





Coleg Cambria Yale Campus Redevelopment Pre-Application Consultation Report







CONTROL SHEET

Please ensure when referencing this document that you are using the most recent Issue in accordance with the table below and ensure previous issues of this document are destroyed or marked as Superseded

DOCUMENT APPROVAL

Author	Checked Approved by	
ЈН	КМ	DM

DOCUMENT ISSUE RECORD

Issue	Date	Description of Amendment	Ву	Checked
P1	20-07-2018	Draft report issued to design team for comment	JH	КМ
P2	30-07-2018	Planning Issue	JH	КМ
Р3				
P4				
Р5				
P6				



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1.0 Introduction

- **1.1** This pre-application consultation process relates to proposals for Coleg Cambria, Yale Campus, Grove Park Road, Wrexham, LL12 7AB.
- **1.2** The proposals include; The demolition of the existing single and two storey buildings in the south-east corner of the Yale Campus site, and the construction of a new three-storey building replacing the existing catering, performing arts, sports and examination facilities. Additionally, providing general curriculum classrooms and ancillary facilities to support the development.
- **1.3** The aerial photograph below identifies the site for reference purposes:





2.0 Pre-Application Consultation Process

- 2.1 The pre-application consultation was carried out in accordance with Article 1 of the Town and Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016.
- **2.2** Planning application documentation was issued for consultation on 11 June 2018 with the dead-line for the receipt of comments set 28 days later on 9 July 2018.
- **2.3** A statutory enquiry for Pre-application advice was submitted prior to the consultation process on 18 April 2018 (*Ref: ENQ/2018/0070*). A number of consultees who were involved during this process and raised no major concerns were not re-consulted during this pre-application process, however their recommendations have been acknowledged and are reflected in this report. A copy of the feedback report received following this enquiry is included as Appendix 1.
- **2.4** A Site Notice, in accordance with Schedule 1B of the above 2016 Order, was displayed on site in accordance with the statutory requirements on 11 June 2018. A copy of this Notice is included as Appendix 2.
- **2.5** The Site Notice was displayed in three locations at existing primary entrances to the Yale campus. A location plan indicating these locations is included as Appendix 3 and images of these notices displayed on site are included as Appendix 4.
- **2.6** An electronic copy of the planning application documentation was posted on-line on 11 June 2018 for interested partied to view. The web site address to access this information was included within all the consultation notices.
- 2.7 A hard copy of the planning application documentation was made available to view on 11 June 2018 at the Main Reception (between the hours of 9am 5pm), Coleg Cambria, Yale Campus, Grove Park Road, Wrexham, LL12 7AB.
- **2.8** The following drawings & documentation were made available as part of this process:
 - Design & Access Statement
 - Location Plan
 - Existing Site Plan
 - Existing & Proposed Streetscapes
 - Existing Ground Floor Plan
 - Existing Elevations
 - Proposed Site Layout
 - Proposed Ground Floor Plan
 - Proposed First Floor Plan



- Proposed Second Floor Plan
- Proposed Roof Plan
- Proposed Elevations
- Outline Drainage Strategy
- Preliminary Ecological Assessment Report
- Flood Risk Map
- Proposed Landscape Strategy
- Precedent Images for Landscape Strategy
- Coleg Cambria Travel Plan
- Transport Statement
- Preliminary Tree Constraints Plan
- Preliminary Arboricultural Impact Assessment
- Preliminary Tree Survey Schedule
- **2.9** Consultation Notices were issued to owners/occupiers of adjoining land/property and a copy of this notice is included as Appendix 5. A location plan indicating all adjoining properties that received a consultation notice is included as Appendix 3.
- **2.10** Consultation Notices were issued to Community/Specialist Consultees and a copy of this Notice is included as Appendix 6.



3.0 Pre-Application Consultation Responses

- **3.1** The following specialist consultees/person(s) were contacted during the consultation process:
 - Peter Douthwaite, Environment & Planning, WCBC
 - E N Hodges Esq, on behalf of Rhosddu Community Council
 - Councillor Marc Jones Local Councillor for Grosvenor Ward
 - Councillor Paul Jones Local Councillor for Maesydre Ward
 - Councillor Adrienne Jeorrett Local Councillor for Smithfield Ward
 - Coal Authority
 - Dee Valley Water
 - Dwr Cymru/Welsh Water
 - Natural Resources Wales
 - SP Power Systems
 - Wales & West Utilities Limited
- **3.2** The following neighbouring properties received notices during the consultation process, as indicated on the location plan included as Appendix 3:
 - Head of Housing and Economy, Wrexham County Borough Council, on behalf of Wrexham County Borough Council, Crown Buildings, 31 Chester Street, Wrexham, LL13 8BG and Wrexham County Borough Council, The Guildhall, Wrexham, LL11 1AY
 - Wrexham Library, Rhosddu Road, Wrexham, LL11 1AU
 - Priory College North Wales, Ty Dewi Sant, Rhosddu Road, Wrexham, LL11 0ZX
 - Godfrey Edwards, Park Lodge, 4-6 Rhosddu Road, Wrexham, LL11 1NF
 - Trinity Presbyterian Church of Wales, King Street, Wrexham, LL11 1LE
 - TA Gittins & Company, 61 King Street, Wrexham, LL11 1HR
 - Plato Training UK Ltd Wrexham, 63 King Street, Wrexham, LL11 1HR
 - CAIS, 65 King Street, Wrexham, LL11 1HR
 - 23 Rhosddu Road, Wrexham, LL11 1EB
 - McLintocks, The Coach House, 25 Rhosddu Road, Wrexham, LL11 1EB
 - 9-11 Grove Park Road, Wrexham, LL12 7AA
 - 7 Grove Park Road, Wrexham, LL12 7AA
 - GHP Legal, 26-30 Grosvenor Road, Wrexham, LL11 1BU
 - The Elms, Rhosddu Road, Wrexham, LL11 1EB
 - The Wallich, St Johns House, Chester Road, Wrexham, LL12 7AX
 - 2 Powell Road, Wrexham, LL12 7AE
 - 2 Chester Road, Wrexham LL12 7AD
 - 4 Chester Road, Wrexham, LL12 7AD
 - Wrexham Memorial Hall, Bodhyfryd, Wrexham, LL12 7AG
 - Chester Street Baptist Church, Chester Street, Wrexham, LL13 8BG
 - Williams Financial Planning Ltd, 30 Chester Street, Wrexham, LL13 8TJ
 - Francis Opticians, 29 Chester Street, Wrexham, LL13 8BG
 - 27 Chester Street, Wrexham, LL13 8BG
 - Humphrys & Co, 26 Chester Street, Wrexham, LL13 8BG



- **3.3** Responses were received from the following consultees:
 - Nigel Winnan, Connections Manager, Wales & West Utilities
 - Owain George, Planning Liaison Manager, Developer Services, Dwr Cymru



4.0 Pre-Application Comments Received

4.1 Statutory Enquiry for Pre-Application Advice

- 4.1.1 WCBC provided a letter with the following comments based on the pre-application enquiry and a subsequent meeting:
- 4.1.2 <u>Planning Principle</u>
- 4.1.3 The overall scheme is encouraging, and the principle of the proposal would be supported. The scheme represents a high-quality design which will make a positive contribution to the street scene, introducing a contemporary approach to the expansion of the site.
- 4.1.4 The final detailing of the building was not available for comment. However, the council are reasonably assured that the overall pallet of materials can be successfully negotiated at a later stage given the visuals that we have seen.
- 4.1.5 <u>Trees</u>
- 4.1.6 The only objection to the proposal is the planned amendments to the existing examination hall on the southern boundary and the potential impact the expansion of the hall will have upon the adjacent broadleaf trees subject to TPO DCC-12/1950. The TPO is considered justifiable and affords the appropriate statutory protection to a line of trees with exceptionally high amenity value.
- 4.1.7 The current proximity of the existing hall to these trees is such that there is already contact between the crowns of a number of the trees and the building itself; evidence of historical pruning and crown reduction is quite visible on a number of individual specimens.
- 4.1.8 The proposed expansion seeks to increase the size of the existing footprint for the hall placing the southern elevation of the building in even closer proximity to the trees. This will decrease amenity value whilst increasing the risk of nuisance and conflict issues and raising demands on management resources.
- 4.1.9 Trees of such high amenity value must be afforded appropriate space from development in order to maintain tree health and promote amenity. Placing the hall closer to these trees will diminish their amenity value and increase the need for repeated or cyclical tree surgery operations which may again further reduce tree health and amenity.
- 4.1.10 The above ground attributes of these trees is a significant constraint to this section of the overall proposed development. To provide consent for the expansion of the hall would be counter to the TPO system which seeks to preserve trees of amenity value.
- 4.1.11 Other Matters
- 4.1.12 Consideration should be given to the re-location of the milestone, currently embedded in the front boundary wall where it is proposed to form a new opening.
- 4.1.13 Ideally this would remain a feature within the new boundary wall and certainly within close proximity to its existing location



4.1.14 Separate negotiations with the council's highways department took place (alongside the pre-application advice process) where no specific objections or major concerns were raised.

4.2 Wales & West Utilities

- 4.2.1 Wales & West provided a map of the area of concern which indicates that there are pipes in the area.
- 4.2.2 Wales & West provided a comprehensive list of general conditions for our guidance.
- 4.2.3 The map provided indicates a number of pipes present on the Yale site however there is only one pipe currently present in the development area indicated. This pipe is currently serving the existing building which is due to be demolished as a part of the works.
- 4.2.4 The general conditions provided by WWU state that gas services must be disconnected prior to any demolition works taking place with arrangements to be made with WWU to check for the presence of any live gas services.

4.3 Dwr Cymru/Welsh Water

- 4.3.1 Welsh Water provided a letter with the following comments regarding the proposed development:
- 4.3.2 <u>Sewerage</u>
- 4.3.3 The foul flows only from the proposed development can be accommodated within the public sewerage system.
- 4.3.4 Surface Water
- 4.3.5 Disposal should be made through the hierarchical approach, preferring infiltration and, where infiltration is not possible, disposal to watercourses in liaison with the Land Drainage Authority and/or Natural Resources Wales.
- 4.3.6 Discharge of surface water to the public sewer is only to be made as a last resort. In addition, please note that no highway or land drainage run-off will be permitted to discharge directly or indirectly into the public sewerage system.
- 4.3.7 <u>Sewage Treatment</u>
- 4.3.8 No problems are envisaged with the water waste treatment works for the treatment of domestic discharges from this site.



5.0 Response to Comments Received

5.1 Statutory Enquiry for Pre-Application Advice

- 5.1.1 Proximity of Main Hall to Trees
- 5.1.2 The main hall size has been reduced and the southern elevation has been moved away from the area of concern along the southern boundary by 1.5metres.
- 5.1.3 The building line along this elevation provides a clear separation from the tree canopy which is indicated on the floor plans. The floor plans also indicate the building line from the previous proposal alongside the current proposed building line. It is envisaged that some general maintenance of these trees will be necessary as part of the proposed works.
- 5.1.4 The building will be constructed using Mobile Elevating Working Platforms (MEWP) rather than via scaffolding which will be less intrusive on the canopy above. Any ongoing maintenance to this area will also be conducted using MEWPs.
- 5.1.5 A follow-up meeting with WCBC was arranged to discuss this matter, which took place on 19 July 2018 with Phillip Forster, Planning Officer and Jon Brewin, Tree Officer present. During this meeting the alterations made to the proposals to alleviate the concerns regarding the buildings proximity to the neighbouring trees were discussed. It was acknowledged that measures had been undertaken to mitigate this issue without comprising the overall intention of the scheme.

5.2 Wales & West Utilities

5.2.1 <u>Gas Pipe present within development boundary</u>

- 5.2.2 The pipe currently located within the development boundary is serving the building's that are proposed to be demolished. It is therefore not considered to be an issue during the redevelopment of the site provided that this pipe is disconnected prior to the commencement of the works in accordance with WWU requirements. It is envisaged that the existing pipe will be terminated at the site boundary and a new connection will be installed from this point during the development works.
- 5.2.3 A new gas connection will be required to serve the proposed building and discussions with WWU and the developer will be required to understand the requirements/constraints for the installation of the new gas supply.

5.3 Dwr Cymru/Welsh Water

5.3.1 <u>Sewerage</u>

- 5.3.2 An initial assessment of the existing and proposed foul water discharge rates has been undertaken (appendix 8 of this report) and the difference is a nominal 2.54 litre per second. This will be accommodated in the existing sewerage system as agreed by Dwr Cymru in their response.
- 5.3.3 Surface Water
- 5.3.4 The surface water runoff will not alter significantly from the existing, largely impermeable hardstanding area. The existing discharge rates would not be



exceeded, and we would examine and confirm which areas are discharging into soakaways and areas which currently discharge into the public sewers.

- 5.3.5 A site investigation for the area will be undertaken to include soakaway permeability testing. When this is complete, the design will be prepared based upon the following principles:
 - 1) Not increasing the existing surface water flow rates from the site.
 - Provide new soakaways, if feasible to deal with the expected increase in surface runoff from the new development due to a slight increase in the impermeable areas.
 - 3) Should soakaways not be feasible due to permeability of the soils we would provide attenuation tanks with a restricted discharge into the existing system.
 - 4) All designs would be completed and then agreed with Dwr Cymru and Building Control.
 - 5) Full drainage layout drawings showing the required diversions and new pipework runs would then be prepared.



6.0 Summary

- **6.1** From the "Actions" included in Section 5 above the following points need to be addressed;
- 6.1.1 A management strategy is required to ensure that the trees along the Southern boundary are protected during the construction period. This will cover an initial crown reduction to enable the building to be safely constructed. Following the construction of the building, a maintenance strategy will be required by Coleg Cambria to cover the periodic pruning of the trees to maintain a distance between the building line and the tree canopy.
- 6.1.2 Following the completion of the site investigation, a suitable drainage strategy for surface water can be developed in accordance with comments made by Welsh Water as stated in section 5.3.5 of this report.
- **6.2** All other comments received are considered to have been adequately covered by the responses included in Section 5 which outline the advice and procedures that have already been undertaken to formulate the development proposals.



7.0 Appendix

Appendix 1	Statutory Enquiry for Pre-Application Advice Feedback Report
Appendix 2	Site Notice
Appendix 3	Location Plan indicating site notice locations and local recipients of notices
Appendix 4	Photographs showing display of site notices
Appendix 5	Notice issued to owners/occupiers of adjoining land/property
Appendix 6	Notice issued to Community/Specialist Consultees
Appendix 7	Responses received from Community/Specialist Consultees
Appendix 8	Statement regarding Drainage Strategy





Appendix 1Statutory Enquiry for Pre-Application Advice Feedback Report



TACP ARCHITECTS KATHERINE MELLOR

Your Ref/Eich Cyf Our Ref/Ein Cyf Date/Dyddiad Ask for/Gofynner am Direct Dial/Rhif Union E-mail/E-bost

ENQ/2018/0070 10 July 2018 Dave Sharp/Philip Forster 01978 298876 or 298786

Dear Madam,

RE-DEVELOPMENT OF PART OF YALE CAMPUS COLEG CAMBRIA YALE GROVE PARK ROAD WREXHAM

I refer to your pre-application enquiry and our subsequent meeting. Please accept my apologies for the delayed response. I comment on the scheme as follows.

Planning principle

The overall scheme is encouraging and the principle of the proposal would be supported. The scheme represents a high quality design which will make a positive contribution to the streetscene, introducing a contemporary approach to the expansion of the site.

The final detailing of the building was not available for comment. However, the Council are reasonably assured that the overall pallet of materials can be successfully negotiated at a later stage given the visuals that we have seen.

For the benefit of your planning application preparation the following planning policies will be relevant:

Wrexham Unitary Development Plan Policies: PS2 – Strategic Policies GDP1 – General Development Principles EC4 – Trees and Hedgerows EC13 – Surface Water Run-off T8 – Parking

Wrexham Local Planning Guidance Notes: 16 – Parking Standards 17 – Trees and Development

Welsh Government Planning Policy Wales (Edition 9)

Welsh Government Technical Advice Notes:

5 – Nature Conservation and Planning

12 – Design

18 – Transport

Validation Requirements

The Council are required to ensure that the following information is provided in order to validate a planning application. This should consist of the following:

- Application forms
- Location Plan at 1:1250
- Existing and proposed block plan at suitable scale
- Existing and proposed floor and elevation plans at a suitable scale
- Ecological survey
- Arboricultural Report
- Pre-Application Consultation Report
- Statutory planning fee

- Note: Although Planning Policy Wales requires the submission of a Transport Assessment for higher/further education development of over 2500m², in this instance the council does not consider this requirement is necessary.

Trees

The only objection to the proposal is the planned amendments to the existing Examination Hall on the southern boundary and the potential impact the expansion of the Hall will have upon the adjacent broadleaf trees subject to Tree Preservation Order (TPO) DCC -12 /1950. The TPO is considered justifiable and affords appropriate statutory protection to a line of trees with exceptionally high amenity value.

The current proximity of the existing Hall to these trees is such that there is already contact between the crowns of a number of the trees and the building itself; evidence of historical pruning and crown reduction is quite visible on a number individual specimens.

The proposed expansion seeks to increase the size of the existing footprint for the Hall placing the southern elevation of the building in even closer proximity to the trees. This will decrease amenity value whilst increasing the risk of nuisance and conflict issues and raising demands on management resources.

Trees of such high amenity value must be afforded appropriate space from development in order to maintain tree health and promote amenity. Placing the Hall closer to these trees will diminish their amenity value and increase the need for repeated or cyclical tree surgery operations which may again further reduce tree health and amenity.

The above ground attributes of these trees is a significant constraint to this section of the overall proposed development. To provide consent for the expansion of the Hall would be counter to the TPO system which seeks to preserve trees of amenity value.

At this stage the Council's I would object to the current proposal due to the negative impact of the Hall expansion upon tree health and amenity value. Improvements to the current Examination Hall should not be to the detriment of trees subject to TPO DCC - 12.

Other matters

On a minor note, consideration should be given to the re-location of the milestone, currently embedded in the front boundary wall where it is proposed to form a new opening. Ideally this would remain a feature within the new boundary wall and certainly within close proximity to its existing location.

I understand that you have been in separate negotiations with the Council's Highways department who raise no specific objections or major concerns. I am reassured that their recommendations will be reflected in the in the final formal planning application proposal.

In summary, I consider that the overall principle of this development is something that the Council would be willing to support. However, there remains some concern regarding the scale of the proposal in close proximity to existing trees which are afforded statutory protection. I would stress that this matter requires further negotiation prior to the submission of a formal planning application. I should you wish to discuss this matter or any of the issues raised above, please do not hesitate to contact either of the Officers named above.

Yours faithfully

/ 400 / Å

Head of Environment and Planning

QMS T18

Job Title: Yale Campus Redevelopment Job Number: 16082 Report Title: Pre-Application Consultation Report Date of First Issue: July 2018 ТАСР

Appendix 2 Site Notice

Town and Country Planning (Development Management Procedure) (Wales) Order 2012

PUBLICITY AND CONSULTATION BEFORE APPLYING FOR PLANNING PERMISSION NOTICE UNDER ARTICLES 2C AND 2D

(to be served on owners and/or occupiers of adjoining land and community consultees; and displayed by site notice on or near the location of the proposed development)

Purpose of this notice: this notice provides the opportunity to comment directly to the developer on a proposed development prior to the submission of a planning application to the local planning authority ("LPA"). Any subsequent planning application will be published by the relevant LPA; any comments provided in response to this notice will not prejudice your ability to make representations to the LPA on any related planning application. You should note that any comments submitted may be placed on the public file.

Proposed development at Coleg Cambria, Yale Campus, Grove Park Road, Wrexham, LL12 7AB

I give notice that: TACP Architects Ltd. on behalf of Coleg Cambria is intending to apply for planning permission for:

The demolition of the existing single and two storey buildings in the south-east corner of the Yale Campus site, and the construction of a new three-storey building replacing the existing catering, performing arts, sports and examination facilities. Additionally, providing general curriculum classrooms and ancillary facilities to support the development.

In respect of the 28-day consultation period all information is available to view or download at the following website: <u>https://www.cambria.ac.uk/yale-campus-redevelopment/</u>

A Hard copy will be available to view at:

Main Reception (between the hours of 9am – 5pm) Coleg Cambria Yale Campus **Grove Park Road** Wrexham LL12 7AB

Any comments are to be forwarded to TACP Architects Ltd at the following address:

TACP Architects Ltd.

Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email any comments to: admin@tacparchitects.co.uk (with the reference YCR)

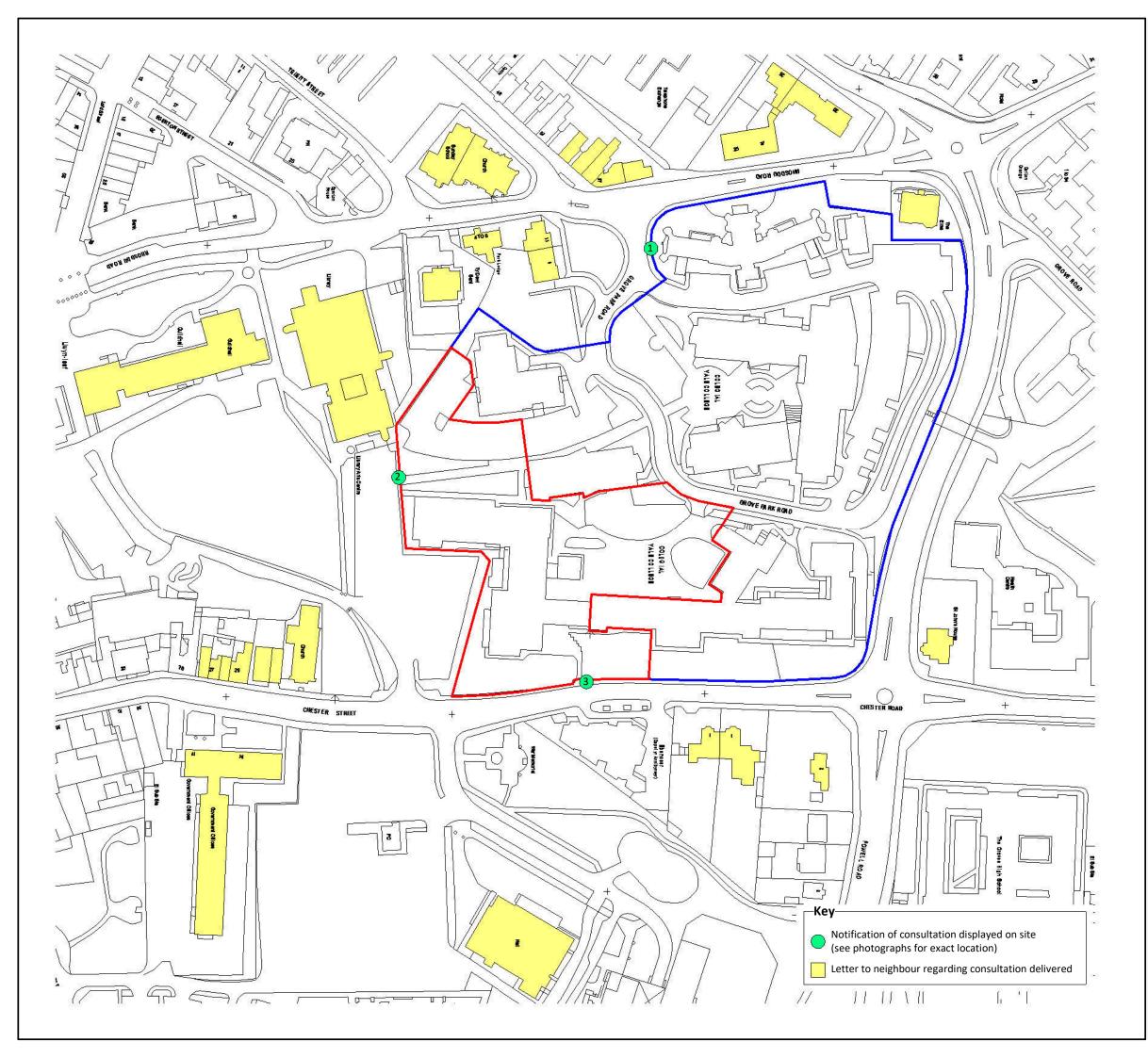
Any comments to be considered are to be received during the 28-day consultation period ending 9 July 2018.

11th JUNE 2018 Signed:

Date:



Appendix 3 Location Plan indicating site notice locations and local recipients of notices



General Notes 1. Contractor to verify all dimensions and check level datums on site 2. All of the designs are the sole property of TACP Architects Ltd and may not be used without their written agreement 3. All prints, specifications and their copyright are the property of TACP Architects Ltd 4. Do not scale off drawings 5. All dimensions shall be checked on site before commencment of shop drawings, manufacture and all discrepencies must be reported to TACP Architects Ltd				
Revision	s	1		
Rev	Date	Description	Ву	Check
P1	11-06-18	Issued for pre-planning application	JH	DM
P2	20-07-18	Issued for Pre-planning consultation report	ΙΗ	КМ
Consulta	ints	2		DLEG AMBRIA

Client

Wynne Construction for Coleg Cambria



Project Title

Yale Campus Redevelopment

Drawing Title

Pre-Planning Consultee's Location Plan				
Scale	Date	Drawn By	Checked	By Office
1 : 1500@A	.3 11-06-18	JH	DM	Wrexham
Job Number	Project•Originator•Zone•Le	evel•Type•Role•	Number	Revision
16082	YCR-TACP-PS-X	(X- DR- A-	702	P2
TACP Architects Ltd Pembroke House Ellice Way, Wrexham Technology Park, Wrexham, LL13 7YT 01978 291161				
admin@tacpar	chitects.co.uk			ΓΑϹΡ

admin@tacparchitects.co.uk www.tacparchitects.co.uk

Architecture • Interior Design • Healthcare Planning • Conservation • Masterplanning • Sustainable Design



Appendix 4 Photographs showing display of site notices

Location 1 – Entrance to Yale Campus from Grove Park Road



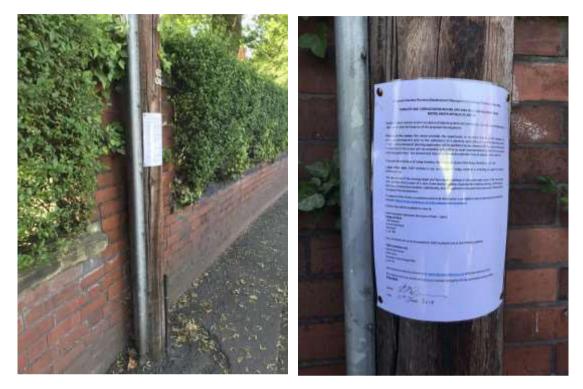
Location 2 – Entrance to Yale Campus from Library Car Park off Chester Road



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Location 3 - Entrance to Yale Campus from Chester Road





Appendix 5 Notice issued to owners/occupiers of adjoining land/property

11 June 2018

To Whom it may Concern

Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

In respect of the 28-day consultation period all information is available to view or download at the following website: <u>https://www.cambria.ac.uk/yale-campus-redevelopment/</u>

A Hard copy will be available to view at:

Main Reception (between the hours of 9am – 5pm) **Coleg Cambria** Yale Campus Grove Park Road Wrexham LL12 7AB

Any comments are to be forwarded to TACP Architects Ltd at the following address:

TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

11th JUNE ZOIK

For TACP Architects Ltd



Appendix 6 Notice issued to Community/Specialist Consultees

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11 June 2018

Developer Services Dwr Cymru Welsh Water PO Box 3146 Linea Fortran Road Cardiff CF30 0EH By Email: <u>developer.services@dwrcymru.com</u>

Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

In respect of the 28-day consultation period all information is available to view or download at the following website: <u>https://www.cambria.ac.uk/yale-campus-redevelopment/</u>

A Hard copy will be available to view at:

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Any comments are to be forwarded to TACP Architects Ltd at the following address:

TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

JUNE ZOIK

For TACP Architects Ltd

11 June 2018

Natural Resources Wales Maes y Ffynnon Penrhosgarnedd Bangor Gwynedd LL57 2DW By Email: <u>northplanning@cyfoethnaturiolcymru.gov.uk</u>

Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

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A Hard copy will be available to view at:

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Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

Any comments to be considered are to be received during the 28-day consultation period ending **9 July 2018.**

11th JUNE ZOIK

For TACP Architects Ltd

11 June 2018

SP Power Systems 1 Atlantic Quay Glasgow G2 8SP

Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

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TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

JUNE 2018

For TACP Architects Ltd

11 June 2018

Wales & West Utilities Limited Wales & West House Spooner Close Celtic Springs Newport NP10 8FZ By Email: <u>enquiries@wwutilities.co.uk</u>

Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

In respect of the 28-day consultation period all information is available to view or download at the following website: <u>https://www.cambria.ac.uk/yale-campus-redevelopment/</u>

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TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

Any comments to be considered are to be received during the 28-day consultation period ending **9 July 2018.**

11th JUNE ZOIK

For TACP Architects Ltd

11 June 2018

Rhosddu Community Council E N Hodges Esq 12 Miller Road Brymbo Heights Brymbo Wrexham LL11 5FH By Email: <u>rhosddu@gmail.com</u>

Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

In respect of the 28-day consultation period all information is available to view or download at the following website: <u>https://www.cambria.ac.uk/yale-campus-redevelopment/</u>

A Hard copy will be available to view at:

Main Reception (between the hours of 9am – 5pm) **Coleg Cambria** Yale Campus Grove Park Road Wrexham LL12 7AB

Any comments are to be forwarded to TACP Architects Ltd at the following address:

TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

JUNE ZOIK

For TACP Architects Ltd

11 June 2018

Coal Authority 200 Lichfield Lane Mansfield Nottinghamshire NG18 4RG By Email: planningconsultation@coal.gov.uk

Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

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Any comments are to be forwarded to TACP Architects Ltd at the following address:

TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

JUNE ZOIK

For TACP Architects Ltd

11 June 2018

Councillor Adrienne Jeorrett 26 Beechley Road Hightown Wrexham LL13 7BA By Email: Adrienne.Jeorrett@wrexham.gov.uk

Dear Madam

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

In respect of the 28-day consultation period all information is available to view or download at the following website: <u>https://www.cambria.ac.uk/yale-campus-redevelopment/</u>

A Hard copy will be available to view at:

Main Reception (between the hours of 9am – 5pm) **Coleg Cambria** Yale Campus Grove Park Road Wrexham LL12 7AB

Any comments are to be forwarded to TACP Architects Ltd at the following address:

TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

JUNE ZOIK

For TACP Architects Ltd

11 June 2018

Councillor Marc Jones 7 Stryt Gerallt Rhosddu Wrecsam LL11 1EU By Email: <u>Marc1.Jones@wrexham.gov.uk</u> Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

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A Hard copy will be available to view at:

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Any comments are to be forwarded to TACP Architects Ltd at the following address:

TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

JUNE ZOIK

For TACP Architects Ltd

11 June 2018

Councillor Paul Jones 8 Augusta Drive Fairways Wrexham LL13 9GL By Email: PaulD.Jones@wrexham.gov.uk

Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

In respect of the 28-day consultation period all information is available to view or download at the following website: <u>https://www.cambria.ac.uk/yale-campus-redevelopment/</u>

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Any comments are to be forwarded to TACP Architects Ltd at the following address:

TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park LL13 7YT

Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

JUNE ZOIK

For TACP Architects Ltd

JH/DM/16082

11 June 2018

Developer Services Dee Valley Water plc Packsaddle Wrexham Road Rhostyllen Wrexham LL14 4EH By Email: <u>developer.services@deevalleygroup.com</u>

Dear Sirs

Yale Campus Redevelopment at Coleg Cambria, Yale, Grove Park Road, Wrexham, LL12 7AB

In accordance with Article 2 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016 please find enclosed Notice under Article 2D in respect of the proposed redevelopment of the Coleg Cambria Yale campus site.

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Alternatively email to: admin@tacparchitects.co.uk (with the reference YCR)

Any comments to be considered are to be received during the 28-day consultation period ending **9 July 2018.**

JUNE ZOIK

For TACP Architects Ltd

Job Title: Yale Campus Redevelopment Job Number: 16082 Report Title: Pre-Application Consultation Report Date of First Issue: July 2018



Appendix 7 Responses received from Community/Specialist Consultees



Developer Services PO Box 3146 Cardiff CF30 0EH

Tel: +44 (0)800 917 2652 Fax: +44 (0)2920 740472 E.mail: developer.services@dwrcymru.com Gwasanaethau Datblygu Blwch Post 3146 Caerdydd CF30 0EH

Ffôn: +44 (0)800 917 2652 Ffacs: +44 (0)2920 740472 E.bost: developer.services@dwrcymru.com

TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park Wrexham LL13 7YT

Date: 13/06/2018 Our Ref: PPA0003163

Dear Sirs

Grid Ref: 333548 350645 Site Address: Coleg Cambria, Yale, Grove Park Road, Wrexham Development: 2D Application - Redevelopment at Coleg Cambria

I refer to the Schedule 1C - Article 2D notice received and your formal request for a pre-application consultation response before applying for planning permission from Dwr Cymru Welsh Water as a 'Specialist Consultee' as defined by Paragraph (y) of Schedule 4 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016. It is acknowledged that the consultation request relates to a major development site and thus seeks a substantive response within 28 days from the date of the notice, 11th June 2018, as per the requirements of Article 2E. This request includes our views on the capacity of our network of assets and infrastructure to accommodate your proposed development.

Having reviewed the details submitted I would offer the following standing advice which should be taken into account within any future planning application for the development:

SEWERAGE

The foul flows only from the proposed development can be accommodated within the public sewerage system.

SURFACE WATER

With reference to the surface water flows from the proposed development, you are required to fully exhaust all technical options outlined under Sections 3.2 and 3.4 of Part H of the publication 'Building Regulations 2000; Disposal should be made through the hierarchical approach, preferring infiltration and, where infiltration is not possible, disposal to watercourses in liaison with the Land Drainage Authority and/or Natural Resources Wales.



We welcome correspondence in Welsh and English

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

Discharge of surface water to the public sewer is only to be made as a last resort. Please refer to further detailed advice relating to surface water management included in our attached Advice & Guidance note.

In addition, please note that no highway or land drainage run-off will be permitted to discharge directly or indirectly into the public sewerage system.

SEWAGE TREATMENT

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

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,

Owain George Planning Liaison Manager Developer Services

<u>Please Note</u> 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.



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

FAO:



www.wwutilities.co.uk

Newport NP10 8FZ

Date	:
Network Contact	:
Telephone	:
Fax	:

Dear

Re: Planning Application

Wales & West Utilities have been made aware of a planning application on , advising us of the proposals at:

We enclose an extract from our mains records of the area covered by your proposals together with a comprehensive list of General Conditions for your guidance. This plan shows only those pipes owned by Wales & West Utilities in its role as a Licensed Gas Transporter (GT).Gas pipes owned by other GT's and also privately owned pipes may be present in this area. Information with regard to such pipes should be obtained from the owners. The information shown on this plan is given without obligation, or warranty and the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Wales & West Utilities, its agents or servants for any error or omission.

Wales & West Utilities has pipes in the area. Our apparatus may be affected and at risk during construction works. Should the planning application be approved then we require the promoter of these works to contact us directly to discuss our requirements in detail before any works commence on site. Should diversion works be required these will be fully chargeable.

You must not build over any of our plant or enclose our apparatus.

Please note that the plans are only valid for 28 days from the date of issue and updated plans must be requested before any work commences on site if this period has expired.

If you have any queries please contact on who will be happy to assist you.

24 hour gas escape number Rhif 24 awr os bydd nwy yn gollwng

0800 111 999*

*calls will be recorded and may be monitored caiff galwadau eu recordio a gellir eu monitro



BSL200

Yours sincerely



Wales & West Utilities

24 hour gas escape number Rhif 24 awr os bydd nwy yn gollwng

0800 111 999*

*calls will be recorded and may be monitored caiff galwadau eu recordio a gellir eu monitro



BSL200



GENERAL CONDITIONS TO BE OBSERVED FOR THE PROTECTION OF APPARATUS AND THE PREVENTION OF DISRUPTION TO GAS SUPPLIES.

General conditions affecting the design, construction or maintenance of services and/or structures or other works in the vicinity of Wales & West Utilities (WWU) plant, pipelines and associated installations:

These general conditions apply only to the gas apparatus and pipes operated by WWU. It is possible that there may be other gas transporters with apparatus in the vicinity; therefore you should ensure that you have made enquiries of them and have complied with their requirements.

1. GRAPHIC REPRESENTATION OF GAS MAINS

Any plans supplied or marked up by WWU will indicate the **APPROXIMATE** location of its apparatus. This information is provided as a general guide only; its accuracy cannot be guaranteed and is given without obligation or warranty. Service pipes are not shown but their presence should be anticipated. No liability whatsoever is accepted by WWU, its agents or servants for any error, omission, discrepancy or deviation. Plans on site should be current, i.e. no older than 28 days from the date of issue. Gas pipes owned by other Gas Transporters, or otherwise privately owned, may be present in this area (pink areas indicated on our plans). Information with regard to such pipes should be obtained from the relevant owners.

Should you require assistance on site locating WWU apparatus, please contact our Plant Protection Team on 02920 278912.

2. METHODS OF WORKING

The following methods of work shall not normally be permitted within the limits of distance indicated (relative to the established pipe position). Any variances must have consent from WWU before works commence on site:

Mechanical Excavation	3m (1m for low pressure mains)	Hydraulic Testing	8 m
Piling / Pile removing / Boring	15m	Welding or other hot works*	15m
Directional Drill Operations	15m	Explosives	250m

* NOTE: Welding or other hot works involving naked flames shall be carried out at a safe distance to the satisfaction of a WWU Engineer. A check should be made prior to the commencement of works, to ensure a gas free atmosphere exists. It is also necessary to monitor the atmosphere at regular intervals for the duration of the works. In no case shall such activities take place in any Wales & West Utilities Easement without the written consent and in the presence of a WWU representative.

WWU must be consulted prior to carrying out any excavation work within **10m** of any above or below ground gas installations or pipeline. No excavation works may commence within **50m** of a High Pressure or Very High Pressure Pipeline unless the pipeline has been located by tracing and its precise route identified.

In addition to the above methods of working, WWU must be contacted prior to any External Wall Installation (EWI) schemes, proposed solar farms and wind turbine installations.

No work shall be undertaken near, nor heavy plant or equipment moved over, any gas pipeline or apparatus until all of the conditions specified by WWU have been complied with.

Where WWU have apparatus in the vicinity of your work, any damage to it could have serious consequences. In view of this and in the interests of safety, a meeting should be arranged before the commencement of work on site between WWU representatives, representatives of the promoting authority, the contractors and any other interested parties. At this meeting the suggested program of site works and plant safety should be discussed. It is essential that this meeting is convened well in advance of commencement on site. Access to WWU plant and facilities for inspection by WWU staff must not be affected. Where formal consent has been given, **A MINIMUM OF SEVEN DAYS NOTICE IS REQUIRED** before carrying out work in WWU easements, or the appropriate notice under the New Roads & Street Works Act (NRSWA) where existing plant is situated within the public highway.

Further guidance can also be sought from the document HS(G)47 - Avoiding Danger from Underground Services from the HSE website.

3. PROXIMITY OF OTHER PLANT

A minimum clearance of **600 millimetres (mm)** should be allowed between all plant being installed and an existing gas main operating above 2 bar medium pressure (MP), whether the adjacent plant is parallel to or crossing the gas pipe. For mains operating at MP or below, this distance can be reduced to 300mm. NO APPARATUS SHOULD BE LAID OVER AND ALONG THE LINE OF A GAS PIPE, IRRESPECTIVE OF CLEARANCE.

No manhole or chamber shall be built over or around a gas pipe and no work should be carried out which results in a reduction of cover or protection over a pipe without consultation with and the agreement of WWU staff.

24 hour gas escape number Rhif 24 awr os bydd nwy yn gollwng

0800 111 999*

*calls will be recorded and may be monitored caiff galwadau eu recordio a gellir eu monitro



BSL200



4. PROTECTION

Where any works cross or run in close proximity to WWU apparatus, periodic visits must be made by a WWU engineer. His requests for protection or support to the apparatus shall be immediately observed.

Suitably designed crossing points are to be constructed to the satisfaction of a WWU Engineer. These crossing points shall be clearly indicated by the erection of bunting and crossings at other places should be prevented.

Backfill material adjacent to WWU apparatus shall be soft fill or sand, containing no stones, bricks, or lumps of concrete etc., placed to a minimum 150mm around the mains and is to be well compacted by hand. No power consolidation shall take place above the main until 300mm of soft fill has been compacted by hand.

5. DAMAGE TO COATINGS

Where a gas pipe is coated with special wrapping and this is damaged, even to a minor extent, WWU must be notified so that repairs can be made to prevent future corrosion and subsequent leakage. WHERE MINOR DAMAGE TO COATING IS REPORTED TO WWU PRIOR TO BACKFILL, THE NECESSARY REPAIR WILL BE MADE FREE OF CHARGE.

6. CATHODIC PROTECTION

Where WWU apparatus is cathodically protected either by sacrificial anode or impressed current systems and where new apparatus is to be laid and is to be similarly protected, WWU will require to carry out interaction tests to determine whether its own system is adversely affected. The cost of any mutually agreed remedial action will be recharged to the authority installing the new apparatus. If any bond wires, test leads etc., used in connection with cathodic protection systems are damaged or found to be in poor condition, broken or disconnected, WWU must be notified prior to backfilling so that a repair can be made.

7. HOT WORKS

Even when a gas free atmosphere exists care must be taken when carrying out hot works in close proximity to gas plant in order to ensure that no damage occurs. Particular care must be taken to avoid damage by heat or naked flames to plastic gas pipes or to the protective coatings on other pipes.

8. DEMOLITION

Live gas services must be disconnected **PRIOR** to demolishing any property, arrangements must be made for WWU to check for the presence of any live gas services.

9. TREE PLANTING

WWU must be contacted prior to all tree-planting works above or near our apparatus. Further information can then be made available.

10. DEEP EXCAVATIONS

Any work involving deep excavations (1.5m or more) will be subject to the "Model Consultative Procedure for Pipeline Construction involving Deep Excavations". This may require the diversion of WWU apparatus prior to the commencement of your works. Detailed plans and cross sections will be required in order to determine the effect of these works on WWU apparatus.

11. RENEWABLE ENERGY INSTALLATIONS

Wind Turbines - WWU must be advised of any planned development of wind turbines in the vicinity of an above 2 bar gas pipelines to ensure the development does not impact on the future safe operation of the pipeline. Industry guidance states that any wind turbine must be sited no closer than 1.5 times the proposed height of the turbine mast away from the nearest edge of the pipeline.

Solar Farms - WWU must be contacted regarding planned solar farms being considered in the vicinity of WWU gas pipelines.

EWI - WWU must be contacted regarding any EWI scheme to ensure the scheme does not impact upon WWU's apparatus.

12. LEAKAGE FROM GAS MAINS OR SERVICES

If damage or leakage is caused or an escape of gas is smelt or suspected the following action should be taken at once:

- Remove all personnel from the immediate vicinity of the escape.
- Inform the 24hr Gas Emergency Service on 0800 111 999
- Prevent any approach by the public, prohibit smoking, and extinguish all naked flames or other sources of ignition for at
- least 15 metres from the leakage. Do not operate any electrical switches in the vicinity of the escape.
- Assist gas personnel, Police and/or Fire Services as requested.

IN THE EVENT OF A LEAK, OBSERVE THE ABOVE BUT DO NOT ATTEMPT TO SEAL THE LEAK REMEMBER - IF IN DOUBT; SEEK ADVICE FROM WWU

24 hour gas escape number Rhif 24 awr os bydd nwy yn gollwng

0800 111 999*

*calls will be recorded and may be monitored caiff galwadau eu recordio a gellir eu monitro



Wales & West Utilities Limited Registered Office: Wales & West House, Spooner Close, Coedkernew, Newport NP10 8FZ Registered in England and Wales: No. 5046791

BSL200



13. BUILDING PROXIMITIES

There are minimum proximity distances for buildings from WWU mains depending on both the operating pressure and the material of the main. Advice should be sought from WWU prior to building works taking place to confirm these distances. For High Pressure pipelines you must seek further guidance from the HSE and Local Authority Planning team regarding their PADHI distances regarding building proximities as these may be in addition to WWU proximity distances for a pipeline.

Temporary buildings should not be placed above any gas pipe or within 3.0 metres of mains operating above 75mbar (medium, intermediate and high pressure mains) during construction activities and in no circumstances should permanent structures be built over any pipe transporting gas.

14. SITE RESPONSIBILITIES

All costs incurred by WWU for the repair of direct or consequential damage to gas plant will be rechargeable (with the exception of paragraph 5). WWU reserves the right to divert any affected apparatus or alternatively specify suitable protection of its apparatus. If proved necessary during the course of site works, the cost of which will be chargeable.

The above requirements do not relieve you of the responsibility of taking all precautions necessary to safeguard the Company's plant and to avoid risk to persons and property. The persons for whom the works are being undertaken, their servants, agents and contractors shall indemnify WWU servants, agents and contractors against any loss, damage, expenses, claims and actions incurred or brought against Wales & West Utilities, its servants, agents and contractors in consequence of the provision of these works and activities associated therewith or ancillary thereto.

KEY TO MAPS

LP	Low Pressure
MP	Medium Pressure
IP	Intermediate Pressure
HP	High Pressure

Cast Iron Spun Iron Ductile Iron Polyethylene Steel

CI

SI

DI

PE ST

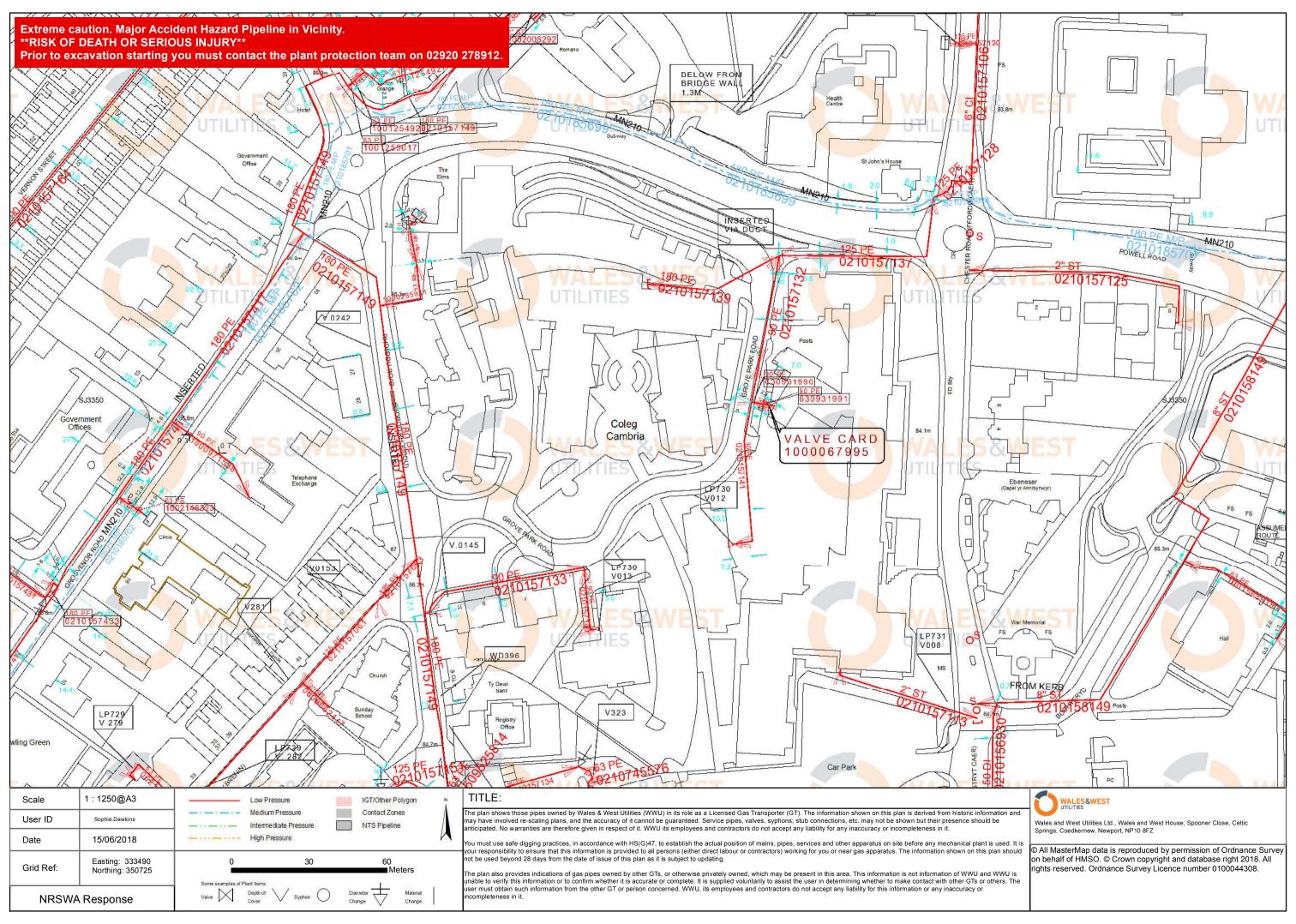
24 hour gas escape number Rhif 24 awr os bydd nwy yn gollwng

0800 111 999*

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BSI 200





Job Title: Yale Campus Redevelopment Job Number: 16082 Report Title: Pre-Application Consultation Report Date of First Issue: July 2018



Appendix 8 Statement regarding Drainage Strategy



LTR/DKC0051/4/JDH

Ms Katherine Mellor Architect TACP Architects Limited Pembroke House Ellice Way Wrexham Wrexham Technology Park LL13 7YT

11 July 2018

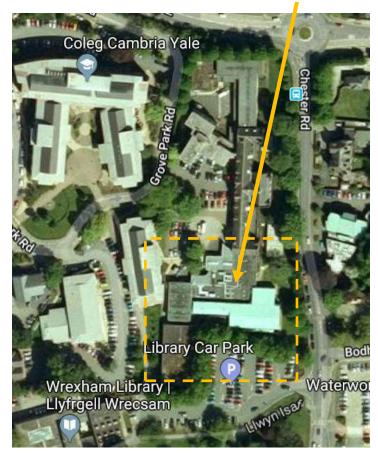
Dear Katherine,

Re: Drainage strategy for the proposed redevelopment of Yale Campus, Wrexham.

We write regarding the proposed alterations at Yale Campus, Wrexham that will replace the existing mixed-use buildings bounding Chester Road with a new multi-use university complex, full details are shown in your drawings package.

1.0 Existing school and site area.

The proposed site area is currently occupied by the existing buildings, all of which are fully functional, serviced and utilised by the university. The new complex will occupy the same site area. Existing and proposed site area/location.



Haltec (Chester) Limited

Mollington Grange, Parkgate Road, Chester, CH1 6NP Tel: 01244 853883 Fax: 01244 853892 Email: design@haltec-chester.co.uk

Registered Office: 30 Birkenhead Road, Hoylake, Wirral, CH47 3BW Registered in England and Wales No. 3600963

The existing drainage system in the area consists fully functioning surface water system for the external hardstanding areas and roofs to the buildings. The drainage survey of the existing system shows the surface water discharges into a mixture of soakaways and the public sewerage system. The site area is substantially impermeable with only limited soft landscaping consisting of a grassed area bounding Chester Road.

The foul down pipes all discharging into public sewerage system.

The drainage survey requires further works to provide a complete existing, drainage drawing of the area that would then be diverted and adapted to suit the new building footprint. Full designs and drawings are currently being prepared and will agreed with Welsh Water and Building Control.

2.0 Proposed replacement foul drainage.

We have completed an initial assessment of the existing and proposed foul water discharge rates and the difference is a nominal 2.54 litres per second, see the attached calculation sheets.

TACP have contacted Welsh Water who have confirmed the additional flows from the project can be accommodated in the existing sewerage system in their letter dated, 13.06.2018 and a copy of their letter is enclosed at the rear of this letter.

3.0 Proposed replacement surface water system.

The surface water runoff will not alter significantly from the existing, largely impermeable hardstanding area. The existing discharge rates would not be exceeded, and we would examine and confirm which areas are discharging into soakaways and areas which currently discharge into the public sewers.

We have performed a preliminary assessment of the surface flows and have enclosed the calculations in the following section.

The site investigation for the area has been instructed which includes soakaway permeability testing. When this is complete we will then prepare a design based upon the following principles:

- I. Not increasing the existing surface water flow rates from the site.
- II. Provide new soakaways, if feasible to deal with the expect increase in surface runoff from the new development due to a slight increase in the impermeable areas.
- III. Should soakaways not be feasible due to permeability of the soils we would provide attenuation tanks with a restricted discharge into the existing system.
- IV. All designs would be completed and then agreed with Welsh Water and Building Control.
- V. Full layout drawings showing the required diversions and new pipework runs would then be prepared.

We trust this clarifies the proposed design for the drainage to the site.

Yours sincerely

John Halliwell For and on behalf of Haltec (Chester) Limited.



Developer Services PO Box 3146 Cardiff CF30 0EH

Tel: +44 (0)800 917 2652 Fax: +44 (0)2920 740472 E.mail: developer.services@dwrcymru.com Gwasanaethau Datblygu Blwch Post 3146 Caerdydd CF30 0EH

Ffôn: +44 (0)800 917 2652 Ffacs: +44 (0)2920 740472 E.bost: developer.services@dwrcymru.com

TACP Architects Ltd Pembroke House Ellice Way Wrexham Technology Park Wrexham LL13 7YT

Date: 13/06/2018 Our Ref: PPA0003163

Dear Sirs

Grid Ref: 333548 350645 Site Address: Coleg Cambria, Yale, Grove Park Road, Wrexham Development: 2D Application - Redevelopment at Coleg Cambria

I refer to the Schedule 1C - Article 2D notice received and your formal request for a pre-application consultation response before applying for planning permission from Dwr Cymru Welsh Water as a 'Specialist Consultee' as defined by Paragraph (y) of Schedule 4 of the Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016. It is acknowledged that the consultation request relates to a major development site and thus seeks a substantive response within 28 days from the date of the notice, 11th June 2018, as per the requirements of Article 2E. This request includes our views on the capacity of our network of assets and infrastructure to accommodate your proposed development.

Having reviewed the details submitted I would offer the following standing advice which should be taken into account within any future planning application for the development:

SEWERAGE

The foul flows only from the proposed development can be accommodated within the public sewerage system.

SURFACE WATER

With reference to the surface water flows from the proposed development, you are required to fully exhaust all technical options outlined under Sections 3.2 and 3.4 of Part H of the publication 'Building Regulations 2000; Disposal should be made through the hierarchical approach, preferring infiltration and, where infiltration is not possible, disposal to watercourses in liaison with the Land Drainage Authority and/or Natural Resources Wales.



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

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In addition, please note that no highway or land drainage run-off will be permitted to discharge directly or indirectly into the public sewerage system.

SEWAGE TREATMENT

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

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,

Owain George Planning Liaison Manager Developer Services

<u>Please Note</u> 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.



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

HALTEC	Project	Yale Camp	us Redevelo	pment, Wrexham	Job Ref.	DKC0051
Haltec	Part of structu	Ire			Sheet No./Re	9V
Mollington Grange Parkgate Road Chester			face Water Dra	ainage		Cover
Tel: 01244 853883	Calc. By	Date	Checked by	Date	Approved	Date
	DRB	July '18 Calculations	JDH	July '18	JDH Output	July '18
		Structural (Campus I				
		Wre	xham			
	- -		ТЕ	С		
		Ha Mollingto Parkos	I tec on Grange ate Road ester			
		Chi	ester			
	Pro	oject Numl	per : DKC	0051		
	Foul a	nd Surfac	e Water D	Prainage		
		Ju	I-18			

ЧА	TEC	Project	Yale Camp	us Redevelo	opment, Wre	xham	Job Ref.	DKC0051
Molling	altec ton Grange ate Road	Part of structur					Sheet No./Rev	
Ch	nester 244 853883	Calc. By	Foul Water D Date	Checked by	Date		Approved	Date
Ref.		DRB	July '18 Calculations	JDH	July '18		JDH Output	July '18
			Galodiations				Output	
<u>Drainge Sumn</u>	<u>nary</u>							
<u>Foul</u>	Nominal increase in f	foul flow, 2.54I	/s, but an over	al reduction is	made as the s	system is combi	ined	
<u>Surface (Soakaway</u>) Existing site soakawa system is actually con New Soakaway size v are provided - two siz Soakaway designed t	mbined - evide will vary deper zes are shown	ence of this is s ndant on wheth , depths vary to	shown on the s ler the existing o suit good or a	site survey drav ground is suit average infiltra	wing (gullys/RW able and what i	VPs go in to Fo	oul Runs)
<u>Surface (Storage)</u>	Required if infiltration Storage designed for					vays.		
	SUVAT SUVAT Colleg V Devi Ubray		Health St John's House Prosts accalenway or attenuation College Car Park			are suitable	on whether the for infiltration	n

HALTEC	Project	Yale Camp	us Redevelo	opment, Wrex	ham	Job Ref.	DKC005
Haltec	Part of structu	re				Sheet No./Re	v.
Mollington Grange Parkgate Road Chester		Foul Water D	rainage				Cover
Tel: 01244 853883	Calc. By	Date	Checked by	Date		Approved	Date
	DRB	July '18	JDH	July '18		JDH	July '18
		Calculations				Output	
		tructural (Campus I _{Wre}					
	-	HA Mollingto Parkga Chu	ltec on Grange tte Road ester	С			
	Pro	ject Numl	per : DKC	0051			
		Foul Wate					
				Je			
		Ju	l-18				

		Project				Job Ref.		
НА	LTEC		Yale Camp	us Redevelo	pment, Wrexham		DKC005	
H Molling	faltec gton Grange gate Road	Part of structur	e			Sheet No./Re	ev.	
Park	gate Road Chester		Foul Water D	Drainage		1		
		Calc. By	Date	Checked by	Date	Approved	Date	
		DRB	July '18	JDH	July '18	JDH	July '18	
Ref.			Calculations			Output		
Foul Water Di	rainage	Existing						
Data and Parame	eters_							
School	:	1						
Floors	:	2						
Students	:	150						
Staff	:	20						
Frequency (k)	:	0.7						
	·	0.7						
<u>College</u>								
	Appliance	Amount	DU	sum DU]			
	Toilet	20	2.0	40.0				
	Washbasin	10	0.3	3.0				
	Sinks	5	0.8	4.0				
	Dishwasher	2	0.5	1.0				
	Washing Machine	2	1.0	2.0				
			Total	50.0				
Flowrate	=	4.95	l/s					

ЧНА	TEC	Project	Yale Camp	us Redevelo	opment, Wrexham	Job Ref. DKC0051
Molling Park	Haltec gton Grange gate Road ^{Chester}	Part of structur	e Foul Water D	rainage		Sheet No./Rev. 2
		Calc. By	Date	Checked by	Date	Approved Date
Ref.		DRB	July '18 Calculations	JDH	July '18	JDH July '18 Output
nei.			Calculations			Output
Foul Water Di	<u>rainage</u>	Proposed				
Data and Parame	<u>eters</u>					
School	:	1				
Floors	:	3				
Students	:	300				
Staff	:	36				
Frequency (k)	:	0.7				
College						
	Appliance	Amount	DU	sum DU]	
	Toilet	50	2.0	100.0		
	Washbasin	25	0.3	7.5		
	Sinks	5	0.8	4.0		
	Dishwasher	2	0.5	1.0		
	Washing Machine		1.0	2.0		
	i domig nao mo	_				
			Total	114.5		
Flowrate	=	7.49	:	114.5]	
		7.49 =	:			
Difference of	<u>Flow</u>	=) I/s 2.54	i I/s		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		<u>the overall flow of the site</u> flow decrease of 21.63I/s
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
<i>Difference of</i> Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
<i>Difference of</i> Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
<i>Difference of</i> Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
<i>Difference of</i> Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
<i>Difference of</i> Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		
Difference of Note : refer to th	<u>Flow</u> he surface water calc	= sulations as) I/s 2.54 although the	<mark>I∕s</mark> e foul water		

	ALTEC	Project	Yale Camp	us Redevelo	pment, Wrexh	am	Job Ref.	DKC0051
Ν	Haltec Mollington Grange	Part of struct	ure				Sheet No./Re	V.
	Mollington Grange Parkgate Road Chester		Surface Wate	er Drainage				Cover
	Tel: 01244 853883	Calc. By	Date	Checked by	Date		Approved	Date
		DRB	July '18	JDH	July '18		JDH	July '18
			Calculations				Output	
			Structural (Campus I _{Wre}					
		•		TF	C			
			Ha Mollingto Parkga Che	Itec on Grange te Road ester				
			oject Numb					
		Surface	Water Dra	inage - S	oakaways			
			.lul	I-18				
			Ju	l-18				
			Ju	I-18				
			Jul	l-18				
			Jul	I-18				
			Ju	I-18				
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			Ju	I-18				

	LA	TEC		Projec	t	Yale Ca	mpus	Redevelo	opment, Wre	xham	Job Ref.	DKC00	
	Ha	ltec		Dort o	fstructure	_					Sheet No./R		
	Parkga	on Grange ate Road		Parto	r structure		Notor D	rainaga			Sheet No./Rev.		
	Ch	ester 44 853883				Surface V							
	161.012	44 055005		Calc. I	-	Date		ecked by	Date		Approved	Date	
ef.					DRB	July '1 Calculation		JDH	July '18		JDH Output	July '	
						Calculation	15				Output		
Surface	Water	Draina	<u>ige</u>	Exist	ing								
ata and F	Paramet	ers											
ollege			:		1								
loors			:		2								
ollege		_											
		App	oliance					m2]				
		Βι	uilding					2625.0					
						Total		2625.0					
nfiltration	Rate		=		0.0001	m/s	to	be confi	rmed (groui	nd investig	gation results	required)	
							annrovi	motoly OC	25m2 · Total	450m0			
soakawa	vs show	n on drai	inade su	rvev - ea	ich can	SUDDORT 2				430002			
soakawa		n on drai	inage su	rvey - ea	ich can	support a	αρρισχί	malely 22		4501112			
SOAKAWAY	DESIGN		inage sul ^{Goakaway desi}	-	ich can	support a		matery 22	.omz . rotar	4301112			
<u>SOAKAWAY</u> In accordan	DESIGN		-	-	ich can	support a		matery 22		4301112			
<u>SOAKAWAY</u> In accordan Design rain Location of c	<u>CDESIGN</u> noe with BRE afall intensity catchment are:	Digest 365 - S a	Soakaway desi Oti	ign	ich can	support a	αρριολί	matery 22		450112			
SOAKAWAY In accordan Design rain Location of c Impermeable Return perior	<u>/ DESIGN</u> noce with BRE fall intensity catchment are e area drained d	Digest 365 - S a I to the system	Soakaway desi Oti 1 A = Per	ign her = 225.0 m² riod = 100 yr	ich can	support a	αρριολί	matery 22		450112			
SOAKAWAY In accordan Design rain Location of c Impermeable Return perio Ratio 60 min 5-year return	<u>/ DESIGN</u> nee with BRE afall intensity catchment are: e area drained d to 2 day rainfa	Digest 365 - 5 a I to the system fall of 5 yr retur II of 60 minute:	Soakaway desi Oti n A = Per m period r = s duration M5	ign = 22 5.0 m² riod = 100 yr 0.300 _60min = 20 .0		support a	αρρισκί	matery 22		4301112			
SOAKAWAY In accordan Design rain Location of c Impermeable Return perio Ratio 60 min 5-year return	<u>/ DESIGN</u> nee with BRE afall intensity catchment are: e area drained d to 2 day rainfa	Digest 365 - 5 a I to the system all of 5 yr retur all of 60 minutes y due to globa M5	Soakaway desi Oti A A = Per m period r =	ign = 225.0 m ² riod = 100 yr 0.300 _80 min = 20.0 rate = 30 %		Support a	Storage	-		4301112			
SOAKAWAY In accordan Design rain Location of c Impermeable Return perior Ratio 60 min 5-year return Increase of r Duration, D (min)	<u>/ DESIGN</u> noe with BRE fall intensity catchment are: e area drained d to 2 day rainf a period rain fall rain fall intensit Growth factor Z1	Digest 365 - 5 a I to the system fall of 5 yr retur II of 60 min uter y due to globa M5 rainfalls (mm)	Soakaway desi Otto Per m period r = s duration M5 I warming p _{ere} Growth factor Z2	ign = 225.0 m ² riod = 100 yr 0.300 _60min = 20.0 _80min = 20.0 rate = 30 %) mm Inflow (m³)	Outflow (m²)	Storage required [m ³]	-		4301112			
SOAKAWAY In accordan Design rain Location of o Impermeable Return perior Ratio 60 min 5-year return Increase of r Duration, D (min) 5	<u>Y DESIGN</u> noe with BRE fall intensity catchment are: e area drained d to 2 day rainf a period rain fall rainfall intensit Growth factor Z1 0.34	Digest 365 - 5 a I to the system all of 5 yr retur all of 6 yr retur all of 6 yr retur de to globa M5 rainfalls (mm) 8.8	Soakaway desi Otto MAA Per m period r = s duration M5 I warming per Growth factor Z2	ign = 225.0 m ² riod = 100 yr 0.300 _60min = 20.0 mate = 30 % 100 year rainfall, M100 (mm) 16.6	Inflow (m ³) 3.74	Outflow (m ³) 0.24	Storage required (m ³) 3.50	-		4301112			
SOAKAWAY In accordan Design rain Location of c Impermeable Return perior Ratio 60 min 5-year return Increase of r Duration, D (min)	<u>/ DESIGN</u> noe with BRE fall intensity catchment are: e area drained d to 2 day rainf a period rain fall rain fall intensit Growth factor Z1	Digest 365 - 5 a I to the system fall of 5 yr retur II of 60 min uter y due to globa M5 rainfalls (mm)	Soakaway desi Otto Per m period r = s duration M5 I warming p _{ere} Growth factor Z2	ign = 225.0 m ² riod = 100 yr 0.300 _60min = 20.0 _80min = 20.0 rate = 30 %) mm Inflow (m³)	Outflow (m²)	Storage required [m ³]	-		4301112			
SOAKAWAY In accordan Design rain Location of o Impermeable Return perior Ratio 80 min 5-year return Increase of r Duration, D (min) 5 10 15 30	<u>/ DESIGN</u> the with BRE fall intensity catchment are: e area drained d to 2 day rainfa period rain fa rainfall intensit Growth factor Z1 0.34 0.49 0.59 0.77	Digest 365 - 5 a I to the system all of 5 yr retur all of 60 minutes y due to globa M5 rainfalls (mm) 8.8 12.7 15.3 20.0	Soakaway desi A a Per m period r = s duration M5 I warming per Growth factor Z2 1.88 1.95 1.99 2.03	ign = 22 5.0 m ² riod = 100 yr 0.300 _00min = 20.0 rain = 30 % 100 year rainfall, M 100 (mm) 18.6 24.9 30.6 40.6	Inflow (m ³) 3.74 5.60 6.88 9.14	Outflow (m ³) 0.24 0.48 0.72 1.44	Storage required (m ³) 3.50 5.12 6.16 7.70	-		4301112			
SOAKAWAY In accordan Design rain Location of o Impermeable Return perior Ratio 60 min 5-year return Increase of r Duration, D (min) 5 10 15	<u>/ DESIGN</u> the with BRE fall intensity catchment are: e area drained d to 2 day rainfa period rain fall intensit Growth factor Z1 0.34 0.49 0.59	Digest 365 - 5 a I to the system all of 5 yr retur all of 60 minutes y due to globa MS rainfalls (mm) 8.8 12.7 15.3	Soakaway desi Otto M A = Per m period r = s duration M5 I warming per Growth factor Z2 1.88 1.95 1.99	ign = 225.0 m ² riod = 100 yr 0.300 _80min = 20.0 rain = 30 % 100 year rainfall, M100 (mm) 18.8 24.9 30.8	Inflow (m ³) 3.74 5.60 6.88	Outflow (m ³) 0.24 0.48 0.72	Storage required (m ²) 3.50 5.12 8.18	-		4301112			
SOAKAWAY In accordan Design rain Location of c Impermeable Return perior Ratio 80 min 5-year return Increase of r Duration, D (min) 5 10 15 30 80	<u>/ DESIGN</u> nee with BRE fall intensity catchment are: e area drained d to 2 day rainfa reinfall intensit Growth factor Z1 0.34 0.49 0.59 0.77 1.00	Digest 365 - 5 a 1 to the system all of 5 yr retur all of 60 minutes y due to globa M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0	Soakaway desi A a Per m period r = s duration M5 I warming per Growth factor Z2 1.88 1.95 1.99 2.03 2.00	ign = 22 5.0 m ² riod = 100 yr 0.300 _00min = 20.0 rain= 30 % 100 year rainfall, M100 (mm) 18.0 24.9 30.0 40.6 52.1	Inflow (m ³) 3.74 5.60 6.88 9.14 11.71	Outflow (m ³) 0.24 0.48 0.72 1.44 2.88	Storage required (m ⁻¹) 3.50 5.12 6.16 7.70 8.83	-		4301112			
SOAKAWAY In accordan Design rain Location of c Impermeable Return perior Ratio 60 min 5-year return Increase of r Duration, D (min) 5 10 15 30 80 120 240 360	/ DESIGN nee with BRE fall intensity catchment are- e area drained d to 2 day rainfa rainfall intensit Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78	Digest 365 - 5 a 1 to the system all of 5 yr retur all of 60 minutes y due to globa M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 48.3	Soakaway desi Otion A = Per m period r = s duration M5 I warming Per Growth factor Z2 1.88 1.95 1.99 2.00 1.95 1.88 1.95 1.88 1.95 1.88 1.84	ign her = 22 5.0 m ² riod = 100 yr 0.300 _00min = 20.0 raine = 30 % 100 year rainfall, M100 (mm) 16.6 24.9 30.6 40.6 52.1 63.4 76.9 85.1	Inflow (m ³) 3.74 5.60 6.88 9.14 11.71 14.26 17.30 19.16	Outflow (m ²) 0.24 0.48 0.72 1.44 2.88 5.76 11.52 17.28	Storage required (m ⁻¹) 3.50 5.12 6.16 7.70 8.83 8.50 5.78 1.88	-		4301112			
SOAKAWAY In accordan Design rain Location of c Impermeable Return perio- Ratio 60 min 5-year return Increase of r Duration, D (min) 5 10 15 30 80 120 240 360 600	/ DESIGN nee with BRE fall intensity catchment are: e area drained d to 2 day rainfa rainfall intensit Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78 2.12	Digest 365 - 5 a i to the system all of 5 yr retur all of 60 minuter y due to globa m5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 46.3 56.1	Ottom A Per Per m period r = s duration M5 I warming Per Growth factor Z2 1.88 1.95 1.99 2.03 2.00 1.95 1.88 1.84 1.78 1.78	ign her = 22 5.0 m ² riod = 100 yr 0.300 _00min = 20.0 rain = 30 % 100 year rainfall, M100 (mm) 16.6 24.9 30.6 40.6 52.1 63.4 76.9 85.1 97.8	Inflow (m ³) 3.74 5.60 6.88 9.14 11.71 14.28 17.30 19.16 22.02	Outflow (m ²) 0.24 0.48 0.72 1.44 2.88 5.76 11.52 17.28 28.80	Storage required (m ⁻¹) 3.50 5.12 6.16 7.70 8.83 8.50 5.78 1.88 0.00	-		4301112			
SOAKAWAY In accordan Design rain Location of c Impermeable Return perio Ratio 60 min 5-year return Increase of r Duration, D (min) 5 10 15 30 60 120 240 360 600 1440	/ DESIGN nee with BRE fall intensity catchment are- e area drained d to 2 day rainfa rainfall intensit Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78	Digest 365 - 5 a 1 to the system all of 5 yr retur all of 60 minutes y due to globa M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 48.3	Soakaway desi Otto A Per m period r = s duration M5 I warming Per Growth factor Z2 1.88 1.95 2.03 2.00 1.95 1.88 1.88 1.84 1.78 1.65	ign her = 22 5.0 m ² riod = 100 yr 0.300 _00min = 20.0 raine = 30 % 100 year rainfall, M100 (mm) 16.6 24.9 30.6 40.6 52.1 63.4 76.9 85.1	Inflow (m ³) 3.74 5.60 6.88 9.14 11.71 14.26 17.30 19.16	Outflow (m ²) 0.24 0.48 0.72 1.44 2.88 5.76 11.52 17.28	Storage required (m ⁻¹) 3.50 5.12 6.16 7.70 8.83 8.50 5.78 1.88	-		4301112			
SOAKAWAY In accordan Design rain Location of o Impermeable Return perio Ratio 60 min 5-year return Increase of r Duration, D (min) 5 10 15 30 60 120 240 360 600 1440 Required sto	7 DESIGN noe with BRE fall intensity catchment are: e area drained d to 2 day rainf period rain fa rainfall intensit Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78 2.12 2.84	Digest 365 - S a I to the system all of 6 yr retur all of 6 yr retur due to globa M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 48.3 55.1 73.8	Soakaway desi Otto A Per rn period r = s duration M5 I warming Per Growth factor Z2 1.88 1.95 2.03 2.00 1.95 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.88 1.85 Smath Smath	ign = 22 5.0 m ² riod = 100 yr _60 min = 20.0 _60 min = 20.0 _710 year rainfall, M100 (mm) 16.6 24.9 30.6 40.6 52.1 63.4 76.9 85.1 97.8 121.7 = 8.83 m ²	Inflow (m³) 3.74 5.60 6.88 9.14 11.71 14.26 17.30 19.16 22.02 27.38	Outflow (m ³) 0.24 0.48 0.72 1.44 2.88 5.76 11.52 17.28 28.80 69.12 t- (π x ((Dmg + 2)))	Storage required (m ²) 3.50 5.12 6.18 7.70 8.83 8.50 5.78 1.88 0.00 0.00 × T _{ing}) ^{2/} 4) :	(d)) ×		4301112			
SOAKAWAY In accordan Design rain Location of o Impermeable Return perior Ratio 80 min 5-year return Increase of r Duration, D (min) 5 10 15 30 80 120 240 360 600 1440 Required sto Soakaway s	<u>/ DESIGN</u> the with BRE fall intensity catchment are: e area drained d to 2 day rainf neriod rainfal intensit Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78 2.12 2.84 orage volume storage volume	Digest 365 - S a I to the system all of 6 yr retur all of 6 yr retur due to globa M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 48.3 55.1 73.8	Soakaway desi Otto A = Permitive m period r = s duration M5 I warming Permitive Growth factor Z2 1.88 1.95 1.88 1.95 1.88 1.95 1.88 1.88 1.84 1.78 1.85 Sare 1 Vrain	ign her = 22 5.0 m² riod = 100 yr _0.300 _60min = 20.0 _60min = 20.0 rainfall, M100 (mm) 16.6 24.9 30.6 40.6 62.1 63.4 76.9 85.1 97.8 121.7 = 8.83 m² = x < (D _{nrg} ² / 4) = 9.33 m²	mm Inflow (m ³) 3.74 5.80 6.88 9.14 11.71 14.28 17.30 19.18 22.02 27.38 × d + (d × w ²) so × f) = 1hr 5	Outflow (m ³) 0.24 0.48 0.72 1.44 2.88 5.76 11.52 17.28 28.80 69.12 2- (π × ((Dmg + 2 PASS - Soaka	Storage required (m ⁻¹) 3.50 5.12 6.16 7.70 8.83 8.50 5.78 1.88 0.00 × T _{nre}) ³⁷ 4) way storage	(d)) × e volume		4301112			
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SOAKAWAY DESIGN In accordance with BRE I Design rainfall intensity Location of catchment area Impermeable area drained Raturn period Ratio 60 min to 2 day rainfall Increase of rainfall intensity Cood Infiltration Duration, D (min) Growth factor Z1 5 0.34 10 0.49 15 0.69 30 0.77 60 1.00 120 1.25	a to the system all of 5 yr return p ll of 60 minutes du y due to global wa Rate M5 Grow factor (mm) 8.8 1.88 12.7 1.98 15.3 1.97 28.0 20.0 20.0 20.0 20.0 20.0 20.0 1.96	A away design Other A = 2760 Period = eriod r = 0.300 ration M5_60mi rming permin = 1 th 100 year rainfall, M100 3 40.6 5 63.4 76.9 85.1	1.0 m ² 100 yr in = 20.0 mm 30 % 10,0 mm (m ³) 46,92 68,70 84,37 112,16 143,68 174,92	Outflow (m ³) 0.88 1.71 2.67 5.13 10.28 20.52	m/s storage required (m ²) 45.07 68.99 81.80 107.03 133.40 154.39	to be of the formation	confirm ge Infil Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.28	M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5	Rate Growth factor Z2 1.88 1.95 1.99 2.03 2.00 1.95	100 year rainfall, M100 (mm) 16.6 24.9 30.6 40.6 52.1 63.4	Inflow (m ³) 45.92 68.70 84.37 112.16 143.88 174.92	Outflow (m ²) 0.40 0.79 1.19 2.37 4.75 9.49	Storage required (m ²) 45.53 07.91 83.18 109.79 138.92 105.42
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SOAKAWAY DESIGN In accordance with BRE I Design rainfall intensity Location of catchment area Impermeable area drained Ratic 60 min to 2 day rainf. 5-year return period rainfall Increase of rainfall intensity SOOD Infiltration Duration. Growth factor Z1 r 5 0.34 10 0.49 15 0.69 30 0.77 80 1.00 120 1.25 240 1.57 380 1.78 800 2.12	a to the system all of 5 yr return p ll of 60 minutes du y due to global wa Rate M5 (mm) 8.8 1.88 12.7 1.96 15.3 1.96 20.0 2.00 28.0 2.00 28.0 2.00 28.0 1.96 40.8 1.88 40.3 1.84 40.3 1.84 45.1 1.78	Other A = 2760 Period = Period = eriod r = 0.300 ration M.60mirming permis = 1 th 100 year rainfall, M100 (mm) 16.8 5 24.9 3 40.6 5 63.4 76.9 8 97.8 5 121.7	0.0 m² 100 yr n = 20.0 mm 30 % 46.92 68.70 84.37 112.16 143.68 174.92 212.19 235.00 270.06 335.84 = 179.55 m³	Outflow (m ³) 0.88 1.71 2.57 5.13 10.26 20.52 41.04 61.56 102.60 246.24	m/s storage required (m ²) 45.07 86.99 81.80 107.03 133.40 154.39 171.15 173.44 187.46 89.80	to be of the formation	Confirm Ge Infil Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78 2.12 2.84 rage volume	M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 46.3 55.1 73.8	Rate Growth factor Z2 1.88 1.95 1.99 2.03 2.00 1.95 1.88 1.84 1.78 1.85 Srep	100 year rainfall. M100 (mm) 16.6 24.9 30.6 40.8 52.1 63.4 76.9 85.1 97.8	Inflow (m ²) 45.92 68.70 84.37 112.16 143.66 174.92 212.19 235.00 270.06 335.84 = 332.17 m ²	Outflow (m ⁻) 0.40 0.79 1.19 2.37 4.75 9.49 18.98 28.47 47.45 113.89	Storage required (m ²) 45.53 67.91 83.18 109.79 138.92 165.42 193.21 206.53 222.81 221.95
SOAKAWAY DESIGN In accordance with BRE I Design rainfall intensity Location of catchment area Impermeable area drained Return period Ratio 60 min to 2 day rainf. 5-year return period rainfall Increase of rainfall intensity COOD Infiltration D(min) factor Z1 r 5 0.34 10 10 0.49 15 15 0.59 30 0.77 80 1.00 122 1.25 240 1.57 380 1.78 600 2.12 1440 2.84 Required storage volume	a to the system all of 5 yr return p ll of 60 minutes du y due to global wa Rate M5 (mm) 8.8 1.88 12.7 1.96 15.3 1.96 20.0 2.00 28.0 2.00 28.0 2.00 28.0 1.84 40.3 1.84 85.1 1.75 73.8 1.65	Other A = 2760 Period = Period = eriod r = 0.300 ration M.60mirming permis = 1 th 100 year rainfall, M100 (mm) 16.8 5 24.9 3 63.4 76.9 8 97.8 121.7 Swg = 173.44 m² Swg = 17.44 w × Vo two = Swg × 0.5 / (a)	1.0 m ² 100 yr in = 20.0 mm 30 % Inflow (m ²) 45.92 68.70 84.37 112.16 143.66 174.92 212.19 235.00 270.06 335.84 = 179.55 m ³ F sas x f) = 8hr 27n	Outflow (m ²) 0.88 1.71 2.57 5.13 10.26 20.52 41.04 61.56 102.60 246.24 245.5 - Soake min 8s	m/s storage required (m ³) 45.07 66.99 81.80 107.03 133.40 154.39 171.15 173.44 107.46	to be of the formation	Confirm Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78 2.12 2.84 rage volume orage volume	M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 46.3 55.1 73.8	Rate Growth factor Z2 1.88 1.95 2.03 2.00 1.95 1.88 1.84 1.78 1.84 1.78 1.85 See 1 8	100 year rainfall, M 100 (mm) 16.8 24.9 30.6 40.8 52.1 63.4 76.9 85.1 97.8 121.7 = 222.61 m ² 1.2 d x w x Vm s. S. mo x 0.5 / (a.	Inflow (m ³) 45.92 68.70 84.37 112.18 143.66 174.92 212.19 235.00 270.06 335.84 = 332.17 m ² as x f) = 23hr 2	Outflow (m?) 0.40 0.79 1.19 2.37 4.75 9.49 18.98 28.47 47.45 113.89 PASS - Soaka 27min 22s	Storage required (m ²) 45.53 67.91 83.18 109.79 138.92 185.42 193.21 208.53 222.61
SOAKAWAY DESIGN In accordance with BRE I Design rainfall intensity Location of catchment area Impermeable area drained Return period Ratio 60 min to 2 day rainf 5-year return period rainfal Increase of rainfall intensity COCO Infiltration D(min) factor 21 r 5 0.34 10 0.49 15 0.58 30 0.77 80 1.00 120 1.25 240 1.57 380 1.78 900 2.12 1440 2.84 Required storage volume Soakaway storage volume	a to the system all of 5 yr return p flof 80 minutes du y due to global wa Rate 8.8 1.86 12.7 1.99 15.3 1.99 20.0 2.00 22.5 1.99 40.8 1.86 46.3 1.84 65.1 1.77 73.8 1.86	Other A = 2760 Period = Period = eriod r = 0.300 ration M.60mirming permis = 1 th 100 year rainfall, M100 (mm) 16.8 5 24.9 3 63.4 76.9 8 97.8 121.7 Swg = 173.44 m² Swg = 17.44 w × Vo two = Swg × 0.5 / (a)	1.0 m ² 100 yr in = 20.0 mm 30 % Inflow (m ²) 45.92 68.70 84.37 112.16 143.66 174.92 212.19 235.00 270.06 335.84 = 179.55 m ³ F sas x f) = 8hr 27n	Outflow (m ²) 0.88 1.71 2.57 5.13 10.26 20.52 41.04 61.56 102.60 246.24 245.5 - Soake min 8s	m/s Storage required (m ⁷) 45.07 66.99 81.80 107.03 133.40 154.39 171.15 173.44 187.46 89.60	to be of the formation	Confirm Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78 2.12 2.84 rage volume orage volume	tration 1 M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 46.3 55.1 73.8	Rate Growth factor Z2 1.88 1.95 2.03 2.00 1.95 1.88 1.84 1.78 1.84 1.78 1.85 See 1 8	100 year rainfall, M 100 (mm) 16.8 24.9 30.6 40.8 52.1 63.4 76.9 85.1 97.8 121.7 = 222.61 m ² 1.2 d x w x Vm s. S. mo x 0.5 / (a.	Inflow (m ³) 45.92 68.70 84.37 112.18 143.66 174.92 212.19 235.00 270.06 335.84 = 332.17 m ² as x f) = 23hr 2	Outflow (m?) 0.40 0.79 1.19 2.37 4.75 9.49 18.98 28.47 47.45 113.89 PASS - Soaka 27min 22s	Storage required (m³) 45.53 67.91 83.18 109.79 138.92 165.42 193.21 208.53 222.81 221.95
In accordance with BRE I Design rainfall intensity Location of catchment area Impermeable area drained Return period Ratio 60 min to 2 day rainfal Increase of rainfall intensity Cocod Infiltration Diration, Growth D (min) Growth 10 0.49 15 0.59 30 0.77 60 1.00 15 240 1.67 380 1.78 600 2.12 1440 2.84 Required storage volume Soakaway storage volume	s to the system all of 5 yr return p ll of 60 minutes du y due to global wa Rate 8.8 1.88 12.7 1.94 15.3 1.95 20.0 2.00 28.0 2.00 28.0 2.00 28.0 1.95 40.8 1.88 46.3 1.84 55.1 1.77 73.8 1.65 o half volume	A way design Other A = 2760 Period = eriod r = 0.300 ration M5_60mi rming permin = 1 100 year rainfall, M100 (mm) 16.6 24.9 30.8 40.6 5 63.4 76.9 3 40.6 5 63.4 76.9 3 40.7 5 97.8 3 121.7 Sme = 17.244 m ² Sme = 1 × d × w × Vr PASS - Soakaw	0.0 m² 100 yr n = 20.0 mm 30 % Inflow (m²) 45.92 68.70 84.37 112.16 143.66 174.92 212.19 235.00 270.06 335.84 F start f = 8hr 277 ay discharge tin	Outflow (m ³) 0.88 1.71 2.67 5.13 10.26 20.52 41.04 61.56 102.60 240.24 240.24 245.5 - Soaka min 8a me less than	m/s storage required (m ⁷) 45.07 66.99 81.80 107.03 133.40 107.03 133.40 171.15 173.44 167.46 89.80 wway storage volume or equal to 24 hours	to be a buration, D (min) 5 10 15 30 00 120 240 380 800 140 Required sto Soakaway s Time for emp	confirm ge Infil Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78 2.12 2.84 2.12 2.84 2.12 2.84 2.12 2.84 2.12 2.84 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.84 2.157 2.157 1.78 2.12 2.84 2.157 1.78 2.12 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.12 2.147 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.172 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.157 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.78 2.172 1.772	tration 1 M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 46.3 55.1 73.8	Rate Growth factor Z2 1.88 1.95 1.99 2.03 2.00 1.95 1.88 1.95 1.88 1.84 1.78 5.es e tas = P/	100 year rainfall, M 100 (mm) 16.8 24.9 30.6 40.8 52.1 63.4 76.9 85.1 97.8 121.7 = 222.61 m ² 1.2 d x w x Vm s. S. mo x 0.5 / (a.	Inflow (m ³) 45.92 68.70 84.37 112.18 143.66 174.92 212.19 235.00 270.06 335.84 = 332.17 m ² as x f) = 23hr 2	Outflow (m?) 0.40 0.79 1.19 2.37 4.75 9.49 18.98 28.47 47.45 113.89 PASS - Soaka 27min 22s	Storage required (m³) 45.53 67.91 83.18 109.79 138.92 165.42 193.21 208.53 222.81 221.95
SOAKAWAY DESIGN In accordance with BRE I Design rainfall intensity Location of catchment area Impermeable area drained Return period Ratio 60 min to 2 day rainfal Increase of rainfall intensity COOD Infiltration Duration, Growth D (min) factor Z1 r 6 0.34 10 0.49 15 0.59 30 0.77 80 1.00 120 1.25 240 1.67 300 1.77 800 1.00 120 1.25 240 1.67 300 1.77 800 1.25 240 1.67 300 1.78 800 1.78 800 2.12 140 2.84 Required storage volume Soakaway storage volume Soakaway storage volume	a to the system all of 5 yr return p ll of 60 minutes du y due to global wa Rate M5 (mm) 8.8 1.88 12.7 1.96 15.3 1.96 20.0 2.00 28.0 2.00 28.0 2.00 28.0 2.00 28.0 1.96 46.3 1.84 46.3 1.84 55.1 1.76 73.8 1.66 b half volume Required Dm (below	A esign Other A = 2760 Period = Period = 100 year ration M5_60mi rming permin = 3 th 100 year 22 100 year ming permin = 3 th 10.8 5 24.9 3 40.8 5 52.1 5 63.4 6 78.9 4 85.1 5 121.7 Sme = 173.44 m ² Sme = Sme x 0.5 / (a. PASS - Soakaw the incomm	1.0 m ² 100 yr n = 20.0 mm 30 % Inflow (m ²) 4.6.92 0.8.70 8.4.37 112.16 143.08 174.92 212.19 235.00 270.08 335.84 F sas x f) = 8hr 27n ay discharge tin hing pipe	Outflow (m ³) 0.85 1.71 2.67 5.13 10.26 20.52 41.04 61.56 102.60 246.24 245.5 - Soakd min 8s me less than	m/s storage required (m ³) 45.07 86.99 81.80 107.03 133.40 154.39 171.15 173.44 187.45 89.60 may storage volume or equal to 24 hours rt level)	to be a buration, Duration, D(min) 5 10 15 30 60 120 240 360 600 1440 Required sto Soakaway s Time for emp	confirm ge Infil Growth factor Z1 0.34 0.49 0.59 0.77 1.00 1.25 1.57 1.78 2.12 2.84 rage volume orage volume otying soakaw	Itration M5 rainfalls (mm) 8.8 12.7 15.3 20.0 28.0 32.5 40.8 46.3 55.1 73.8	Rate Growth factor Z2 1.88 1.95 2.03 2.00 1.95 1.84 1.84 1.84 1.84 1.84 1.85 Sreg Sactor Sactor P/	100 year rainfall, M 100 (mm) 16.8 24.9 30.6 40.8 52.1 63.4 76.9 85.1 97.8 121.7 = 222.61 m ² 1.2 d x w x Vm s. S. mo x 0.5 / (a.	Inflow (m ³) 45.92 68.70 84.37 112.18 143.66 174.92 212.19 235.00 270.06 335.84 = 332.17 m ² as x f) = 23hr 2	Outflow (m ⁻⁷) 0.40 0.79 1.19 2.37 4.75 9.49 18.98 28.47 47.45 113.89 PASS - Soaka 27min 22s	Storage required (m³) 45.53 67.91 83.18 109.79 138.92 165.42 193.21 208.53 222.81 221.95

HALTEC	Project	Yale Camp	us Redevelo	pment, Wrex	ham	Job Ref.	DKC0051
Haltec Mollington Grange Parkgate Road	Part of structu	ıre				Sheet No./Re	V.
Parkgate Road Chester		Surface Wate	er Drainage				Cover
Tel: 01244 853883	Calc. By	Date	Checked by	Date		Approved	Date
	DRB	July '18	JDH	July '18		JDH	July '18
		Calculations				Output	
	S	structural (Calculatio	ons			
	Yale			pment			
		VVre	xham				
			TF	C			
		Ha	Itec on Grange ite Road ester				
		Parkga	ite Road ester				
	Pro	oject Numl	per : DKC	0051			
	Surfac	e Water D	rainage -	Storage			
		Ju	I-18				

- 1		Project	Yale Camp	us Redevelo	opment, Wrex	ham	Job Ref.	DKC005
Haltec Mollington Grange Parkgate Road Chester		Part of structure					Sheet No./R	lev.
			Surface Wate		1			
Tel	l: 01244 853883	Calc. By	Date	Checked by	Date		Approved	Date
lef.		DRB	July '18 Calculations	JDH	July '18		JDH Output	July '1
	ter Drainage	Existing						
ata and Para	meters							
College	:	1						
loors	:	2						
ollege								
	Appliance	ł		m2	7			
	Appliance			1112				
	Building			2625.0				
	20% to Soakaway			2100.0				
			Total	2100.0	20% of Area	a to Soakaw	avs	
		:					, <u>,</u> -	
lowrate	=	29.1	7 l/s					

٩	HALTEC	Project	Yale Camp	Job Ref.	DKC0051 Sheet No./Rev.		
	Haltec Mollington Grange Parkgate Road	Part of structu		Sheet No./Rev.			
	Chester Tel: 01244 853883	Calc. By	Surface Wat	Checked by	Date	Approved	2 Date
		DRB	July '18	JDH	July '18	JDH	July '18
Ref.			Calculations			Output	
Surface V	Vater Drainage	Proposed	(Green Fiel	d Runoff)	Required if Grou	nd Investigation	
				,	confirms ground	unsuitable for Soakav	<u>vays</u>
Data and Pa	arameters						
College	:	1					
Floors	:	3					
to be desig College	ned for a 1:100 year st	orm plus 30%	Climate Ch	ange			
	Appliance	ł		m2	1		
	Building			2760.0			
	Dunung			2700.0			
			Total	2760.0			
Flowrate	=	5.0	0 l/s	Reduced w	vith Flow Restricto	or (on site storage)	
<u>Differenc</u>	<u>e of Flow</u>	=	24.17	7 l /s			
	dopting Site Attenuation					the current surface	
water flow	in to the combined sew	ver in Chester	Road by ap	proximately	<u>24.17l/s</u>		
Tank Size F	Required						
Attenuation stora FEH rainfall facto Adjusted storage Final est. attenut Attenuation sto	or FF100yr = 0.90 volume ASV100yr = 283.91 m³ ation storage Vol100yr = 315.84 m³	Storage vol		BSV _{100yr} = 160.59 m SVR _{100yr} = 1.77 HR _{100yr} = 1.11	3		
18m x 14.5r	n x 1.0m (above incomin	ıg invert pipe)					