



Utilities & Infrastructure Report

Bangor Rd, Johnstown
Wrexham



Document Control

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1. INTRODUCTION

1.1 INTRODUCTION

- 1.1.1 This report details the findings of a utilities and infrastructure appraisal carried out at the request of Gladman Developments Ltd with regard to utility supplies & potential requirements for future development to support an outline planning application for residential end use.
- 1.1.2 The proposed development site is located on land on the outskirts of Johnstown approx 2.3km to the south west of Wrexham. The site is currently occupied by a tile works and associated buildings and is approximately 18.5Ha in total. See site location/boundary plan ref 2010-002-100-01.
- 1.1.3 The assessments made in the report are based on a proposal for up to 300 residential units, 1 small A1 commercial/retail units (235sqm) and 465sqm of B2/B8 industrial/ storage/distribution space. Applications to all Utility providers were made on the basis of developing up to 250 properties plus an element of commercial/retail loadings so, despite the slight increase in the number of residential units, the conclusions can still be applied to the proposed scheme. Should there be a further increase in the number of proposed properties further investigations would be required.



2. PURPOSE OF STUDY

The purpose of this Utilities & Infrastructure Report is to assist the Local Planning Authority (LPA) to take account of service connection issues when considering the development proposals in the planning application.

2.1 METHOD OF STUDY

2.1.1 Information has been gathered from land searches requested through Linesearch and Searchflow, together with assessment of information provided by the host asset owners and a number of Independent Connection Providers.

2.2 AIM

2.2.1 The principal aim of a Utilities Appraisal is to establish the following:

- Review the existing utility networks to determine their location and potential to serve the proposed new development
- Identify strategic proposals for the supply of utilities for the development
- Identify any need for off site utility network reinforcements to support the development

2.3 CONTENT

2.3.1 This report will deal with gas, potable water, electric and telecommunications. All drainage and sewerage issues will be discussed within the Flood Risk Assessment (FRA).

2.4 OBJECTIVES

2.4.1 The objectives of this report are:

- To provide baseline information against which future change can be compared



- To identify any issues or engineering difficulties with regard to supplying the proposed new development with new gas, water, electric and telecommunication connections.
- To outline potential connection solutions and options for the proposed scheme
- To provide information to enable relevant consents to be obtained

2.5 OUTPUTS

2.5.1 The outputs from this report will:

- Provide an understanding of the existing utilities infrastructure surrounding the site
- Assess the effect of the proposed new development on existing infrastructure
- Provide a summary of the issues that need to be considered regarding new utility connections for the proposed new development



3. EXISTING UTILITIES INFRASTRUCTURE

3.1 EXISTING SITE INFRASTRUCTURE DETAILS

Site Name	Johnstown
Existing Land Use	Brownfield
Proposed Land Use	Residential in the form of up to 300 houses, 235 sqm A1 commercial/retail units and 465sqm of B2/B8 industrial/ storage/distribution space
OS National Grid Reference	SJ 311 461
Size of Site	18.5 Hectares
Local Planning Authority	Wrexham County Borough Council
Electricity Host Asset Owner	Scottish Power
Water Host Asset Owner	Dee Valley Water
Gas Host Asset Owner	Wales & West Utilities

Table 1: Development Baseline Information

Existing electric, gas, potable water and telecommunications plans have been considered and are attached in Appendix A, B, C, & D.

3.2 ELECTRIC

- 3.2.1 The host asset owner in this area is Scottish Power (SP) and they maintain the electricity network in the vicinity of the site.
- 3.2.2 The electricity records supplied by SP indicate there are existing National Grid EHV electric transmission overhead lines crossing the site together with SP EHV 132kV overhead lines and associated pylons. Given the proposed site layout these will not be affected and as long as standard safe working practices are undertaken during construction there should be no engineering difficulties with these overhead lines.



3.2.3 There are also HV overhead lines feeding the supplies to the existing tile manufacturing operation on site. These can be removed if no longer required or diverted underground and incorporated within the new infrastructure for the new proposed development when the detailed site layout is confirmed. No excessive costs are anticipated for this work.

3.3 GAS

3.3.1 The host asset owner in this area is Wales & West Utilities and they maintain the gas network in the vicinity of the site.

3.3.2 The gas records supplied by National Grid indicate there is an existing 6" high pressure gas main running along the northern boundary of the site with a direct service connection into the existing tile manufacturing unit. This should be unaffected by the proposed scheme.

3.3.3 There is also an 8" high pressure gas main running along the south eastern boundary of the site. The proposed site layout has also taken this into consideration so there is no need for a diversion however this will need to be clarified at detailed design stage.

3.4 WATER

3.4.1 Dee Valley Water (DVW) is the host water provider for this region and is responsible for maintaining any existing infrastructure in the area.

3.4.2 Records indicate there no existing water mains within the boundary of the development site.

3.4.3 There are a number distribution mains running within the vicinity of the site boundary, one running down Hafod Road to the east of the site and on in Bangor Road to the south of the site.

3.4.4 There is no anticipated requirement for any water main diversions to accommodate the proposed scheme.



3.5 TELECOMMUNICATIONS

3.5.1 There does not appear to be any overhead or underground telecommunications cables & plant within the site boundary of the proposed development. There is underground plant running along both Bangor Road and Hafod Road to the south and east of the site together with underground lines outside of the western boundary. The surrounding residential properties are all serviced with either underground or overhead BT cables. Any on site overhead connections linked to the existing commercial tile manufacturing plant will be disconnected and removed when these buildings are demolished.

3.5.2 There may be a requirement to divert the underground cable in Bangor Road to accommodate the new proposed site entrance but no engineering difficulties or excessive costs are expected for this work.

3.6 LINESEARCH

3.6.1 A search has been carried out to determine the proximity of underground oil/fuel pipelines & cable networks. The search determined that the site is not in the zone of interest of any of the following service operators;

BOC Ltd (A member of the Linde Group)	BP Exploration Purbeck Southampton Pipeline
BPA	Centrica Energy
ConocoPhillips (UK) Ltd	Conoco Phillips Ltd Humber Refinery
Coryton Energy Co Ltd (Gas Pipeline)	E-On UK Plc (Gas Pipelines Only)
Esso Petroleum Company Ltd	Fibrespeed Ltd
Geo Networks Ltd	Government Pipelines & Storage System
INEOS Manufacturing (Scotland & TSEP)	Ineos Enterprises Ltd
Mainline Pipelines Ltd	Manchester Jetline Ltd
Marchwood Power Ltd	NPower CHP Pipelines
National Grid Gas Transmission	Oikos Storage Ltd
Premier Transmission Ltd (SNIP)	Sabic UK Petrochemicals
Scottish Power Generation	Shell Uk Ltd
Total UK (Finaline, Colnbrook & Colwick Pipelines)	Wingas Storage UK Ltd



4. NEW SUPPLIES & INFRASTRUCTURE

4.1 LOAD ASSUMPTIONS

4.1.1 The proposed scheme is based on a proposal for up to 300 residential units, 1 small A1 commercial/retail units (235sqm) and 465sqm of B2/B8 industrial/storage/distribution space. Applications to all Utility providers were made on the basis of developing up to 250 properties plus an element of commercial/retail loadings so, despite the slight increase in the number of residential units; the conclusions can still be applied to the proposed scheme. Should there be a further increase in the number of proposed properties further investigations would be required.

4.1.2 The electric loads for this development have been assumed at this stage and are based on all domestic properties being gas heated with no additional generation from renewable sources.

4.1.3 Estimated electric loadings as follows;

- Estimated total connected load 483kVA
- Assumes 1.5kVA per domestic property ADMD (after diversity maximum demand)

4.1.4 Gas and water infrastructure providers have been asked to assume standard loadings for the domestic properties given the mix of proposed house types be, 137 x 4 bed, 88 x 3 bed & 25 x 2 bed properties.

4.2 ELECTRIC

4.2.1 A budget quotation for a point of connection for the proposed scheme has been received from Scottish Power (SP). This indicates that the proposed scheme can be supplied by the existing HV network without the need for any upstream reinforcement and the costs are in line with those expected for a scheme of this size.



- 4.2.2 The existing overhead HV cables feeding the works on site will be removed and a new HV point of connection will be provided for the new site load. A new on site secondary substation will be required. See Appendix E for details.
- 4.2.3 The final substation position will be dependent on the final site layout and agreement with SP at the formal design stage.
- 4.2.4 The position of the substation on site is critical and must be agreed with SP prior to the design of the LV supply network. An area of land (approx 4.0m x 4.0m) within the site, preferably within 50m of the existing HV network, unless new mains cable is required, and no more than 500m from furthest LV service connection needs to be considered. The site must be in public open space with 24 hour access. The substation would be adopted by SP assuming all necessary consents, easements and wayleaves that may be required are granted.
- 4.2.5 A brick built substation or a standard GRP substation is permitted (subject to planning). Any brick built substation construction costs or GRP substation base costs are to be met by the developer and the design must meet SP standards.
- 4.2.6 Costs are subject to verification at detailed design stage but are expected to be in line with standard development connection costs from a host asset owner for a project of this scale at this time. More competitive rates may be available from independent network operators.

4.3 GAS

- 4.3.1 A quotation to bring adequate gas supply to this development has been received from Wales & West Utilities. This indicates that the proposed site can be fed from the existing 63mm LP main in Hafod Road on the eastern boundary of the site.
- 4.3.2 A new low pressure infrastructure would be laid on site with service connections to each new property. Costs provided by Wales & West Utilities



indicate that procurement, installation and connection of this new infrastructure is not anticipated to attract any abnormal costs and is in line with standard development connection costs for a project of this scale at this time.

4.4 WATER

4.4.1 Dee Valley Water has advised that some additional off-site network reinforcement will be required to serve the proposed development with suitable capacity. This is in the form of installing 348m of 180mm PE100 SDR17 from the proposed site entrance to the existing 6" SI Main adjacent to Heol Orsaf/Bangor Road. The budget estimate for providing this new main is in line with expected development costs and is not prohibitive.

4.4.2 Onsite water costs are anticipated to be in line with standard development costs for a development of this size and standard connection costs plus infrastructure costs would apply as per Dee Valley Water charging schedule.

4.4.3 It should be noted the pressure in the main adjacent to the site, under normal demand patterns, currently varies between about 53.28 meters head and 60.52 meters head. However, due to operational considerations and the effects of the changing demands on our distribution system, Dee Valley Water cannot guarantee that pressure will not vary outside the current range in the future.

4.4.4 It should also be noted that given proposed new legislation in Wales it may be compulsory for this scheme to install domestic fire connections. This is not anticipated to cause any issues.

4.5 TELECOMMUNICATIONS

4.5.1 Given the proximity of the proposed development to the existing BT network surrounding the site, there would be no issue in extending this to serve the requirements of the new development. BT roadside cabinets or underground chambers may need to be installed strategically throughout the development.



- 4.5.2 It is possible to get broadband connections within this area but fibre connections are not currently available within the vicinity of the site.
- 4.5.3 Given the planned timescales for this project the availability of high speed broadband and fibre connections can be reviewed by the developer at the detailed design stage.



5. CONCLUSIONS

5.1 EXISTING INFRASTRUCTURE

- 5.1.1 There are existing 11kV HV and LV electric cables, low pressure gas mains, water mains and BT infrastructure within close proximity of the site boundary and proposed new site entry. In addition there are existing 132kV EHV overhead lines and National Grid overhead electric transmission lines and associated pylons across the site.
- 5.1.2 There is the requirement to remove the existing overhead 11kV HV electricity lines, the costs provided not prohibitive.
- 5.1.3 It is anticipated only minor diversions of the existing telecoms infrastructure will be required due to the formation of a new site entrance. This is not expected to attract excessive costs.
- 5.1.4 At this stage, there is only minor upstream network reinforcement of the water main that will have to be paid for by the developer to provide the required connection capacities based on the planned number of units.

5.2 NEW INFRASTRUCTURE

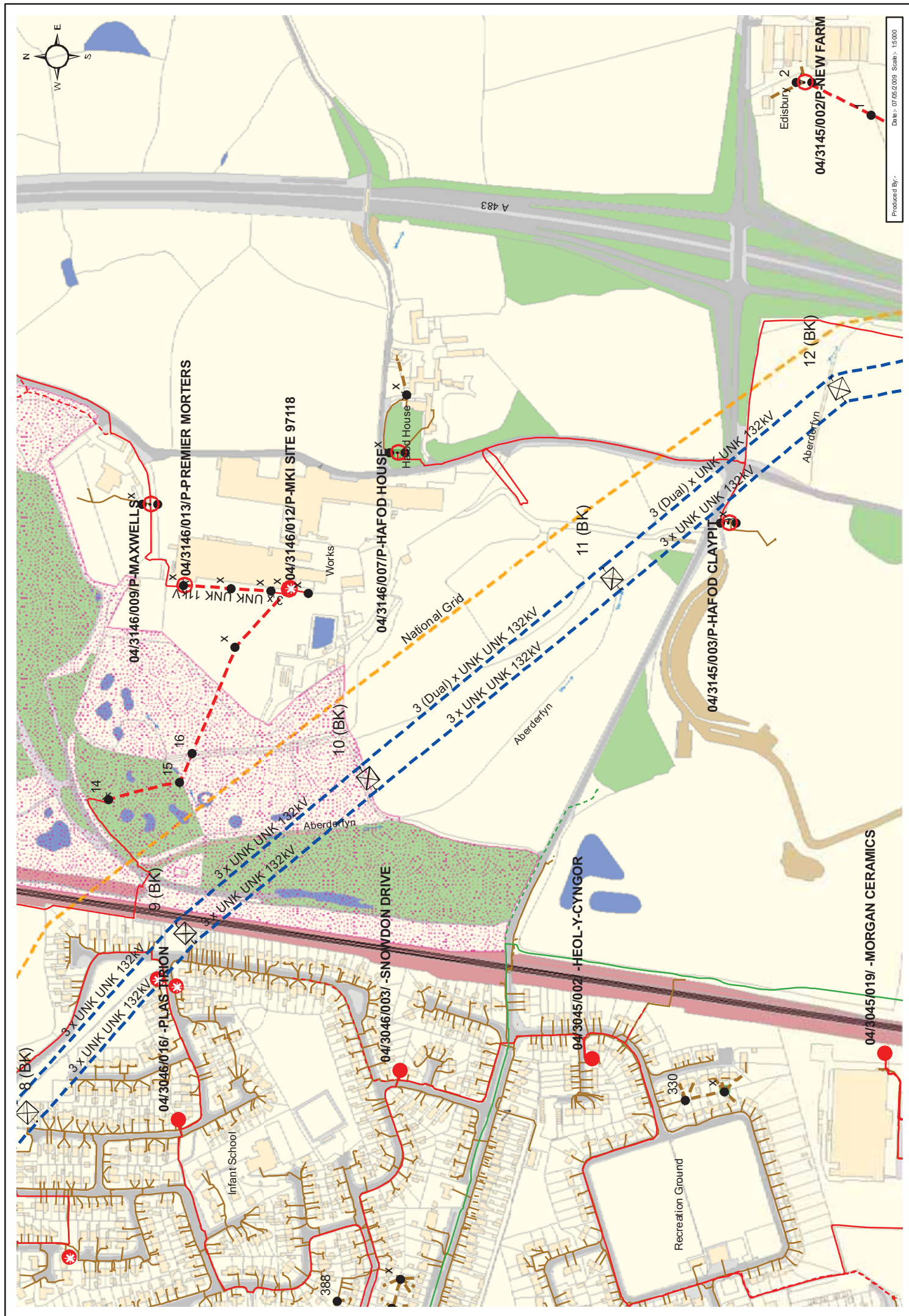
- 5.2.1 Initial investigations have not highlighted any concerns or engineering difficulties with servicing the proposed development with new gas, water, electric or telecommunication connections.
- 5.2.2 New infrastructure and service connection costs are anticipated to be in line with those expected for a standard development of this scale.
- 5.2.3 Looking at a multi utility proposal and independent network solutions could offer the opportunity to reduce overall costs.
- 5.2.4 It should be noted that all Utility Providers have a licence obligation to ensure that any connections to the system comply with all relevant regulations,



legislation and Engineering Recommendations so therefore do not have an adverse effect to the supply and quantity of supply to existing customers.



Appendix A – Existing Electric Mains





Appendix B – Existing Gas Mains



Scale	1:4334	 Some examples of Plant Items: Valve Depth of Cover Syphon Diameter Change Material Change	<table><tr><th>Title</th><th>Johnstown Gas 1</th></tr><tr><td colspan="2"> The plan shows those pipes owned by Wales & West Utilities (WVU) in its role as a Licensed Gas Transporter (GT). The information shown on this plan is derived from historic information and may have involved re-scaling plans, and the accuracy of it cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. may not be shown but their presence should be anticipated. No warranties are therefore given in respect of it. WVU, its employees and contractors do not accept any liability for any inaccuracy or incompleteness in it. You must use safe digging practices, in accordance with HSG47, to establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you or near gas apparatus. The information shown on this plan should not be used beyond 28 days from the date of issue of this plan as it is subject to updating. The plan also provides indications of gas pipes owned by other GTs, or otherwise privately owned, which may be present in this area. This information is not information of WVU and WVU is unable to verify this information or to confirm whether it is accurate or complete. It is supplied voluntarily to assist the user in determining whether to make contact with other GTs or others. The user must obtain such information from the other GT or person concerned. WVU, its employees and contractors do not accept any liability for this information or any inaccuracy or incompleteness in it. </td></tr></table>	Title	Johnstown Gas 1	The plan shows those pipes owned by Wales & West Utilities (WVU) in its role as a Licensed Gas Transporter (GT). The information shown on this plan is derived from historic information and may have involved re-scaling plans, and the accuracy of it cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. may not be shown but their presence should be anticipated. No warranties are therefore given in respect of it. WVU, its employees and contractors do not accept any liability for any inaccuracy or incompleteness in it. You must use safe digging practices, in accordance with HSG47, to establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that this information is provided to all persons (either direct labour or contractors) working for you or near gas apparatus. The information shown on this plan should not be used beyond 28 days from the date of issue of this plan as it is subject to updating. The plan also provides indications of gas pipes owned by other GTs, or otherwise privately owned, which may be present in this area. This information is not information of WVU and WVU is unable to verify this information or to confirm whether it is accurate or complete. It is supplied voluntarily to assist the user in determining whether to make contact with other GTs or others. The user must obtain such information from the other GT or person concerned. WVU, its employees and contractors do not accept any liability for this information or any inaccuracy or incompleteness in it.	
Title	Johnstown Gas 1						
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User ID	wwutilities\GladmanDevigv5kuoj						
Date	28/03/2012						
Grid Ref:	Easting 331032						
	Northing 346129						
Printed via WVU UtilityView							



WALES & WEST

UTILITIES

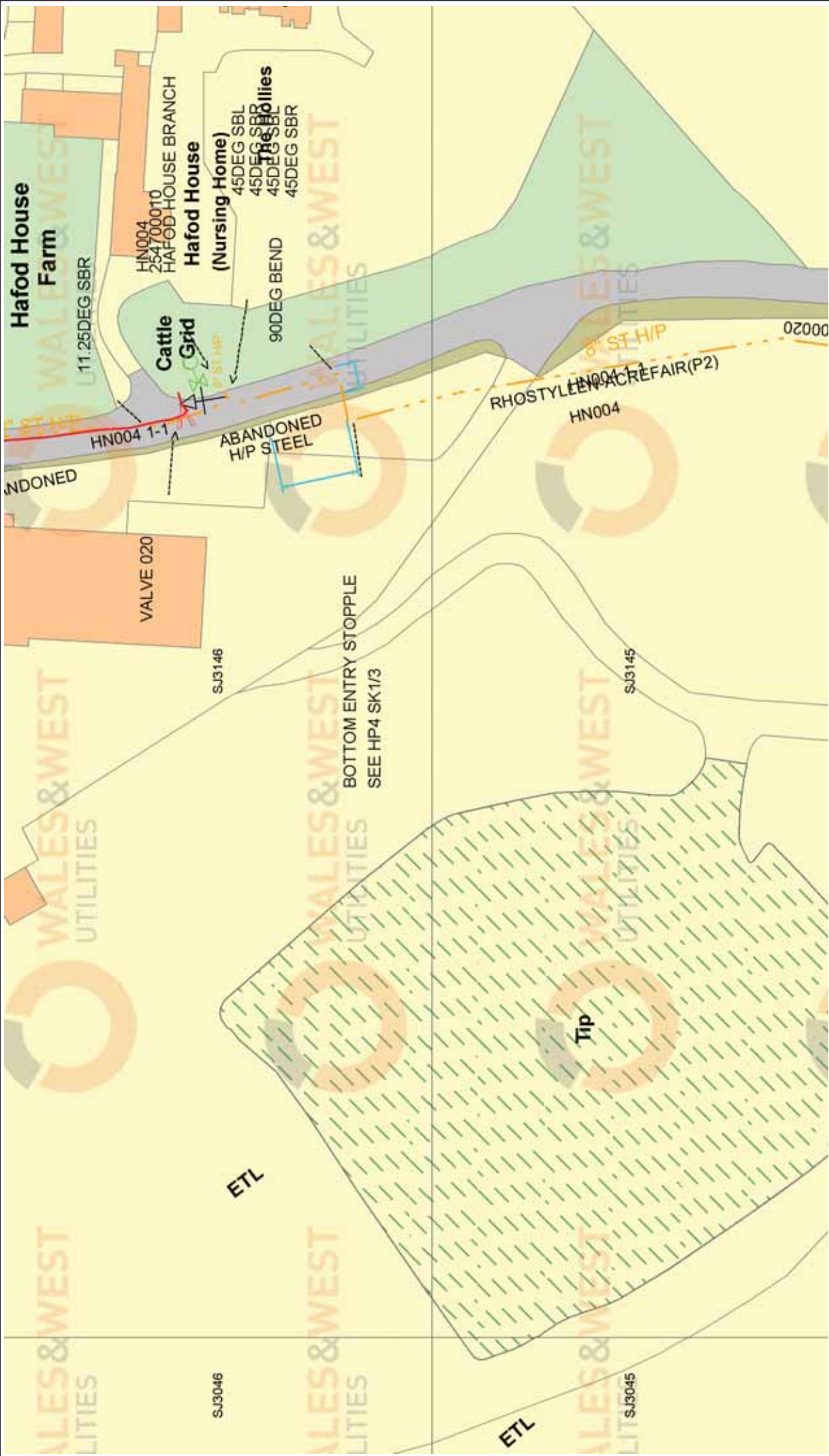
Wales & West Utilities Ltd. Wales & West House,
Spencer Close, Celtic Springs, Coednewn,
Newport, NP23 8FZ.

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User ID	wwutilities\GladmanDev\gw5ku0j	
Date	28/03/2012	
Grid Ref:	Easting 331129	
Printed via	Northings 346003	

Title		Johnstown Gas 1
The plan shows these pipes owned by Wales & West Utilities (WVU) in its role as a Licensed Gas Transporter (GT). The information shown on this plan is derived from historic information and may have involved re-scaling plans, and the accuracy of it cannot be guaranteed. Service pipes, valves, and other apparatus shown on this plan are for information only and do not constitute a guarantee of accuracy or completeness in it. WVU is not responsible for any inaccuracies or omissions in the plan. You must use safe digging practices, in accordance with HS(G47), to establish the actual position of mains, pipes, services and other apparatus on site before working for you or near gas apparatus. The information shown on this plan should not be used beyond 28 days from the date of issue of this plan as it is subject to updating.		
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Low Pressure

Medium Pressure

High Pressure

Design Pipe

Abandoned

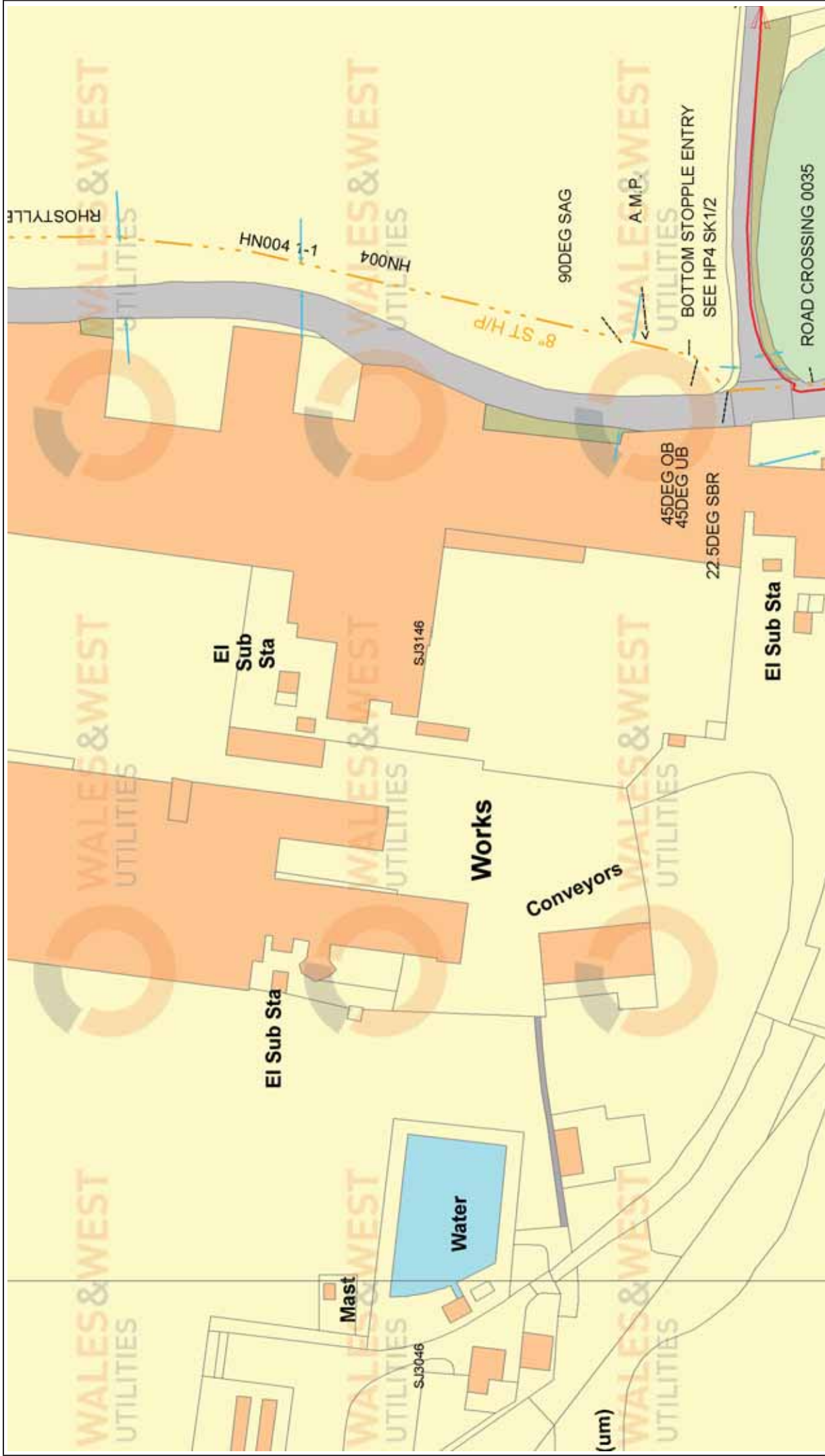
Valve

Depth of Cover

Diameter Change

Material Change

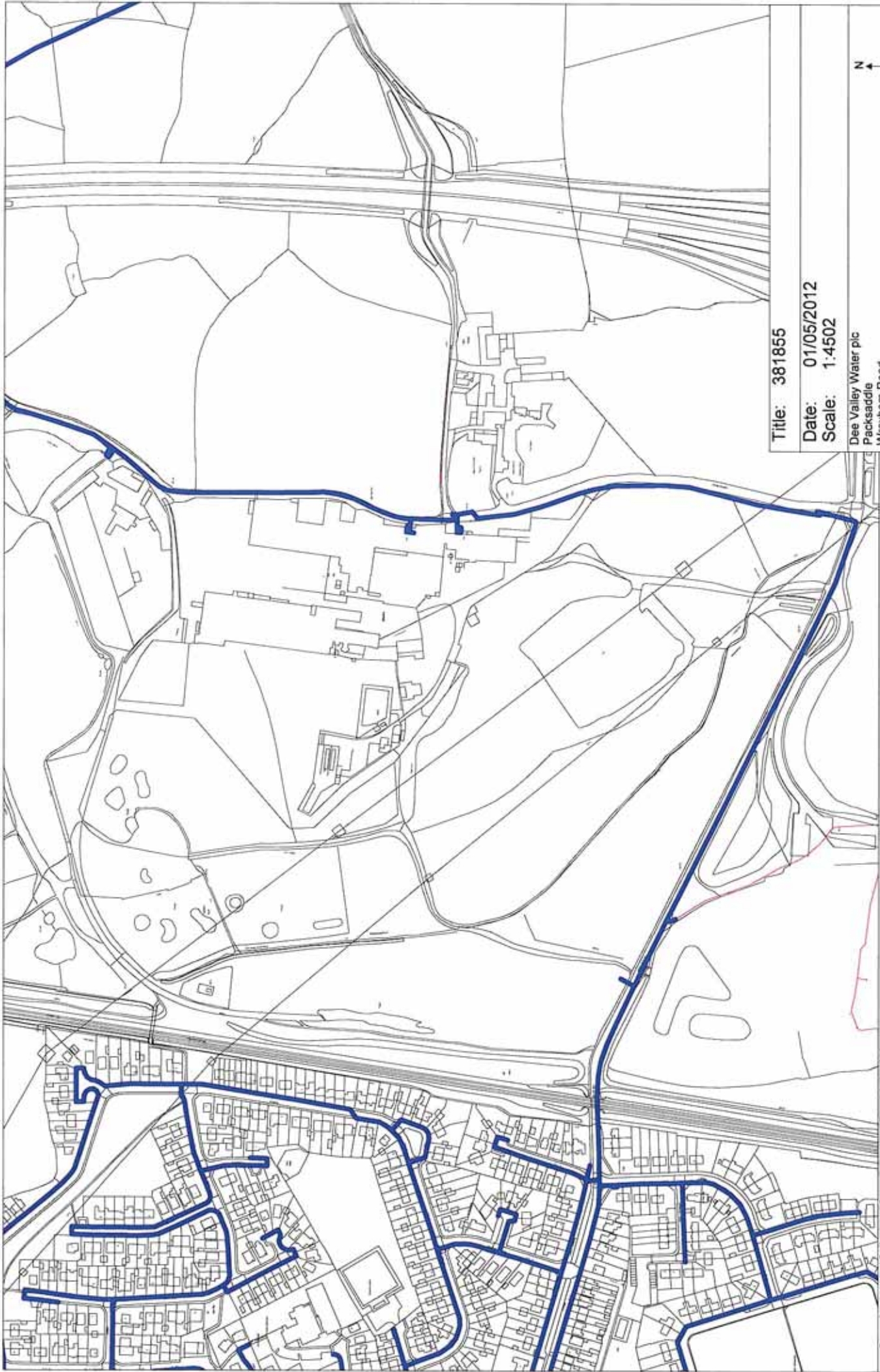
Some examples of Plant Items:



Scale	1:1083	
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Appendix C – Existing Water Mains



Title: 381855

Date: 01/05/2012

Scale: 1:4502

Dee Valley Water plc
Packsaddle
Wrexham Road
Rhosyllen
Wrexham LL14 4EH
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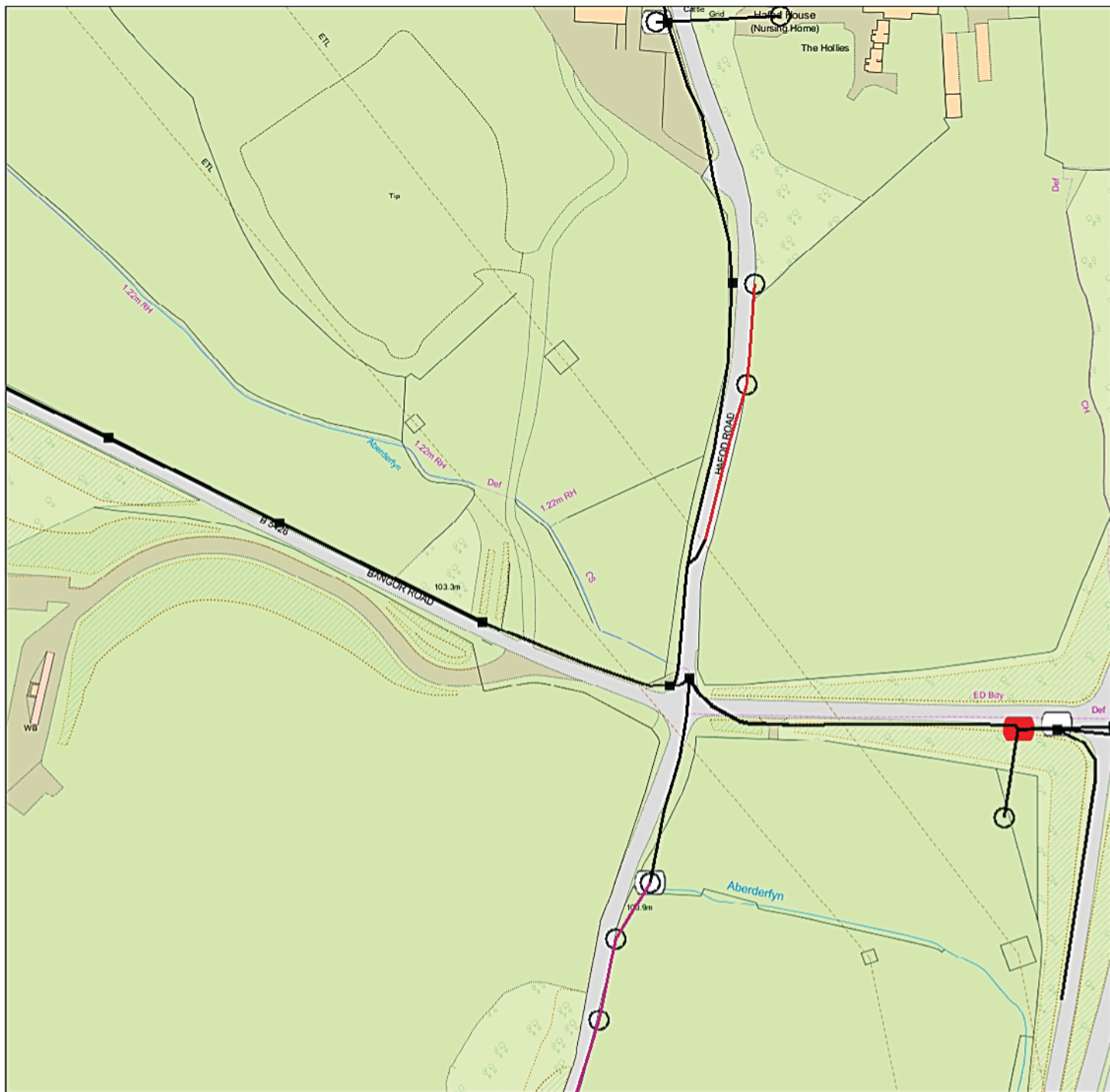
PLEASE NOTE - The information given here on the routes and locations of mains is indicative only and no warranty is given or implied
More precise information can be given by prior arrangement although the depth of any apparatus may not be ascertainable

DO NOT SCALE FROM THIS PRINT



Appendix D – Existing BT Infrastructure

Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy.

It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

DIAL BEFORE YOU DIG

FOR PROFESSIONAL ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS

ADVANCE NOTICE REQUIRED
(Office hours: Monday-Friday 08.00 to 17.00)

Tel: 0800 9173993
E-mail: dbyd@openreach.co.uk
Website: www.dialbeforeyoudig.com

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KEY TO BT SYMBOLS

	UNDERGROUND PLANT		POLE
	OVERHEAD PLANT		CABINET
	JOINT BOX		BURIED JOINT
	DISTRIBUTION POINT		JOINTING POST
	MANHOLE		PROPOSED U/G
	DP BOUNDARY		PROPOSED O/H
	OTHER BT BOUNDARY		PROPOSED BOX

Other proposed plant is shown using dashed lines. BT symbols not listed above may be disregarded. Existing BT plant may not be recorded. Information valid at the time of preparation.

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a BT Group business

BT Ref : MWR12055Q

Map Reference : (centre) SJ3113945806

Easting/Northing : (centre) 331139,345806

Issued : 17/06/2013 12:08:32

FOOTNOTE: WARNING IT IS ESSENTIAL THAT YOU CONTACT NATIONAL NETWORK HANDLING CENTRE BY EMAIL nnhc@openreach.co.uk BEFORE PROCEEDING WITH ANY WORK IN THE HATCHED AREA

Maps by email Plant Information Reply



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	DP BOUNDARY		PROPOSED O/H
	OTHER BT BOUNDARY		PROPOSED BOX

Other proposed plant is shown using dashed lines. BT symbols not listed above may be disregarded. Existing BT plant may not be recorded. Information valid at the time of preparation.

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BT Ref : AHJ11482H

Map Reference : (centre) SJ3100846278

Easting/Northing : (centre) 331008,346278

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KEY TO BT SYMBOLS

	UNDERGROUND PLANT		POLE
	OVERHEAD PLANT		CABINET
	JOINT BOX		BURIED JOINT
	DISTRIBUTION POINT		JOINTING POST
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	DP BOUNDARY		PROPOSED O/H
	OTHER BT BOUNDARY		PROPOSED BOX

Other proposed plant is shown using dashed lines. BT symbols not listed above may be disregarded. Existing BT plant may not be recorded. Information valid at the time of preparation.

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Appendix E – HV Point of Connection Proposal

