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CONSULTING CIVIL & STRUCTURAL ENGINEERS

Drainage Strategy For:

CLDP PROPOSED RESIDENTIAL ALLOCATION ON LAND OFF CEFNEITHIN ROAD GORSLAS

Prepared for:

Mannor Homes

DATE OF REPORT

31st July 2018

REF: 7691-01

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Document Control

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1.0 Introduction

Vale Consultancy were instructed by our client Mannor Homes to undertake a Drainage Strategy Assessment, relating to CLDP Proposed residential allocation on land off Cefneithin Road, Gorslas Carmarthenshire, SA14 7HT. The site is located at NGR: SN 56584, 13674.

The candidate site is currently occupied by a recycling facility, open grassland and young woodland, it is not known at this time if the wider site has previously been previously developed.

This report has been produced with respect to the candidate site being offered for inclusion in the revised 2018-2033 Carmarthenshire Local Development Plan, and is part of a wide submission from other Consultants.

The report outlines the existing and proposed site drainage at a strategic level, summarising what would be provided for surface and foul schemes to satisfactorily manage the flow generated, with respect to the site and the surrounding area. A full drainage strategy will be required for any subsequent planning application.

In association with the drainage strategy, the report also outlines current flood risks and potential flood risks post development. A full Flood Consequence Assessment (FCA) may be required to support any subsequent planning application.

2.0 Site Description and Context

2.1 Location, Description & Topography

The site is located on land south of Cefneithin Road. An area of site has been developed as a recycling facility and is relatively level, with the topography of the land to the south and west reducing in level considerably, predominantly in a south westerly direction. There are a number of water courses and drainage ditches which bound and cross the site. The primary named water course (Gwendraeth Fawr) flows in a south westerly direction through the southern area of the site. A secondary water feature again flows in a south westerly direction towards the western developed boundary of the site, and what is thought to be a highway drainage ditch west of the site adjacent to the A48.

2.2 Proposed Development

The proposed development is shown on Connections Design drawing J18/03-SK03, included in **Appendix A**, and comprises 190 dwellings and access road infrastructure. With access proved at a dedicated new entrance onto Cefneithin Road.

3.0 Drainage Systems

3.1 Existing Drainage

The developed area of the site is served by existing drainage which has not been surveyed, so the layout and full extent is not known. However the current DCWW apparatus record plan is included in **Appendix B**, which shows the combined sewer serving the area of Gorslas east of the site crosses to the eastern corner of the site by approximately 15m and continuing parallel with Cefneithin Road for 170m, before crossing to the north side of Cefneithin Road. Before the sewer continues under the A48 bridge the sewer has a special purpose chamber (over flow chamber), with the overflow sewer flowing south, parallel to the A48 and discharging into the Gwendreath Fawr (described above). Any current private site drainage will be redundant, in the context of the proposed development.

3.2 Proposed Drainage

All the existing non adopted foul and surface water drainage on site will be abandoned and grubbed up, if shallower than 1m in depth or grouted if deeper.

The existing ground conditions are unknown, in relation to porosity to accept surface water discharge, so as part of any future detailed drainage design percolation tests will be required at appropriate locations to suit the proposed site layout. If the ground has a low porosity and infiltration methods of SW disposal proves to be unviable, or the final site topography is restrictive, then attenuation and discharge to the Gwendreath Fawr will be required. This is applicable for both the private surface water and the highway surface water. To provide the appropriate attenuation storage, a two or three tank system may be required. Two for the private surface water to satisfy the differing requirements of DCWW and Lead Land Drainage Authority (LLDA), i.e. 1 in 30 year event and 1 in 100 year + 30 climate change, and potentially a tank for highway attenuation, depending on the specific requirements of the detailed design. The attenuation rates will be set at a combination of greenfield rate and a betterment of the brownfield rate, proportioned to the development of the greenfield and brownfield site areas. Initial assessment identifies a total of circa 1160m³ of attenuation storage will be required. If the site levels allow, the private runoff attenuation could be provided in combination of below ground tank and above ground open water storage, either by a normally dry detention basin, or attenuation pond.

Foul discharge from the development will discharge into a new adoptable DCWW gravity foul sewer which will terminate at the south west corner of the site at a new pumping station, with a rising main to the existing DCWW combined sewer at the north of the site. The pumping station will be situated in an accessible location at the access road lower cul-de-sac, designed in accordance ‘Sewers for Adoption 7th Edition’, and offered to DCWW for adoption. Initial assessment identifies the pumping station wet well will require a storage volume of circa 31m³.

The location of the existing DCWW foul sewer that crosses the north of the site is restrictive to the nature of the proposed development. As such it is proposed that the existing 225mm dia sewer is diverted parallel to the existing alignment, but in closer proximity to the adopted footpath of Cefneithin Road, thus opening up the developable site. The sewer will be in front and side gardens, and adopted highway, with a 6m easement where applicable, with the required DCWW access to the sewer maintained.

A Pre-App enquiry has been submitted to DCWW to determine the pumping stations capacity to receive additional flows from the new development.

4.0 Dwr Cymru Welsh Water Infrastructure Capacities

A Pre-App enquiry has been submitted to DCWW, to determine the current spare capacity in water supply, sewerage systems and waste water treatment in the vicinity of the candidate site. It is noted that Pre-App enquiries are assessed at a high level without any detailed capacity modeling. As such the findings may not be conclusive, this is particularly the case in areas where there is the possibility of other candidate sites with Pre-App enquiries that may potentially make demands on the DCWW networks. The Pre-App response from DCWW is including in **Appendix C**.

4.1 Sewerage

The DCWW response states that foul flows only can be accommodated within the public sewerage system. With flows communicated to the combined sewer between manholes SN56135701 and SN56137701 crossing the site. The communication point would be controlled via a planning condition, if an alternative connection point is preferred, a drainage strategy should be submitted to DCWW prior to a planning application being submitted. As stated in Section 3.2, a proposal would be submitted to divert the existing combined sewer that crosses the site, so that the development can be effectively implemented. As such, the DCWW preferred communication point would not be applicable.

The response recommends that a sustainable drainage strategy be developed and submitted with any formal planning application, taking account of Planning Policy Technical Advice Note 15 (TAN15) and SuDS in Wales guidance.

Drainage strategy and flood risk are outlined in this report, which outlines the proposed surface water management mechanisms and the appropriate siting of the developable area with the boundary of the candidate site. This would be developed and expanded as part of a full planning application.

The response also highlights that the 3m easement from the centerline of the foul sewer has to be maintained, which has already been considered by the design team in the proposed site layout.

4.2 Sewerage Treatment

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

4.3 Water Supply

In order to establish what would be required to serve the site with an adequate water supply a Hydraulic Modelling Assessment on the water supply network.

5.0 Flood Risk

The Natural Resource Wales (NRW) development flood risk maps for the three main modes of flooding are included in **Appendix D**. These include risk of flooding from rivers and sea, surface water and reservoirs. As shown on the risk maps the only mode of flooding which causes a potential risk is surface water. This is concentrated to the corridor along the water course and drainage ditches, described above. Parts of the development areas of the site will be retained as natural or enhanced habitat, which will include the surface water flood corridors.

Additional surface water runoff post development is expected to be managed via soakaways (or more likely due to site topography) attenuated discharge to the Gwendreath Fawr for both private and highway SW runoff. With the areas of site currently at risk of surface water flooding remaining undeveloped and with the implementation of the proposed SW drainage management and attenuation, the future risk of flooding will remain low.

6.0 Conclusion

The above assessment describes the strategy for managing foul and surface water arising from the development and also the current and post-development flood risk.

It is concluded that following detailed design, the surface water discharge can be adequately managed. The DCWW Pre-App response states that **foul flows only** can be accommodated within the public sewerage system. With flows communicated to the combined sewer between manholes SN56135701 and SN56137701 crossing the site, this will be challenged, due to the proposed diversion of the combined sewer as part of the proposed development, with a scheme submission to DCWW prior to any planning application being submitted.

In order to establish what would be required to serve the site with an adequate water supply a Hydraulic Modelling Assessment on the water supply network.

The flood risk to the developable area of the site is currently low, and with the appropriate detailed drainage design the risk to the candidate site and immediate surrounding area will remain low. The only identified flood risk is surface water flooding to the water course and drainage ditches which crosses the site, and will remain within undeveloped areas of the site. The proposed house plots, access road outside of the flood risk zones, and the LEAP and LAP areas also suitably positioned.

Further site specific investigations and assessments may be required as part of any future full planning application for this site.

APPENDIX A

Proposed Development Plan

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APPENDIX B

DCWW Apparatus Record Plan

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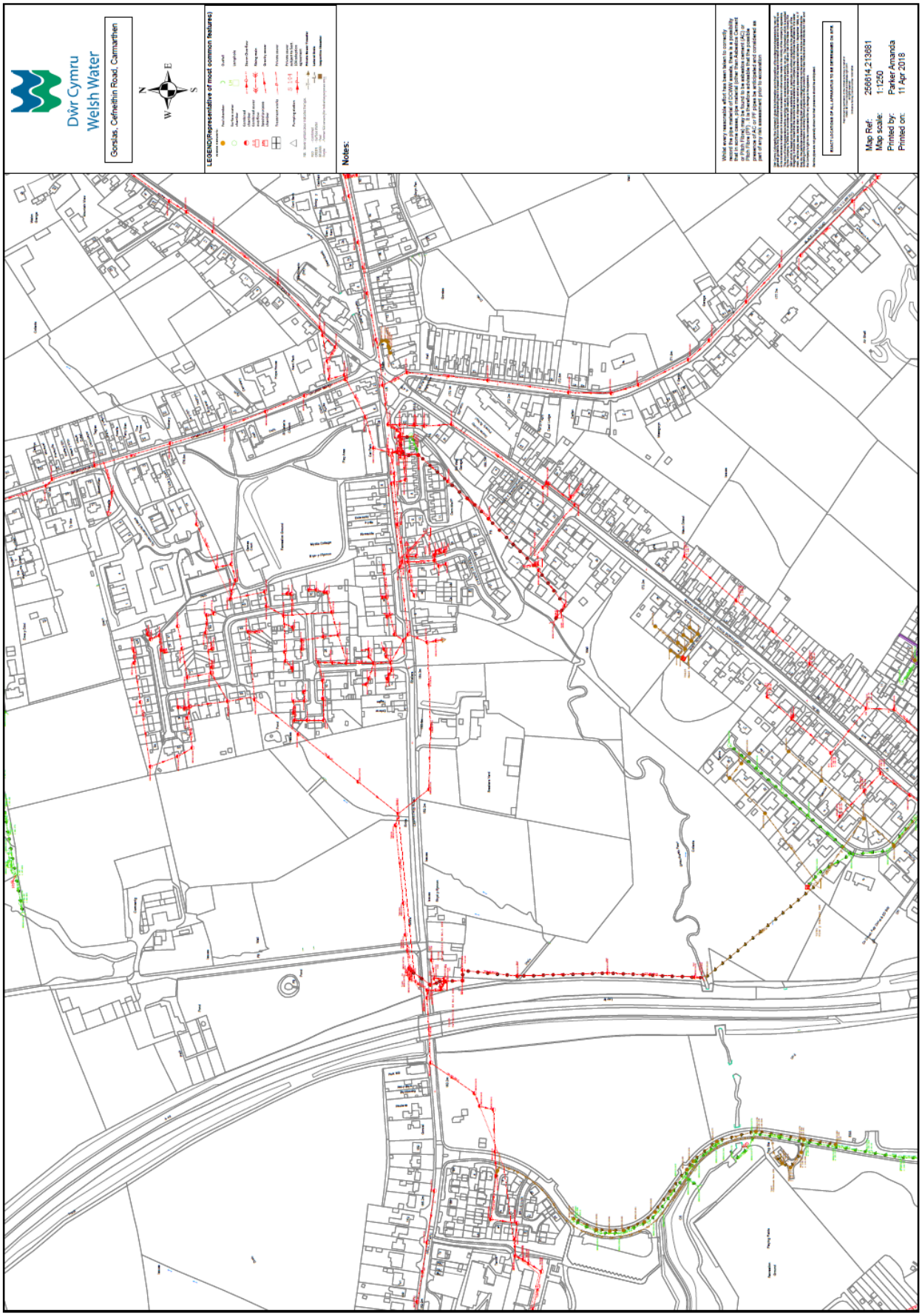

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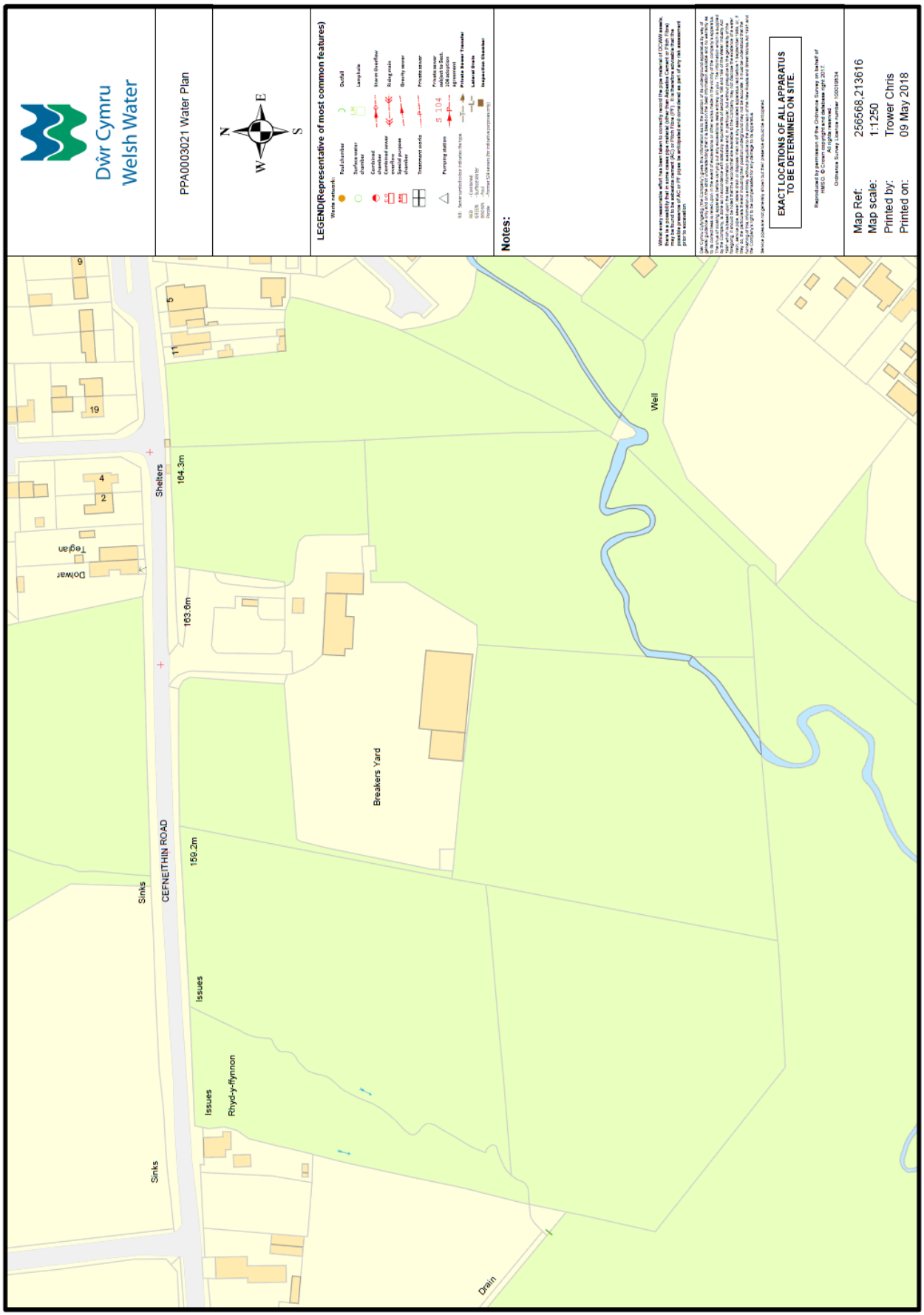

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APPENDIX C

DCWW Pre-App Response

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Mr Nick Clifford
Manor Homes
Garnfoel House
Garnfoel
Penygroes
Carmarthenshire
SA14 7PS

Date: 09/05/2018
Our Ref: PPA0003021

Dear Mr Clifford

Grid Ref: 256568 213616
Site Address: Cefneithin Road Gorslas
Development: Siate at Cfneithin Road

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

SEWERAGE

The foul flows only from the proposed development can be accommodated within the public sewerage system. We advise that the flows should be communicated with to the combined sewer between manholes SN56135701 and SN56137701 crossing 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.

With reference to the surface water flows from the proposed development, we recommend that a sustainable drainage strategy be developed and submitted with the formal planning application. We strongly recommend that you take account of the guidance offered by Planning Policy Technical Advice Note 15 (TAN15) section 8 and "Recommended non-statutory standards for sustainable drainage (SuDS) in Wales – designing, constructing, operating and maintaining surface water drainage systems" - 2017 Digital ISBN: 978 1 4734 8768 0.

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The proposed development site is crossed by a public sewers with the 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 255mm and 150mm public combined sewers.

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

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

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

SEWAGE TREATMENT

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

WATER SUPPLY

In order to establish what would be required to serve the site with an adequate water supply, it will be necessary for the developer to fund the undertaking of a hydraulic modelling assessment on the water supply network. For the developer to obtain a quotation for the hydraulic modelling assessment, we will require a fee of £250 + VAT.

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,

[redacted]

Owain George
Planning Liaison Manager
Developer Services

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

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APPENDIX D

NRW Flood Risk Maps

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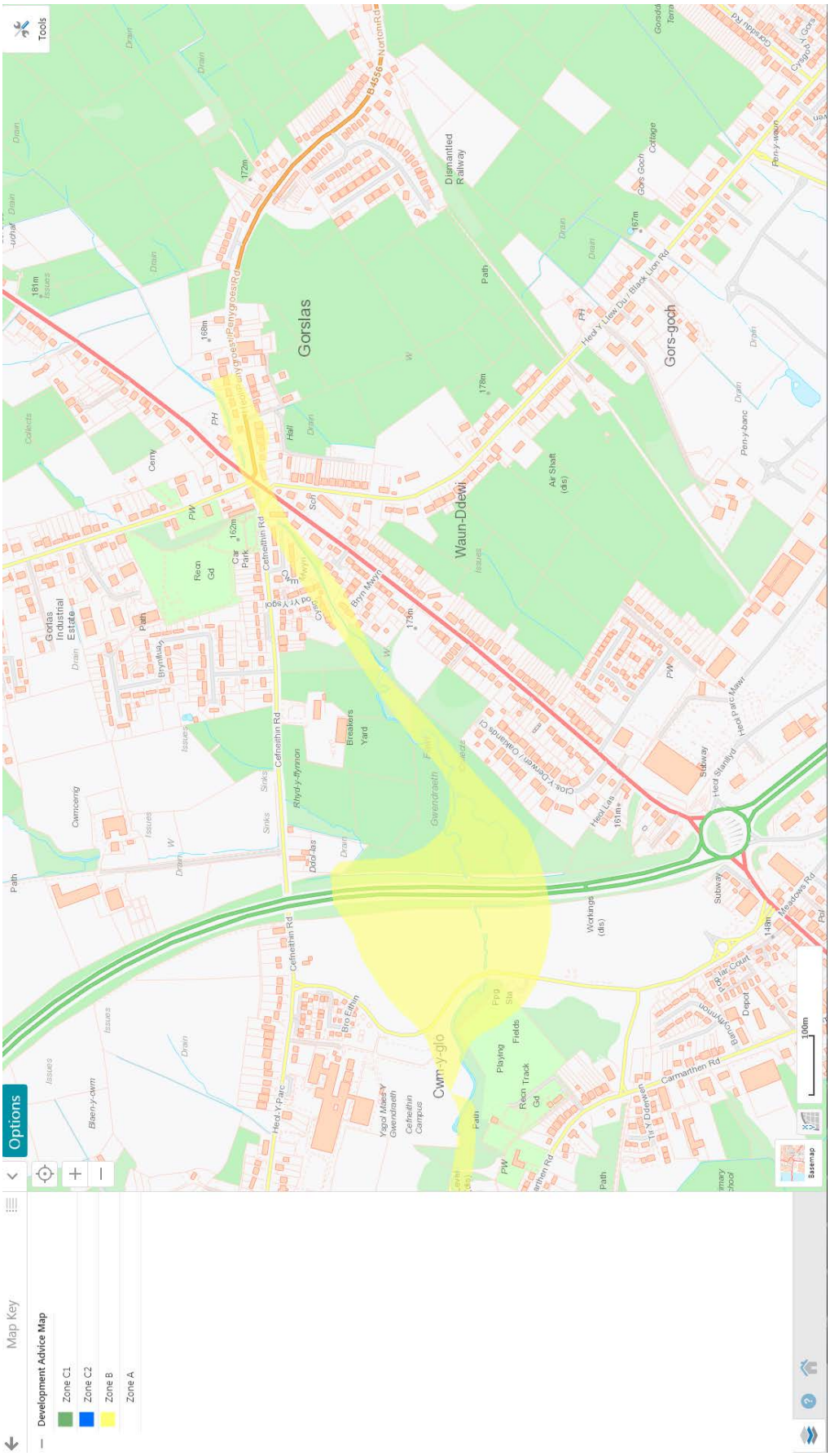

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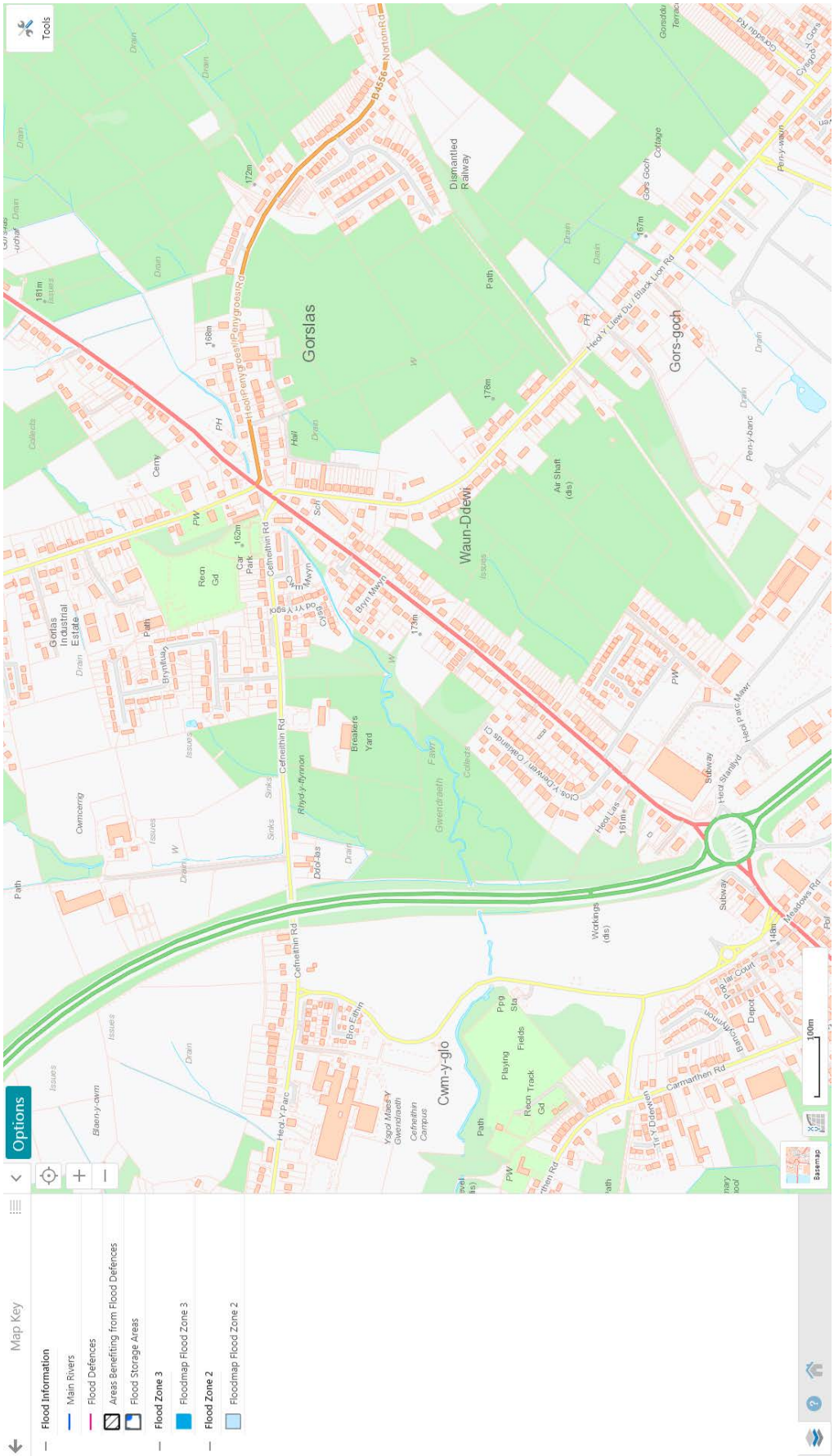

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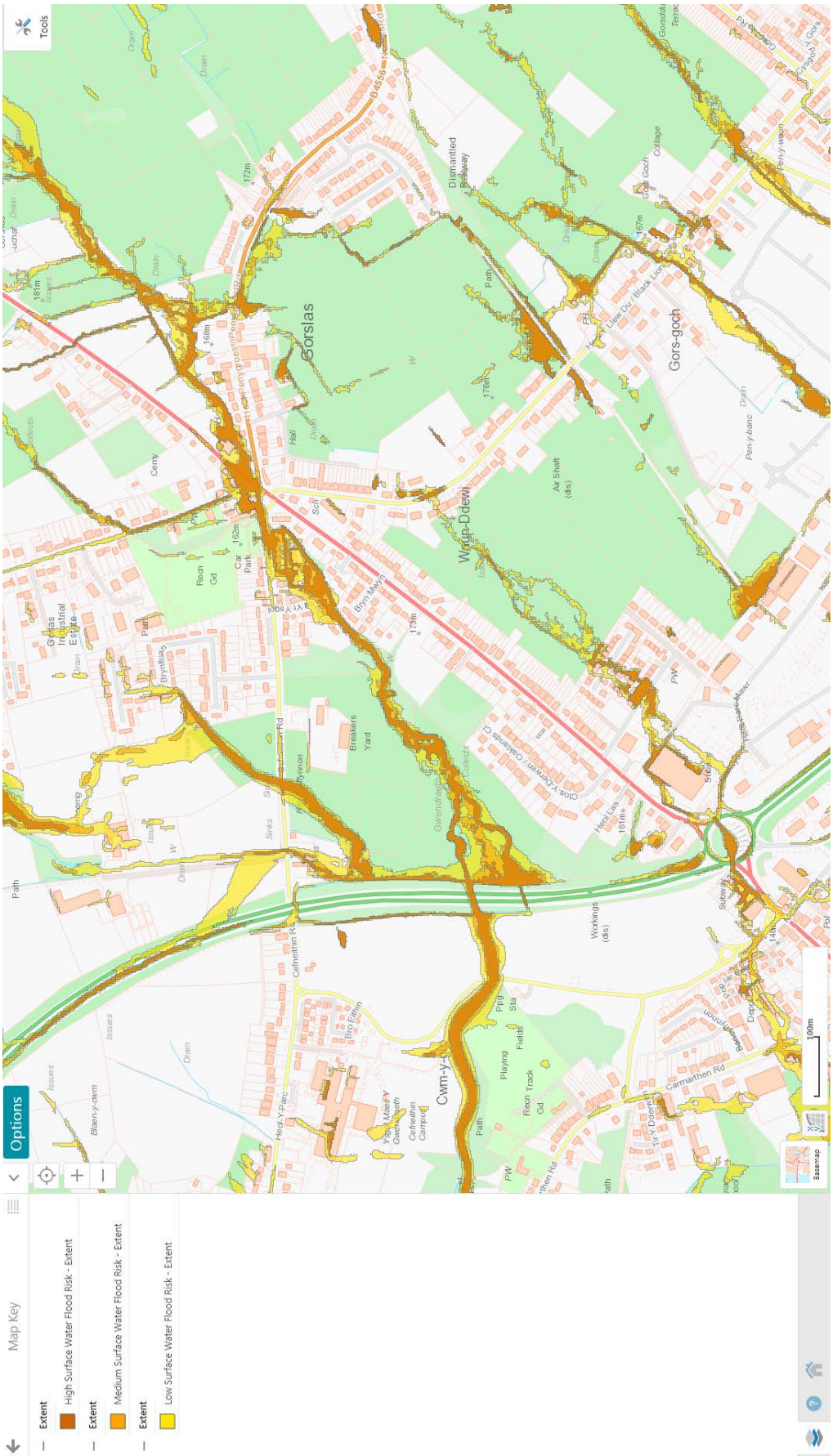

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