

DRAINAGE STRATEGY REPORT

Client: NMJ Property Development Ltd

Project: 121 Heol Cae Gurwen, Gwaun-Cae-Gurwen

Issue date: 13/05/2026

Job No: C2434

Revision: A

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BEng (Hons), PgDIP, CEng, MStructE, FFB

Issue History

Date	Revision	Revision Notes
13/05/2026	-	Draft Issue
24/06/2026	A	Final Issue

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1.0 Introduction

1.1 Brief and Objectives

This drainage strategy report has been prepared to support a Full Planning Application for the redevelopment of 121 Heol Cae Gurwen to a commercial development at Heol Cae Gurwen, Gwaun-Cae-Gurwen, SA18 1PD.

The main objectives of this Report are:

- Asses the hydrological issues affecting the site and establish whether and to what extent the flood risk can be managed over the lifetime of the development, using the principles and tests set out in TAN 15.
- Identify suitable outfall locations for the Surface Water and Foul Water from the proposed development.
- Undertake hydraulic calculations to identify peak design flows or restrictions to the development and any subsequent attenuation requirements.
- Consult with the Lead Local Flood Authority and Local Drainage Authority regarding the proposals.
- Provide a schematic layout of the proposed foul and surface water drainage proposals.
- Demonstrate compliance with the National SuDS standards.

1.2 Limitations

This drainage appraisal report is prepared for NMJ Property Development Ltd for the purposes of supporting a planning application only and should not be used for any other purpose including the feeding of this data into public or private AI tools—is strictly forbidden.

The information, views and conclusions drawn concerning the site are based, in part, on information supplied to CB3 Consult Ltd by other parties. CB3 Consult Ltd has proceeded in good faith on the assumption that this information is accurate. CB3 Consult Ltd accepts no liability for any inaccurate conclusions, assumptions or actions taken resulting from any inaccurate information supplied to CB3 Consult Ltd from others.

2.0 General Site Description

2.1 General Description

The application site is located at 121 Heol Cae Gurwen as indicated in Figure 1, with the site classified as brownfield consisting of the former R.A.O.B Club. The application site is bound by existing Housing to the North, South and West with Heol Cae Gurwen (A474) to the East. An aerial view of the site is included in Figure 2.

The site will utilise Heol Cae Gurwen as access into the development site.

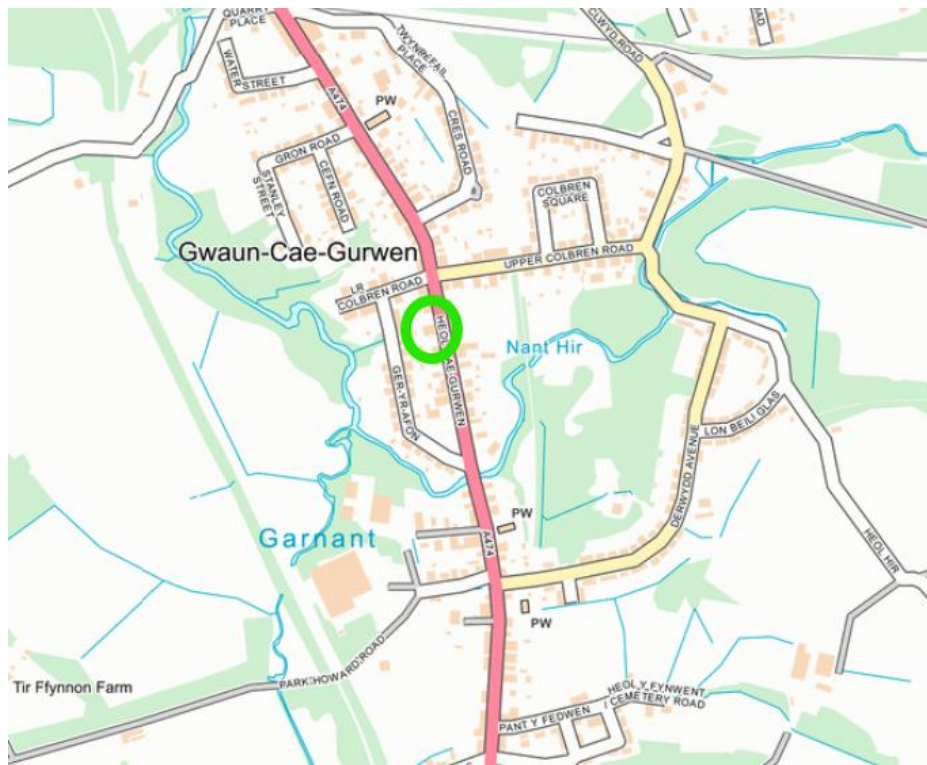


Figure 1: Site Location Plan

2.2 A topographical survey of the site is included in Appendix A. The site existing soft landscaping is generally flat with external levels set at circa 153.6mAOD with an elevated building finish floor level of 154.6mAOD.

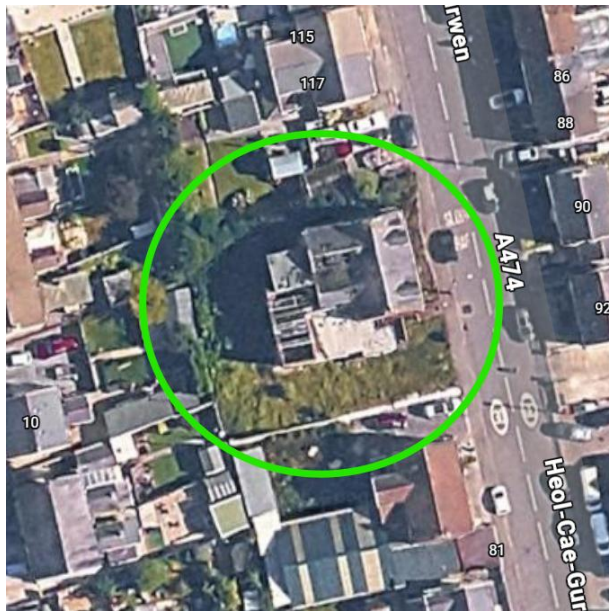


Figure 2: Aerial View of Site

2.3 An intrusive site investigation was undertaken by Spencer Quantum in April 2026, draft soakaway results has been issued, included in Appendix B. 1 soakaway test was undertaken on site in accordance with BRE 365 at a depth of 2.4m. The soakaway tests failed to achieve a suitable infiltration rate, as such further testing was undertaken at a shallower depth up to 1.25m. Again, these failed to achieve a suitable infiltration rate.

2.4 Flood Risk Assessment

In July 2004 the Welsh Assembly Government published the Technical Advice Note 15: Development and Flood Risk (TAN 15), recently updated in March 2025 and which is a supplement to Planning Policy Wales, 2004. These documents provide guidance on how flood risk arising from rivers, the sea and surface water, and the risk of coastal erosion can be assessed.

2.5 The Flood Map for Planning (FMfP) is the starting point for the consideration of flood risk. The map uses flood zones to indicate the degree to which land is at risk of flooding from rivers, the sea, surface water and small watercourses. The FMfP displays predicted future flood risk with an allowance made for climate change over a 100-year lifetime of development. Proposals for development located partially or wholly in Flood Zone 2 or 3 must be supported by a Flood Consequences Assessment (FCA).

2.6 According to the NRW Flood Map for Planning, indicated in Figure 3, the site is shown to be in Flood Zone 1 - Flood Risk from Rivers and Sea. This represents a less than 0.1% AEP (1 in 1000 year) chance of flooding from fluvial or tidal source in any given year, including the effects of climate change. Flood Zone 1 is shown as transparent on the FMfP. All forms of development are suitable within Flood Zone 1.

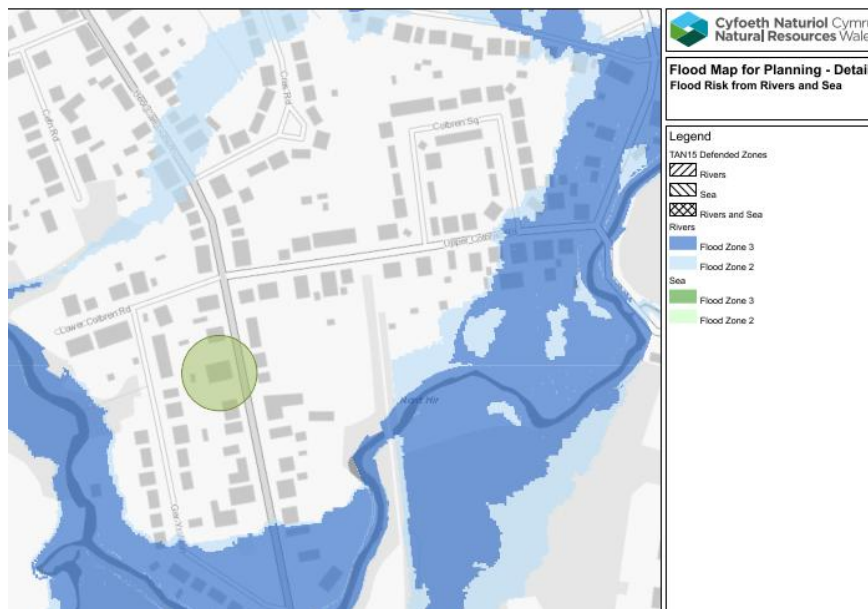


Figure 3:NRW Flood Risk for Planning (Rivers and Sea)

2.7 According to the NRW Flood Map for Planning, indicated in Figure 4, the site is shown to be in Flood Zone 1 - Flood Risk from Surface Water and Minor Watercourses. This represents a less than 0.1% AEP (1 in 1000 year) chance of flooding from surface water sources in any given year, including the effects of climate change. Flood Zone 1 is shown as transparent on the FMfP. All forms of development are suitable within Flood Zone 1.

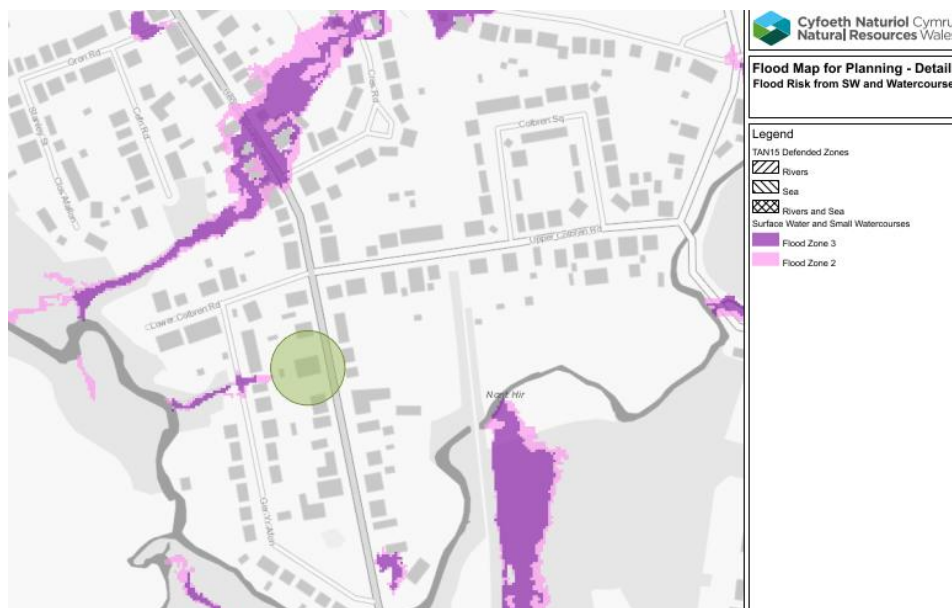


Figure 4:NRW Flood Risk for Planning (Surface Water and Minor Watercourses)

3.0 Existing Site Drainage

- 3.1 A public Sewer map is presented in Appendix C. This indicates that the area is served by a public foul sewer. The public sewer serving the application site discharges into Garnswllt Wastewater Treatment Works which discharges into River Loughor.
- 3.2 As the catchment of the application site discharges into the Special Area of Conservation (SAC), an assessment is required in light of the guidance issued by Natural Resources Wales (NRW) on 25 July 2025, which confirmed the need to consider potential nutrient impacts arising from new developments.
- 3.3 CCTV drainage survey of the existing system was undertaken in May 2026, presented in Appendix D. The survey confirmed that the site is served by a surface water drainage system which is assumed to be adopted by the Local Highway Authority.

4.0 Proposed Drainage Strategy

4.1 The application site consists of a redevelopment of the existing R.A.O.B Club building into commercial development with associated car parking spaces. The architect's proposed development layout is included in Appendix E.

4.2 The Proposed Drainage Strategy plans are included in Appendix F, preliminary surface water calculations are included in Appendix H.

4.3 Foul Drainage

It is proposed to maintain the existing foul connection point serving the current unit subject to a review of the condition of the drainage system.

4.4 The application site is classified brownfield, currently a R.A.O.B Club. It is understood that the club employed 4 staff members and on average 30 number of customers, with an assumption that 50% of the staff and customers reside from outside of the freshwater catchment.

4.5 The redevelopment proposal is a commercial unit which we understood employs up to 5 staff members. The onsite facilities will be accessible to staff only. Similar to the existing calculations, an assumption that 50% of the staff reside from outside of the freshwater catchment.

4.6 The document 'Flows and Loads - 4' published by British Water will be used to assess the average daily foul flow generated by the existing and post development unit. Based on the existing and proposed usage, the following flows are appropriate for this analysis:

- Existing Staff (4 hr shift) = 45 litres/person/day
- Existing Customers (function room) = 15 litres/person/day
- Proposed Staff (full time) = 90 litres/person/day

4.7 A calculation sheet of the existing and proposed scenario is provided in Appendix G based on the figures discussed above. The Total Nitrates generated by the existing club is 3.11 kg TN/year and the Total Nitrates generated by the proposed development is 2.22 kg TN/year.

4.8 Based on this analysis it is evident that the proposed redevelopment will provide betterment in terms of Total Nitrates, achieving a betterment factor of 1.40 and achieves nutrient neutrality.

4.9 It is anticipated that S104 drainage adoption is not required, and S106 approval will be required.

4.10 Surface Water Drainage

4.11 The primary objective of any surface water drainage strategy is to comply with The Flood and Water Management Act 2010 (Schedule 3) established in County Councils and requires new developments to include Sustainable Drainage Systems (SuDS) features that comply with national standards.

4.12 New developments of more than one dwelling or where the area covered by construction work equals or exceeds 100m² require approval before construction can commence from the SuDS Approval Body (SAB).

4.13 The proposed surface water system and associated flows should discharge by one of the following mechanisms, shown below in order of preference.

- Surface water runoff is collected for use
- Surface water runoff is infiltrated to ground
- Surface water runoff is discharged to a surface water body
- Surface water runoff is discharged to a surface water sewer, highway drain or another drainage system
- Surface water runoff is discharged to a combined sewer

4.14 S1 - Surface Water Runoff Destination

4.14.1 Collection for use

Raingardens are proposed collecting roof runoff with surface water to be reused through the hydration of planting. Further to this, as per the Statutory National Standards for Sustainable Drainage Systems (SNSSuDS) guidance, G1.4, the site displays exemption for further requirements of rainwater harvesting as there is no foreseeable demand for non-potable water on the site throughout its design life.

4.14.2 Infiltration Methods

The proposed surface water disposal strategy for the development site is subject to further infiltration testing. Current testing at a depth of 2.4m suggest that infiltration is not a viable surface water disposal option, as such further testing was undertaken at a shallower depth up to 1.25m. Again, these failed to achieve a suitable infiltration rate.

4.14.3 Discharge to Surface Water Body

From a desktop review, a connection into a watercourse does not appear viable for this application site. Based on the drainage survey undertaken, no watercourse was identified at the site.

4.14.4 Discharge to Surface Water Sewer

Based on the results of the infiltration testing onsite, a connection into the existing surface water sewer serving the site proposed to be utilised. The drainage strategy

currently proposed in support of this application site will maintain the existing surface water outlet of the existing building. Attenuating flows to Q1 plus 30% betterment.

4.14.5 Discharge to Combined Sewer

Based on a review of the current public sewer records, a connection into a combined sewer is not feasible for this development site.

4.15 S2 – Surface Water Runoff Hydraulic Control

- 4.15.1 This standard requires surface water to be managed to prevent as far as possible any discharge from the development for rainfall events less than 5mm. The surface water runoff rate and volume for up to a 1 in 100-year return period plus 30% climate change should be managed to protect people, properties, and the receiving water body. Refer to Appendix F for a Drainage Strategy Plan for the proposed development. Initial design calculation to support the sizing of the proposed attenuation system can be seen in Appendix H.
- 4.15.2 Surface water interception aims to mimic greenfield conditions by preventing runoff from the majority of small rainfall events. This is to be catered for across the site within a variety of SuDS features, including rain gardens, permeable surfaces and the use of a detention basin.
- 4.15.3 All surface water flows are to be attenuated on site, with final discharge to the existing surface water received of the existing building at a controlled rate of 1.42L/s, based upon the brownfield Q1 runoff rate of 1.6L/s (0.039Ha hard paved area) and a greenfield runoff rate of 0.3L/S.
- 4.15.4 To assess the exceedance flow from the development site, the drainage system will be stress tested to a 1 in 200-year return period plus 30% climate change to identify possible flooding at the site. The proposed design will ensure that the surface runoff from these flooded areas will be directed away from the proposed facility towards the highway/ boundaries of the development site.

4.16 S3 – Water Quality

- 4.16.1 This standard requires treatment of surface water runoff to prevent negative impacts on the receiving water quality and/or protect downstream drainage systems including sewers.
- 4.16.2 The aim of the surface water management strategy with regards to water quality is to use natural processes that promote biodiversity and long-term sustainability. As such, it employs a SuDS management train approach, providing drainage components in series.

4.16.3 In accordance with Table G3.1 from the Statutory Standards, the level of hazard will typically be classified as Low Hazard. Pollution is to be mitigated across the site, through a SuDS train consisting of raingardens and permeable surfaces.

4.17 S4 – Amenity

4.17.1 This standard requires that the design of the surface water management system should maximize amenity benefits.

4.17.2 The primary amenity focus of the SuDS scheme should be to improve the health and well-being of the users. The scheme will need to be based on natural forms that mimic natural landscapes found within the region. Other key amenity benefits should include improving air quality around the development, increasing carbon sequestration, and improving water quality through removal of pollutants.

4.18 S5 – Biodiversity

4.18.1 This standard requires that the surface water management system should maximize biodiversity benefits.

4.18.2 The SuDS scheme biodiversity strategy should revolve around the creation of significant and varied habitat to increase the overall biodiversity of the site and ecological value. The inclusion of soft landscaping planted with native species to provide dense and durable cover of vegetation that creates appropriate habitats for indigenous species and encourages nectar feeding insects.

4.19 S6 – Design of Drainage for Construction and Maintenance and Structural Integrity

4.19.1 The surface water drainage system should be designed with the overriding ethos of simplicity in construction, use and maintenance. This then allows a very simple translation from the principles described within standard S6, namely that all elements of the surface water drainage system should be designed so that they can be constructed, as well as maintained and operated easily, safely and cost-effectively.

4.19.2 Information with regards to the construction methodology and requirements of the proposed system will be developed as part of the detailed design stage of the project, likewise the maintenance requirements and regime of the proposed system will be developed into the full maintenance strategy for the site during the next phase of design development.

5.0 Summary

- 5.1 The application site is located within areas of Flood Zone 1 as such, it can be concluded that on the grounds of flood risk, the proposed development meets the requirements set out in TAN-15 and the aims of Planning Policy Wales.
- 5.2 Heol Cae Gurwen is served by an existing foul sewer discharging into Garnswllt Wastewater Treatment Works which discharges into River Loughor. As such a nutrient neutrality assessment is required. Based on the existing use and the redevelopment proposal, the application site will generate a betterment in total nitrate discharge.
- 5.3 All on site sewer systems will be designed and constructed in accordance with the latest edition of "Sewers for Adoption" and any of the adopting authority's (Dwr Cymru Welsh Water) specific requirements.
- 5.4 The aim of the surface water drainage strategy is to mimic the natural catchment process as closely as possible, and the proposed system will need to be designed in accordance with the statutory "Sustainable Drainage Systems Standards for Wales" and any local authority's SAB requirements.
- 5.5 CCTV drainage survey of the existing drainage system serving the site confirmed that the site is served by an existing surface water system.
- 5.6 As the proposed redevelopment is greater than 100m², scheme is subject to a Full SAB Approval.

Appendix A

Topographical Survey



- GENERAL NOTES
1. DO NOT SCALE THIS DRAWING.
 2. CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ENGINEER.
 3. ANY DISCREPANCY TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
 4. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SUBCONTRACTORS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.

Rev.	Detail	By	Date
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Revisions

Reinforcement schedules nos.



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Client
NICK JAMES CONSULTING

Project
**REDEVELOPMENT AT 121
HEOL CAE GURWEN,
GWAUN-CAE-GURWEN,
SA18 1PD**

Drawing Title
**EXISTING LAYOUT
PLAN**

INFORMATION

Project No. C2434	Drawing No. C-SK01	Revision
Scales 1:200	Date 15.05.26	Revision
Drawn DH	Checked TE	Sheet Size A3

Appendix B
Draft Infiltration Logs and Addition Tests

Test Location : TP1
Test No : 1
Date : 29/04/2026

The diagram illustrates a trial pit used for soil testing. Key components and labels include:

- TRIAL PIT SOAKAWAY**: The overall title of the diagram.
- GL**: Ground Level, indicated by a hatched line at the top of the pit.
- Depth to water**: The vertical distance from the ground level to the water level (WL).
- WL**: Water Level, indicated by a small inverted triangle.
- Trial Pit depth**: The total vertical depth of the pit from the ground level to the bottom.
- Effective depth**: The vertical depth of the soil that is effectively tested, shown as a light blue shaded area.
- 75% Effective Depth**: The upper portion of the effective depth, indicated by a dashed line.
- 25% Effective Depth**: The lower portion of the effective depth, indicated by a dashed line.

Effective depth (Head of Water) = 0.75 m

$$\begin{aligned} \mathbf{v}_{p75-25} &= 0.469 \text{ m}^3 \\ \mathbf{a}_{p50} &= 3.50 \text{ m}^2 \\ \mathbf{t}_{p75-25} &= \text{min} \end{aligned}$$

Soil Infiltration rate, f = N/A m/sec

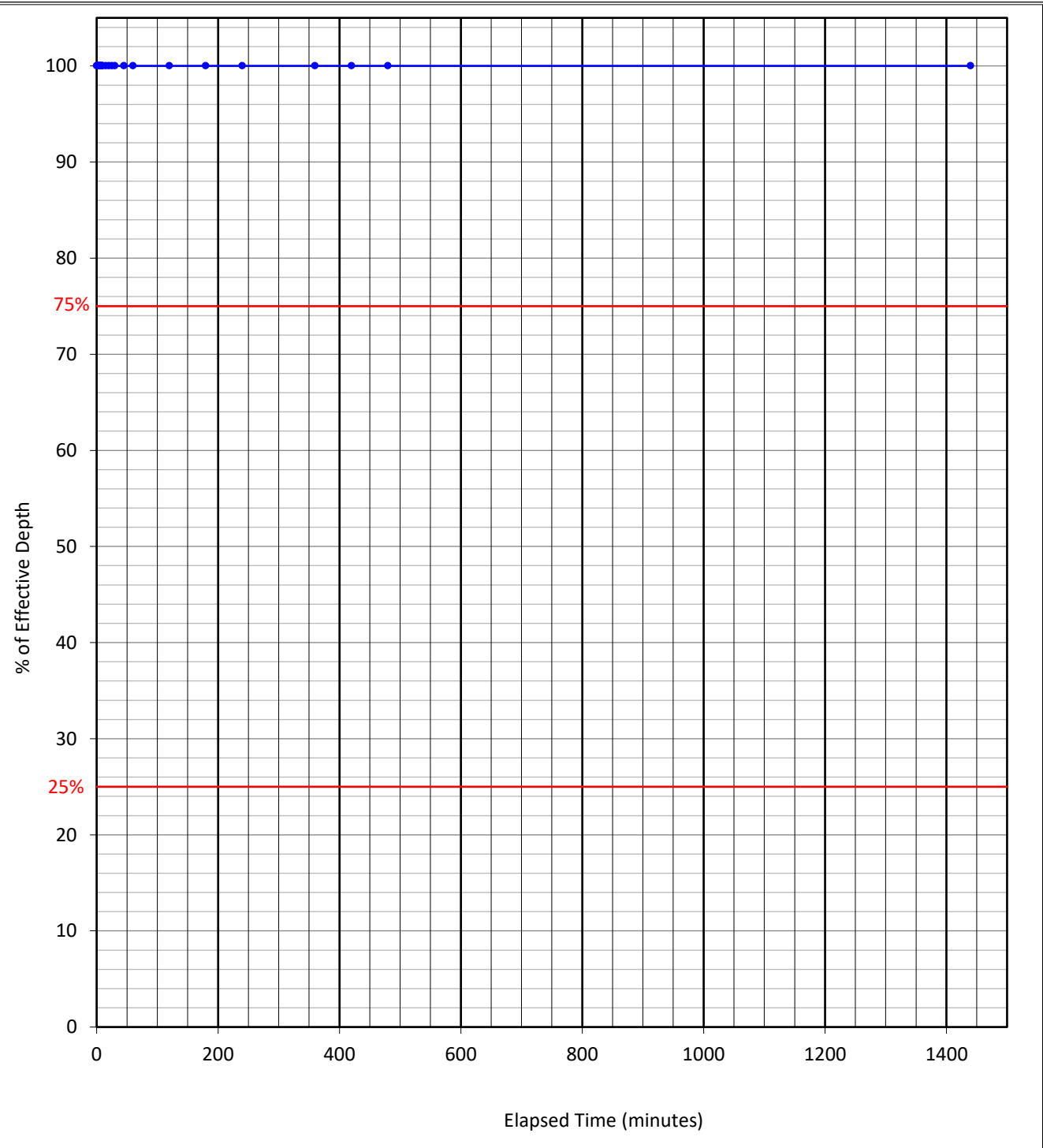


SPENCER
QUANTUM

SPENCER QUANTUM - Soakaway Test

Project: Gwaun Cae Gurwen
Project No: Q2107
Client: CB3

Test Location : TP1
Test No : 1
Date : 29/04/2026



	t_{p75} =	minutes
	t_{p25} =	minutes

Sheet 2 of 2

Remarks: Soakaway static
Unable to calculate infiltration rate.



Infiltration Testing For:

121 Heol Cae Gurwen,
Lower Brynamman,
Neath,
SA18 1HG

Prepared for: Nick James

REF: 121 Heol Cae Gurwen #997

DATE: 08/06/2026



GibbsGeoTechnical

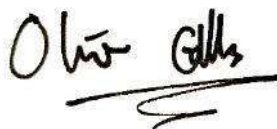
Document Control

Project	121 Heol Cae Gurwen
Client	Nick James
Ref:	121 Heol Cae Gurwen #997

Document Checking:

Prepared By: Oliver Gibbs

Signed:



Issue	Date	Status
01	08/06/2026	Written and submitted
02		
03		

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1 Introduction

1.1 Brief

Gibbs Geotechnical has been instructed by Nick James (the Client) to undertake 2 soil infiltration tests to BRE365 standard at **121 Heol Cae Gurwen, Lower Brynamman, Neath, SA18 1HG.**

National Grid Reference: SN703116

OSGB36 Easting/Northing: 270378 , 211622

Latitude, Longitude: 51.788197 , -3.880712

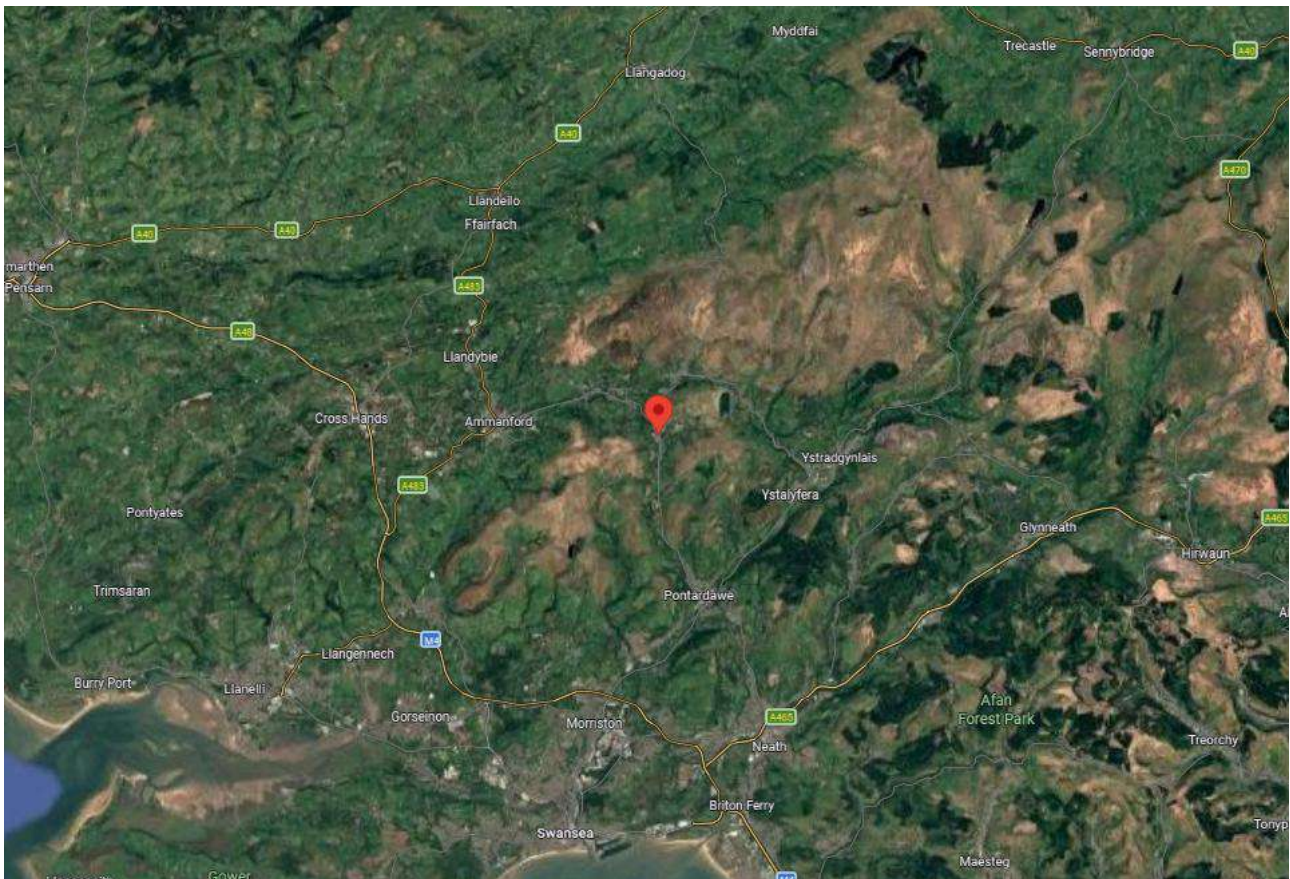


Figure 1 - Site location

2 BRE365 infiltration tests have been proposed to determine the local geology and permeation rates on site. These BRE365 test pits will be 0.5x1x1m minimum and tested a maximum of 3 times or as many as possible in the timeframe allowed. Refer to **Appendix A – Site Test Plans**

1.2 Site Investigations

The tests were performed by Gabriel Usher (of Gibbs Geotechnical) on 27/05/2026.

Refer to **Appendix B** – Site photos

2 Site findings

The following tests were performed to the best of the ability of those involved, subject to site constraints and weather conditions. The test pits were successfully excavated to 1.0m and 1.25m depth, shown in the location on **Appendix A**.

2.1 British Geological Records

Local searches from the British Geological Survey (BGS) online records show the site to have the following superficial soils and bedrock:

Bedrock: South Wales Middle Coal Measures Formation-Mudstone, siltstone and sandstone. These sedimentary rocks are fluvial, palustrine and shallow-marine in origin. They are detrital, forming deposits reflecting the channels, floodplains and deltas of a river in a coastal setting (with periodic inundation from the sea).

- Minimum Age (Years):309,500,000
- Minimum Period:Carboniferous
- Maximum Age (Years):318,000,000
- Maximum Period:Carboniferous

Superficial soils Till, Devensian-Diamicton. These sedimentary deposits are glacial in origin. They are detrital, created by the action of ice and meltwater, they can form a wide range of deposits and geomorphologies associated with glacial and inter-glacial periods during the Quaternary.

- Minimum Age (Years):11,800
- Minimum Period:Quaternary
- Maximum Age (Years):116,000
- Maximum Period:Quaternary

Refer to **Appendix C** for BGS records <https://geologyviewer.bgs.ac.uk/>

2.2 Trial pit soil conditions

Soils encountered were logged at the following approximate depths:

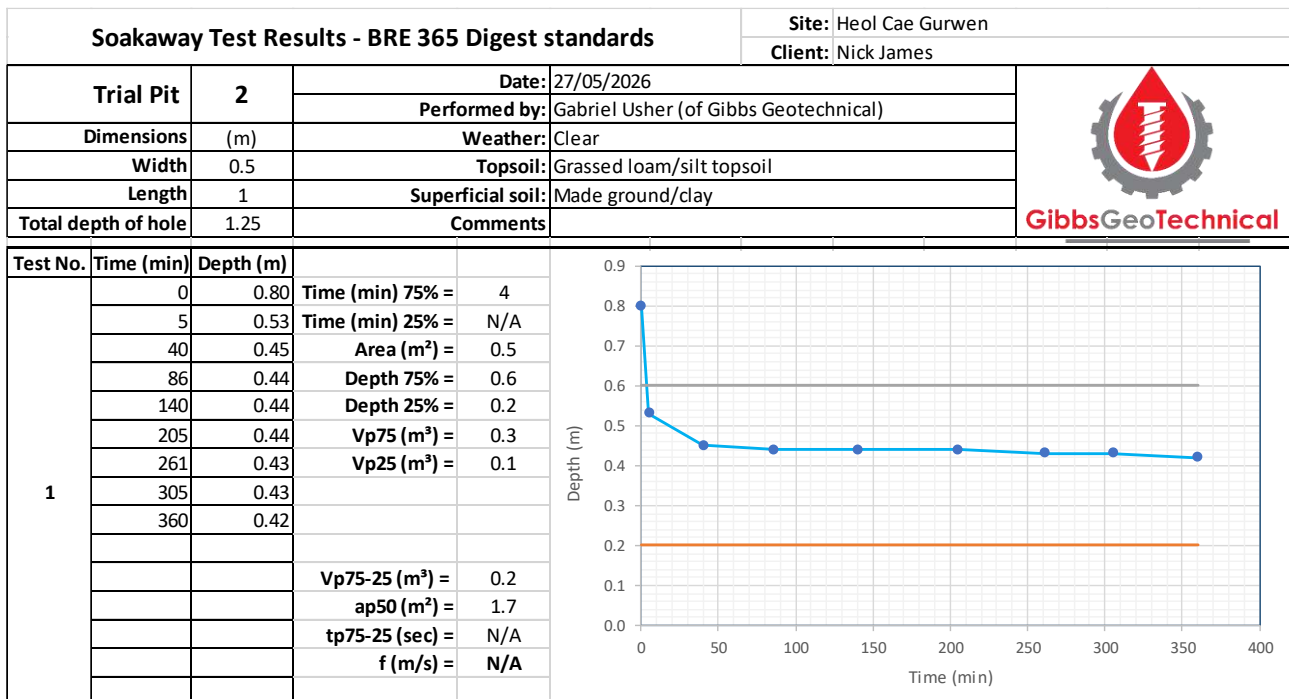
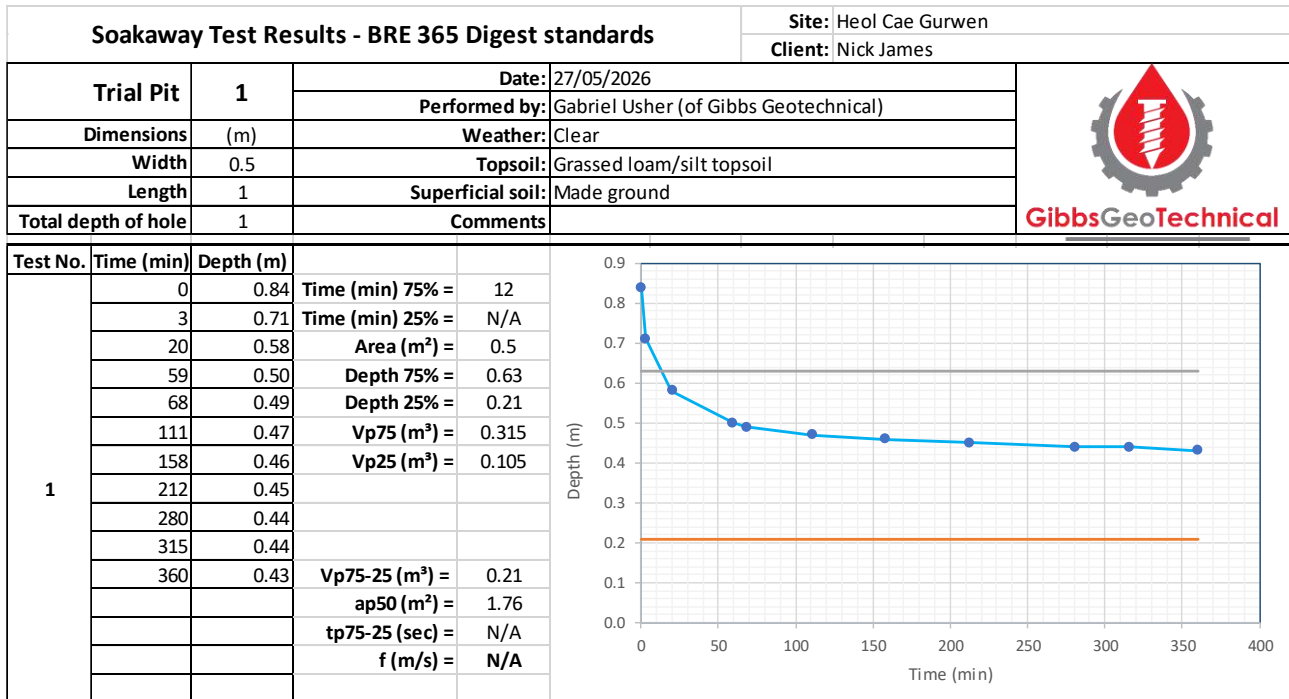
Pit 1

Topsoil:	0-0.15m	- Grassed loam/silt topsoil
Superficial soils:	0.15-1.0m	- Made ground

Pit 2

Topsoil:	<i>0-0.15m</i>	<i>- Loam/silt topsoil</i>
Superficial soils 1:	<i>0.15-1.2m</i>	<i>- Made ground</i>
Superficial soils 2:	<i>1.2-1.25m</i>	<i>- Clay</i>

3 Results



4 Conclusions

The tests which could be performed in the timeframe allowed found infiltration results of:

Test Pit 1: N/A – Test pit did not drain to 25% in the 6hr timeframe allowed.

Test Pit 2: N/A – Test pit did not drain to 25% in the 6hr timeframe allowed.

APPENDIX A: Site Test Plans



Figure 1- Test pit locations



APPENDIX B: Site Photos



Figure 2 - Test pit 1 during excavation



Figure 3 – TP1 strata



Figure 4 – Test pit 1 during filling



Figure 5 – Test pit 2 during excavation



Figure 6 - Test pit 2 strata



Figure 7 - Test pit 2 after filling



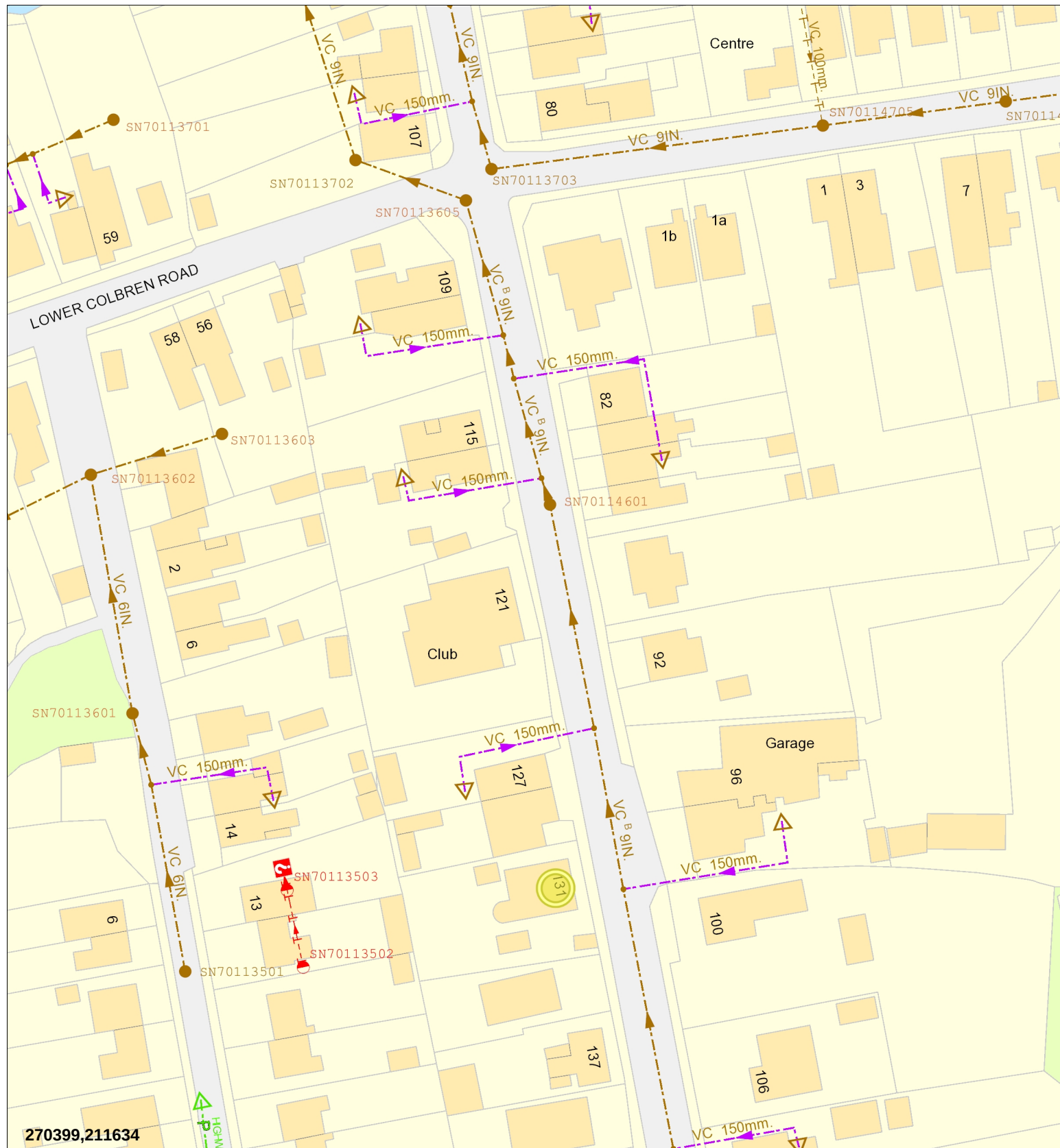
Figure 8 - Test pit remediation



Figure 9 - Test pit remediation

(More pictures available upon request)

Appendix C
Public Sewer Records



270399,211634

SA18 1PD

Scale: 1:844

13/05/2026

**EXACT LOCATION OF
ALL APPARATUS TO
BE DETERMINED ON
SITE**

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Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos cement or Pitch Fibre (PF)) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation.

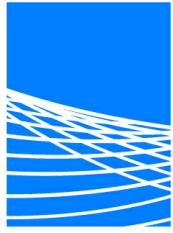
Dwr Cymru Cyfyngedig ('the Company') gives this information as to the position of its underground apparatus by way of general guidance only and on the strict understanding that it is based on the best information available and no warranty as to its correctness is relied upon in the event of excavations or other works made in the vicinity of the company's apparatus and any onus of locating the apparatus before carrying out any excavations rests entirely on you. The information which is supplied hereby by the company, is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 based particular, but without prejudice to be generality of that foregoing, it should be noted that the records that are available to the company may not disclose the existence of a drain sewer or disposal main laid before 1 September 1989, or if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provision of the New Roads and Street Works Act 1991 and the company's right to be compensated for any damage to its apparatus.



LEGEND

- | | | | |
|--|----------------------------|--|---|
| | Sluice Valve | | Gravity Sewer |
| | Air Valve SINGLE | | Rising Main |
| | Tap | | Outfall |
| | Pressure Reducing Valve | | Pumping Station |
| | Meter | | Lampole |
| | Bulk Meter | | Combined Sewer Overflow |
| | Fire Hydrant | | Special Purpose Chamber |
| | Cap | | Treatment Works |
| | Non Dwr Cymru | | Private Sewer Transfer |
| | Existing Distribution Main | | Lateral Drain |
| | Inspection Chamber | | NB: Sewer symbol colour indicates the sewer type. |
| | | | RED - Combined |
| | | | GREEN - Surface Water |
| | | | BROWN - Foul |

Appendix D
CCTV Drainage Survey



DRAINTECH

helping to improve the drainage network

Drainage Survey Report

Job Number : 21640

Project Number: 1

Project Name: 121 Heol Cae Gurwen, SA18 1PD

Company: CB3 Consult

Site Date: 27-05-2026

Draintech Surveys Ltd| Atlantic House| Chamwood Park| Bridgend| CF31 3PL| 01656 767001| www.draintech.co.uk





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21640 121 Heol Cae Gurwen		22/05/2026

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Section Item 5: SN07114601 > SN70114501 (SN07114601X)	5



Project Information

Project Name	Project Number	Project Date
21640 121 Heol Cae Gurwen		22/05/2026

Client

Company: CB3 Consult
Contact: Dylan Huws

Site

Company: Draintech Surveys Ltd
Contact: Jack Jones

Contractor

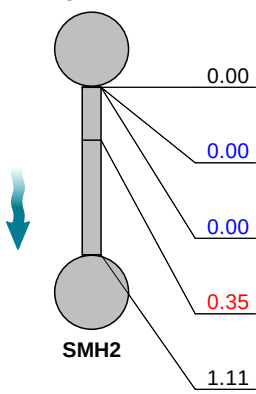
Company: Draintech Surveys Ltd



Section Inspection - 27/05/2026 - SMH1X

Item No.	Insp. No.	Date	Time	Client's Job Ref	Weather	Pre Cleaned	PLR
1	1	27/05/26	9:59	Not Specified	No Rain Or Snow	Yes	SMH1X
Operator		Vehicle		Camera	Preset Length	Legal Status	Alternative ID
DRAINTECH JJ		CA70SZJ		Minicam	Not Specified	Not Specified	Not Specified

Town or Village:	Ammanford	Inspection Direction:	Downstream	Upstream Node:	SMH1
Road:	Heol Cae	Inspected Length:	1.11 m	Upstream Pipe Depth:	1.240 m
Location:	Road	Total Length:	1.11 m	Downstream Node:	SMH2
Surface Type:		Joint Length:		Downstream Pipe Depth:	
Use:	Surface water		Pipe Shape:	Circular	
Type of Pipe:			Dia/Height:	225 mm	
Flow Control:	No flow control		Pipe Material:	Vitrified clay	
Year Constructed:	Not Specified		Lining Type:	No Lining	
Inspection Purpose:			Lining Material:	No Lining	
Comments:	SMH2 - Buried				
Recommendations:					

Scale:	1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: 1.24 m SMH1 							
		0.00	MH	Start node, manhole, reference: SMH1	00:00:00		
		0.00	REM	General remark: Video header incorrect. Please reference report.			
		0.00	WL	Water level, 10% of the vertical dimension	00:00:02		
		0.35	CM	Cracks, multiple from 10 o'clock to 4 o'clock	00:00:08		3 / 2
		1.11	MHF	Finish node, manhole, reference: SMH2	00:00:42		
Depth: m							

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	40.0	36.0	40.0	3.0	1	1.0	0.9	1.0	2.0

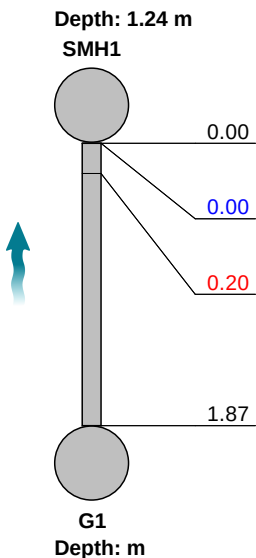
Section Inspection - 27/05/2026 - G1X

Item No. 2	Insp. No. 1	Date 27/05/26	Time 10:12	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Yes	PLR G1X
Operator DRAINTECH JJ		Vehicle CA70SZJ		Camera Minicam	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Ammanford	Inspection Direction:	Upstream	Upstream Node:	G1
Road:	Heol Cae	Inspected Length:	1.87 m	Upstream Pipe Depth:	
Location:	Road	Total Length:	1.87 m	Downstream Node:	SMH1
Surface Type:		Joint Length:		Downstream Pipe Depth:	1.240 m
Use:	Surface water	Pipe Shape:	Circular		
Type of Pipe:		Dia/Height:	150 mm		
Flow Control:	No flow control	Pipe Material:	Vitrified clay		
Year Constructed:	Not Specified	Lining Type:	No Lining		
Inspection Purpose:		Lining Material:	No Lining		

Comments:

Recommendations:

Scale:	1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
							
		0.00	MH	Start node, manhole, reference: SMH1	00:00:00		
		0.00	WL	Water level, 5% of the vertical dimension	00:00:02		
		0.20	B	Broken pipe from 10 o'clock to 1 o'clock	00:00:06		4
		1.87	GYF	Finish node, gully, reference: G1	00:00:16		

Construction Features

Structural Defects

Miscellaneous Features

Service & Operational Observations

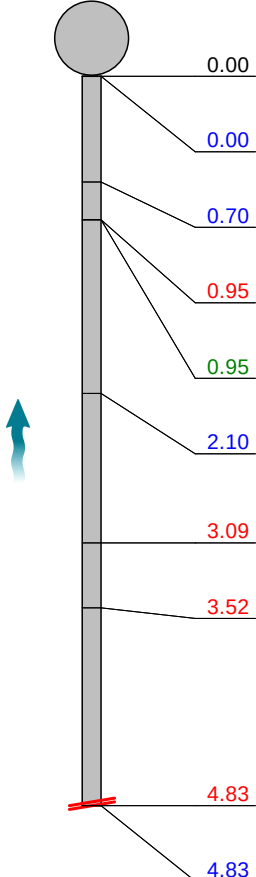
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	80.0	42.8	80.0	4.0	0	0.0	0.0	0.0	1.0

Section Inspection - 27/05/2026 - SMH4X

Item No. 3	Insp. No. 1	Date 27/05/26	Time 10:20	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Yes	PLR SMH4X
Operator DRAINTECH JJ		Vehicle CA70SZJ		Camera Minicam	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Ammanford	Inspection Direction:	Upstream	Upstream Node:	SMH4
Road:	Heol Cae	Inspected Length:	4.83 m	Upstream Pipe Depth:	
Location:	Road	Total Length:	4.83 m	Downstream Node:	SMH1
Surface Type:		Joint Length:		Downstream Pipe Depth:	1.240 m
Use:	Surface water	Pipe Shape:	Circular		
Type of Pipe:		Dia/Height:	150 mm		
Flow Control:	No flow control	Pipe Material:	Vitrified clay		
Year Constructed:	Not Specified	Lining Type:	No Lining		
Inspection Purpose:		Lining Material:	No Lining		

Comments:
Recommendations:

Scale:	1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: 1.24 m SMH1 							
		0.00	MH	Start node, manhole, reference: SMH1	00:00:00		
		0.00	WL	Water level, 0% of the vertical dimension	00:00:02		
		0.70	WL	Water level, 30% of the vertical dimension	00:00:10		
		0.95	JDM	Joint displaced, medium	00:00:14		1 / 3
		0.95	LR	Line deviates right	00:00:16		
		2.10	WL	Water level, 5% of the vertical dimension	00:00:21		
		3.09	H	Hole in drain or sewer from 12 o'clock to 3 o'clock	00:00:27		5
		3.52	B	Broken pipe from 10 o'clock to 2 o'clock	00:00:30		4
		4.83	XP	Collapsed drain or sewer, 100% cross-sectional area loss	00:00:41		5
		4.83	SA	Survey abandoned: LINE COLLAPSED	00:00:42		

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
4	165.0	85.1	411.0	5.0	1	2.0	0.4	2.0	3.0

Section Inspection - 27/05/2026 - SMH3X

Item No. 4	Insp. No. 1	Date 27/05/26	Time 10:40	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Yes	PLR SMH3X
Operator DRAINTECH JJ		Vehicle CA70SZJ		Camera Minicam	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Ammanford	Inspection Direction:	Upstream	Upstream Node:	SMH3
Road:	Heol Cae	Inspected Length:	8.26 m	Upstream Pipe Depth:	
Location:	Road	Total Length:	8.26 m	Downstream Node:	SMH1
Surface Type:		Joint Length:		Downstream Pipe Depth:	1.240 m
Use:	Surface water		Pipe Shape:	Circular	
Type of Pipe:			Dia/Height:	225 mm	
Flow Control:	No flow control		Pipe Material:	Vitrified clay	
Year Constructed:	Not Specified		Lining Type:	No Lining	
Inspection Purpose:			Lining Material:	No Lining	

Comments:

Recommendations:

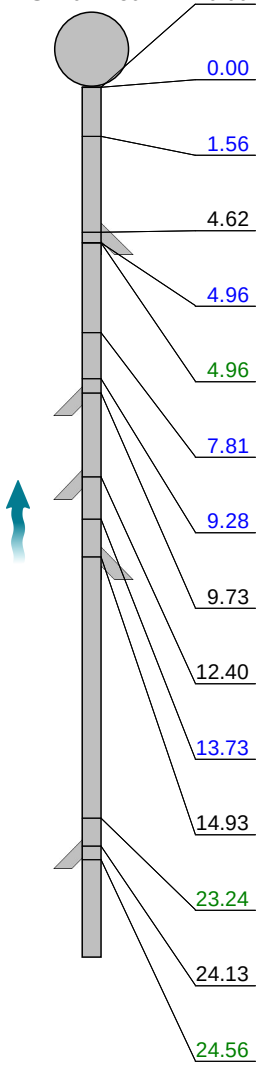
Scale:	1:72	Position [m]	Code	Observation	MPEG	Photo	Grade																																																		
Depth: 1.24 m SMH1 SMH3 Depth: m <table><tr><td>MH</td><td>Start node, manhole, reference: SMH1</td><td>00:00:00</td><td></td><td></td></tr><tr><td>REM</td><td>General remark: Video header incorrect. Please reference report.</td><td></td><td></td><td></td></tr><tr><td>WL</td><td>Water level, 20% of the vertical dimension</td><td>00:00:01</td><td></td><td></td></tr><tr><td>D</td><td>Deformed sewer or drain, 20%</td><td>00:00:21</td><td></td><td>5 / 4</td></tr><tr><td>FM</td><td>Fractures, multiple from 9 o'clock to 3 o'clock</td><td>00:00:21</td><td></td><td>4 / 2</td></tr><tr><td>WL</td><td>Water level, 10% of the vertical dimension</td><td>00:00:25</td><td></td><td></td></tr><tr><td>WL</td><td>Water level, 5% of the vertical dimension</td><td>00:00:38</td><td></td><td></td></tr><tr><td>D</td><td>Deformed sewer or drain, 10%</td><td>00:00:58</td><td></td><td>4 / 3</td></tr><tr><td>B</td><td>Broken pipe from 11 o'clock to 2 o'clock</td><td>00:01:03</td><td></td><td>4</td></tr><tr><td>MHF</td><td>Finish node, manhole, reference: SMH3</td><td>00:01:19</td><td></td><td></td></tr></table>								MH	Start node, manhole, reference: SMH1	00:00:00			REM	General remark: Video header incorrect. Please reference report.				WL	Water level, 20% of the vertical dimension	00:00:01			D	Deformed sewer or drain, 20%	00:00:21		5 / 4	FM	Fractures, multiple from 9 o'clock to 3 o'clock	00:00:21		4 / 2	WL	Water level, 10% of the vertical dimension	00:00:25			WL	Water level, 5% of the vertical dimension	00:00:38			D	Deformed sewer or drain, 10%	00:00:58		4 / 3	B	Broken pipe from 11 o'clock to 2 o'clock	00:01:03		4	MHF	Finish node, manhole, reference: SMH3	00:01:19		
MH	Start node, manhole, reference: SMH1	00:00:00																																																							
REM	General remark: Video header incorrect. Please reference report.																																																								
WL	Water level, 20% of the vertical dimension	00:00:01																																																							
D	Deformed sewer or drain, 20%	00:00:21		5 / 4																																																					
FM	Fractures, multiple from 9 o'clock to 3 o'clock	00:00:21		4 / 2																																																					
WL	Water level, 10% of the vertical dimension	00:00:25																																																							
WL	Water level, 5% of the vertical dimension	00:00:38																																																							
D	Deformed sewer or drain, 10%	00:00:58		4 / 3																																																					
B	Broken pipe from 11 o'clock to 2 o'clock	00:01:03		4																																																					
MHF	Finish node, manhole, reference: SMH3	00:01:19																																																							

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
4	245.0	49.0	405.0	5.0	3	6.0	1.0	8.0	4.0

Section Inspection - 27/05/2026 - SN07114601X

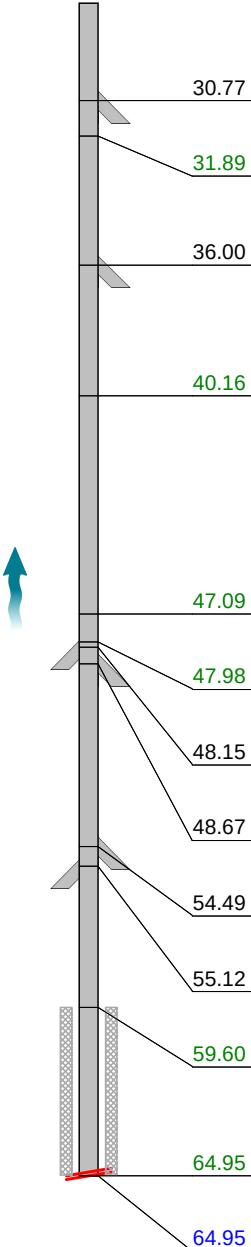
Item No. 5	Insp. No. 1	Date 27/05/26	Time 13:27	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Yes	PLR SN07114601X
Operator DRAINTECH JJ		Vehicle CA70SZJ		Camera Minicam	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Town or Village:	Ammanford	Inspection Direction:	Upstream	Upstream Node:	SN07114601
Road:	Heol Cae	Inspected Length:	64.95 m	Upstream Pipe Depth:	
Location:	Road	Total Length:	64.95 m	Downstream Node:	SN70114501
Surface Type:		Joint Length:		Downstream Pipe Depth:	
Use:	Foul	Pipe Shape:	Circular		
Type of Pipe:		Dia/Height:	225 mm		
Flow Control:	No flow control	Pipe Material:	Vitrified clay		
Year Constructed:	Not Specified	Lining Type:	No Lining		
Inspection Purpose:		Lining Material:	No Lining		
Comments:	SN07114601 - Survey abandoned				
Recommendations:					

Scale: 1:240	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m SN70114501						
	0.00	MH	Start node, manhole, reference: SN70114501	00:00:00		
	0.00	WL	Water level, 10% of the vertical dimension	00:00:02		
	1.56	WL	Water level, 5% of the vertical dimension	00:00:12		
	4.62	JN	Junction at 10 o'clock, 150mm dia	00:00:29		
	4.96	WL	Water level, 30% of the vertical dimension	00:00:41		
	4.96	LR	Line deviates right	00:00:42		
	7.81	WL	Water level, 10% of the vertical dimension	00:00:58		
	9.28	WL	Water level, 30% of the vertical dimension	00:01:09		
	9.73	JN	Junction at 2 o'clock, 150mm dia	00:01:12		
	12.40	JN	Junction at 2 o'clock, 150mm dia	00:01:44		
	13.73	WL	Water level, 5% of the vertical dimension	00:02:00		
	14.93	JN	Junction at 11 o'clock, 150mm dia	00:02:16		
	23.24	DEEJ	Attached deposits, encrustation at joint from 12 o'clock to 12 o'clock, 5% cross-sectional area loss	00:03:03		3
	24.13	JN	Junction at 1 o'clock, 150mm dia	00:03:09		
	24.56	DEEJ	Attached deposits, encrustation at joint from 12 o'clock to 12 o'clock, 5% cross-sectional area loss	00:03:14		3

Section Inspection - 27/05/2026 - SN07114601X

Item No. 5	Insp. No. 1	Date 27/05/26	Time 13:27	Client's Job Ref Not Specified	Weather No Rain Or Snow	Pre Cleaned Yes	PLR SN07114601X
Operator DRAINTECH JJ		Vehicle CA70SZJ		Camera Minicam	Preset Length Not Specified	Legal Status Not Specified	Alternative ID Not Specified

Scale:	1:240	Position [m]	Code	Observation	MPEG	Photo	Grade		
	30.77	JN	Junction at 11 o'clock, 150mm dia	00:03:49					
	31.89	LR	Line deviates right	00:03:57					
	36.00	JN	Junction at 11 o'clock, 150mm dia	00:04:17					
	40.16	LL	Line deviates left	00:04:40					
	47.09	LL	Line deviates left	00:05:14					
	47.98	LR	Line deviates right	00:05:19					
	48.15	JN	Junction at 1 o'clock, 150mm dia	00:05:21					
	48.67	JN	Junction at 11 o'clock, 150mm dia	00:05:24					
	54.49	JN	Junction at 9 o'clock, 150mm dia	00:05:53					
	55.12	JN	Junction at 2 o'clock, 150mm dia	00:05:57					
	59.60	S01	DES	Settled deposits, fine, 20% cross-sectional area loss, start	00:06:24				
	64.95	F01	DES	Settled deposits, fine, 20% cross-sectional area loss, finish	00:07:07		4		
64.95	SA		Survey abandoned: DUE TO DEC	00:07:08					
Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	3	5.0	0.5	34.0	4.0

Appendix E
Architects Layout



© 2026 Inspire Design Ltd
Report any errors to the
designer.

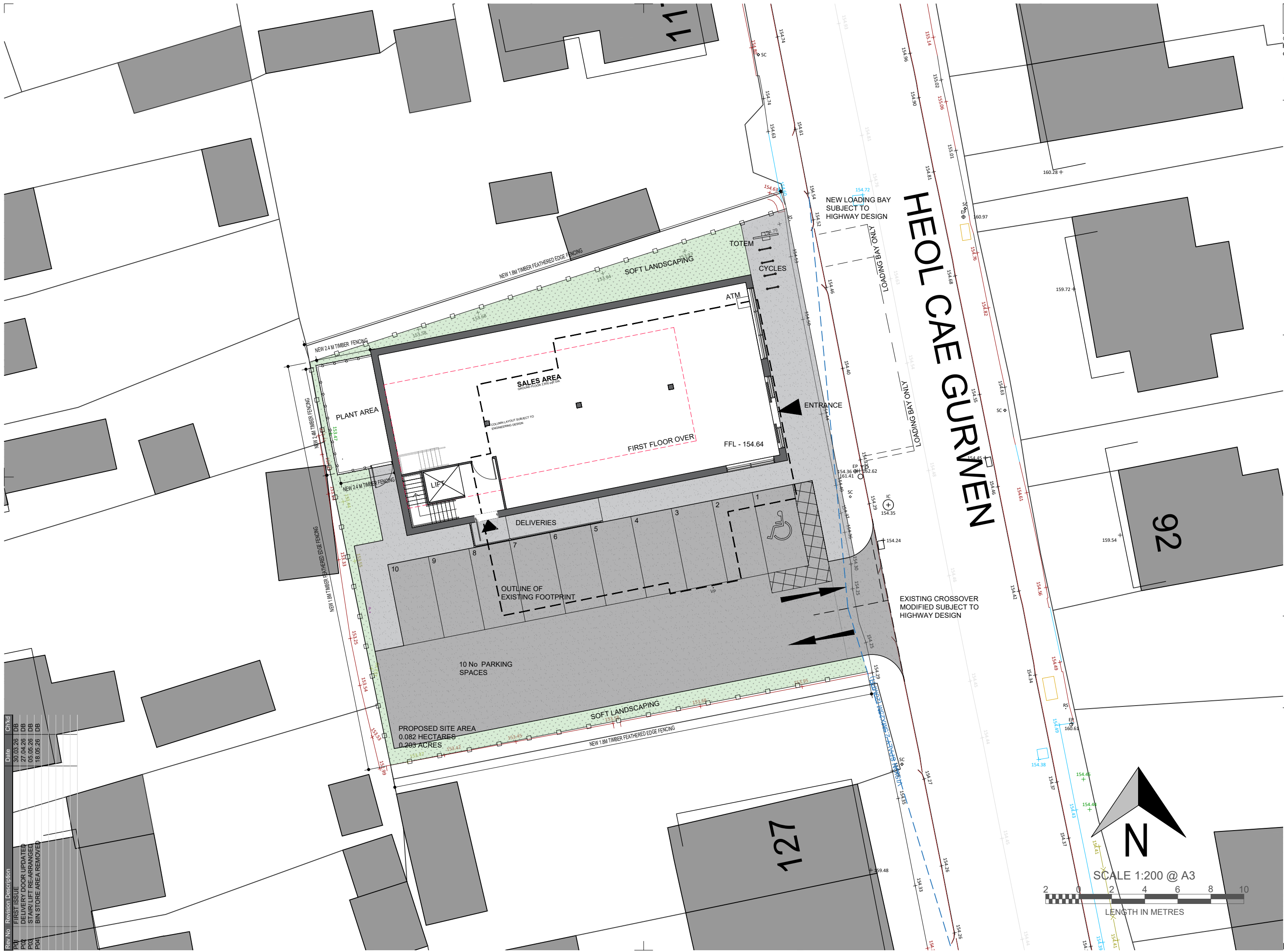
Drawn By: *AC* Checked By: *DB*

Project	121 HEOL CAE GURWEN GWAUN-CAE-GURWEN.SA18 1P
Dwg Title	PROPOSED SITE PLAN

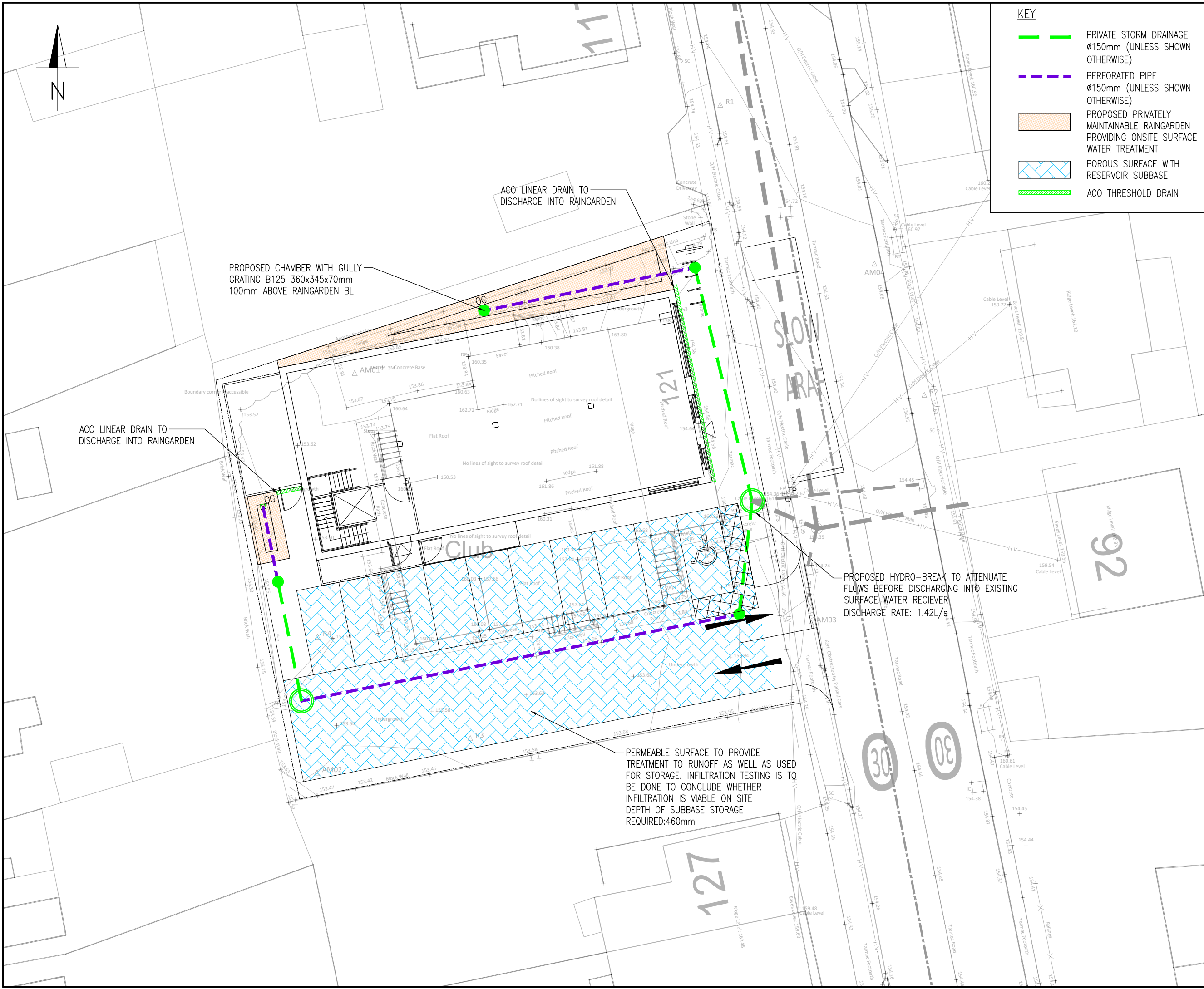
Region	Job No	Stage	Rate	Dwg No	Revision
000000					

Inspire No.	Originator	Volume	Level	Type	Boat	Number	Stage	Revision
255458-IDL-01-XX-DR-A-P2026-S3-P04								

Scale	1:200 @A3
Date	30.03.26

inspire design
1015 Nant Court, Woburn, MA 01801
Tel: 781.235.2022 Fax: 781.235.2023
www.inspire-design.com

Appendix F
Drainage Strategy Plan



KEY

- PRIVATE STORM DRAINAGE
Ø150mm (UNLESS SHOWN OTHERWISE)
- PERFORATED PIPE
Ø150mm (UNLESS SHOWN OTHERWISE)
- PROPOSED PRIVATELY MAINTAINABLE RAINGARDEN PROVIDING ONSITE SURFACE WATER TREATMENT
- POROUS SURFACE WITH RESERVOIR SUBBASE
- ACO THRESHOLD DRAIN

- GENERAL NOTES**
- DO NOT SCALE THIS DRAWING.
 - CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ALL ERRORS AND OMISSIONS TO THE ENGINEER.
 - ANY DISCREPANCY TO BE REPORTED IMMEDIATELY TO THE ENGINEER.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, SUBCONTRACTORS AND SPECIALISTS DRAWINGS AND SPECIFICATIONS.

A	PLAN REVISED FOLLOWING SITE INVESTIGATION	DH	09.08.21
Rev.	Detail	By	Date

Revisions

Reinforcement schedules nos.

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web www.cb3consult.co.uk

Client
NICK JAMES CONSULTING

Project
REDEVELOPMENT AT 121 HEOL CAE GURWEN, GWAUN-CAE-CURWEN, SA18 1PD

Drawing Title
DRAINAGE STRATEGY

PLANNING

Project No. C2434	Drawing No. C-SK02	Revision
Scales 1:200	Date 15.05.26	Revision
Drawn DH	Checked TE	Sheet Size A3
		A

Appendix G
Nutrient Budget Calculator

Wastewater load input data	
Description of required information	Data entry column - user inputs required
Special Area of Conservation (SAC):	Bae ac Aberoedd Caerfyrddin/ Carmarthen Bay and Estuaries
Postcode:	SA18 1PD
Local Planning Authority (LPA):	Neath Port Talbot County Borough Council
Rainfall:	1691
Project type:	Leisure
Development proposal (number of additional units):	1
Not applicable	Not applicable
Not applicable	Not applicable
Not applicable	Not applicable
Number of customers / users per unit:	30
Water usage per customer / user (litres/person/day):	15
Percentage of customers / users from outside catchment:	50
Number of employees (per unit):	4
Water usage per employee (litres/person/day):	45
Percentage of employees from outside catchment:	50
Wastewater treatment works:	Garnswllt STW
Not applicable	
Not applicable	
Phosphorus permitted limit (mg TP/l):	2.00
Nitrogen permitted limit (mg TN/l):	27.00
Final calculation of nutrient load from wastewater	
Description of values generated	Values generated
Additional population:	17.00
Annual wastewater production (litres):	115053.75
Annual phosphorus load (kg TP/year):	0.23
Annual nitrogen load (kg TN/year):	3.11

Wastewater load input data	
Description of required information	Data entry column - user inputs required
Special Area of Conservation (SAC):	Bae ac Aberoedd Caerfyrddin/ Carmarthen Bay and Estuaries
Postcode:	SA18 1PD
Local Planning Authority (LPA):	Neath Port Talbot County Borough Council
Rainfall:	1691
Project type:	Commercial
Development proposal (number of additional units):	1
Not applicable	Not applicable
Not applicable	Not applicable
Not applicable	Not applicable
Number of customers / users per unit:	
Water usage per customer / user (litres/person/day):	
Percentage of customers / users from outside catchment:	
Number of employees (per unit):	5
Water usage per employee (litres/person/day):	90
Percentage of employees from outside catchment:	50
Wastewater treatment works:	Garnswllt STW
Not applicable	
Not applicable	
Phosphorus permitted limit (mg TP/l):	2.00
Nitrogen permitted limit (mg TN/l):	27.00
Final calculation of nutrient load from wastewater	
Description of values generated	Values generated
Additional population:	2.50
Annual wastewater production (litres):	82181.25
Annual phosphorus load (kg TP/year):	0.16
Annual nitrogen load (kg TN/year):	2.22

Appendix H
Preliminary Drainage Calculations

Project:	Date: 14/05/2026			
	Designed by:	Checked by:	Approved By:	
	Danny Hughes			
Report Details: Type: Inflow Summary Storm Phase: existing runoff		Company Address:		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Manhole		Time of Concentration	0.039	100	0	100	0.039
TOTAL		0.0		0.039				0.039

Project:	Date: 14/05/2026			
	Designed by: Danny Hughes	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Network Design Criteria				
Storm Phase: existing runoff				

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

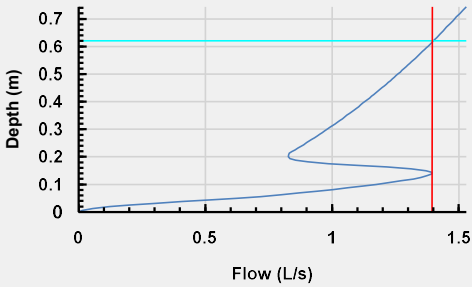
Apply Offset	☐
--------------	--------------------------

Project:	Date: 14/05/2026			
	Designed by: Danny Hughes	Checked by:	Approved By:	
	Company Address:			
Report Details: Type: Outfall Details Storm Phase: existing runoff				

Outfalls

Outfall	Outfall Type	Gated	Fixed Surcharged Level (m)	Level Curve
Manhole	Free Discharge			

Project:	Date: 14/05/2026			
	Designed by: Danny Hughes	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Junctions Storm Phase: Phase				

Outlets			
Junction	Outlet Name	Outgoing Connection	Outlet Type
SITE OUTLET	Outlet	Pipe	Hydro-Brake®
	Invert Level (m)	152.900	
	Design Depth (m)	0.620	
	Design Flow (L/s)	1.4	
	Objective	Minimise Upstream Storage Requirements	
	Application	Surface Water Only	
	Sump Available	☐	
	Unit Reference	CHE-0060-1400-0620-1400	
			
	Flow (L/s)		

Project:	Date: 14/05/2026			
	Designed by: Danny Hughes	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Stormwater Controls Storm Phase: Phase				



Porous Paving

Type : Porous Paving

Dimensions	
Exceedance Level (m)	153.720
Depth (m)	0.560
Base Level (m)	153.160
Paving Layer Depth (mm)	90
Membrane Percolation (m/hr)	1.0
Porosity (%)	30
Length (m)	30.061
Long. Slope (1:X)	10000.00
Width (m)	9.945
Total Volume (m³)	42.523

Under Drain	
Height Above Base (m)	0.000
Diameter (mm)	150
No. of Barrels	1
Release Height (m)	0.000
Friction Scheme	Manning's n
n	0.015

Inlets	
Inlet (1)	
Inlet Type	Point Inflow
Incoming Item(s)	Catchment Area
Bypass Destination	(None)
Capacity Type	No Restriction

Outlets	
Outlet	
Outgoing Connection	Pipe (1)
Outlet Type	Free Discharge

Advanced	
Conductivity (m/hr)	350.0

Project:	Date: 14/05/2026			
	Designed by:	Checked by:	Approved By:	
	Danny Hughes			
Report Details:		Company Address:		
Type: Inflow Summary				
Storm Phase: Phase				

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area	Porous Paving		Time of Concentration	0.071	100	0	100	0.071
TOTAL		0.0		0.071				0.071

Project:	Date: 14/05/2026			
	Designed by: Danny Hughes	Checked by:	Approved By:	
Report Details:	Company Address:			
Type: Network Design Criteria				
Storm Phase: Phase				

Flow Options

Peak Flow Calculation	(UK) Modified Rational Method
Min. Time of Entry (mins)	5
Max. Travel Time (mins)	30

Pipe Options

Lock Slope Options	None
Design Options	Minimise Excavation
Design Level	Level Soffits
Min. Cover Depth (m)	1.200
Min. Slope (1:X)	500.00
Max. Slope (1:X)	40.00
Min. Velocity (m/s)	1.0
Max. Velocity (m/s)	3.0
Use Flow Restriction	☐
Reduce Channel Depths	☐

Manhole Options

Apply Offset	☐
--------------	--------------------------

Project:	Date: 14/05/2026			
	Designed by: Danny Hughes	Checked by:	Approved By:	
	Company Address:			
Report Details: Type: Outfall Details Storm Phase: Phase				

Outfalls

Outfall	Outfall Type	Gated	Fixed Surcharged Level (m)	Level Curve
SW connection	Free Discharge			

Project:	Date: 14/05/2026			
	Designed by: Danny Hughes	Checked by:	Approved By:	
Report Title: Rainfall Analysis Criteria	Company Address:			

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall	
FSR Q100 +30%	Type: FSR
Region	England And Wales
M5-60 (mm)	19.8
Ratio R	0.209
Summer	☒
Winter	☒

Return Period	
Return Period (years)	Increase Rainfall (%)
100.0	30.000

Storm Durations	
Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
180	360
240	480
360	720
480	960
600	1200
720	1440
960	1920
1440	2880
2160	4320
2880	5760
4320	8640
5760	11520
7200	14400
8640	17280
10080	20160