

Ty Gwyn Jones, Abergele

Surface Water and Foul Drainage Strategy

June 2026

Project Information	
Project:	Ty Gwyn Jones, Abergele
Report Title:	Drainage Strategy
Client:	Enfys Developments Ltd
Instruction:	The instruction to undertake this Drainage Strategy was received from Natasha Campbell of Enfys Developments Ltd
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Approval Record	
Author:	Adam Vale BEng (Hons)
Checker:	Aled Williams BSc (Hons) MCIWEM C.WEM
Approver:	Nigel Jones BEng (Hons) CEng MICE

Document History		
Revision	Date	Comment
01	19/06/2026	First issue

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Introduction

Waterco has been instructed to prepare a Drainage Strategy in respect of a proposed residential development at Ty Gwyn Jones, Abergele, LL22 7HJ.

The aim of the Drainage Strategy is to identify water management measures, including Sustainable Drainage Systems (SuDS), to provide surface water runoff reduction and treatment. This report has been prepared in accordance with the Welsh Government 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems' (2018) – herein referred to as 'the Statutory Standards for SuDS'.

Existing Conditions

The site covers an area of approximately 2,920m² and is located at National Grid Reference (NGR) 294928, 377468. A location plan and an aerial image are included in Appendix A.

Online mapping (including Google Maps / Google Streetview imagery, accessed June 2026) shows that the site comprises of an apartment block and associated parking. The site is bordered by Rhuddlan Road (A547) to the north, with residential properties to the east, south, and west. Access to the site is provided from Wenfro, off St George Road to the south.

Local Topography

A topographical survey has been undertaken by Angle Surveys in February 2022. The topographical survey shows that site levels vary from 19.79 metres Above Ordnance Datum (m AOD) in the south-west to 16.55m AOD in the north-west.

Topographic levels to m AOD have also been derived from a 1m resolution Natural Resources Wales (NRW) composite 'Light Detecting and Ranging' (LiDAR) Digital Terrain Model (DTM). The LiDAR data generally corroborates with the topographical survey.

Topographical information is provided as Appendix B.

Ground Conditions

The British Geological Survey (BGS) online mapping (1:50,000 scale) indicates that the site is underlain by superficial deposits of Devensian Till, generally comprising diamicton. The superficial deposits are identified as being underlain by Warwickshire Group consisting of mudstone, siltstone and sandstone.

The geological mapping is available at a scale of 1:50,000 and as such may not be accurate on a site-specific basis.

The closest historical BGS borehole record (BGS reference: SH97NW15) is located within the site boundary and is included in Appendix C. The borehole record identifies:

- Made ground (topsoil and clay) from ground level to 0.7 metres below ground level (m.bgl);

- Firm brown silty stoney clay from 0.7m.bgl to 1.8m.bgl;
- Stiff brown silty clay with pebbles from 1.8m.bgl 5m.bgl.

No groundwater was encountered.

According to NRW's Aquifer Designation data, obtained from the BGS GeoIndex's online mapping [accessed June 2026], the Devensian Till is classified as a Secondary Undifferentiated Aquifer. Secondary Undifferentiated Aquifers are assigned in 'cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type'.

The underlying Warwickshire Group is classified 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 Cranfield University 'Soilscapes' map [accessed June 2026] indicates that the site is underlain by '*loamy and clayey soils with impeded drainage*'.

Local Drainage

Public sewer records have been obtained from Dŵr Cymru Welsh Water (DCWW) and are included in Appendix D. The DCWW sewer records show that there is a private foul pumping station located in the centre of the site. The 100mm rising main emanating from the pumping station flows west and joins a 150mm foul sewer flowing north along the western boundary of the site. The 150mm foul sewer discharges to a 300mm foul sewer within Rhuddlan Road.

The sewer records also show that there is a 150mm public surface water sewer immediately south of the site. The 150mm surface water sewer flows east in this location, serving the properties south of the site.

There is also a 150mm surface water sewer in Rhuddlan Road north of the site flowing north-east.

Development Proposals

The proposed development is for the demolition of an existing apartment block and the erection of 2no. apartment blocks (24no. units) with associated access, parking, open space and electricity substation. Proposed development plans are included in Appendix E.

The proposed development will include approximately 1,766m² of hardstanding area in the form of apartment blocks, car parking and associated access road. The remaining permeable, soft landscaped areas will occupy 1,154m². Measurements have been determined from the Contributing Area Plan included in Appendix F.

Consultation

A pre-development enquiry request was submitted to DCWW in March 2025. In their response (Appendix D), DCWW have stated that:

'ASSET PROTECTION'

This site is crossed by a public sewer with the approximate position being marked on the attached Statutory Public Sewer Record. In accordance with the Water Industry Act 1991, Dwr Cymru Welsh Water requires access to its apparatus at all times in order to carry out maintenance and repairs. No part of any building will be permitted within the protection zone of the public sewer measured 3 metres either side of the centreline of the 150mm public sewer. Our strong recommendation is that your site layout takes into account the location of the assets crossing the site and should be referred to in any master-planning exercises or site layout plans submitted as part of any subsequent planning application. Further information regarding Asset Protection is provided in the attached Advice & Guidance note.

You are also advised that some public sewers and lateral drains may not be recorded on our maps of public sewers because they were originally privately owned and were transferred into public ownership by nature of the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011. The presence of such assets may affect the proposal. In order to assist you may contact Dwr Cymru Welsh Water on 0800 085 3968 to establish the location and status of the apparatus in and around your site. Please be mindful that under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times.

Surface Water Drainage

As of 7th January 2019, this proposed development is subject to Schedule 3 of the Flood and Water Management Act 2010. The development therefore requires approval of Sustainable Drainage Systems (SuDS) features, in accordance with the 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems'. As highlighted in these standards, the developer is required to explore and fully exhaust all surface water drainage options in accordance with a hierarchy preferring infiltration (PL2) and, where infiltration is not possible, disposal to a surface water body (PL3), in liaison with the Lead Local Flood Authority and/or Natural Resources Wales, or surface water sewer or highway drain (PL4) in liaison with the riparian owner and/or Local Highways Authority.

In the absence of an accompanying surface water drainage strategy, it is recommended that the developer engage in consultation with Conwy County Borough Council, as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please be advised that due to capacity constraints with the downstream public sewerage network, under no circumstances would we allow surface water runoff highway run-off from the proposed development to communicate directly or indirectly with the public combined sewerage system. In addition, please note, no amount of highway or land drainage run-off is permitted to discharge directly or indirectly into the public sewerage system.

Furthermore, Planning Policy Wales (PPW) acknowledges that discharge of surface water to foul sewers is prohibited and highlights that any additional surface water from new developments should not be discharged to combined systems because of the risk of pollution when combined systems overflow (Para

6.6.3). Moreover, PPW recognises the challenges faced from rainfall intensity causing surface water flooding and diffuse pollution (Para 6.6.14) along with the importance of well-maintained sewerage networks (Para 6.6.15), particularly as a result of run-off from built surfaces and the sewage discharges from overloaded sewers (Para 6.6.16).

FOUL WATER DRAINAGE – SEWERAGE NETWORK

The proposed development site is located in the immediate vicinity of a separate sewerage system, comprising, foul and surface water public sewers, which drains to Kinmel Bay Wastewater Treatment Works (WwTW).

We have considered the impact of foul flows generated by the proposed development and concluded that flows can be accommodated within the public sewerage system. We advise that the flows should be connected to the foul sewer by utilising the existing private connection or at or downstream of manholes SH94779406 located within the site. Should a planning application be submitted for this development we will seek to control these points of communication via appropriate planning conditions and therefore recommend that any drainage layout or strategy submitted as part of your application takes this into account. However, should you wish for an alternative connection point to be considered please provide further information to us in the form of a drainage strategy, preferably in advance of a planning application being submitted.

You may need to apply to Dwr Cymru Welsh Water for any connection to the public sewer under Section 106 of the Water Industry Act 1991. However, if the connection to the public sewer network is either via a lateral drain (i.e. a drain which extends beyond the connecting property boundary) or via a new sewer (i.e. serves more than one property), it is now a mandatory requirement to first enter into a Section 104 Adoption Agreement (Water Industry Act 1991). The design of the sewers and lateral drains must also conform to the Welsh Ministers Standards for Foul Sewers and Lateral Drains, and conform with the publication "Sewers for Adoption"- 7th Edition. Further information can be obtained via the Developer Services pages of www.dwrcymru.com.

FOUL WATER DRAINAGE – SEWAGE TREATMENT

No problems are envisaged with the Waste Water Treatment Works for the treatment of domestic discharges from this site.'

Surface Water Management

The site currently comprises of an existing apartment block and associated parking / access. Surface water runoff is currently pumped to an existing surface water sewer south of the site. The existing drainage plan is included in Appendix G.

Discharge Method

Standard S1 of the Statutory Standards for SuDS sets out the following hierarchy of drainage options:

Priority Level 1: Surface water runoff is collected for use;

Priority Level 2: Surface water runoff is infiltrated to ground;

Priority Level 3: Surface water runoff is discharged to a surface water body;

Priority Level 4: Surface water runoff is discharged to a surface water sewer, highway drain, or another drainage system;

Priority Level 5: Surface water runoff is discharged to a combined sewer.

Priority Level 1: Surface water runoff collected for use

In line with section G1.4 of the Statutory Standards for SuDS , rainwater harvesting is not proposed for this site as:

1. There is no foreseeable need to harvest water at the site as DCWW water resources and drought management plans do not identify potential stresses on mains water supplies;
2. The use of rainwater harvesting is not a viable/ cost-effective part of the solution for managing surface water runoff on the site, taking account of the potential water supply benefits of such a system.

With regards to point 2 above, section G1.6 of the Statutory Standards for SuDS states that; in most cases, rainwater harvesting alone will not be adequate to deal with the site drainage and provision will be required for an overflow to a Level 2 or lower priority runoff destination. As downstream provision of attenuation storage will be required to accommodate for rainwater harvesting system overflows, rainwater harvesting is not considered a cost-effective solution for managing surface water runoff.

Priority Level 2: Surface water runoff is infiltrated to ground

As described above, the site is underlain by superficial deposits of Devensian Till which is underlain by Warwickshire Group.

A historical BGS borehole record (BGS reference: SH97NW15) located on site identified clay from ground level to 5m.bgl.

Due to the impermeable nature of the underlying geology, infiltration techniques will not be suitable for the discharge of surface water runoff.

Priority Level 3: Surface water runoff is discharged to a surface water body

Given infiltration is not suitable, a connection to watercourse is the next consideration. The nearest watercourse is an unnamed watercourse which is located approximately 140m west of the site.

The site is separated from the unnamed watercourse by third party, urbanised land. A direct connection to

this watercourse is therefore not a feasible option.

Priority Level 4: Discharge to a surface water sewer or highway drain

A connection to the public surface water sewer system is the next consideration. There is a 225mm public surface water sewer located north of the site in Rhuddlan Road. A connection to this sewer appears to be a feasible option.

Discharge Rate

In relation to surface water discharge for previously developed sites, the Statutory Standards for SuDS states that *'betterment of at least 30% should be considered as a minimum requirement...'*

In order to establish the proposed limited discharge rate, greenfield runoff rates have been estimated using the Revitalised Flood Hydrograph Model (ReFH2) method, provided as Appendix H. The existing 1 in 2 year greenfield rate for the 2,920m² development site is 1.1 l/s. The 1 in 100 year greenfield runoff rate is 3.2 l/s.

A discharge rate of 1.1 l/s for all return periods up to and including the 1 in 2 year event is proposed. The discharge rate will rise to 3.2 l/s during the 1 in 100 year plus 30% climate change event. The discharge rate provides 95% betterment on the brownfield runoff rate, provided in Appendix I. Whilst a 95% betterment on existing brownfield rates is proposed the existing development has a pumped surface water solution therefore the betterment will likely be considerably less than 95%.

Attenuation Storage

In order to achieve a discharge rate of 1.1 l/s rising to 3.2 l/s, attenuation storage will be required. Drainage network simulation data / results have been provided using Causeway Flow and are included in Appendix I. An estimated storage volume of 169m³ will be required to accommodate the 1 in 100 year plus 30% Climate Change (CC) event plus 10% Urban Creep (UC). The storage estimate is based on a complex dual flow control system which controls the flows for the specific 1 in 2 year and 1 in 100 year storm events of 1.1 l/s and 3.2 l/s respectively.

The underground tank will provide 137m³ of storage with sufficient space for the tank provided under the access road / parking between the two apartment blocks, the remaining 32m³ will be provided in the form of pipes, chambers, swales and raingardens.

In addition to the attenuation tank, raingardens, permeable surfacing (for parking spaces) and a swale are proposed to provide flow conveyance, treatment and amenity / biodiversity benefits.

A Proposed Drainage Scheme is included in Appendix J.

Exceedance Event

Storage will be provided for the 1 in 100 year plus 30% CC event plus 10% urban creep. Storm events in excess of the 1 in 100 year plus 30% CC event plus 10% urban creep should be permitted to produce temporary shallow depth flooding within the car park, access road and landscaped areas. Finished floor levels will be set at a minimum of 150mm above surrounding ground levels ensuring exceedance flooding will not affect the buildings.

Surface Water Treatment

The Statutory Standards for SuDS sets out the following guidance for surface water treatment;

S3 - Surface water quality management

Treatment for surface water runoff should be provided to prevent negative impacts on the receiving water quality and/or protect downstream drainage systems, including sewers.

In accordance with the CIRIA C753 publication 'The SuDS Manual' (2015), residential roofs have a 'very low' pollution hazard level, with low traffic roads and residential parking classified as having a 'low' pollution hazard level. Table 1 shows the pollution hazard indices for each land use.

Table 1 – Pollution Hazard Indices

Land Use	Pollution Hazard Level	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Residential Roofs	Very Low	0.2	0.2	0.05
Low Traffic Roads	Low	0.5	0.4	0.4

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.2

* Indices values range from 0-1.

Runoff from roofs and roads will be directed to raingardens, permeable paving and a swale. Table 2 demonstrates that raingardens, permeable paving and swales provide sufficient treatment.

Table 2 – SuDS Mitigation Indices

Type of SuDS	Mitigation Indices		
	Total Suspended Solids (TSS)	Metals	Hydrocarbons
Bioretention Systems (raingardens)	0.8	0.8	0.8
Permeable Pavement	0.7	0.6	0.7
Swale	0.5	0.6	0.6

Table extract taken from the CIRIA C753 publication 'The SuDS Manual' – Table 26.3

Amenity

The Statutory Standards for SuDS provide the following guidance in relation to Standard S4 – Amenity:

'The design of the surface water management system should maximise amenity benefits.'

The proposed development will include raingardens, permeable paving and a swale which will maximise the amenity value of the proposed drainage system.

Biodiversity

The Statutory Standards for SuDS provide the following guidance in relation to Standard S5 – Biodiversity:

‘The design of the surface water management system should maximise biodiversity benefits.’

The proposed raingardens and swale will maximise the biodiversity value of the proposed drainage system.

Construction, Operation and Maintenance

Standard S6 of the Statutory Standards for SuDS states;

S6 – Design of drainage for Construction, Operation and Maintenance

- 1) All elements of the surface water drainage system should be designed so that they can be constructed easily, safely, cost-effectively, in a timely manner, and with the aim of minimising the use of scarce resources and embedded carbon (energy).
- 2) All elements of the surface water drainage system should be designed to ensure maintenance and operation can be undertaken (by the relevant responsible body) easily, safely, cost-effectively, in a timely manner, and with the aim of minimising the use of scarce resources and embedded carbon (energy).
- 3) The surface water drainage system should be designed to ensure structural integrity of all elements under anticipated loading conditions over the design life of the development site, taking into account the requirement for reasonable levels of maintenance.

All drainage systems will be readily accessible for maintenance access.

The drainage system (and site) will be under Wales and West Housing ownership and as such the drainage system will not be adopted by the SAB.

Maintenance schedules for the proposed drainage systems are included in Appendix K.

Foul Drainage

Correspondence from DCWW (Appendix D) states that:

FOUL WATER DRAINAGE – SEWERAGE NETWORK

‘The proposed development site is located in the immediate vicinity of a separate sewerage system, comprising, foul and surface water public sewers, which drains to Kinmel Bay Wastewater Treatment Works (WwTW).

We have considered the impact of foul flows generated by the proposed development and concluded that flows can be accommodated within the public sewerage system. We advise that the flows should be connected to the foul sewer by utilising the existing private connection or at or downstream of manholes SH94779406 located within the site. Should a planning application be submitted for this development we will seek to control these points of communication via appropriate planning conditions and therefore recommend that any drainage layout or strategy submitted as part of your application takes this into account. However, should you wish for an alternative connection point to be considered please provide further information to us in the form of a drainage strategy, preferably in advance of a planning application being submitted.

Foul flows will therefore be discharged to the public foul sewer crossing the western extent of the site. A gravity connection can be achieved. Foul drainage proposals are shown on the ‘Proposed Drainage Scheme’ plan in Appendix J.

Conclusions

The proposed development is for the demolition of an existing apartment block and the erection of 2no. apartment blocks (24no. units) with associated access, parking, open space and electricity substation.

The proposed development will include impermeable drainage areas in the form of buildings and access road. A flow control will be used and attenuation provided on site to accommodate storm events up to and including the 1 in 100 year plus 30% climate change event plus 10% urban creep.

All methods of surface water discharge have been assessed. Soakaways are not viable given the underlain clay therefore surface water will be discharged to an existing 225mm surface water sewer in Rhuddlan Road at a maximum rate of 3.2 l/s which appears to be the most practical option. This has been agreed in principle with DCWW which has been included in Appendix L.

Attenuation storage will be required on site in order to restrict surface water discharge to a maximum rate of 3.2 l/s. Attenuation can be provided within a proposed attenuation tank located under the proposed access / parking between both apartment blocks.

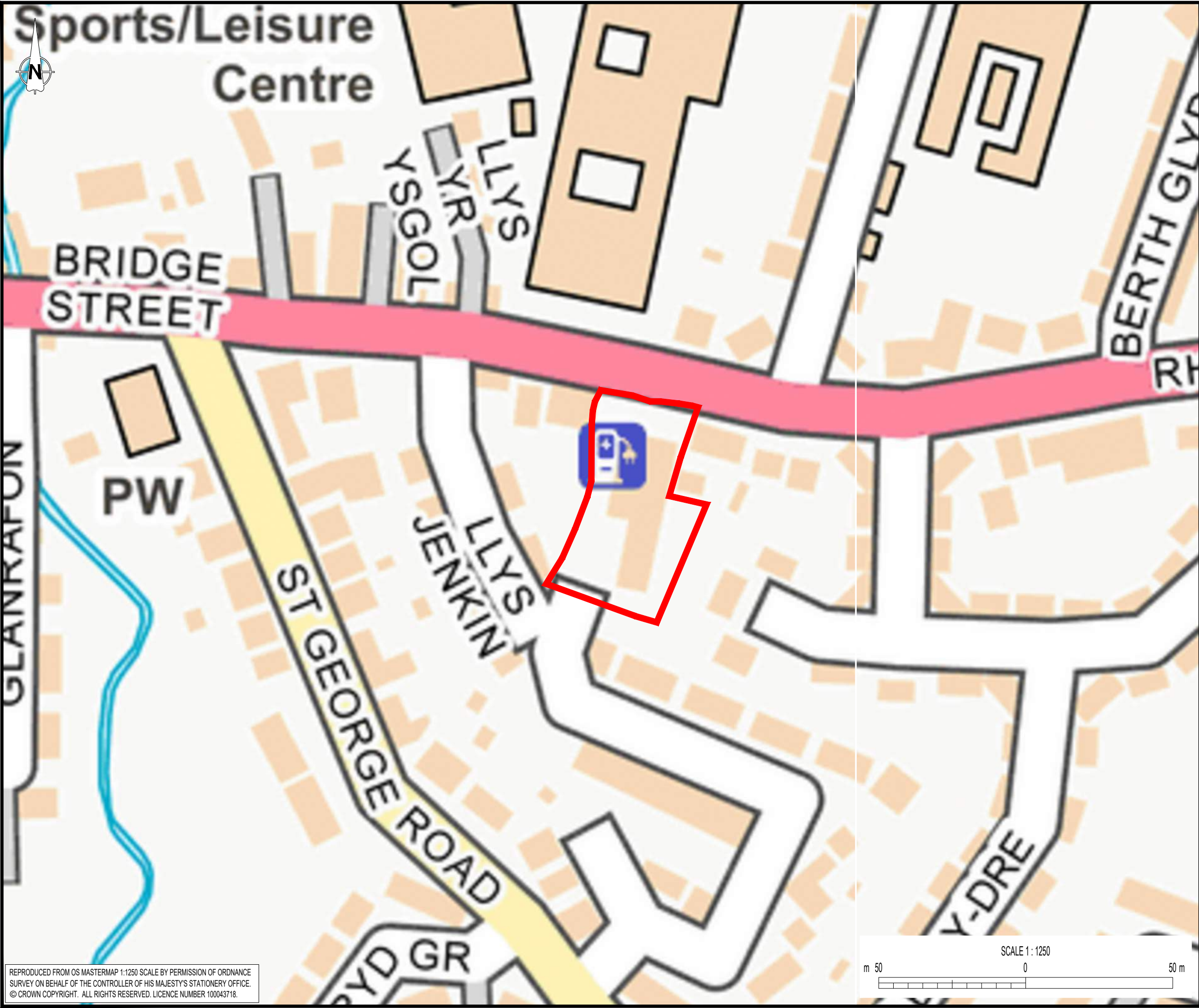
Treatment of surface water will be provided by the proposed raingardens, permeable paving and swale. The site owner will be responsible for the maintenance of the drainage system. DCWW have confirmed that foul flows can discharge to 150mm public foul sewer running along the western boundary. A gravity connection can be achieved.

A Concept Designer's Risk Assessment (cDRA) has been prepared to inform future designers of any identified hazards associated with the scheme. The cDRA has been included in Appendix M.

Recommendations

1. Submit this Drainage Strategy to the Planning Authority in support of the Planning Application.
2. Liaise further with SAB with regards to SAB Pre Application response which is awaited.

Appendix A Location & Aerial Plan



NOTES

- 1. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS SHOWN OTHERWISE.

KEY

- SITE BOUNDARY
- WATERCOURSES

SITE LOCATION

GRID REFERENCE: 294923, 377464
SITE ADDRESS: TY GWYN JONES, RHUDDLAN ROAD, ABERGELE, CONWY, LL22 7HL

I01	16/06/2026	FIRST ISSUE	CP	AC	NJ
REV	DATE	DESCRIPTION	ORIG	CHK	APP

CLIENT

PRINCIPAL DESIGNER

Waterco Ltd., Eden Court,
Lon Parcwr Business Park, Ruthin LL15 1NJ
tel (+44) 1824 702220
www.waterco.co.uk

SCHEME

TY GWYN JONES,
ABERGELE

TITLE

LOCATION PLAN

ORIGINATOR	C.PUGH	CHECKER	A.CALDWELL	APPROVER	N.JONES
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STATUS

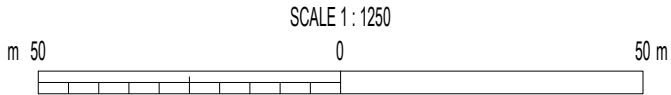
FOR INFORMATION

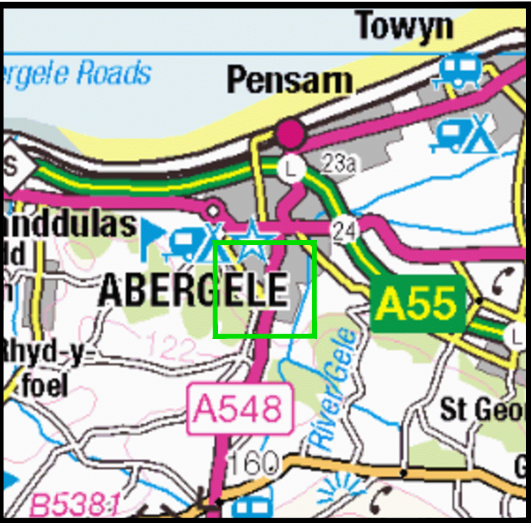
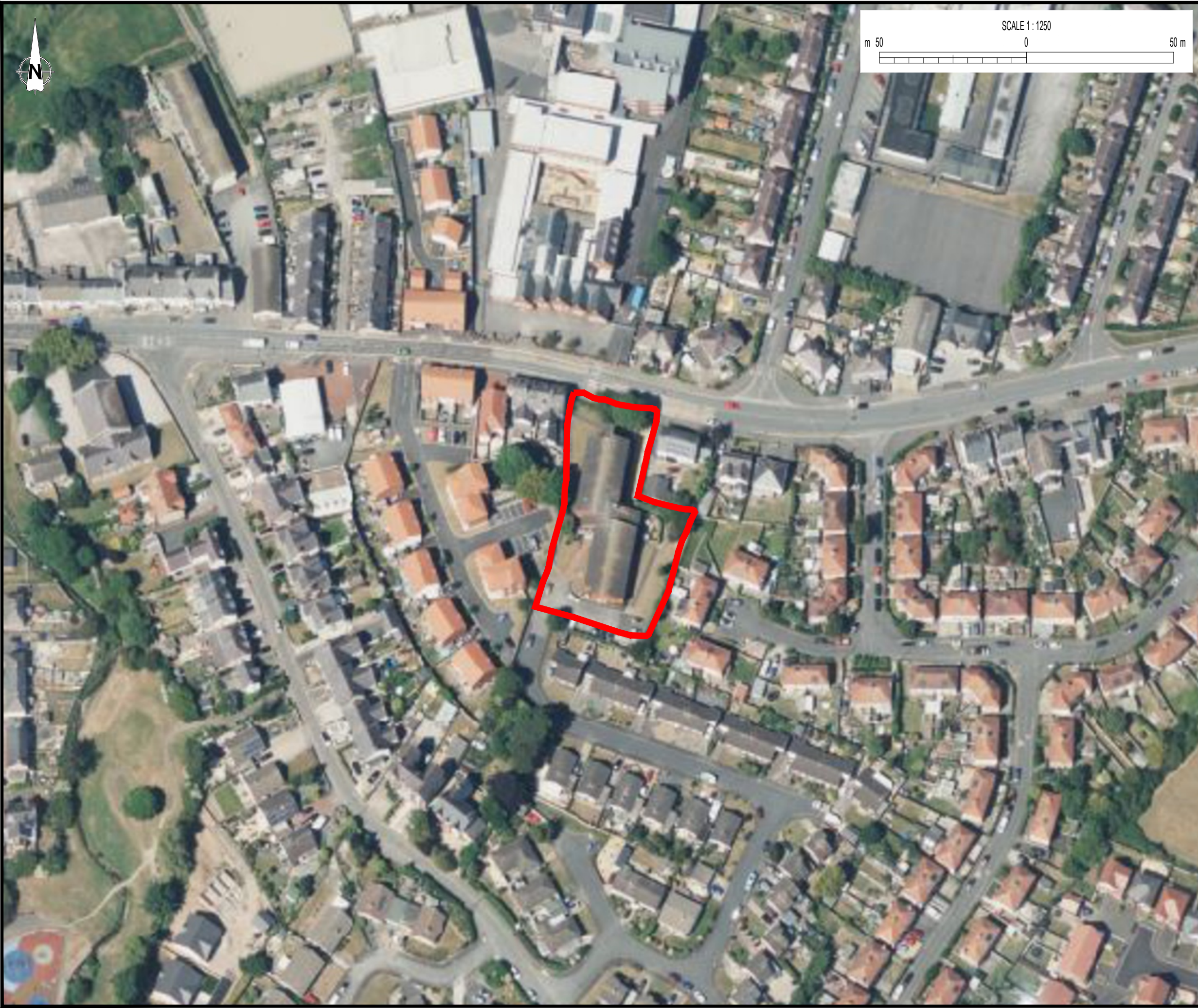
SCALE / SHEET SIZE	1:1250 / A3	REV	I01
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DRAWING NO.

16444-2001

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NOTES

1. ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS SHOWN OTHERWISE.

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— SITE BOUNDARY

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I01	16/06/2026	FIRST ISSUE	CP	AC	NJ
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CLIENT



PRINCIPAL DESIGNER

-



Waterco Ltd., Eden Court, Lon Parcwr Business Park, Ruthin LL15 1NJ
tel (+44) 1824 702220
www.waterco.co.uk

SCHEME

TY GWYN JONES,
ABERGELE

TITLE

AERIAL PLAN

ORIGINATOR C.PUGH	CHECKER A.CALDWELL	APPROVER N.JONES
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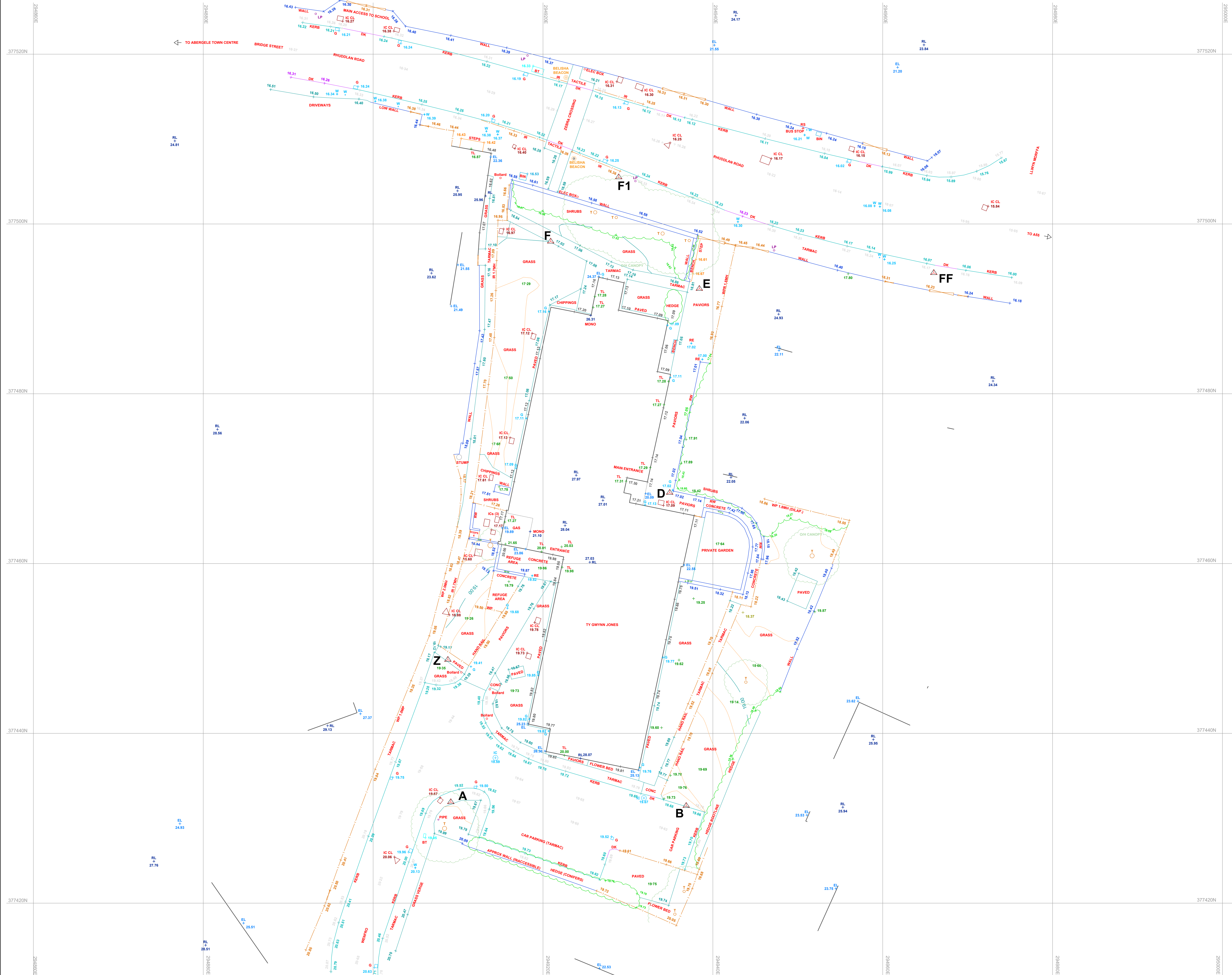
STATUS

FOR INFORMATION

SCALE / SHEET SIZE 1:1250 / A3	REV I01
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DRAWING NO. 16444-2002

Appendix B Topographical Information



Revision No: -1Topographical SurveyFebruary 2022

Angle Surveys

Angle Surveys Limited
PlasEnnis Business Centre
Abergele Road
Colwyn Bay
LL29 8BF
+44(0)1492 850050
www.anglesurveys.co.uk
enquiries@anglesurveys.co.uk

Project
TOPOGRAPHICAL SURVEY
TY GWYNN JONES
RHUDDLAN ROAD, ABERGELE

Reference No
211115-08-WW

Drawing No
001

Scale
1:200

Scale Factor
1.0000

Survey Stations
Grid - Related to OSGB36 (National Grid) and OSTN15 derived from GNSS
Levels - Related to Ordnance Survey Datum via OSGM15 derived from GNSS

STATIONS	EAST	NORTH	HEIGHT	DESCRIPTION
A	294909.147	377431.909	19.722	Road Nail
B	294936.861	377431.464	19.733	Road Nail
D	294934.920	377468.347	17.041	Road Nail
E	294938.409	377492.368	16.746	Road Nail
F	294920.905	377497.941	17.002	Road Nail
F1	294928.913	377505.511	16.407	Road Nail
FF	294966.013	377494.239	16.179	Road Nail
Z	294908.802	377448.673	19.281	Road Nail

Revisions/ Notes

All critical dimension to be checked on site

Further investigation may be needed to show the full extent of the drainage on site

Only trees with a diameter of 300mm or greater have been surveyed

Walls/ fences/ routlines shown do not necessary represent legal boundaries

NOTES:

Legend

Bol	Bollards	MP	Mile post
BS	Bus stop	NP	Name plate
BT	British Telecom IC	OG	Overgrown
CL	Celling Level	OH	Overhead
CATV	Cable television IC	PO	Post
DK	Drop kerb	PM	Parking Meter
DR	Drain	RE	Rodding Eye
Elec	Electric IC	RS	Road sign
EP	Electric pole	RW	Retaining Wall
ER	Earth rod	SP	Soil pipe
FFL	Finished Floor Level	ST	Stop tap
FP	Fence post	Stay	Cable stay
FB	Flower Bed	TCB	Telephone call box
G	Gully	FFL 5.55	Finished Floor Level
GP	Gate Post	TL	Door Threshold Level
H/C	Harcove	TP	Telephone pole
HMP	Hazard Marker Posts	Tar	Tarmac/adam
IC	Inspection cover	VP	Vent pipe
K	Kerb	W	Water cover
KO	Kerb outlet	WL	Water level
LB	Letter box	WM	Water meter
LP	Lamp post	WO	Water outlet
Mr	Utility marker	UTL	Unable to lift

DENCE ANNOTATION

BW	Burb wire	WP 1.8M	Wooden panel	Fence/ Height
CL	Corrugated iron			
CL	Chain link			
CPWP	Concrete post Wooden Panel			
HR	Hand rail			
IR	Iron railing			
PC	Post and chain			
PR	Post and nail			
PW	Post and wire			
SF	Security fence			
WP	Wooden Panel			

Survey Control station

12.28

Spot Level

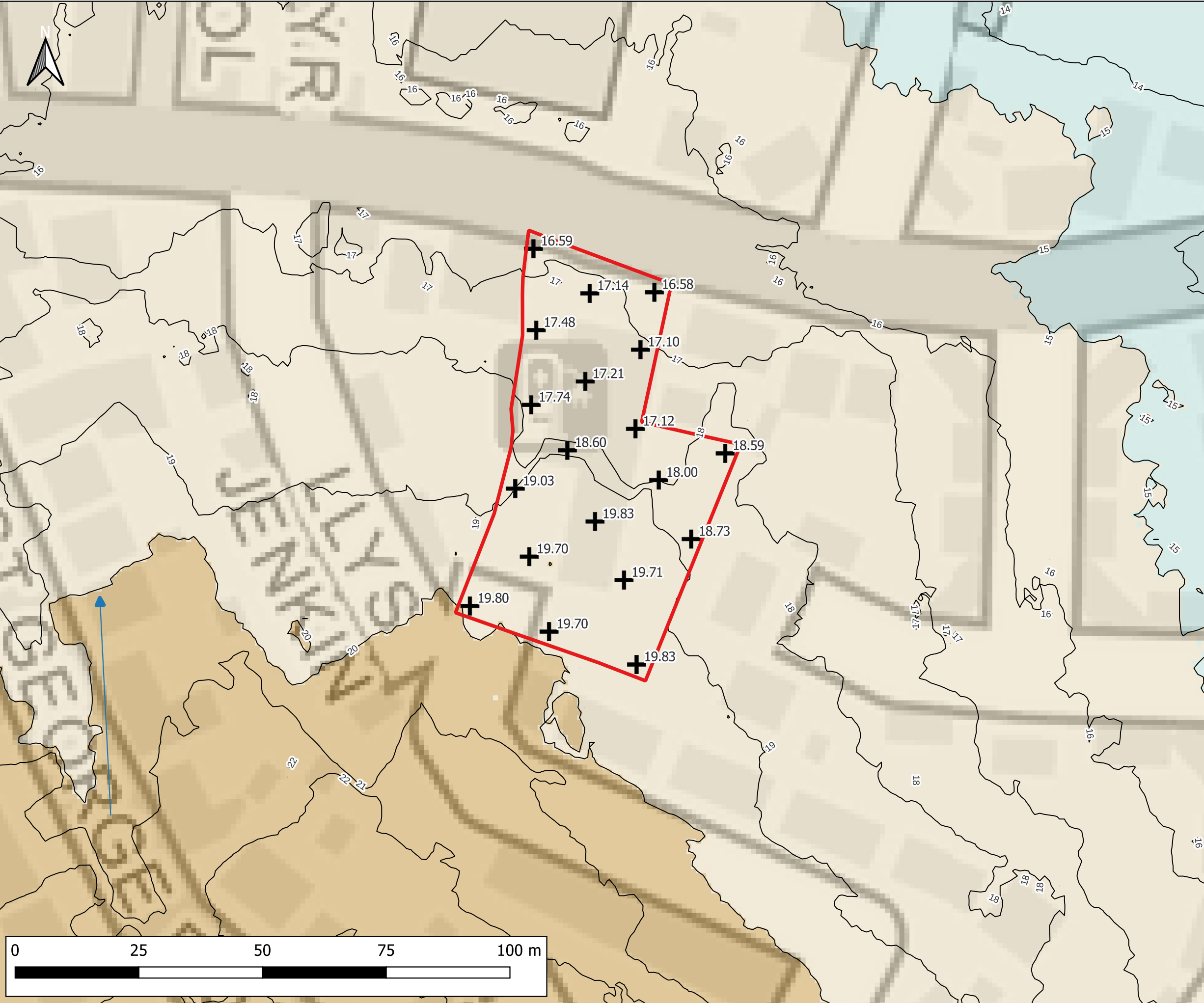
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Notes:
1) All dimensions are in metres and all levels in metres above Ordnance Datum unless stated otherwise

LEGEND

Site Boundary

Site Levels (m AOD)

Ground Elevation (m AOD)

	<= 10
	10 - 15
	15 - 20
	20 - 25
	> 25

CLIENT:

Enfys Developments Ltd

www.waterco.co.uk

SCHEME:

Ty Gwyn Jones, Abergele

PLOT TITLE:

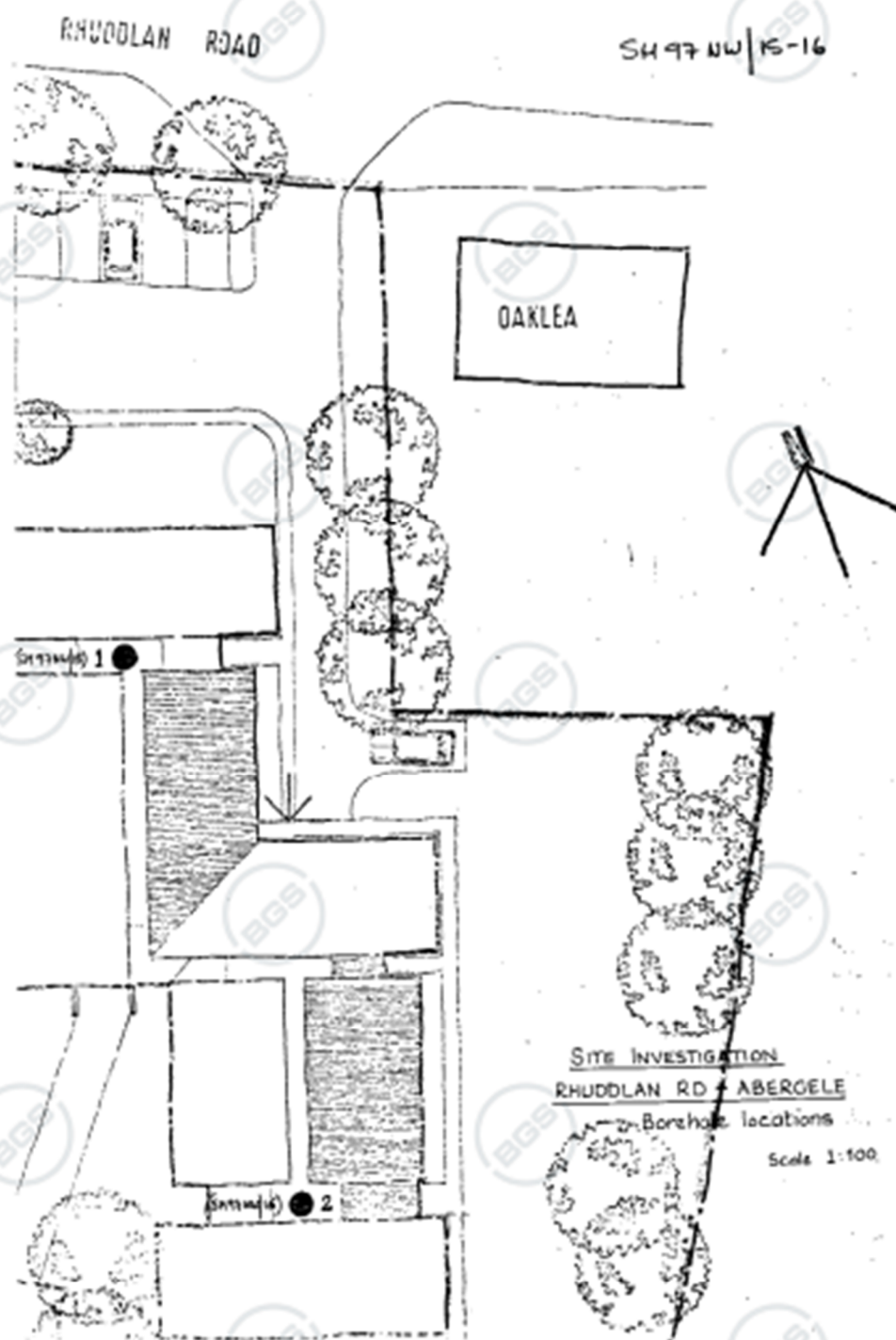
LiDAR Plan
1m Resolution
Data from Natural Resources Wales

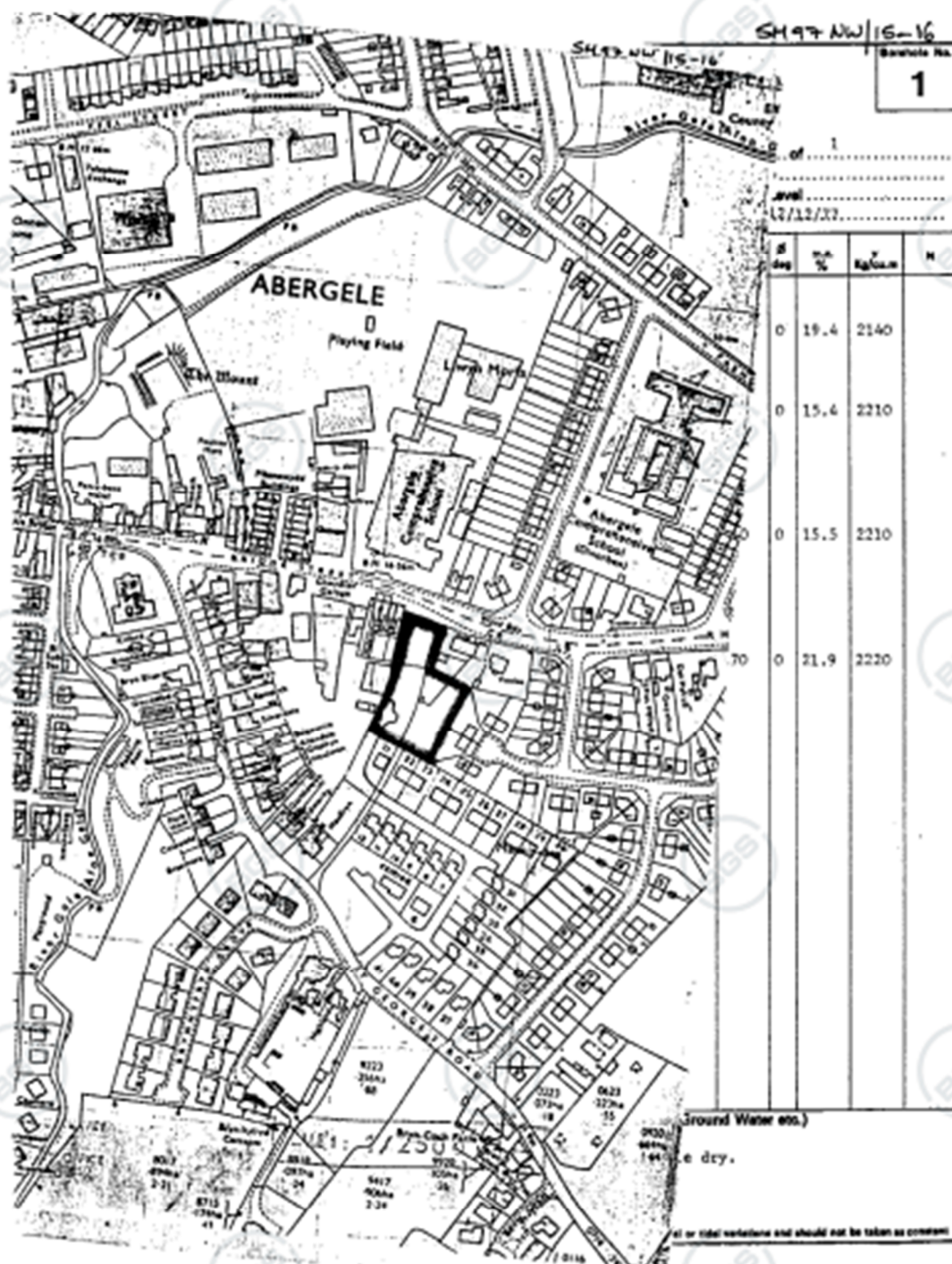
PLOT STATUS:			DATE:
FINAL			06-03-2025

DRAWN:	CHECKED:	APPROVED:	PLOT SCALE AT A3:
AM	AW	NJ	1:700

PLOT NAME:	REVISION:
16444_LiDAR_Plan	-

Appendix C BGS Borehole Record







SH97 NW/15

Holst Soil Engineering Limited										Borehole No.
BOREHOLE LOG										1
Contract No. E3801										Sheet 1 of 1
Location Abbeville										Coordinates
Client Hutter Jennings and Titchmarsh										9491e
Method of Boring Percussion										Ground Level
Diameter of Borehole 150 mm										Date 12/12/21

Description of Strata	Legend	Depth Below G.L. (m)	Thickness of Strata (m)	Type of Sample	c kN/cm ²	ϕ deg	m.c. %	γ kN/m ³	N
MATGROUNDS:- topsoil and clay		0.70	0.70	0.50	50	0	19.4	2140	
Firm brown silty stoney CLAY		1.80	1.10	1.50	260	0	15.4	2210	
Stiff brown silty CLAY with pebbles		3.00		3.00	270	0	15.5	2210	
		4.50		4.50	270	0	21.9	2220	
		5.00	3.20						

Key

□ Undisturbed Sample ϕ Angle of Friction

○ Disturbed Sample m.c. Moisture Content

△ Water Sample γ Bulk Density

I Penetration Test N S.P.T. Value

 c Apparent Cohesion

Remarks (Observations of Ground Water etc.)

Borehole dry.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

Appendix D DCWW Sewer Plan and Correspondence

Mr Adam McCulloch
Waterco
11 Lon Parcwr
Ruthin
Denbighshire
LL15 1NJ

Date: 02/04/2025
Our Ref: PPA0009298

Dear Mr McCulloch,

Grid Ref: 294928 377466
Site Address: Ty Gwyn Jones, Abergele, Conwy, LL22 7HJ
Development: 20 Residential unit's

I refer to your pre-planning enquiry received relating to the above site, seeking our views on the capacity of our network of assets and infrastructure to accommodate your proposed development. Having reviewed the details submitted I can provide the following comments which should be taken into account within any future planning application for the development.

Firstly, we note that the proposal relates to 20 units at Ty Gwyn Jones (former care home) and acknowledge that the site comprises of a potential windfall development with no allocated status in the Local Development Plan (LDP). Accordingly, whilst it does not appear an assessment has been previously undertaken of the public sewerage and watermain systems, we offer the following comments as part of our appraisal of this development.

ASSET PROTECTION

This site is crossed by a public sewer with the approximate position being marked on the attached Statutory Public Sewer Record. In accordance with the Water Industry Act 1991, Dwr Cymru Welsh Water requires access to its apparatus at all times in order to carry out maintenance and repairs. No part of any building will be permitted within the protection zone of the public sewer measured 3 metres either side of the centreline of the 150mm public sewer. Our strong recommendation is that your site layout takes into account the location of the assets crossing the site and should be referred to in any master-planning exercises or site layout plans submitted as part of any subsequent planning application. Further information regarding Asset Protection is provided in the attached Advice & Guidance note.

You are also advised that some public sewers and lateral drains may not be recorded on our maps of public sewers because they were originally privately owned and were transferred into public ownership by nature of the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011. The presence of such assets may affect the proposal. In order to assist you may contact Dwr Cymru Welsh Water on 0800 085 3968 to establish the location and status of the apparatus in and around your site. Please be mindful that under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times.

Surface Water Drainage

As of 7th January 2019, this proposed development is subject to Schedule 3 of the Flood and Water Management Act 2010. The development therefore requires approval of Sustainable Drainage Systems (SuDS) features, in accordance with the 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems'. As highlighted in these standards, the developer is required to explore and fully exhaust all surface water drainage options in accordance with a hierarchy preferring infiltration (PL2) and, where infiltration is not possible, disposal to a surface water body (PL3), in liaison with the Lead Local Flood Authority and/or Natural Resources Wales, or surface water sewer or highway drain (PL4) in liaison with the riparian owner and/or Local Highways Authority.

Please note, DCWW is a statutory consultee to the SAB application process and will provide comments to any SuDS proposals by response to SAB consultation. Please refer to further detailed advice relating to surface water management included in our attached Advice & Guidance note and our Developer Services website at <https://developers.dwrcymru.com/en/help-advice/regulation-to-be-aware-of/sustainable-drainage-systems>

In the absence of an accompanying surface water drainage strategy, it is recommended that the developer engage in consultation with Conwy County Borough Council, as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please be advised that due to capacity constraints with the downstream public sewerage network, under no circumstances would we allow surface water runoff highway run-off from the proposed development to communicate directly or indirectly with the public combined sewerage system. In addition, please note, no amount of highway or land drainage run-off is permitted to discharge directly or indirectly into the public sewerage system.



Welsh Water is owned by Glas Cymru – a 'not-for-profit' company.
Mae Dŵr Cymru yn eiddo i Glas Cymru – cwmni 'nid-er-elw'.

We welcome correspondence in
Welsh and English

Dŵr Cymru Cyf, a limited company registered in
Wales no 2366777. Registered office: Pentwyn Road,
Nelson, Treharris, Mid Glamorgan CF46 6LY

Rydym yn croesawu gohebiaeth yn y
Gymraeg neu yn Saesneg

Dŵr Cymru Cyf, cwmni cyfyngedig wedi'i gofrestru yng
Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn
Nelson, Treharris, Morgannwg Ganol CF46 6LY.

Furthermore, Planning Policy Wales (PPW) acknowledges that discharge of surface water to foul sewers is prohibited and highlights that any additional surface water from new developments should not be discharged to combined systems because of the risk of pollution when combined systems overflow (Para 6.6.3). Moreover, PPW recognises the challenges faced from rainfall intensity causing surface water flooding and diffuse pollution (Para 6.6.14) along with the importance of well-maintained sewerage networks (Para 6.6.15), particularly as a result of run-off from built surfaces and the sewage discharges from overloaded sewers (Para 6.6.16).

FOUL WATER DRAINAGE – SEWERAGE NETWORK

The proposed development site is located in the immediate vicinity of a separate sewerage system, comprising, foul and surface water public sewers, which drains to Kinnel Bay Wastewater Treatment Works (WwTW).

We have considered the impact of foul flows generated by the proposed development and concluded that flows can be accommodated within the public sewerage system. We advise that the flows should be connected to the foul sewer by utilising the existing private connection or at or downstream of manholes SH94779406 located within the site. Should a planning application be submitted for this development we will seek to control these points of communication via appropriate planning conditions and therefore recommend that any drainage layout or strategy submitted as part of your application takes this into account. However, should you wish for an alternative connection point to be considered please provide further information to us in the form of a drainage strategy, preferably in advance of a planning application being submitted.

You may need to apply to Dwr Cymru Welsh Water for any connection to the public sewer under Section 106 of the Water Industry Act 1991. However, if the connection to the public sewer network is either via a lateral drain (i.e. a drain which extends beyond the connecting property boundary) or via a new sewer (i.e. serves more than one property), it is now a mandatory requirement to first enter into a Section 104 Adoption Agreement (Water Industry Act 1991). The design of the sewers and lateral drains must also conform to the Welsh Ministers Standards for Foul Sewers and Lateral Drains, and conform with the publication "Sewers for Adoption"- 7th Edition. Further information can be obtained via the Developer Services pages of www.dwrcymru.com.

FOUL WATER DRAINAGE – SEWAGE TREATMENT

No problems are envisaged with the Waste Water Treatment Works for the treatment of domestic discharges from this site.



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Rydym yn croesawu gohebiaeth yn y
Gymraeg neu yn Saesneg

Dŵr Cymru Cyf, cwmni cyfyngedig wedi'i gofrestru yng
Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn
Nelson, Treharris, Morgannwg Ganol CF46 6LY.

POTABLE WATER SUPPLY

A water supply can be made available to service this proposed development. Initial indications are that a connection can be made from the '4inch' diameter watermain in '294910,377431' location. The cost of providing new on-site watermains can be calculated upon the receipt of detailed site layout plans which should be sent to the above address

I trust the above information is helpful and will assist you in forming water and drainage strategies that should accompany any future planning application. I also attach copies of our water and sewer extract plans for the area, and a copy of our Planning Guidance Note which provides further information on our approach to the planning process, making connections to our systems and ensuring any existing public assets or infrastructure located within new development sites are protected.

Please note that our response is based on the information provided in your enquiry and should the information change we reserve the right to make a new representation. Should you have any queries or wish to discuss any aspect of our response please do not hesitate to contact our dedicated team of planning officers, either on 0800 917 2652 or via email at developer.services@dwrcymru.com

Please quote our reference number in all communications and correspondence.

Yours faithfully,

Rhys Evans
Planning Liaison Manager
Developer Services

Please Note that demands upon the water and sewerage systems change continually; consequently the information given above should be regarded as reliable for a maximum period of 12 months from the date of this letter.



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We welcome correspondence in
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Rydym yn croesawu gohebiaeth yn y
Gymraeg neu yn Saesneg

Dŵr Cymru Cyf, cwmni cyfyngedig wedi'i gofrestru yng
Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn
Nelson, Treharris, Morgannwg Ganol CF46 6LY.



Dŵr Cymru
Welsh Water

PPA0009298



LEGEND(Representative of most common features)

Waste networks:		
Foul chamber	Surface water	Outfall
Surface water chamber	Combined sewer	Storm Overflow
Combined sewer overflow	Rising main	Gravity sewer
Special purpose chamber	Private sewer	Private sewer subject to Sect. 104 adoption agreement
Treatment works	Private Sewer Transfer	Lateral Drain
Pumping station	Inspection Chamber	
NB: Sewer symbol colour indicates the type.		
RED	- Combined	
GREEN	- Surface Water	
BROWN	- Foul	
Purple	- Former S24 sewers (for indicative purposes only)	

Notes:

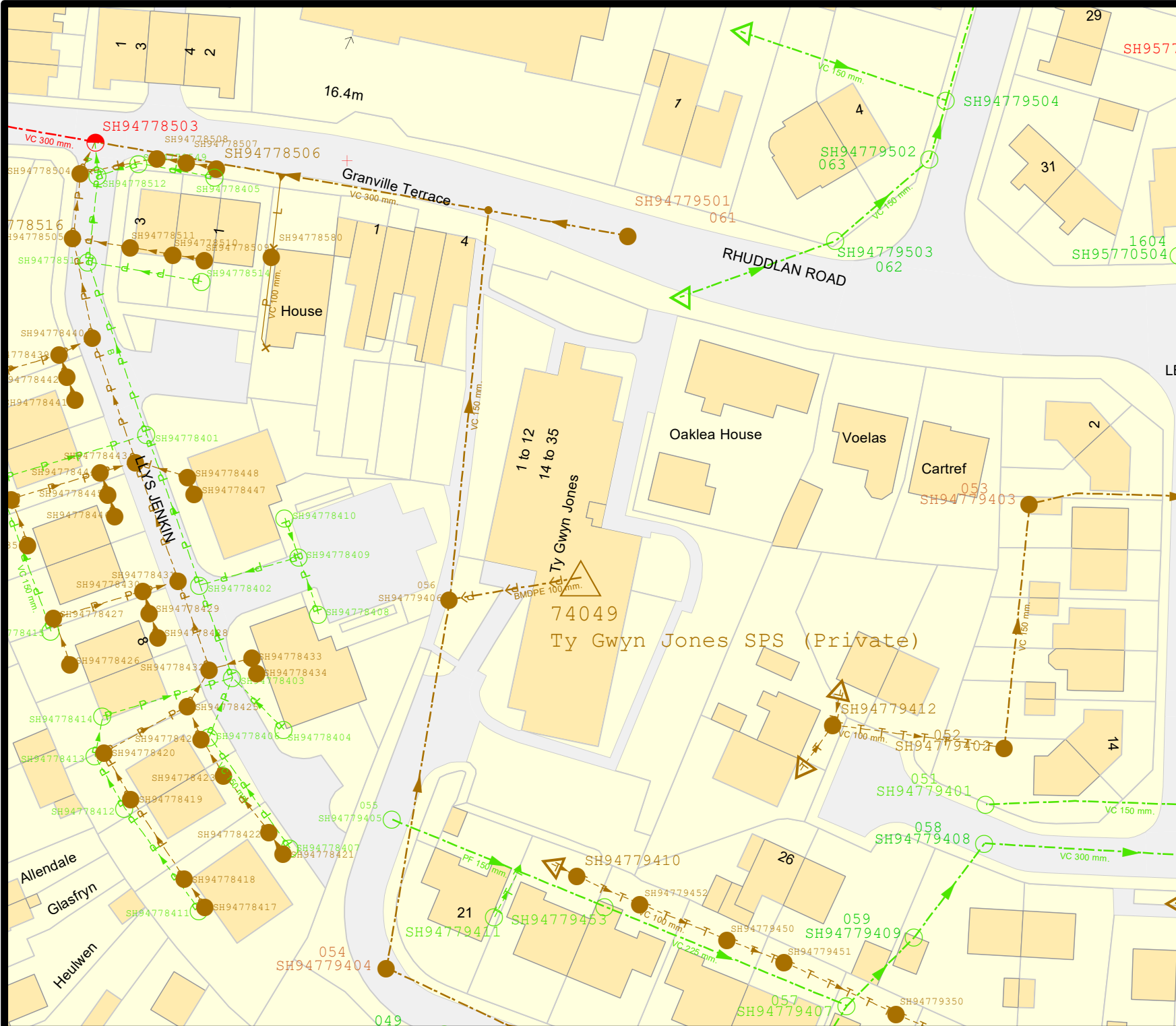
Whilst every reasonable effort has been taken to correctly record the pipe material of DCNW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible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

Dŵr Cymru Cymru (the Company) gives this information as to the position of its underground apparatus by way of general guidance only and on the 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. The user of this information is advised to carry out any excavations made within its own site. The information which is supplied by the Company is done so in accordance with statutory requirements of sections 105 and 109 of the Water Industry Act 1991 which allows open the best information available and, in practice, but without prejudice to the generality of the foregoing, it should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or discharge pipe and any associated apparatus and before 1 September 1990, or if they do, the particular thereof including their position underground may not be accurate. It must be considered that the furnishing of this information is solely without prejudice to the provisions of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

**EXACT LOCATIONS OF ALL APPARATUS
TO BE DETERMINED ON SITE.**

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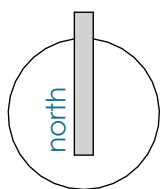
Map Ref: 294931,377469
Map scale: 1:731
Printed by: Carys Barwell
Printed on: 02 Apr 2025



Appendix E Proposed Development Plans

site boundary
elec main below ground
elec main above ground
elec main redundant
bt above ground
water drainage surface
water drainage foul
water main
gas main

gas based on W&WU job ref: tbc
elec based on SP map ref tbc
drainage and water services tbc



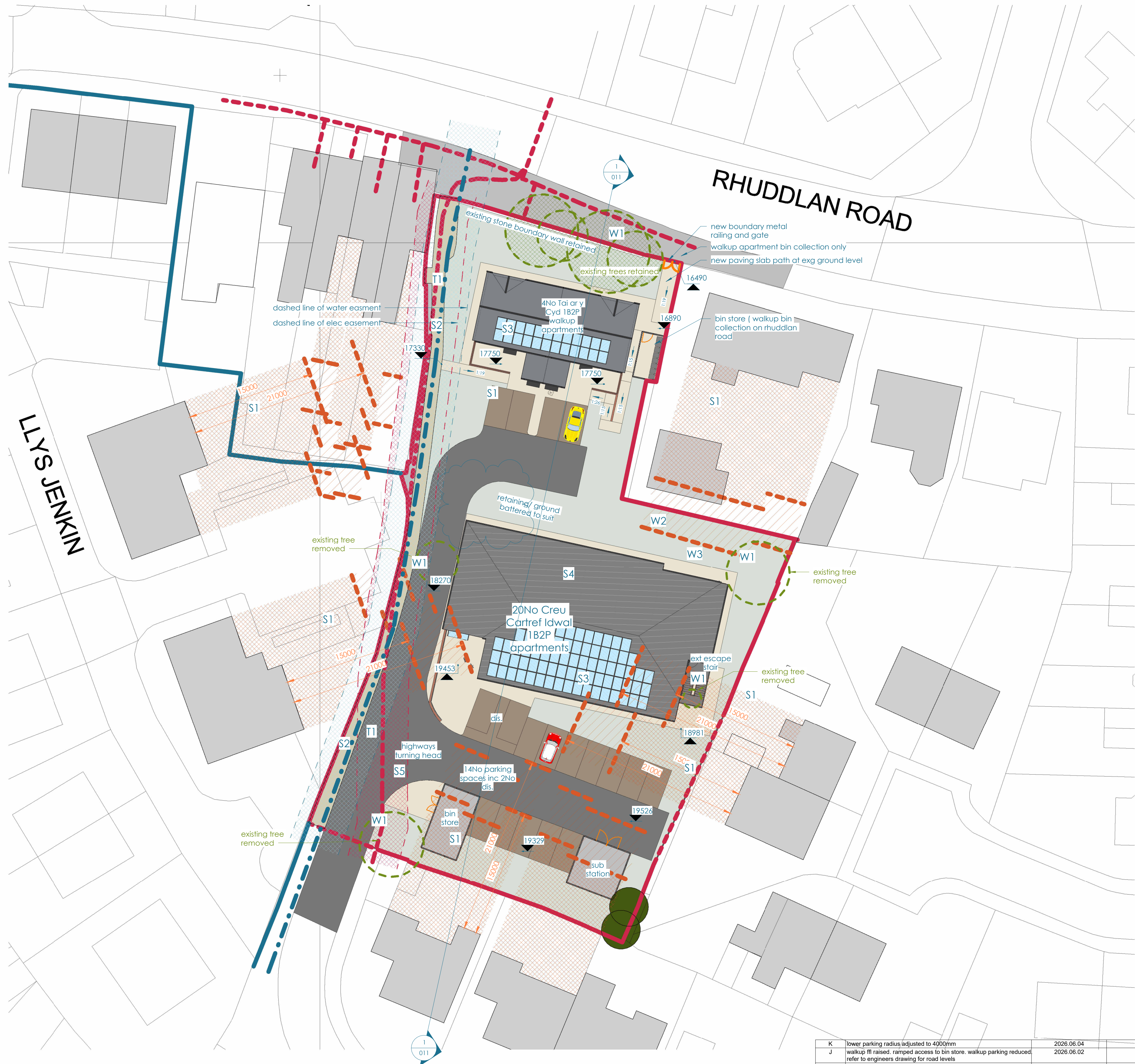
swot analysis

S1 maintains space around building standards
S2 maintains existing elec and drainage easment
S3 properties orientated to allow for south facing solar active roof and elevation
S4 building footprint runs parallel with existing site topography
S5 on site bin store turning head for apartments

W1 existing trees to be removed
W2 proposed levels and gradients require further development to suit existing topography
W3 apartment building level is higher than dwelling resulting in overlooking

O1

T1 line of elec main running down western boundary
unknown - easment may affect layout

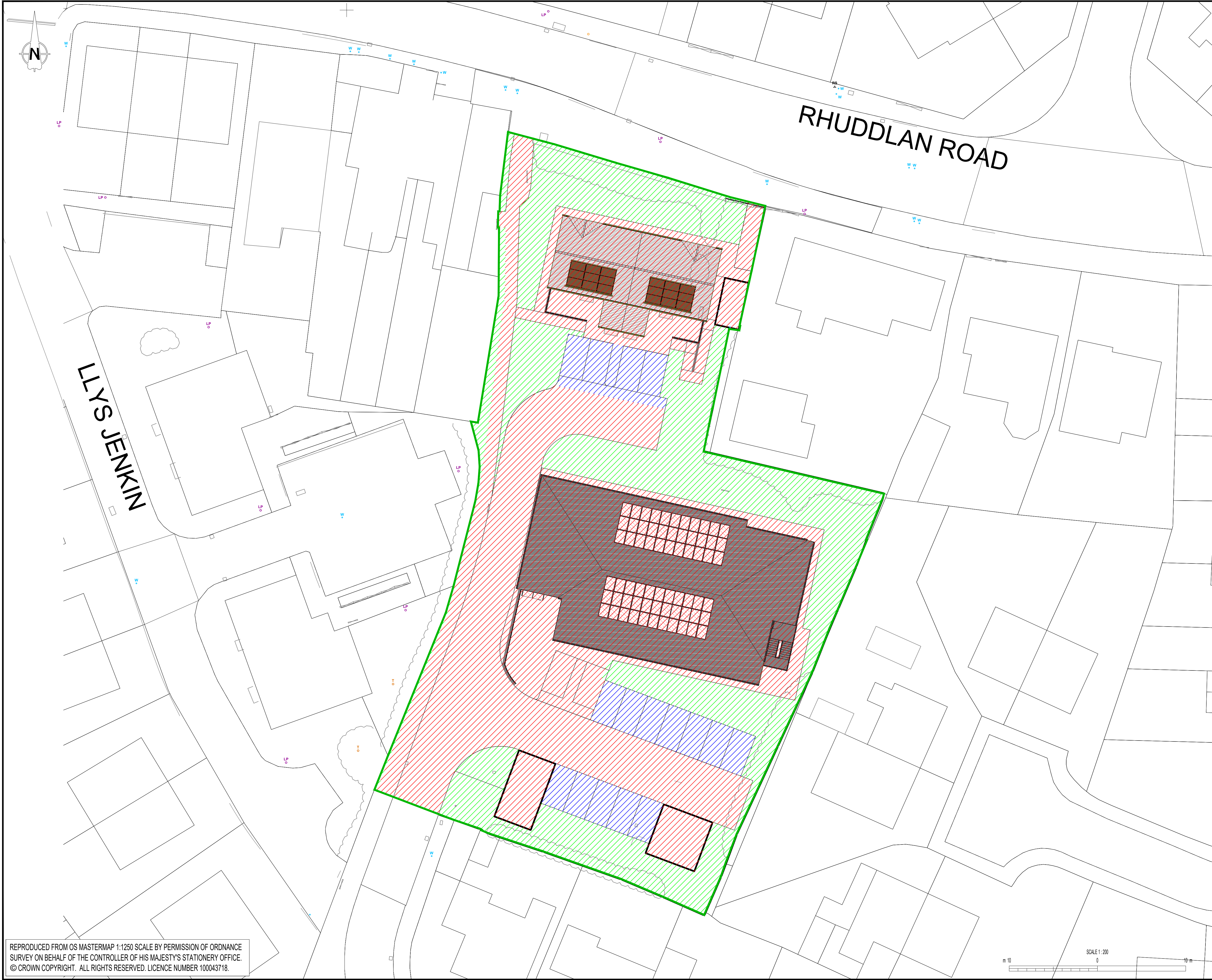


1 PROPOSED SITE OPTION 03
1 : 250

for construction
for approval
for discussion
drawing status

K	lower parking radius adjusted to 4000mm	2026.06.04	AJR
J	walkup fit raised, ramped access to bin store, walkup parking reduced, refer to engineers drawing for road levels	2026.06.02	AJR
H	levels revised to engineers details	2026.05.06	AJR
G	walkup changed to TAYC type site adjusted to suit. Northern stone boundary wall retained, boundary fencing and paving slab path.	2026.03.04	AJR
F	parking adjusted to 2600 wide, paths introduced, sub station and bin store layout revised to suit, panoramas updated to suit	2026.01.30	AJR
E	lift omitted, areas adjusted	2026.01.14	AJR
D	WIP - bin store, parking & sub station layout revised to focus comments	2025.06.03	
C	WIP - service easements along western boundary adjusted following gpr, bin stores relocated, 3No storey apartment	2025.05.14	
B	WIP - issued for review/ comment	2025.05.05	
A	WIP - issued for review/ discussion	2025.04.14	
Revision	Description	Date of Revision	Issued by

Appendix F Contributing Area Plan



NOTES

1. THIS DESIGN IS PROPOSED ON THE BASIS OF CLIENT BRIEF, SPECIFICATIONS, BEST PRACTICE AND RISK REDUCTION / ELIMINATION. THE DESIGNER MUST BE CONSULTED ON ANY PROPOSED CHANGES, BEFORE THEY ARE CONSIDERED FOR IMPLEMENTATION.

KEY

	DEVELOPMENT BOUNDARY AREA = 2920m ²
	IMPERMEABLE AREA = 1766m ² FACTORED AREA = 1766 x 1 = 1766m ²
	GRASSED AREA = 934m ² FACTORED AREA = 934 x 0.35 = 327m ²
	PERMEABLE PAVING AREA = 220m ² FACTORED AREA = 220 x 0.6 = 132m ²

SITE LOCATION

GRID REFERENCE: 294928, 37474

SITE ADDRESS: TY GWYN JONES,
RHUDDLAN ROAD,
ABERGELE,
CONWY,
LL22 7HL

P01	09/06/26	FIRST ISSUE	AV	AR	NJ
REV	DATE	DESCRIPTION	ORG	CHK	APP

CLIENT

PRINCIPAL DESIGNER

Waterco Ltd., Eden Court,
Lon Parcwr Business Park, Ruthin LL15 1NJ

tel (+44) 1824 702220
www.waterco.co.uk

SCHEME

TY GWYN JONES,
ABERGELE

TITLE

CONTRIBUTING AREA PLAN

ORIGINATOR A.VALE	CHECKER A.RUSSELL	APPROVER N.JONES
----------------------	----------------------	---------------------

STATUS

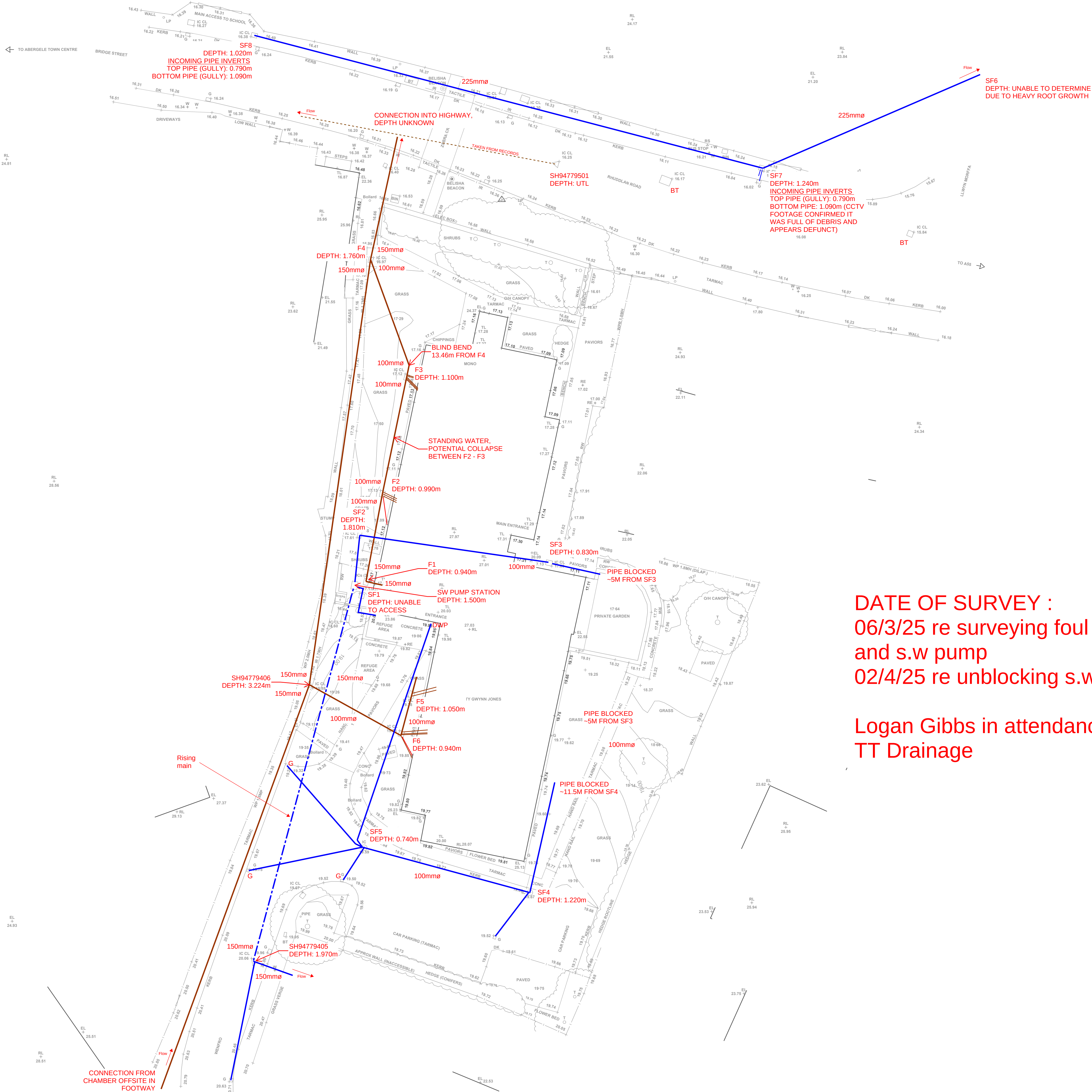
PRELIMINARY

SCALE / SHEET SIZE 1:200 / A1	REV P01
----------------------------------	------------

DRAWING NUMBER

16444-2020

Appendix G Existing Drainage Plan



DATE OF SURVEY :
06/3/25 re surveying foul drains
and s.w pump
02/4/25 re unblocking s.w pipes

Logan Gibbs in attendance with
TT Drainage

Revision No: 1Topographical SurveyFebruary 2022

Angle

Angle Surveys Limited
PlasEiras Business Centre
Abergele Road
Colwyn Bay
LL29 8BF
+44(0)1492 850050
www.anglesurveys.co.uk
enquiries@anglesurveys.co.uk

Project

TOPOGRAPHICAL SURVEY
TY GWYNN JONES
RHUDDLAN ROAD, ABERGELE

Reference No

Drawing No

Scale

Scale Factor

211115-08-WW

001

1:200

1.0000

Survey Stations

Grid - Related to OSGB36 (National Grid) and OSTN15 derived from GNSS

Levels - Related to Ordnance Survey Datum via OSGB36 derived from GNSS

STATIONS	EAST	NORTH	HEIGHT	DESCRIPTION
A	294909.147	377431.909	19.722	Road Nail
B	294936.861	377431.464	19.733	Road Nail
D	294934.920	377468.347	17.041	Road Nail
E	294938.409	377492.368	16.746	Road Nail
F	294920.905	377497.941	17.002	Road Nail
F1	294928.913	377505.511	16.407	Road Nail
FF	294966.013	377494.239	16.179	Road Nail
Z	294908.802	377448.673	19.281	Road Nail

Revisions/ Notes

All critical dimension to be checked on site

Further investigation may be needed to show the full extent of the drainage on site

Only trees with a diameter of 300mm or greater have been surveyed

Walls/ fences/ routlines shown do not necessary represent legal boundaries

NOTES:

Legend

Bol	Bollards	MP	Mile post
BS	Bus stop	NP	Name plate
BT	British Telecom IC	OG	Overgrown
CL	Ceiling Level	O/H	Overhead
CATV	Cable television IC	PO	Post
DK	Drop kerb	PM	Parking Meter
DR	Drain	RE	Rodding Eye
Elec	Electric IC	RS	Road sign
EP	Electric pole	RW	Raining Wall
ER	Earth rod	SP	Soil pipe
FFL	Finished Floor Level	ST	Stop tap
FP	Fence post	Stay	Cable stay
FB	Flower Bed	TCB	Telephone call box
G	Gully	FFL 5.55	Finished Floor Level
GP	Gate Post	TL	Door Threshold Level
H/C	Hazcore	TP	Telephone pole
HMP	Hazard Marker Posts	Tar	Tarmac/adam
IC	Inspection cover	VP	Vent pipe
K	Kerb	W	Water cover
KO	Kerb outlet	WL	Water level
LB	Letter box	WM	Water meter
LP	Lamp post	WO	Water outlet
Mtr	Utility marker	UTL	Unable to lift

FENCE ANNOTATION

BW	Bush wire	Fence/ Height
WP	Wooden panel	
CI	Corrugated iron	Gate
CL	Chain link	
CPWP	Concrete post Wooden Panel	O/H Canopy
HR	Hand rail	
IR	Iron railing	Foliage
PC	Post and chain	
PR	Post and nail	
PW	Post and wire	Survey Control station
SF	Security fence	
WP	Wooden Panel	Spot Level

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Appendix H ReFH2 Greenfield Runoff Rates

DOCUMENT VERIFICATION RECORD	
Project:	Ty Gwyn Jones, Abergele
Client:	Enfys Developments Ltd
Report Title:	16444-Surface Water & Foul Strategy-01
Date:	03/06/25

DOCUMENT REVIEW & APPROVAL	
Author:	Adam McCulloch
Checker:	Aled Williams BSc (Hons) MCIWEM C.WEM
Approver:	Nigel Jones Beng (Hons) CEng MICE

ReFH2 RUNOFF RATES*	
Return Period (Years)	As-rural Peak Flow (l/s)
1	0.94
2	1.07
5	1.53
10	1.86
30	2.44
50	2.75
75	3.02
100	3.24
200	3.84
1000	5.79

*Runoff Rates printed from the ReFH Flood Modelling software package

Appendix I Causeway Flow Simulation Results

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	10	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	0.750	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	✓
Maximum Rainfall (mm/hr)	50.0		

Simulation Settings

Rainfall Methodology	FEH-22	Drain Down Time (mins)	240	10 year (l/s)	38.9
Rainfall Events	Singular	Additional Storage (m³/ha)	20.0	30 year (l/s)	49.4
Summer CV	0.750	Starting Level (m)		100 year (l/s)	61.5
Winter CV	0.840	Check Discharge Rate(s)	✓	Check Discharge Volume	x
Analysis Speed	Detailed	1 year (l/s)	15.4		
Skip Steady State	x	2 year (l/s)	21.9		

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
2	0	0	0
10	0	0	0
30	0	0	0
100	30	10	0

Pre-development Discharge Rate

Site Makeup	Brownfield	Betterment (%)	0
Brownfield Method	MRM	Q 1 year (l/s)	15.4
Contributing Area (ha)	0.292	Q 2 year (l/s)	21.9
PIMP (%)	59	Q 10 year (l/s)	38.9
CV	0.750	Q 30 year (l/s)	49.4
Time of Concentration (mins)	5.00	Q 100 year (l/s)	61.5

Node S17 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	15.120	Product Number	CTL-SHE-0052-1100-0768-1100
Design Depth (m)	0.768	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.1	Min Node Diameter (mm)	1200

Node S17 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	15.439	Product Number	CTL-SHE-0075-2100-0589-2100
Design Depth (m)	0.589	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.1	Min Node Diameter (mm)	1200

Results for 1 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute summer	EXS1	82	15.010	0.025	1.1	0.0000	0.0000	OK
360 minute winter	S17	272	15.406	0.286	1.6	0.3233	0.0000	SURCHARGED
360 minute winter	Storage	272	15.406	0.135	4.4	18.2068	0.0000	OK
360 minute winter	S16	272	15.406	0.243	2.4	0.0687	0.0000	SURCHARGED
360 minute winter	S15	272	15.406	0.150	2.7	0.1695	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	S17	1.001	EXS1	1.1	0.454	0.025	0.0482	35.0
360 minute winter	Storage	1.000	S15	2.7	0.490	0.065	0.0595	
360 minute winter	S16	1.002	S17	1.6	0.307	0.038	0.2592	
360 minute winter	S15	1.001_1	S16	2.4	0.374	0.056	0.4714	

Results for 2 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	EXS1	288	15.010	0.025	1.1	0.0000	0.0000	OK
360 minute winter	S17	288	15.449	0.329	1.2	0.3716	0.0000	SURCHARGED
360 minute winter	Storage	288	15.449	0.178	5.5	25.6262	0.0000	OK
360 minute winter	S16	288	15.449	0.286	1.4	0.0808	0.0000	SURCHARGED
360 minute winter	S15	288	15.449	0.193	1.4	0.2179	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	S17	1.001	EXS1	1.1	0.458	0.026	0.0492	35.9
360 minute winter	Storage	1.000	S15	1.4	0.478	0.034	0.0786	
360 minute winter	S16	1.002	S17	1.2	0.318	0.029	0.2592	
360 minute winter	S15	1.001_1	S16	1.4	0.376	0.034	0.5279	

Results for 10 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	EXS1	256	15.025	0.040	3.0	0.0000	0.0000	OK
360 minute winter	S17	256	15.533	0.413	3.0	0.4666	0.0000	SURCHARGED
360 minute winter	Storage	256	15.534	0.263	8.5	40.3378	0.0000	SURCHARGED
360 minute winter	S16	256	15.533	0.370	3.0	0.1047	0.0000	SURCHARGED
360 minute winter	S15	256	15.534	0.278	3.0	0.3139	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	S17	1.001	EXS1	3.0	0.611	0.070	0.0985	54.6
360 minute winter	Storage	1.000	S15	3.0	0.472	0.070	0.0895	
360 minute winter	S16	1.002	S17	3.0	0.301	0.070	0.2592	
360 minute winter	S15	1.001_1	S16	3.0	0.375	0.070	0.5527	

Results for 30 year Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	EXS1	132	15.026	0.041	3.1	0.0000	0.0000	OK
360 minute winter	S17	272	15.609	0.489	3.1	0.5525	0.0000	SURCHARGED
360 minute winter	Storage	272	15.610	0.339	10.7	53.4913	0.0000	SURCHARGED
360 minute winter	S16	272	15.609	0.446	3.1	0.1262	0.0000	SURCHARGED
360 minute winter	S15	272	15.610	0.354	3.2	0.3999	0.0000	SURCHARGED

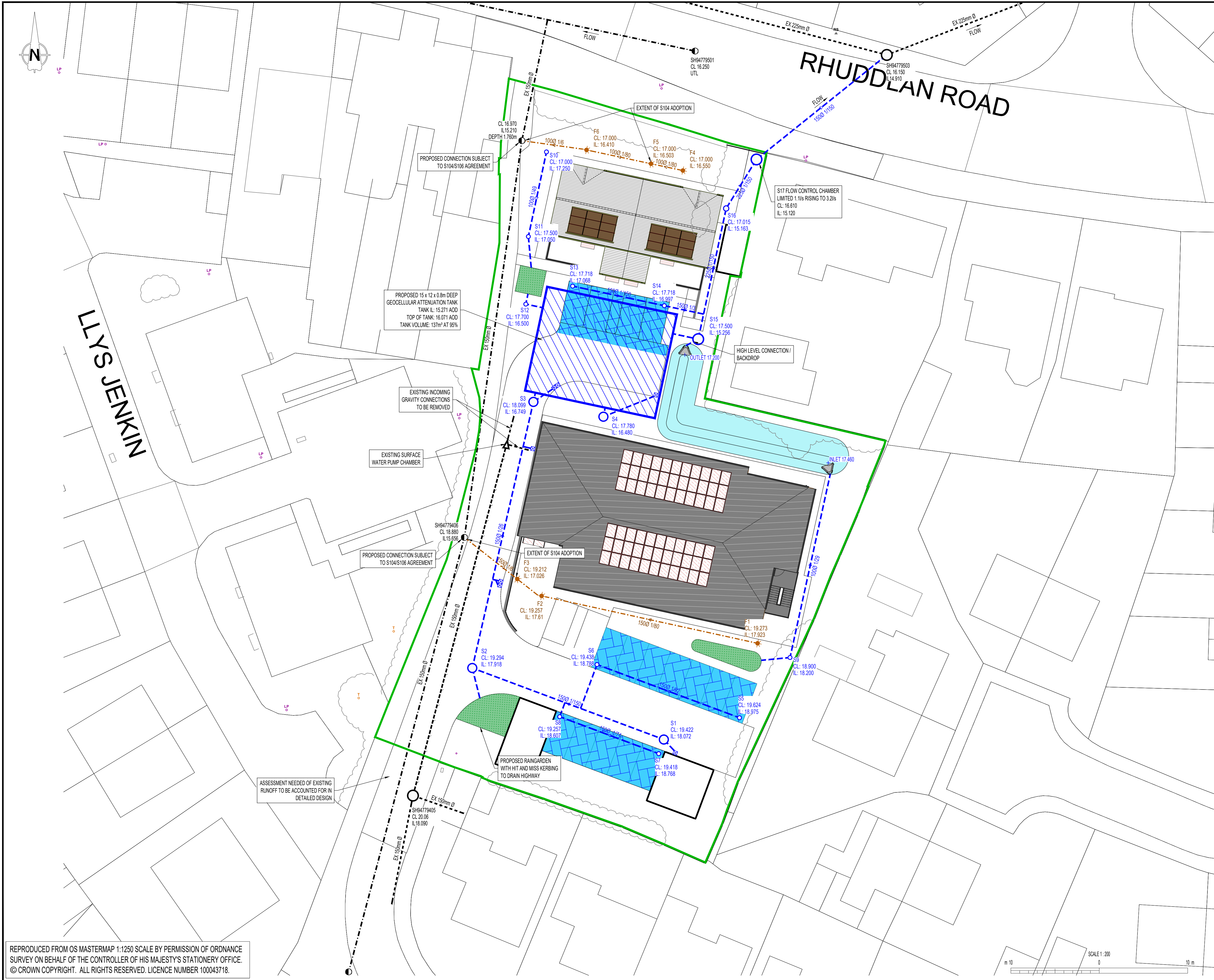
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	S17	1.001	EXS1	3.1	0.617	0.072	0.1009	68.5
360 minute winter	Storage	1.000	S15	3.2	0.488	0.075	0.0895	
360 minute winter	S16	1.002	S17	3.1	0.262	0.073	0.2592	
360 minute winter	S15	1.001_1	S16	3.1	0.402	0.074	0.5527	

Results for 100 year +30% CC +10% A Critical Storm Duration. Lowest mass balance: 99.87%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
600 minute winter	EXS1	465	15.027	0.042	3.2	0.0000	0.0000	OK
600 minute winter	S17	465	16.005	0.885	3.2	1.0008	0.0000	SURCHARGED
600 minute winter	Storage	465	16.006	0.735	13.9	122.2630	0.0000	SURCHARGED
600 minute winter	S16	465	16.005	0.842	3.2	0.2384	0.0000	SURCHARGED
600 minute winter	S15	465	16.006	0.750	3.2	0.8483	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
600 minute winter	S17	1.001	EXS1	3.2	0.626	0.076	0.1045	123.1
600 minute winter	Storage	1.000	S15	3.2	0.490	0.076	0.0895	
600 minute winter	S16	1.002	S17	3.2	0.136	0.076	0.2592	
600 minute winter	S15	1.001_1	S16	3.2	0.397	0.076	0.5527	

Appendix J Proposed Drainage Scheme



NOTES

- ALL DIMENSIONS IN MILLIMETRES AND ALL LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS SHOWN OTHERWISE.
- THIS DESIGN IS PROPOSED ON THE BASIS OF CLIENT BRIEF, SPECIFICATIONS, BEST PRACTICE AND RISK REDUCTION / ELIMINATION. THE DESIGNER MUST BE CONSULTED ON ANY PROPOSED CHANGES, BEFORE THEY ARE CONSIDERED FOR IMPLEMENTATION.
- ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH CESWI 8 [CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY (8TH EDITION)].

KEY

- DEVELOPMENT BOUNDARY
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- EXISTING SURFACE WATER RISING MAIN & PUMPING STATION CHAMBER (TO BE REMOVED)
- PROPOSED SURFACE WATER DRAIN
- PROPOSED SURFACE WATER MANHOLE CHAMBER
- PROPOSED SURFACE WATER ATTENUATION TANK
- PROPOSED SWALE
- PROPOSED PERMEABLE PAVING
- PROPOSED ROADSIDE RAINGARDEN
- PROPOSED PERFORATED PIPE
- PROPOSED FOUL

REFERENCE CALCULATIONS

16444-260526-SW DESIGN

SITE LOCATION

GRID REFERENCE: 294928, 377474
SITE ADDRESS: TY GWYN JONES, RHUDDLAN ROAD, ABERGELE, CONWY, LL22 7HL

CAUTION: THE MANAGEMENT AND DESIGN OF ANY AND ALL TEMPORARY WORKS REQUIRED TO EXECUTE THIS DESIGN ARE THE RESPONSIBILITY OF THE CONTRACTOR.

P01	09/06/26	FIRST ISSUE	AV	AR	NJ
REV	DATE	DESCRIPTION	ORG	CHK	APP

CLIENT

PRINCIPAL DESIGNER

-

Waterco

Waterco Ltd., Eden Court, Lon Parcwr Business Park, Ruthin LL15 1NJ
tel (+44) 1824 702220
www.waterco.co.uk

SCHEME

TY GWYN JONES, ABERGELE

TITLE

PROPOSED DRAINAGE SCHEME

ORIGINATOR A.VALE	CHECKER A.RUSSELL	APPROVER N.JONES
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STATUS

PRELIMINARY

SCALE / SHEET SIZE 1:200 / A1	REV P01
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DRAWING NUMBER

16444-2000

Appendix K Maintenance Schedules

Operation and Maintenance Requirements for Bioretention Systems

Maintenance Schedule	Required Action	Typical Frequency
Regular inspections	Inspect infiltration surfaces for silting and ponding, record de-watering time of the facility and assess standing water levels in underdrain (if appropriate to determine if maintenance is necessary)	Quarterly
	Check operation of underdrains by inspection of flows after rain	Annually
	Assess plants for disease infection, poor growth, invasive species etc. and replace as necessary	Quarterly
	Inspect inlets and outlets for blockage	Quarterly
Regular maintenance	Remove litter and surface debris and weeds	Quarterly (or more frequently for tidiness or aesthetic reasons)
	Replace any plants, to maintain planting density	As required
	Remove sediment, litter and debris build-up from around inlets or from forebays	Quarterly to biannually
Occasional maintenance	Infill any holes or scour in the filter medium, improve erosion protection if required	As required
	Repair minor accumulations of silt by raking away surface mulch, scarifying surface of medium and replacing mulch	As required
Remedial actions	Remove and replace filter medium and vegetation above	As required but likely to be > 20 years

Ref. Table 18.3, CIRIA C753 'The SuDS Manual'

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Operation and Maintenance Requirements for Flow Control Chambers and Devices

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. Take remedial action if required.	Monthly (at start, then half yearly)
	Debris removal from catchment surface	Monthly
	Visual inspection of flow control chamber to assess if system is draining down correctly and the orifice or flow control device is not blocked. Assess if there is any build up of silt in chamber sump.	Monthly (at start, then half yearly) & after large storm events
	Removal of accumulated silt from silt trap and catchpit sumps.	As required
Remedial actions	Repair/rehabilitation of inlets/outlets.	As required

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Operation and Maintenance Requirements for Permeable Paving

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surface from adjacent impermeable areas as this area is most likely to collect the most sediment
Occasional maintenance	Stabilise and move contributing and adjacent areas	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements
Remedial actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level or the paving	As required
	Rehabilitation of surface and upper substructure by remedial sweeping	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Inspect for evidence of poor operation and / or weed growth – if required, take remedial action	Three-monthly, 48hr after large storms in first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies	Annually
	Monitor inspection chambers	Annually

Ref. Table 20.15, CIRIA C753 'The SuDS Manual'

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Operation and Maintenance Requirements for Swale

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Remove litter and debris	Monthly (or as required)
	Cut the grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as Required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect infiltration surfaces for ponding, compaction, silt accumulation, record areas where water is ponding for > 48 hours	Monthly, or when required
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect inlets and facility surface for silt accumulation, establish appropriate silt removal frequencies	Half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required	As required or if bare soil is exposed over 10% or more of the swales treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeded	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Scarify and spike topsoil layer to improve infiltration performance, break up silt deposits and prevent compaction of the soil surface	As required
	Remove build-up of sediment on upstream gravel trench, flow spreader or at top of filter strip	As required
	Remove and dispose of oil or petrol residues using safe standard practices	As required

Ref. Table 17.1 CIRIA C753 'The SuDS Manual'

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Operation and Maintenance Requirements for Piped Drainage Systems

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. Take remedial action if required.	Monthly (at start, then half yearly)
	Debris removal from catchment surface	Monthly
	Visual inspection of up/downstream chambers to assess if pipe length is draining down correctly and/or is blocked. Assess if there is any build up of silt in chamber sump.	Monthly (at start, then half yearly) & after large storm events
	Removal of accumulated silt from silt trap and catchpit sumps.	As required
Occasional Maintenance	CCTV Survey to confirm condition of pipework, identify any repairs/replacement works and action as required.	Following Poor Performance.
Remedial actions	Repair/rehabilitation of inlets/outlets.	As required

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Operation and Maintenance Requirements for Attenuation Storage Tanks

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action	Monthly for 3 months, then annually
	Remove debris from the catchment surface (where it may cause risks to performance)	Monthly
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockage by sediment, algae or other matter; remove and replace surface infiltration medium as necessary	Annually
	Remove sediment from pre-treatment structures and/ or internal forebays	Annually, or as required
Remedial actions	Repair/rehabilitate inlets, outlet, overflows and vents	As required
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed	Annually
	Survey inside of tank for sediment build-up and remove if necessary	Every 5 years or as required

Ref. Table 21.3, CIRIA C753 'The SuDS Manual'

The maintenance requirements detailed above are to be undertaken by the site owner.

Name :

Position :

Date :

Signed on behalf of the site owner :

Appendix L DCWW Surface Water Discharge Approval

Adam Vale

From: Adam Vale
Sent: 18 June 2026 09:19
To: Adam Vale
Subject: FW: 16444 - Ty Gwyn Jones, Abergele - Proposed Connection To Surface Water Sewer (PPA0009558 / PPA0009298)

From: Shan Wyn Jones <ShanWyn.Jones@dwrcymru.com>
Sent: 11 June 2026 15:12
To: Adam Vale <adam.vale@waterco.co.uk>
Cc: Matthew Lord <Matthew.Lord@dwrcymru.com>; Adam Caldwell <adam.caldwell@waterco.co.uk>; Olivia Davis <Olivia.Davis@dwrcymru.com>
Subject: RE: 16444 - Ty Gwyn Jones, Abergele - Proposed Connection To Surface Water Sewer (PPA0009558 / PPA0009298) [Filed 11 Jun 2026 16:10]

Caution: This is an external email and may be malicious. Please take care when clicking links or opening attachments.

P'nawn da/ Good afternoon

My apologies for not being able to provide an enquiry response as quickly as we would have hoped for you.

The enquiry was discussed this afternoon's DCWW and Waterco update meeting whereby we confirmed that, based on your details (as below) , we can accept the proposed SW alternative arrangements to that of the current site arrangement.

Regards,

Shan.

From: Adam Vale
Sent: 17 April 2026 13:58
To: Shan Wyn Jones <shanwyn.jones@dwrcymru.com>
Cc: Matthew Lord <matthew.lord@dwrcymru.com>; Adam Caldwell <adam.caldwell@waterco.co.uk>
Subject: 16444 - Ty Gwyn Jones, Abergele - Proposed Connection To Surface Water Sewer (PPA0009558 / PPA0009298) [Filed 17 Apr 2026 13:57]

Hi Shan,
I hope you're well.

Further to your discussions with my former colleague Adam McCulloch, I have picked up this site to take forwards which has been on hold the past 6months. We are looking to obtain approval in principle from DCWW to connect to the existing surface water sewer north of the site and to agree a flow rate. A PPA application, response and various communications were undertaken late last year however an approval in principle was never obtained. The PPA response stated that we should contact SAB with regards to the surface water discharge which have since been undertaken. SAB have confirmed that the priority levels 2 and 3 have been exhausted and that we would need to explore the possibility of

connecting to either a surface water or highway sewer, see attached '16444-Ty Gwyn Jones, Abergele-SAB'.

Investigation works of the existing network on site have been undertaken which revealed that the existing surface water network is currently being pumped into DCWW surface water chamber SH94779405. There is also an existing surface water sewer north of the site, in the highway (DCWW chamber SH94779503) which discharges to the northeast out falling to a ditch, see attached 'Ty Gwyn Existing Drainage Markup on Topo' and 'PPA0009298 – Sewer Plan'.

Our proposal, should DCWW accept, would be to remove the existing pumped connection from the network south of the site and re-route the proposed surface water to the network north of the site within Rhuddlan Road. The proposed arrangement of the flow control will include for a more complex dual flow control system before discharging offsite into the s.w sewer. This will control flows for the specific events at 1in2yr, 1in30yr and 1in100yr storm events + 30% climate change + 10% urban creep.

The proposed flow rates would match greenfield runoff rates for above mentioned storm events from 1.1 l/s (1in2yr (QBar)) rising up to design threshold event (1in100yr+CC+UC) of 3.2 l/s.

Please could you review the above and attached and confirm whether a connection to the surface water sewer north of the site, within Rhuddlan Road, would be accepted. As mentioned, SAB support the proposal and ultimately, we wish for DCWW comment before doing planning submission and SAB application.

Regards,

Adam Vale BEng (Hons)
Project Engineer (Civil)

☎ 01244 628270
✉ adam.vale@waterco.co.uk



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Appendix M CDRA

Project: Ty Gwyn Jones, Abergele
Client: Wales & West Housing
Report Reference: 16444-Surface Water & Foul Strategy-01

Project No: 16444

Prepared by: Adam Vale BEng (Hons) **Date:** 16/06/2026
Checked by: Aled Williams BSc (Hons) C.WEM **Date:** 16/06/2026
Reviewed by: Nigel Jones BEng (Hons) CEng MICE **Date:** 16/06/2026

Requirement:

The Construction (Design and Management) Regulations 2015 (CDM 2015) place an obligation on the Designer to take all reasonable steps to provide, with the design, sufficient information about the design, construction or maintenance of the structure, to adequately assist the client, other designers and contractors to comply with their duties under CDM. The Designer has undertaken this assessment to identify any extra-ordinary risks, or those that would not be expected on this particular project by an experienced and competent Contractor. The aim is to avoid needless paperwork and bureaucracy and ensure the assessment is project specific, relevant and proportionate to the risk.

DRA Summary

Each of the following risk areas has been considered using the question below. Is a risk present which is considered to be **extra-ordinary or unexpected** in this instance?

If **YES** - A detailed risk assessment is required at design stage

If **UNKNOWN** - Insufficient information has been provided at concept design stage and the risks are unknown. Further consideration must be given at design stage(s)

If **NO** - No further action is required.

Hazard Ref.	Risk Areas	YES, UNKNOWN or NO	Comments
1	Ground Conditions	Unknown	To be considered at detailed design stage
2	Hazardous Environment	Unknown	To be considered at detailed design stage
3	Existing Working Environment	Yes	Exisitng site needs to be demolished
4	Existing Services	Yes	DCWW foul and surface water, electric, BT, gas
5	Proximity to Other Structure(s)	Yes	Residential properties adjacent
6	Near Waterbody / flood risk	No	No watercourses in the vicinity of the site
7	Proximity to Other Activities	Yes	Residential properties adjacent
8	Sequence of Construction	Unknown	To be considered at detailed design stage
9	Access	Unknown	Access to the site from Wenfro
10	Interfaces	Unknown	To be considered at detailed design stage
11	Confined Space Working	Yes	Deep excavations during construction
12	Maintenance Considerations	Unknown	To be considered at detailed design stage
13	Working at Height	Yes	Deep excavations during construction
14	Steep Slopes	No	Site is gradually sloping
15	Demolition / Refurbishment / Repair	Yes	Existing building to be demolished
16	Welfare	Unknown	To be considered at detailed design stage
17	Occupational Health	Unknown	To be considered at detailed design stage
18	Environmental Issues	Unknown	To be considered at detailed design stage
19	Other Significant Hazards not Identified Above	Unknown	To be considered at detailed design stage
20	Residual Risk to Future Users	Unknown	To be considered at detailed design stage