

## 13. MATERIAL ASSETS: WATER SUPPLY, DRAINAGE & UTILITIES

### 13.1 Introduction

This chapter of the EIAR comprises of an assessment of the likely impact of the proposed development on existing surface water, water supply, foul drainage, and utility services in the vicinity of the site as well as identifying proposed mitigation measure to minimise any impacts.

The material assets considered in this chapter of the EIAR include Surface Water Drainage, Foul Drainage, Water Supply, Power, Gas and Telecommunications.

Refer to Chapter 2.0 (Site Description) and Chapter 3.0 (Description of Development) for a detailed site and development description.

### 13.2 Characteristics of the Proposed Development

#### 13.2.1 Surface Water Drainage

An existing 375mm diameter surface water sewer is located to the north of the site and will provide a suitable surface water discharge point for the proposed surface water drainage network within the proposed development.

The surface water drainage system for the main residential site has been designed as three separate catchments. The surface water from each catchment will be attenuated in three separate attenuation areas in the form of combined detention basins and underground attenuation tanks before outfalling to the existing 375mm diameter surface water sewer in Main Street.

The Ballynakelly infill site (Area C1) to the east of Phase 1 benefits from core infrastructure constructed under the previously permitted development (Reg. Ref. SD05A/0344). Surface water sewers have been constructed in the roads surrounding the site and have been surveyed to confirm levels and diameters. Under Reg. Ref. SD05A/0344 a 609m<sup>3</sup> attenuation tank (attenuation 3) was proposed to serve the Ballynakelly catchment. It is proposed to connect the proposed surface water drainage for the Ballynakelly infill site (Area C1) to the surface water network and attenuation constructed under the previously permitted development (Reg. Ref. SD05A/0344). DBFL have undertaken a check on the existing attenuation volume which confirms the tank has adequate capacity for the Ballynakelly infill site based on the planning file and as-built information.

Similar to the Ballynakelly infill site (Area C1), the infill site at Ballynakelly Rise (Area C2) benefits from core infrastructure constructed under the previously permitted development (Reg. Ref. SD05A/0344). It is proposed to connect surface water drainage from Area C2 to the existing constructed surface water and attenuation. DBFL have undertaken a check on the adequacy of the existing attenuation volume which confirms the tank has adequate capacity to accommodate the proposed 7 no. housing units based on the planning file and as-built information.

The proposed works at Ballynakelly Edge (C3) are for a change of use to an existing building therefore, there will be no increased surface water run-off from the existing building and no alterations are proposed to the existing surface water network.

It should be noted that the original drainage design under Reg. Ref. SD05A/0344 included the above infill sites in the drainage design calculations.

The three surface water catchments in the main residential site area have been assessed and the total discharge for the site has been limited to 25.65 l/s in accordance with Greater Dublin Strategic Drainage Study (GDSDS). Surface water discharge rates from the proposed surface water drainage networks will be controlled by Hydrobrake type flow control devices and associated attenuation systems. Surface water discharge will also pass via a Class 1 fuel / oil separator sized in accordance with permitted discharge rate. Each system will provide storage for the 100-year storm for its respective catchment.

Proposed surface water drains have been designed in accordance with the Greater Dublin Strategic Drainage Study (GDSDS) and BS EN 752: 2008 Drain and Sewer Systems Outside Buildings.

Surface water calculations are based on an allowable outflow / greenfield runoff rate of 2.11 l/sec/ha resulting in a total attenuation volume of 3,064 m<sup>3</sup>, as determined in Chapter 7.0 (Water: Hydrogeology & Hydrology).

The proposed surface water drainage networks will collect surface water runoff from the site via a piped network. Attenuation of surface water will be provided in three separate attenuation facilities before discharging to the existing surface water drainage network on Main Street via a Class 1 fuel / oil separator as noted above.

Surface water runoff from the site's road network will be directed to the proposed pipe network via conventional road gullies while surface water runoff from driveways will be captured by permeable paving.

Surface water runoff from roofs will be routed to the proposed surface water pipe network via the porous aggregates beneath permeable paved driveways (providing an additional element of attenuation and treatment).

It is also proposed to culvert approximately 13 m of an existing drainage ditch in the south-west corner as part of internal road construction.

### 13.2.2 Foul Drainage

The proposed internal foul drainage network comprises of a network of 225mm diameter sewers designed based on the topography of the site. The foul drainage system will be completely separate from the surface water drainage system. The proposed 375mm diameter foul sewer outfall from the site will be routed along Main Street to the east, and will be extended from Main Street along Aylmer Road to the north of the site. The foul outfall will then connect to the existing 525mm diameter foul sewer on Aylmer Road. The proposed 375mm diameter outfall has been agreed with Irish Water as an upgrade of the existing 225mm diameter foul sewer on the R120 and Aylmer Road to alleviate the Irish Water constraints on Main Street.

Individual houses will be connected to the proposed 225mm diameter internal foul drainage system via individual 100mm pipe connections as per Irish Water Code of Practice for Wastewater Infrastructure.

The foul drainage network for the proposed development has been designed in accordance with the Building Regulations and specifically in accordance with the principles and methods as set out in the Irish Water Code of Practice, IS EN752 (2008), IS EN12056: Part 2 (2000) and the recommendations of the 'Greater Dublin Strategic Drainage Study (GDSDS)'.

A daily foul discharge volume for the proposed development of 190m<sup>3</sup> and a maximum total BOD loading of 32 Kg/day has been calculated as outlined in Irish Water's Code of Practice for Wastewater Infrastructure.

It is proposed to connect the proposed foul sewer for the Ballynakelly infill site (Area C1) to the existing 225mm diameter foul sewer along Burgage Crescent constructed under the previously permitted development (Reg. Ref. SD05A/0344).

It is proposed to connect the seven housing units at Ballynakelly Rise infill site (Area C2) to the existing 300mm diameter foul sewer along Ballynakelly Rise constructed under the previously permitted development (Reg. Ref. SD05A/0344).

It is proposed to use the existing foul sewer connection to the existing building at Ballynakelly Edge.

A Pre-Connection Feedback Letter has been received from Irish Water outlining that a wastewater connection can be facilitated for the proposed development. Refer to Appendix 13.E for a copy of the form.

### **13.2.3 Water Supply**

It is proposed to construct a new 250mm diameter watermain along Newcastle Boulevard and connect it to the existing 450mm diameter watermain constructed under previously permitted development Reg. Ref. SD05A/0344. This 250mm diameter watermain will be constructed to the Phase 1 western boundary where it can be extended as part of future development phases to the west. Connections will be made to the new 250mm watermain which will serve a number of 150mm diameter watermain loops throughout the development. A number of 100mm watermain loops will be supplied from the 150mm watermains along the Local Streets.

All connections, valves, hydrants, meters etc. have been designed and are to be installed in accordance with Irish Water's Code of Practice / Standard Details.

Individual houses will have their own connections from the distribution main via service connections and boundary boxes. Individual service boundary boxes will be of the type to suit Irish Water and to facilitate domestic meter installation.

An average daily domestic demand for the proposed development of approximately 173m<sup>3</sup> and an average day in peak week demand of 216m<sup>3</sup> has been calculated as outlined in the Irish Water Code of Practice for Water Infrastructure.

A Pre-Connection Feedback Letter has been received from Irish Water outlining that a water connection can be facilitated for the proposed development. Refer to Appendix 13.E for a copy of the form.

### **13.2.4 Power**

Power supply, and the requirement for any alterations to the existing power supply network for the proposed development will be agreed in advance of construction with ESB Networks. All power supply related works will be carried out in accordance with ESB Networks relevant guidelines.

### **13.2.5 Gas**

Gas supply, and the requirement for any alterations to the existing gas supply network for the proposed development, will be agreed in advance of construction with Gas Networks Ireland. All gas supply related works will be carried out in accordance with Gas Networks Ireland relevant guidelines.

### 13.2.6 Telecommunications

Telecommunications supply, and the requirement for any alterations to the existing telecommunications network for the proposed development, will be agreed in advance of construction with the relevant telecommunications providers. All telecommunications related works will be carried out in accordance with relevant guidelines.

## 13.3 Receiving Environment

### 13.3.1 Surface Water Drainage

A surface water drainage network plan provided by Irish Water is included in Appendix 13.A, showing the location of existing surface water drainage services in the vicinity of the site.

The site is predominantly greenfield and a network of existing drainage ditches currently drain the site to the existing surface water drainage network along the R120 Main Street.

It is proposed to outfall the attenuated surface water collected from the main residential development to an existing 375mm diameter sewer in R120 Main Street. This 375mm diameter surface water sewer outfalls to a 525mm surface water on the R120 which discharges the Shinkeen Stream and ultimately outfalls to the River Liffey.

The Ballynakelly infill sites (Area C1 & C2) benefit from core infrastructure constructed under the previously permitted development (Reg. Ref. SD05A/0344). It is proposed to outfall surface water from the two infill sites to the existing drainage networks and attenuation systems. DBFL have undertaken a check on the existing attenuation volumes which confirms the tanks have adequate capacity for the Ballynakelly infill sites (Area C1 & C2). It should be noted that the original drainage design under Reg. Ref. SD05A/0344 included the above infill sites in the drainage design calculations. The existing attenuation facilities outfall to the existing surface water drainage network, which discharges to the Shinkeen Stream and ultimately outfalls to the River Liffey.

The existing building at Ballynakelly Edge (C3) drains to the existing attenuation facilities constructed under Reg. Ref. SD05A/0344 which outfalls to the public surface water drainage network, which discharges to the Shinkeen Stream and ultimately outfalls to the River Liffey.

### 13.3.2 Foul Drainage

A foul water drainage network plan provided by Irish Water is included in Appendix 13.A, showing the location of existing foul water drainage services in the vicinity of the site.

The existing site is predominantly greenfield and therefore has no foul loading at present. There is an existing 225mm diameter foul sewer on Main Street (R120) to the north of the site. According to the records, this foul sewer connects to a 525mm foul sewer on Aylmer Road which outfalls to Newcastle Pump Station.

The Ballynakelly Site benefits from core infrastructure constructed under the previously permitted development (Reg. Ref. SD05A/0344). A 225mm diameter foul sewer spur has been constructed into the Ballynakelly infill site (Area C1) and a 300mm foul sewer exists in the existing road bisecting the Ballynakelly Rise infill site (Area C2). It is proposed to use the existing foul sewer connection to the existing building at Ballynakelly Edge.

### 13.3.3 Water Supply

A public watermains plan provided by Irish Water is included in Appendix 13.A, showing the location of existing public watermains services in the vicinity of the site.

There is an existing 450mm watermain along Newcastle Boulevard constructed as part of the previously permitted development (Reg. Ref. SD05A/0344). There is a 160mm diameter watermain along Burgage Crescent to the east of the main residential site, and a 100mm and 150mm watermain along the L6001 to the west of the proposed development site.

It is proposed to construct a new 250mm diameter watermain along Newcastle Boulevard and connect it to the existing 450mm diameter watermain constructed under previously permitted development Reg. Ref. SD05A/0344.

### 13.3.4 Power

An ESB Networks plan is included in Appendix 13.B showing the location of existing electrical services in the vicinity of the site.

There are no recorded power lines running through the site. However, medium and low voltage underground cable routes run through the residential developments to the east of the proposed development site. These underground lines enter to the proposed development site from Newcastle Boulevard, Lyons Avenue and Lyons Avenue North. Low voltage overhead lines run along the R120 Main Street and Athgoe Road to the north of the site.

### 13.3.5 Gas

Gas Networks Ireland plans are included in Appendix 13.C showing the location of gas services in the vicinity of the site.

There are no recorded distribution gas mains running through the site. However, low pressure distribution pipes run through the housing developments to the east and enter to the proposed development site from Lyons Avenue North and Lyons Avenue South. There is also a medium pressure distribution pipe running along R120 Main Street to the north of the site.

### 13.3.6 Telecommunications

Eir and Virgin Media network plans are included in Appendix 13.D showing telecommunications infrastructure in the vicinity of the site.

Virgin Media have networks along Main Street to the north of the site and throughout the residential developments to the east of Burgage Crescent. Eircom have network ducting along Main Street and Athgoe Road.

## 13.4 Assessment Methodology

As part of assessing the likely impact of the proposed development, surface water runoff, foul drainage discharge and water usage calculations were carried out in accordance with the following guidelines:

- Greater Dublin Strategic Drainage Study (GDSDS).
- Method outlined in Irish Water's Code of Practice for Wastewater Infrastructure.
- Method outlined in Irish Water's Code of Practice for Water Infrastructure.

Assessment of the likely impact of the proposed development on existing material assets in the vicinity of the site included:

- Review of Irish Water utility plans (surface water drainage, foul drainage and water supply).
- Consultation with Irish Water and South Dublin County Council.
- Submission of a Pre-Connection Enquiry Application to Irish Water.
- Review of ESB Networks Utility Plans.
- Review of Gas Networks Ireland Service Plans.
- Review of Eircom E-Maps.
- Review of Virgin Media Maps.

### **13.5 Identification of Likely Significant Impacts**

#### **13.5.1 Construction Phase**

Potential impacts that may arise during the construction phase include:

- Contamination of surface water runoff due to construction activities.
- Improper discharge of foul drainage from contractor's compound.
- Cross contamination of potable water supply to construction compound.
- Damage to existing underground and over-ground infrastructure and possible contamination of the existing systems with construction related materials.
- Diversion of existing ESB lines may lead to loss of connectivity to and / or interruption of supply from the electrical grid.
- Potential loss of connection to the Gas Networks Ireland and Telecommunications infrastructure while carrying out works to provide service connections.

#### **13.5.2 Operational Phase**

Potential operational phase impacts on the water infrastructure are noted below:

- Increased impermeable surface area will reduce local ground water recharge and potentially increase surface water runoff (if not attenuated to greenfield runoff rate –refer to Chapter 7.0 – Water Hydrogeology and Hydrology).

- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas).
- Increased maximum discharge to foul drainage network (Average Daily Foul Discharge Volume = 190 m<sup>3</sup>).
- Increased potable water consumption (Average daily domestic demand = 173 m<sup>3</sup>).
- Contamination of surface water runoff from foul sewer leaks.

Demand from the proposed development during the operational phase is not predicted to impact on the existing power, gas and telecoms network.

### 13.5.3 Human Health

From the perspective of the end user of the networks the risks to human health include:

- Contamination of potable water supply.
- Gas leaks or explosions. The installation of services is tightly monitored and controlled by Gas Networks Ireland to ensure the protection of human health. Therefore, the risk of effect on human health is not considered significant.
- Loss of supply. This is a managed process that is the responsibility of the individual utility supplier and emergency plans will be in place. The effect is therefore considered brief and not significant.

With the implementation of the mitigation measures outlined in Section 13.7, the impact of the proposed built services on human health is likely to be negligible.

### 13.5.4 Unplanned Events

The following accidents & disasters involving built services during construction could potentially give rise to a serious incident putting people at risk:

- Excavation works coming into contact with live electricity lines.
- Excavation works causing damage and leaks to gas mains.
- Excavation works causing damage to wastewater pipelines and resulting in contamination of the surrounding ground and surface water network.

A site-specific Construction Management Plan will be developed and implemented during the construction phase to mitigate the risks associated with accidents and disasters.

The following accidents & disasters involving built services during operation could potentially give rise to a serious incident putting end users at risk:

- Gas explosions. The installation of services is tightly monitored and controlled by Gas Networks Ireland. Therefore, the residual risk is not considered significant.

### 13.5.5 Potential Cumulative Impacts

The proposed surface water drainage infrastructure has been designed in accordance with the relevant guidelines. Any other future development in the vicinity of the site would have to be similarly designed in relation to permitted surface water discharge, surface water attenuation and SuDS, therefore, no potential cumulative impacts are anticipated in relation to surface water drainage and flooding.

No potential cumulative impacts are anticipated in relation to wastewater as Irish Water have advised that provision of a wastewater connection is feasible.

No potential cumulative impacts are anticipated in relation to water supply as Irish Water have advised that provision of a water connection is feasible.

Should any other developments be under construction or planned in the vicinity of the site they are likely to have similar impacts during the construction phase in relation to Material Assets. Should the construction phase of any developments coincide with the development of this proposed site, potential cumulative impacts are not anticipated once similar mitigation measures are implemented.

### 13.6 'Do Nothing' Scenario

There are no predicted impacts should the proposed development not proceed.

### 13.7 Mitigation Measures

#### 13.7.1 Construction Phase

Mitigation measures proposed in relation to the drainage and water infrastructure include the following:

- A site-specific Construction Management Plan will be developed and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the Construction Management Plan.
- Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
- The construction compound will include adequate staff welfare facilities including foul drainage and potable water supply. Foul drainage discharge from the construction compound will be tinkered off site to a licensed facility until a connection to the public foul drainage network has been established.
- The construction compound's potable water supply shall be located where it is protected from contamination by any construction activities or materials.

Relocation of existing ESB infrastructure will be fully coordinated with ESB Networks to ensure interruption to the existing power network is minimised (e.g. agreeing power outage to facilitate relocation of cables). Ducting and /



or poles along proposed relocated routes will be constructed and ready for rerouting of cables in advance of decommissioning of existing power lines.

Similarly, connections to the existing gas and telecommunications networks will be coordinated with the relevant utility provider and carried out by approved contractors.

### **13.7.2 Operational Phase**

Please refer to Chapter 7.0 – Water Hydrogeology and Hydrology for mitigation measures associated with the surface water treatment.

All new foul drainage lines will be pressure tested and will be subject to a CCTV survey in order to identify any possible defects prior to being made operational.

No specific mitigation measures are proposed in relation to water supply, however water conservation measures such as dual flush water cisterns and low flow taps will be included in the design.

On completion of the construction phase no further mitigation measures are proposed in relation to the electrical, gas and telecommunications infrastructure.

## **13.8 Residual Impacts**

### **13.8.1 Construction Phase**

Implementation of the measures outlined in Section 13.7.1 will ensure that the potential impacts of the proposed development on water supply, drainage and utilities do not occur during the construction phase and that any residual impacts will be short term.

### **13.8.2 Operational Phase**

As surface water drainage, foul water drainage and watermain design has been carried out in accordance with the relevant guidelines, there are no predicted residual impacts on the drainage and water supply arising from the operational phase.

All utilities ducting and diversion will be carried out as per the supplier instructions, therefore no predicted residual impacts are expected from the operational phase.

## **13.9 Interactions Arising**

### **13.9.1 Soils and Geology**

Quality of Effect: Negative.

Significance of Effect: Slight.

Trench excavations to facilitate site service installation will result in exposure of subsoils and bedrock to potential erosion and subsequent sediment generation.

Implementation of the mitigation measures described under section 7.7 of Chapter 7.0 – Water Hydrogeology and Hydrology will prevent and minimise the potential impacts of this interaction.

### **13.10 Monitoring**

Please refer to Chapter 7.0 – Water Hydrogeology and Hydrology for the proposed monitoring in relation to the surface water.

No specific monitoring is proposed in relation to the remaining material assets infrastructure.

### **13.11 Reinstatement**

Reinstatement of any excavations relating to the provision of surface and foul drainage, electrical, gas and telecommunications connections is to be carried out in accordance with the relevant asset provider's requirements and the requirements of South Dublin County Council.

### **13.12 References**

The baseline environment and the assessment of the development in this chapter was described based on the information collected from the sources mentioned under the section 13.4.

**APPENDIX 13.A**      **Irish Water Plans**

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**Legend**

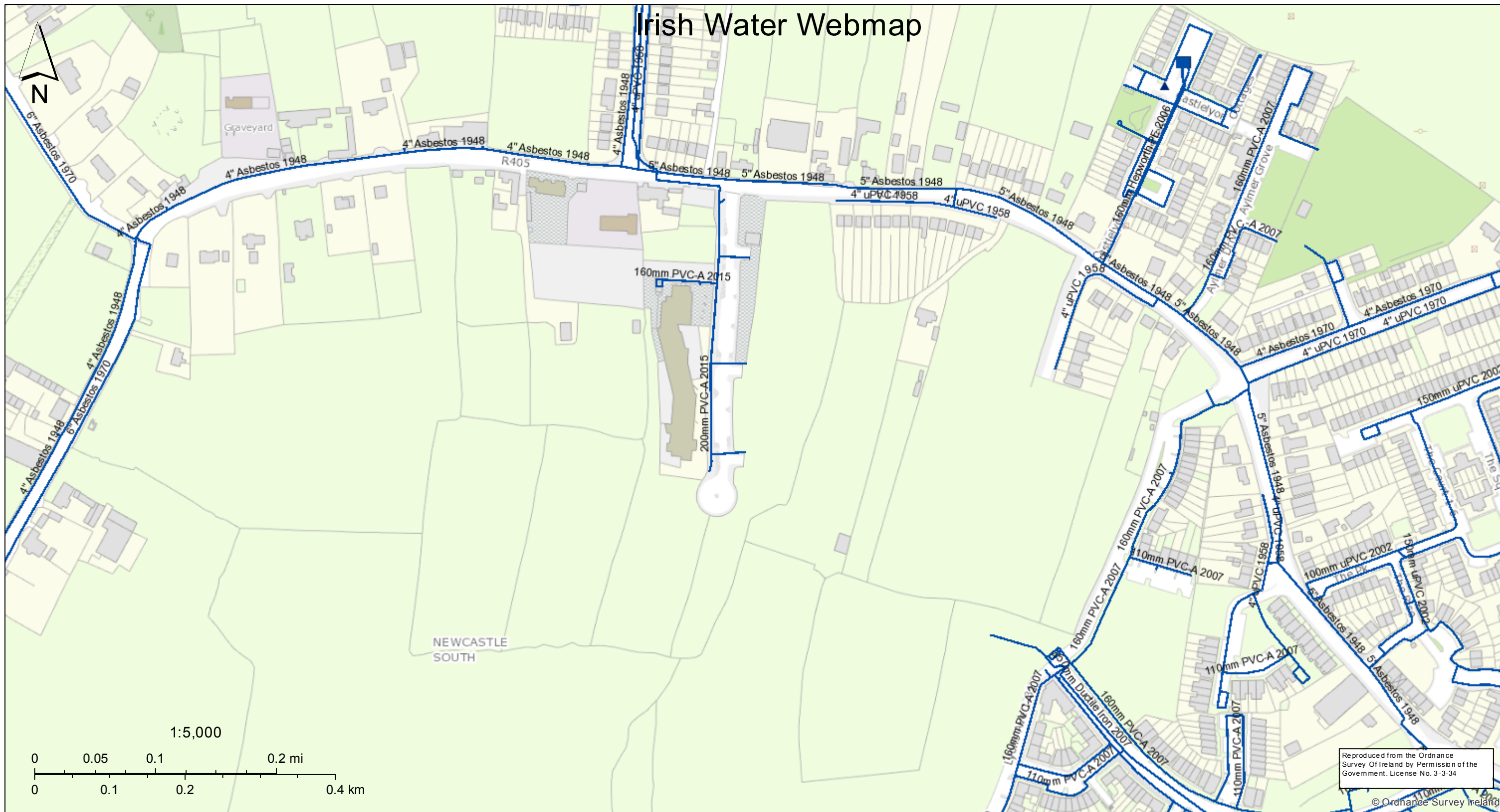
- |  |  |  |         |
|--|--|--|---------|
| <b>Sewer Gravity Mains (Irish Water owned)</b>     |  | Foul   | Unknown |
| Combined   | Overflow   | Combined   |         |
| Foul   | Unknown  | <b>Sewer Pressurized Mains (Non-Irish Water owned)</b> |         |
| Overflow   |  | Foul   |         |
| Unknown  | <b>Sewer Pressurized Mains (Irish Water owned)</b> | Overflow   |         |
|  | Combined   | Unknown  |         |
| <b>Sewer Gravity Mains (Non-Irish Water owned)</b> | Foul   | Treatment plant  |         |
| Combined   | Overflow   |  |         |

Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland. It should not be relied upon in the event of excavations or other works being carried out in the vicinity of the network. The onus is on the parties carrying out the works to ensure the exact location of the network is identified prior to mechanical works being carried out. Service pipes are not generally shown but their presence should be anticipated. © Irish Water



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# Irish Water Webmap



February 24, 2017

## Legend

Non-return	Open	Raw Water	Irish Water
Hydro	Closed	Pump Stations	Non IW
Orifice Plate	Part Closed	Untreated	Water Abandoned Lines
PRV	District (Boundary Meter)	Potable Water	
PSV	Treatment Plant	Untreated	
Other	Potable	Potable Water	

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# Irish Water Webmap



1/15/2018 1:18:30 PM

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## Legend

### Stormwater Gravity Mains (Irish Water Owned)

■ Surface

### Stormwater Gravity Mains (Non-Irish Water Owned)

■ Surface

Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland. It should not be relied upon in the event of excavations or other works being carried out in the vicinity of the network. The onus is on the parties carrying out the works to ensure the exact location of the network is identified prior to mechanical works being carried out. Service pipes are not generally shown but their presence should be



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**APPENDIX 13.B      ESB Network Plans**

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TITLE:  
20170314-029\_A0

COLOUR CODE:

BLACK	- 38KV & HIGHER VOLTAGE OVERHEAD LINES
GREEN	- MV(10KV/20KV) OVERHEAD LINES
BLUE	- LV (400V/230V) OVERHEAD LINES
CYAN	- 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
RED	- MV/LV (10KV/20KV/400V/230V) UNDERGROUND CABLE ROUTES

DATE: 14-Mar-2017

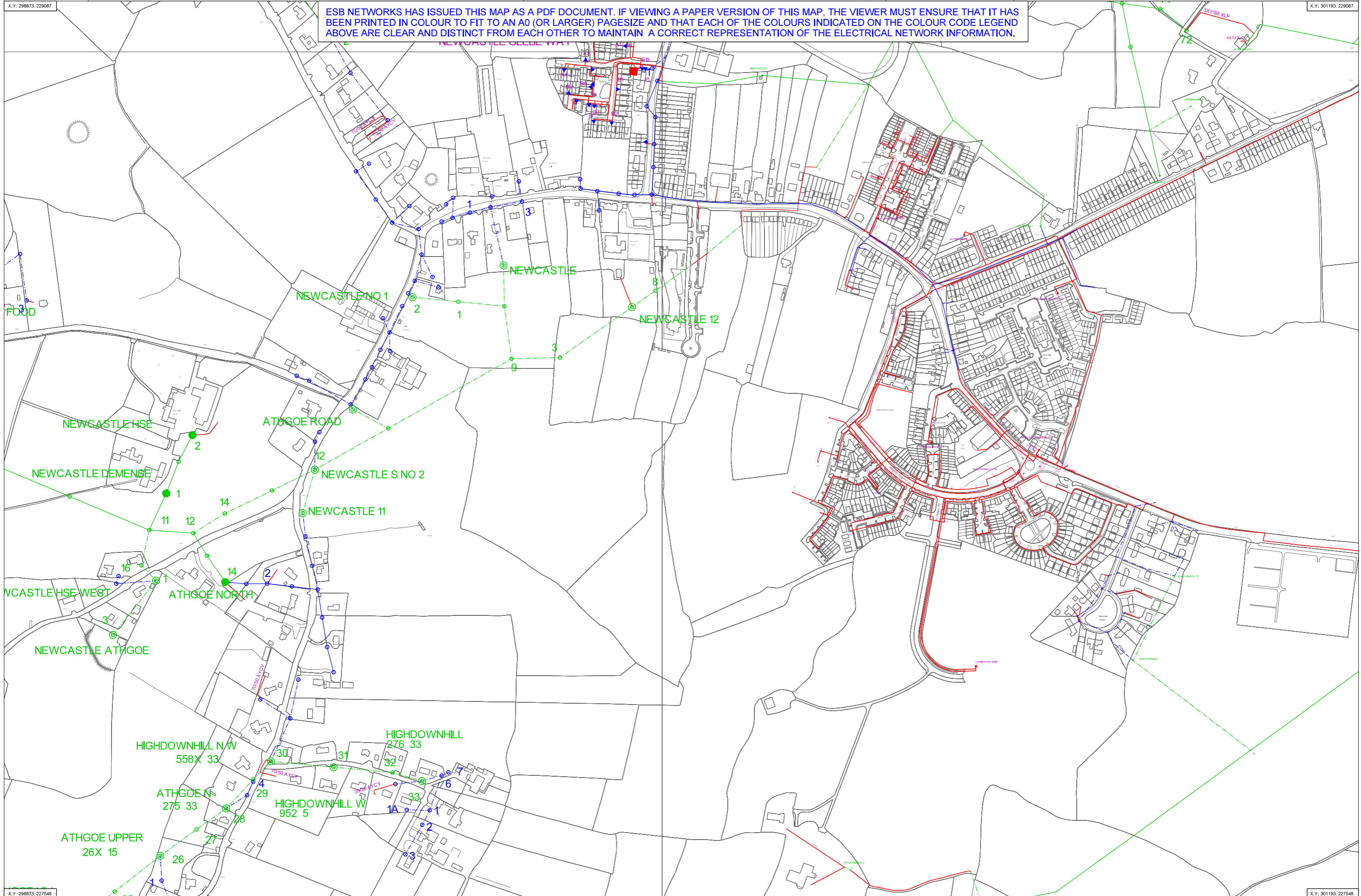
\*\* SCALE: 1:2000

\*\* SCALE WHEN PRINTED ON AN A0 PAGE  
XY COORDINATES DISPLAYED IN IRISH GRID COORDINATE SYSTEM

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**WARNING**  
THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB TRANSMISSION (400KV, 220KV, 110KV, 38KV) AND DISTRIBUTION (20KV, 10KV, 230V/400V) UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROPOSED WORKS. ESB NETWORKS TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE MAP. IT IS THE USER'S RESPONSIBILITY TO INDEPENDENTLY VERIFY THE INFORMATION AND THE LOCATION OF UNDERGROUND CABLES AND OVERHEAD LINES, LOW VOLTAGE (230V/400V) SERVICE CABLES (E.G. HOUSE SERVICES, FACTORY/SHOP SERVICES, PUBLIC LIGHTING LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. THE DEPTHS OF UNDERGROUND CABLES MUST NEVER BE ASSUMED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE TRANSMISSION UNDERGROUND CABLES (38KV, 110KV, 220KV, 400KV) FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE - SEE ATTACHED LIST FOR CONTACT DETAILS OR CALL 1850 372 757. NO WORK SHOULD BE CARRIED OUT IN THE VICINITY OF 38KV OR HIGHER VOLTAGE UNDERGROUND CABLES WITHOUT PRIOR CONSULTATION WITH ESB NETWORKS, BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN. THE ACTUAL LOCATION OF ALL UNDERGROUND ELECTRICITY CABLES MUST BE ESTABLISHED AND VERIFIED ON THE SITE USING:  
(A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATOR EQUIPMENT OPERATED IN BOTH POWER AND RADIO MODES; (C) CAREFUL HAND DIGGING OF TRIAL HOLES USING SAFE DIGGING PRACTICE. REFER ALSO TO HSA CODE OF PRACTICE FOR AVOIDING DANGER FROM UNDERGROUND SERVICES; ESB TAKES NO RESPONSIBILITY FOR AND SHALL BEAR NO LIABILITY, HOWSOEVER ARISING, IN RELATION TO ANY DAMAGE, INJURY OR DEATH OR LOSS OF SUPPLY AS A RESULT OF DAMAGE OR INTERFERENCE WITH ITS NETWORKS.

ESB NETWORKS HAS ISSUED THIS MAP AS A PDF DOCUMENT. IF VIEWING A PAPER VERSION OF THIS MAP, THE VIEWER MUST ENSURE THAT IT HAS BEEN PRINTED IN COLOUR TO FIT TO AN A0 (OR LARGER) PAGESIZE AND THAT EACH OF THE COLOURS INDICATED ON THE COLOUR CODE LEGEND ABOVE ARE CLEAR AND DISTINCT FROM EACH OTHER TO MAINTAIN A CORRECT REPRESENTATION OF THE ELECTRICAL NETWORK INFORMATION.

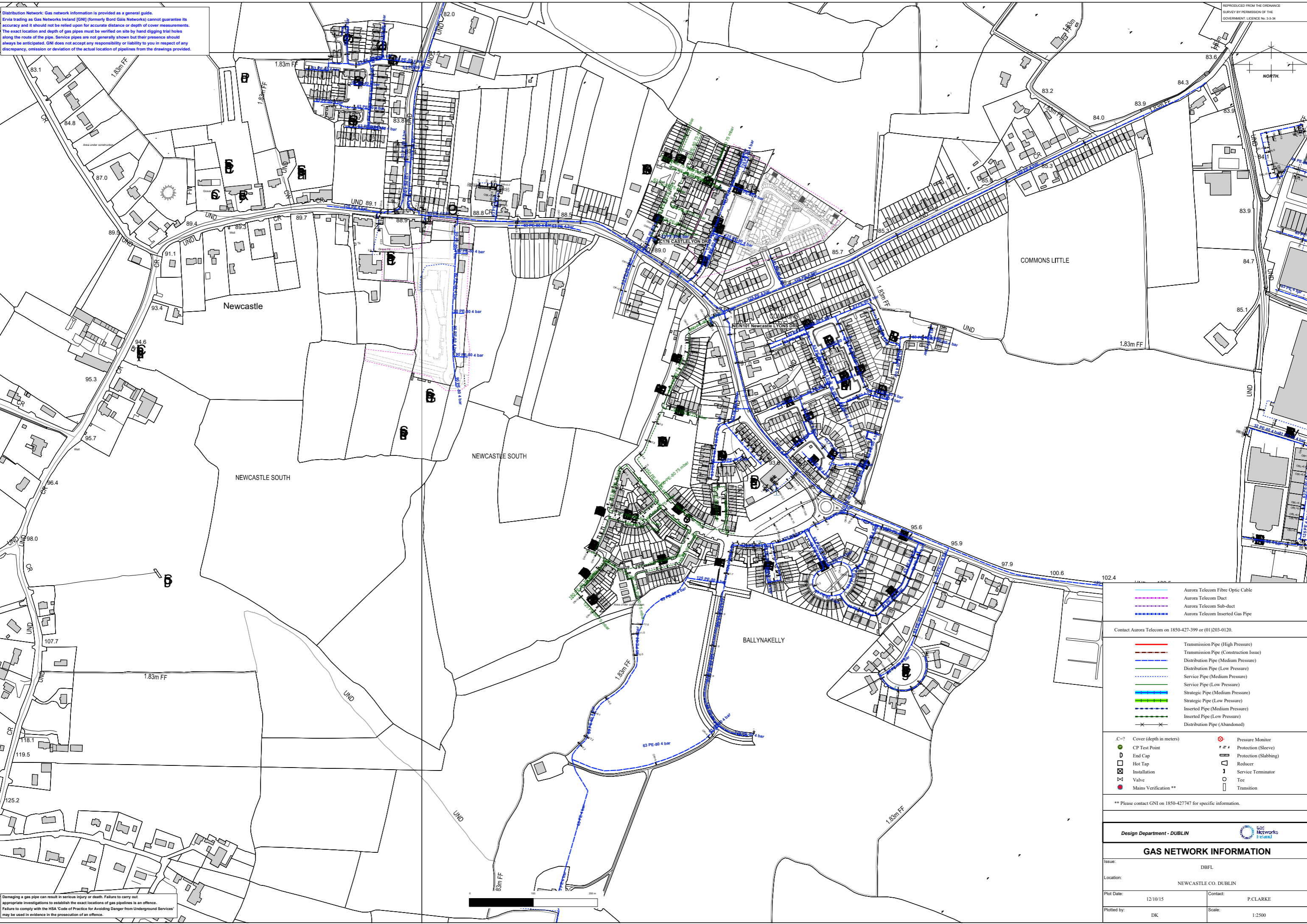




**APPENDIX 13.C Gas Networks Ireland Plans**

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Distribution Network: Gas network information is provided as a general guide. Eirvia trading as Gas Networks Ireland (GNI) (formerly Bord Gáis Networks) cannot guarantee its accuracy and it should not be relied upon for accurate distance or depth of cover measurements. The exact location and depth of gas pipes must be verified on site by hand digging trial holes along the route of the pipe. Service pipes are not generally shown but their presence should always be anticipated. GNI does not accept any responsibility or liability to you in respect of any discrepancy, omission or deviation of the actual location of pipelines from the drawings provided.



Damaging a gas pipe can result in serious injury or death. Failure to carry out appropriate investigations to establish the exact locations of gas pipelines is an offence. Failure to comply with the HSA 'Code of Practice for Avoiding Danger from Underground Services' may be used in evidence in the prosecution of an offence.

	Aurora Telecom Fibre Optic Cable
	Aurora Telecom Duct
	Aurora Telecom Sub-duct
	Aurora Telecom Inserted Gas Pipe
Contact Aurora Telecom on 1850-427-399 or (01)203-0120.	
	Transmission Pipe (High Pressure)
	Transmission Pipe (Construction Issue)
	Distribution Pipe (Medium Pressure)
	Distribution Pipe (Low Pressure)
	Service Pipe (Medium Pressure)
	Service Pipe (Low Pressure)
	Strategic Pipe (Medium Pressure)
	Strategic Pipe (Low Pressure)
	Inserted Pipe (Medium Pressure)
	Inserted Pipe (Low Pressure)
	Distribution Pipe (Abandoned)
	Cover (depth in meters)
	CP Test Point
	End Cap
	Hot Tap
	Installation
	Valve
	Mains Verification **
	Pressure Monitor Protection (Sleeve)
	Protection (Slabbing)
	Reducer
	Service Terminator
	Tee
	Transition

\*\* Please contact GNI on 1850-42747 for specific information.

**Design Department - DUBLIN**

**GAS NETWORK INFORMATION**

Issue: DBFL

Location: NEWCASTLE CO. DUBLIN

Plot Date: 12/10/15

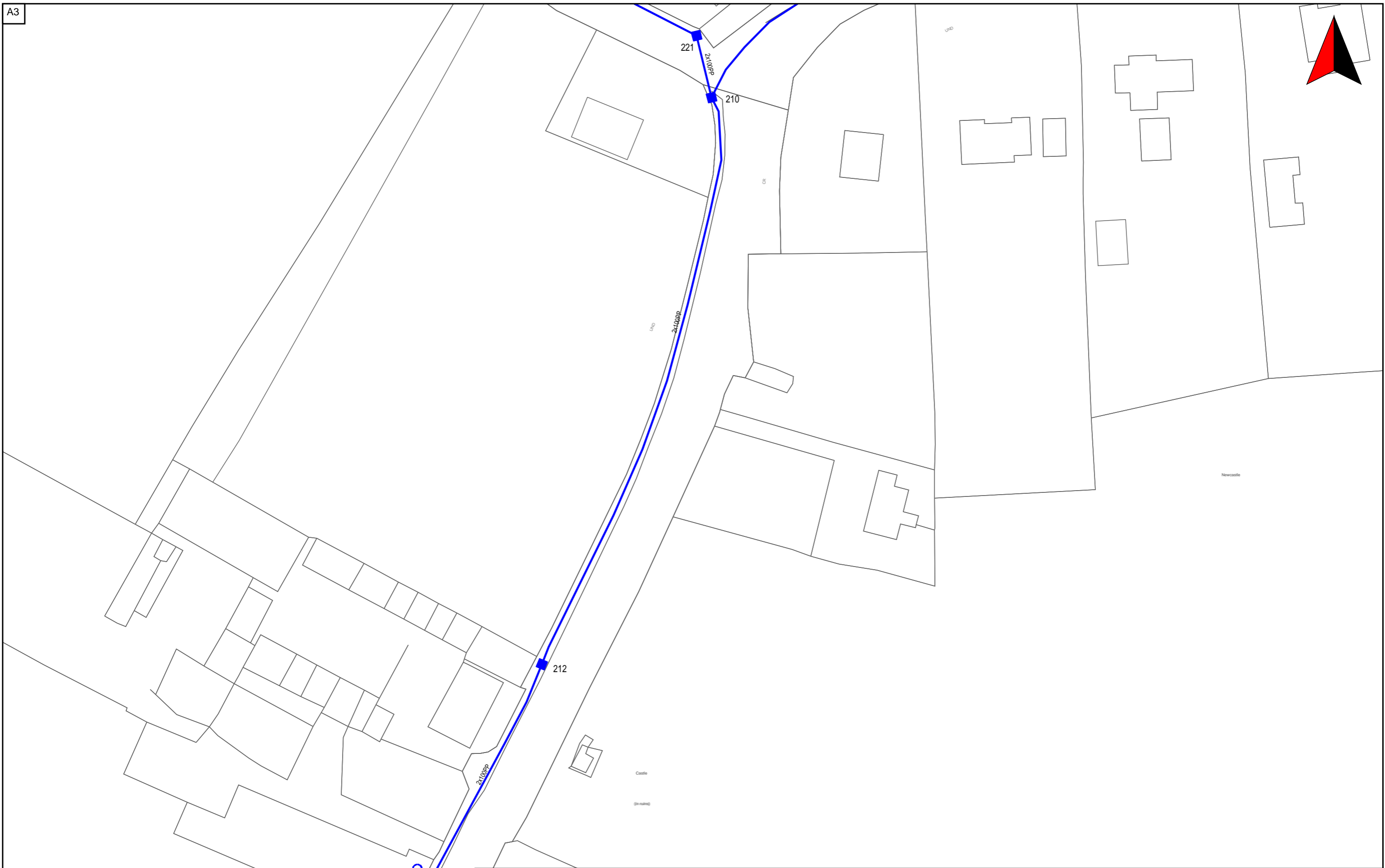
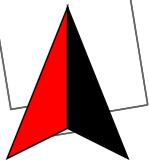
Plotted by: DK

Contact: P.CLARKE

Scale: 1:2500

**APPENDIX 13.D      Eir & Virgin Media Plans**

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<https://cbyd.emaps.eircom.ie/>

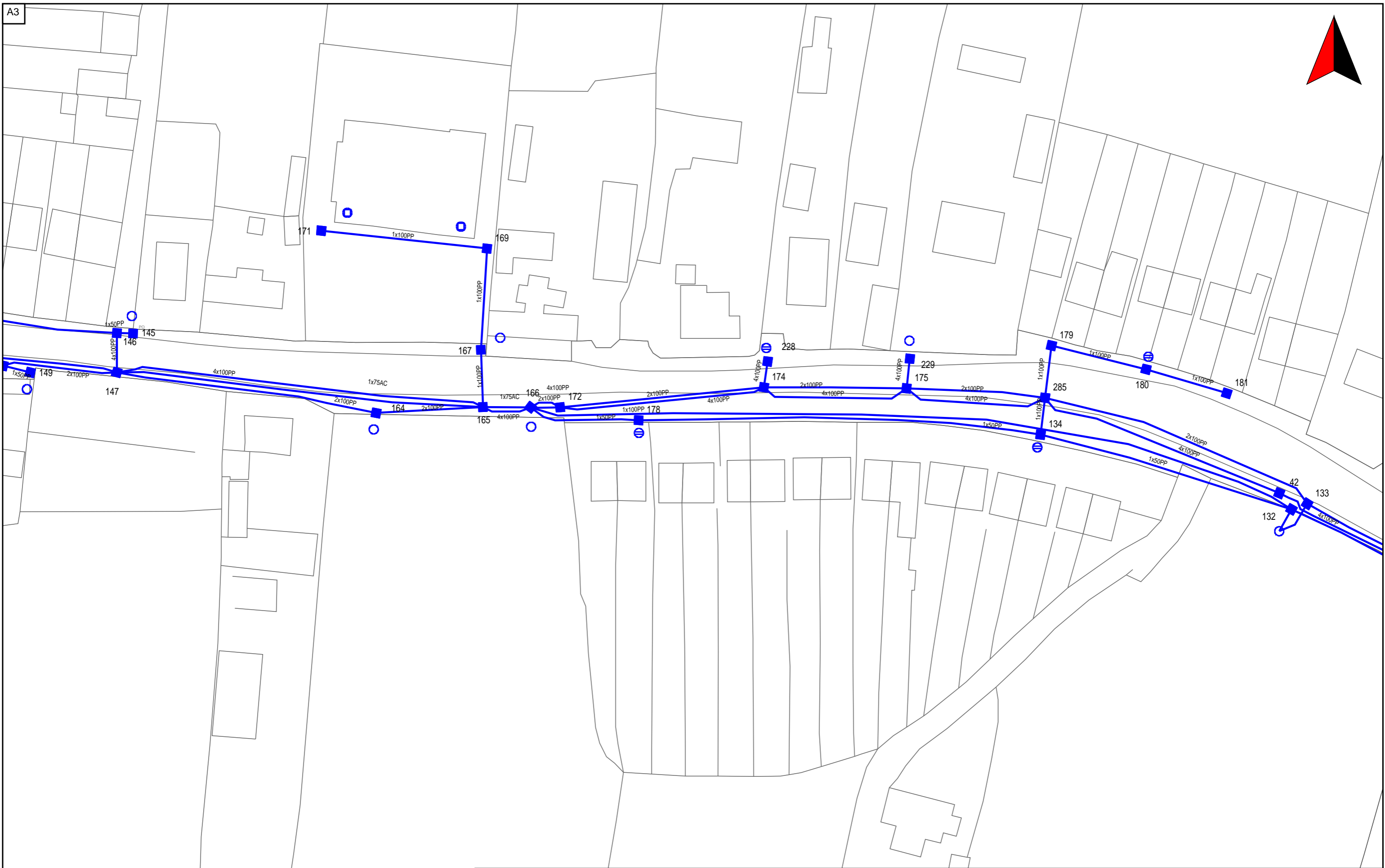
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Date 11/01/2018	<b>emaps CBYD</b>

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Scale: 1:750

Date  
11/01/2018

Irish National Grid Co-Ordinates  
Centre XY: 300162 m, 228712 m

**emaps CBYD**

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Scale: 1:750

Date  
11/01/2018

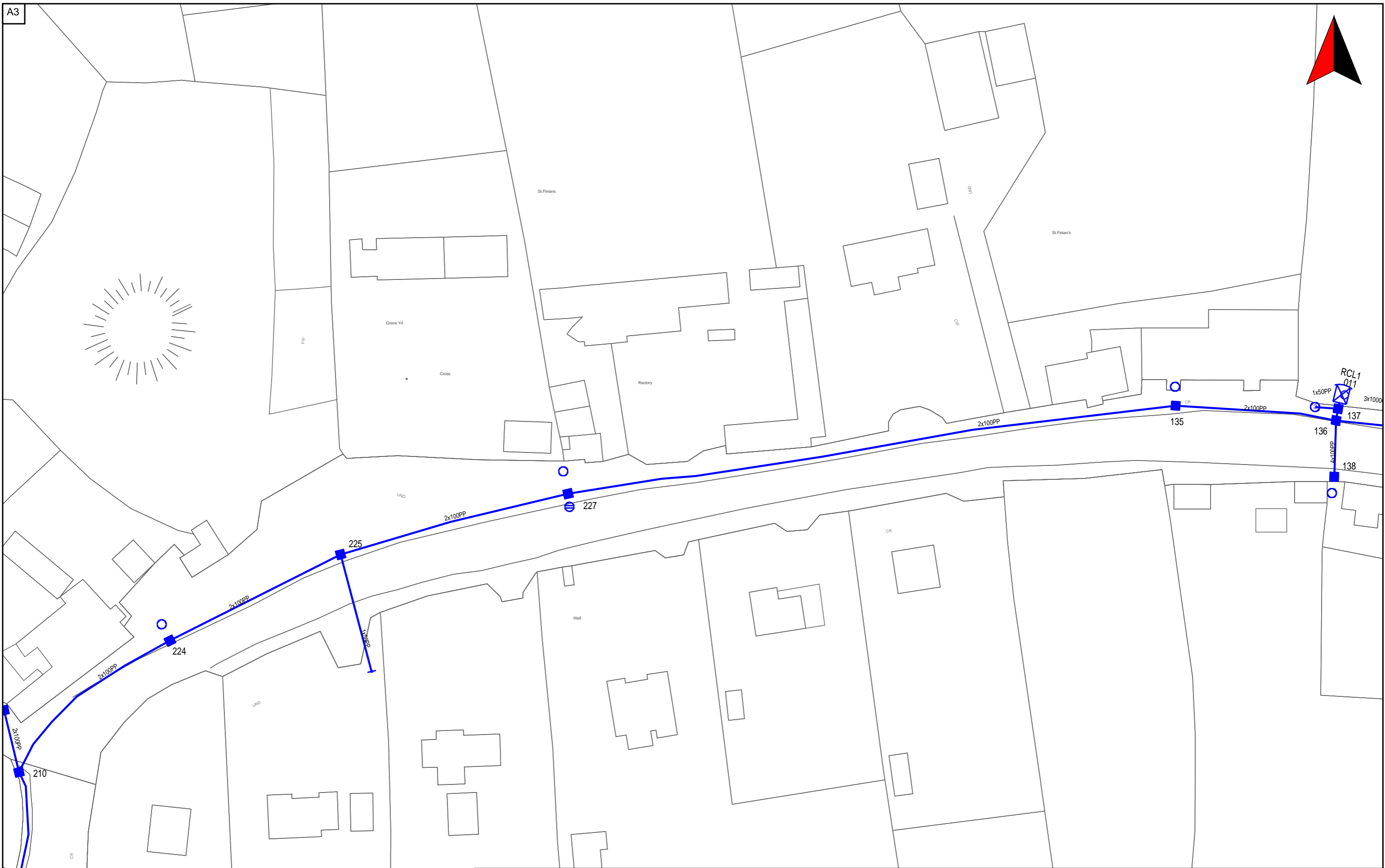
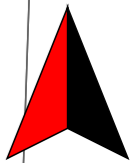
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Centre XY: 300344 m, 228176 m

**emaps CBYD**

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Scale: 1:750

Date: 11/01/2018

Irish National Grid Co-Ordinates  
Centre XY: 299727 m, 228746 m

emaps CBYD

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Scale: 1:750

Date  
11/01/2018

Irish National Grid Co-Ordinates  
Centre XY: 300396 m, 228664 m

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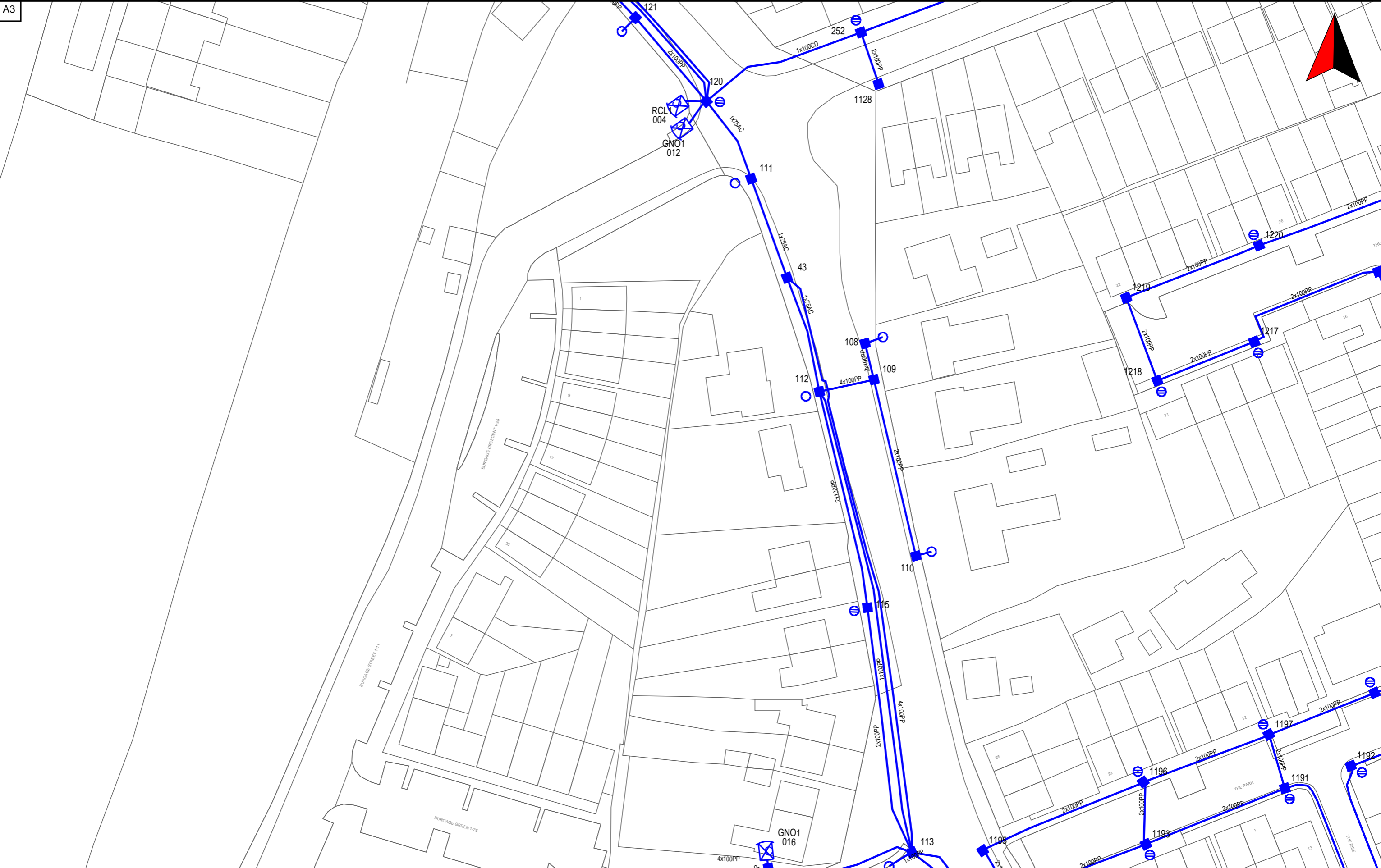
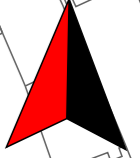
THE INFORMATION GIVEN IS COMPILED FROM RECORDS AND IS BELIEVED TO BE CORRECT. THERE MAY, HOWEVER, BE DEPARTURES FROM THE COURSE(S) AND DEPTH(S) SHOWN OR INDICATED. THERE MAY ALSO BE ITEMS OF eircom PLANT OF WHICH NO RECORDS IN HELD. THE INFORMATION IS GIVEN WITHOUT PREJUDICE TO THE LEGAL RIGHTS OF eircom LTD. TO COMPENSATION SHOULD eircom PLANT BE DAMAGED.



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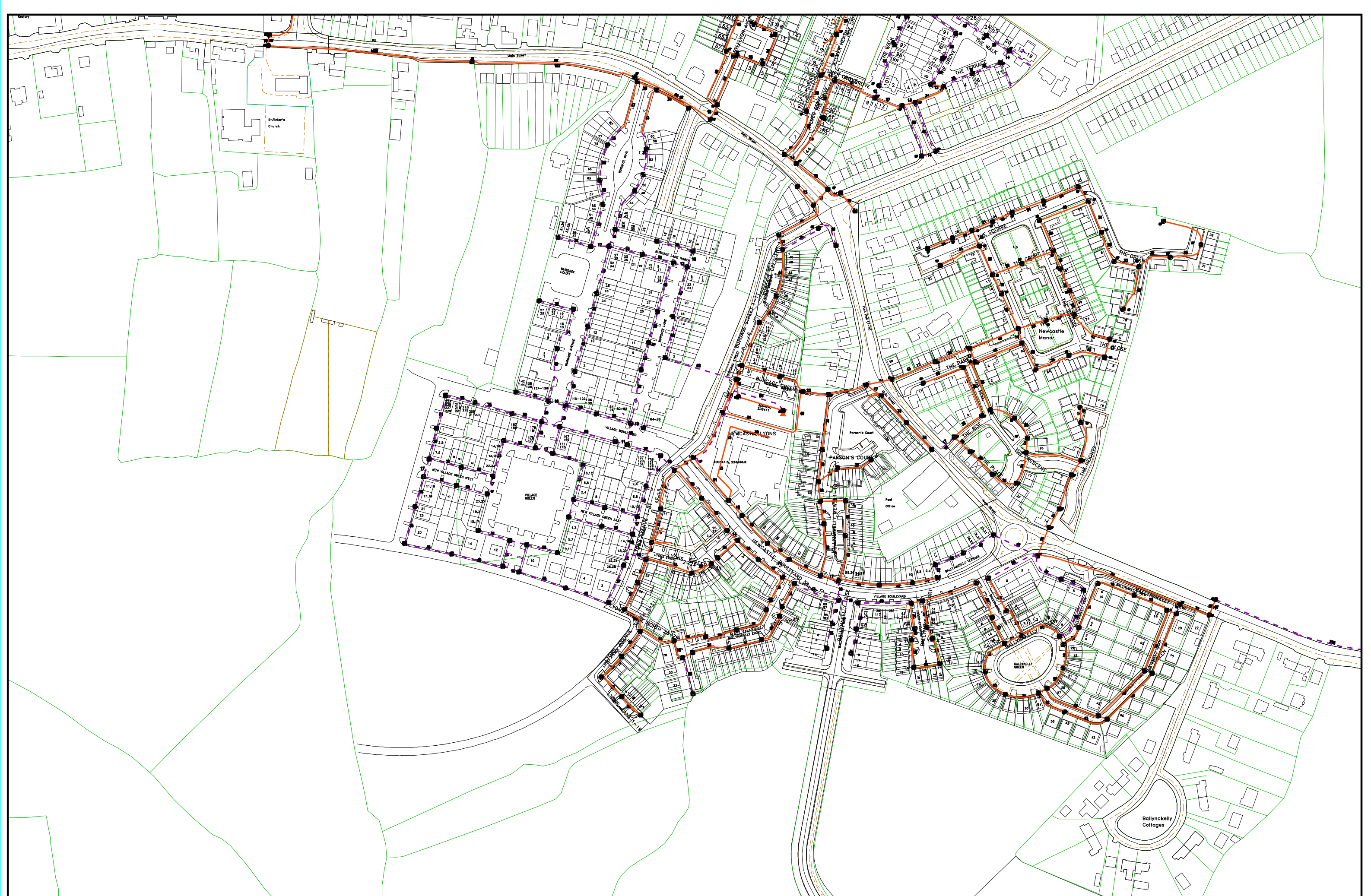
<https://cbyd.emaps.eircom.ie/>

Scale: 1:750	Irish National Grid Co-Ordinates Centre XY: 300448 m, 228510 m
Date 11/01/2018	<b>emaps CBYD</b>



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**APPENDIX 13.E Irish Water Pre-Connection Enquiry Feedback Letter**

---

CAIRN HOMES CONSTRUCTION LTD c/o NOEL GORMAN  
ORMOND HOUSE ORMOND QUAY UPPER DUBLIN 7



Uisce Éireann  
Bosca OP 6000  
Baile Átha Cliath 1  
Éire

Irish Water  
PO Box 6000  
Dublin 1  
Ireland

T: +353 1 89 25000  
F: +353 1 89 25001  
[www.water.ie](http://www.water.ie)

11 October 2018

Dear Sir/Madam,

**Re: Customer Reference No 849834035 pre-connection enquiry - Subject to contract | Contract denied**  
**[Connection for 430 domestic units]**

Irish Water has reviewed your pre-connection enquiry in relation to water and wastewater connections at NEWCASTLE SOUTH, PHASE 1 CO. DUBLIN. Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the network(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated.

In the case of wastewater connections this assessment does not confirm that a gravity connection is achievable. Therefore a suitably sized pumping station may be required to be installed on your site. All infrastructure should be designed and installed in accordance with the Irish Water Code of Practice.

**Water:**

New connection to the existing network is feasible with following conditions:

- The connection must be made from the 450mm DI trunk main on the east of the Development and should include installation of a 150mm diameter offtake with a PRV controller.
- A bulk meter and associated telemetry system are also required for the Development.

**Wastewater:**

Existing 225mm foul sewer on the Main Street/R120 Road adjacent to the site and Newcastle Pumping Station downstream of the site have capacity deficiency. It will be necessary to carry out further detailed study and investigations to confirm the available capacity and to determine the full extent of any upgrades which may be required to be completed to Irish Water Infrastructure, prior to agreeing to the proposed connection. Irish Water currently does not have any plans to extend or commence upgrade works to its network in this area.

## **Strategic Housing Development**

Irish Water notes that the scale of this development dictates that it is subject to the Strategic Housing Development planning process. Therefore:

- A. In advance of submitting your full application to An Bord Pleanála for assessment, you must have reviewed this development with Irish Water and received a Statement of Design Acceptance in relation to the layout of water and wastewater services. All infrastructure should be designed and installed in accordance with the Irish Water Codes of Practice and Standard Details.
- B. You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed and appropriate connection fee paid at a later date.
- C. In advance of submitting this development to An Bord Pleanála for full assessment, the Developer is required to have entered into a Project Works Services Agreement to deliver studies to confirm the available capacity and to determine the full extent of any upgrades which may be required to be completed to Irish Water infrastructure.
- D. In advance of submitting this development to An Bord Pleanála for full assessment, the Developer is required to have entered into a Project Works Services Agreement to deliver infrastructure upgrades to facilitate the connection of the development to Irish Water infrastructure.

A connection agreement can be applied for by completing the connection application form available at [www.water.ie/connections](http://www.water.ie/connections). Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact Marina Byrne from the design team on 018925991 or email [mzbyrne@water.ie](mailto:mzbyrne@water.ie). For further information, visit [www.water.ie/connections](http://www.water.ie/connections)

Yours sincerely,

**Maria O'Dwyer**  
**Connections and Developer Services**

Stiúrthóirí / Directors: Mike Quinn (Chairman), Jerry Grant, Cathal Marley, Brendan Murphy, Michael G. O'Sullivan  
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin 1, D01 NP86  
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Irish Water is a designated activity company, limited by shares.  
Uimhir Chláraithe in Éirinn / Registered in Ireland No.: 530363