

Coleg Cambria

**Grove Road Campus
Phase 2**

Drainage Strategy

I6014-RP-D-0001

Rev: P01 Status: S4

July 2021



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Document History

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P01	Drainage Strategy	MNM	RH	16.07.2021
Revision	Purpose Description	Originated	Authorised	Date

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1 Introduction

1.1 Commission

JP Structural Design were appointed by TACP to produce a Drainage Strategy in support of a planning application for the Phase 2 improvement works at Coleg Cambria's Yale Campus Wrexham.

The proposed works includes the demolition of existing buildings and replacement with new teaching facilities with associated staff car parking and external works.

1.2 Limitations

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The findings of this Strategy have been based on data available at the time of the study and on the review of available information that has been undertaken to date. They relate to the current development proposals as outlined in the appendices. Should the proposed end use of the site change after the completion of this assessment, then the findings of this report will need to be reviewed and updated accordingly.

2 Existing Site and Proposed Development

2.1 Existing Site

The development site consists of the North east corner of the existing Yale College Campus, Wrexham. The centre of the site is at National Grid Reference SJ3335507. The proposed site covers an area of approximately 0.49 Ha.

See **Appendix A** for the SABs Information Drawing.

The proposed development shares its boundary to the north with Powel Road and Chester Road to the east.

2.2 Existing Drainage

On-site investigations confirm that the site is served by combined sewer drains. The surface water runoff from the existing buildings discharges into the public combined sewer system, via combined sewer drains, on Chester Road.

See **Appendix B** for DCWW Public Sewer Records.

See **Appendix C** for Existing Drainage Layout.

2.3 Existing Flood Risk

As stated above, the site covers an area of approximately 0.49 Ha, with the vast majority of the total area impermeable, see Appendix A SABs Information Drawing. In accordance with the NRW Developers Advice Maps (shown in Appendix A, the site is located within Flood Zone A – Land having less than 1 in 1000 annual probability of river or sea flooding. The NRW Flood Risk Map is also shown which shows some slight surface water flooding risk.

The risk of flooding from adjoining properties or roads is considered minimal, and therefore, the management of the surface water run-off generated by the post development site will be the principal flood risk associated with this scheme.

2.4 Proposed Development

The proposed scheme consists of a replacement teaching block with new car parking facilities.

Based upon the latest development plans the final impermeable area generated by the proposals will be approximately 0.44 Ha as shown on the impermeable area plan.

3 Drainage Proposals

3.1 Foul Drainage

As the existing teaching blocks are being replaced on a like for like basis it is anticipated that the foul drainage peak discharge will remain at a similar level pre and post development.

For the foul design proposals, we would therefore advocate a new separate foul drainage system is designed to serve the proposed development and the existing connection to the combined sewer network serving the existing site is maintained.

3.2 Surface Water Drainage

In accordance with the Welsh Assembly Government's implementation of Schedule 3, the Surface Water Drainage strategy adheres to the principles of;

- Reducing Flood Risk
- Improving Water Quality
- Protecting and Improving the Environment
- Ensuring the Stability & Durability of Drainage Systems

The site will be subject to a SAB application and the detailed Full Application form is therefore contained in **Appendix F**.

Geotechnical Information for the Site is Contained in **Appendix E** and hydraulic calculations for the surface water in **Appendix D**.

4 Recommendations & Conclusions

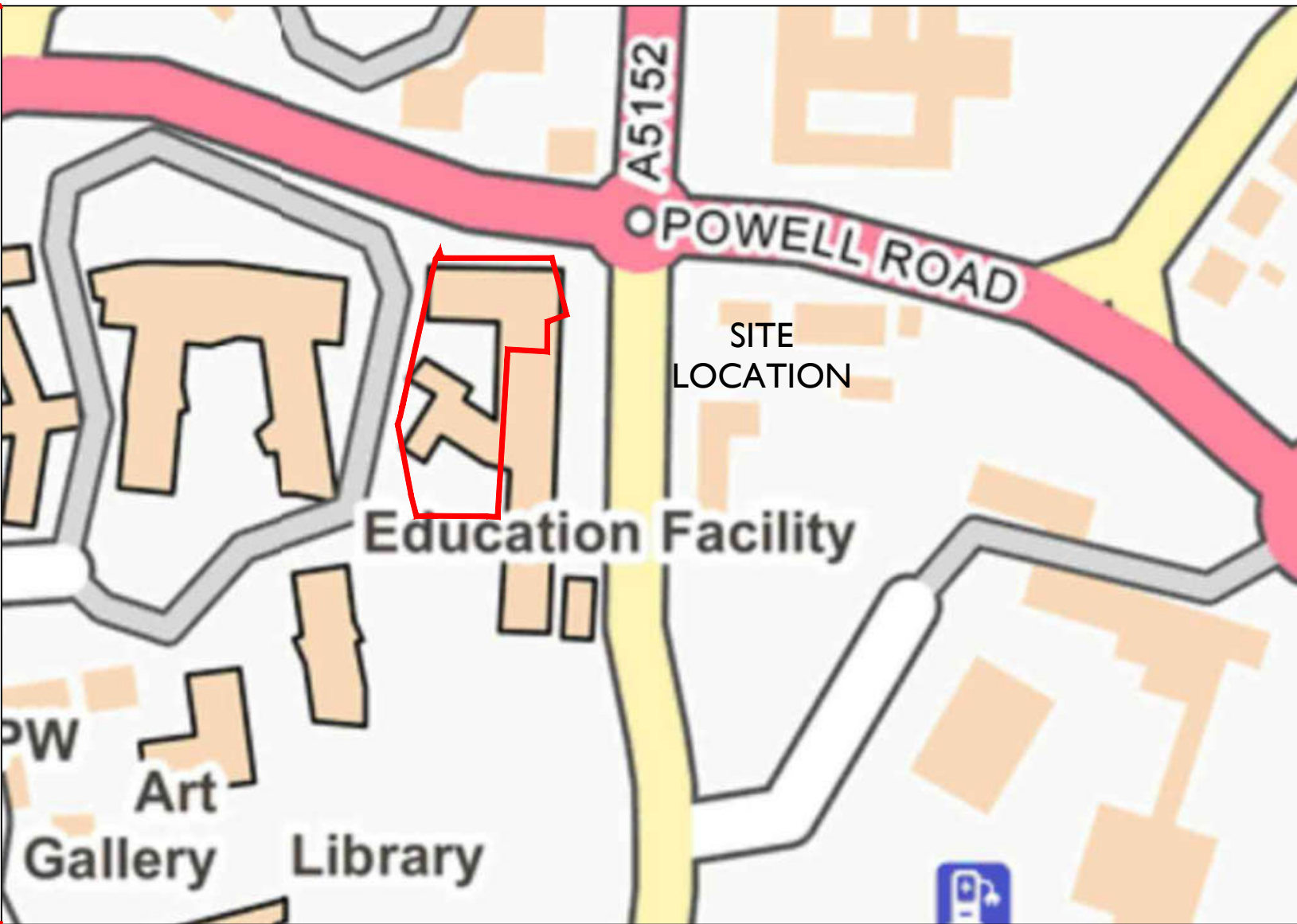
4.1 Conclusions

The proposed site is free from any existing flood risk and there are suitable points of connection for the disposal of the foul discharge. Ground Investigations confirms that the site is suitable for permeable paving and that surface water runoff from the roof, can be restricted and discharge to the public sewer network.

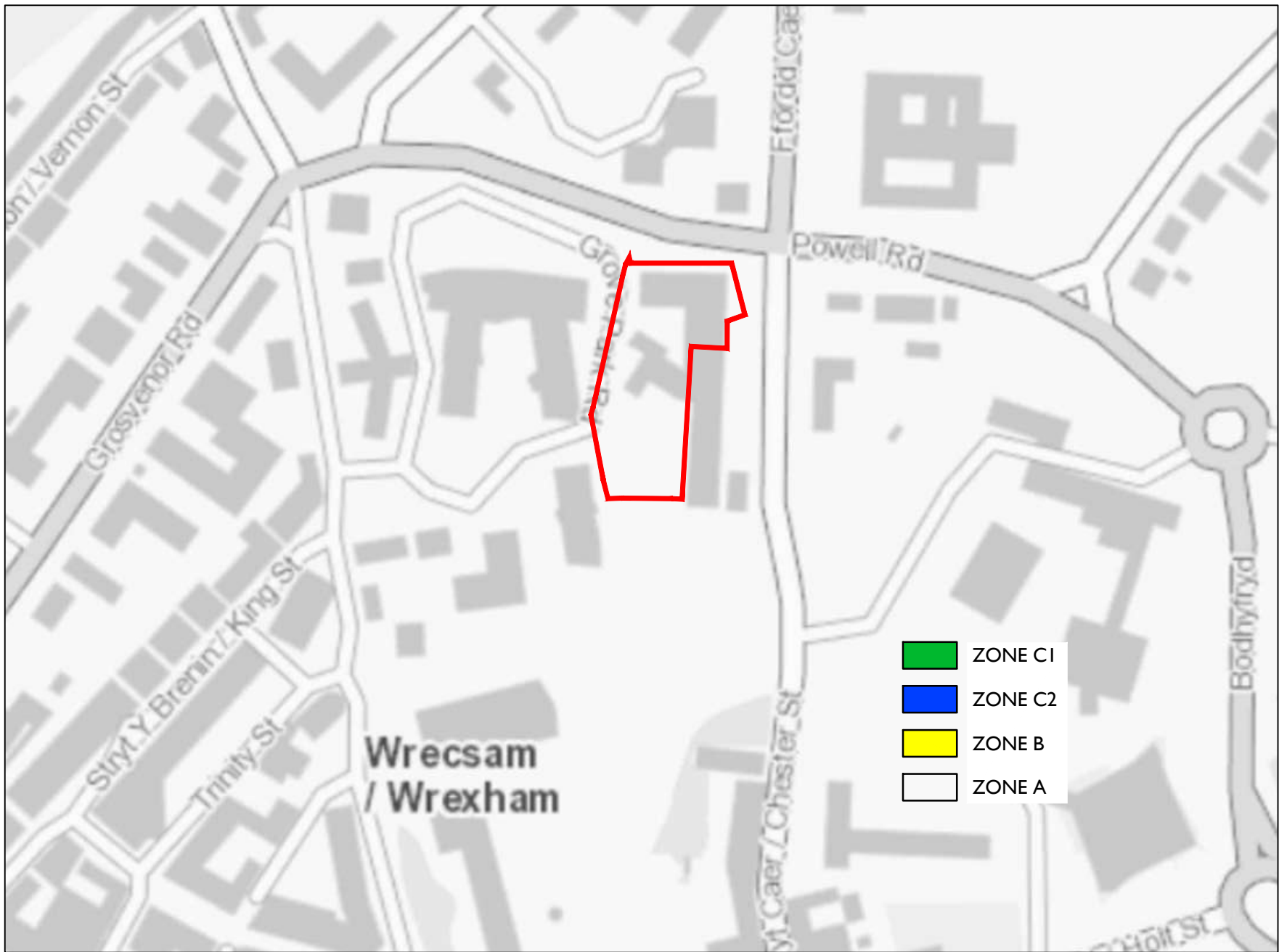
Appendix A – SABs Information Drawing



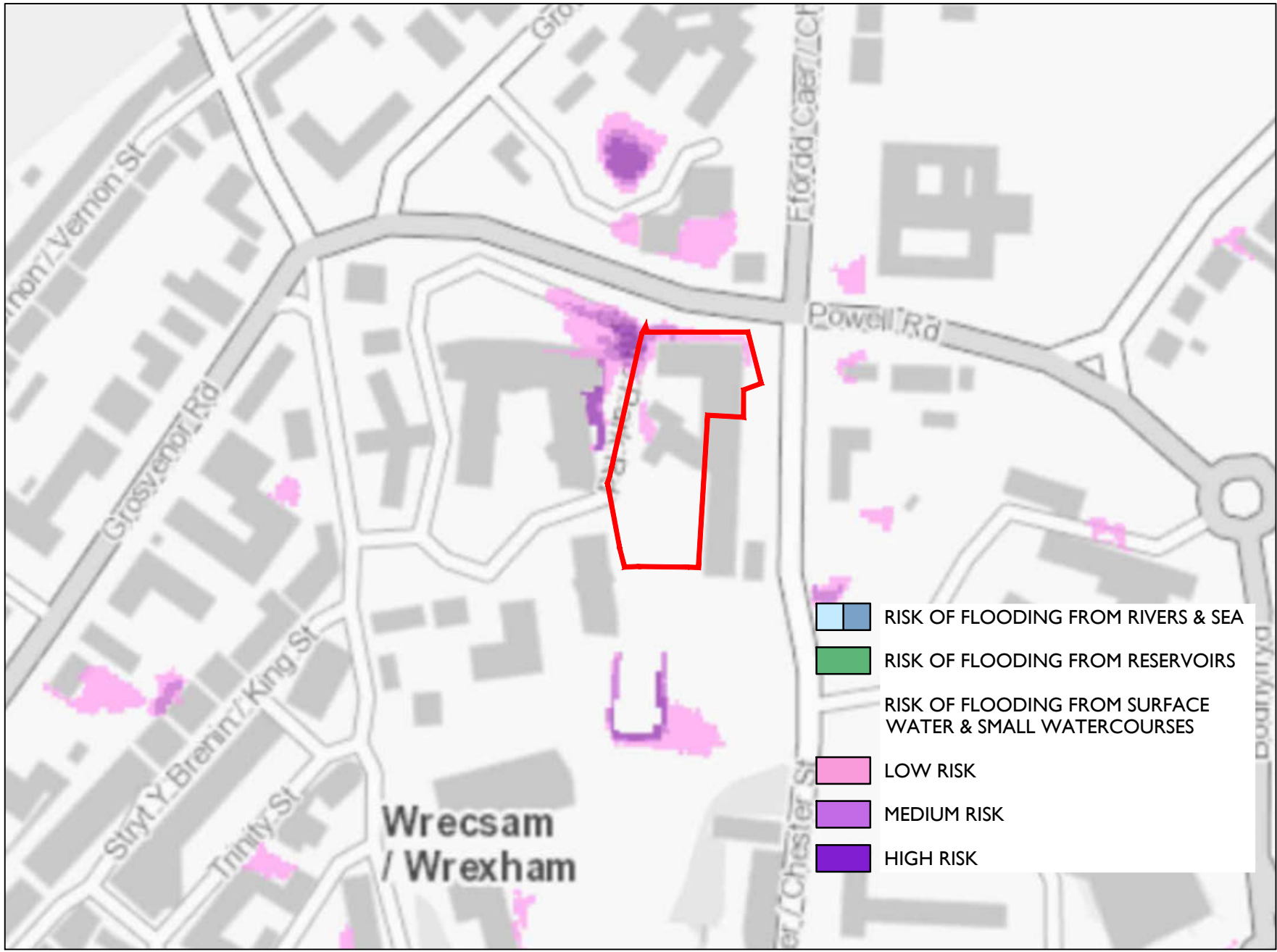
APPROX SCALE 1:50,000



APPROX SCALE 1:2,500



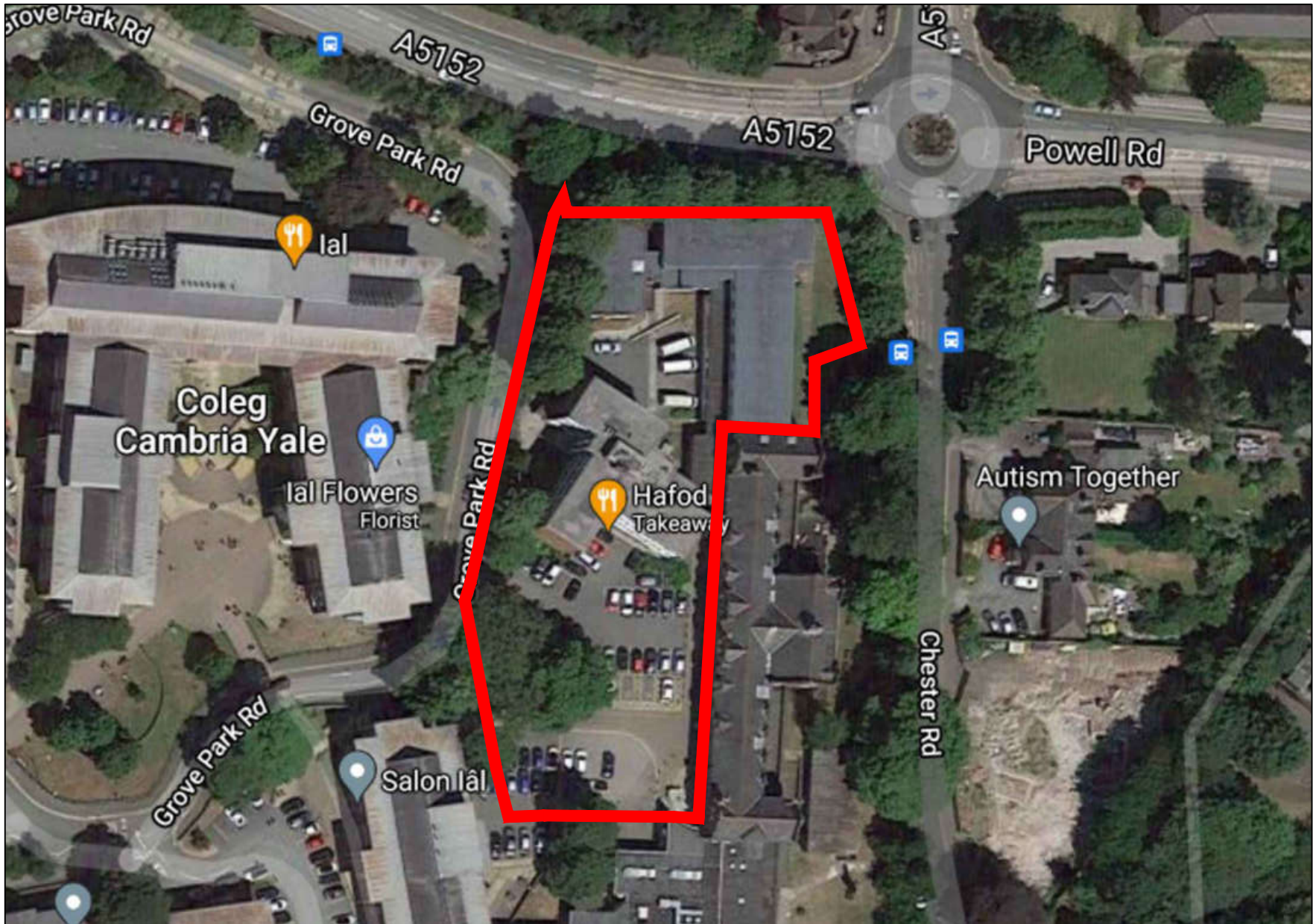
DEVELOPMENT ADVICE MAP
APPROX SCALE 1:2,500



FLOOD RISK MAP
APPROX SCALE 1:2,500



PROPOSED / EXISTING IMPERMEABLE AREA
APPROX SCALE 1:500



EXISTING SATELLITE IMAGE
APPROX SCALE 1:1,000

SITE CO-ORDINATES
OS X (Eastings) 333574
OS Y (Northings) 350758
Nearest Post Code LL12 7AX
Nat Grid SJ335507 / SJ3357450758



LEGEND

- SITE BOUNDARY
4,900 SQ M
- EXISTING IMPERMEABLE AREA
4,535 SQ M
- ADDITIONAL IMPERMEABLE AREA
70 SQ M
- EXISTING IMPERMEABLE AREA
TO BE REMOVED
200 SQ M

TOTAL CATCHMENT AREA AFTER DEVELOPMENT
4,405 sq m

REV	DESCRIPTION	BY	CHK	APR	DATE



PURPOSE OF ISSUE	PRELIMINARY	STATUS	S1
PROJECT	PHASE 2		
TITLE	SITE INFORMATION		
CLIENT	COLEG CAMBRIA		
DRAWN BY	RH	CHECKED BY	MM
DATE	16.07.2021	SCALE (@ A1)	As Shown
DRAWING NUMBER	500	PROJECT NUMBER	16014
REV	P01		

Appendix B – DCWW Public Sewer Records

Map Ref: 333567,350600
Map scale: 1:1250
Printed by: Twidle David
Printed on: 25 Sep 2017

Appendix C – Existing Drainage Layout



Site Grid North

Symbols/Abbreviations (Where Applicable):

+ AV: AIR VALVE

BB: BELISHA BEACON

BM: BOREHOLE

BM: BENCHMARK

BOL: BOLLARD

B/S: BUS STOP

+ CAM: CAMERA

+ CS: CABLE STAY

ICATV: CATV INSPECTION CHAMBER

+ CBOX: ELECTRICITY BOX, CABLE BOX, ETC.

+ CCTV: C.C.T.V. CAMERA

+ C.PIT: CATCH PIT

EC: ELECTRICITY COVER

EP: ELECTRICITY POLE

+ ER: EARTH ROD

+ FH: FIRE HYDRANT

FP: FLAG POLE

G: GULLY

G: GULLY (ROUND)

G: GAS VALVE

G: GULLY (SQUARE)

G: INSPECTION COVER (SQUARE)

G: INSPECTION COVER (ROUND)

+ IL: INVERT LEVEL

+ KO: KERB OUTLET

LB: LETTER BOX

LC: LIGHTING COLUMN

LP: LAMP POST

LP/BS: LAMP POST/BUS STOP

MMH: MANHOLE (SQUARE)

MMH: MANHOLE (ROUND)

+ MKR: MARKER

OP: POST

+ RE: RUDDING EYE

+ RS: ROAD SIGN

+ S/P: SIGN POST

+ SNP: STREET NAME PLATE

+ ST: STOP TAP

+ SV: STOP VALVE

+ TCB: TELEPHONE CALL BOX

+ TL: TRAFFIC LIGHT

+ TP: TELEGRAPH POLE

TP/EP: TELEGRAPH POLE/ELECTRIC POLE

+ T/C: TELECOM INSPECTION COVER

+ WO: WATER OUTLET

+ WM: WATER METER

GATE

DEFINED POINT

CONTROL POINT

TREE (CONIFEROUS)

TREE (DECIDUOUS)

FOLIAGE

HEDGE

DPC 99.99m DAMP PROOF COURSE LEVEL

EL 99.99m EAVES LEVEL

FL 99.99m FLOOR LEVEL

RL 99.99m RIDGE LEVEL

SL 99.99m SOFFIT LEVEL

TL 99.99m THRESHOLD LEVEL

FENCE DESCRIPTIONS:

B/W: BARBED WIRE FENCE

C/B: CLOSE BOARDED FENCE

C/L: CHAIN LINK FENCE

C/P: CHESTNUT PALING FENCE

CONC/P: CONCRETE PANEL FENCE

I/R: IRON RAILING FENCE

P/R: POST AND RAIL FENCE

P/W: POST AND WIRE FENCE

P/C: POST AND CHAIN FENCE

S/PAL: STEEL PALISADE FENCE

S/B: SAFETY BARRIER

T/PAL: TIMBER PALISADE FENCE

Revision Information

Rev	Date	Description

INFORMATION

1) Ordnance Survey co-ordinates and level are derived from OSTN15 and OSGM15, transformed from WGS84.

2) Only services located during the site survey are shown on this plan. Further investigation may be required to ascertain the full extent of the site services.

3) Copyright of this drawing remains the property of PM Surveys UK Ltd. Do not scale from this drawing. In the event of any discrepancy, refer query to PM Surveys UK Ltd.

NOTES

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Project

Yale College

Project No

PMS21067

Dwg

Sheet:

A0

Scale: 1:200

Surveyed By:

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JW

Approved By:

PM

Issued:

23/03/21

Appendix D – Drainage Calculations

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	30	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.300	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
Depth/Area 1	0.130	4.00	83.620		0.492	75.130	2.120
1			84.960	1200	22.107	74.262	4.195
2			83.990	1200	11.437	74.104	3.065

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	Depth/Area 1	2	10.993	0.600	81.500	81.000	0.500	22.0	150	4.08	50.0
1.001	2	1	10.671	0.600	80.925	80.765	0.160	66.7	225	4.20	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	2.157	38.1	22.9	1.970	2.840	0.130	0.0	84	2.255
1.001	1.603	63.8	22.9	2.840	3.970	0.130	0.0	93	1.472

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	10.993	22.0	150	Circular	83.620	81.500	1.970	83.990	81.000	2.840
1.001	10.671	66.7	225	Circular	83.990	80.925	2.840	84.960	80.765	3.970

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	Depth/Area 1		Junction		2	1200	Manhole	Adoptable
1.001	2	1200	Manhole	Adoptable	1	1200	Manhole	Adoptable

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	17.000	Drain Down Time (mins)	240
Ratio-R	0.300	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

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 %)
100	30	10	0

Node 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Downstream Link	1.001	Sump Available	✓
Replaces Downstream Link	✓	Product Number	CTL-SHE-0106-5000-1000-5000
Invert Level (m)	80.925	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.000	Min Node Diameter (mm)	1200
Design Flow (l/s)	5.0		

Node Depth/Area 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	81.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Time to half empty (mins)	74

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	50.0	0.0	0.800	50.0	0.0	0.801	0.0	0.0

Other (defaults)

Entry Loss (manhole)	0.250	Entry Loss (junction)	0.000	Apply Recommended Losses	x
Exit Loss (manhole)	0.250	Exit Loss (junction)	0.000	Flood Risk (m)	0.300

Results for 100 year +30% CC +10% A Critical Storm Duration. Lowest mass balance: 99.85%

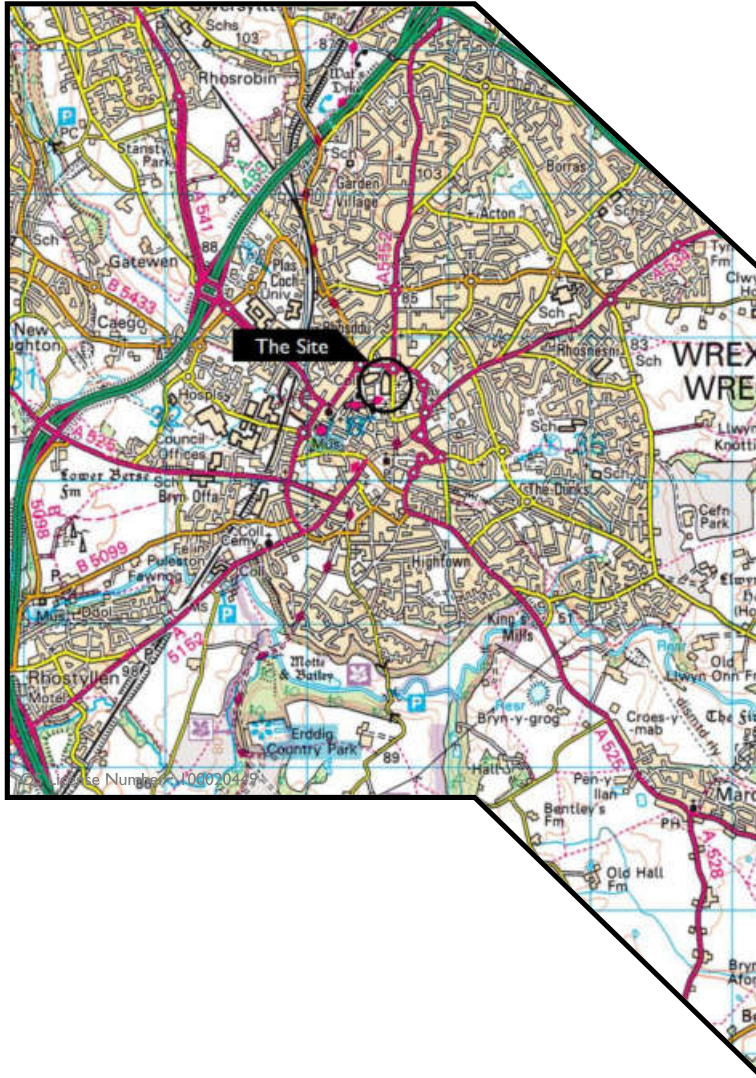
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
120 minute winter	Depth/Area 1	94	82.222	0.722	23.9	37.0767	0.0000	SURCHARGED
15 minute summer	1	1	80.765	0.000	5.0	0.0000	0.0000	OK
120 minute winter	2	94	82.209	1.284	7.5	1.4522	0.0000	SURCHARGED
Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
120 minute winter	Depth/Area 1	1.000	2	7.5	1.376	0.196	0.1935	
120 minute winter	2	Hydro-Brake®	1	5.6				68.4

Appendix E – Ground Investigation Report

Site Investigation



www.geotechnics.co.uk



YALE CAMPUS, COLEG
CAMBRIA, WREXHAM

Factual and Interpretative Report

for
Wynne Construction

Engineer : Haltec (Chester) Limited

Project Number PN183859

September 2018

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APPENDIX 7

Soakaway Test Results

Form INS010 Rev 2

Borehole No.	I
Test No	01
Project No	PN183859
Date	30/07/2018

The diagram illustrates a cross-section of a borehole soakaway. It shows a vertical borehole with a horizontal pipe at the bottom. The ground level (GL) is indicated by a hatched line at the top. The water level (WL) is shown as a horizontal line with a downward arrow. The total depth of the borehole is labeled on the left, and the effective depth, which is the distance from the WL to the bottom of the borehole, is labeled on the right.

Effective depth (Head of Water) = 1.610 m

Initial depth from GL	=	0.690m	
% of effective depth	Head (m)	Depth from GL (m)	Time (mins)
75%	1.208	1.093	0.30
25%	0.403	1.898	11.00
Vp75-25	=	0.058	m ³
ap50	=	0.537	m ²
tp75-25	=	10.700	min
Soil Infiltration, f	=	1.69E-04	m/sec

Sheet 1 of 2

GEOTECHNICS

INSITU TESTING - Soakaway Test

Form INS010 Rev 2

Project Coleg Cambria Yale Campus, Wrexham

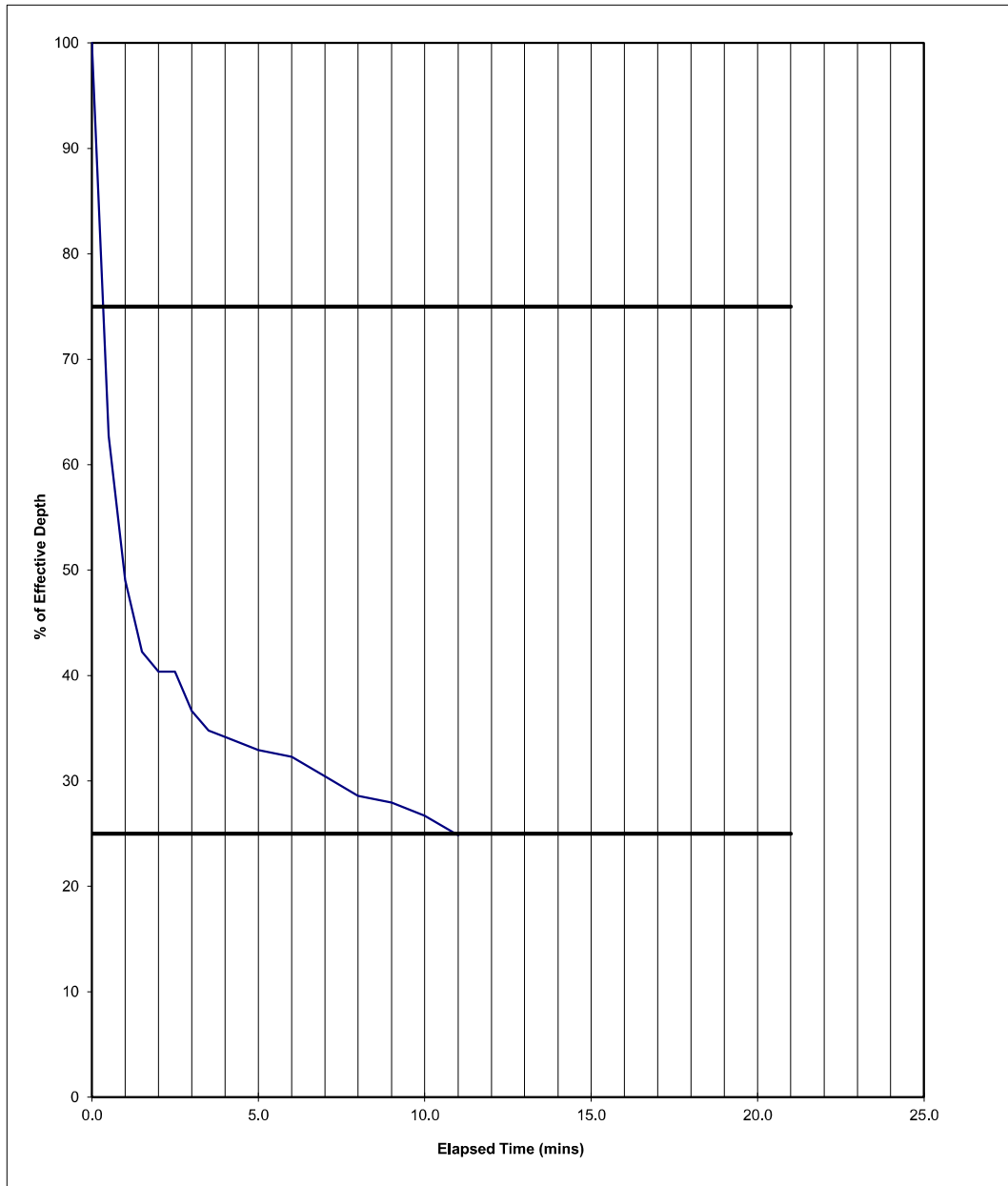
Borehole No. I

Test No 01

Project No PN183859

Client Wynne Construction

Date 30/07/2018



tp75	=	0.30
tp25	=	11.00

Remarks

Sheet 2 of 2

GEOTECHNICS

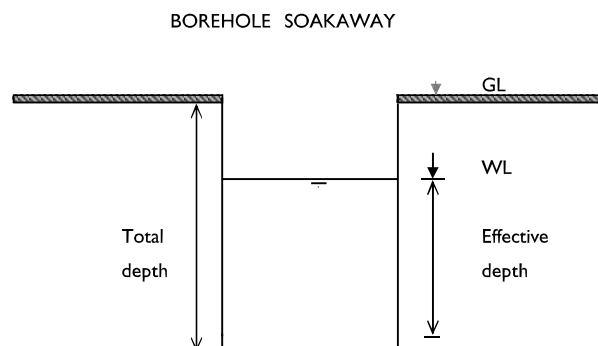
Form INS010 Rev 2

Borehole No. 1
Test No 2
Project No PNI83855
Date 30/07/2018

Client Wynne Construction

[illegible]

Depth to top of Granular Fill if used (m bgl) = x
Porosity of Gravel Fill if used (%) = x



Borehole diameter	=	0.200 m
Borehole depth	=	2.300 m
Effective depth (Head of Water)	=	2.300 m

Initial depth from GL	=	0.000m	
% of effective depth	Head (m)	Depth from GL (m)	Time (mins)
75%	1.725	0.575	0.40
25%	0.575	1.725	6.00
Vp75-25	=	0.083	m ³
ap50	=	0.754	m ²
tp75-25	=	5.600	min
Soil Infiltration, f	=	3.28E-04	m/sec

Sheet 1 of 2

Remarks	Test terminated before 25% achieved. 25% estimated to be around 6 minutes for calculation purposes.
---------	---

INSITU TESTING - Soakaway Test

Form INS010 Rev 2

Project Coleg Cambria Yale Campus, Wrexham

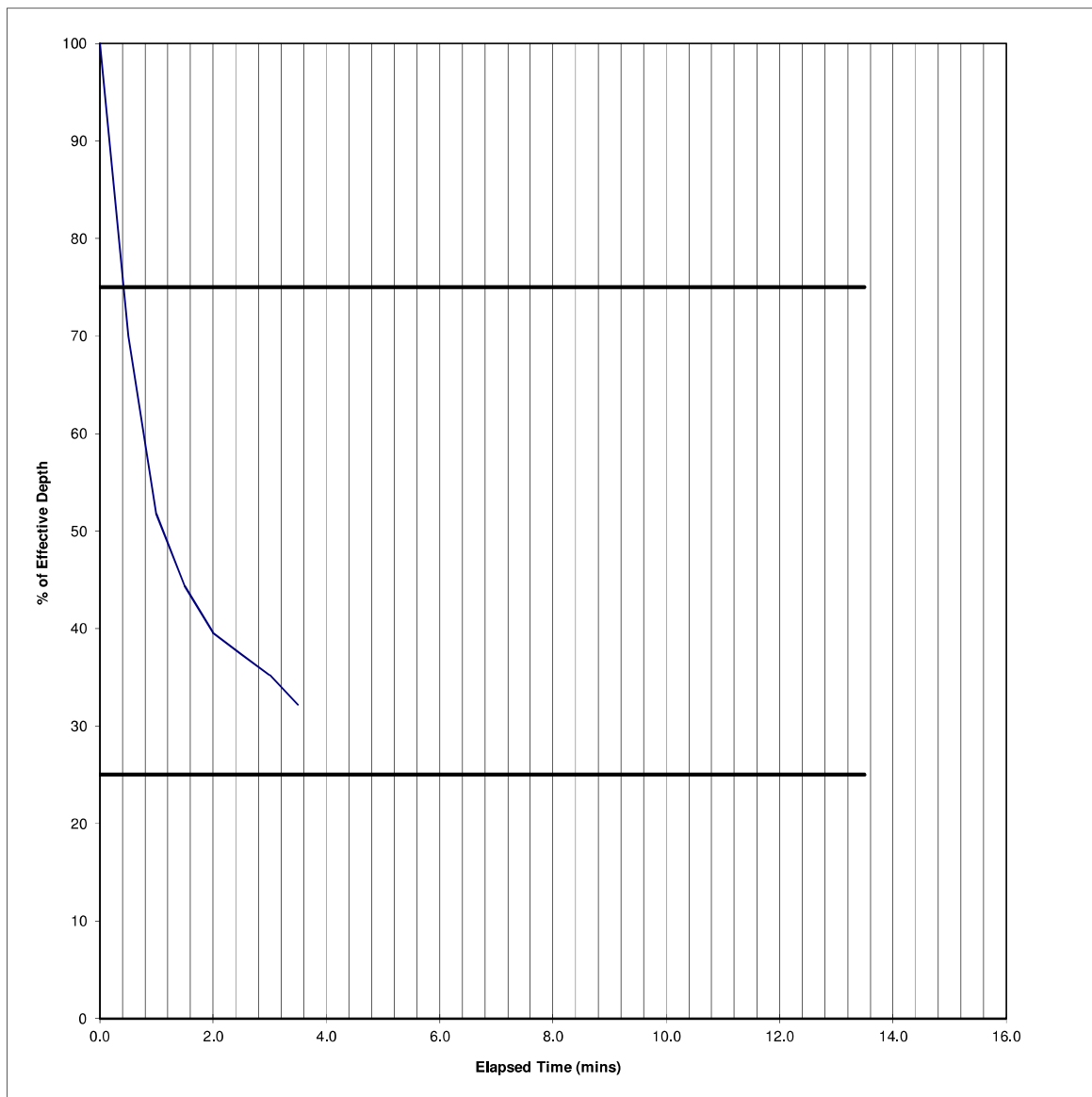
Borehole No. 1

Test No 2

Project No PN183855

Client Wynne Construction

Date 30/07/2018



tp75	=	0.40
tp25	=	6.00

Sheet 2 of 2

Remarks Test terminated before 25% achieved. 25% estimated to be around 6 minutes for calculation purposes.

GEOTECHNICS

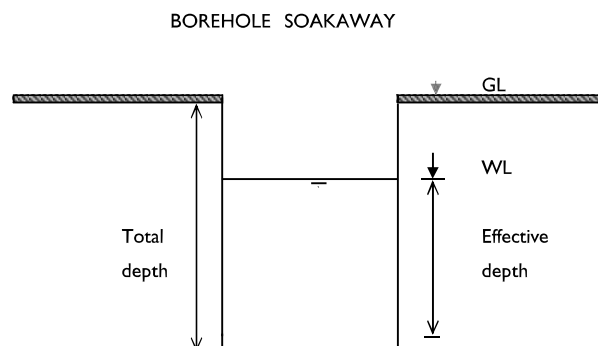
Form INS010 Rev 2

Borehole No. 1
Test No 3
Project No PNI83859
Date 30/07/2018

Client Wynne Construction

[illegible]

Depth to top of Granular Fill if used (m bgl) = x
Porosity of Gravel Fill if used (%) = x



Borehole diameter	=	0.200 m
Borehole depth	=	2.300 m
Effective depth (Head of Water)	=	2.300 m

Initial depth from GL	=	0.000m	
% of effective depth	Head (m)	Depth from GL (m)	Time (mins)
75%	1.725	0.575	0.60
25%	0.575	1.725	6.00
Vp75-25	=	0.083	m ³
ap50	=	0.754	m ²
tp75-25	=	5.400	min
Soil Infiltration, f	=	3.40E-04	m/sec

Sheet 1 of 2

Remarks	Test terminated before 25% achieved. 25% estimated to be around 6 minutes for calculation purposes.
---------	---

INSITU TESTING - Soakaway Test

Form INS010 Rev 2

Project Coleg Cambria Yale Campus, Wrexham

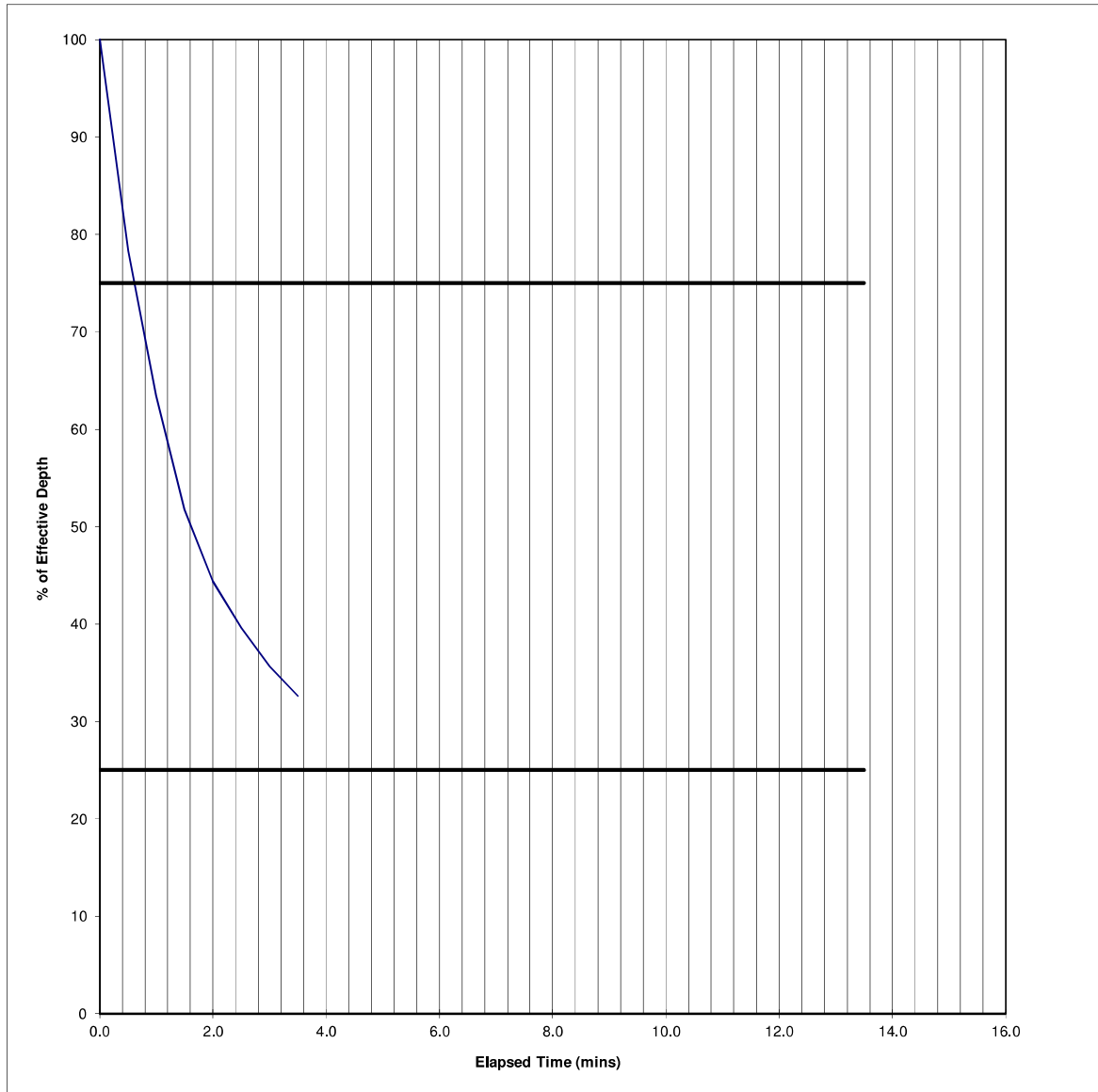
Borehole No. 1

Test No 3

Project No PN183859

Client Wynne Construction

Date 30/07/2018

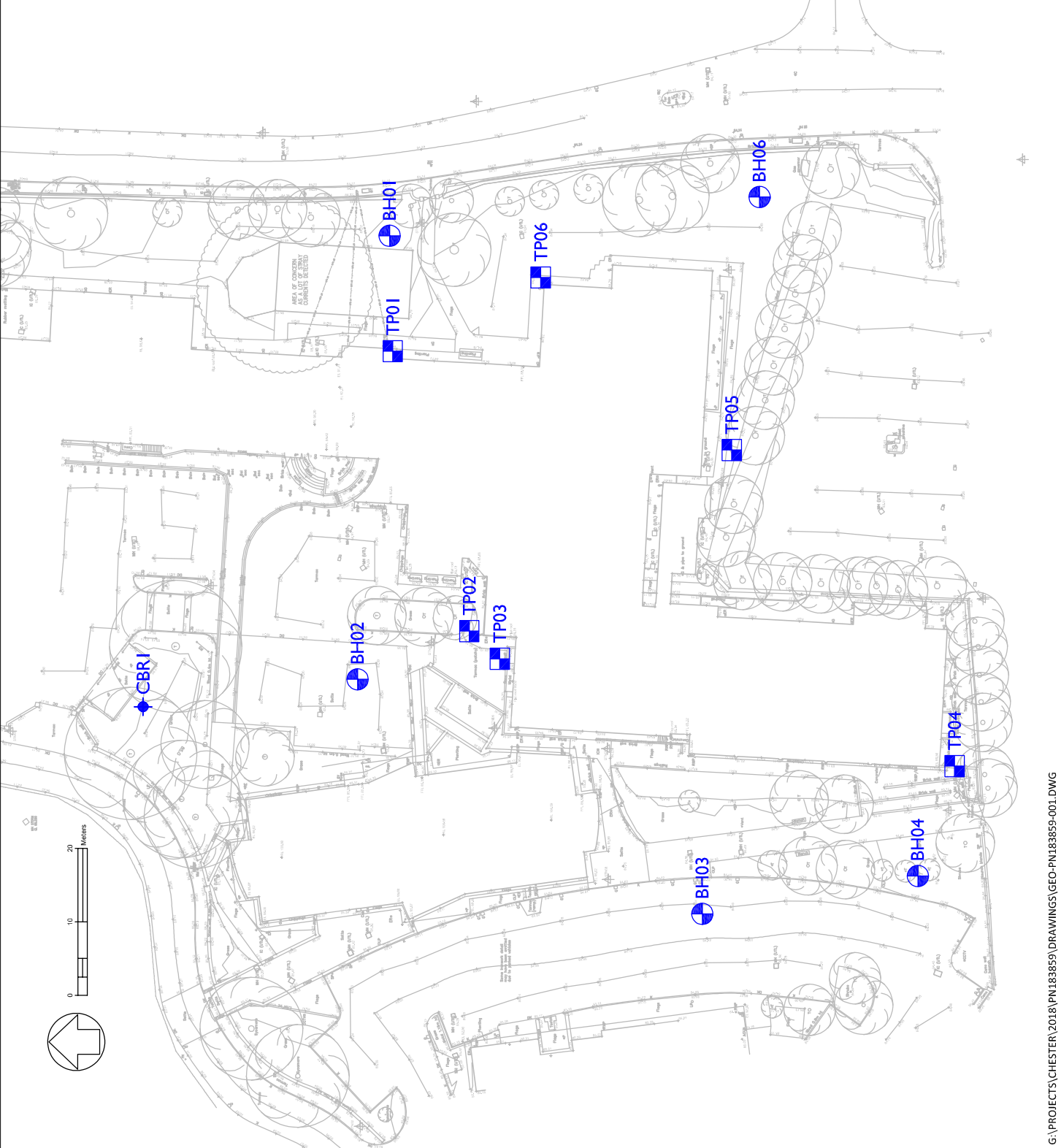


tp75	=	0.60
tp25	=	6.00

Sheet 2 of 2

Remarks Test terminated before 25% achieved. 25% estimated to be around 6 minutes for calculation purposes.

GEOTECHNICS



- Key
- Borehole
 - Trial Pit
 - CBR

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
BH01	333596.7	350663.7	84.83
BH02	333536.3	350668.1	85.20
BH03	333504.4	350621.2	84.52
BH04	333509.6	350591.9	84.66
BH06	333601.9	350613.4	84.95
CBR1	333532.6	350697.3	84.85
TP01	333581.0	350663.3	84.88
TP02	333542.9	350652.9	84.95
TP03	333539.1	350648.8	85.15
TP04	333524.5	350586.9	83.10
TP05	333567.5	350617.2	84.60
TP06	333591.0	350643.2	84.80

GEOTECHNICS
geotechnical and geoenvironmental specialists

The Geotechnical Centre,
Unit 1, Borders Industrial Park,
100, Walsley Way, Walsley,
Chester CH4 8RJ

Phone: 01244 671117
Fax: 01244 671122
Email: info@geotechnics.co.uk
www.geotechnics.co.uk

Engineer:
Haltec (Chester) Limited

Client:
Wynne Construction Limited

Project:
Yale Campus, Coleg Cambria, Wrexham

Drawing Title:
Exploratory Hole Location Plan

Scale: 1:500@A3

Date:
August 2018

Project No:
PNI183859

File Name:
Geo-PNI183859-001(I)

Appendix F – SAB Pre-Application Form

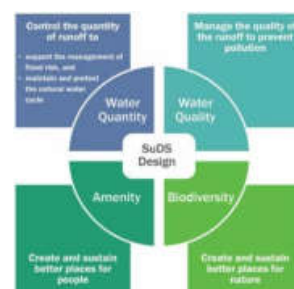


**SuDS Approving Body
Flood & Water Management Team
Environment Department
Wrexham County Borough Council
Abbey Road South
Wrexham
LL13 9PW**

Flood & Water Management Act 2010

Schedule 3 Sustainable Drainage

SuDS Scheme Application for SuDS Approving Body (SAB) Approval – Wales



Application Form for Pre-Application Advice on SuDS on new developments, with reference to The Sustainable Drainage (Approval and Adoption Procedure) (Wales) Regulations 2018

Pre-Application Structure	
<u>Pre-Application Form</u>	<i>(To complete & return)</i>
<u>Guidance on Completing the Pre-Application Form</u> – including specific information and evidence required to support the application.	<i>(For guidance)</i>

(Use hyperlinks above to directly access the Form and Guidance)

Pre-Application Form

This form is based on the requirements provided by Welsh Government for the sole purpose of submitting information to the SuDS Approving Body (SAB) in accordance with the legislation detailed on this form and other relevant items of primary and subordinate legislation.

Please be aware that once you have downloaded this form, the SAB and Welsh Government will have no access to the form or the data you enter into it. Subsequent use of this form is solely at your discretion, including the choice to complete and submit it to the SAB in agreement with the declaration section.

Upon receipt of this form and any supporting information, it is the responsibility of the SAB to inform you of its obligations in regard to the processing of your application. Please refer to its website for further information on any legal, regulatory and commercial requirements relating to information security and data protection of the information you have provided.

Please Note:

1. This form is for **Pre-Application** discussions with SAB ONLY;
2. Consideration of this application will be based on compliance with the [Statutory National Standards for Sustainable Drainage Systems \(SuDS\) for Wales](#), and [Statutory Instruments](#);
3. You are advised to engage early, and directly, with the LPA and all other relevant organisations that may have an interest in your SuDS scheme proposal, including the SAB statutory consultees listed below:
 - a. Sewerage undertaker
 - b. Natural Resources Wales
 - c. Highway Authority
 - d. Canal & River Trust
 - e. Internal Drainage Districts (NRW);
4. **For a valid SuDS Scheme Pre-Application to the SAB, ALL sections of this form SHOULD be completed;** and
5. You are encouraged to provide an initial response to the further questions contained in the [Guidance](#) on completing this form, and to submit as much initial technical information as possible about your SuDS scheme proposals (also as indicated in the [Guidance](#)); as this will assist the SAB with pre-application considerations and discussions.

We will process the information you provide so that we can deal with your application. We may also process or release the information to offer you documents or services relating to environmental matters and consult the public, public organisation and other organisations; provide information from the public register to anyone who asks or prevent anyone from breaking environmental law, investigate cases where environmental law may have been broken and take any action that is needed, and respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data

Protection Act allows).

Please ensure that the information you submit is accurate and correct and does not include personal or sensitive information. If you require any further clarification, please contact the SAB directly.

If printed, please complete using block capitals and black ink prior to submitting to the SAB.

Please read through the [Guidance](#) and complete this application form carefully. If you fill in the application form correctly first time, the SAB can process it quicker.

Prior to the submission of a Full Application, applicants are strongly advised to make this Pre-Application submission to discuss their proposals with the SAB and ensure that an acceptable SuDS scheme is submitted later, at the Full Application stage. Please note that pre-application fees may apply.

Submissions made in support of this application shall be based upon current legislation and industry best practice including documents referenced in [Guidance on Making SuDS Applications for SAB Approval](#).

Proposals submitted should be developed by a competent and suitability qualified professional, experienced in drainage/ SuDs / flood risk management design.

Where applicable, the LPA planning reference or unique identifier should be included.

Applicants should complete this form and submit it, together with relevant supporting documents, to Wrexham Council Borough Council SuDs Approving Body.

Where applicable, details for the payment of the Pre-Application fee will be provided upon confirmation of receipt of a valid pre-application. This will include a unique reference (SAB/PRE/20XX/XXX) that must be quoted on all future correspondence. Your valid application will not be processed until the application fee is received and cleared in full.

When you have completed the application form please submit the form and associated documents to:

Electronically: SAB@wrexham.gov.uk
Postal: SuDS Approving Body
Flood & Water Management Team
Environment Department
Wrexham County Borough Council
Abbey Road South
Wrexham
LL13 9PW

If you are not sure about anything contained in the application form, please contact us.

Content

ALL sections of this form SHOULD be fully completed unless otherwise stated.

- 1. Applicant Details**
- 2. Site Details**
- 3. Application**
- 4. Environmental Impact Assessment (EiA) Statement**
- 5. Compliance with Statutory National Standards for Sustainable Drainage Systems (SuDS)**
- 6. Initial Assessment of Flood Risk**
- 7. SuDS Scheme Application Checklist**
- 8. Declaration**

1. Applicant Details**Applicant Name and Address**

Title and Name		
Company		Coleg Cambria
Suffix (unit/name/number)		Yale Campus
Address line 1		Grove Park Road
Address line 2		
Address line 3		
Town		
County		Wrexham
Postcode		LL12 7AB
Phone number	Mobile	
	Works	
	Home	
e-mail address		

Agent Name and Address

Title and Name		Russell Hardy
Company		JP Structural Design Ltd
Suffix (unit/name/number)		Regus House
Address line 1		Chester Business Park
Address line 2		
Address line 3		
Town		Chester
County		Cheshire
Postcode		CH4 9QR
Phone number	Mobile	07711107672
	Works	
	Home	
e-mail address		russell@jpstructural.co.uk

Preferred contact	Applicant ☐	Agent ☒
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2. Site Details

A general description of site location supported by a plan specifying the construction area and the extent of the drainage system should be submitted. Plans shall be at a scale of 1:2500. All plans should show the direction of North.

Name of proposed development	Coleg Cambria Yale Campus Improvements Phase 2
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Grid Reference (E/N)	333574 (E)	350758 (N)
Suffix (unit/name/number)		
Address line 1	Grove Park Road	
Address line 2	Coleg Cambria	
Address line 3		
Town		
County	Wrexham	
Postcode	LL12 7AX	

Description of proposed development	The proposed development will the demolition of existing buildings and replacement with new teaching facilities
Total application site area (Ha)	0.49 ha
Is the site currently developed i.e. Brownfield, or is it currently undeveloped i.e. Greenfield?	Currently Developed
Existing land use	Educational
Proposed land use	Educational

3. Application

Has any prior advice been sought from the SuDS Approving Body (SAB) about this application?	Yes ☐	No ☒
If Yes, please complete the following information about the advice you were given. This will help the SAB to deal with this application more efficiently.		

Officer Name					
Reference		Date	DD	MM	YYYY
Details of pre-application advice received					

Does this application relate to any other SAB application already made?	Yes ☐	No ☒
If "Yes", please provide SAB Reference number		

Is this application part of a phased approach to development of the site, or one of multiple applications for the same site?	Yes ☐	No ☒
If "Yes", please provide brief details		

4. Environmental Impact Assessment (EiA) Statement

Does this application relate to a development that is the subject of an EiA application under the Town & Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017(1)?	Yes ☐	No ☒
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5. Compliance with Statutory National Standards for Sustainable Drainage Systems (SuDS)

All sustainable drainage systems MUST comply with the [Statutory National Standards for Sustainable Drainage Systems \(SuDS\) for Wales](#). You are advised to refer to the detailed text in the Standards that relate to the information required below. The Standards are re-produced, in the [Guidance](#) to assist in completing this application form.

Standard Principles

The Principles listed below will underpin the design of surface water management schemes to meet the Statutory National Standards. Where possible, please provide a brief summary in each of the boxes below relating to each of the bulleted Standard Principles and itemised Standards 1 to 6, showing how your proposed surface water drainage scheme complies with this statutory requirement.

Compliance with Standard Principles

My proposed surface water drainage scheme will comply in the following way/s:

The proposed development comprises the demolition of existing buildings and replacement with new teaching facilities, car parking and external areas. The existing site discharges surface water to the existing combined flow public sewer in Chester Road adjacent. In keeping with the ideology of a SUDs Management Train we have therefore incorporated the following;

Prevention

It is proposed that the new car park area will be a permeable paving design to manage the water generated at source. Noting that the soil is of good infiltration characteristics.

Good Housekeeping Measures

It is intended to install rain water butts and raised planter bed details as measure for harvesting an element of rainwater and reuse. Captured water can then be used for plant irrigation, cleaning etc. The installation of permeable paving will also act as filters, removing many pollutants through collection and biodegradation before returning cleansed water to the natural environment. Due to a lack of space to install soakaways in keeping with building control, it is intended to attenuate and restrict the forward flow of the roof areas before maintaining discharge to the combined flow sewer network. Runoff from the roofs and playgrounds is considered to be a low risk in terms of pollution controls.

Local Source Controls

The use of permeable paving and raised RWP planter details is intended as a means of local source control

Site Source Controls

The local source controls are implemented at the site by the use of permeable paving to limit the surface water discharging to formal drainage systems.

Regional Controls

A flow control device will be utilized to limit the flow leaving the site and attenuation provided to cater for the 1 in 100 year event with a 30 % allowance for climatic change and 10% allowance for urban creep. The remainder of the campus will continue to drain as per its existing arrangements

Where possible, relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance should be listed below and all relevant material submitted.

1. SAB Application Supporting Information, DWG Number SK01
- 2.

Standards 1 to 6

Compliance with Standard S1 - Surface water runoff destination

My proposed surface water drainage scheme will comply in the following way/s:

In determining a suitable methodology for disposal of surface water flows from the proposed development, the technical options outlined under Standard S1 of the Statutory National Standards for Sustainable Drainage System (SuDS) for Wales have been explored. This states that surface water disposal should be made through the hierarchical approach as outlined and discussed below, in order of preference:

Priority Level 1 - Surface Water runoff collected for use:

As the development is a Higher Education facility it is considered there is limited use for collected or recycled water. However, rainwater butts can be provided to collect an element of discharge for cleaning purposes or plant irrigation.

Priority Level 2 - Surface Water runoff is infiltrated to ground:

As per the geotechnical report extracts included the site, infiltration testing has found the ground to provide good results and it is therefore proposed to construct the new car park and external areas from permeable paving systems. However due to the built up nature of the site it will not be possible to incorporate concentrated soakaways within the development whilst achieving the building control requirements of 5m spacings from buildings or roads.

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

Taking into consideration the infiltration of surface water is not a complete solution, the next consideration in the hierarchical approach is to discharge to a surface water body, However there are no watercourse located in the close proximity of the site to make this a viable solution.

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

There are no Surface Water Sewers or highway drains in close proximity to the site

Priority Level 5 - Surface water runoff is discharged to a combined system:

It is proposed to maintain the connection to the Public Combined Sewer network, although the introduction of a flow control device as well as the permeable paving should see a significant betterment to the site both in peak flow and total volume to be discharged.

Where possible, relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance should be listed below and all relevant material submitted.

1. SAB Application Supporting Information,
2. Existing Drainage Drawing

Compliance with Standard S2 - Surface water runoff hydraulic control

My proposed surface water drainage scheme will comply in the following way/s:

The design includes a 1 in 100 year storm event plus 30% Climate Change (CC) and 10% Urban Creep. Due to the slightly poor rate of infiltration (hence partial infiltration) an overflow from the partial permeable sub-base will discharge into the proposed attenuation tank located to the north of the proposed development and adjacent to the access road.

The proposed attenuation tank will cater for a 1 in 100 return period with an allowance for 30% Climate Change and 10% Urban Creep, with a storage volume of 40m³. The proposed tank will discharge into the existing combined flow sewer via a HydroBrake, at a restricted flowrate of 5l/sec.

Where possible, relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance should be listed below and all relevant material submitted.

1. SAB Application Supporting Information,

Compliance with Standard S3 – Water Quality

My proposed surface water drainage scheme will comply in the following way/s:

As stated previously, The installation of permeable paving will also act as filters, removing many pollutants through collection and biodegradation before returning cleansed water to the natural environment.

Runoff from the roofs and playgrounds is considered to be a low risk in terms of pollution controls although it is proposed to install a downstream defender within the proposals for the removal of sediment and any floatable trash which may have entered the system.

Where possible, relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance should be listed below and all relevant material submitted.

1. SAB Application Supporting Information, DWG Number SK01

Compliance with Standard S4 – Amenity

My proposed surface water drainage scheme will comply in the following way/s:

Amenity improvements are difficult to achieve due to the nature of this development as a redevelopment project to an area of an existing higher education facility. It perhaps should be considered whilst the SUDS components will not offer any amenity value, it is considered the scheme as a whole will add significant aesthetic value to the area from the 1960's type build currently in place. The scheme will also retain a number of trees around the site whilst adding various planters to improve the visual impact of the site.

Where possible, relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance should be listed below and all relevant material submitted.

1. SAB Application Supporting Information, DWG Number SK01

Compliance with Standard S5 – Biodiversity

My proposed surface water drainage scheme will comply in the following way/s:

Surface water infiltrated via the permeable sub-base of the car park, will follow existing natural pathways. The infiltrated water from the proposed development, will continue to serve the natural environment and nourish the natural grasses, flowers and trees, etc.

Where possible, relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance should be listed below and all relevant material submitted.

1. SAB Application Supporting Information, DWG Number SK01
2. Proposed Outline Drainage Design, DWG Number SK02

Compliance with Standard S6– Design of drainage for Construction and Maintenance and Structural Integrity

My proposed surface water drainage scheme will comply in the following way/s:

The proposed system will be designed to the standards set out in Ciria C753 & Sewers for Adoption 7th Edition. The proposed drainage scheme consists of predominantly standard products and methods of construction that should not concern a suitably experienced and qualified contractor.

An O&M manual will also be provided to the client in due course, including the final 'As Built' constructions drawings and a maintenance schedule for the drainage system.



Where possible, relevant items of supporting information (e.g. evidence, technical documents, plans and drawings etc.), as shown in [Table A](#) and [Table B](#) of this Guidance should be listed below and all relevant material submitted.

1. SAB Application Supporting Information, DWG Number SK01
2. Proposed Outline Drainage Design, DWG Number SK02

6. Initial Assessment of Flood Risk

Is the site within an area at risk of flooding? Refer to Natural Resources Wales Development Advice maps. (Natural Resources Wales / Development and flood risk)	Yes ☐	No x
If the proposed development is within the area at risk of flooding, you will need to consider whether it is appropriate to submit a flood consequences assessment. (Refer to Technical Advice Note 15 (TAN15)).		

Is the site located within an area susceptible to surface water flooding? Refer to NRW Surface Water Flood Maps .	Yes ☐	No x
Is the site located within an area susceptible to groundwater flooding?	Yes ☐	No ☒
Is there a watercourse (as defined under Section 72 Land Drainage Act 1991) located within 20m of the proposed development?	Yes ☐	No ☒

7. SuDS Scheme Application - Checklist

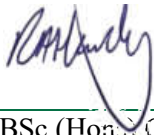


Please complete the following checklist and make sure you have read the [Guidance on Making SuDS Applications for SAB Approval](#), the [Guidance on completing the Pre-Application Form](#), and provided all the necessary information in support of your application:

Pre-Application fee (where required)	Yes PLEASE ADVISE ON FEE
Completed, signed and dated Pre-Application Form.	Yes ☐
Considered further questions and technical information in the Guidance , required to help assess your Pre-Application and assist your Full Application proposals at a later date.	Yes ☐

9. Declaration

I/ we hereby apply for SuDS Pre-Application Advice as described in this form and the accompanying plans/drawings and additional information. I confirm that, to the best of my knowledge, any facts stated are true and accurate and any opinions given are the genuine opinions of the persons giving them.
This form is completed using accurate information and can be used as a summary of concept of the surface water drainage strategy on this site.

Form completed by	Russell Hardy
Signature	
Qualification of person responsible for signing off this application	BSc (Hons) Civil Engineering
Company	JP Structural Design Ltd
On behalf of (Client's details)	Coleg Cambria
Date	16/07/2021

Disclaimer

Information provided on this form and in supporting documents may be published on the SABs SuDS register and website and be made publicly available.

For information as to how Wrexham County Borough Council handles personal data, please see our Privacy Notices on our website: www.wrexham.gov.uk