

6.6 WCBC RESPONSE

Russell, Jason

From: Carole Wright <Carole.Wright@wrexham.gov.uk>
Sent: 20 August 2018 16:34
To: Alejandro Ortiz
Subject: RE: Flood Information Request - Nant Silyn, Pont Wen Wrexham
Attachments: Nant Silyn Wrexham.pdf; Management of Surface Water Generated from New Dev_E.pdf

Dear Alejandro

Please find attached a plan of the development area and what is required to be submitted with an application for new development. If you have any queries please do not hesitate to contact me.

- Any known surface water or foul sewer flooding issues at this area? There is minimal surface water issues at this location, see map attached
- Any historical surface water flooding issues at the site? No
- Any groundwater flooding or emergence issues and information about local groundwater infiltration potential of the general area We have no groundwater data available
- Any known highway flooding issues No
- Does the site lie near or within a Critical Drainage Area? No
- Are any known culverted watercourses on site or within its vicinity No
- Any known ground contamination issues, which may affect any future surface water drainage design using infiltration techniques. We have no contamination data. Please contact the planning department for contamination issues
- Based on recent local development, in this area, could you please advise if soakaways are generally feasible or effective for surface water management We have no information regarding feasibility for soakaways
- For any future surface water management schemes at the site, in the event that surface water infiltration to the ground would not to be appropriate for this site, and assuming that discharge to the local watercourse/Body is the next suitable alternative, please could you then specify the surface water discharge rate that would be acceptable to the local watercourses. See attached guidance.
- Could you also advise of your surface water management policies and your requirements for compliance of existing and future developments about sustainable drainage in the county, and in particular, this area. See attached guidance.
- Would you be able to confirm the climate change allowance for use in future surface water drainage design and attenuation purposes? See attached guidance.

The development site lies within Fluvial Flood Zone C2, we would like to request:

- Detailed flood Risk Map, including flood zones, defences and storage areas. . Flood risk maps available from NRW and there are no defences or storage areas at this area.

If you have any queries please do not hesitate to contact me.

Kind regards

Carole Wright

Carole Wright - BA MBCS
Technical Flood Support Officer - Swyddog Technegol Cefnogi Llifogydd



☎ 01978 729735

📍 Wrexham County Borough Council, Environment and Planning Department Abbey Road South Wrexham Industrial Estate Wrexham LL13 9PW

📧 Cyngor Bwrdeistref Sirol Wreccsam, Amgylchedd a Chynllunio De Ffordd yr Abaty Ystâd Ddiwydiannol Wreccsam Wreccsam LL13 9PW

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📘 facebook.com/wrexhamcouncil | facebook.com/cyngorwreccsam

From: Alejandro Ortiz [mailto:Alejandro.Ortiz@opusinternational.co.uk]

Sent: 20 August 2018 15:30

To: Carole Wright; Neil Taunt

Subject: Flood Information Request - Nant Silyn, Pont Wen Wrexham

This email's attachments were cleaned of potential threats by Wrexham Council's Security Gateway.
Click [here](#) if the original attachments are required (justification needed).

Dear Sirs,

I have been commissioned to undertake a Flood Consequences Assessment for the proposed development construction of a 13 units of social housing. The address details are shown below and as attached.

NGR – 334361, 349873. Nant Silyn, Pont Wen Wrexham LL13 8SQ



Figure 1. Flood Risk, source NRW website, August 2018

The study area is approx. 0.4ha and is proposed to develop the construction of 13 units of social housing.

For the purposes of this study, at this stage, would you be able to advise us on the following:

- Any known surface water or foul sewer flooding issues at this area? T
- Any historical surface water flooding issues at the site?
- Any groundwater flooding or emergence issues and information about local groundwater infiltration potential of the general area
- Any known highway flooding issues
- Does the site lie near or within a Critical Drainage Area?
- Are any known culverted watercourses on site or within its vicinity
- Any known ground contamination issues, which may affect any future surface water drainage design using infiltration techniques.
- Based on recent local development, in this area, could you please advise if soakaways are generally feasible or effective for surface water management
- For any future surface water management schemes at the site, in the event that surface water infiltration to the ground would not be appropriate for this site, and assuming that discharge to the local watercourse/Body is the next suitable alternative, please could you then specify the surface water discharge rate that would be acceptable to the local watercourses.
- Could you also advise of your surface water management policies and your requirements for compliance of existing and future developments about sustainable drainage in the county, and in particular, this area.
- Would you be able to confirm the climate change allowance for use in future surface water drainage design and attenuation purposes?

The development site lies within Fluvial Flood Zone C2, we would like to request:

- Detailed flood Risk Map, including flood zones, defences and storage areas. .

We would be very grateful if you could provide us with the above and any other relevant local flood risk information for the above site at your earliest convenience.

If you need any additional information, please do not hesitate to ask me.

Best Regards

Alejandro Ortiz

Hydrology and Hydraulic Modeller



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Wrexham Technology Park,
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Ewch i weld - mi fedrwch chi dalu, rhoi gwybod, gwneud cais, dweud eich dweud, a dod o hyd i wybodaeth ar-lein yn www.wreccsam.gov.uk. Arbedwch bapur - meddylwch cyn argraffu!

Mae'r neges e-bost hon ac unrhyw atodiadau wedi eu bwriadu ar gyfer yr unigolyn neu'r sefydliad y'i cyfeirir atynt yn unig. Am yr amodau llawn ynglŷn â chynnwys a defnyddio'r neges e-bost hon, ac unrhyw atodiadau, cyfeiriwch at www.wreccsam.gov.uk/top_navigation/disclaimersw.htm

We welcome correspondence in Welsh. We will respond to any correspondence in Welsh and this will not lead to any delay.

Take a look - you can pay, report, request, have your say and find information online at www.wrexham.gov.uk. Save paper - think before you print!

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This is one of a series of guidance notes providing information to help you understand our procedures and improve design standards.



MANAGEMENT OF SURFACE WATER GENERATED FROM NEW DEVELOPMENT

Welsh Government Planning Policy Wales states that flood risk is a material planning consideration.

Technical Advice Note 15: Development and Flood Risk (TAN 15, 2004), also states that surface water is a material consideration and explains that development should not create additional run-off compared with the undeveloped situation and re-development schemes should aim to reduce run-off where possible

It is essential to consider sustainable drainage early in the development process because there may be implications for land purchase or the design and layout of the roads, buildings and public open spaces. It is strongly advised that applicants consult the Council's Flood & Water Management Team (as the Lead local Flood Authority – LLFA) as early as possible in the planning process. It is advisable for developers to provide an initial assessment of drainage options at this time to enable constructive discussions with the Council. The earlier it can be determined that the drainage proposals are viable, the less chance of delay, wasted effort and costs for all parties involved.

This approach ensures that conditions are not attached to a planning permission which could

later prove to be impossible to implement for legal or technical reasons.

This document and pro-forma are supported locally by both Dŵr Cymru / Welsh Water and Cyfoeth Naturiol Cymru / Natural Resources Wales and assumes that any submitted design or calculations have been carried out by a suitably qualified person carrying an appropriate professional indemnity.

Please note this document will continue to be updated in line with amendments to legislation and national guidance. Applicants should confirm they are using the most current version of this guidance. Any queries can be directed to flooding@wrexham.gov.uk advice.

Who to consult:

The Council's Development Control team consider observations from a number of organisations in relation to surface water management of new developments. Drainage designs may need to take into account specific requirements of these bodies depending on the individual details of each proposal. It is therefore recommended that applicants consult with the organisation below as early as possible when considering their development proposals.

- **The Council's Flood and Water management Team** (the Lead Local Flood Authority) should be consulted early on development proposals, particularly those intending to discharge via infiltration or to watercourses that are not designated a 'main river'.

- **Dŵr Cymru / Welsh Water** should be consulted early on all proposals to discharge to the public sewer system. They should also be consulted on any proposals where it is the intention for the on-site drainage systems serving the development to be adopted.

- **Cyfoeth Naturiol Cymru / Natural Resources Wales (NRW)** should be consulted early on proposals intending to discharge to a 'main river'. The Council's Flood & Water Management Team may refer surface water proposals to NRW (as part of their oversight role) to advise where the suitability of the point of discharge is uncertain and/or the impact to third parties is unclear.

- **The Council's Highways Development Control Team** should be consulted early on proposals to ensure drainage of a proposed highway meets their requirements.

Surface Water Design Criteria

The Flood & Water Management Team will need to be satisfied that the criteria below are being met. This will normally apply to all major¹ development, or where local site conditions dictate.

Wrexham County Borough Council advocates that surface water run-off should be controlled

as near to its source as possible. Preferably sustainable drainage systems (SuDS) should be utilised. The variety of SuDS techniques available means that virtually any development should be able to include a scheme based around these principles. Surface water should be disposed of to the receptors listed in order of priority below:

- a) Infiltrated to ground;
- b) To a watercourse
- c) To a surface water sewer
- d) Other

Undeveloped (Greenfield) Sites:

Discharge rates and volumes are normally required to be limited to the equivalent greenfield runoff rate (with on-site attenuation for all events up to the 1% (1 in 100 year) rainfall event with an appropriate allowance for climate change).

Previously Developed (Brownfield) Sites:

The developer is asked to calculate the existing brownfield runoff rates and to improve the existing situation. This should aim to be as close as reasonably practicable to the greenfield runoff rates. If it cannot be demonstrated that previously developed land has functioning positive drainage or the details of components cannot be ascertained (even if there are known outfalls), an assumption should be made that the system is no longer operational and the site should be treated as an "undeveloped site".

Storage of Water on Site:

The drainage system should be designed so that flooding does not occur on any part of the development for the 3.33% (1 in 30 year) rainfall event other than in those areas/systems designated to store or convey water. It may be acceptable to allow some on-site flooding of roads etc. for rainfall events beyond this. However flooding within the development site should not occur in any part of a building or utility plant susceptible to water during a 1% (1 in 100 year) + climate change rainfall event.

¹ For the purpose of this document major development is defined as:

- The number of houses or units to be provided is 10 or more
- The development site is in excess of 0.5 hectares
- The floor space to be created by the development is 1,000 square metres or more

Practicable Minimum Limit of Discharge:

A practicable minimum limit on the discharge rate from a flow attenuation device is often a compromise between attenuating to a satisfactorily low flow rate while keeping the risk of blockage to an acceptable level. It is suggested that this is 5 litres per second, using an appropriate vortex flow control device or other technically acceptable flow control device. The minimum size of pipe discharging from a flow attenuation device should be 150mm laid at a gradient not flatter than 1 in 150, which meets the requirements of Sewers for Adoption 7th Edition.

Information for Submission:

Pro-formas to be completed by the applicant and submitted as part of the relevant planning application are provided in Appendix A. The information needed will depend on the significance, complexity and stage of the development proposal.

- **Indicative Drainage Proposal:** This should provide the minimum amount of information to demonstrate that the proposed approach is feasible and/or that the detailed design could be covered by way of a planning condition.
- **Detailed Drainage Design:** A detailed drainage design should provide sufficient information to

demonstrate that the system will function as intended to achieve the above drainage criteria. It should be comprehensive enough to allow any condition related to surface water management placed on the development to be discharged.

Planning Officers consult with the Flood & Water Management Team and other consultees to review and provide advice on drainage proposals related to planning applications. Failure to submit any of the information requested will prevent these consultees from providing constructive reviews and observations to the Planning Team. [This may result in a recommendation to the Planning Team for refusal of the planning application on grounds of insufficient information being received.](#)

It is suggested that applicants refer to the SUSDRAIN website, CIRIA Guidance and other publications as a source of detailed information on sustainable drainage (see Appendix B). 'Rainfall Runoff Management for Developments - Report SC030219' provides advice and technical guidance on the management of surface water drainage, including run-off rates and storage sizing. Alternatively applicants may want to use the free online calculation tools (based on the above report) to assist with this, available at www.UKsuds.com.

[If you wish to discuss proposals prior to submission, please contact the Flood & Water Management Team on \[flooding@wrexham.gov.uk\]\(mailto:flooding@wrexham.gov.uk\).](#)



APPENDIX A.

PRO-FORMA A - INDICATIVE DRAINAGE PROPOSAL

The information required below is considered the minimum amount of information that will allow our Drainage Engineers to be satisfied that the proposed approach is feasible and/or that the detailed design could be covered by way of a planning condition.

1	Site location details with site address and national grid reference.	
2	A plan of the existing site, noting its topography and how it presently drains.	
3	A plan of the proposed site, its topography and proposed future drainage arrangements. (A fully detailed system is not required at this stage - Just sufficient information that the proposed system requirements have been thought out and are achievable within the site).	
4	Areas of permeable and impermeable land for existing site.	
5	Area of permeable and impermeable land for proposed development site.	
6	Explanation of how the drainage hierarchy (Infiltration-watercourse-sewer) has been followed	
7	Evidence that the site has an agreed point of discharge*	
8	The existing surface water run-off rates from the site	
9	An indication of the post development discharge rates from the site. This should include an explanation of how this has been calculated.	
10	An indication of the volume of attenuation storage that would be required on site. This should be based on the 100 year critical storm duration with an appropriate allowance for climate change for the site and the allowable discharge rate.	
11	The likely method of attenuation to be used on site and explanation as to its choice.	
12	A plan indicating a suitable location for the attenuation within the proposed development.	
13	An explanation how it is proposed to manage and fund the maintenance of the proposed system over the lifetime of the development. This should consider the requirement to ensure that access is physical possible for such maintenance works.	
14	For large phased sites an explanation of how the site will adequately consider surface water drainage at all stages of the development may be required	

*When considering the different types of discharge, the following information should be provided

Infiltration:

If surface water is to be infiltrated on site, the applicant must provide percolation tests in accordance with BRE Digest 365 or CIRIA R156. Where percolation tests are not possible at the early stages of a development proposal, an indicative assessment based on available information (e.g. BGS Infiltration SuDS Map) will suffice for outline applications.

Watercourse:

If discharging to a watercourse, ditch, stream etc. the applicant must demonstrate that the system is an appropriate point of discharge for the site i.e. would take existing pre-development flows. If not then further information/assessment will be required to determine the suitability of the system to convey the proposed flows and volumes of water. Evidence will be required that the development will not increase risk to others. If the proposed discharge point is outside the development site then the applicant will need to demonstrate that the necessary permissions and/or agreements to achieve the connection are possible.

Public Sewer :

If discharging to a public sewer then evidence of agreement in principle from the owner/undertaker (e.g. Dwr Cymru / Welsh Water) will be required.

PRO-FORMA B - DETAILED DRAINAGE DESIGN

In addition to the details outline in Pro-forma A, the details below are necessary to provide sufficient information so that the Council can be satisfied that the system will function as intended to achieve the above drainage criteria. This information is considered comprehensive enough to allow any condition related to surface water management placed on the development to be discharged.

In addition to 1 to 14 in Pro-forma A, please include:		
15	Detailed drawings/plans of the proposed drainage system including dimensions, levels, pipe sizes, manhole details etc.	
16	Details of the proposed discharge control.	
17	Details of the attenuation storage required based on the above discharge control and how this attenuation will be achieved on site.	
18	Calculations or modelling of the proposed systems. This will need to show how the system operates to achieve the following drainage criteria: • No on-site flooding for events up to the 3.33% event. • How flooding (if any) between the 3.33% (1 in 30 year) and 1% (1 in 100 year) + climate change events are suitably contained on site. • Residual Risk and Designing for Exceedance: As well as consideration of modelled events, there should be an examination of what would happen in respect of storms in excess of the design event or system failures e.g. blockage. It is expected that the development will be designed to minimise the consequences of such scenarios.	

APPENDIX B

FURTHER RECOMMENDED READING & GUIDANCE.

- CIRIA C697 The SuDS Manual
- CIRIA Report 156 – Infiltration Drainage – manual of good practice
- CIRIA C713 Retrofitting for surface water management
- CIRIA C698 Site handbook for the construction of SUDS
- CIRIA C738a Managing urban flooding from heavy rainfall - encouraging the uptake of designing for exceedance - Recommendations and summary
- CIRIA C635 Designing for exceedance in urban drainage: Good practice
- CIRIA X108 Drainage of development sites - a guide
- UK Sustainable Drainage – Guidance and Tools. Available at: http://www.uksuds.com/greenfieldrunoff_js.htm
- British Standard - BS 8582:2013 Code of practice for surface water management for development sites
- Rainfall runoff management for developments R&D Technical Report SC030219
- Soakaway Design – BRE Digest 365

contact

Address

Flood and Water Management
Housing, Public Protection and
Environment
Abbey Road South,
Wrexham Industrial Estate, LL13 9PW

E-mail: flooding@wrexham.gov.uk

website: www.wrexham.gov.uk

Adopted September 2015.

6.7 NRW RESPONSE

FAO Ceri Postle

Date: 20/07/2018

Dear Ceri,

**TOWN AND COUNTRY PLANNING (DEVELOPMENT MANAGEMENT PROCEDURE)
(WALES) (AMENDMENT) ORDER 2016 NOTICE PRE-APPLICATION CONSULTATION**

**DEVELOPMENT – NEW BUILD SOCIAL HOUSING COMPRISING: 8X 1BEDROOM, 2
PERSON APARTMENTS, 4X 2 BEDROOM, 4 PERSON HOUSES, 1X 3 BEDROOM
FULLY ADAPTED BUNGALOW.**

**LOCATION – FORMER SITE OF NANT SILYN RESIDENTIAL HOME, PONT WEN,
WREXHAM**

Thank you for consulting Natural Resources Wales about the above proposed development. Please note we have been consulted twice on this scheme, once via the statutory pre application process, and once via our discretionary pre planning advice service. This constitutes our response to both consultations.

Please note that our comments are without prejudice to any comments we may wish to make when consulted on any subsequent planning application or permit (either at pre-application or application stage) for the proposed development. At that time, there may be new information available which we will need to take into account in making a formal response.

Based on the information submitted to us, we have significant concerns with the proposed development. On this basis, we would recommend to the local authority that they should only grant planning permission if the scheme can meet the following requirement and the conditions listed below are attached to the planning permission. Otherwise, we would object to this planning application.

Requirement: An FCA should be prepared which demonstrates that flood risk can be appropriately managed in accordance with TAN15.

Requirement 2: Foul Drainage: The applicant confirms that the foul drainage will be connected to the mains sewer, otherwise demonstrate it is not feasible to connect to the main sewer.

Flood Risk

The site is located partially within Zone B and Zone C2 as defined by the Development Advice Map (DAM) of TAN 15 and existing nursing home is located on the top of the wooded right bank of the Afon Gwenfro.

In line with TAN 15 requirements, the proposed redevelopment of a nursing home into a new residential development of 15 units, will need to consider flood risks. It will need to assess how the extreme outline of a fluvial event (0.1% annual exceedance probability (AEP) against the site levels in Zone B to determine if a flood consequence assessment is required. TAN 15 sets out a strong policy presumption against highly vulnerable development in Zone C2.

The recent modelling study undertaken by Wrexham Council Lead Local Flood Authority (LLFA) on the Gwenfro should provide suitable outputs for use within an FCA. The applicant should contact Neil Taunt at Wrexham Council for further information on the modelling study and any local flooding history for the site.

The indicative site plan indicates proposed development within 5 metres from the top of the bank. This development plus any temporary works involving the demolition of the existing nursing home and within 8 metres of the bank top (and not the edge of the river) will require a flood risk activity permit.

Further advice on the permit requirements is available from Natural Resources Wales. Please see the attached web link below for further info <https://naturalresources.wales/permits-and-permissions/flood-risk-activities/?lang=en>

Foul Drainage

The site lies within a publicly sewered area and the proposal must discharge to the public sewerage system. It is recommended that consultation takes place with the sewerage undertaker to confirm that connection is available.

The installation of private sewage treatment facilities within publicly sewered areas is not considered environmentally acceptable. We would therefore be opposed to such facilities unless it can be demonstrated that it is not reasonable to connect the public system.

Lack of capacity or plans to improve capacity in the sewer is not a valid reason for a sewerage undertaker to refuse connection under Section 106 of the Water Industry Act 1991 and we may refuse to issue an Environmental Permit or exemption for private treatment facilities in such circumstances.

European Protected Species (EPS)

Our records show there may be protected species in the vicinity of the site (Bats approximately 110 m away). We advise liaison with the LPA ecologist to discuss and agree the scope of any surveys required.

Advice to the Applicant

Waste

Any waste excavation material or building waste generated in the course of development must be disposed of satisfactorily in accordance with duty of care requirements under section 34 of the Environmental Protection Act 1990. The waste shall be transported using registered waste carriers to suitably permitted or exempt sites. Transfer notes shall be kept for each load for a minimum of 2 years.

Pollution Prevention

You are advised to follow the guidance within the Guidance for Pollution Prevention 5 "Works and maintenance in or near water":

http://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf?utm_source=website&utm_medium=social&utm_campaign=GPP5%2027112017

During the construction phase of the proposals, any waste material which is to be removed from the site should be done so via a registered waste carrier. The waste must be taken to a facility which holds an appropriate exemption or environmental permit to accept the specified waste.

Any work which is to take place should be done so with pollution prevention in mind. Pollution prevention advice and guidance can be found via this link:

<http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/>

Should any pollution occur during the operational phase, Natural Resources Wales should be notified via the incident hotline – 03000 65 3000.

Please note the view expressed in this letter is a response to a pre-planning enquiry only. We trust these comments will prove helpful but they should not set a precedent for any future Natural Resources Wales' response to any formal application for planning permission or other legal consent. Such applications shall be assessed on the information submitted and regulations of relevance at that time. The details contained in this letter are based on the information available to date.

If you have any queries on the above please do not hesitate to contact us.

Yn gywir / Yours sincerely,

Daniel Davies
Cynghorydd Cynllunio Datblygu / Development Planning Advisor
Cyfoeth Naturiol Cymru / Natural Resources Wales

From: North Planning <NorthPlanning@cyfoethnaturiolcymru.gov.uk>
Sent: 22 October 2018 11:01
To: Ortiz Marcotegui, Alejandro
Subject: Nant Silyn, Pont Wen, Wrexham LL18 8SQ (Pre-App Charged Quotation)
NRW:03590773

Dear Alejandro,

I understand that you spoke to my colleague Charlotte Beattie regarding the Nant Silyn modelling methodology. Following on from that discussion it's my understanding that there is no longer any merit in NRW undertaking the review of the methodology which we originally provided a quote for. I understand that Charlotte clarified the following:

Development and Flood Risk

The proposed modelling methodology for the Nant-Silyn site, Wrexham has been reviewed.

The existing Afon Gwenfro model 2016 is the most suitable model for this site.

There is no requirement to update the model or agree a modelling methodology for this site because the existing River Gwenfro model was completed in 2016 and shows that this site is not at fluvial flood risk. There are no updates required to the hydrology or climate change allowances at this time and the assessment of blockage has been undertaken at key structures. The nearest structure to this site is unlikely to be subject to blockage.

We would recommend the fluvial mapping outputs of the existing model which show the impacts of climate change for the Afon Gwenfro are used to assess the requirements for a flood consequence assessment.

If you could please confirm that you are satisfied with this response, and that you no longer require us to carry out the review?

Best Regards,

Daniel

6.8 DCWW PRE-PLANNING RESPONSE

Mr Alejandro Ortiz
WSP UK LTD
OPUS house, Yale Business Village
Wrexham Technology Park
Wrexham
LL13 7YL

Date: 07/09/2018
Our Ref: PPA0003367

Dear Mr Ortiz

Grid Ref: 334353 349878
Site Address: Nant Silyn, Pont Wen, Wrexham
Development: Residential development – 13 units

Thank you for your letter received on the 30th August 2018. The following pre-planning advice responds to relevant questions listed within your letter. Please note that we are unable to advise on groundwater issues, highway flooding issues etc. Should you require any further information, please do not hesitate to contact us.

ASSET PROTECTION

The proposed development site is crossed by a 300mm and 600mm diameter combined gravity public sewers and a 450mm combined storm overflow with their approximate positions being marked on the attached Statutory Public Sewer Record. Under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times. No part of any building will be permitted within 3 metres either side of the centreline of the public sewers and the combined storm overflow.

Our strong recommendation is that your site layout takes into account the location of the assets crossing the site and should be referred to in any master-planning exercises or site layout plans submitted as part of any subsequent planning application. Further information regarding Asset Protection is provided in the attached Advice & Guidance note.

SEWERAGE

Foul flows only from the proposed development can be accommodated within the public sewerage system. We advise that the flows should be taken to the 600mm combined public sewer at or beyond manhole SJ34493805 which crosses the site.

Should a planning application be submitted for this development we will seek to control these points of communication via appropriate planning conditions and therefore recommend that any drainage layout or strategy submitted as part of your application takes this into account.

However, should you wish for an alternative connection point to be considered please provide further information to us in the form of a drainage strategy, preferably in advance of a planning application being submitted.

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.

Given the close proximity of Afon Gwenfro to the development site and given that we have recorded flooding instances downstream of the site, we wouldn't allow surface water runoff to discharge directly or indirectly into the combined public sewerage system. 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 SUPPLY

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

Encs: Sewer plan
Pre-planning advice notes

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

Russell, Jason

To: Ortiz Marcotegui, Alejandro
Subject: RE: PPA0003367 Pre-Planning Advice Nant Silyn (Wrexham)

Dear Mr Ortiz,

Thank you for your e-mail received in relation to the above.

Foul flows only from the proposed development of 15 dwellings can be accommodated within the public sewerage system. We advise that the flows should be taken to the 600mm combined public sewer at or beyond manhole SJ34493805 which crosses the site.

I hope the above is of assistance. Should you have any queries, please do not hesitate to contact me.

Kind regards,
Alaw



Alaw Jones 

Development Control Officer | Developer Services | Wholesale Business Services | Services Dwr Cymru Welsh Water

Kinmel Park | Bodelwyddan | LL18 5TQ | T: 0800 917 2652 | www.dwrcymru.com

Developer Services have an on-line service at www.dwrcymru.com. Here you can find all the services available, complete application forms and also make payments. If you have a quotation you can pay for this on-line or alternatively by telephoning 0800 917 2652 using a credit/debit card.

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If we've gone the extra mile to provide you with excellent service, let us know. You can nominate an individual or team for a Diolch award through our [website](#).

From: Ortiz Marcotegui, Alejandro [<mailto:Alejandro.Ortiz@wsp.com>]

Sent: 11 December 2018 12:27

To: services developer <developer.services@dwrcymru.com>

Subject: PPA0003367 Pre-Planning Advice Nant Silyn (Wrexham)

***** External Mail *****

Dear Sirs,

I'm writing to you in order to enquiry regarding Nant Silyn development, the proposed project was originally of 13 properties now has changed to 15 properties.

The purpose of this enquiry is to know if you still have the capacity to connect the 15 properties to the network. If you need any additional information, please do not hesitate to ask me.

Kind Regards

Alejandro Ortiz



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Yale Business Village,
Wrexham Technology Park,
Wrexham
LL13 7YL

wsp.com

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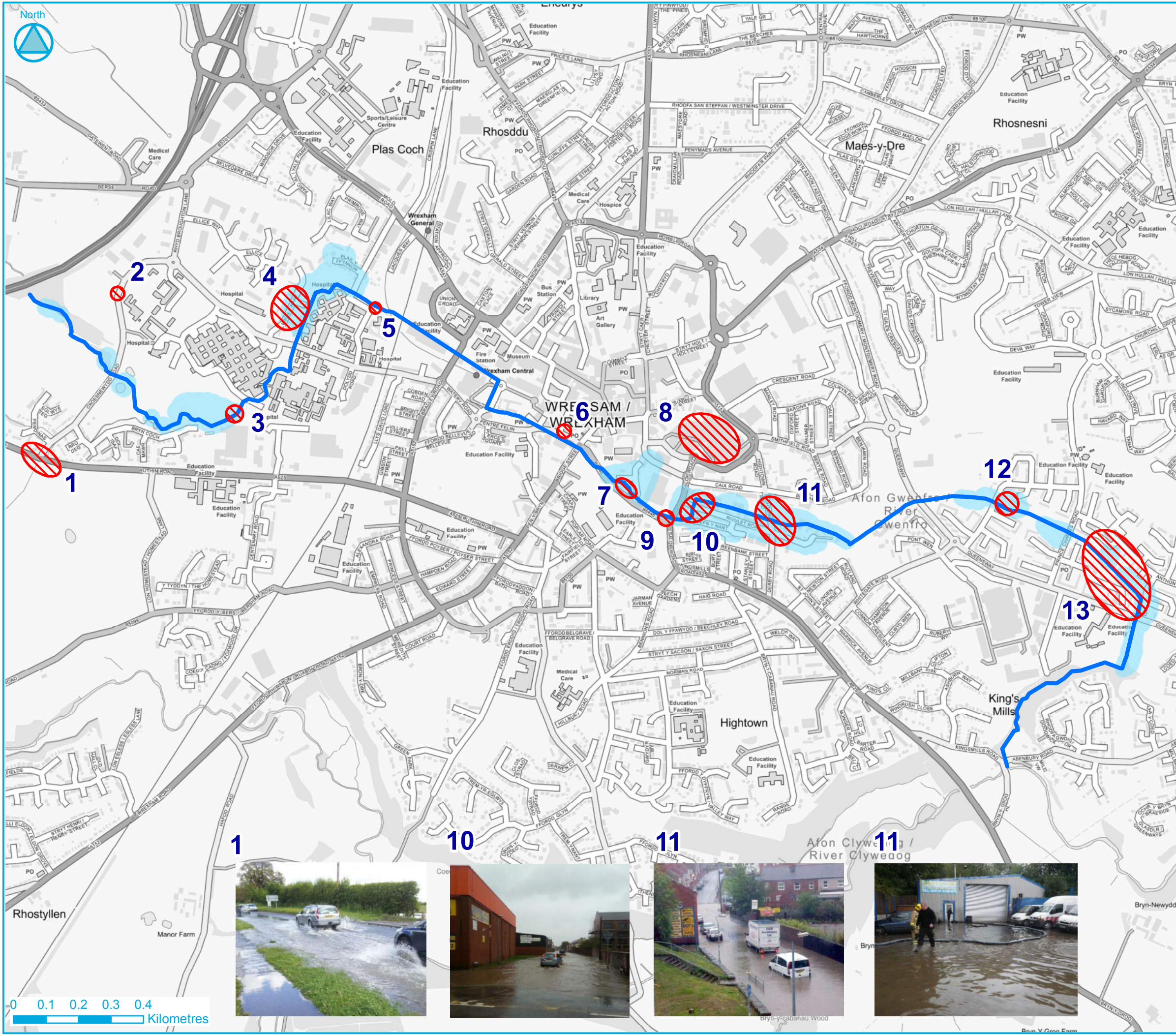
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6.9 RIVER GWENFRO FLOOD HISTORY INFORMATION



Flood History Description

- 1 - Fluvial flooding from Lower Berse Farm tributary. Flooding on Ruthin Road, May 2013 (see photo)
- 2 - Gully blockage issue. Flooding on Croesnewydd Road in August 2009
- 3 - Culvert capacity issue. Flooding of pump house on left bank in 2000
- 4 - Fluvial flooding on left bank. Wrexham Maelor hospital nurses accomodation flooded twice prior to 2008
- 5 - Culvert blockage issue upstream of railway bridge
- 6 - Regular surface water flooding. Properties on Brook Street flooded in 2010, 2012, 2013 and 2015
- 7 - Fluvial flooding on left bank near to St. Giles church
- 8 - Surface water flooding at Eagles Meadow car park
- 9 - Rapid flash flooding. Flooding on Salop Road in December 2012
- 10 - Rivulet Road culvert capacity issue. Overtopping on left bank caused flooding to theatre car park and industrial units on Rivulet Road in May 2013
- 11 - Fluvial flooding to properties on Rivulet Road and Hightown Road. Photos show flooding on Highown Road and at Riverside Autocentre in 2012 and 2013
- 12 - Fluvial flooding to properties in September 2012. Surface water flooding on road near Queensway Sports Centre in January 2016
- 13 - Fluvial flooding to properties in Caia Park recorded in 1979, 1983, 2012 and 2013

Flood Hotspots

Existing Model Existing

Predicted 1% AEP Flood Extent (2008)

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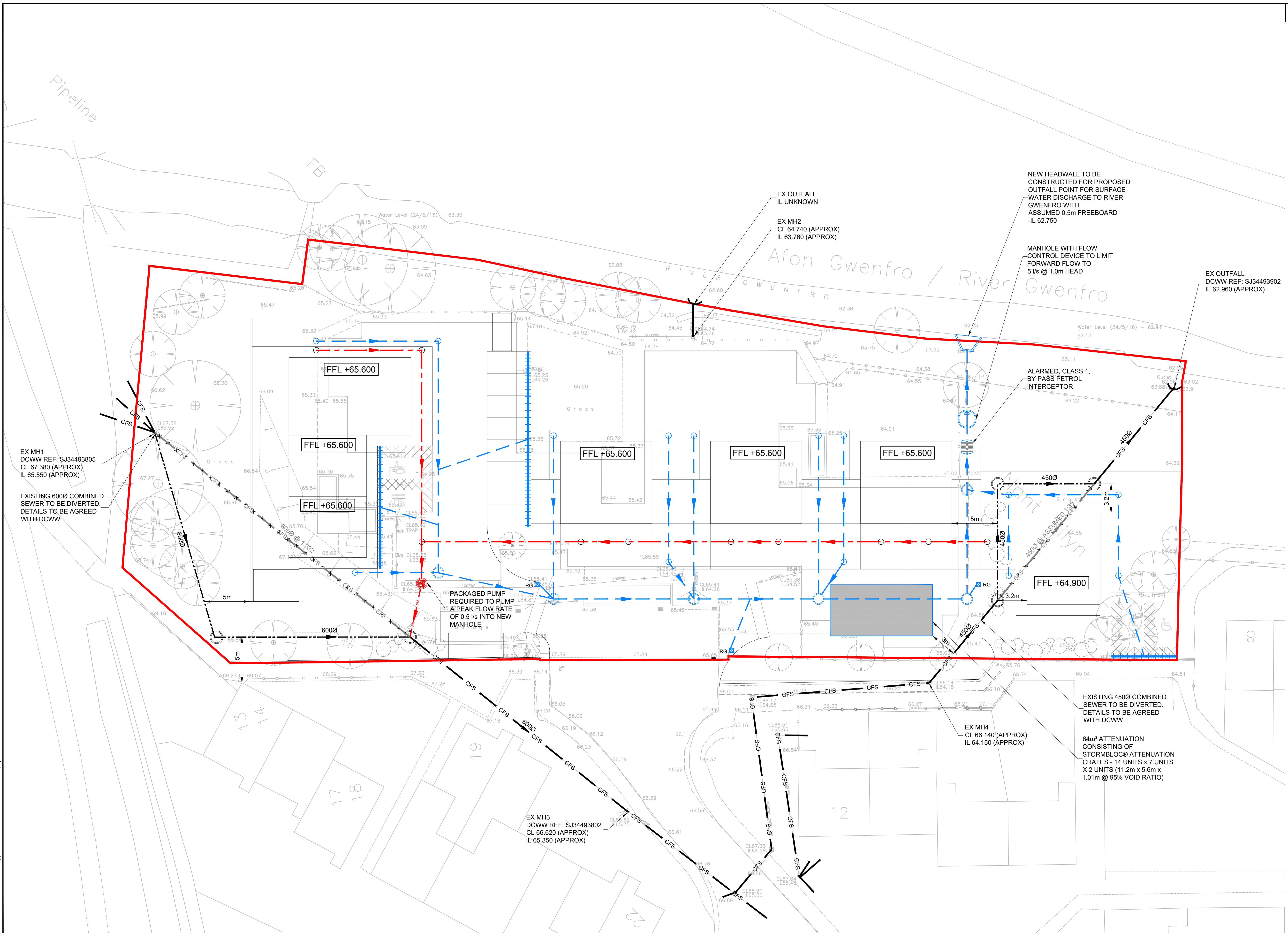
2016s4211 River Gwefro Model Update

Drawn by: Holly Laws	Scale:
Date: December 2016	Not to scale
Status: FINAL	Original @ A3
File Name: Graphical Data\ArcGIS\Projects\A3_Flood History_Inception Report_Draft.mxd	
Drawing Number: Figure 1-4: Flood History of the River Gwefro	

6.10 INDICATIVE DRAINAGE LAYOUT



- | | |
|--|-----------------------------|
|  | LINEAR DRAINAGE CHANNEL |
|  | PROPOSED ATTENUATION CRATES |
|  RG | TRAPPED ROAD GULLY |
|  | SITE BOUNDARY |



6.11 GREENFIELD RUN-OFF RATES

Opus International Consultants (UK) Ltd		Page 1
Modulus House Salterns Lane Fareham PO16 0QS		
Date 26/11/2018 15:40 File STORM-ATTENUATION.SRCX	Designed by UKJGR400 Checked by	
XP Solutions Source Control 2016.1.1		

ICP SUDS Mean Annual Flood

Input

Return Period (years)	100	Soil	0.300
Area (ha)	0.444	Urban	0.000
SAAR (mm)	870	Region Number	Region 9

Results 1/s

QBAR Rural	1.0
QBAR Urban	1.0
Q100 years	2.3
Q1 year	0.9
Q30 years	1.8
Q100 years	2.3

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6.12 TYPICAL ATTENUATION CALCULATIONS

Opus International Consultants (UK) Ltd							Page 1
Modulus House Salterns Lane Fareham PO16 0QS			NANT SILYN ATTENUATION				
Date 07/12/2018 File STORM-ATTENUATION.SRCX			Designed by J RUSSELL Checked by V MOHUN				
XP Solutions			Source Control 2016.1.1				
<u>Summary of Results for 100 year Return Period (+20%)</u> Half Drain Time : 111 minutes.							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	63.578	0.518	0.0	5.0	5.0	30.8	O K
30 min Summer	63.744	0.684	0.0	5.0	5.0	40.8	O K
60 min Summer	63.875	0.815	0.0	5.1	5.1	48.5	O K
120 min Summer	63.913	0.853	0.0	5.2	5.2	50.8	O K
180 min Summer	63.904	0.844	0.0	5.2	5.2	50.3	O K
240 min Summer	63.882	0.822	0.0	5.1	5.1	49.0	O K
360 min Summer	63.823	0.763	0.0	5.0	5.0	45.5	O K
480 min Summer	63.762	0.702	0.0	5.0	5.0	41.8	O K
600 min Summer	63.700	0.640	0.0	5.0	5.0	38.1	O K
720 min Summer	63.637	0.577	0.0	5.0	5.0	34.4	O K
960 min Summer	63.512	0.452	0.0	5.0	5.0	26.9	O K
1440 min Summer	63.255	0.195	0.0	5.0	5.0	11.6	O K
2160 min Summer	63.085	0.025	0.0	5.0	5.0	1.5	O K
2880 min Summer	63.060	0.000	0.0	4.4	4.4	0.0	O K
4320 min Summer	63.060	0.000	0.0	3.2	3.2	0.0	O K
5760 min Summer	63.060	0.000	0.0	2.6	2.6	0.0	O K
7200 min Summer	63.060	0.000	0.0	2.2	2.2	0.0	O K
8640 min Summer	63.060	0.000	0.0	1.9	1.9	0.0	O K
10080 min Summer	63.060	0.000	0.0	1.7	1.7	0.0	O K
15 min Winter	63.652	0.592	0.0	5.0	5.0	35.3	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
15 min Summer	97.131	0.0	37.3	24			
30 min Summer	66.482	0.0	51.1	37			
60 min Summer	43.553	0.0	67.0	62			
120 min Summer	27.582	0.0	84.7	104			
180 min Summer	20.796	0.0	95.8	138			
240 min Summer	16.889	0.0	103.7	172			
360 min Summer	12.525	0.0	115.4	242			
480 min Summer	10.132	0.0	124.4	310			
600 min Summer	8.586	0.0	131.8	378			
720 min Summer	7.496	0.0	138.2	446			
960 min Summer	6.043	0.0	148.4	580			
1440 min Summer	4.451	0.0	164.1	802			
2160 min Summer	3.270	0.0	181.1	1124			
2880 min Summer	2.624	0.0	193.6	0			
4320 min Summer	1.919	0.0	212.4	0			
5760 min Summer	1.535	0.0	226.5	0			
7200 min Summer	1.292	0.0	238.4	0			
8640 min Summer	1.123	0.0	248.7	0			
10080 min Summer	0.997	0.0	257.7	0			
15 min Winter	97.131	0.0	41.7	24			
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Modulus House Salterns Lane Fareham PO16 0QS			NANT SILYN ATTENUATION				
Date 07/12/2018 File STORM-ATTENUATION.SRCX			Designed by J RUSSELL Checked by V MOHUN				
XP Solutions			Source Control 2016.1.1				
<u>Summary of Results for 100 year Return Period (+20%)</u>							
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	63.846	0.786	0.0	5.0	5.0	46.8	O K
60 min Winter	64.008	0.948	0.0	5.4	5.4	56.5	O K
120 min Winter	64.122	1.062	0.0	5.6	5.6	60.2	O K
180 min Winter	64.050	0.990	0.0	5.5	5.5	59.0	O K
240 min Winter	64.015	0.955	0.0	5.4	5.4	56.9	O K
360 min Winter	63.922	0.862	0.0	5.2	5.2	51.3	O K
480 min Winter	63.824	0.764	0.0	5.0	5.0	45.5	O K
600 min Winter	63.725	0.665	0.0	5.0	5.0	39.6	O K
720 min Winter	63.627	0.567	0.0	5.0	5.0	33.8	O K
960 min Winter	63.391	0.331	0.0	5.0	5.0	19.7	O K
1440 min Winter	63.094	0.034	0.0	5.0	5.0	2.0	O K
2160 min Winter	63.060	0.000	0.0	4.0	4.0	0.0	O K
2880 min Winter	63.060	0.000	0.0	3.2	3.2	0.0	O K
4320 min Winter	63.060	0.000	0.0	2.3	2.3	0.0	O K
5760 min Winter	63.060	0.000	0.0	1.9	1.9	0.0	O K
7200 min Winter	63.060	0.000	0.0	1.6	1.6	0.0	O K
8640 min Winter	63.060	0.000	0.0	1.4	1.4	0.0	O K
10080 min Winter	63.060	0.000	0.0	1.2	1.2	0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)			
30 min Winter	66.482	0.0	57.2	37			
60 min Winter	43.553	0.0	74.9	64			
120 min Winter	27.582	0.0	95.1	114			
180 min Winter	20.796	0.0	107.5	146			
240 min Winter	16.889	0.0	116.3	184			
360 min Winter	12.525	0.0	129.6	260			
480 min Winter	10.132	0.0	139.7	336			
600 min Winter	8.586	0.0	147.9	408			
720 min Winter	7.496	0.0	154.9	480			
960 min Winter	6.043	0.0	166.4	608			
1440 min Winter	4.451	0.0	183.9	788			
2160 min Winter	3.270	0.0	202.7	0			
2880 min Winter	2.624	0.0	216.9	0			
4320 min Winter	1.919	0.0	237.9	0			
5760 min Winter	1.535	0.0	253.7	0			
7200 min Winter	1.292	0.0	267.1	0			
8640 min Winter	1.123	0.0	278.5	0			
10080 min Winter	0.997	0.0	288.6	0			
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Modulus House Salterns Lane Fareham PO16 0QS	NANT SILYN ATTENUATION	
Date 07/12/2018	Designed by J RUSSELL	
File STORM-ATTENUATION.SRCX	Checked by V MOHUN	
XP Solutions		Source Control 2016.1.1

Model Details

Storage is Online Cover Level (m) 65.400

Cellular Storage Structure

Invert Level (m) 63.060 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	62.7	0.0	1.011	0.0	0.0
1.010	62.7	0.0			

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0105-5000-1000-5000
Design Head (m) 1.000
Design Flow (l/s) 5.0
Flush-Flo™ Calculated
Objective Minimise upstream storage
Application Surface
Sump Available Yes
Diameter (mm) 105
Invert Level (m) 62.825
Minimum Outlet Pipe Diameter (mm) 150
Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	5.0
Flush-Flo™	0.296	5.0
Kick-Flo®	0.637	4.1
Mean Flow over Head Range	-	4.3

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.6	1.200	5.4	3.000	8.4	7.000	12.5
0.200	4.8	1.400	5.8	3.500	9.0	7.500	12.9
0.300	5.0	1.600	6.2	4.000	9.6	8.000	13.3
0.400	4.9	1.800	6.6	4.500	10.1	8.500	13.7
0.500	4.7	2.000	6.9	5.000	10.6	9.000	14.1
0.600	4.3	2.200	7.2	5.500	11.1	9.500	14.5
0.800	4.5	2.400	7.5	6.000	11.6		
1.000	5.0	2.600	7.8	6.500	12.1		



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