Groundwater Vulnerability map of the area indicated that the secondary aquifer has a high vulnerability. The pollutant speed is high with well-connected fractures in the bedrock.

The Natural Resources Wales Flood Risk Map as presented within the Envirocheck Report indicates that the site is not at risk to extreme flooding from rivers or sea without defences. The BGS Groundwater Flooding Susceptibility map of the area indicates that the site and the surrounding area has limited potential for groundwater flooding to occur at the surface.

4.5 HYDROLOGY, HYDROGEOLOGY AND FLOOD RISK (CONTINUED)

Tables 2 and 3 present a summary of the hydrological features and key hydrogeological nature of the site.

Table 2: Summary of Site Hydrology					
Feature	Distance from site	Flow	Classification	Abstraction	Discharge
Unnamed surface water features	On site	Not known	Not known	No	Sirhowy River
Sirhowy River	137m east	Not known	Not known	No	Ebbw River
Surface run-off	On site	Flows into site drainage	N/A	No	Not known
Site Drainage	On site	Not known	N/A	No	Not known

Table 3: Summary of Site Hydrogeology				
Geological Unit	Aquifer Classification	Aquifer Characteristics	Source Protection Zone	Groundwater Abstractions
Topsoil/subsoil or made ground	Not classified	Highly variable permeability and porosity. Perched water may be present within the made ground with variable flow directions.	No	None
Glaciofluvial deposits (southern edge of the site but likely to be present across the site)	Secondary 'A' Aquifer	Variable moderate permeability and porosity with intergranular flow possible. High clay content likely to restrict flow.	No	None
Grovesend Formation	Secondary 'A' Aquifer	Variable moderate permeability mudstones and siltstones, with well-developed coals and sandstones	No	None

4.6 LANDFILL SITES

The Envirocheck Report indicates that there is one historical landfill site located within 500m of the site boundary. This landfill is situated approximately 87m to the northeast of the site. Deposited waste included industrial and household waste and the input dates are not supplied. There is also one registered landfill site recorded within 500m of the site boundary. It is located 156m to the northeast of the site and authorised waste included excavated natural materials. The licence has now lapsed.

There are five areas of potentially infilled land (non-water) located within 250m of the site boundary. The nearest area was located 39m to the west of the site at the location of the former colliery. The other areas were also located within former colliery or quarry areas 85m to the southeast, 116m to the northeast, 216m to the southeast and 246m to the west.

4.7 POTENTIAL CONTAMINATION

Previous Uses

The various activities in the vicinity of the site which may have resulted in ground or water resource contamination on this site are listed below in Tables 4 and 5.

Table 4: Potential Contaminants		
Land Use: Undeveloped farmland with outbuildings		
Material/Process	Contamination/Hazard	Evidence
Agricultural land	No potential contaminants	Historical maps
Farm building and surrounding yard area constructed within the southwest area which may have disturbed the ground	Metals, semi metals, non-metals, PAH, asbestos	Historical maps
Additional outbuildings constructed within the southwest area in more recent years and subsequently demolished further disturbing the ground	Metals, semi metals, non-metals, PAH, asbestos	Google Earth images

Existing Uses

The site is currently utilised for grazing cattle and horses. No potentially contaminative existing site uses have been identified.

4.7 POTENTIAL CONTAMINATION (CONTINUED)

Adjacent Site Uses

Table 5: Potential Contaminants: Adjacent Site Uses		
Potential Contamination Source	Boundary	Associated Contaminants and Hazards
Road with residential development beyond	South western	No Potential Contaminants
Road and residential development	Southern	No Potential Contaminants
Undeveloped fields	Northern and eastern	No Potential Contaminants

4.8 OTHER ENVIRONMENTAL ISSUES

Environmentally sensitive land has not been identified in close proximity of the site. Areas of ancient woodland are located within 250m of the site boundary with the nearest area located 84m east of the site.

The Envirocheck Report indicates that there has been one pollution incident to controlled waters recorded on site and six within 250m of the site boundary. A Category 3-Minor Incident is listed approximately within the centre of the site (although the location is also listed as Gernant House, Cwmgelli). The case of the incident and the pollutant unknown.

The nearest Category 2-Significant Incident was recorded 107m to the southwest of the site and involved cement/mortar caused by an overflow due to poor operational practice. Another two minor incidents were recorded 178m and 180m to the east and involved mud/clay/soil caused by a blocked sewer. A further three minor incidents were recorded 208m, 211, and 248m to the south of the site also involving either mud/clay/soil or an unknown pollutant due to a blocked sewer.

There have been no substantiated pollution incidents registered on site or within 1km of the site boundary.

There have been no prosecutions relating to controlled waters or to authorised processes recorded on site or within 1km of the site boundary.

Dense vegetation surrounds parts of the site, some invasive plant species may be encountered including Japanese Knotweed. A full vegetation survey of densely vegetated areas of the site is recommended.

5.0 PRELIMINARY CONCEPTUAL SITE MODEL

5.1 RISK ASSESSMENT FRAMEWORK

In order to be consistent with current UK government policies and legislation, it is necessary to identify, make decisions on, and take appropriate action to deal with land contamination, in accordance with the procedures specified in the Environment Agency document 'Model Procedures for the Management of Land Contamination CLR-11' (Environment Agency 2004).

The risk assessment process is designed to provide a reasoned, structured and pragmatic mechanism for the identification of any potential human health and controlled waters risks associated with land contamination and where necessary to develop a robust remediation strategy to ensure protection of the sensitive receptors (human health of future residents, controlled waters, etc).

In accordance with the CLR-11 framework, risk is defined as:

'a combination of the probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequence of the occurrence'.

The three essential elements to any risk are defined by CLR-11 as follows:

- A contaminant, or hazard, which is in, on, or under the land and has the potential to cause harm (Source)
- A means by which a receptor can be exposed to, or affected by a contaminant or hazard (Pathway)
- A receptor, i.e. something which could be adversely affected by a contaminant or hazard, such as human health or groundwater (Receptor).

In order for there to be a potential risk, all three of the above elements must be present. If there is a source of contamination and a receptor (for example a resident or site user), then there is only a potential risk if there is a pathway linking the two. Such an active pathway is known as a relevant pollutant linkage. It is possible for the same contaminant to be linked to a receptor via a number of pathways, and hence it is important that all relevant pollutant linkages, to both human health and controlled waters, are separately identified on a site in order that a comprehensive conceptual model can be formed and ultimately a robust remediation strategy designed.

5.1 RISK ASSESSMENT FRAMEWORK (CONTINUED)

Current practice during Generic Quantitative Risk Assessment of land affected by contamination is to use generic soil screening values based on the appropriate proposed end use. These usually comprise risk-based Soil Guideline values (SGVs) or Generic Assessment Criteria (GACs) derived by the Environment Agency's Contaminated Land Exposure Assessment Model (CLEA). The SGVs and the supporting technical guidance were developed in order to assist in the assessment of long-term risk to human health from the exposure to contaminated soils.

Revised Statutory Guidance, published in 2012, to support Part 2A of the Environmental Protection Act 1990, introduced a new four category system for classifying land under Part 2A. Category 1 includes land where the level of risk is clearly unacceptable, and Category 4 includes land where the level of risk posed is considered to be acceptably low. Under Part 2A, land would be determined as contaminated if it falls within Categories 1 or 2.

The revised Part 2A Statutory Guidance was accompanied by an Impact Assessment that identified a role for new 'Category 4 Screening Levels' (C4SLs) that would provide a simple test for determining when land is suitable for use and definitely not contaminated land. A Policy Companion Document including the C4SLs was published in March 2014 (England) and May 2014 (Wales).

The C4SLs have been based on the CLEA methodology and derived using the CLEA model, with modified toxicological and exposure parameters. To date, C4SLs have been released for six substances (arsenic, cadmium, chromium (VI), lead, benzo(a)pyrene and benzene).

The C4SLs have been derived on the assumption that where they exist, they will be used as generic screening criteria within generic quantitative risk assessment.

Following publication of the C4SLs, Land Quality Management (LQM), in conjunction with the Chartered Institute for Environmental Health (CIEH) released Suitable 4 Use Levels (S4ULs) in January 2015.

The S4ULs have been derived in accordance with UK legislation, and using a modified version of the Environment Agency's CLEA software. As such, the S4ULs are based on the concept of minimal or tolerable risk as described in Human Health Toxicological Assessment of Contaminants in Soil (Science Report SR2, Environment Agency 2009a).

S4ULs have been derived for a wider number of substances.

5.1 RISK ASSESSMENT FRAMEWORK (CONTINUED)

In addition to the existing SGVs, C4SLs and S4ULs, Atkins ATRISK^{soil} also provide a set of Soil Screening Values. These are currently intended to be used in conjunction with SGVs, although they intend to update these values in line with the C4SLs in due course.

We have reviewed all sets of values and intend to use the most appropriate assessment criteria as Tier 1 screening values in the first instance. Where a published S4UL is available, and considered appropriate, this will be used in the first instance.

5.2 CONCEPTUAL MODEL FRAMEWORK

The preliminary stage of the risk assessment process is to develop and define a conceptual site model, based on the desk study and any existing site investigation data. This is used to establish any potential contaminant sources, identify existing and future receptors and assess if there are any potentially active pathways by which a potential risk may be present.

The preliminary conceptual site model will be developed and refined as site specific data is gathered, such as actual ground conditions and chemical data, resulting in a more robust conceptual understanding of the site.

5.3 CRITICAL SENSITIVE RECEPTOR – HUMAN HEALTH

The proposed redevelopment of the site is for a residential end use. Therefore, the critical sensitive receptor from a human health perspective is an on-site residential receptor.

In accordance with S4UL/C4SL and CLEA guidance for a standard residential scenario, the critical sensitive receptor for a residential end use risk assessment is a female child, with exposure from 0 to 6 years.

The standard residential end-use conceptual model defined by S4UL/C4SL and CLEA is assumed to be suitable for the purposes of this assessment.

5.4 CRITICAL SENSITIVE RECEPTOR – CONTROLLED WATERS

Based on the proposed redevelopment of the site for a residential end use, and the findings of the desk study, the critical sensitive receptor from a controlled water perspective is groundwater within the Secondary 'A' Aquifer of the Grovesend Formation underlying the site.

5.4 CRITICAL SENSITIVE RECEPTOR – CONTROLLED WATERS (CONTINUED)

By considering groundwater as the critical sensitive receptor for controlled waters, the groundwater/hydrogeological risk assessment will also be protective of the surface water features located along the northern and western boundaries of the site.

5.5 POTENTIAL CONTAMINANT SOURCES

As identified in the desk study, the site has remained largely undeveloped over the years apart from the construction of farm outbuildings within the southwest area of the site.

Evidence on available Google Earth images also indicates that additional buildings were constructed and demolished in recent years and parts of the southwest field were stripped to provide access. The ground is likely to be disturbed in the southwest area of the site and made ground could also be present.

The potential types of contaminants of concern are listed below:

- Metals, semi-metals, and inorganics within the shallow made ground;
- Polycyclic aromatic hydrocarbons (PAH) within the shallow made ground; and
- Asbestos within the shallow made ground or within any remnant building fabric.

5.6 POTENTIAL EXPOSURE PATHWAYS

Potential exposure pathways for the critical receptors (both human health and controlled waters) are listed below:

- Dermal contact with soil and/or soil derived dust;
- Ingestion of soil and/or soil attached to home-grown produce;
- Ingestion of home-grown produce;
- Inhalation of soil derived dust;
- Inhalation of vapours – indoor and outdoor air;
- Leaching of contaminants from made ground to groundwater; and
- Transportation of contaminants within groundwater.

In addition, the following exposure pathways have also been considered:

- Ground gas generation and migration; and
- Building materials durability.

5.7 SUMMARY OF CONCEPTUAL EXPOSURE MODEL

A preliminary conceptual exposure model has been developed for the site. This is based on the findings of the desk study, historical review and site walk over and includes all potential sources, pathways and receptors that may be present on site. Those that have been identified as being potentially active require further investigation in the form of sampling and testing of soils and/or groundwater, followed by appropriate risk assessment.

The preliminary conceptual exposure model will be reviewed and refined following the completion of the site works and laboratory testing.

The preliminary conceptual exposure model is presented below in Table 6.

Table 6: Preliminary Conceptual Exposure Model				
Source		Receptor	Pathway	Potentially Active Pathway?
Origin	Contaminant			
Potential made ground of unknown origin and historical land uses	Metals, semi-metals, non-metals, PAH, asbestos	Resident – human health	Dermal Contact with made ground/dust	✓
			Ingestion of soil and/or soil attached to home-grown produce	✓
			Ingestion of home-grown produce	✓
			Inhalation of dust	✓
			Inhalation of vapours – indoor/outdoor	✓
	Metals, semi-metals, inorganics, PAH	Groundwater quality	Leaching from made ground	✓
	Metals, semi-metals, inorganics, PAH	Surface water quality	Transportation within groundwater	✓
Potential made ground of unknown origin and natural ground	pH and water-soluble sulphate	Building Materials Durability	Direct contact	✓
Ground gas – organic, gas producing materials	Methane, carbon dioxide	Human health	Accumulation of gases in confined spaces, and/or migration off site, leading to asphyxiation, or risk of explosion	✓

6.0 THE SITE INVESTIGATION

6.1 FIELDWORKS

An intrusive site investigation was designed in accordance with BS5930+A2:2010, the Code of Practice for Site Investigations, BS10175:2011, the Code of Practice for Investigation of Potentially Contaminated Sites, and 'Development of Land Affected by Contamination: A Guide for Developers' prepared by Welsh Local Government Association (WLGA)/Natural Resources Wales (NRW) Land Contamination Working Group, 2017.

The intrusive site investigation was also designed to further assess the shallow coal mining risk at the site, and to provide information to support and refine the preliminary conceptual site model/conceptual exposure model and

An investigation comprising 20No. machine excavated trial pits (referenced TP01 to TP20 and SA1 to SA7) and 12No. supplemental rotary drilled probeholes (referenced PH101 to PH112) was carried out during November 2019.

Note that a previous drilling investigation, comprising 15 No. probeholes (referenced PH1 to PH15), was also undertaken across the site (and on land comprising the two existing residential plots situated immediately to the south of the site) by Intégral Géotechnique (Wales) Limited during January 1999.

The trial pits were located across the site and excavated to a maximum depth of 2.8m below existing ground level (bgl) using an 8 tonne tracked mechanical excavator. The purpose of the trial pits was to examine the ground conditions at shallow depth and to take representative soil samples for both chemical and geotechnical laboratory testing.

Soakaway tests were carried out in 7No. trial pits (SA1 to SA7), at approximate locations specified by Taylor Wimpey. At each soakaway test location, water was added to the excavation from a 2000-gallon bowser and the water level monitored over a period of time.

The supplemental rotary probeholes were drilled across the site in order to supplement the existing 1999 probehole data. The purpose of the probeholes was to establish the depth to, and amount of competent rock cover above the Mynyddislwyn coal seam and any associated mineworkings, in order to assess the potential shallow mining risk. The probeholes, including those carried out during 1999, were drilled to typically 30.0m bgl (locally up to 37m bgl).

6.1 FIELDWORKS (CONTINUED)

Representative soil samples were taken from the trial pits for laboratory chemical and geotechnical testing and placed in the appropriate sample containers deemed suitable for the analysis required. Strict protocols were adopted during this process to limit the cross contamination of samples.

The fieldworks were supervised by a qualified Geotechnical Engineer from Intégral Géotechnique (Wales) Limited who also logged the trial pits and prepared their detailed engineering logs in accordance with the requirements of BS5930+A2: 2010. The engineering trial pit logs provide descriptions of the materials encountered in accordance with BSEN ISO 14688-1 (2002) and 14689-1 (2003) for soils and rocks respectively.

Note that the strata descriptions relating to the rotary probeholes (drilled using open hole methods) are based on the lead driller's description of the flushed arisings (drill cutting returns).

The approximate locations of the trial pits, soakaway tests and rotary probeholes are shown on Figure 3. Copies of the trial pit and rotary probehole logs are shown in Appendices D and E respectively. The results of the soakaway tests are presented in Appendix F.

6.2 FIELD OBSERVATIONS

Made ground deposits, between approximately 0.4m and 1.4m thick, were encountered at TP9, TP10, TP11, TP12, SA3, SA4 and SA5. The encountered made ground typically comprised a thin layer of disturbed topsoil (containing rare anthropogenic materials such as brick and glass) over typically soft brown gravelly clay containing brick, sandstone flagstones, timber, ceramic, tarmac, glass etc.

6.3 LABORATORY CHEMICAL TESTING

Representative soil samples were taken from the trial pits across the site, stored at the appropriate temperature and dispatched to the UKAS and MCERTS accredited laboratories of i2 Analytical for laboratory chemical testing within 24 hours.

The samples were tested for a range of contaminants that reflects the historical use of the site, the findings of the desk study and the preliminary conceptual site model/conceptual exposure model.

A list of the soil testing carried out is given below:

6.3 LABORATORY CHEMICAL TESTING (CONTINUED)

Beryllium	Cadmium
Total Chromium	Hexavalent Chromium (VI)
Copper	Lead
Mercury	Nickel
Vanadium	Zinc
Arsenic	Boron
Selenium	Elemental Sulphur
Total Cyanide	Total Sulphate
Sulphide	Water Soluble Sulphate
pH	Monohydric Phenol
Polyaromatic Hydrocarbons (PAH)	Asbestos

The results of the chemical testing are presented in Appendix G.

6.4 LABORATORY GEOTECHNICAL TESTING

Representative soil samples taken from the trial pits were dispatched to the UKAS accredited laboratories of i2 Analytical and tested for Atterberg Limits and moisture content.

The results of the geotechnical testing are presented in Appendix H.

7.0 GROUND CONDITIONS

7.1 SHALLOW GROUND CONDITIONS (TRIAL PIT FINDINGS)

The ground investigation undertaken on behalf of Taylor Wimpey included 12 No. trial pits (referenced TP1 to TP12) and 7 No. trial pit soakaway tests (referenced SA1 to SA7). The approximate locations of the trial pits and soakaway tests are shown on Figure 3.

A generalised summary of the shallow ground conditions encountered within the trial pits excavated across the site is presented below in Table 7.

Table 7: Summary of Shallow Ground Conditions		
Depth (m)		Stratum
From	To	
0.00	0.20/0.30	TOPSOIL: Grass over very soft brown silty CLAY with rootlets [waterlogged].
0.00	0.10/0.40	MADE GROUND: Grass over soft brown silty CLAY with rootlets. With rare brick, timber, ceramic and tarmac [disturbed topsoil]. <i>Encountered at TP9, TP10, TP11, TP12, SA3, SA4 and SA5.</i>
0.10/0.40	0.60/1.40	MADE GROUND: Soft brown gravelly clay containing brick, sandstone flagstones, timber, ceramic, tarmac, glass etc. <i>Encountered at TP9, TP10, TP11, TP12, SA3, SA4 and SA5.</i>
0.20/1.40	0.70/1.50	SUPERFICIAL DEPOSITS: Soft orange-brown silty CLAY. <i>Encountered at TP04, TP05, TP06, SA2 and SA6.</i>
0.20/1.50	1.40/>2.80	SUPERFICIAL DEPOSITS: Firm becoming stiff orange-brown gravelly clay or (loose to medium dense) brown clayey sands and gravels.

The trial pits were terminated at depths ranging between approximately 1.6m and 2.8m bgl.

Across the majority of the site, within the trial pits, the ground conditions comprised a layer of very soft, waterlogged topsoil (between approximately 0.2m and 0.3m thick, locally up to 0.5m thick at SA2) over a layer of soft orange brown silty clay (proven to depths ranging between approximately 0.6m and 1.5m bgl) over firm becoming stiff orange brown gravelly clay or loose to medium dense brown clayey sands and gravels.

7.1 SHALLOW GROUND CONDITIONS (TRIAL PIT FINDINGS) (CONTINUED)

The results of the laboratory geotechnical testing indicate that the superficial deposits underlying the site are of low plasticity (with plasticity indices ranging between 10% and 12%). The superficial deposits underlying the site are considered to have a low volume change potential.

A differing ground profile was encountered at TP9, TP10, TP11, TP12, SA3, SA4 and SA5. At these locations, the ground surface was recorded to be underlain by a layer of made ground between approximately 0.4m and 1.4m thick. The encountered made ground typically comprised a thin layer of disturbed topsoil (containing rare anthropogenic materials such as brick and ceramic) over typically soft brown gravelly clay containing brick, sandstone flagstones, timber, ceramic, tarmac, glass etc. Based on the trial pit findings, the inferred extent of made ground deposits is indicated on Figure 3 attached.

Groundwater was observed within numerous trial pits. The encountered groundwater either comprised very shallow seepages from the completely saturated/waterlogged topsoil deposits (at TP4, TP5, SA2, SA3 and SA5) or slightly deeper seepages typically below 1.0m bgl within the superficial soils at TP2, TP3, TP6, SA1, SA6 and SA7.

Running sand conditions and significant excavation instability (associated with groundwater seepage) was noted at TP6 and SA6 at 0.9m bgl and 1.6m bgl respectively.

7.2 DEEP GROUND CONDITIONS (ROTARY PROBEHOLE FINDINGS)

15 No. rotary probeholes (referenced PH1 to PH15) were drilled across the site by Integral Géotechnique during January 1999. These were supplemented with a further 12 No. rotary probeholes (referenced PH101 to PH112) during the recently completed November 2019 ground investigation works completed on behalf of Taylor Wimpey. The purpose of the probeholes was to establish the depth to, and amount of competent rock cover above the Mynyddislwyn coal seam and any associated mineworkings, in order to assess the potential shallow mining risk. The previous and supplemental probehole locations are shown on Figure 3.

The probeholes were drilled to typically 30.0m bgl (locally up to 37m bgl). Rockhead was encountered at typical depths of approximately 4m to 10m bgl, increasing locally in PH4 (13.2m bgl), PH7 (16.7m bgl) and PH111 (13.6m bgl).

7.2 DEEP GROUND CONDITIONS (ROTARY PROBEHOLE FINDINGS) (CONTINUED)

Where encountered, the Mynyddislwyn coal seam was recorded from depths ranging between approximately 16.1m to 30.4m bgl. Where encountered and recorded as intact, the Mynyddislwyn seam was typically recorded as two coal leaves separated by a mudstone parting.

The top coal leaf was recorded to vary in thickness between approximately 0.9m and 1.2m. The bottom coal leaf was recorded to vary in thickness between approximately 0.5m and 1.2m. The mudstone parting was recorded to vary between approximately 1.2m and 2.4m.

Seven out of the 27 probeholes encountered voids / evidence of old mine workings. In order to estimate the extraction ratio beneath the site, 23 of the 27 probeholes have been considered (since they provide data in relation to the Mynyddislwyn coal seam). Seven out of 23 probeholes encountered evidence of old mineworkings, indicating an extraction ratio of approximately 30%.

The greatest encountered combined height of collapsed, backfilled and voided mineworkings was approximately 2.2m (in PH102 and PH9).

The vast majority of the probeholes have demonstrated that the roof rock overlying the Mynyddislwyn coal seam is a thick sandstone unit. The bedrock strata underlying the coal seam typically comprises mudstone.

Groundwater strikes were recorded within the rotary probeholes at depths ranging between approximately 5.0m bgl (at PH109) and 28.0m bgl (at PH3).

7.3 SOAKAWAY TEST RESULTS

Soakaway testing was undertaken at 7 No. trial pit locations provided by Taylor Wimpey (see SA1 to SA7).

No infiltration was recorded at SA2, SA3, SA5, SA6 and SA7.

An infiltration rate of 1.9×10^{-6} m/s was recorded at SA1. An infiltration rate of 6.9×10^{-6} m/s was recorded at SA4.

The soakaway test calculation sheets are presented in Appendix F.

Note that the soakaway test results are specific to the locations and depths of the tests undertaken.

8.0 CONTAMINATION

8.1 AVERAGING AREAS

In order to assess the laboratory test results reliably and in context, the data have been grouped into an averaging area. An averaging area (or area of interest) is that area of soil to which a receptor is exposed, or which otherwise contributes to the creation of hazardous conditions. This may be an area of historical industrial usage, a soil type, or a specific proposed end use.

In the case of this analysis, a site wide averaging area has been determined according to the proposed residential end use.

8.2 SOIL CONTAMINATION

The Suitable 4 Use Levels (S4ULs) derived by LQM have been adopted as critical concentrations against which soil contaminant concentrations can be compared. In the absence of additional published S4ULs for lead and cyanide, the Category 4 Screening Levels (C4SLs) derived by DEFRA and Soil Screening Values (SSVs) derived by Atkins ATRISK^{soil} for a residential with homegrown produce end use have been adopted, respectively.

The soil test results for the topsoil/subsoil and the localised made ground have been summarised separately and are shown in Appendices I and J respectively.

8.2.1 Topsoil and Subsoil

3 No. samples of topsoil/subsoil were tested for contamination.

Since the results of the testing indicate total organic carbon content (TOC) in the range of 0.3% to 3.2%, the results have been compared to the respective guidelines, where applicable, for 1% soil organic matter (SOM) content, this being the most conservative.

The results indicate that all of the analysed chemical elements and compounds are present at concentrations below the appropriate thresholds.

Asbestos was not detected in any of the tested samples.

8.2.2 Made Ground

5 No. samples of made ground were tested for contamination.

8.2 SOIL CONTAMINATION (CONTINUED)

Since the results of the testing indicate total organic carbon content (TOC) in the range of 2.1% to 2.7%, the results have been compared to the respective guidelines, where applicable, for 2.5% soil organic matter (SOM) content.

The results of the laboratory testing indicate that all of the analysed chemical elements and compounds are present at concentrations below the appropriate thresholds.

Asbestos was not detected in any of the tested samples.

9.0 REVISED CONCEPTUAL EXPOSURE MODEL

The preliminary conceptual exposure model has been reviewed and revised to reflect the findings of the intrusive site investigation and the results of the laboratory testing of soils. Pathways identified as a relevant pollutant linkage require appropriate risk assessment or mitigation measures (see Section 10).

Table 8: Revised Conceptual Exposure Model						
Source		Receptor	Pathway	Preliminary Active Pathway? (see Sect. 5.8)	Relevant Pollutant Linkage	Justification/ Mitigation
Origin	Contaminant					
Potential made ground of unknown origin and historical land uses	Metals, semi-metals, non-metals, PAH, asbestos	Resident – human health	Dermal Contact with made ground/dust	✓	X	No elevated contaminant concentrations identified
			Ingestion of soil and/or soil attached to home-grown produce	✓	X	
			Ingestion of home-grown produce	✓	X	
			Inhalation of dust	✓	X	
			Inhalation of vapours – indoor/outdoor	✓	X	No sufficiently volatile contaminants identified
	Metals, semi-metals, inorganics, PAH	Groundwater quality	Leaching from made ground	✓	X	No elevated soil concentrations identified
	Metals, semi-metals, inorganics, PAH	Surface water quality	Transportation within groundwater	✓	X	
Potential made ground of unknown and historical land uses	pH and water-soluble sulphate	Building Materials Durability	Direct contact	✓	✓	Building materials will be in contact with potential made ground and natural ground – risk assess
Natural ground						

9.0 REVISED CONCEPTUAL EXPOSURE MODEL (CONTINUED)

Source		Receptor	Pathway	Preliminary Active Pathway?	Relevant Pollutant Linkage	Justification/ Mitigation
Origin	Contaminant					
Ground gas – organic, gas producing materials	Methane, carbon dioxide	Human health	Accumulation of gases in confined spaces, and/or migration off site, leading to asphyxiation, or risk of explosion	✓	✓	Historical landfill recorded within 250m of the site – risk assess

10.0 RISK ASSESSMENT

10.1 METHODOLOGY

The risk of pollution, health effects or environmental harm occurring as a result of ground contamination is dependent upon three principal factors:

- The scale of the contamination sources;
- The presence of sensitive “receptors”, e.g. Humans: health of the general public, site occupiers, redevelopment workers. Environment: flora, fauna, etc;
- The existence of migration pathways by which contaminants can reach the sensitive receptors.

This section assesses each of these factors in order to evaluate the overall level of risk and potential harm to receptors. The receptor may be human, a water resource, an eco-system or construction materials. Pathways connecting a perceived hazard to a receptor are referred to as exposure pathways.

The sources of contamination and the links connecting the hazards to the sensitive receptors will represent the basis for the risk assessment.

10.2 SOURCE-PATHWAY-RECEPTOR MODEL

The preliminary conceptual site model was based on the findings of the desk study. This was later reviewed and refined according to the findings of the site investigation, allowing for the ground conditions encountered and the results of laboratory testing of soil. Any pathways considered to be inactive were removed from the model and all remaining potentially active pathways require risk assessment.

The pathways shown as potentially active in the Revised Conceptual Site Model in Section 9.0 above have been assessed below.

10.3 HUMAN HEALTH RISK ASSESSMENT

10.3.1 *Site in its Present Condition*

The site does not pose any risks to casual visitors or trespassers. The site comprises undeveloped farmland.

10.3 HUMAN HEALTH RISK ASSESSMENT (CONTINUED)

10.3.2 Future Site Users

The contamination test results have not recorded any elevated contaminant concentrations within the tested soil samples (comprising topsoil, subsoil and made ground) from across the site.

However, the physical nature of the encountered made ground deposits (namely the amount of man-made material such as brick, metal, plastic, timber, tarmac etc) is not considered to comprise a suitable growing medium for proposed residential gardens. As such, it is recommended that allowances are made for the inclusion of 600mm of clean subsoil and topsoil in proposed gardens that are underlain by made ground (as indicated on Figure 3).

Outside areas of identified made ground, provisions should be made for the placement of minimum 150mm of clean topsoil in proposed gardens.

10.3.3 Construction Workers

Normal good hygiene practices should be adequate to protect the health and safety of redevelopment workers, and should include:

- Minimum handling of materials;
- Washing of hands prior to all meal breaks, which should be taken in a designated clean area;
- The use of standard protective clothing such as boots and overalls and gloves, where considered relevant.

In dry weather, inhalation of dust and gases should be avoided preferably by the use of dust suppression techniques to minimise fugitive emissions and minimisation of exposed materials at any particular time.

All excavations should be regularly checked for safe atmospheres.

Additionally, a system should be established by which any 'unusual' materials that may be encountered are reported rapidly to the site management, so that the appropriate action may be taken, following specialist advice if necessary. An unusual material may be identified on site by colour, odour or physical nature.

10.3 HUMAN HEALTH RISK ASSESSMENT (CONTINUED)

Reference should be made to the Health and Safety Executive document “Protection of Workers and the General Public during the development of contaminated land” for detailed guidance on these matters.

10.4 RISKS TO VEGETATION

Elevated concentrations of phytotoxic contaminants were not detected within the tested soil samples. It is therefore considered that there is negligible risk to vegetation from any contaminants in the soil.

However, note that the physical nature of the encountered made ground deposits (namely the amount of man-made material such as brick, metal, plastic, timber, tarmac etc) is not considered to comprise a suitable growing medium for proposed residential gardens. As such, it is recommended that allowances are made for the inclusion of 600mm of clean subsoil and topsoil in proposed gardens that are underlain by made ground (as indicated on Figure 3).

Outside areas of identified made ground, provisions should be made for the placement of minimum 150mm of clean topsoil in proposed gardens.

10.5 GROUNDWATER RISK ASSESSMENT

The site comprises undeveloped grass covered fields. The results of the laboratory chemical testing on representative samples of the in-situ natural soils and localised made ground did not identify any elevated contaminant concentrations. Additionally, no visual or olfactory evidence of contamination was observed during the intrusive site investigation. The potential risk to groundwater quality from site sourced contamination is considered to be low.

10.6 GROUND GAS RISK ASSESSMENT

No widespread significant thicknesses of made ground or potential gas producing materials were encountered during the intrusive site investigation.

It is noted that a small historical landfill, registered to have been authorised to accept industrial and household waste, is situated approximately 87m to the northeast of the site. However, considering the size of this feature it is unlikely to pose a significant ground gas risk.

10.6 GROUND GAS RISK ASSESSMENT (CONTINUED)

The Coal Authority Report records no instances of reported mine gas emissions requiring action at the site. However, coals seams and coal mine workings can pose a potential ground gas risk.

In order quantify the potential ground gas risk at the site, it is recommended that a programme of ground gas monitoring is undertaken (via a series of shallow gas monitoring wells installed within a series of supplementary windowless sample boreholes).

No radon protective measures are required for the site.

10.7 RISKS TO BUILDINGS AND MATERIALS DURABILITY

10.7.1 Concrete Classification

A summary of the laboratory chemical test results for the chemicals water-soluble sulphate and pH, which may adversely affect the durability of building materials is presented in Appendix G.

In accordance with BRE Digest SD1:2005 and adopting the assessment procedure specified therein for brownfield sites, the laboratory chemical test results indicate a characteristic value (taking the highest of the test results) for water soluble sulphate of 48mg/l within the made ground and 8.7mg/l within the natural ground.

Using Table C2 of BRE Digest SD1:2005, these characteristic values correspond to Design Sulphate Class DS-1 for both the made ground and natural ground.

The groundwater regime of the site has been assessed as 'mobile' and characteristic pH values of 7.6 and 7.2 have been determined (taking the lowest of the test results) for the made ground and natural ground respectively. The Design Sulphate Class has been modified to give a site ACEC class of AC-1 for concrete structures constructed within the made ground and natural ground.

10.7.2 Water Services

Water supply pipes will need to be protected from any contamination present within the ground. In particular, the presence of organic contaminants should be addressed when selecting pipe materials.

10.7 RISKS TO BUILDINGS AND MATERIALS DURABILITY (CONTINUED)

Based on the chemical testing data, measures to protect the pipes will include clean backfill to trenches. It is unlikely that there is any need for alternative material selection.

This should be confirmed with the appropriate regulator prior to installation

10.8 WASTE DISPOSAL

Excavated materials generated by the development may be considered as waste and subject to waste controls. Any re-use of excavated materials on-site should be undertaken in accordance with current waste and environmental legislation and which may require the production of an approved Materials Management Plan (MMP) prepared in accordance with the CL:AIRE Code of Practice.

It is recommended that a sustainable development strategy is adopted which reduces to a practicable minimum the generation of waste materials and the need for disposal to a licensed tip. Emphasis should be on recovery and re-use rather than disposal.

However, any waste or surplus materials that are generated will need to be classified in accordance with current EC regulations and Environment Agency guidance prior to disposal. It is the responsibility of the waste producer to classify the waste.

Based on the data obtained from the site investigation works, any waste materials comprising of the existing natural ground and made ground are likely to be classified as non-hazardous waste.

Any asbestos containing materials (ACMs) will be classified as hazardous waste. Similarly, any asbestos containing soils (ACSSs) may also be classified as hazardous waste.

This classification is provisional, and indicative of the likely waste classification based on the data obtained to date (including chemical composition, moisture content, etc.). It also assumes that the materials tested will be representative of future generated waste.

In order to minimise disposal, the materials generated should be segregated and examined, with appropriate testing as necessary, to enable the materials to be sorted or treated into lower classifications, with the resultant benefit of potentially generating re-use rather than disposal.

10.8 WASTE DISPOSAL (CONTINUED)

Once final waste sources and volumes are known, the waste stockpile to be disposed off-site will need to be classified in accordance with Environment Agency/Natural Resources Wales Waste Classification – Guidance on the Classification and Assessment of Waste Technical Guidance WM3 (2015). This is likely to require additional sampling and testing of the generated waste materials to provide an up to date current basis for classification.

Depending on the waste classification, waste acceptance criteria (WAC) testing may be required, in order to determine which class of landfill site the waste can be sent to.

It is recommended that the results of the waste classification and any WAC test results are sent to the intended licensed waste operator prior to disposal in order to confirm their classification and acceptance.

10.9 UNCERTAINTIES

It is important to recognise that there may be areas of contamination within the site that have not been found or that contaminants may be present at concentrations above those that have been found. It is also important to recognise that contamination may be localised and that no investigation, however comprehensive, is capable of finding such occurrences, other than by chance.

The near-surface drainage patterns have not been fully established.

11.0 COAL MINING RISK ASSESSMENT

11.1 RISKS FROM UNDERGROUND MINeworkINGS

Extensive mineworkings within the upper leaf of the parted Mynyddislwyn coal seam underlie the site. Furthermore, the mine abandonment plan obtained from the Coal Authority (see Figure 2) indicates that the bottom leaf of the Mynyddislwyn may have also been locally worked beneath the site. As such, there is considered to be a potential shallow mining subsidence risk at the site.

It is considered that the most likely mechanism for potential mining related subsidence at the site will be via roof rock failure potentially resulting in crown hole formation. Larger scale areal subsidence is not considered to be of concern due to the relatively low extraction ratio revealed by the drilling works.

The failure of roof rock strata can result in the progressive transmission of a void, upwards through the overburden. The transmitted extent of a migrating void is influenced by factors such as the strata dip, the bulking characteristics of the collapsed rock or soil, the capability of arching the collapsed zone, groundwater flow, and the presence of strong and intact rock layers with the ability to span.

The limiting height on void migration, where no appreciable surface subsidence can result, is termed 'acceptable cover', with its determination based upon a criterion reflecting the worked thickness of the seam and the overlying rock cover.

When assessing acceptable cover thicknesses above old mine workings, the 10:1 rock cover to void height ratio is commonly used throughout the UK. However, it should be noted that this is an empirical 'rule of thumb' approach which can often be overly conservative. Table 5.1 of CIRIA C758 provides details on circumstances when alternative cover ratios of greater than or less than the 'rule of thumb' 10:1 could be considered.

When considering if a cover ratio of greater than 10:1 may be required, the influencing factors to consider, as detailed in Table 5.1 of CIRIA C758, comprise: strata dip, groundwater, extraction ratio, multiple seam extractions, site investigation information, and project sensitivity. Due to the shallow dip of the strata beneath the site, the lack of / deep groundwater level within the bedrock, the low seam extraction ratio (circa 30%), the adopted 'worst-case' anticipated void height (of 2.2m – accounting for both leaves of the Mynyddislwyn), the good drilling coverage, and the conventional residential nature of the development, it is concluded that a cover ratio of greater than 10:1 does not need to be considered.

11.1 RISKS FROM UNDERGROUND MINeworkINGS (CONTINUED)

When considering if a cover ratio of less than 10:1 could be acceptable, the influencing factors to consider, as detailed in Table 5.1 of CIRIA C758, comprise: roof strata, low residual voidage, tolerable residual ground movements, and foundation design. Due to the presence of sandstone roof rock, the demonstrated infilling of old workings, and the proposed adoption of foundations that can tolerate residual ground movements, it is concluded that a cover ratio of less than 10:1 can be considered.

A site-specific cover ratio has been derived in order to obtain a sustainable project-related solution to development. In deriving the site-specific ratio, two principle factors have been considered, these being: extraction thickness (t) and roof rock quality / bulking characteristics.

- **Extraction Thickness (t)** - Combined thicknesses of collapsed, backfilled and voided workings of up to 2.2m thick have been recorded within the rotary probeholes. Based on the thicknesses of old mine workings encountered within the rotary probeholes, and the potential for both the top and bottom leaves for the Mynyddislwyn coal seam to have been worked beneath the site, it is considered that in areas where the old mine workings are uncollapsed, the maximum total thickness of anticipated voids could be up to some 2.2m (in line with the evidence of old mineworkings encountered within the probeholes). As such, it is considered that a potential 'worst-case' void height/extraction thickness (t) of approximately 2.2m should be allowed for when assessing the risk of potential voids migrating up to the ground surface and forming crown hole collapses.
- **Roof Rock Quality / Bulking Characteristics** - The vast majority of the probeholes have demonstrated that the roof rock overlying the Mynyddislwyn coal seam is a thick sandstone unit. An observation that is also well documented throughout the South Wales coalfield and the published geological maps. In order to undertake an assessment of roof rock quality, in the absence of rock core data, a visit has been undertaken to the nearby 'Chwarel y Gelli' quarry situated to the west of the site. Rock faces within the former quarry are still clearly visible and have served as a means to inspect the quality of the sandstone roof rock above the Mynyddislwyn coal seam. The exposed rock strata comprises a strong sub-horizontally bedded sandstone with subvertical joint sets. Note that the strength of the rock is a conservative estimation due to the weathered nature of the exposed face. Based on the discontinuity spacings and orientations observed within the exposed rock mass, any collapses would likely give rise to large blocks of rock.

11.1 RISKS FROM UNDERGROUND MINeworkINGS (CONTINUED)

With reference to BGS Internal Report OR/15/065 Appendix 4, based on the geotechnical properties of the rock mass, a bulking factor (B) in excess of 65% could be reasonably assumed for this material.

With reference to CIRIA C758 Figure 5.4, when assuming a 'worst case' conical roof rock collapse scenario and an estimated Bulking Factor of greater than 65%, a theoretical maximum height of collapse of 5t (5 x extraction thickness) could be reasonably assumed for the site (i.e. a 5:1 cover ratio). However, it should be noted that the bulking factor used in this assessment is based on assumed geotechnical properties of the sandstone roof rock observed in the nearby former 'Chwarel y Gelli' quarry (in the absence of rock core samples). As such, for the more sensitive areas of the site (i.e. the proposed building footprints) it is recommended that a more conservative cover ratio of 8:1 is adopted. Across the less sensitive areas of the site (i.e. the areas external to the proposed buildings – which are more tolerable to any future residual ground movements), it is proposed that the theoretical site-specific cover ratio of 5:1 is adopted

The thickness of the rock cover above the Mynyddislwyn coal seam/associated mine workings varied from approximately 23.4m down to 12.2m. The site-specific cover ratios detailed above equate to a required safe rock cover thickness of 18m below the proposed buildings (derived using a cover ratio 8:1), and 11m below proposed external areas (derived using a cover ratio of 5:1).

The site has been zoned based on the amount of rock cover recorded in the rotary probeholes. The zones, referred to as 'Risk Zone A' and 'Risk Zone B' are shown in Figure 4. The risk zones and recommended mitigation measures have been summarised below:

- Risk Zone A (>8:1 rock cover ratio)

Comprising areas where there is greater than 18m of rock cover above Mynyddislwyn coal seam and associated mine workings (i.e. where the cover ratio is greater than 8:1). Potential for unrecorded workings. Prominent fault passing through the eastern area.

Risk mitigation recommendations: In order accommodate any potential local variations in the determined extraction and cover thicknesses that may be present between the drilled probehole locations, and mitigate against any potential residual ground movements associated with the fault line passing through the site, all building foundations within Risk Zone A should be designed to span a 3.0m void and a 1.5m cantilever at build corners.

11.1 RISKS FROM UNDERGROUND MINeworkINGS (CONTINUED)

- Risk Zone B (<8:1 rock cover ratio)

Comprising the area where there is less than 18m of rock cover above Mynyddislwyn coal seam and associated mine workings (i.e. where the cover ratio less than 8:1). Potential for unrecorded workings. Prominent fault passing through eastern area.

Risk mitigation recommendations: Drilling and grouting ground stabilisation works required beneath and within the zone of influence of all proposed buildings within Risk Zone B prior to the development of the site. Following the completion of the required drilling and grouting works, reinforced concrete strip/trench fill (with top and bottom face steel mesh reinforcement) or raft foundations to be utilised for proposed buildings. All building foundations in Risk Zone B should be designed with a 1m lack of support criteria in order to accommodate residual risk.

Based on a review of the proposed development layout made available at the time of writing this report, a plan showing the proposed buildings falling within each risk zone is presented in Figure 5. Note that Figure 5 will need to be reviewed if there are any changes to the proposed development layout.

No parts of the site are considered to fall within an area where there is less than 11m of rock cover (i.e. there are no areas where there is considered to be a rock cover ratio of less than 5:1). Consequently, no ground stabilisation / specific risk mitigation measures are considered necessary across the external areas to the proposed buildings (i.e. the proposed roads, gardens / landscaped areas) at the site.

11.2 RISK FROM ABANDONED MINE ENTRIES / CROP WORKINGS

As discussed in Section 4.4, the CON29M Coal Mining Report from the Coal Authority records no mine entries within the site, or within 20m of the site boundary, and no evidence of potential unrecorded mine entries was observed during the intrusive ground investigation works. However, the presence of unrecorded mine entries beneath the site cannot be ruled out entirely.

It is recommended that all site operatives are made aware of the potential risk of encountering unrecorded mine entries (including potential unrecorded crop workings) and that a system is established where during site preparation and construction works, any suspected anomalous ground conditions that could be indicative of unrecorded mine entries/crop working are rapidly reported to a geotechnical engineer, so that appropriate action can be undertaken.

11.3 MINE GAS

The Coal Authority Report records no instances of reported mine gas emissions requiring action at the site. However, coals seams and coal mine workings can pose a potential ground gas risk.

In order quantify the potential ground gas risk at the site, it is recommended that a programme of ground gas monitoring is undertaken (via a series of shallow gas monitoring wells installed within a series of supplementary windowless sample boreholes).

12.0 ENGINEERING CONSIDERATIONS AND RECOMMENDATIONS

12.1 DETAILS OF PROPOSED DEVELOPMENT

It is understood that the proposed development will comprise the construction 164 No. residential dwellings and associated infrastructure including access roads, car parking areas and private driveways. The development will also include areas of landscaping, public open space, play space and private gardens.

12.2 SITE PREPARATION

Prior to works commencing on site, any existing services within the site area should be identified and either diverted or protected. Any diversionary works should be carried out under the supervision of, and to the specification of the appropriate Statutory Authorities. The resulting excavations should be backfilled with suitable acceptable granular fill material.

Dense vegetation surrounds much of the site and grows along internal field boundaries. Although none has been observed, some invasive plant species may be present including Japanese Knotweed. A full vegetation survey of the entire site is recommended.

There are a number of mature trees/hedges along the edges of the site and along the internal field boundaries. Allowances should be made for the removal of any associated roots that may become exposed in any proposed nearby earthworks and foundation excavations. Any such works should be conducted in accordance with the code of practice recommended by the National House Building Council (NHBC).

All protection orders relating to existing vegetation/ecology should be adhered to during the development of the site.

All existing topsoil should be stripped from beneath proposed development areas and stockpiled on site for re-use in areas of gardens and soft landscaping. Any topsoil gained from the area of identified made ground illustrated on Figure 3 should be screened and any unsuitable man-made materials such as brick, ceramic, tarmac etc. removed.

Given the cohesive nature of the near surface soils, the exposed surface of the site will deteriorate in poor weather and due to trafficking of plant. We therefore recommend that to minimise surface water management risks and minimise the generation of silt, softened materials and unsuitable arisings, strategic earthworks and materials management is required. The exposed areas should be minimised at all times.

12.2 SITE PREPARATION (CONTINUED)

All exposed areas should be protected from damage in wet weather. Designated access routes should be maintained and suitably designed and maintained working platforms for construction plant provided.

A system should be established by which any 'unusual' materials (such as made ground or suspected areas of contamination) that may be encountered are reported rapidly to the site management, so that the appropriate action may be taken, following specialist advice if necessary. An unusual material may be identified on site by colour, odour or physical nature.

Some cut and fill earthworks will likely be required in the steeper sloping parts of the site.

If any fill is to be placed onto an existing sloping area, then the original ground should be adequately cut and benched, in order to prevent the possibility of slippage at the interface between the new fill and the original ground. All works should be carried out in accordance with the DTp Specification for Highways Works.

Any cut and/or fill slopes should be no steeper than 1v in 2h. Cut off drains should be provided at the top and French drains at the bottom of any cut and/or fill slopes. In areas of cut and/or fill, the slopes should be topsoiled and seeded with grass, in order to minimise any future maintenance problems caused by surface water run-offs.

All materials are considered to be potentially re-useable, subject to protection from weathering and water content. It is recommended that supplementary compaction testing is undertaken once the extent and levels of cut and fill earthworks have been determined.

If site excavated materials are to be used as fill, then any generated cobbles/boulders should be processed/crushed to appropriate sizes, typically <125mm particle size. Allowances should be made for selection and local removal of pockets/lenses of soft cohesive materials, where encountered.

It should be noted that earthworks will be seasonally dependant and will rely on control of water content in the structural soils. It is recommended that the cut and fill earthworks are carried out as enabling works during the summer months. Allowances should also be made for conditioning/drying out the structural soils as they are being placed.

Significant areas of the site are notably waterlogged/boggy. Land drainage will be required to control seepage horizons and surface water migration.

12.2 SITE PREPARATION (CONTINUED)

All soft clays or organic materials at sub-formation level will require excavation and replacement with granular fill materials.

Exposed formations should be protected from site traffic and inclement weather in order to preserve their integrity. Any soft spots/areas should be removed and replaced with well compacted site won or imported granular fill material.

Any reduced levels should be brought up to the required levels with well compacted imported granular materials, or suitable site won granular material crushed to 6F5 grade. Department of Transport (DTp) Type 1 subbase or similar approved, could be used, and should be compacted in layers, in accordance with the current DTp Specification for Highway Works.

12.3 FOUNDATIONS AND FLOOR SLABS

The site has been zoned based on the amount of rock cover thicknesses recorded in the rotary probeholes. The zones, referred to as 'Risk Zone A' and 'Risk Zone B' are shown in Figure 4. The foundation recommendations applicable to Risk Zones A and B are outlined below.

Based on a review of the proposed development layout made available at the time of writing this report, a plan showing the proposed buildings falling within each risk zone is presented in Figure 5.

Note that Figure 5 will need to be reviewed if there are any changes to the proposed development layout.

12.3.1 Risk Zone A Plots

Reinforced concrete strip/trench fill or raft foundations can be utilised for all proposed buildings within Risk Zone A.

Note that if reinforced strip/trench fill foundations are to be utilised, consideration should be given to managing potential shallow groundwater seepages into excavations.

All reinforced strip/trench fill foundations should be constructed within appropriately competent superficial deposits either comprising firm becoming stiff orange brown gravelly clay or (loose to medium dense) brown clayey sands and gravels, typically encountered at depths of between approximately 0.2m and 1.5m bgl within the trial pits.

12.3 FOUNDATIONS AND FLOOR SLABS (CONTINUED)

An allowable bearing pressure of 100kN/m^2 could be used for design purposes. At this intensity of loading, total settlements should not exceed 25mm, and any angular distortions caused by differential movements should be less than 1:750. All strip/trench fill foundations within Risk Zone A should be designed to span a 3.0m void and a 1.5m cantilever at build corners.

Foundations should penetrate the founding strata by a minimum of 200mm and be at a minimum depth of 900mm below development level in order to protect against the effects of frost heave and/or thermal shrinkage.

Laboratory Atterberg Limits have been determined for the superficial deposits. The results show that this material had a low volume change potential. Footings should be deepened in accordance with NHBC guidance for foundations constructed adjacent to mature trees and hedgerows.

Floor slabs should be designed as suspended.

Alternatively, if reinforced concrete raft foundations are to be utilised, in order to minimise the potential for differential movements, it is recommended that beneath the raft foundations there should be a suitably thick layer of well compacted imported granular fill throughout the plan area of the building. Department of Transport Type 1 Sub-base, or similar approved, could be used and should be compacted in layers in accordance with current DTP Specification for Highway Works.

Typically, the proposed rafts should be designed to an allowable maximum bearing pressure of 50kN/m^2 , with an average pressure of less than or equal to 30kN/m^2 . At this intensity of loading, the total settlements should not exceed 30mm and any angular distortions caused by differential movements should be less than 1:750. All raft foundations in Risk Zone A should be designed to span a 3.0m void and a 1.5m cantilever at build corners.

All foundations should be designed for low shrinkability tree influence criteria in accordance with NHBC guidelines.

All formations should be proof rolled with any soft spots removed.

Thickening of the raft is likely to be required beneath the load bearing walls/columns.

No radon protective measures are required for the site.

12.3 FOUNDATIONS AND FLOOR SLABS (CONTINUED)

12.3.2 Risk Zone B Plots

Drilling and grouting ground stabilisation works are required beneath (and within the zone of influence) of all proposed buildings within Zone B prior to the development of the site.

Following the completion of the required drilling and grouting works, reinforced concrete strip/trench fill (with top and bottom face steel mesh reinforcement) or raft foundations can be utilised over the stabilised ground.

Note that if reinforced strip/trench fill foundations are to be utilised, consideration should be given to managing potential shallow groundwater seepages into excavations.

All reinforced strip/trench fill foundations should be constructed within appropriately competent superficial deposits either comprising firm becoming stiff orange brown gravelly clay or (loose to medium dense) brown clayey sands and gravels, typically encountered at depths of between approximately 0.2m and 1.5m bgl within the trial pits.

An allowable bearing pressure of 100kN/m² could be used for design purposes. At this intensity of loading, total settlements should not exceed 25mm, and any angular distortions caused by differential movements should be less than 1:750. All strip/trench fill foundations in Risk Zone B should be designed for a 1m lack of support criteria.

Foundations should penetrate the founding strata by a minimum of 200mm and be at a minimum depth of 900mm below development level in order to protect against the effects of frost heave and/or thermal shrinkage.

Laboratory Atterberg Limits have been determined for the superficial deposits. The results show that this material had a low volume change potential. Footings should be deepened in accordance with NHBC guidance for foundations constructed adjacent to mature trees and hedgerows.

Floor slabs should be designed as suspended.

Alternatively, if reinforced concrete raft foundations are to be utilised, in order to minimise the potential for differential movements, it is recommended that beneath the raft foundations there should be a suitably thick layer of well compacted imported granular fill throughout the plan area of the building. Department of Transport Type 1 Sub-base, or similar approved, could be used and should be compacted in layers in accordance with current DTP Specification for Highway Works.

12.3 FOUNDATIONS AND FLOOR SLABS (CONTINUED)

Typically, the proposed rafts should be designed to an allowable maximum bearing pressure of 50kN/m^2 , with an average pressure of less than or equal to 30kN/m^2 . At this intensity of loading, the total settlements should not exceed 30mm and any angular distortions caused by differential movements should be less than 1:750. All raft foundations in Risk Zone B should be designed for a 1m lack of support criteria

All foundations should be designed for low shrinkability tree influence criteria in accordance with NHBC guidelines.

All formations should be proof rolled with any soft spots removed.

Thickening of the raft is likely to be required beneath the load bearing walls/columns.

No radon protective measures are required for the site.

12.4 EXCAVATIONS AND FORMATIONS

Excavations should be possible with normal soil excavating machinery.

Excavations are likely to encounter shallow groundwater inflows. Allowances should be made for dealing with any groundwater infiltrations by using pumping techniques. It should be noted that groundwater observations are made at the time of the fieldworks. Groundwater levels will vary seasonally.

It should be noted that variable degrees of excavation instability and localised running sand conditions were encountered within the superficial deposits across the site. Therefore, all excavations will have to be supported to prevent pit collapse. The sides of excavations deeper than 1.0m should be fully supported by trench boxes, or temporarily battered at gradients of typically 30° , if access is required.

The exposed formation will be extremely susceptible to damage, softening and deterioration by wet weather and site traffic. They should be protected by blinding concrete or a 100mm layer of hardcover immediately after exposure.

12.5 ACCESS ROADS AND CAR PARKING AREAS

Following site strip there are likely to be variations in the strength of the materials at formation levels. For preliminary design purposes a California Bearing ratio (CBR) value of between 2% and 4% could be assumed for the superficial deposits, and <2% for the made ground deposits.

After proof rolling the formations, any 'soft spots/areas' should be removed and replaced with well-compacted imported granular materials. Department of Transport (DTp) Type 1 Sub-Base, or similar approved, could be used and should be compacted in layers in accordance with the current DTp Specification for Highway Works.

After proof rolling the formations, all the 'soft spots/areas' should be removed and replaced with well compacted imported granular materials. Such materials should be to the approval of the local Highway Authority and should be compacted in layers, in accordance with the DTp Specification for Highways Works.

Formations should be regarded as frost susceptible.

It should be noted that field CBR tests should be carried out in order to confirm the above assumptions. Depending on the outcome of such field tests, the above recommendations may need to be revised.

12.6 DRAINAGE

Soakaway testing was undertaken at 7 No. trial pit locations provided by Taylor Wimpey (see SA1 to SA7).

No infiltration was recorded at SA2, SA3, SA5, SA6 and SA7.

An infiltration rate of $1.9 \times 10^{-6} \text{m/s}$ was recorded at SA1. An infiltration rate of $6.9 \times 10^{-6} \text{m/s}$ was recorded at SA4.

The soakaway test calculation sheets are presented in Appendix F.

Note that the soakaway test results are specific to the locations and depths of the tests undertaken. The soakaway results should be provided to a suitably qualified drainage engineer so that a soakaway design specific to the development can be completed and provided.

12.7 RECOMMENDED FURTHER WORKS

It is recommended that a programme of ground gas monitoring is undertaken across the site (via a series of shallow gas monitoring wells installed within a series of supplementary windowless sample boreholes) in order to quantify the overall ground gas risk.

Drilling and grouting ground stabilisation works will be required beneath and within the zone of influence of all proposed buildings within Zone B (as indicated on Figure 5) prior to the development of the site.

APPENDIX A

ENVIROCHECK REPORT

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

223163566_1_1

Customer Reference:

12553/JJ

National Grid Reference:

317720, 198390

Slice:

A

Site Area (Ha):

6.01

Search Buffer (m):

1000

Site Details:

Cwm Gelli Farm
Blackwood

Client Details:

MR H Pritchard
Integral Geotechnique
Integral House
7 Beddau Way
Castlegate Business Park
Caerphilly
CF83 2AX

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Waste	41
Hazardous Substances	-
Geological	45
Industrial Land Use	53
Sensitive Land Use	60
Data Currency	62
Data Suppliers	67
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Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.

For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 2		2	9	12
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		Yes			
Pollution Incidents to Controlled Waters	pg 7	1	6	7	12
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 12		1		1
River Quality Biology Sampling Points	pg 12				1
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 12		1		1 (*1)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 13	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 13	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 13	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 13		Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 14		Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 14	6	39	89	99

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites	pg 41				1
Historical Landfill Sites	pg 41		1		2
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 41				2
Local Authority Landfill Coverage	pg 42	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 42		5	6	5
Potentially Infilled Land (Water)	pg 43			1	5
Registered Landfill Sites	pg 43		1		
Registered Waste Transfer Sites	pg 44				2
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 45	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 45	Yes	Yes		Yes
BGS Recorded Mineral Sites	pg 45		5	10	15
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas	pg 50	Yes	n/a	n/a	n/a
Mining Instability	pg 50	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 50	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 50		Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 51	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 51	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 51		Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 53		4	1	21
Fuel Station Entries	pg 55		1		1
Points of Interest - Commercial Services	pg 55				12
Points of Interest - Education and Health	pg 56		2		4
Points of Interest - Manufacturing and Production	pg 56			2	8
Points of Interest - Public Infrastructure	pg 57		1	6	3
Points of Interest - Recreational and Environmental	pg 58				7
Gas Pipelines					
Underground Electrical Cables					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland	pg 60		5	10	6
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones					
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	0	1	317600 198250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	0	1	317716 198395
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	68	1	317600 198150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (SW)	107	1	317500 198200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	123	1	317450 198400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	133	1	317900 198650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (S)	153	1	317700 198050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (SW)	159	1	317400 198250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (E)	161	1	318000 198500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	171	1	317400 198400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (NE)	181	1	318000 198550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (W)	185	1	317400 198450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	233	1	317350 198450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (SW)	271	1	317300 198200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (NE)	314	1	318100 198650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (NE)	335	1	318100 198700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (SW)	382	1	317200 198150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A19SW (NE)	402	1	318150 198750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A19SW (NE)	423	1	318150 198800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NW (S)	493	1	317450 197750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Wvts-Argoed (Rock) Sso Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ad0009906 Permit Version: 1 Effective Date: 5th July 1968 Issued Date: 5th April 1968 Revocation Date: 4th March 1994 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Sirhowy River Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A13NE (E)	161	2	318010 198480
1	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Pont Syr Dafydd Sso Oakdale Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Ad0009511 Permit Version: 1 Effective Date: 10th November 1992 Issued Date: 10th November 1992 Revocation Date: 4th March 1994 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A13NE (E)	180	2	318030 198480
2	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Pont Syr Dafydd Sso Oakdale Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ad0009502 Permit Version: 1 Effective Date: 23rd July 1968 Issued Date: 23rd July 1968 Revocation Date: 4th March 1994 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Sirhowy River Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14NW (E)	251	2	318090 198520
3	Discharge Consents Operator: Shide G B Property Type: Undefined Or Other Location: Maesrudded Cott'S Blackwood Gelligr, Gelligroes Authority: Natural Resources Wales Catchment Area: Not Supplied Reference: Ac0134401 Permit Version: 1 Effective Date: 22nd February 1982 Issued Date: 22nd February 1982 Revocation Date: 19th April 1993 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Gelli Brook Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A12NE (W)	259	2	317340 198500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Wvts-Blackwood (Oakdale Terrac Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: AD0009503 Permit Version: 1 Effective Date: 23rd July 1968 Issued Date: 23rd July 1968 Revocation Date: 23rd October 2001 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Sirhowy River Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	261	2	317930 198040
5	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Wvts-Blackwood Sso Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ad0009907 Permit Version: 1 Effective Date: 5th July 1968 Issued Date: 5th April 1968 Revocation Date: 4th March 1994 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Sirhowy River Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A8NE (S)	287	2	317840 197970
5	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Cwm Gelli Sso Cwmgelli Blackwood Authority: Natural Resources Wales Catchment Area: SIRHOWY R - ROCK VILLAS TO CONF AFON EBWY Reference: An0237201 Permit Version: 2 Effective Date: 16th March 2002 Issued Date: 15th March 2002 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Sirhowy Status: Effective Positional Accuracy: Located by supplier to within 10m	A8NE (S)	297	2	317840 197960
5	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Cwm Gelli Sso Cwmgelli Blackwood Authority: Natural Resources Wales Catchment Area: SIRHOWY R - ROCK VILLAS TO CONF AFON EBWY Reference: An0237201 Permit Version: 2 Effective Date: 16th March 2002 Issued Date: 15th March 2002 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Sirhowy Status: Effective Positional Accuracy: Located by supplier to within 10m	A8NE (S)	297	2	317840 197960

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Cwm Gelli Sso Cwmgelli Blackwood Authority: Natural Resources Wales Catchment Area: Not Given Reference: AN0237201 Permit Version: 1 Effective Date: 23rd November 1992 Issued Date: 23rd November 1992 Revocation Date: 15th March 2002 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 100m	A8NE (S)	297	2	317840 197960
6	Discharge Consents Operator: Walters Uk Ltd Property Type: Undefined Or Other Location: Oakdale Colliery Phase 3 Treatment, Phase 3 Treatment Area 2 Authority: Natural Resources Wales Catchment Area: Not Given Reference: AN0274401 Permit Version: 1 Effective Date: 26th January 1998 Issued Date: 26th January 1998 Revocation Date: 31st August 2000 Discharge Type: Trade Effluent Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	352	2	318160 198610
7	Discharge Consents Operator: British Coal Corporation Property Type: Undefined Or Other Location: Oakdale Colliery - South Bay Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ac0097201 Permit Version: 1 Effective Date: 4th June 1975 Issued Date: 4th June 1975 Revocation Date: 12th March 1993 Discharge Type: Trade Effluent Discharge: Not Supplied Environment: Receiving Water: Sirhowy River Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A14NW (NE)	401	2	318210 198620
8	Discharge Consents Operator: British Coal Corporation Property Type: Undefined Or Other Location: Not Supplied Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ad0003401 Permit Version: 2 Effective Date: 29th July 1986 Issued Date: 29th July 1986 Revocation Date: 12th March 1993 Discharge Type: Trade Effluent Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	555	2	318270 197950

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	Discharge Consents Operator: British Coal Corporation Property Type: Undefined Or Other Location: Not Supplied Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ad0003401 Permit Version: 1 Effective Date: 15th July 1980 Issued Date: 15th July 1980 Revocation Date: 28th July 1986 Discharge Type: Trade Effluent Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: Authorisation revoked Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	555	2	318270 197950
9	Discharge Consents Operator: British Coal Corporation Property Type: Undefined Or Other Location: Oakdale Colliery Filterbed Effluent Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ab0082001 Permit Version: 1 Effective Date: 5th July 1972 Issued Date: 5th July 1972 Revocation Date: 12th March 1993 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Sirhowy River Trib Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	636	2	318300 198965
9	Discharge Consents Operator: British Coal Corporation Property Type: Undefined Or Other Location: Oakdale Colliery Oakdale Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: An0042901 Permit Version: 1 Effective Date: 14th October 1987 Issued Date: 14th October 1987 Revocation Date: 12th March 1993 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: Sirhowy Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	667	2	318318 198994
10	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Cso Oakdale Terrace Blackwood, Bottom Of 100 Steps, Gwent Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ad0009503 Permit Version: 2 Effective Date: 24th October 2001 Issued Date: 23rd October 2001 Revocation Date: 28th March 2002 Discharge Type: Public Sewage: Storm Sewage Overflow Discharge: Freshwater Stream/River Environment: Receiving Water: Sirhowy River Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A7SE (S)	773	2	317370 197480

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	Discharge Consents Operator: Walters Uk Ltd Property Type: Coal Extraction, Surface Location: Oakdale Colliery Phase 3 Treatment, Phase 3 Treatment Area 1 Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: AN0274402 Permit Version: 1 Effective Date: 26th January 1998 Issued Date: 26th January 1998 Revocation Date: 31st August 2000 Discharge Type: Trade Effluent Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A19NW (NE)	788	2	318260 199230
12	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Hillditch Sso Blackwood Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: AD0009908 Permit Version: 2 Effective Date: 3rd August 1993 Issued Date: 3rd August 1993 Revocation Date: 2nd February 1999 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A3NW (S)	846	2	317570 197360
12	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: Sewerage Network - Sewers - Water Company Location: Hillditch Sso Blackwood Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ad0009908 Permit Version: 1 Effective Date: 5th July 1968 Issued Date: 5th April 1968 Revocation Date: 2nd August 1993 Discharge Type: Unspecified Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: Authorisation revoked Positional Accuracy: Located by supplier to within 10m	A3NW (S)	846	2	317570 197360
13	Discharge Consents Operator: British Coal Corporation Property Type: Undefined Or Other Location: Not Supplied Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ac0097101 Permit Version: 2 Effective Date: 29th July 1986 Issued Date: 29th July 1986 Revocation Date: 12th March 1993 Discharge Type: Trade Effluent Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: Consent expired Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	921	2	318570 199070

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
13	Discharge Consents Operator: British Coal Corporation Property Type: Undefined Or Other Location: Not Supplied Authority: Natural Resources Wales Catchment Area: River Usk (Afon Wysg) Reference: Ac0097101 Permit Version: 1 Effective Date: 18th April 1977 Issued Date: 18th April 1977 Revocation Date: 28th July 1986 Discharge Type: Trade Effluent Discharge: Not Supplied Environment: Receiving Water: River Sirhowy Status: Authorisation revoked Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	921	2	318570 199070
14	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: General Construction Work Location: Residential Developments Llwyn On L, Llwyn On Lane, Oakdale, Caerphilly, Np12 0nq Authority: Natural Resources Wales Catchment Area: SIRHOWY R - ROCK VILLAS TO CONF AFON EBWY Reference: An0377601 Permit Version: 1 Effective Date: 31st January 2005 Issued Date: 31st January 2005 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Nant Philkins Status: Effective Positional Accuracy: Located by supplier to within 10m	A10NW (E)	982	2	318791 198039
14	Discharge Consents Operator: Dwr Cymru Cyfyngedig Property Type: General Construction Work Location: Residential Developments Llwyn On L, Llwyn On Lane, Oakdale, Caerphilly, Np12 0nq Authority: Natural Resources Wales Catchment Area: SIRHOWY R - ROCK VILLAS TO CONF AFON EBWY Reference: An0377601 Permit Version: 1 Effective Date: 31st January 2005 Issued Date: 31st January 2005 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: Nant Philkins Status: Effective Positional Accuracy: Located by supplier to within 10m	A10NW (E)	982	2	318791 198039
	Nearest Surface Water Feature	A13NW (NW)	0	-	317676 198441
15	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Gernant House, Cwmgelli Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Not Supplied Incident Date: 22nd June 1992 Incident Reference: 4361 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13SW (W)	0	3	317700 198400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	Pollution Incidents to Controlled Waters Property Type: Waste Handling Facilities Location: Culvert Pipe, Up Stream Of A4048, Brookside Authority: Environment Agency, Welsh Region Pollutant: Cement/Mortar Note: Poor Operational Practise Incident Date: 12th November 1991 Incident Reference: 722 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	107	3	317500 198200
17	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Rhiw Bridge Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Blocked Sewer Incident Date: 15th May 1996 Incident Reference: 28998 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (E)	178	3	318030 198475
17	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Storm Overflow Location: Rhiw Bridge Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Blocked Sewer Incident Date: 15th May 1996 Incident Reference: 28998 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (E)	180	3	318030 198480
18	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Sewerage Location: Location Description Not Available Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Blocked Sewer Incident Date: 22nd July 1994 Incident Reference: 20879 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NW (S)	208	3	317600 198000
19	Pollution Incidents to Controlled Waters Property Type: Not Given Location: 200 Yards From, E And J Auto Spares Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Not Supplied Incident Date: 5th May 1996 Incident Reference: 28220 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NW (S)	211	3	317700 198000
20	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Sewage Treatment Works Location: 200 Miles Below Roadbridge, BLACKWOOD Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Blocked Sewer Incident Date: 17th June 1991 Incident Reference: 1074 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	248	3	317800 198000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Storm Overflow Location: N Of Blackwood, Town Centre, 100 Steps Authority: Environment Agency, Welsh Region Pollutant: Crude Sewage Note: Blocked Sewer Incident Date: 21st April 1995 Incident Reference: 23571 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	264	3	317950 198050
21	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Storm Overflow Location: Cwmgelli Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Neglect Incident Date: 5th December 1994 Incident Reference: 22056 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	306	3	317950 198000
22	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Storm Overflow Location: Rock And, Fountain Public House, BLACKWOOD Authority: Environment Agency, Welsh Region Pollutant: Chemicals - Other Inorganic Note: Not Supplied Incident Date: 25th August 1991 Incident Reference: 1341 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A8NE (SE)	278	3	317890 198000
23	Pollution Incidents to Controlled Waters Property Type: Abandoned mine Location: Location Description Not Available Authority: Environment Agency, Welsh Region Pollutant: Rubble/Litter Or Solids Note: Emergency Overflow Incident Date: 30th June 1995 Incident Reference: 24952 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Effluent Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	373	3	317900 197900
23	Pollution Incidents to Controlled Waters Property Type: Abandoned mine Location: Location Description Not Available Authority: Environment Agency, Welsh Region Pollutant: Mining Water Note: Emergency Overflow Incident Date: 30th June 1995 Incident Reference: 24952 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Effluent Discharge Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NE (S)	378	3	317900 197895
24	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Pontllanfraith From, Old Oakdale Site Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: River Sirhowy; Run-Off Incident Date: 20th June 1997 Incident Reference: 32919 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Inadequate Design/Capacity Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NW (NE)	424	3	318200 198695

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
24	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Pontllanfraith From, Old Oakdale Site Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Inadequate Design Incident Date: 20th June 1997 Incident Reference: 32919 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Runoff Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NW (NE)	426	3	318200 198700
25	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Ponllanfraith Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Poor Management Incident Date: 11th March 1997 Incident Reference: 31605 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Bypass Of Treatment Facilities Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18NE (N)	539	3	318000 199100
26	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Road To Manmoel, Between Markham, Colliery Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Not Supplied Incident Date: 11th December 1994 Incident Reference: 22055 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	578	3	318200 199000
27	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Near Fire Station At, CROSSKEYS Authority: Environment Agency, Welsh Region Pollutant: Coal Solids Note: River Sirhowy; Run-Off Incident Date: 28th August 1997 Incident Reference: 33659 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Weather Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	739	3	318400 199000
28	Pollution Incidents to Controlled Waters Property Type: Miscellaneous Premises: Surface Runoff Location: PENMAEN Authority: Environment Agency, Welsh Region Pollutant: Oils - Diesel (Including Agricultural) Note: Deliberate Act Incident Date: 19th April 1991 Incident Reference: 330 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Direct Discharge Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A9SW (SE)	777	3	318200 197600
29	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Top Of Centre, Near Footpath Authority: Environment Agency, Welsh Region Pollutant: Crude Sewage Note: River Sirhowy; Overflow Incident Date: 18th November 1997 Incident Reference: 34164 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Blocked Sewer Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8SW (S)	804	3	317600 197400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Oakland Reclamation, ARGOED Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Unknown; River Sirhowy Incident Date: 3rd June 1998 Incident Reference: 36189 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	811	3	318200 199300
31	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Storm Overflow Location: Location Description Not Available Authority: Environment Agency, Welsh Region Pollutant: Light Oil Note: Blocked Sewer Incident Date: 30th September 1994 Incident Reference: 21223 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	824	3	318500 198995
31	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Storm Overflow Location: Up Stream Of Nursery Authority: Environment Agency, Welsh Region Pollutant: Crude Sewage Note: Blocked Sewer Incident Date: 30th September 1994 Incident Reference: 21223 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	826	3	318500 199000
32	Pollution Incidents to Controlled Waters Property Type: Not Given Location: 3/4 Mile Above, Robeston Wathen, BLACKWOOD Authority: Environment Agency, Welsh Region Pollutant: Unknown Note: Blocked Sewer Incident Date: 4th August 1996 Incident Reference: 30158 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	897	3	318200 199400
33	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Storm Overflow Location: BLACKWOOD Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Inadequate Design/Capacity Incident Date: 7th February 1991 Incident Reference: 103 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Overflow Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A3NW (S)	904	3	317600 197300
34	Pollution Incidents to Controlled Waters Property Type: Abandoned mine Location: Adjacent To Cliff Road, Car Park, Near Footbridge Authority: Environment Agency, Welsh Region Pollutant: Mud/Clay/Soil Note: Not Supplied Incident Date: 28th September 1994 Incident Reference: 21140 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Leachate Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A3NW (S)	905	3	317700 197300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
35	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Old Colliery Site, Oakdale, BLACKWOOD Authority: Environment Agency, Welsh Region Pollutant: Coal Solids Note: River Sirhowy; Run-Off Incident Date: 7th February 1998 Incident Reference: 34884 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Poor Management Control Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A24SW (NE)	986	3	318200 199500
	River Quality Name: Sirhowy GQA Grade: River Quality B Reach: Conf.Police Stn Str.-Nant Gwrhay Estimated Distance (km): 3.3 Flow Rate: Flow less than 2.5 cumecs Flow Type: River Year: 2000	A13SE (E)	89	3	317953 198381
	River Quality Name: Sirhowy GQA Grade: River Quality B Reach: Nant Gwrhay - Nant Yr Helyg Estimated Distance (km): 6.7 Flow Rate: Flow less than 2.5 cumecs Flow Type: River Year: 2000	A19NW (NE)	742	3	318216 199206
36	River Quality Biology Sampling Points Name: Sirhowy Reach: Confluence Police Station Stream To Nant Gwrhay Estimated Distance: 3.30 Positional Accuracy: Located by supplier to within 100m Year: 1990 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 1995 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2000 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2002 GQA Grade: River Quality Biology GQA Grade Not Supplied Year: 2003 GQA Grade: River Quality Biology GQA Grade Not Supplied Year: 2004 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2005 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2006 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2007 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2008 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2009 GQA Grade: River Quality Biology GQA Grade B - Good	A19NW (NE)	728	3	318200 199200
37	Water Abstractions Operator: Blackwood Golf Club Licence Number: 20/56/65/0024 Permit Version: 100 Location: Stream At Blackwood Golf Course Authority: Environment Agency, Welsh Region Abstraction: Golf Courses: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 May Authorised End: 30 September Permit Start Date: 31st May 1984 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A12SE (SW)	247	3	317350 198160

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	Water Abstractions Operator: Mr F G Hillditch Licence Number: 20/56/65/0020 Permit Version: 101 Location: River Sirhowy At Sunningdale Nurseries Authority: Environment Agency, Welsh Region Abstraction: Agriculture: Horticultural Watering Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Sunningdale Nurseries Authorised Start: 01 March Authorised End: 30 September Permit Start Date: 20th October 2000 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3NW (S)	954	3	317600 197250
	Water Abstractions Operator: Walters Uk Ltd Licence Number: 21/57/12/0093 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, Welsh Region Abstraction: General Industrial Abstraction Type: Not Supplied Source: River Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: River Rhymney Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(W)	1852	3	315700 198400
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: High Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: No Data	A13SE (E)	0	2	317868 198391
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: High Bedrock Flow: Well Connected Fractures Dilution: >550 mm/year Baseflow Index: 40-70% Superficial Patchiness: <90% Superficial Thickness: 3-10m Superficial Recharge: No Data	A13SE (S)	0	2	317716 198395
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (S)	0	2	317716 198395
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (E)	0	2	317868 198391
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	123	2	317990 198395

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	123	2	317990 198395
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
39	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 144.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (W)	0	4	317574 198391
40	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 103.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NW (NW)	0	4	317666 198437
41	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 9.0 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NW (NW)	0	4	317674 198440
42	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 8.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NW (NW)	0	4	317682 198441
43	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NW (NW)	0	4	317676 198441
44	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 122.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NW (NW)	0	4	317674 198440
45	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 29.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SE (S)	7	4	317740 198267

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 87.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (SW)	43	4	317517 198276
47	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 85.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (SW)	49	4	317530 198253
48	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 117.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (SW)	68	4	317564 198176
49	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 70.6 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (W)	73	4	317481 198330
50	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 111.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (SW)	80	4	317551 198185
51	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 162.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (S)	86	4	317647 198118
52	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 253.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NE (NE)	109	4	317863 198690
53	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 2.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NW (NW)	121	4	317621 198550
54	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 133.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NE (NE)	127	4	317921 198650

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 408.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A13NE (E)	137	4	318001 198427
56	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 106.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SE (SE)	138	4	317892 198163
57	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 118.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (W)	138	4	317427 198376
58	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 8.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (SW)	176	4	317442 198162
59	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 38.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NE (NE)	179	4	317989 198568
60	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 41.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (SW)	183	4	317393 198210
61	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 48.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (SW)	183	4	317393 198210
62	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 24.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (SW)	184	4	317434 198159
63	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 99.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NE (NE)	185	4	318004 198550

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
64	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 40.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SW (SW)	204	4	317410 198155
65	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 213.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A13NE (NE)	213	4	317955 198729
66	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 165.7 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A13NE (NE)	218	4	317955 198729
67	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 42.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A18SW (N)	218	4	317705 198820
68	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 15.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A18SW (N)	219	4	317701 198820
69	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 19.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A18SW (N)	219	4	317705 198820
70	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12SE (SW)	224	4	317361 198183
71	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 8.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12SE (SW)	225	4	317361 198182
72	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 10.9 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8NE (S)	225	4	317757 198003

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
73	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 99.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (N)	231	4	317741 198841
74	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 11.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12SE (SW)	233	4	317371 198155
75	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 26.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12SE (SW)	233	4	317354 198177
76	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 14.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12SE (SW)	233	4	317371 198155
77	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 88.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8NE (S)	235	4	317765 197996
78	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 114.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13NW (NW)	235	4	317402 198557
79	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 20.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12NE (W)	238	4	317349 198463
80	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 12.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SE (SE)	241	4	317971 198095
81	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 32.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12SE (SW)	246	4	317357 198151

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
82	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 124.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A13SE (SE)	247	4	318006 198116
83	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 25.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	247	4	318057 198178
84	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 28.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12NE (W)	253	4	317339 198480
85	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 90.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A13SE (SE)	254	4	317976 198082
86	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 5.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A13SE (SE)	254	4	317980 198085
87	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 165.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A13SE (SE)	254	4	317976 198082
88	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.9 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (E)	255	4	318084 198542
89	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (E)	255	4	318088 198533
90	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 7.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (E)	255	4	318088 198533

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
91	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (E)	256	4	318089 198536
92	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 114.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (E)	258	4	318094 198529
93	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	268	4	318082 198180
94	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 17.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8NE (S)	270	4	317837 197986
95	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 8.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12NE (W)	272	4	317329 198507
96	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 45.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	272	4	318090 198187
97	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 20.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12SE (SW)	273	4	317324 198151
98	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12NE (W)	276	4	317328 198515
99	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 16.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12NE (W)	278	4	317328 198518

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
100	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 47.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (N)	281	4	317830 198887
101	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 167.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8NE (S)	282	4	317763 197944
102	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 9.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A8NE (S)	284	4	317850 197976
103	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	286	4	318117 198214
104	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 8.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	286	4	318117 198214
105	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 26.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12NE (W)	287	4	317325 198533
106	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 83.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12SE (SW)	289	4	317304 198154
107	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A14SW (SE)	289	4	318121 198215
108	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 4.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	289	4	318123 198219

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
109	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 18.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	290	4	318127 198229
110	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 39.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A14SW (SE)	290	4	318123 198219
111	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 324.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A8NE (S)	291	4	317846 197968
112	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 52.5 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	294	4	318125 198210
113	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 79.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	294	4	318132 198234
114	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 10.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	300	4	318003 198803
115	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	309	4	318007 198812
116	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 146.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8NW (S)	311	4	317567 197902
117	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 35.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	311	4	318008 198814

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
118	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 31.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12NE (W)	313	4	317307 198552
119	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (N)	323	4	317861 198923
120	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 41.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (N)	327	4	317862 198926
121	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	329	4	318006 198842
122	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 11.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	331	4	318007 198844
123	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 15.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A9NW (SE)	336	4	318052 198039
124	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 32.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A9NW (SE)	336	4	318052 198039
125	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 357.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A12NE (NW)	341	4	317290 198578
126	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A14NW (NE)	342	4	318114 198685

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
127	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 2.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	342	4	318011 198855
128	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 1.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	342	4	318011 198855
129	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 13.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	342	4	318010 198857
130	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	342	4	318013 198854
131	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 6.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	344	4	318013 198857
132	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 21.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A9NW (SE)	346	4	318067 198039
133	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A9NW (SE)	346	4	318067 198039
134	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 7.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A14NW (NE)	347	4	318120 198684
135	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 44.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	347	4	318171 198186

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
136	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	348	4	318012 198863
137	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 36.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A18SE (NE)	349	4	318009 198868
138	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 19.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	352	4	318193 198242
139	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	352	4	318193 198242
140	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 40.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 2	A14NW (NE)	352	4	318134 198666
141	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 12.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 2	A14NW (NE)	354	4	318127 198685
142	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	357	4	318162 198620
143	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 20.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	357	4	318162 198620
144	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 28.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	359	4	318160 198627

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
145	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 187.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	359	4	318160 198627
146	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 45.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	361	4	318150 198653
147	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 21.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A18SE (N)	362	4	317857 198964
148	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 167.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	363	4	318133 198695
149	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 162.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A18SE (NE)	367	4	318008 198904
150	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	372	4	318212 198238
151	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 8.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	372	4	318212 198238
152	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 23.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	373	4	318181 198616
153	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 24.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	373	4	318181 198616

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
154	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 23.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	377	4	318190 198151
155	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 20.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	377	4	318190 198151
156	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 26.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A18SE (NE)	378	4	318028 198889
157	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 12.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	379	4	318220 198238
158	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 11.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	379	4	318220 198238
159	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 162.6 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A18SE (NE)	383	4	318036 198890
160	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	389	4	318231 198242
161	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (E)	389	4	318231 198242
162	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 9.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	392	4	318208 198157

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
163	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 17.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	392	4	318208 198157
164	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 93.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8NW (S)	392	4	317673 197813
165	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	392	4	318204 198612
166	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	396	4	318203 198134
167	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14SW (SE)	396	4	318203 198134
168	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 7.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A14NW (NE)	396	4	318204 198619
169	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8NW (S)	469	4	317633 197735
170	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 92.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	474	4	317636 197729
171	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 14.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	488	4	318198 198848

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
172	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 99.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	491	4	318202 198846
173	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 34.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	510	4	317807 197719
174	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 23.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	524	4	318281 198760
175	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 26.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	525	4	317670 197679
176	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 7.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	527	4	317796 197698
177	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 22.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	528	4	317788 197695
178	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 24.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	528	4	317791 197696
179	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	528	4	317791 197696
180	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 40.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	546	4	317782 197676

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
181	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 187.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	546	4	318295 198779
182	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 51.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	551	4	317668 197653
183	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 65.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	551	4	317562 197659
184	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 87.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	551	4	317748 197654
185	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 200.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	557	4	317624 197647
186	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 105.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	585	4	318268 198919
187	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	602	4	317668 197602
188	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 149.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	603	4	317666 197601
189	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 397.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A9NW (SE)	635	4	318254 197819

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
190	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 84.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17SE (NW)	667	4	317094 198855
191	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 38.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17SE (NW)	667	4	317094 198855
192	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 241.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	677	4	318319 199010
193	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 12.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	677	4	318319 199010
194	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	687	4	318331 199009
195	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 35.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	690	4	318335 199010
196	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 151.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A18NE (N)	695	4	317759 199307
197	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 43.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A17SE (NW)	703	4	317076 198887
198	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 39.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17SE (NW)	703	4	317104 198915

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
199	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 35.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SE (NE)	719	4	318423 198915
200	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 15.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SE (NE)	719	4	318423 198915
201	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 482.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SW (NE)	724	4	318361 199032
202	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 21.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17SE (NW)	741	4	317061 198926
203	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 52.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	748	4	318100 199284
204	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 11.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SE (NE)	749	4	318442 198945
205	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19SE (NE)	749	4	318442 198945
206	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 32.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A8SW (S)	752	4	317671 197452
207	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 12.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	752	4	317671 197452

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
208	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 28.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	753	4	317659 197450
209	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 122.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17SE (NW)	759	4	317056 198947
210	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 43.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17SE (NW)	759	4	317075 198964
211	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 19.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	762	4	317721 197445
212	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 68.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	778	4	318178 199275
213	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 30.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	778	4	317718 197429
214	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 56.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SE (S)	778	4	317718 197429
215	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 186.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A18NE (N)	779	4	317716 199389
216	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 33.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	782	4	317660 197422

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217	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 9.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A8SW (S)	782	4	317660 197422
218	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 19.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	784	4	318157 199295
219	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 75.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 2	A19NW (NE)	785	4	318218 199261
220	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 50.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	788	4	318218 199261
221	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 36.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	788	4	318146 199305
222	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 165.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A9SW (S)	801	4	318063 197504
223	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 13.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	807	4	318268 199248
224	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 91.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	808	4	318276 199243
225	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 416.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Gwrhay Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	809	4	318266 199252

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226	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 73.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	814	4	317651 197389
227	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 28.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	814	4	317651 197389
228	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 44.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	818	4	318140 199343
229	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 183.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	820	4	318145 199342
230	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 34.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	822	4	317559 197386
231	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 169.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A23SE (N)	824	4	317793 199436
232	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 7.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	837	4	317582 197368
233	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 50.8 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A23SE (N)	841	4	317941 199436
234	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 18.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	843	4	317586 197362

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
235	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 122.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NE (NW)	845	4	317079 199098
236	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 33.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	849	4	318351 199232
237	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	850	4	317566 197357
238	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 97.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	854	4	317570 197353
239	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	854	4	317570 197353
240	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 287.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	855	4	317576 197351
241	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 37.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19NW (NE)	861	4	318382 199219
242	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 53.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17SW (NW)	873	4	317010 199059
243	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 75.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A23SE (N)	892	4	317956 199485

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
244	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 78.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19NE (NE)	895	4	318415 199233
245	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 2.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NE (NW)	897	4	317062 199162
246	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 25.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NE (NW)	898	4	317056 199157
247	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 21.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NE (NW)	898	4	317060 199161
248	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 50.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NW (NW)	905	4	317005 199110
249	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 32.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NE (NW)	905	4	317041 199146
250	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 39.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NW (NW)	914	4	317005 199110
251	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 176.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A3NE (S)	915	4	317994 197354
252	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 77.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19NE (NE)	932	4	318485 199211

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
253	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 261.4 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	935	4	317521 197276
254	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 6.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A3NW (S)	939	4	317667 197264
255	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 49.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NW (NW)	952	4	316971 199129
256	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 54.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NW (NW)	952	4	316971 199129
257	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 67.4 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A23SE (N)	960	4	317987 199548
258	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 45.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A24SW (N)	974	4	318120 199521
259	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 13.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A24SW (N)	974	4	318120 199521
260	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 96.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Philkins Catchment Name: Ebbw Sirhowy Primacy: 1	A15SW (E)	980	4	318798 198072
261	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 57.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Afon Sirhywi Catchment Name: Ebbw Sirhowy Primacy: 1	A24SW (N)	982	4	318081 199544

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
262	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 112.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A24SW (N)	982	4	318081 199544
263	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 152.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NW (NW)	985	4	316969 199184
264	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 59.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 2	A17NW (NW)	985	4	316969 199184
265	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 12.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A24SW (N)	986	4	318127 199531
266	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 1.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Nant Philkins Catchment Name: Ebbw Sirhowy Primacy: 1	A15SW (E)	986	4	318810 198093
267	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 154.8 Watercourse Level: Underground Permanent: True Watercourse Name: Nant Philkins Catchment Name: Ebbw Sirhowy Primacy: 1	A15SW (E)	987	4	318811 198095
268	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 395.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A17NW (NW)	993	4	316925 199144
269	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 23.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19NE (NE)	995	4	318553 199227
270	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 17.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A19NE (NE)	995	4	318553 199227

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
271	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 68.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Ebbw Sirhowy Primacy: 1	A24SW (N)	997	4	318137 199540

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
272	BGS Recorded Landfill Sites Site Name: Rear East Side High St Location: BLACKWOOD, Glam Authority: British Geological Survey, National Geoscience Information Service Ground Water: No threat to ground water Surface Water: No threat to surface water Geology: N/A Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Derived	A8SW (S)	544	-	317553 197667
273	Historical Landfill Sites Licence Holder: Mr I Jones Location: The Rock, Blackwood Name: Rose Cottage Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD14073 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Industrial and Household Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 6920/0030 BGS Ref: Not Supplied Other Ref: 1	A13NE (NE)	87	2	317883 198582
274	Historical Landfill Sites Licence Holder: Islwyn Borough Council Location: Blackwood Name: Blackwood Playing Field Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD14556 First Input Date: 31st December 1970 Last Input Date: 31st December 1984 Specified Waste Type: Deposited Waste included Inert, Industrial, Commercial, Household and Special Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: 6920/0056 BGS Ref: Not Supplied Other Ref: Not Supplied	A8SW (S)	563	2	317590 197642
275	Historical Landfill Sites Licence Holder: Not Supplied Location: Blackwood, Glamorgan Name: Refuse Disposal Area Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD31260 First Input Date: 31st October 1959 Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Commercial Waste EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: 644 Other Ref: Not Supplied	A8SW (S)	619	2	317574 197588
276	Licensed Waste Management Facilities (Locations) Licence Number: 30152 Location: Cwm, Ebbw Vale, Blaenau Gwent, NP3 6PZ Operator Name: Silent Valley Waste Services Ltd Operator Location: Not Supplied Authority: Natural Resources Wales Site Category: Household, Commercial And Industrial Transfer Stations Licence Status: Surrendered Issued: 8th December 1994 Last Modified: 30th March 1999 Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 17th September 2001 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8SW (S)	623	2	317497 197598

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
277	Licensed Waste Management Facilities (Locations) Licence Number: 900011 Location: Oakdale Business Park, Blackwood, NP44 4AD Operator Name: R B F Comms Services Ltd Operator Location: Not Supplied Authority: Natural Resources Wales Site Category: WEEE treatment facility Licence Status: Issued Issued: 5th August 2013 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	642	2	318345 198900
	Local Authority Landfill Coverage Name: Caerphilly County Borough Council - Has supplied landfill data		0	5	317716 198395
278	Potentially Infilled Land (Non-Water) Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A13SW (W)	39	-	317519 198336
279	Potentially Infilled Land (Non-Water) Bearing Ref: SE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A13SE (SE)	85	-	317931 198294
280	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A13NE (NE)	116	-	317937 198531
281	Potentially Infilled Land (Non-Water) Bearing Ref: SE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A14SW (SE)	216	-	318048 198229
282	Potentially Infilled Land (Non-Water) Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A12NE (W)	246	-	317362 198515
283	Potentially Infilled Land (Non-Water) Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A8NE (S)	269	-	317776 197964
284	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A14NW (NE)	388	-	318185 198642
285	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A19SW (NE)	463	-	318049 198983
286	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A18SE (NE)	465	-	318003 199015
287	Potentially Infilled Land (Non-Water) Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A8NE (S)	472	-	317749 197743
288	Potentially Infilled Land (Non-Water) Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A8SW (S)	490	-	317702 197717
289	Potentially Infilled Land (Non-Water) Bearing Ref: SW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A8SW (SW)	572	-	317398 197686

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
290	Potentially Infilled Land (Non-Water) Bearing Ref: S Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A8SW (S)	577	-	317627 197626
291	Potentially Infilled Land (Non-Water) Bearing Ref: N Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A18NE (N)	715	-	318008 199287
292	Potentially Infilled Land (Non-Water) Bearing Ref: E Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A14SE (E)	858	-	318679 198101
293	Potentially Infilled Land (Non-Water) Bearing Ref: N Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1995	A23SE (N)	899	-	317864 199506
294	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1886	A14SW (E)	492	-	318323 198184
295	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1886	A14SW (SE)	505	-	318320 198132
296	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1953	A9NW (SE)	595	-	318222 197843
297	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1886	A9NW (SE)	600	-	318212 197828
298	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1901	A7NW (W)	690	-	316901 198070
299	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1886	A3NW (S)	842	-	317524 197370
300	Registered Landfill Sites Licence Holder: I Jones Licence Reference: 1 Site Location: Rock Cottage, The Rock, Blackwood, Gwent Licence Easting: Not Supplied Licence Northing: Not Supplied Operator Location: As Site Address Authority: Environment Agency Wales, South East Area Site Category: Landfill Max Input Rate: Undefined Waste Source: No known restriction on source of waste Restrictions: Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st July 1983 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Positioned by the supplier Boundary Accuracy: Moderate Authorised Waste: Excavated Natural Materials \$	A13NE (NE)	156	3	317950 198604

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
301	Registered Waste Transfer Sites Licence Holder: Silent Valley Waste Services Ltd Licence Reference: 1994(32) Site Location: Blackwood C.A.Site, High Street, Blackwood, Gwent Operator Location: Beechwood House, Cwm, EBBW VALE, Gwent, NP23 6PZ Authority: Environment Agency Wales, South East Area Site Category: Civic Amenity Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source: No known restriction on source of waste Restrictions: Licence Status: Licence has completion certificateSurrendered Dated: 8th August 1994 Preceded By: RESOLUTION Licence: Superseded By: Not Given Licence: Positional Accuracy: Approximate location provided by supplier Boundary Quality: Not Supplied Authorised Waste: Glass Cullet/Bottle Bank Max.Stor Household Waste Max.Stor Scrap Metal Max.Stor Textiles Max.Stor Tin/Aluminium Cans Max.Stor Waste Oil Max.Stor Waste Paper Max.Stor Prohibited Waste: Flammable Liquids (Other Than Oil) Percussive/Explosive/Similar Waste Special Wastes (As In '96 Regs) N.O.S Sub'S Control. Radioactive Subs Act'60 Waste N.O.S.	A8SW (S)	620	3	317500 197600
301	Registered Waste Transfer Sites Licence Holder: Islwyn B.C. Licence Reference: RESOLUTION Site Location: Blackwood Civic Amenity Site, Blackwood, Gwent Operator Location: Civic Centre, Blackwood Road, BLACKWOOD, Gwent, NP2 2YW Authority: Environment Agency Wales, South East Area Site Category: Civic Amenity Max Input Rate: Undefined Waste Source: No known restriction on source of waste Restrictions: Licence Status: Record supersededSuperseded Dated: 1st February 1992 Preceded By: Not Given Licence: Superseded By: 1994(32) Licence: Positional Accuracy: Located by supplier to within 100m Boundary Quality: Not Supplied Authorised Waste: Civic Amenity Waste	A8SW (S)	620	3	317500 197600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: South Wales Upper Coal Measures Formation	A13SE (S)	0	1	317716 198395
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (S)	0	1	317716 198395
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (E)	124	1	317990 198403
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Sediment Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9SE (SE)	850	1	318416 197676
302	BGS Recorded Mineral Sites Site Name: Gelli-Dywyll Level Location: Cwmgelli, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239464 Type: Underground Status: Ceased Operator: Bowditch Bros. Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Small Rider Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13SW (W)	65	1	317497 198354
302	BGS Recorded Mineral Sites Site Name: Cwm Gelli Colliery Location: Cwmgelli, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239465 Type: Underground Status: Ceased Operator: Bowditch Bros. Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Mynyddislwyn Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13SW (W)	108	1	317451 198349
303	BGS Recorded Mineral Sites Site Name: Cwm Gelli Colliery Levels Location: Cwmgelli, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239467 Type: Underground Status: Ceased Operator: Bowditch Bros. Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Mynyddislwyn Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	79	1	317473 198288

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
304	BGS Recorded Mineral Sites Site Name: Cwm Gelli Colliery Levels Location: Cwmgelli, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239466 Type: Underground Status: Ceased Operator: Bowditch Bros. Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Mynyddislwyn Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A13SW (W)	126	1	317449 198405
304	BGS Recorded Mineral Sites Site Name: Chwarel Y Gelli Quarry Location: Cwmgelli, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 415 Type: Opencast Status: Ceased Operator: Individual'S Name Withheld Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation (Pennant Sandstone Formation) Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A13NW (W)	147	1	317435 198433
305	BGS Recorded Mineral Sites Site Name: Maes-Rhyddid Level Location: Cwmgelli, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239462 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Small Rider Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A12NE (W)	262	1	317352 198528
306	BGS Recorded Mineral Sites Site Name: Brookside Cottage Location: Bargoed, Glamorgan Source: British Geological Survey, National Geoscience Information Service Reference: 156120 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NE (S)	265	1	317758 197960
307	BGS Recorded Mineral Sites Site Name: Woodfield Colliery Location: Blackwood, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 175668 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Hughes Member Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A14SW (E)	282	1	318121 198242
308	BGS Recorded Mineral Sites Site Name: Maes-Rhyddid Air Shaft Location: Cwmgelli, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239463 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Small Rider Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A12NE (NW)	288	1	317357 198580

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
309	BGS Recorded Mineral Sites Site Name: Hill Cottage Location: Bargoed, Glamorgan Source: British Geological Survey, National Geoscience Information Service Reference: 156119 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A8NW (SW)	346	1	317425 197935
310	BGS Recorded Mineral Sites Site Name: Maes-Rhyddid Quarry Location: Cwmgelli, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239469 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A12NE (NW)	363	1	317304 198634
311	BGS Recorded Mineral Sites Site Name: Ivy Bush Location: Oakdale, Newbridge, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 175699 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A14SW (E)	378	1	318241 198352
312	BGS Recorded Mineral Sites Site Name: Cwm Panmaen Level Location: Penmaen, Blackwood, Glamorgan Source: British Geological Survey, National Geoscience Information Service Reference: 156165 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Mynyddislwyn Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8NE (S)	442	1	317727 197769
312	BGS Recorded Mineral Sites Site Name: Cwm Pen-Maen Quarry Location: Penmaen, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239477 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A8NE (S)	474	1	317713 197735
313	BGS Recorded Mineral Sites Site Name: Argoed Buildings Location: Argoed, Blackwood, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 175660 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	460	1	318061 198969

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
314	BGS Recorded Mineral Sites Site Name: Cwm Gelli Air Shaft Location: Cwmgelli, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239468 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Mynyddislwyn Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A12NE (NW)	520	1	317138 198674
315	BGS Recorded Mineral Sites Site Name: Pen-Rhiw-Syr-Dafydd Location: Argoed, Blackwood, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 175664 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	596	1	318366 198746
316	BGS Recorded Mineral Sites Site Name: Cwm Pen-Maen Quarry Location: Penmaen, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239478 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A8SW (S)	624	1	317673 197580
317	BGS Recorded Mineral Sites Site Name: Pen-Rhiw-Syr-Dafydd Location: Argoed, Blackwood, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 175665 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	649	1	318393 198815
318	BGS Recorded Mineral Sites Site Name: New Rock Colliery Location: Blackwood, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 188678 Type: Underground Status: Ceased Operator: Individual'S Name Withheld Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8SW (S)	673	1	317410 197572
319	BGS Recorded Mineral Sites Site Name: Rock Colliery Location: Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239475 Type: Underground Status: Ceased Operator: Budds Blackwood Collieries Ltd. Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Mynyddislwyn Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A8SW (S)	690	1	317540 197521

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
320	BGS Recorded Mineral Sites Site Name: Cwm-Corrwg Location: Argoed, Blackwood, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 175659 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A18NE (N)	708	1	318010 199279
321	BGS Recorded Mineral Sites Site Name: Oakdale Navigation South Pit Location: Argoed, Cwmbran, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 188676 Type: Underground Status: Ceased Operator: Individual'S Name Withheld Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Hughes Member Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	744	1	318446 198925
322	BGS Recorded Mineral Sites Site Name: Oakdale Mine Location: Oakdale, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 4802 Type: Underground Status: Ceased Operator: British Coal - South Wales Area Operator Location: Not Supplied Periodic Type: Carboniferous Geology: South Wales Coal Measures Group Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	782	1	318500 198900
323	BGS Recorded Mineral Sites Site Name: Oakdale Navigation North Pit Location: Argoed, Cwmbran, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 188675 Type: Underground Status: Ceased Operator: Individual'S Name Withheld Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Hughes Member Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	792	1	318478 198969
324	BGS Recorded Mineral Sites Site Name: Old Rock Colliery Location: Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 239476 Type: Underground Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Mynyddislwyn Coal (South Wales) Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A3NW (S)	830	1	317534 197380
325	BGS Recorded Mineral Sites Site Name: Llys-Pentwyn-Uchaf Location: Blackwood, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 175669 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A14SE (E)	854	1	318671 198084

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
326	BGS Recorded Mineral Sites Site Name: Waterloo Pit Location: Argoed, Cwmbran, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 188677 Type: Underground Status: Ceased Operator: Individual's Name Withheld Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Hughes Member Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	881	1	318556 199011
327	BGS Recorded Mineral Sites Site Name: Darren Felin Farm Gravel Pit Location: Oakdale, Blackwood, Gwent Source: British Geological Survey, National Geoscience Information Service Reference: 408 Type: Opencast Status: Dormant Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Quaternary Geology: Till, Devensian Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A19NE (NE)	979	1	318384 199375
328	BGS Recorded Mineral Sites Site Name: St. David'S Wood Location: Blackwood, Caerphilly Source: British Geological Survey, National Geoscience Information Service Reference: 175744 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Carboniferous Geology: Grovesend Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A3NE (S)	987	1	317784 197226
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13SE (S)	0	6	317716 198395
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13SE (S)	0	-	317716 198395
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	317716 198395
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	124	1	317990 198403
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A14NW (E)	232	1	318079 198502
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	317716 198395
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	124	1	317990 198403

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A14NW (E)	232	1	318079 198502
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	317716 198395
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	317716 198395
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	124	1	317990 198398
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	124	1	317990 198403
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	126	1	317910 198193
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	160	1	317932 198168
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	162	1	318029 198410
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	166	1	317996 198522
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	167	1	318002 198245
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	195	1	317934 198719
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	211	1	318044 198231
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A8NE (S)	250	1	317802 197999
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	317716 198395
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	1	317868 198391
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	124	1	317990 198403
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A14NW (E)	232	1	318079 198502
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	317716 198395
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	124	1	317990 198403
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	317716 198395

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (S)	0	1	317716 198395

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
329	Contemporary Trade Directory Entries Name: Fix All Appliances Location: 2 Cwmgelli Villas, Cwmgelli, Blackwood, NP12 1BU Classification: Washing Machines - Servicing & Repairs Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (SW)	17	-	317600 198225
330	Contemporary Trade Directory Entries Name: M & J Europe Location: 1, Coed Gelli Parc, Cwmgelli, Blackwood, Gwent, NP12 1GS Classification: Conveyors & Conveyor Belts Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (W)	71	-	317487 198339
331	Contemporary Trade Directory Entries Name: Dale Rees Services Location: Rees House, The Rock, Blackwood, Gwent, NP12 1DA Classification: Refrigeration Equipment Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (NE)	138	-	317934 198590
332	Contemporary Trade Directory Entries Name: Chris Waite Car Sales Location: Rock Garage, The Rock, BLACKWOOD, Gwent, NP12 1DD Classification: Car Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A13NE (NE)	181	-	317924 198709
333	Contemporary Trade Directory Entries Name: Oakdale Printing Service Location: Brynafon, The Rhiw, Blackwood, NP12 0EB Classification: Printers Status: Active Positional Accuracy: Automatically positioned to the address	A14NW (E)	360	-	318223 198455
334	Contemporary Trade Directory Entries Name: Oakdale Hospital Location: Penrhiw Terrace, Oakdale, Blackwood, Gwent, NP12 0JH Classification: Hospitals Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NE (E)	569	-	318431 198474
335	Contemporary Trade Directory Entries Name: Bon Bon Buddies Location: Unit 1, Foxes Lane, Oakdale Business Park, Blackwood, NP12 4AB Classification: Confectionery Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address	A19SW (NE)	627	-	318347 198860
335	Contemporary Trade Directory Entries Name: Sulis Technology Ltd Location: Unit 1, Foxes Lane, Oakdale Business Park, Blackwood, NP12 4AB Classification: Temperature Monitoring Systems Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address	A19SW (NE)	627	-	318347 198860
336	Contemporary Trade Directory Entries Name: Paul Angell Location: High St, Blackwood, Gwent, NP12 1BE Classification: Car Dealers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A8SW (S)	649	-	317448 197584
337	Contemporary Trade Directory Entries Name: Tool Cast Ltd Location: 21, Bronwydd, Oakdale, Blackwood, NP12 0GX Classification: Tool Design, Manufacturers & Makers Status: Active Positional Accuracy: Automatically positioned to the address	A14NE (NE)	704	-	318486 198744
338	Contemporary Trade Directory Entries Name: Caerphilly County Borough Council - A S D I T Location: Unit 3, Foxes Lane, Oakdale Business Park, Blackwood, Gwent, NP12 4AB Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A19SE (NE)	715	-	318411 198929
339	Contemporary Trade Directory Entries Name: Blackwood Car Centre Location: 39, High Street, Blackwood, Gwent, NP12 1BA Classification: Car Dealers - Used Status: Inactive Positional Accuracy: Automatically positioned to the address	A8SW (S)	763	-	317447 197466

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
340	Contemporary Trade Directory Entries Name: Micro Menders Location: 25, Ynys-y-Coed, Oakdale, Blackwood, Gwent, NP12 0EG Classification: Domestic Appliances - Servicing, Repairs & Parts Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	766	-	318525 197954
341	Contemporary Trade Directory Entries Name: T C Autos Location: 11, Central Buildings, Oakdale, Blackwood, Gwent, NP12 0LR Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	776	-	318642 198390
342	Contemporary Trade Directory Entries Name: Walldry Location: 50, Cefn Road, Blackwood, Gwent, NP12 1QA Classification: Damp & Dry Rot Control Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SE (SW)	785	-	317263 197516
343	Contemporary Trade Directory Entries Name: Gould & Sons Location: 39, Cefn Road, Blackwood, Gwent, NP12 1JB Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SE (SW)	792	-	317149 197585
344	Contemporary Trade Directory Entries Name: Pentwyn Trade Sales Location: Pentwyn Road, Blackwood, Gwent, NP12 1HN Classification: Car Dealers - Used Status: Inactive Positional Accuracy: Automatically positioned in the proximity of the address	A7SE (S)	827	-	317365 197425
344	Contemporary Trade Directory Entries Name: Select Car Sales Location: 5g, Pentwyn Road, Blackwood, Gwent, NP12 1HN Classification: Car Dealers - Used Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (S)	828	-	317324 197439
345	Contemporary Trade Directory Entries Name: D & E Motors Location: 5e, Pentwyn Road, Blackwood, NP12 1HN Classification: Mot Testing Centres Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (S)	843	-	317353 197412
345	Contemporary Trade Directory Entries Name: Blackwood Auto Refinishers Location: 5a, Pentwyn Road, Blackwood, Gwent, NP12 1HN Classification: Car Body Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A2NE (S)	883	-	317367 197364
345	Contemporary Trade Directory Entries Name: Surrounds Of Elegance Location: 5, Pentwyn Road, Blackwood, Gwent, NP12 1HN Classification: Fireplaces & Mantelpieces Status: Inactive Positional Accuracy: Automatically positioned to the address	A2NE (S)	883	-	317367 197364
345	Contemporary Trade Directory Entries Name: Sterling Car Sales Location: 5a, Pentwyn Road, Blackwood, Gwent, NP12 1HN Classification: Car Dealers - Used Status: Inactive Positional Accuracy: Automatically positioned to the address	A2NE (S)	883	-	317367 197364
345	Contemporary Trade Directory Entries Name: Xtreme Body Work Location: 5, Pentwyn Road, Blackwood, Gwent, NP12 1HN Classification: Car Body Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A2NE (S)	883	-	317367 197364
346	Contemporary Trade Directory Entries Name: Richleys Location: Unit 4, Cliff Road, Blackwood, Gwent, NP12 0NT Classification: Textile Manufacturing Status: Inactive Positional Accuracy: Automatically positioned to the address	A3NW (S)	905	-	317466 197315

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
347	Contemporary Trade Directory Entries Name: Hafan Coed Day Hospital Location: Blackwood, Gwent, NP12 1qb Classification: Hospitals Status: Active Positional Accuracy: Manually positioned within the geographical locality	A7SE (SW)	913	-	317140 197441
347	Contemporary Trade Directory Entries Name: C S Bartlett Electrical Services Location: 19, Bloomfield Road, Blackwood, NP12 1QB Classification: Domestic Appliances - Servicing, Repairs & Parts Status: Active Positional Accuracy: Automatically positioned to the address	A7SE (SW)	914	-	317140 197440
348	Fuel Station Entries Name: Astral Tyres Location: A4048 , , Blackwood, Caerphilly, NP22 4QR Brand: Obsolete Premises Type: Not Applicable Status: Obsolete Positional Accuracy: Approximate location provided by supplier	A13NE (E)	58	-	317908 198454
349	Fuel Station Entries Name: Asda Blackwood Automat Location: Cliff Road , , Blackwood, Caerphilly, NP12 0NT Brand: Asda Premises Type: Hypermarket Status: Open Positional Accuracy: Manually positioned to the address or location	A8SW (S)	629	-	317542 197582
350	Points of Interest - Commercial Services Name: Pds Bulk Liquid Haulage Ltd Location: Argoed Fawr Farm, The Rock, Blackwood, NP12 0AD Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A18NE (N)	661	7	317887 199263
351	Points of Interest - Commercial Services Name: T C Autos Location: Unit D, 11 Central Buildings, Oakdale, Blackwood, NP12 0LR Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14NE (E)	811	7	318678 198415
352	Points of Interest - Commercial Services Name: Select Car Sales Location: 5g Pentwyn Road, Blackwood, NP12 1HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A7SE (S)	832	7	317338 197429
352	Points of Interest - Commercial Services Name: D & E Motors Location: Pentwyn Road, Blackwood, NP12 1HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A7SE (S)	845	7	317355 197409
352	Points of Interest - Commercial Services Name: D & E Motors Location: 5 Pentwyn Road, Blackwood, NP12 1HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A2NE (S)	883	7	317367 197364
352	Points of Interest - Commercial Services Name: Xtreme Body Work Location: 5 Pentwyn Road, Blackwood, NP12 1HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A2NE (S)	883	7	317367 197364
352	Points of Interest - Commercial Services Name: Xtreme Body Work Location: 5 Pentwyn Road, Blackwood, NP12 1HN Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A2NE (S)	883	7	317367 197364

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
353	Points of Interest - Commercial Services Name: Auto-Shine Mobile Valeting Location: 2 Syr Dafydd Avenue, Oakdale, Blackwood, NP12 0LA Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NE (E)	845	7	318653 198716
353	Points of Interest - Commercial Services Name: Auto-shine Mobile Valeting Location: 2 Syr Dafydd Avenue, Oakdale, Blackwood, NP12 0LA Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NE (E)	845	7	318653 198716
354	Points of Interest - Commercial Services Name: Jenkins Haulage Location: Treboith Cottage, Woodfieldside, Blackwood, NP12 0PJ Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A3NE (S)	989	7	317742 197219
355	Points of Interest - Commercial Services Name: Kerisons Location: 29 Tir-Berllan, Oakdale, Blackwood, NP12 0GZ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A20SW (E)	992	7	318774 198806
355	Points of Interest - Commercial Services Name: Kerison's Mobile Valeters Location: 29 Tir-Berllan, Oakdale, Blackwood, NP12 0GZ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A20SW (E)	992	7	318774 198806
356	Points of Interest - Education and Health Name: Ty Sirhowy Unit Location: Cwmgelli (Off Lon Pennant), Blackwood, Caerphilly, NP12 1EL Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A13SW (SW)	122	7	317480 198200
356	Points of Interest - Education and Health Name: Ty Sirhowy Unit Location: Cwmgelli, Blackwood, Caerphilly, Mid Glamorgan, NP12 1EL Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A13SW (SW)	125	7	317482 198194
357	Points of Interest - Education and Health Name: Oakdale Hospital Location: Penrhiw Terrace, Oakdale, Blackwood, NP12 0JH Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A14NE (E)	568	7	318431 198473
357	Points of Interest - Education and Health Name: Oakdale Hospital Location: Penrhiw Terrace, Oakdale, Blackwood, NP12 0JH Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A14NE (E)	569	7	318431 198474
358	Points of Interest - Education and Health Name: Hafan Coed Day Hospital Location: Bloomfield Road, Blackwood, NP12 1QB Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A7SE (SW)	863	7	317148 197496
358	Points of Interest - Education and Health Name: Hafan Coed Day Hospital Location: Bloomfield Road, Blackwood, NP12 1QB Category: Health Practitioners and Establishments Class Code: Hospitals Positional Accuracy: Positioned to address or location	A7SE (SW)	863	7	317148 197496
359	Points of Interest - Manufacturing and Production Name: Quarry (Disused) Location: NP12 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	379	7	318245 198379

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
360	Points of Interest - Manufacturing and Production Name: Quarry (Disused) Location: NP12 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A8SW (S)	480	7	317707 197728
361	Points of Interest - Manufacturing and Production Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A8SW (SW)	557	7	317401 197702
361	Points of Interest - Manufacturing and Production Name: Works Location: NP12 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A8SW (SW)	557	7	317401 197702
362	Points of Interest - Manufacturing and Production Name: Quarry (Disused) Location: NP12 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A14NW (NE)	586	7	318375 198704
363	Points of Interest - Manufacturing and Production Name: Quarry (Disused) Location: NP12 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A8SW (S)	617	7	317683 197588
364	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A8SW (S)	745	7	317406 197497
364	Points of Interest - Manufacturing and Production Name: Tank Location: NP12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A8SW (S)	801	7	317445 197427
365	Points of Interest - Manufacturing and Production Name: Factory Location: NP12 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A3NW (S)	898	7	317667 197306
366	Points of Interest - Manufacturing and Production Name: Quarry (Disused) Location: NP12 Category: Extractive Industries Class Code: Unspecified Quarries Or Mines Positional Accuracy: Positioned to an adjacent address or location	A3NE (S)	983	7	317780 197230
367	Points of Interest - Public Infrastructure Name: Refuse Tip (Disused) Location: NP12 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A13NE (NE)	200	7	317975 198649
368	Points of Interest - Public Infrastructure Name: Weir Location: NP12 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A14NW (NE)	358	7	318123 198704
368	Points of Interest - Public Infrastructure Name: Refuse Tip (Disused) Location: NP12 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	391	7	318111 198804

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
368	Points of Interest - Public Infrastructure Name: Weir Location: NP12 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	415	7	318163 198753
368	Points of Interest - Public Infrastructure Name: Weir Location: NP12 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	463	7	318192 198805
368	Points of Interest - Public Infrastructure Name: Weir Location: NP12 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	475	7	318199 198818
368	Points of Interest - Public Infrastructure Name: Weir Location: NP12 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	496	7	318210 198843
369	Points of Interest - Public Infrastructure Name: Weir Location: NP12 Category: Water Class Code: Weirs, Sluices and Dams Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	591	7	318278 198915
370	Points of Interest - Public Infrastructure Name: Asda Blackwood Automat Location: Cliff Road, Blackwood, Caerphilly, NP12 0NT Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A8SW (S)	629	7	317542 197582
371	Points of Interest - Public Infrastructure Name: Refuse Tip (Disused) Location: NP12 Category: Infrastructure and Facilities Class Code: Refuse Disposal Facilities Positional Accuracy: Positioned to an adjacent address or location	A19SW (NE)	632	7	318235 199041
372	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A8SE (S)	669	7	317976 197612
372	Points of Interest - Recreational and Environmental Name: Playground Location: Nr Auckland Close, NP12 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A8SE (S)	669	7	317976 197612
373	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14SE (E)	713	7	318529 198101
373	Points of Interest - Recreational and Environmental Name: Playground Location: Llwyn On Lane, NP12 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A14SE (E)	713	7	318529 198099
374	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A7NW (SW)	839	7	316865 197820

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
374	Points of Interest - Recreational and Environmental Name: Playground Location: Twynyffald Road, NP12 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A7NW (SW)	839	7	316866 197819
375	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A3NW (S)	993	7	317513 197219

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
376	Ancient Woodland Name: Not Supplied Reference: 16504 Area(m²): 4190.79 Type: Ancient and Semi-Natural Woodland	A13SE (E)	84	2	317949 198388
377	Ancient Woodland Name: Not Supplied Reference: 16507 Area(m²): 18627.14 Type: Ancient and Semi-Natural Woodland	A13NE (NE)	118	2	317855 198708
378	Ancient Woodland Name: Not Supplied Reference: 16402 Area(m²): 9457.61 Type: Ancient and Semi-Natural Woodland	A13NW (NW)	170	2	317456 198519
379	Ancient Woodland Name: Not Supplied Reference: 16396 Area(m²): 4525.48 Type: Ancient and Semi-Natural Woodland	A8NE (S)	192	2	317730 198028
380	Ancient Woodland Name: Not Supplied Reference: 22281 Area(m²): 32972.87 Type: Restored Ancient Woodland Site	A14SW (SE)	219	2	318051 198229
381	Ancient Woodland Name: Not Supplied Reference: 16397 Area(m²): 17170.52 Type: Ancient and Semi-Natural Woodland	A12SE (SW)	277	2	317292 198203
382	Ancient Woodland Name: Not Supplied Reference: 16505 Area(m²): 2722.4 Type: Ancient and Semi-Natural Woodland	A14NW (NE)	327	2	318146 198582
383	Ancient Woodland Name: Not Supplied Reference: 16394 Area(m²): 6145.13 Type: Ancient and Semi-Natural Woodland	A8NW (S)	356	2	317637 197847
384	Ancient Woodland Name: Not Supplied Reference: 22306 Area(m²): 19450.12 Type: Restored Ancient Woodland Site	A14SW (SE)	357	2	318179 198178
385	Ancient Woodland Name: Not Supplied Reference: 16406 Area(m²): 18085.57 Type: Ancient and Semi-Natural Woodland	A12NE (W)	370	2	317259 198583
386	Ancient Woodland Name: Not Supplied Reference: 22279 Area(m²): 29767.26 Type: Restored Ancient Woodland Site	A8NE (S)	373	2	317775 197852
387	Ancient Woodland Name: Not Supplied Reference: 16511 Area(m²): 32084.64 Type: Ancient and Semi-Natural Woodland	A19SW (NE)	425	2	318152 198801
388	Ancient Woodland Name: Not Supplied Reference: 9379 Area(m²): 17990.72 Type: Ancient and Semi-Natural Woodland	A12NE (NW)	451	2	317202 198645
389	Ancient Woodland Name: Not Supplied Reference: 16509 Area(m²): 2672.07 Type: Ancient and Semi-Natural Woodland	A19SW (NE)	492	2	318235 198782

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
390	Ancient Woodland Name: Not Supplied Reference: 22278 Area(m²): 21484.06 Type: Restored Ancient Woodland Site	A8NE (S)	492	2	317795 197734
391	Ancient Woodland Name: Not Supplied Reference: 16499 Area(m²): 7895.09 Type: Ancient and Semi-Natural Woodland	A9NW (SE)	708	2	318305 197766
392	Ancient Woodland Name: Not Supplied Reference: 16709 Area(m²): 11562.2 Type: Ancient and Semi-Natural Woodland	A18NE (N)	790	2	318045 199353
393	Ancient Woodland Name: Not Supplied Reference: 16710 Area(m²): 18984.32 Type: Ancient and Semi-Natural Woodland	A19NW (NE)	817	2	318259 199268
394	Ancient Woodland Name: Not Supplied Reference: 42806 Area(m²): 15086.99 Type: Plantation on Ancient Woodland	A17NE (NW)	843	2	317077 199094
395	Ancient Woodland Name: Not Supplied Reference: 16393 Area(m²): 9384.37 Type: Ancient and Semi-Natural Woodland	A9SW (SE)	857	2	318146 197481
396	Ancient Woodland Name: Not Supplied Reference: 16390 Area(m²): 3211.7 Type: Ancient and Semi-Natural Woodland	A3NE (S)	934	2	317939 197315

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Torfaen County Borough Council - Department for the Environmental Blaenau Gwent County Borough Council - Environmental Health Department Caerphilly County Borough Council - Environmental Health Department Merthyr Tydfil County Borough Council - Environmental Health Department	April 2014 August 2013 August 2013 February 2013	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update
Discharge Consents Environment Agency - Welsh Region Natural Resources Wales	August 2014 July 2019	Quarterly Quarterly
Enforcement and Prohibition Notices Environment Agency - Welsh Region	March 2013	Annual Rolling Update
Integrated Pollution Controls Environment Agency - Welsh Region	October 2008	Variable
Integrated Pollution Prevention And Control Natural Resources Wales Environment Agency - Welsh Region	April 2019 July 2019	Quarterly Quarterly
Local Authority Integrated Pollution Prevention And Control Torfaen County Borough Council - Department for the Environmental Caerphilly County Borough Council - Environmental Health Department Blaenau Gwent County Borough Council - Environmental Health Department Merthyr Tydfil County Borough Council - Environmental Health Department	December 2015 February 2013 June 2014 September 2016	Variable Variable Variable Variable
Local Authority Pollution Prevention and Controls Blaenau Gwent County Borough Council - Environmental Health Department Torfaen County Borough Council - Department for the Environmental Caerphilly County Borough Council - Environmental Health Department Merthyr Tydfil County Borough Council - Environmental Health Department	June 2014 November 2015 September 2014 September 2016	Annual Rolling Update Annual Rolling Update Not Applicable Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Torfaen County Borough Council - Department for the Environmental Blaenau Gwent County Borough Council - Environmental Health Department Caerphilly County Borough Council - Environmental Health Department Merthyr Tydfil County Borough Council - Environmental Health Department	December 2015 June 2014 September 2014 September 2016	Variable Variable Variable Variable
Nearest Surface Water Feature Ordnance Survey	September 2019	
Pollution Incidents to Controlled Waters Environment Agency - Welsh Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Welsh Region Natural Resources Wales	March 2013 March 2013	Annual Rolling Update Annual Rolling Update
Prosecutions Relating to Controlled Waters Environment Agency - Welsh Region Natural Resources Wales	March 2013 March 2013	Annual Rolling Update Annual Rolling Update
Registered Radioactive Substances Natural Resources Wales Environment Agency - Welsh Region	January 2015 June 2016	Annually
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register Environment Agency Wales - South East Area Natural Resources Wales	July 2019 July 2019	Quarterly Quarterly
Water Abstractions Environment Agency - Welsh Region Natural Resources Wales	July 2019 July 2019	Quarterly Quarterly

Agency & Hydrological	Version	Update Cycle
Water Industry Act Referrals Natural Resources Wales Environment Agency - Welsh Region	July 2019 October 2017	Quarterly Quarterly
Groundwater Vulnerability Map Natural Resources Wales	June 2018	As notified
Bedrock Aquifer Designations Natural Resources Wales	January 2018	Annually
Superficial Aquifer Designations Natural Resources Wales	January 2018	Annually
Source Protection Zones Natural Resources Wales	November 2016	Annual Rolling Update
Extreme Flooding from Rivers or Sea without Defences Natural Resources Wales	August 2019	Quarterly
Flooding from Rivers or Sea without Defences Natural Resources Wales	August 2019	Quarterly
Areas Benefiting from Flood Defences Natural Resources Wales	August 2019	Quarterly
Flood Water Storage Areas Natural Resources Wales	August 2019	Quarterly
Flood Defences Natural Resources Wales	August 2019	Quarterly
OS Water Network Lines Ordnance Survey	July 2019	Quarterly
Surface Water 1 in 30 year Flood Extent Natural Resources Wales	October 2013	Annually
Surface Water 1 in 100 year Flood Extent Natural Resources Wales	October 2013	Annually
Surface Water 1 in 1000 year Flood Extent Natural Resources Wales	October 2013	Annually
Surface Water Suitability Natural Resources Wales	October 2013	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Natural Resources Wales	July 2017	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Welsh Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency Wales - South East Area Natural Resources Wales	July 2018 July 2018	Quarterly Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency Wales - South East Area Natural Resources Wales	July 2019 July 2019	Quarterly Quarterly
Local Authority Landfill Coverage Blaenau Gwent County Borough Council - Environmental Health Department Caerphilly County Borough Council - Environmental Health Department Merthyr Tydfil County Borough Council - Environmental Health Department Torfaen County Borough Council - Department for the Environmental	May 2000 May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Blaenau Gwent County Borough Council - Environmental Health Department Caerphilly County Borough Council - Environmental Health Department Merthyr Tydfil County Borough Council - Environmental Health Department Torfaen County Borough Council - Department for the Environmental	May 2000 May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable Not Applicable
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency Wales - South East Area	March 2003	Not Applicable
Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements Blaenau Gwent County Borough Council - Planning Department Caerphilly County Borough Council - Planning Department Torfaen County Borough Council - Planning Department Merthyr Tydfil County Borough Council - Planning Department	February 2016 February 2016 February 2016 September 2007	Variable Variable Variable Variable
Planning Hazardous Substance Consents Blaenau Gwent County Borough Council - Planning Department Caerphilly County Borough Council - Planning Department Torfaen County Borough Council - Planning Department Merthyr Tydfil County Borough Council - Planning Department	February 2016 February 2016 February 2016 September 2007	Variable Variable Variable Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	Annually
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2019	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	Annually
Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	July 2019	Quarterly
Fuel Station Entries Catalist Ltd - Experian	September 2019	Quarterly
Gas Pipelines National Grid	July 2014	
Points of Interest - Commercial Services PointX	September 2019	Quarterly
Points of Interest - Education and Health PointX	September 2019	Quarterly
Points of Interest - Manufacturing and Production PointX	September 2019	Quarterly
Points of Interest - Public Infrastructure PointX	September 2019	Quarterly
Points of Interest - Recreational and Environmental PointX	September 2019	Quarterly
Underground Electrical Cables National Grid	December 2015	

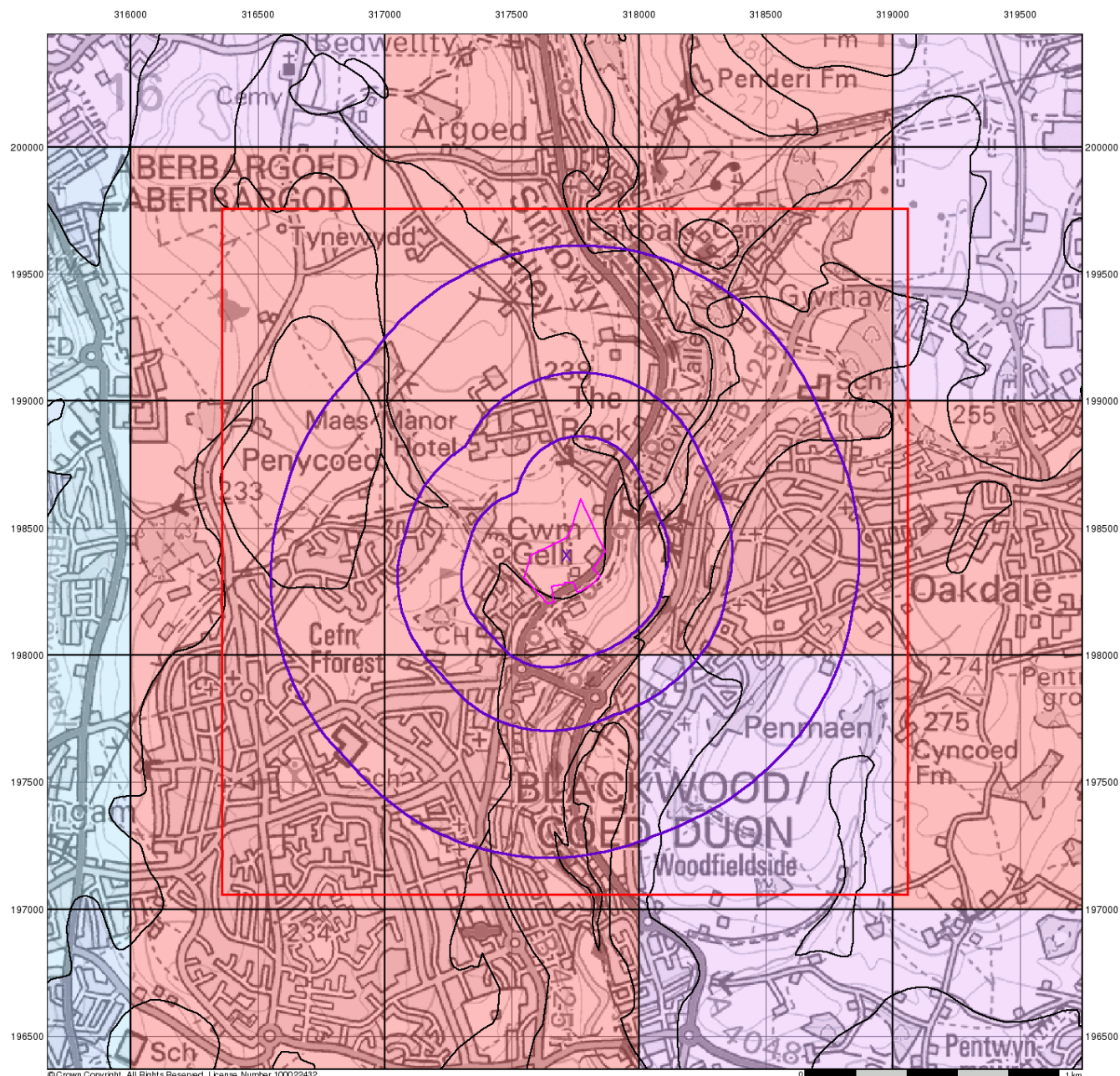
Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural Resources Wales	August 2018	Bi-Annually
Areas of Outstanding Natural Beauty Natural Resources Wales	June 2019	Bi-Annually
Environmentally Sensitive Areas The National Assembly for Wales - GI Services (Department of Planning & Countryside)	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Blaenau Gwent County Borough Council - Municipal Offices Caerphilly County Borough Council Merthyr Tydfil County Borough Council Torfaen County Borough Council	August 2018 August 2018 August 2018 August 2018	Bi-Annually Bi-Annually Bi-Annually Bi-Annually
Marine Nature Reserves Natural Resources Wales	August 2018	Bi-Annually
National Nature Reserves Natural Resources Wales	June 2019	Bi-Annually
National Parks Natural Resources Wales	August 2018	Annually
Nitrate Vulnerable Zones Natural Resources Wales The National Assembly for Wales - GI Services (Department of Planning & Countryside)	July 2019 October 2005	Bi-Annually
Ramsar Sites Natural Resources Wales	July 2019	Bi-Annually
Sites of Special Scientific Interest Natural Resources Wales	March 2019	Bi-Annually
Special Areas of Conservation Natural Resources Wales	August 2018	Bi-Annually
Special Protection Areas Natural Resources Wales	August 2018	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
1	British Geological Survey - Enquiry Service British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	Natural Resources Wales Ty Cambria, 29 Newport Road, Cardiff, CF24 0TP	Telephone: 0300 065 3000 Email: enquiries@naturalresourceswales.gov.uk
3	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
4	Ordnance Survey Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	Caerphilly County Borough Council - Environmental Health Department Pontllanfraith, Blackwood, NP12 2YW	Telephone: 01443 815588 Fax: 01443 864307 Website: www.caerphilly.gov.uk
6	The Coal Authority - Property Searches 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0345 762 6848 Fax: 01623 637 338 Email: groundstability@coal.gov.uk Website: www2.groundstability.com
7	PointX 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	Caerphilly County Borough Council Nelson Road, Tredomen, Ystrad Mynach, CF82 7WF	Telephone: 01443 815588 Fax: 01443 864307 Website: www.caerphilly.gov.uk
-	Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



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Intégral

Géotechnique

Groundwater Vulnerability

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Bedrock Aquifers

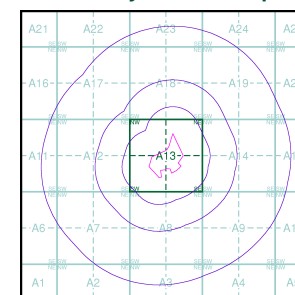
- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

Superficial Aquifers

- High Vulnerability, Principal Aquifer
- High Vulnerability, Secondary Aquifer
- Medium Vulnerability, Principal Aquifer
- Medium Vulnerability, Secondary Aquifer
- Low Vulnerability, Principal Aquifer
- Low Vulnerability, Secondary Aquifer

- Unproductive Aquifer
- Soluble Rock

Site Sensitivity Context Map - Slice A



Order Details

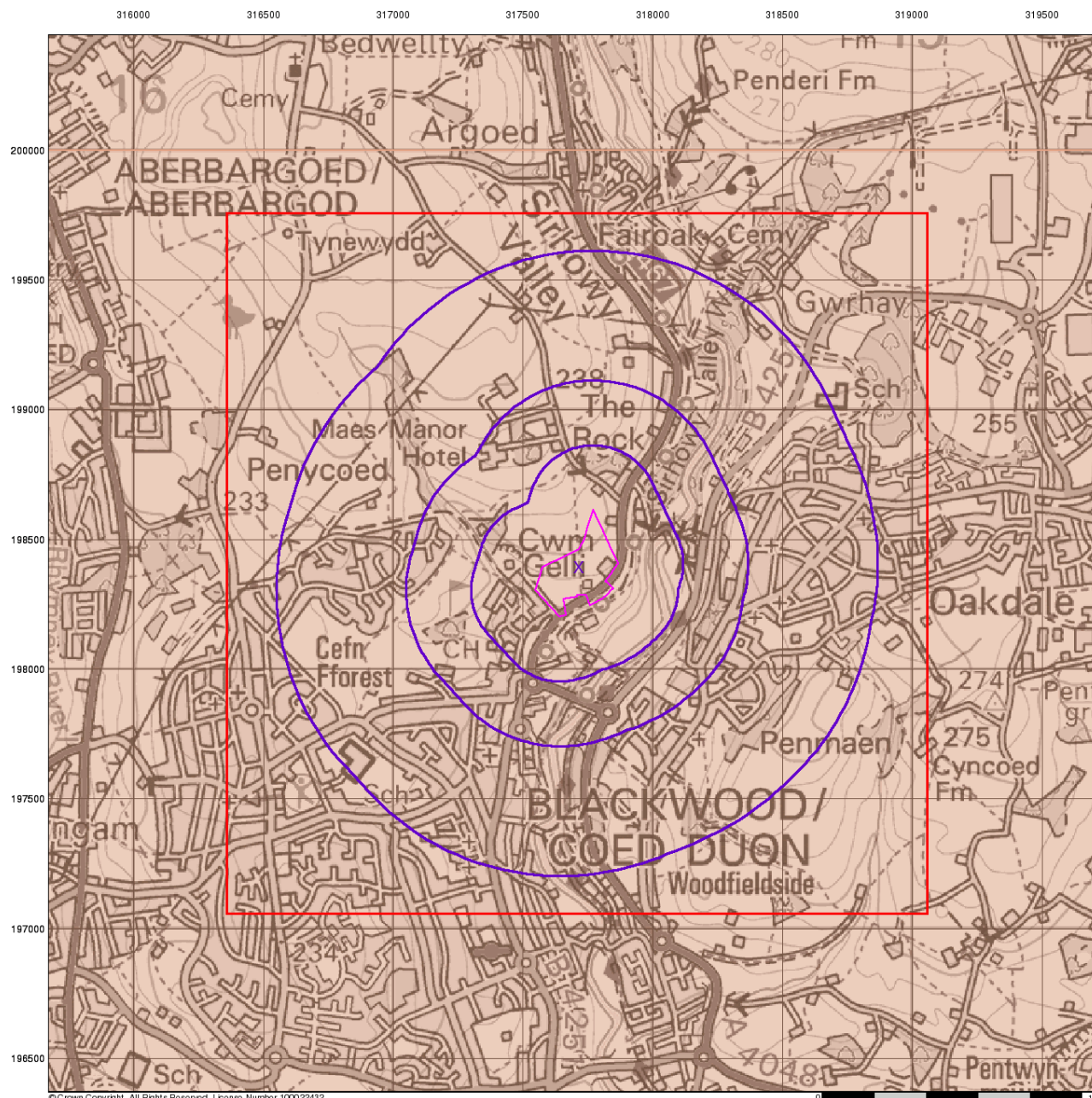
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 Site Area (Ha): 6.01
 Search Buffer (m): 1000

Site Details

Cwm Gelli Farm, Blackwood

Landmark
 INFORMATION GROUP

Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



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Intégral Géotechnique

Bedrock Aquifer Designation

General

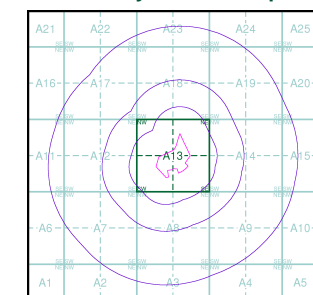
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- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

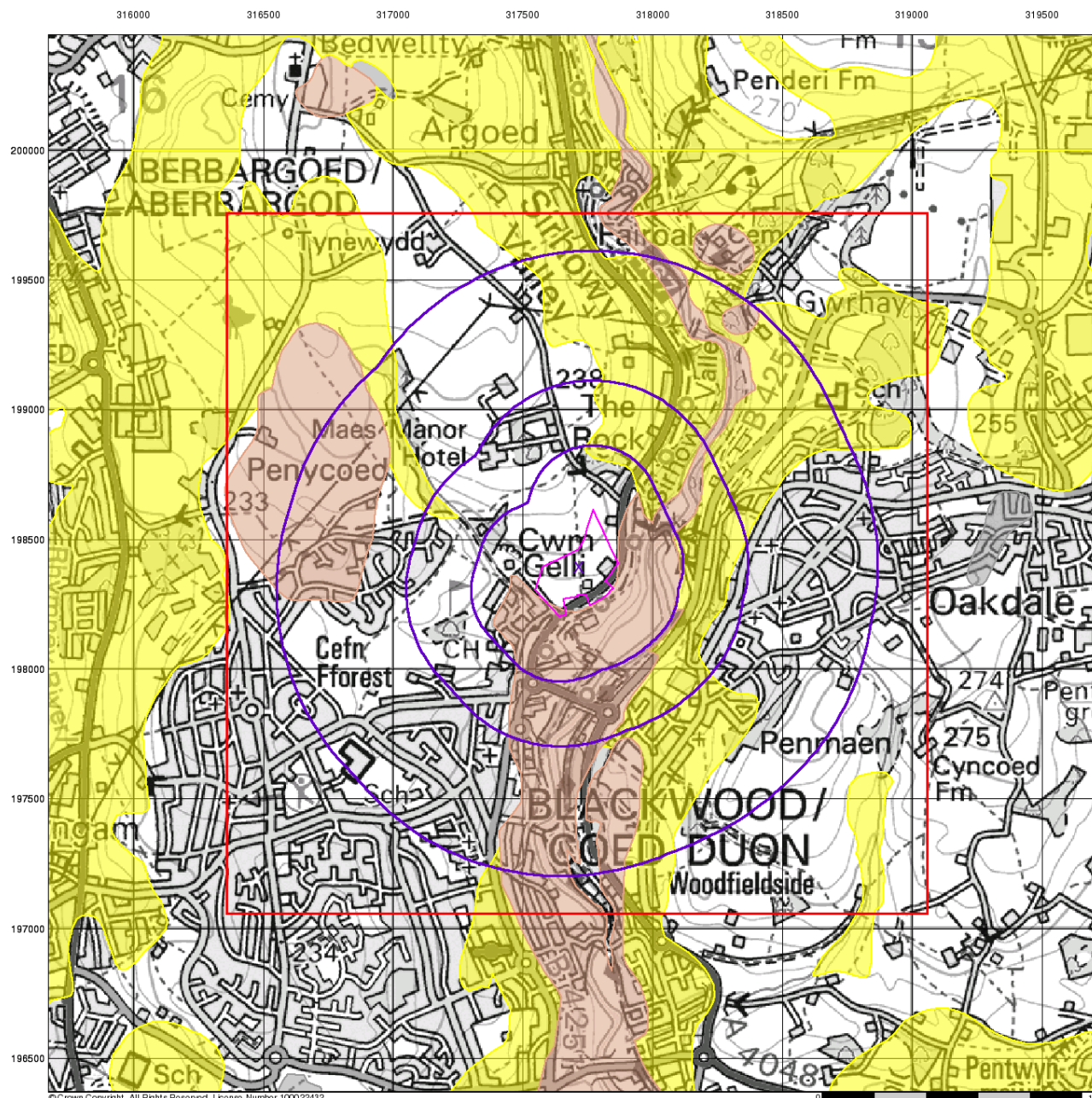
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Intégral Géotechnique

Superficial Aquifer Designation

General

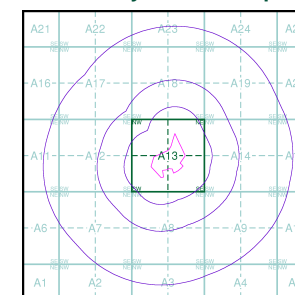
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- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A



Order Details

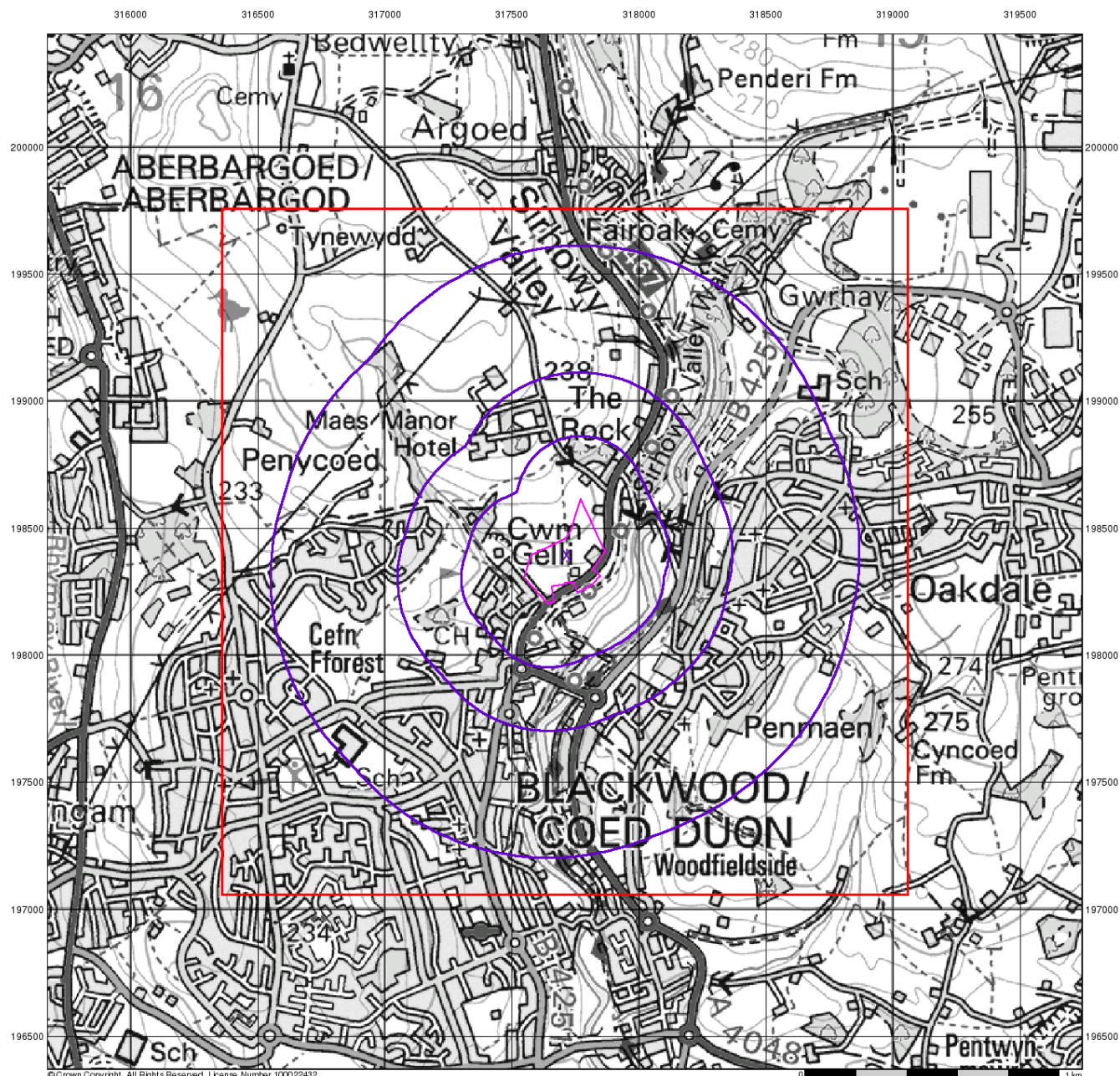
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Site Area (Ha): 6.01
Search Buffer (m): 1000

Site Details

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Intégral Géotechnique

Source Protection Zones

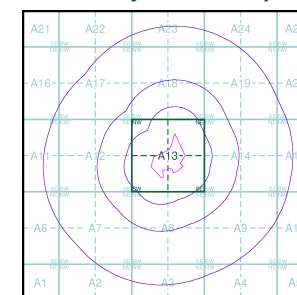
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)

Site Sensitivity Context Map - Slice A



Order Details

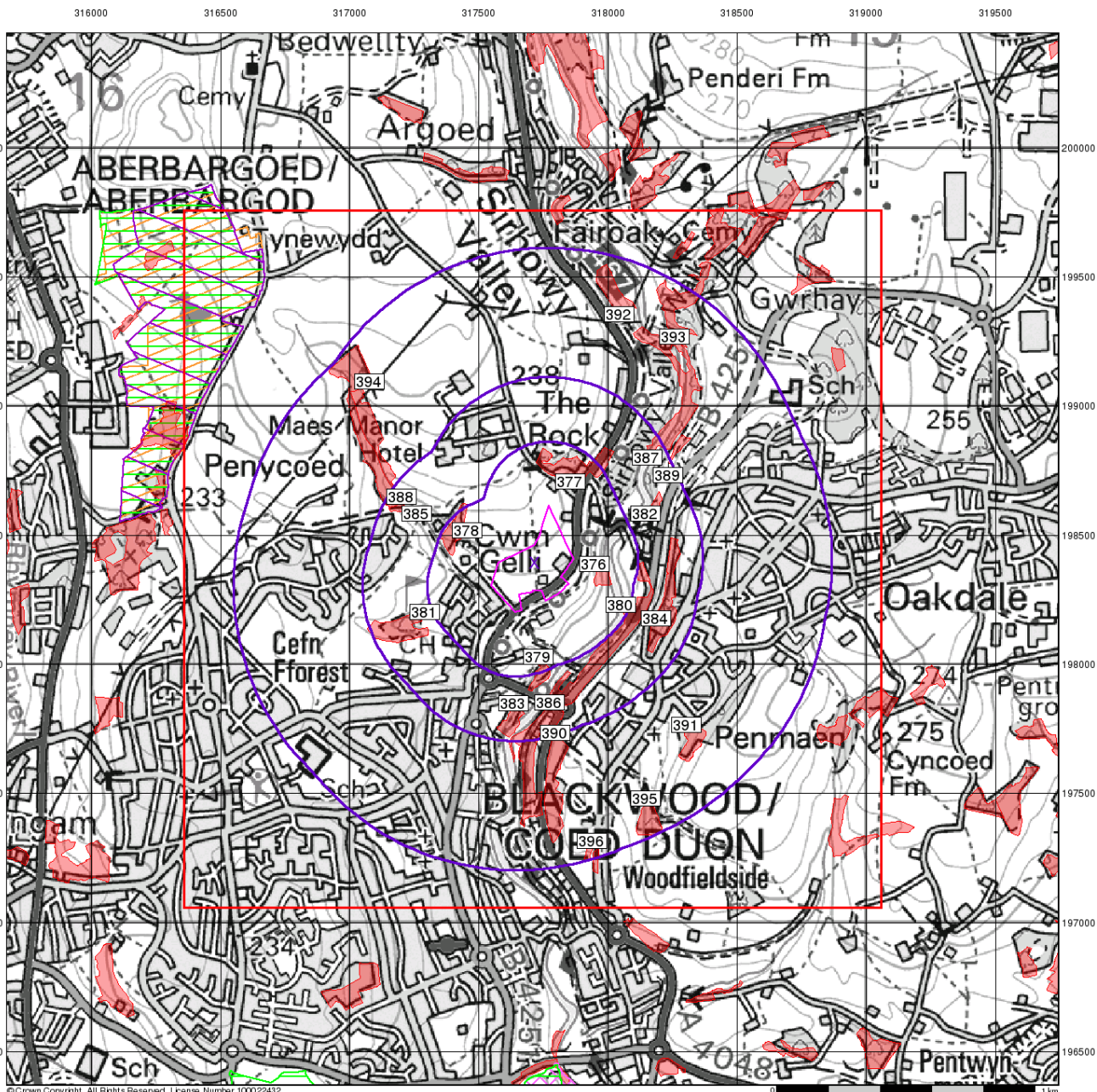
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 Site Area (Ha): 6.01
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Site Details

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Intégral Géotechnique

Sensitive Land Uses

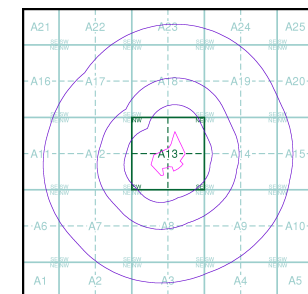
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Sensitive Land Uses

- Ancient Woodland
- Area of Adopted Green Belt
- Area of Unadopted Green Belt
- Area of Outstanding Natural Beauty
- Environmentally Sensitive Area
- Forest Park
- Local Nature Reserve
- Marine Nature Reserve
- National Nature Reserve
- National Park
- Nitrate Sensitive Area
- Nitrate Vulnerable Zone
- Ramsar Site
- Site of Special Scientific Interest
- Special Area of Conservation
- Special Protection Area
- World Heritage Sites

Site Sensitivity Context Map - Slice A



Order Details

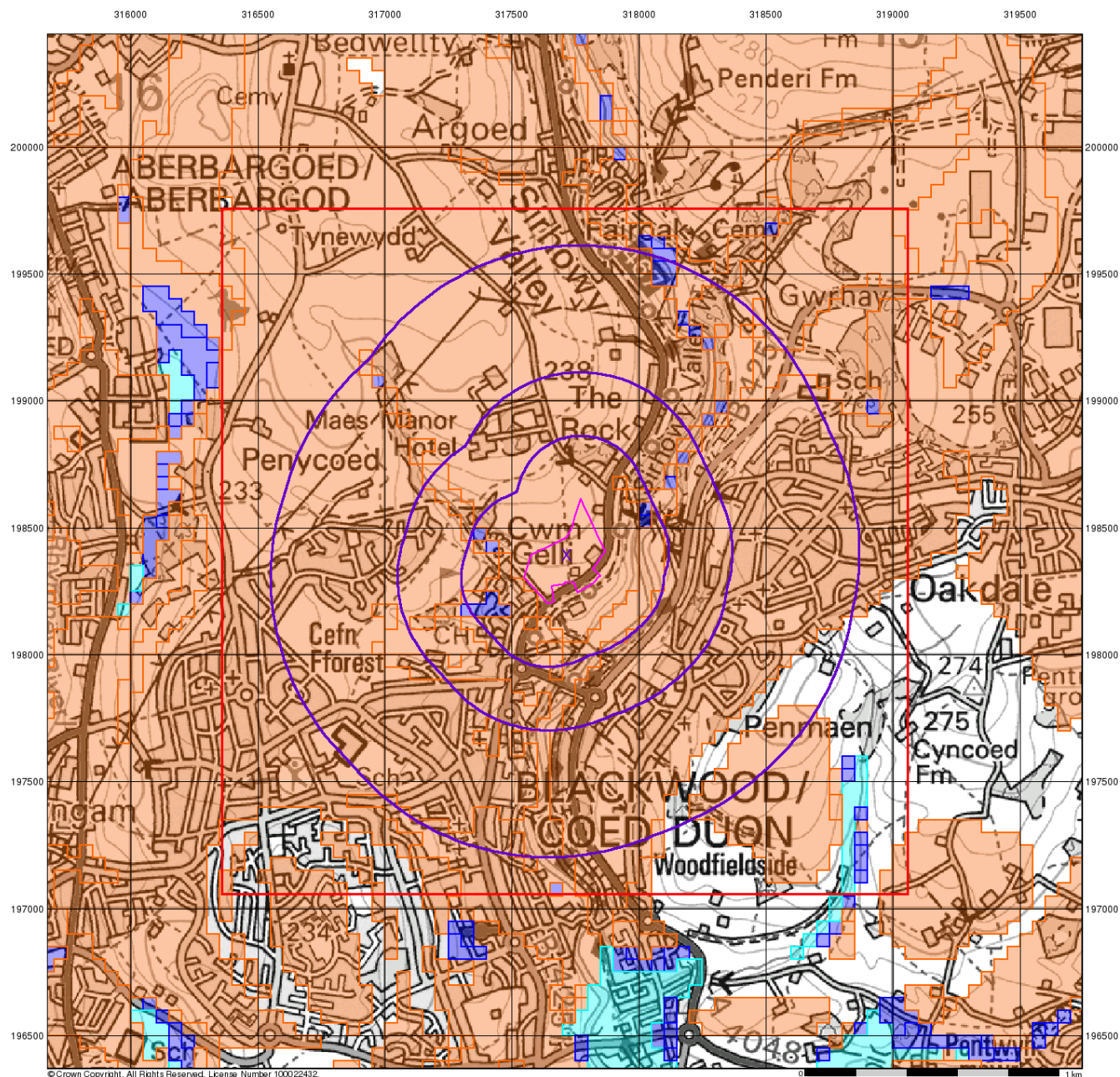
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Site Details

Cwm Gelli Farm, Blackwood

Landmark
 INFORMATION GROUP

Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



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Intégral Géotechnique

BGS Flood GFS Data

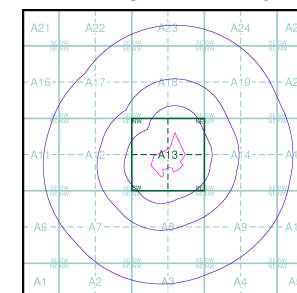
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 223163566_1_1
 Customer Ref: 12553/JJ
 National Grid Reference: 317720, 198390
 Slice: A
 Site Area (Ha): 6.01
 Search Buffer (m): 1000

Site Details

Cwm Gelli Farm, Blackwood

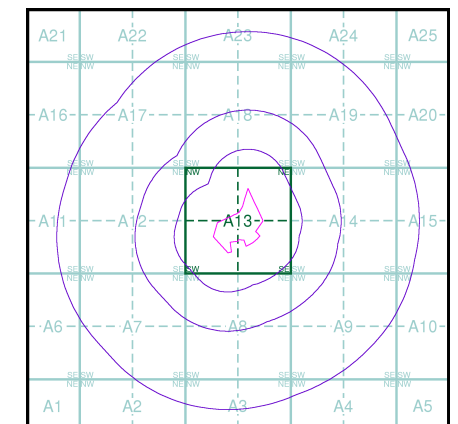
Landmark
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Intégral Géotechnique

- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
 - Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention Control
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Prosecution Relating to Controlled Waters
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - EA Historic Landfill (Buffered Point)
 - EA Historic Landfill (Polygon)
 - Integrated Pollution Control Registered Waste Site
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
 - BGS Recorded Mineral Site
- Geological**
- BGS Recorded Mineral Site

Site Sensitivity Map - Slice A



Order Details

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APPENDIX C

FLOCCULENT DOSING TEST & MSDS FOR

PROPSOED FLOCCULANTS

Safety Data Sheet



Clearflow Gel Flocculant 360

1. Identification of the Product and the Company

Product Name: Clearflow Cyclone Gel Flocculant 360, Water Lynx Cyclone Block 360, Water Lynx Gel Block 360

Product Type: Solid **Chemical Family:** Anionic polymer

Material Uses: Clearflow Cyclone Gel Flocculant 360 is used as a flocculating agent in municipal and industrial water and wastewater treatment.

Supplier: Clearflow Group Inc. #140, 134 Pembina Road Sherwood Park, AB T8H 0M2
Ph. 780-410-1403 Fx. 780-410-1406 www.clearflowgroup.com

In Case of Emergency: 780-410-1403

2. Composition / Information on Ingredients

United States / Canada

Name:	CAS Number	% by Weight
Proprietary Blend	-	100%

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

3. Hazard Identification

Potential Acute Health Effects

Inhalation: Inhalation of vapours, mists or dusts of the product may be irritating to the respiratory system. May irritate mouth, nose, and throat.

Ingestion: May cause irritation of the lining of the stomach.

Skin: Mild to Moderate irritation can occur. Prolonged or repeated contact may cause defatting and drying of the skin. Prolonged or repeated contact may cause discomfort and local redness.

Eyes: May cause eye irritation. May result in mild to moderate irritation to eyes.

4. First Aid Measures

Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.

Skin contact: In case of contact, rinse with soap and water. Remove contaminated clothing and launder before reuse.

Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Notes to Physician: Treatment based on sound judgement of physician and individual reactions of patient.

**Check with your site manager
that you have consent to use
flocculant on site**

5. Fire-Fighting Measures

Flash Point: None.

Flash Point Method: Not applicable.

Autoignition Temperature: Not available.

Flammable Limits in Air (%): Not available.

Extinguishing Media

Suitable: Use an extinguishing media suitable for the surrounding fire.

Not Suitable: None known.

Hazardous Thermal

Decomposition Products: Carbon and Nitrogen Oxides.

Special Protective

Equipment for Fire-Fighters: Fire fighters should wear full protective clothing, including self-contained breathing equipment.

NFPA Ratings for this product are: HEALTH 1

FLAMMABILITY 1

FLAMMABILITY 0

INSTABILITY 1

HMS Ratings for this product are: HEALTH 1

FLAMMABILITY 0

REACTIVITY 1

6. Accidental Release Measures

Personal precautions: Wear appropriate protective equipment. Wet product and aqueous solutions of product are very slippery. Trace amounts of product on smooth surfaces can become extremely slippery when wet.

Environmental Precautions: Prevent entry of concentrated solutions into sewers or streams, dike if needed.

Procedure for Clean-up: Sweep or scoop dry material and place in appropriate container. Absorb aqueous solutions with a dry inert material, such as clay, and place in an appropriate waste disposal container. After most of the material has been cleaned-up clean the area with warm, soapy water.

7. Handling and Storage

Handling: For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment.

Storage: Store in a cool, dry area. Store in accordance with good industrial practices. Keep away from direct sunlight. Protect against physical damage.

8. Exposure Controls / Personal Protection

Personal Protection

Respiratory: A respirator is not be required when working with Clearflow Cyclone Gel Flocculant 360.

Hands: Use gloves appropriate for work or task being performed. Recommended: PVC, vinyl, or rubber.

Eyes: Safety eyewear should be used when there is a likelihood of exposure. Recommended: Chemical goggles; also wear a face shield if splashing hazard exists.

Skin: Skin Contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Other Personal

Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Engineering Controls: Local exhaust ventilation as necessary to maintain exposure to within applicable limits.

9. Physical and Chemical Properties			
Physical State:	Solid	Color:	White or off-white
Odor:	Slightly Acidic	pH:	~7
Specific Gravity:	~1.1	Boiling/Condensing Point:	Not available.
Melting/Freezing Point:	Not available.	Vapour Pressure:	Not available.
Vapour Density:	Not available.	% Volatile by Volume:	Not available.
Evaporation Rate:	Not available.	Solubility:	Completely soluble but dissolves very slowly.
VOCs:	Not available.	Viscosity:	Concentration dependant.
Molecular Weight:	Not available.	Other:	None

10. Stability and Reactivity	
Chemical Stability:	The product is stable.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	High temperatures.
Materials to Avoid:	Strong bases such as sodium hydroxide may cause the release of ammonia.
Hazardous Decomposition Products:	At high temperatures carbon oxides and nitrogen oxides may be released upon decomposition.
Additional Information:	No additional information.

11. Toxicological Information	
Principle Routes of Exposure	
Ingestion:	May cause irritation of the lining of the stomach.
Skin contact:	Mild to moderate irritation can occur. Prolonged or repeated contact may cause defatting and drying of the skin. Prolonged or repeated contact may cause discomfort and local redness.
Inhalation:	Inhalation of vapours, mists or dusts of the product may be irritating to the respiratory system. May irritate mouth, nose, and throat.
Eye Contact:	May causes eye irritation. May result in mild to moderate irritation to eyes.
Additional Information:	Prolonged and repeated contact with the skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis.

12. Ecological Information			
Aquatic Ecotoxicity			
Ingredient	Species	Test	Result
Whole Product	<i>Oncorhynchus mykiss</i> (Rainbow Trout)	LC50 96 hr	147.5 mg/L
	<i>Daphnia magna</i>	LC50 48 hr	>1500 mg/L

Other Information:	
Bioaccumulation:	The product is not expected to bioaccumulate.
Persistence / Degradability:	Full degradation through environmental exposure is expected. Degradation initiation and rate is dependent on UV exposure.

Acute Toxicity	
Acute Oral LD50:	Oral LD50 (Rat) > 5000 mg/kg
Acute Dermal LD50:	Not available.
Acute Inhalation LC50:	Not available.

Carcinogenicity	
Acrylamide is a suspected human carcinogen.	
Carcinogenicity Comment:	No additional information available.
Reproductive Toxicity / Teratogenicity / Embryotoxicity / Mutagenicity:	Not available.

13. Disposal Considerations	
Disposal of Waste Method:	Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.
Contaminated Packaging:	Empty containers should be recycled or disposed of through an approved waste management facility.

14. Transport Information						
Regulatory Information	UN Number	Proper Shipping Name	Hazard Class	PG*	Label	Additional Information
DOT (U.S.)	-	-	-	-	-	not a regulated product
TDG (Canada)	-	-	-	-	-	not a regulated product

PG* : Packaging Group

15. Regulatory Information	
U.S. TSCA Inventory Status:	All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.
Canadian DSL Inventory Status:	All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

16. Other Information	
Additional Information:	This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.
Prepared By:	Clearflow Group, Inc.
Date of Issue:	1/05/2021
Change List:	original document – 1/13/2015 data review, SDS conversion, address update – 4/08/2019 Logo update, data review, product name update – 1/05/2021

Disclaimer:	NOTICE TO READER: Clearflow, expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.
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Do not use ingredient information and/or ingredient percentages in this SDS as a product specification. For product specification information refer to a Product Specification Sheet and/or a Certificate of Analysis. These can be obtained from Clearflow Group.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Clearflow makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Clearflow's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

END OF SDS

Safety Data Sheet



Clearflow Gel Block Flocculant 494

1. Identification of the Product and the Company

Product Name: Clearflow Gel Block Flocculant 494 **Product Type:** Gel Block **Chemical Family:** Coagulant/Flocculant

Material Uses: Clearflow Gel Block Flocculant 494 is used as a flocculation agent in municipal and industrial water and wastewater treatment.

Supplier: Clearflow Group Inc. 140,134 Pembina Rd Sherwood Park, AB T8H 0M2
Ph. 780-410-1403 Fx. 780-410-1406 www.clearflowgroup.com

In Case of Emergency: 780-410-1403

2. Composition / Information on Ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

3. Hazard Identification

Potential Acute Health Effects

Inhalation: Inhalation of vapours, mists or dusts of the product may be irritating to the respiratory system. May irritate mouth, nose, and throat.
Ingestion: May cause irritation of the lining of the stomach.
Skin: Mild to Moderate irritation can occur. Prolonged or repeated contact may cause defatting and drying of the skin. Prolonged or repeated contact may cause discomfort and local redness.
Eyes: May cause eye irritation. May result in mild to moderate irritation to eyes.

4. First Aid Measures

Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.
Skin contact: In case of contact, rinse with soap and water. Remove contaminated clothing and launder before reuse.
Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.
Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Notes to Physician: Treatment based on sound judgement of physician and individual reactions of patient.

5. Fire-Fighting Measures

Flash Point: Not available.

Flash Point Method: Not applicable.

Autoignition Temperature: Not available.

Flammable Limits in Air (%): Not available.

Extinguishing Media

Suitable: Use an extinguishing media suitable for the surrounding fire.
Not Suitable: None known.

Hazardous Thermal

Decomposition Products: Carbon and Nitrogen Oxides.

Special Protective

Equipment for Fire-Fighters: Fire fighters should wear full protective clothing, including self-contained breathing equipment.

NFPA Ratings for this product are: HEALTH 1 FLAMMABILITY 0 INSTABILITY 1

HMIS Ratings for this product are: HEALTH 1 FLAMMABILITY 0 REACTIVITY 1

6. Accidental Release Measures

Personal precautions: Wear appropriate protective equipment. Wet product and aqueous solutions of product are very slippery. Trace amounts of product on smooth surfaces can become extremely slippery when wet.

Environmental Precautions: Prevent entry of concentrated solutions into sewers or streams, dike if needed.

Procedure for Clean-up: Sweep or scoop dry material and place in appropriate container. Absorb aqueous solutions with a dry inert material, such as clay, and place in an appropriate waste disposal container. After most of the material has been cleaned-up clean the area with warm, soapy water.

7. Handling and Storage

Handling: For industrial use only. Handle and open containers with care. Avoid contact with eyes, skin and clothing. Do not ingest. Keep the containers closed when not in use. Protect against physical damage. Use appropriate personnel protective equipment.

Storage: Store in a cool, dry area. Store in accordance with good industrial practices. Keep away from direct sunlight. Protect against physical damage.

8. Exposure Controls / Personal Protection

Personal Protection

Respiratory: A respirator should not be required when working with Clearflow Gel Block Flocculant 494.
Hands: Use gloves appropriate for work or task being performed. Recommended: PVC, vinyl, or rubber.
Eyes: Safety eyewear should be used when there is a likelihood of exposure. Recommended: Chemical goggles; also wear a face shield if splashing hazard exists.
Skin: Skin Contact should be prevented through the use of suitable protective clothing, gloves and footwear, selected for conditions of use and exposure potential. Consideration must be given both to durability as well as permeation resistance.

Other Personal

Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Engineering Controls: Local exhaust ventilation as required.

9. Physical and Chemical Properties

Physical State: Solid

Color: White or off-white

Odor: Slight vinegar odor

pH: 6.5-7 (concentration dependant)

Specific Gravity: ~1.1

Boiling/Condensing Point: Not available.

Melting/Freezing Point: Not available.

Vapour Pressure: Not available.

Vapour Density: Not available.

% Volatile by Volume: Not available.

Evaporation Rate: Not available.

Solubility: Completely soluble but dissolves very slowly.

VOCs: Not available.

Viscosity: Concentration dependant.

Molecular Weight: Not available.

Other: None

**Check with your site manager that you have
consent to use flocculant on site**

10. Stability and Reactivity	
Chemical Stability:	The product is stable.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	High temperatures.
Materials to Avoid:	Strong bases such as sodium hydroxide may cause the release of ammonia.
Hazardous Decomposition Products:	At high temperatures carbon oxides and nitrogen oxides may be released upon decomposition.
Additional Information:	No additional information.

11. Toxicological Information

Principle Routes of Exposure

Ingestion:	May cause irritation of the lining of the stomach.
Skin contact:	Mild to moderate irritation can occur. Prolonged or repeated contact may cause defatting and drying of the skin. Prolonged or repeated contact may cause discomfort and local redness.
Inhalation:	Inhalation of vapours, mists or dusts of the product may be irritating to the respiratory system. May irritate mouth, nose, and throat.
Eye Contact:	May cause eye irritation. May result in mild to moderate irritation to eyes.

Additional Information: Prolonged and repeated contact with the skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis.

Acute Toxicity

Acute Oral LD50:	Oral LD50 (Rat) > 5000 mg/kg
Acute Dermal LD50:	Not available.
Acute Inhalation LC50:	Not available.

Carcinogenicity

2-Propenamide is a suspected human carcinogen, but is present at <0.05% (drinking water additive standard).

Carcinogenicity Comment: No additional information available.

Reproductive Toxicity / Teratogenicity / Embryotoxicity / Mutagenicity: Not available.

12. Ecological Information

Aquatic Ecotoxicity

Ingredient	Species	Test	Result
Whole product	Rainbow Trout (<i>Oncorhynchus mykiss</i>)	96hr LC50 Survival (OECD 203)	210.2 mg/L
	<i>Daphnia magna</i>	48hr EC50 Immobilisation (OECD 202)	418.4 mg/L

Other Information:

Bioaccumulation:	The product is not expected to bioaccumulate.
Persistence / Degradability:	Complete mineralization is expected under environmental exposure. Degradation initialization and rate are UV dependent.

13. Disposal Considerations

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.

Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. Transport Information

Regulatory Information	UN Number	Proper Shipping Name	Hazard Class	PG*	Label	Additional Information
DOT (U.S.)	-	-	-	-	-	not a regulated product
TDG (Canada)	-	-	-	-	-	not a regulated product

PG* : Packaging Group

15. Regulatory Information

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDSL) or exempt.

16. Other Information

Additional Information: This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

Prepared By: Clearflow Group, Inc.

Date of Issue: 1/05/2021

Change List:
original – 10/24/2011
Company name, minor formatting, review of data – 03/21/2016
data review – 04/10/2018
convert to SDS – 04/04/2019
Logo update, data review, product name update – 1/05/2021

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All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Clearflow makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Clearflow's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein. This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

END OF SDS

Settlement Test Report

Frog reference	FRS1942
Customer	RSK
Site	Blackwood
Sample	Provided by customer (sent 25/11/21)
Date	29.11.2021
Lead Author	Natalia Perez del Postigo, Technical Specialist, natalia@frogevironmental.co.uk

Table of Contents

Introduction	2
About Water Lynx.....	2
Test Process.....	3
Disclaimer	3
Results	4
Discussion of Results.....	5

Introduction

Testing has been undertaken on a soil & water sample from the above mentioned site. The testing process examines the rate of natural separation of solid fraction from water and helps inform the type of silt pollution control measures that may be required during construction.

frog environmental has a protocol in place that we will first exhaust possibilities for treating water passively i.e. without active products such as flocculants. Only when this avenue has been exhausted through testing and site investigation will we recommend active controls, such as Water Lynx™.

Should a flocculant be required there is a preference for working with the customer to develop gravity fed treatment systems. Gravity fed systems have several distinct advantages over pumped system:

- Reduced energy and carbon footprint
- Reduced fuel costs
- Reduced pump hire costs
- Reduced risk associated with refueling

A limitation of gravity fed treatment systems can be the effective mixing of Water Lynx with effluent. Forced mixing using a Pipe Reactor is required when the solid fraction cannot be easily separated from water, gravity fed systems are therefore not appropriate for every site.

About Water Lynx

Water Lynx is an active silt control product applied in a slow release solid gel block. It is designed to separate liquid from solid. Water Lynx is stored in dehydrated state and only activates on contact with water. There are several different blends of Water Lynx frequently used in the UK and settlement testing establishes the most effective blend for the site in question.

All Water Lynx products applied in the UK are polyacrylamide based. Sometimes a combination of 2 different Water Lynx blends will provide the most effective solid separation.

For peer reviewed information regarding the safety of Water Lynx and its fate in the environment, a literature review is available from frog environmental upon request.

Residual acrylamide from manufacturing is present in very small concentrations (below standards applied for safe drinking water). Should this be a concern, testing for acrylamide concentrations in effluent can be undertaken as part of a management system to ensure thresholds are not breached. More typically flow and load calculations are used to show concentration levels cannot be breached.

Polyelectrolytes are also present in small volumes. There are no UK laboratory tests available for polyelectrolytes with UKAS accreditation, therefore flows and load calculations are used to show that thresholds cannot be breached. When supporting the customer with deployment strategy, frog environmental undertake management calculations, evidencing concentrations of key parameters and compliance with relevant Environmental Quality Standards (EQS).

Test Process

The aim of testing is to record the natural separation of the solid fraction from water in controlled conditions. The control is tested against different Water Lynx™ blends with reaction times and type of floc produced noted. Where a control shows promise for effective natural settlement this will be noted in the report and the customer advised of passive silt management interventions.

Once all Water Lynx™ blends have been tested, the most effective blend is photographed and included in the report, with the results of testing from other less effective blends omitted.

Repeated agitation of the same sample gives a good indication for the reaction time required to settle solids from suspension. In each case an NTU reading is taken and shown in the key alongside a photographic record of the test.

The agitation required for reaction helps inform a deployment plan i.e. how many blocks, positioning of blocks and any other measures that may be required such as re-circulation or forced mixing.

In some cases, Water Lynx solid gel blocks will not be effective. Whilst cationic flocculants and liquid products are available, frog environmental do not supply these products for use in 'open' applications, such as construction site silt control due to the associated environmental risks.

Where products tested by frog environmental are not effective this will be openly discussed with the client and support provided in objectively reviewing alternative pollution control interventions.

Disclaimer

The use of flocculants on site requires permission from the local regulatory authority. Proceeding with deployment of Water Lynx without regulatory permission is not advised.

Whilst frog environmental provides advice on product specification and deployment, frog environmental is not in control of the construction site or any portion of the construction site at any time. frog environmental do not take responsibility for the quality of water discharging from site at any time and do not accept design liability for the efficacy of any water treatment systems that are developed as part of this report. Please refer to our full terms and conditions prior to procurement, which form part of any contract for supply of silt control products and services.

Testing results are indicative and are reliant on the representative nature of samples. Most silt control systems require an element of fine tuning once installed to operate at optimal levels.

Results



A. Control vs 30 min Settlement

Turbidity
315 NTU to 24.83 NTU



B. Control vs 12h Settlement

Turbidity
315 NTU to 19.59 NTU




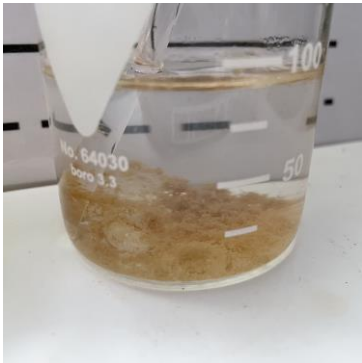
A. **Test 1** Control vs WL 494 / 360
(15 seconds agitation plus 15 seconds settlement)

Turbidity
315 to 48.99 NTU



B. **Test 2** Control vs WL 494 / 360
(further 15 second agitation from Test 1 plus 30 seconds settlement)

Turbidity
315 to 24.83 NTU

 <p>C. Test 3 Control vs WL 494 / 360 (further 15 second agitation from Test 2 plus 60 second settlement)</p>	
<p>Turbidity 315 to 19.13 NTU</p>	<p>Test 3 Close Up</p>

Discussion of Results

Natural settlement over 10 min was significant, with NTU decreasing to 35.58. Settlement for 30 min decreased the NTU from 314 to 24.83, with visible change. Further 2h settlement decreased the NTU to 24.40. After 12h settlement the NTU decreased to 19.59.

This process demonstrates that the capacity for natural settlement such as that offered by a small attenuation system with low retention times would serve as primary treatment. The tests showed that natural separation of solids from suspension is possible via mechanical means only.

Whilst testing showed that natural separation is present, the testing with Water Lynx flocculant showed the most effective flocculant to be a combination of Water Lynx™ 494 & 360, with reactions occurring considerably fast from semi hydrated gel block state and a medium and light floc created. The initial mixing removed a sizeable fraction of solids from suspension, resulting in an NTU reading of 48.99 in the water column. Further agitation reduced the NTU to 24.83. A third stage of agitation finally reduced the turbidity to 19.13 NTU. With this results and the natural settlement observed, a treatment system with primary attenuation (pond), followed by deploying Water Lynx blocks in a treatment ditch followed by a Silt Capture Channel should be successful to reduce turbidity to the levels shown in testing.

In summary, whilst settlement testing has show that Water Lynx flocculants would be effective in removing solids from suspension, with a suitable attenuation feature and good site management, natural settlement should be possible without the use flocculants. However, to ensure that the highest quality effluent is produced we would advise the creation of a detailed deployment and maintenance plan, with clearly defined roles and responsibilities on site.

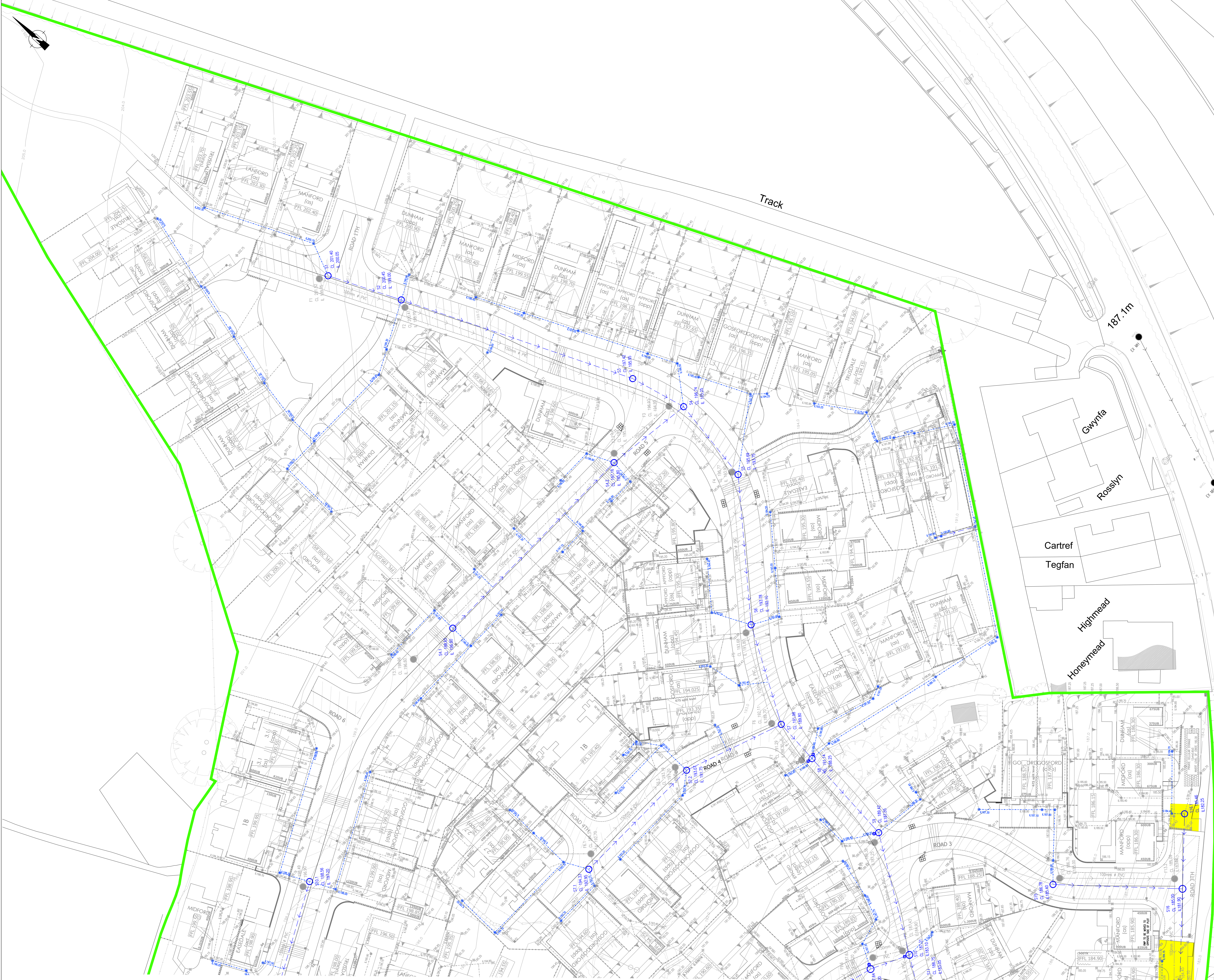
There are 4 key components to a treatment system using Water Lynx:

1. **Mixing:** the mixing of effluent with Water Lynx, through passive or forced measures.
2. **Capturing:** trapping flocculated particles, either in attenuation features, Silt Mats or a combination of measures.
3. **Maintenance:** removing accreted silt from attenuation features or Silt Capture Channels
4. **Monitoring:** testing effluent quality to ensure compliance

More information on the deployment of Water Lynx is available from frog environmental.

APPENDIX D

STORM DRAIN ENGINEERING DRAWINGS



- DO NOT SCALE FROM THIS DRAWING.
- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERING AND ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
- THE CONTRACTOR IS TO CHECK & VERIFY ALL SITE DIMENSIONS & LEVELS BEFORE WORKS START ON SITE.
- POSITIONS OF EXISTING SERVICES ADJACENT TO OR CROSSING PROPOSED EXCAVATIONS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK.
- ALL EXISTING SERVICES AND OBSTACLES TO BE TRACED AND ASSSESSED PRIOR TO ANY CLEANING BEING UNDERTAKEN.
- THE DIVERSION OF ANY PUBLIC SERVICES IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT AUTHORITY/COMPANY.
- DRAINAGE DESIGN UNDERTAKEN IN ACCORDANCE WITH SERIES FOR ADOPTION 7TH EDITION.
- DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS PART A, 16.6.17.2 AND 16.6.17.3 FOR ADOPTION 7TH EDITION.
- ADOPTABLE FOUL WATER PLOT DRAINAGE TO BE LAYED WHEN GRADING UP TO 50 PLOTS SAID NO FLATTER THAN 1:80 & COVERED THEREAFTER UNLESS NOTED OTHERWISE. SLOPE NO FLATTER THAN 1:50.
- A SURFACE WATER PLOT CAN ONLY SERVE A PROPERTY WITH THE ADOPTABLE SURFACE WATER PLOT DRAINAGE TO BE LAYED UNLESS NOTED OTHERWISE.
- FOUL & SURFACE WATER PLOT CONNECTIONS TO BE CHECKED AGAINST TAILOR WIMPEY HOUSEHOLD PLANS BEFORE CONSTRUCTION UNDERTAKEN.
- CONTRACTOR TO LOCATE MANHOLE COVERS OUTSIDE OF VEHICLE TRACKS & ORIENTATED SQUARE WITH CARRIAGEWAY.
- MANHOLE COVERS IN CARRIAGEWAY TO HAVE FACTORY APPLIED SLOD RESISTANT COATING APPLIED TO SURFACE.
- THE DEVELOPER MUST SELF-TEST AND CERTIFY THAT THE DESIGN CRITERIA, MATERIAL STANDARDS AND INFORMATION SPECIFICATIONS FOR THE PROPOSED ADOPTABLE SERIES ARE IN ACCORDANCE WITH THOSE SET OUT IN "SERIES FOR ADOPTION 7TH EDITION" FOR BELOW GROUND SERVICES AND THE REQUIREMENTS OF SOWA AS THE STATUTORY SEWERAGE UNDERTAKER.
- A SECTION ONE APPLICATION TO CONNECT MUST BE MADE TO SOWA. THE DEVELOPER SHALL GIVE 21 DAYS NOTICE PRIOR TO CONNECTION. THE WORKS MAY ONLY BE UNDERTAKEN AT A SOWA ACCREDITED CONTRACTOR.
- CONTRACTOR TO VERIFY INVERT LEVELS AT DRAINAGE CONNECTION POINTS. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- GRILLS TO BE Laid DOWN BELOW THE ADJACENT ROAD SURFACE.
- NO LOOSE CHIPPINGS ARE TO BE USED WITHIN OR NEAR TO THE ADOPTABLE HIGHWAY.
- FOOTPATH SURFACING TO BE Laid DOWN HIGHER THAN THE ADJACENT KERS.
- FRONT ACCESS TO ALL PLOTS TO BE AS PER FFL IN ACCORDANCE WITH THE BUILDING REGULATIONS PART M.
- ALL HIGHWAY DESIGN RECOMMENDATIONS ARE ADOPTED & ARE SUBJECT TO APPROVAL FROM THE HIGHWAY AUTHORITY.

LEGEND

EXTERNAL WORKS

DRAINAGE

- ADOPTABLE FOUL WATER MAIN DRAINAGE
- ADOPTABLE FOUL WATER LATERAL DRAINAGE & INSPECTION CHAMBER
- PRIVATE FOUL WATER LATERAL DRAINAGE & INSPECTION CHAMBER
- TYPE 3 INSPECTION CHAMBER
- EXISTING DCWW FOUL WATER DRAINAGE
- ADOPTABLE SURFACE WATER MAIN DRAINAGE
- ADOPTABLE SURFACE WATER LATERAL DRAINAGE & INSPECTION CHAMBER
- PRIVATE SURFACE WATER LATERAL DRAINAGE & INSPECTION CHAMBER
- PRIVATE SURFACE WATER RODDING EYE
- PRIVATE SURFACE WATER ACO CHANNEL
- PRIVATE SURFACE WATER YARD GULLY
- DRAINAGE LOW POINT
- NON-ADOPTABLE HIGHWAY GULLY

LEGALS

- SITE BOUNDARY
- EASEMENT

SSS		OT	LF	11/08/21
20000		Shown, Checked, Date		

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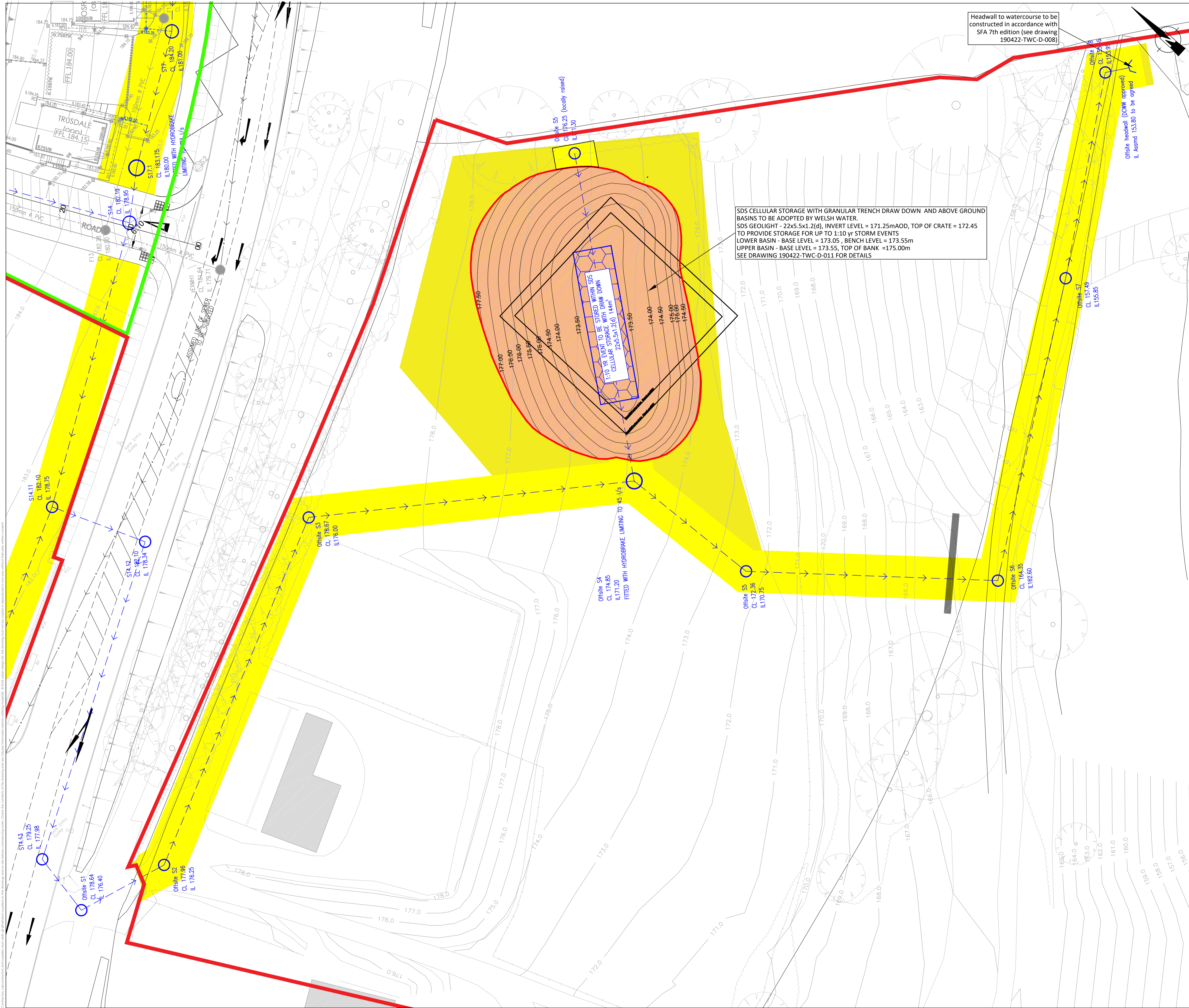
Project: **Cwm Gelli Farm Blackwood**

Drawing: **Surface Water S104 Agreement (Sheet 2)**

Scale: **1:250** Sheet Size: **A0**

Drawn: OT	Checked: LF	Revision: 11/08/2021
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190422_TWC_S104_SK_102



- DO NOT SCALE FROM THIS DRAWING.
- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERING AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.
- THE CONTRACTOR IS TO CHECK & VERIFY ALL SITE DIMENSIONS & LEVELS BEFORE WORKS START ON SITE.
- POSITIONS OF EXISTING SERVICES ADJACENT TO OR CROSSING PROPOSED EXCAVATIONS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK.
- ALL EXISTING SERVICES AND DRAINAGE TO BE TRACED & ASSESSED PRIOR TO SITE CLEARANCE BEING UNDERTAKEN.
- THE DIVERSION OF ANY PUBLIC SERVICES IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT AUTHORITY/COMPANY.
- DRAINAGE DESIGN UNDERTAKEN IN ACCORDANCE WITH SEWERS FOR ADOPTION 7TH EDITION.
- DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING REGULATIONS PART H, BS-EN 752 AND SEWERS FOR ADOPTION 7TH EDITION.
- ADOPTABLE FOUL WATER PLOT DRAINAGE TO BE 100mmØ WHEN SERVING UP TO 10 PLOTS (LAID NO FLATTER THAN 1:80) & 150mmØ THERE AFTER UNLESS NOTED OTHERWISE (LAID NO FLATTER THAN 1:150).
- A 100mmØ SURFACE WATER PIPE CAN ONLY SERVE 1 PROPERTY WITH THE ADOPTABLE SURFACE WATER PLOT DRAINAGE TO BE 150mmØ UNLESS NOTED OTHERWISE.
- FOUL & SURFACE WATER PLOT CONNECTIONS TO BE CHECKED AGAINST TAYLOR WIMPEY HOUSETYPE PLANS BEFORE CONSTRUCTION IS UNDERTAKEN.
- CONTRACTOR TO LOCATE MANHOLE COVERS OUTSIDE OF VEHICLE TRACKS & ORIENTATED SQUARE WITH CARRIAGEWAY.
- MANHOLE COVERS IN CARRIAGEWAY TO HAVE FACTORY APPLIED SKID RESISTANT COATING APPLIED TO SURFACE.
- THE DEVELOPER MUST SELF-VET AND CERTIFY THAT THE DESIGN CRITERIA, MATERIAL STANDARDS AND WORKMANSHIP SPECIFICATIONS FOR THE PROPOSED ADOPTABLE SEWERS ARE IN ACCORDANCE WITH THOSE SET OUT IN "SEWERS FOR ADOPTION" 7TH EDITION, THE WELSH MINISTERS STANDARDS AND THE REQUIREMENTS OF DCWVW AS THE STATUTORY SEWERAGE UNDERTAKER.
- A SECTION 106 APPLICATION TO CONNECT MUST BE MADE TO DCWVW. THE DEVELOPER SHALL GIVE 21 DAYS' NOTICE PRIOR TO CONNECTION, THE WORKS MAY ONLY BE UNDERTAKEN BY A SSP ACCREDITED CONTRACTOR.
- CONTRACTOR TO VERIFY INVERT LEVELS AT DRAINAGE CONNECTION POINTS. ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- GULLIES TO BE LAID 5mm BELOW THE ADJACENT ROAD SURFACE.
- NO LOOSE CHIPPINGS ARE TO BE USED WITHIN OR NEAR TO THE ADOPTABLE HIGHWAY.
- FOOTPATH SURFACING TO BE LAID 5mm HIGHER THAN THE ADJACENT KERB.
- FRONT ACCESS TO ALL PLOTS TO BE AS PER PFL IN ACCORDANCE WITH THE BUILDING REGULATIONS PART M.
- ALL HIGHWAY DESIGN RECOMMENDATIONS ARE ADVISORY & ARE SUBJECT TO APPROVAL FROM THE HIGHWAYS AUTHORITY.

LEGEND

DRAINAGE

ADOPTABLE SURFACE WATER MAIN DRAINAGE

LEGALS

TAYLOR WIMPEY SITE BOUNDARY

EASEMENT

LAND OWNERS RETAINED LAND

Rev	Issued	OT	LF	13.09.21
	Details	Drawn	Checked	Date

thinkurban Architecture & Civil Engineering

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Client: **Taylor Wimpey**

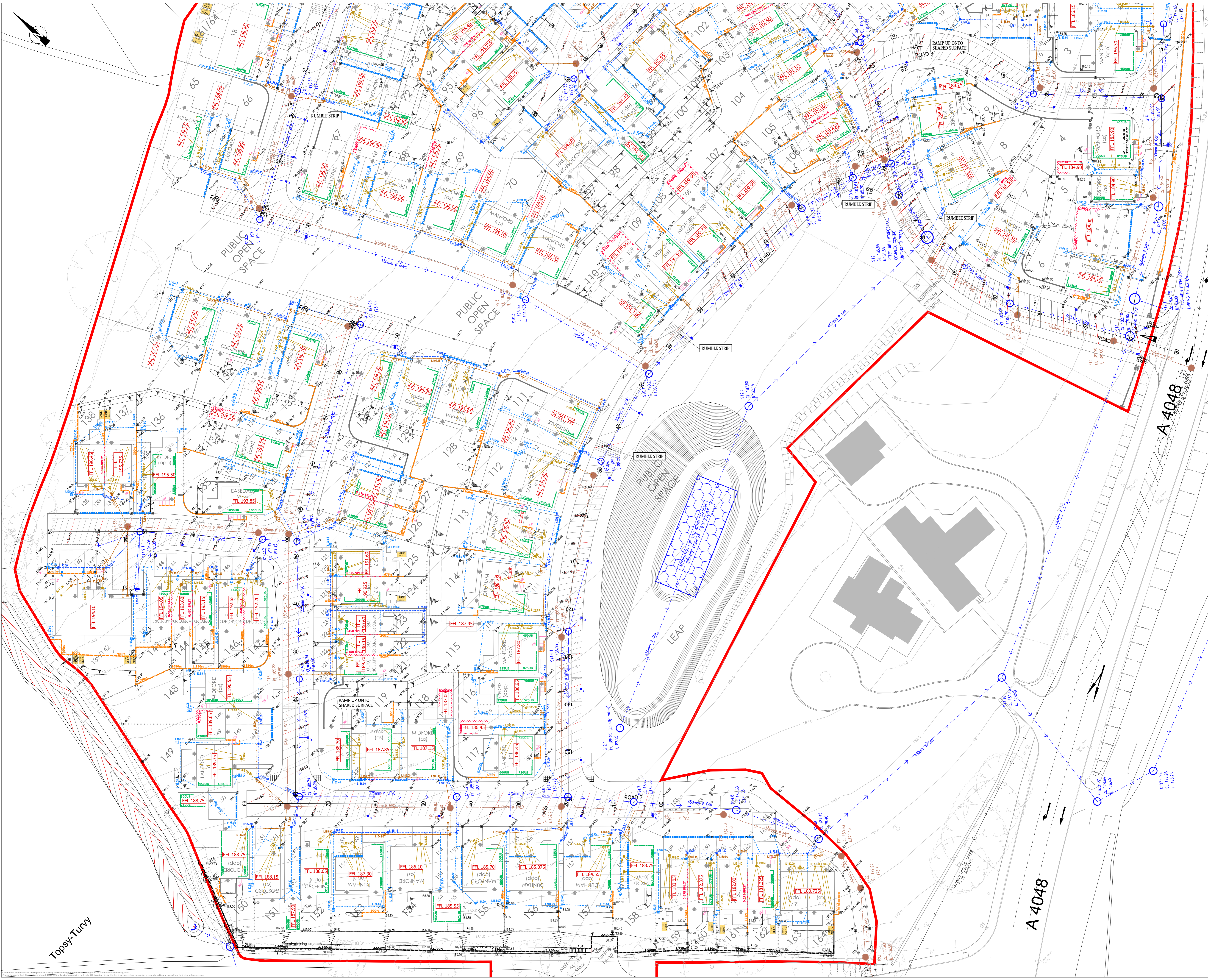
Project: **Cwm Gelli Farm Blackwood**

Drawing: **Offsite S104 Agreement**

Scale: **1:200** Sheet Size: **A1**

Drawn: **OT** Checked: **LF** Date: **13/09/2021**

Drawing Number: **190422_TWC_S104_SK_103** Revision: **-**



- DO NOT SCALE FROM THIS DRAWING.
- ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE STATED.
- THE DRAWING IS TO BE READ IN CONNECTION WITH ALL OTHER RELEVANT ENGINEERING AND ARCHITECTURE DRAWINGS AND SPECIFICATIONS.
- THE CONTRACTOR IS TO CHECK ALL SITE DIMENSIONS & LEVELS BEFORE WORKS START ON SITE.
- POSITIONS OF EXISTING SERVICES (ELECTRICITY, GAS, WATER, SEWER, TELEPHONE, CABLE, ETC.) ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK.
- ALL EXISTING SERVICES AND DRAINAGE TO BE TRACED AND ASSESSED PRIOR TO ANY CLEANING BEING UNDERTAKEN.
- THE OVERLAY OF ANY NEW SERVICES IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT AUTHORITY COMPANY.
- DRAINAGE DESIGN UNDERTAKEN IN ACCORDANCE WITH SEWERS FOR ADOPTION (SFA) 2015.
- DESIGNING TO THE REQUIREMENTS OF THE RELEVANT AUTHORITY COMPANY.
- ADAPTABLE RAIL WATER PLOT DRAINAGE TO BE 150mm Ø WHEN SERVING UP TO 10 PLOTS & 250mm Ø THEREAFTER UNLESS NOTED OTHERWISE.
- ADAPTABLE SURFACE WATER PLOT DRAINAGE TO BE 150mm Ø UNLESS NOTED OTHERWISE.
- POUR & SURFACE WATER PLOT CONNECTIONS TO BE CHECKED AGAINST TAILOR WIMPEY HOUSEHOLD PLANS BEFORE CONSTRUCTION IS UNDERTAKEN.
- CONTRACTOR TO LOCATE MANHOLE COVERS OUTSIDE OF VEHICLE TRACKS & ORIENTATED SQUARE WITH CARBONAT.
- MANHOLE COVERS IN CARBONAT TO HAVE FACTORY APPLIED SUEB ROBERTSON COATING APPLIED TO SURFACE.
- THE DEVELOPER MUST SELF-VERIFY AND CERTIFY THAT THE DESIGN CRITERIA, MATERIAL STANDARDS AND WORKMANSHIP SPECIFICATIONS FOR THE PROPOSED ADAPTABLE SERVICES ARE IN ACCORDANCE WITH THOSE SET OUT IN THE SFA 2015. THE DESIGN CRITERIA, MATERIAL STANDARDS, WORKMANSHIP AND THE PROPOSED ADAPTABLE SERVICES ARE TO BE CHECKED AGAINST TAILOR WIMPEY HOUSEHOLD PLANS.
- A SECTION FOR APPLICATION TO CONNECT MUST BE MADE TO TOWN. THE DEVELOPER SHALL ONLY EXISTING SERVICES PRIOR TO CONNECTION. THE WORKS MAY ONLY BE UNDERTAKEN BY AN ACCREDITED CONTRACTOR.
- CONTRACTOR TO VERIFY INVERT LEVELS AT DRAINAGE CONNECTION POINTS. ANY DISCREPANCIES TO BE REPORTED TO THE RELEVANT AUTHORITY COMPANY.
- GRILES TO BE Laid 5mm BELOW THE ADJACENT ROAD SURFACE.
- NO LOOSE CHIPPINGS ARE TO BE USED WITHIN OR NEAR TO THE ADAPTABLE HIGHWAY.
- POTHOLE PATCHING TO BE Laid 5mm BELOW THE ADJACENT ROAD.
- ADAPTABLE SERVICES TO ALL PLOTS TO BE 150mm Ø IN ACCORDANCE WITH THE RELEVANT REGULATIONS PART 8.
- ALL HIGHWAY DESIGN RECOMMENDATIONS ARE ADVISORY & ARE SUBJECT TO APPROVAL FROM THE RELEVANT AUTHORITY.
- ADAPTABLE SERVICES TO ALL PLOTS TO BE 150mm Ø IN ACCORDANCE WITH TAILOR WIMPEY HOUSEHOLD PLANS.
- PROPOSED LEVEL INFORMATION IS PRELIMINARY AND MAY CHANGE AT DETAILED DESIGN STAGE.
- FINAL F.F.L. TO BE 100mm OF CONSTRUCTION LEVELS AND MAY CHANGE AT DETAILED DESIGN.
- CITY AND TOWN COUNCIL HAVE NOT BEEN CONSIDERED ON THE FOLLOWING PROPOSALS AND SHOULD BE UNDERTAKEN AT DETAILED DESIGN STAGE.
- STEPS TO VEHICLES AND IN-BRAIN GARDENS NOT DESIGNED AT THIS STAGE. AN ASSUMPTION SHOULD BE MADE FOR 1 STEP PER 150mm LEVEL DIFFERENCE TO FRONT AND 1 STEP PER 150mm LEVEL DIFFERENCE TO REAR.
- PRELIMINARY ENGINEERING BASED ON A LIMITED TOPOGRAPHICAL SURVEY. WITH NO SERVICE OR TRAIL INFORMATION. CONSTRUCTION OF THE PROPOSED SERVICES TO BE UNDERTAKEN AT DETAILED DESIGN STAGE.
- NO WORKS OR LOTS TO OPEN UP TO THE PUBLIC HIGHWAY.
- CR VALUES TO BE VERIFIED ON SITE PRIOR TO ACHIEVING THE THICKNESS OF ANY CAPPING & SUB-BASE LAYS.
- DESIGN OF RETAINING STRUCTURES BY OTHERS.
- THE DEVELOPER MUST COMPLY WITH SEWERS 1991, FOR TRAFFIC MANAGEMENT & FOR ANY ROAD WORKS WITHIN THE HIGHWAY.
- CITY AND TOWN COUNCIL HAVE NOT BEEN CONSIDERED ON THE FOLLOWING PROPOSALS AND SHOULD BE UNDERTAKEN AT DETAILED DESIGN STAGE.
- STEPS TO VEHICLES AND IN-BRAIN GARDENS NOT DESIGNED AT THIS STAGE. AN ASSUMPTION SHOULD BE MADE FOR 1 STEP PER 150mm LEVEL DIFFERENCE TO FRONT AND 1 STEP PER 150mm LEVEL DIFFERENCE TO REAR.
- PRELIMINARY ENGINEERING BASED ON A LIMITED TOPOGRAPHICAL SURVEY. WITH NO SERVICE OR TRAIL INFORMATION. CONSTRUCTION OF THE PROPOSED SERVICES TO BE UNDERTAKEN AT DETAILED DESIGN STAGE.

- LEGEND**
- EXTERNAL WORKS
 - FINISHED FLOOR LEVEL
 - SPOT LEVEL
 - UNDERBUILD
 - TAKING
 - MAJOR HIGHWAY CONTOUR
 - MINOR HIGHWAY CONTOUR
 - RETAINING STRUCTURE
 - EMBANKMENT
 - MISCELLANEOUS
 - SITE BOUNDARY

C B A	ENGINEERING UPDATED AS PER COUNCIL COMMENTS				ADW	LF	14/01/21
	ENGINEERING UPDATE TO LATEST LAYOUT				ADW	LF	24/12/20
	ENGINEERING UPDATE IN LINE WITH LAYOUT CHANGES				ADW	LF	02/12/20
Drawn				Checked	Drawn	Checked	Date



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Taylor Wimpey

Project: **Cwm Gelli Farm Blackwood**

Drawing: **Engineering Layout (Sheet 1)**

Scale: **1:250** Sheet No: **A0**

Drawn: ADW	Checked: LF	Date: 10/07/2020
Drawing: 190422_TWC_SK_010	Revision: C	