













WYG, Executive Park, Avalon Way, Anstey, Leicestershire, LE7 7GR Tel: +44 (0)116 234 8000

Project:	Warren Hall, Broughton	WYG Project Ref:	A093950-15
Client:		Date issued:	15/04/2019
		Issue:	1

Scheme Name	Warren Hall, Broughton
Worksheet	Preliminary Utility Loading Schedule
Created By	Jenny Russell
Position	Principal Engineer

**Summary residential Overall**

Total	No of Units	Electricity KVA	Potable Water L/s	Gas Peak KW	Gas AQ kWh/yr
	<b>303</b>	<b>495.00</b>	<b>4.50</b>	<b>1185.30</b>	<b>2800395</b>
		KVA	L/s	KW	kWh/yr

**Summary Commercial Overall**

Total	Electricity Peak KVA	Potable Water Peak L/s	Gas Peak KW	Gas AQ kWh/yr
	<b>3031</b>	<b>14.73</b>	<b>9962</b>	<b>13156050</b>
	KVA	L/s	KW	kWh/yr

**Residential**

Number of bedrooms	Average Floor Area m sq	No of Units	Electricity KVA	Potable Water L/s	Gas Peak KW	Gas AQ kWh/yr
1	50	22.5	49.50	0.45	67.50	133267.5
2	70	45	99.00	0.90	189.00	319230
3	95	90	198.00	1.80	513.00	1151910
4	99	45	99.00	0.90	267.30	700200
5	110	22.5	49.50	0.45	148.50	495787.5
<b>Total</b>		<b>225</b>	<b>495.00</b>	<b>4.50</b>	<b>1185.30</b>	<b>2800395</b>
			KVA	L/s	KW	kWh/yr

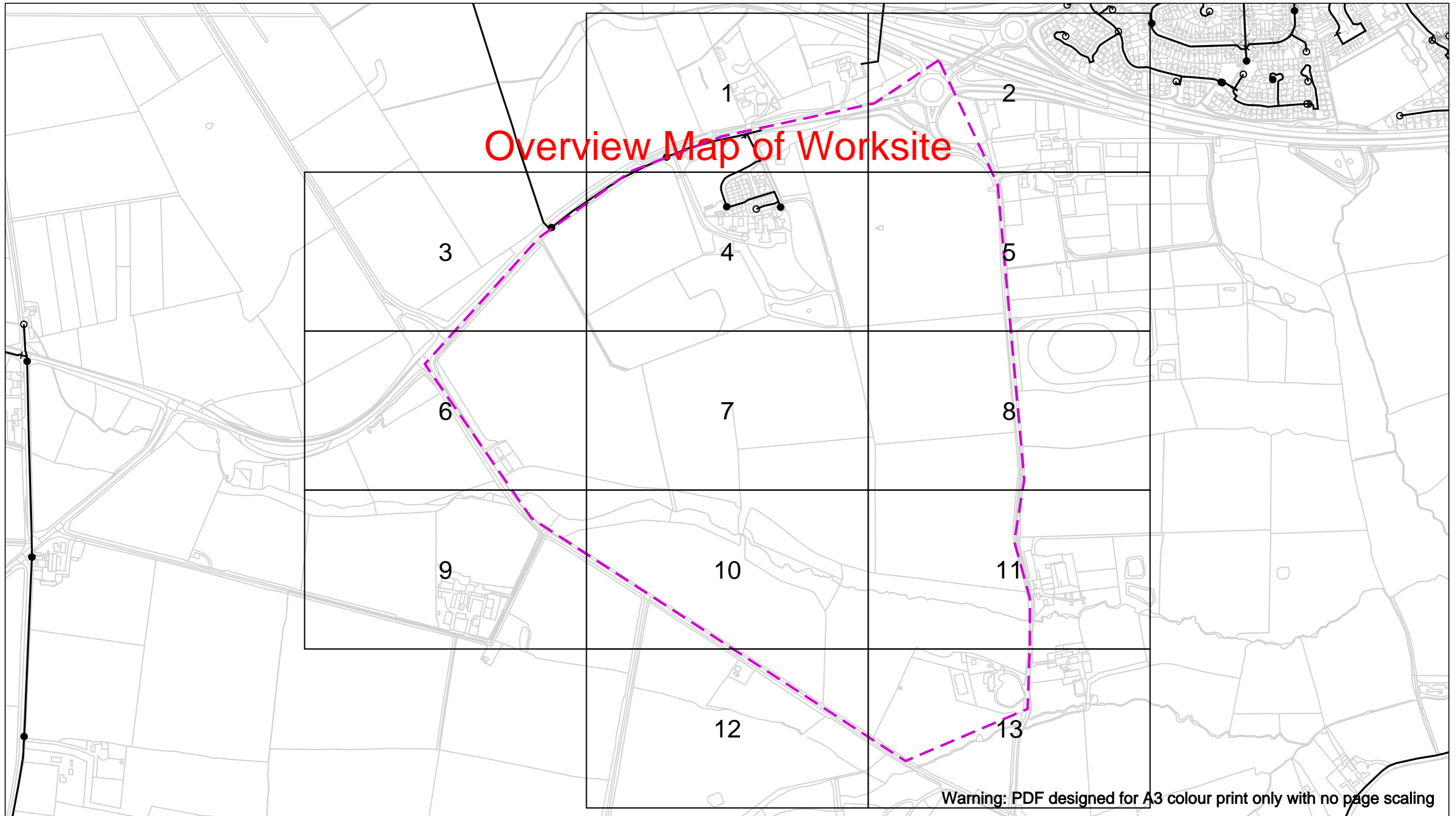
**Commercial**

Development Type	Area m <sup>2</sup>	Estimated Employment Density/number of people	Electricity Consumption			Gas Consumption				Water consumption			
			w/m <sup>2</sup>	Assumed Power Factor	Electricity Peak (kVA)	Heating load w/m <sup>2</sup>	Gas (Peak) kW	Benchmark consumption - heating kWh/m <sup>2</sup> /yr	Gas (AQ) kWh/yr	Water consumption l/day/person	Water consumption l/day	Water Average Flow Rate l/s	Water Peak Flow Rate l/s
<b>Assuming 60% of 22.9ha utilised for 75% B1/25% B2</b>													
Business B1 offices	103050	5153	15	0.95	1627	70	7214	97	9995850	45	231863	5.367	13.418
General Industry B2	34350	1010	15	0.95	542	80	2748	92	3160200	45	45463	0.526	1.315
Hotel (assuming 120 bed)	5040	300	80	0.95	424	60	302	240	1209600	200	60000	0.694	1.736
Pub/Food	1000	125	225	0.95	237	100	100	175	175000	7	875	0.010	0.025
Car Charging Points (allowance)	N/A				200								
<b>Totals</b>	<b>137400</b>				<b>3031</b>		<b>9962</b>		<b>13156050</b>				<b>14.733</b>





# Overview Map of Worksite



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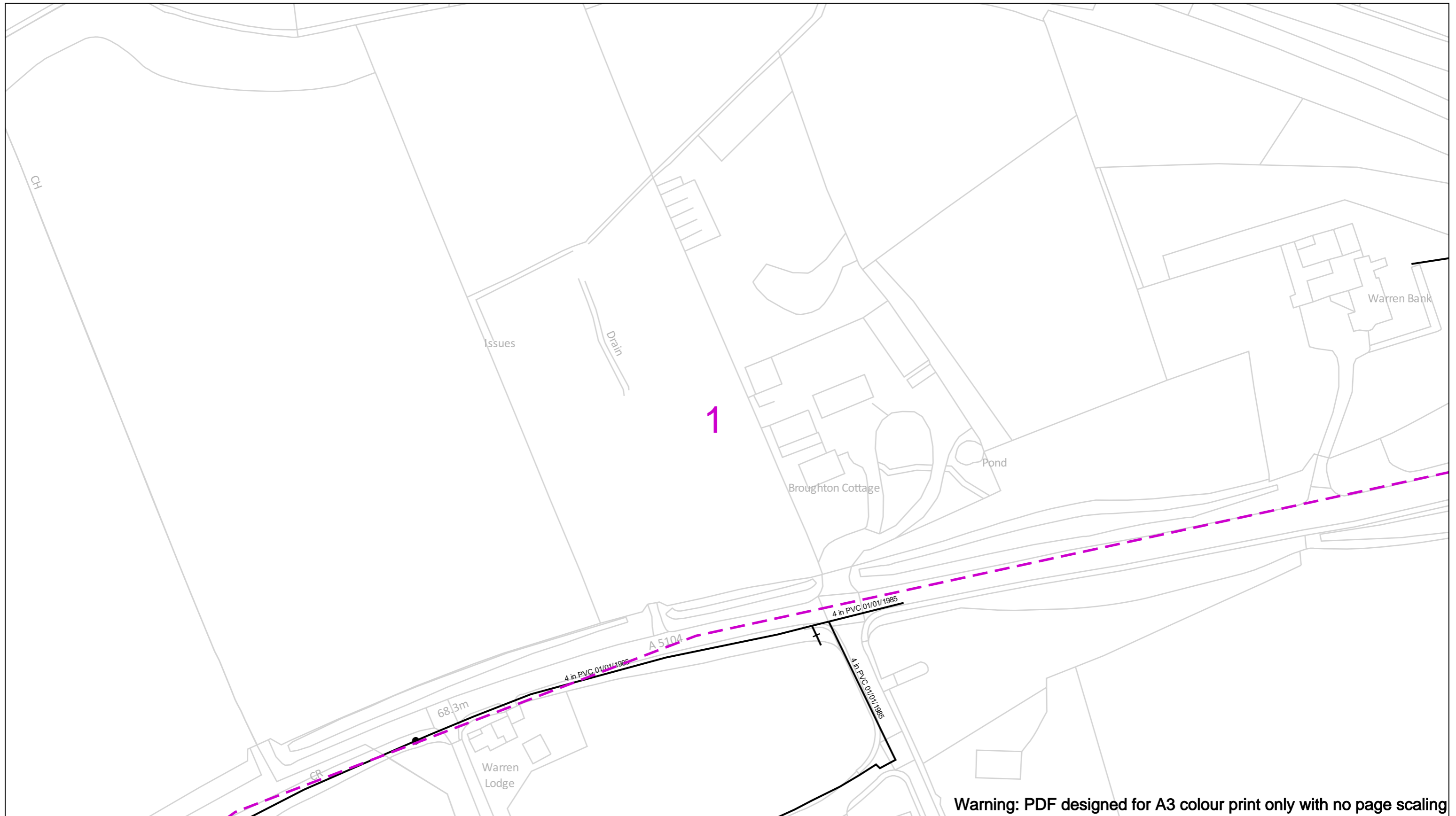
	Discharge		Abandoned
	Duct		Trunk Main
	Valve		Fire Main
	Fire Hydrant		Water Main
	Washout Hydrant		

Materials			
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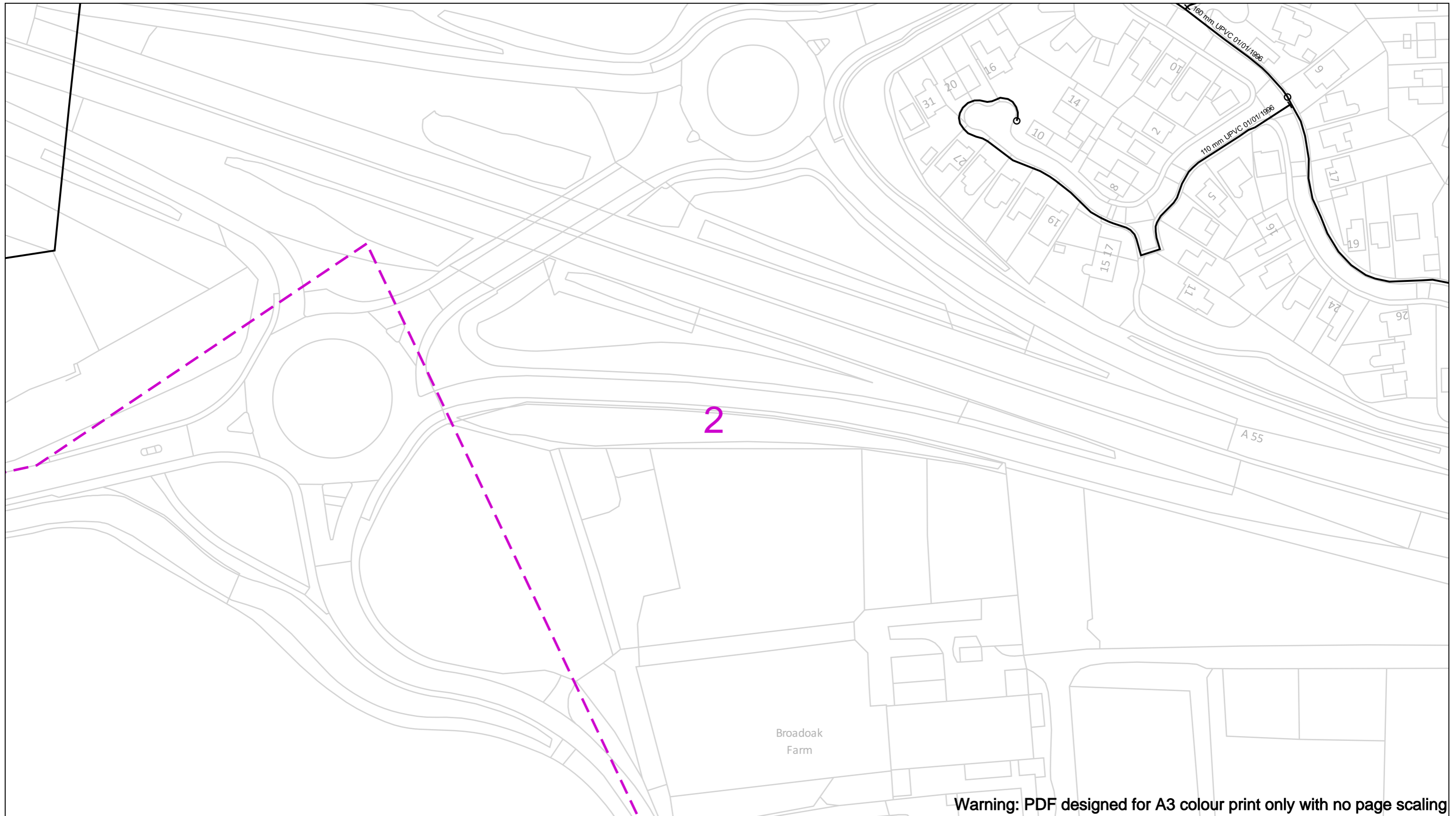
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	Washout Hydrant		

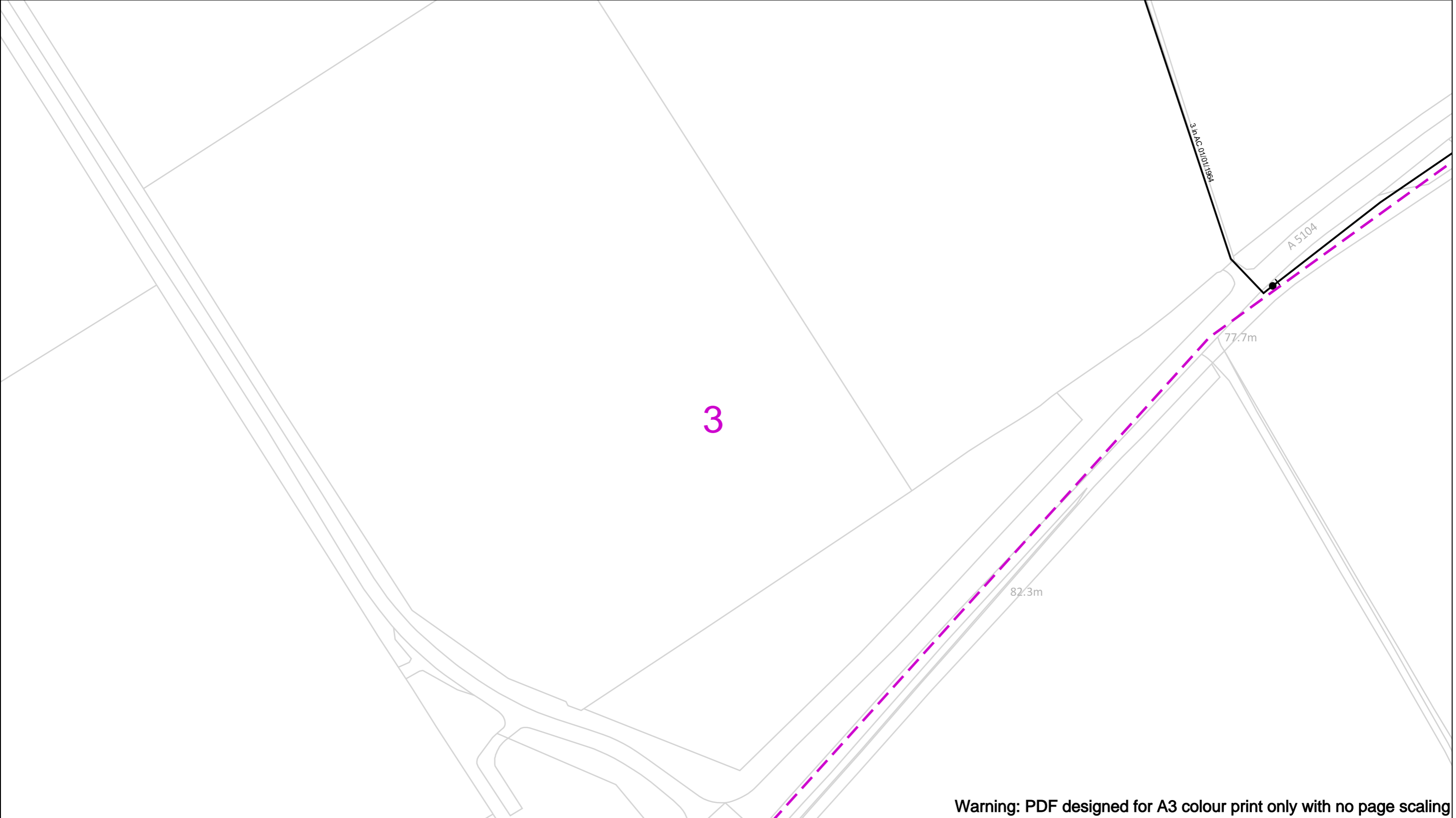
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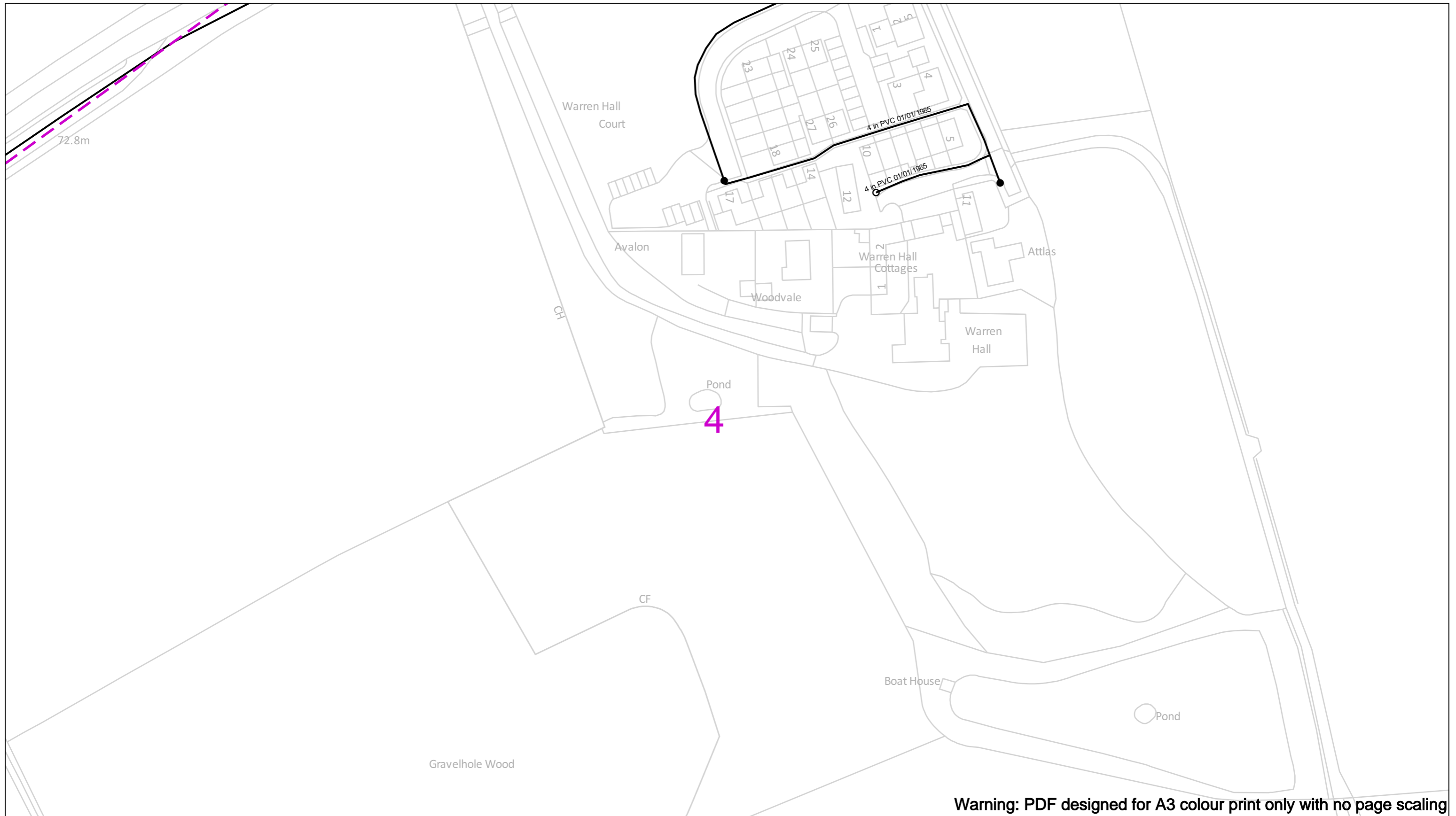
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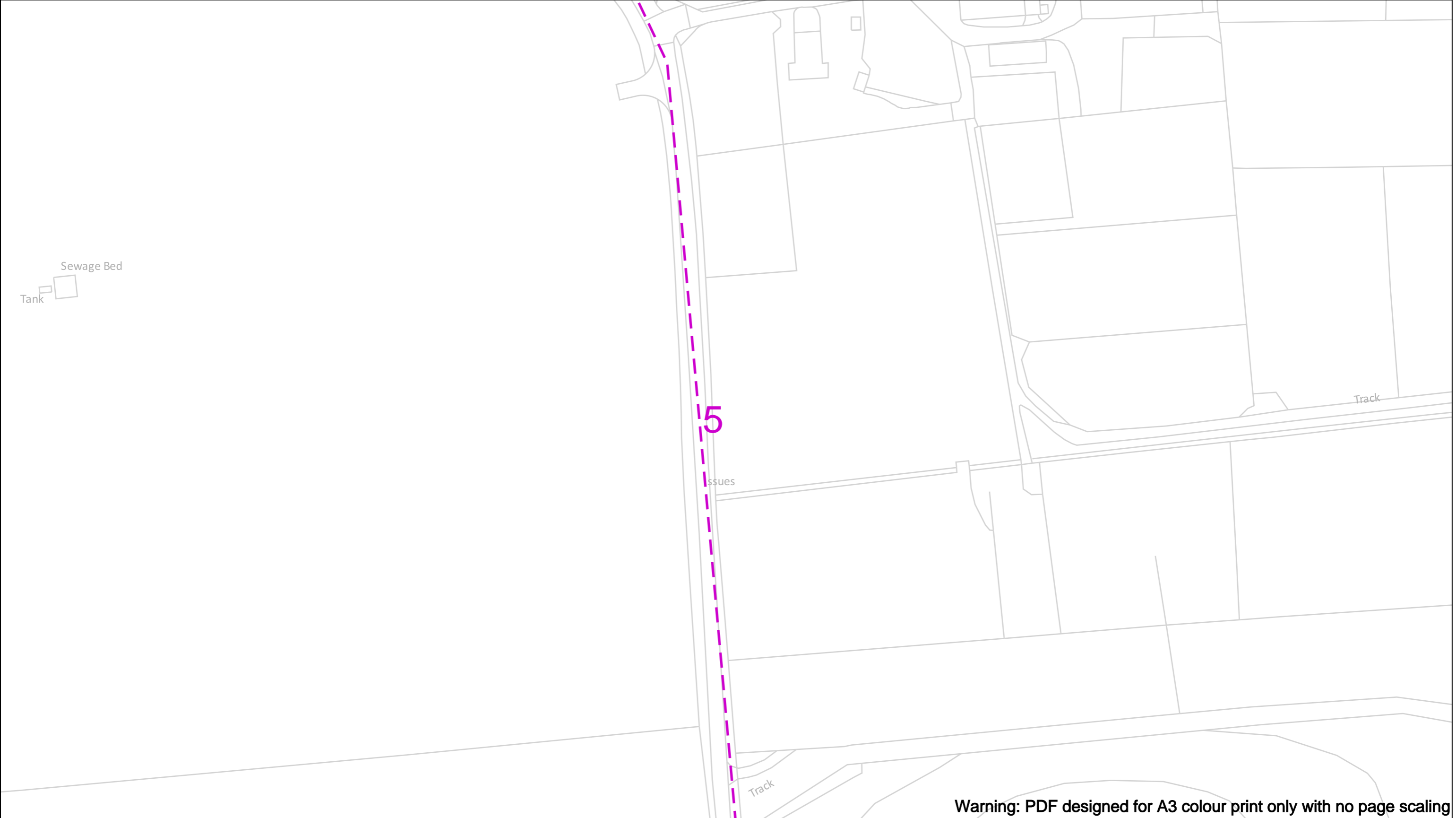
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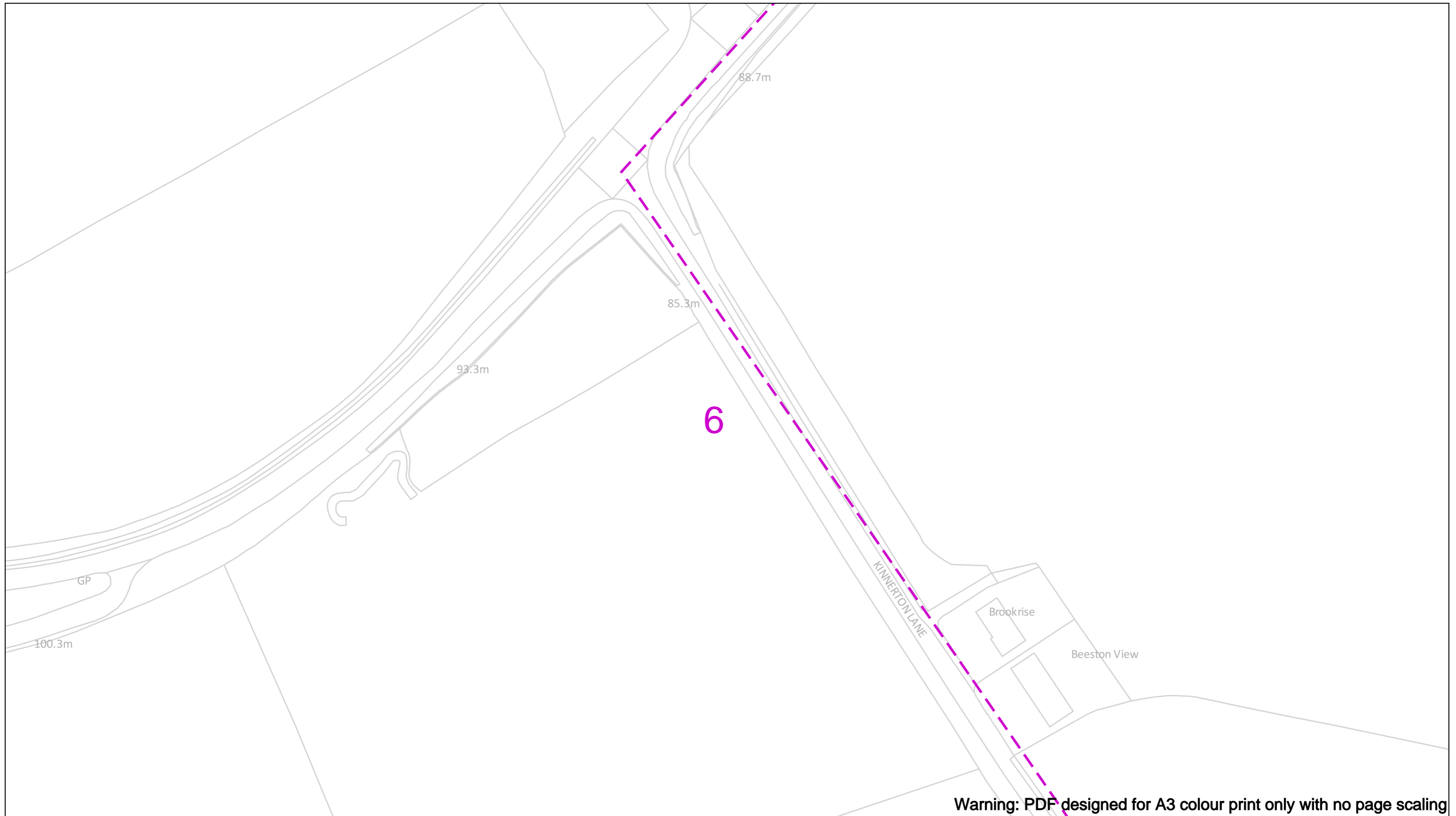
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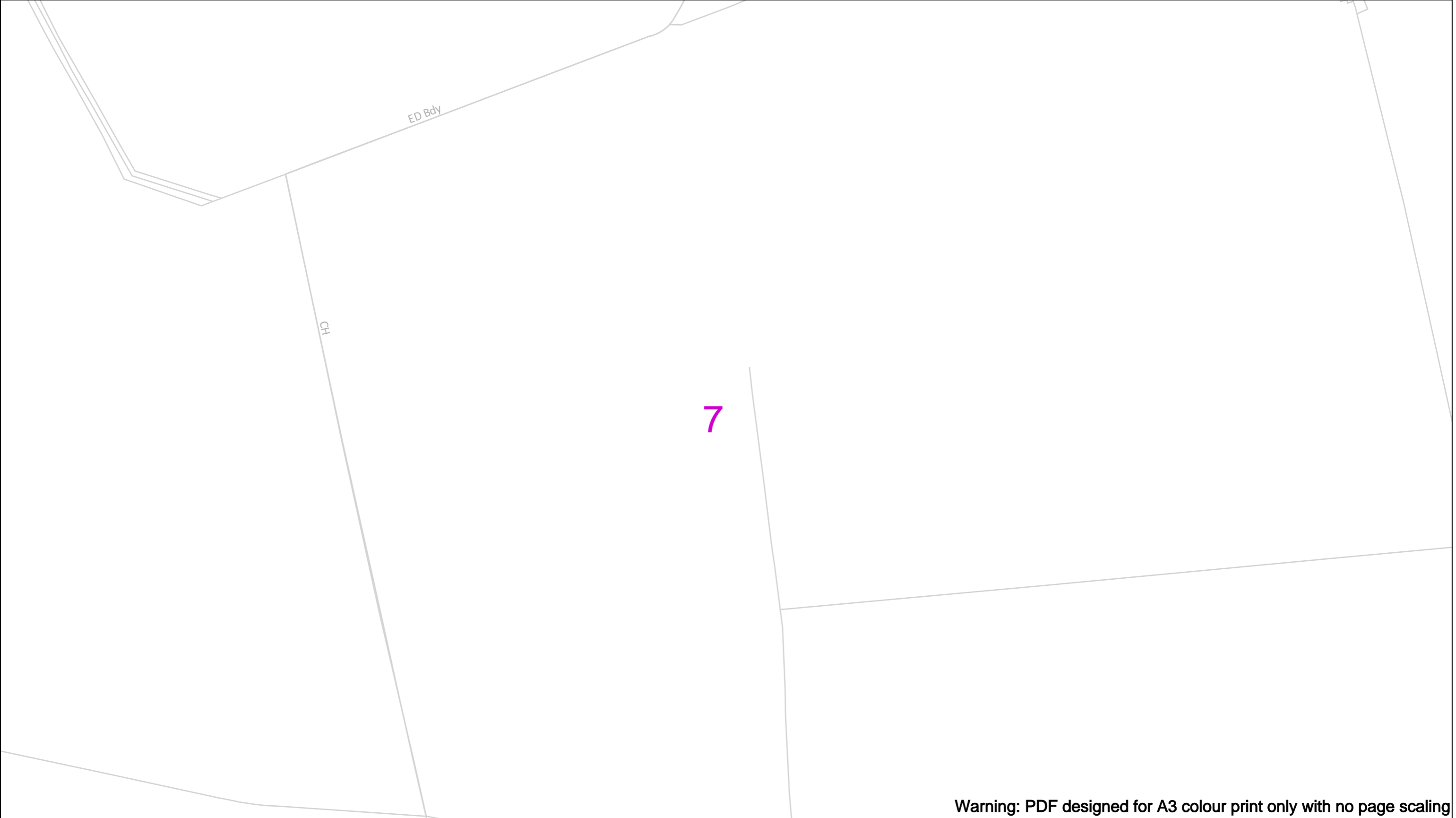
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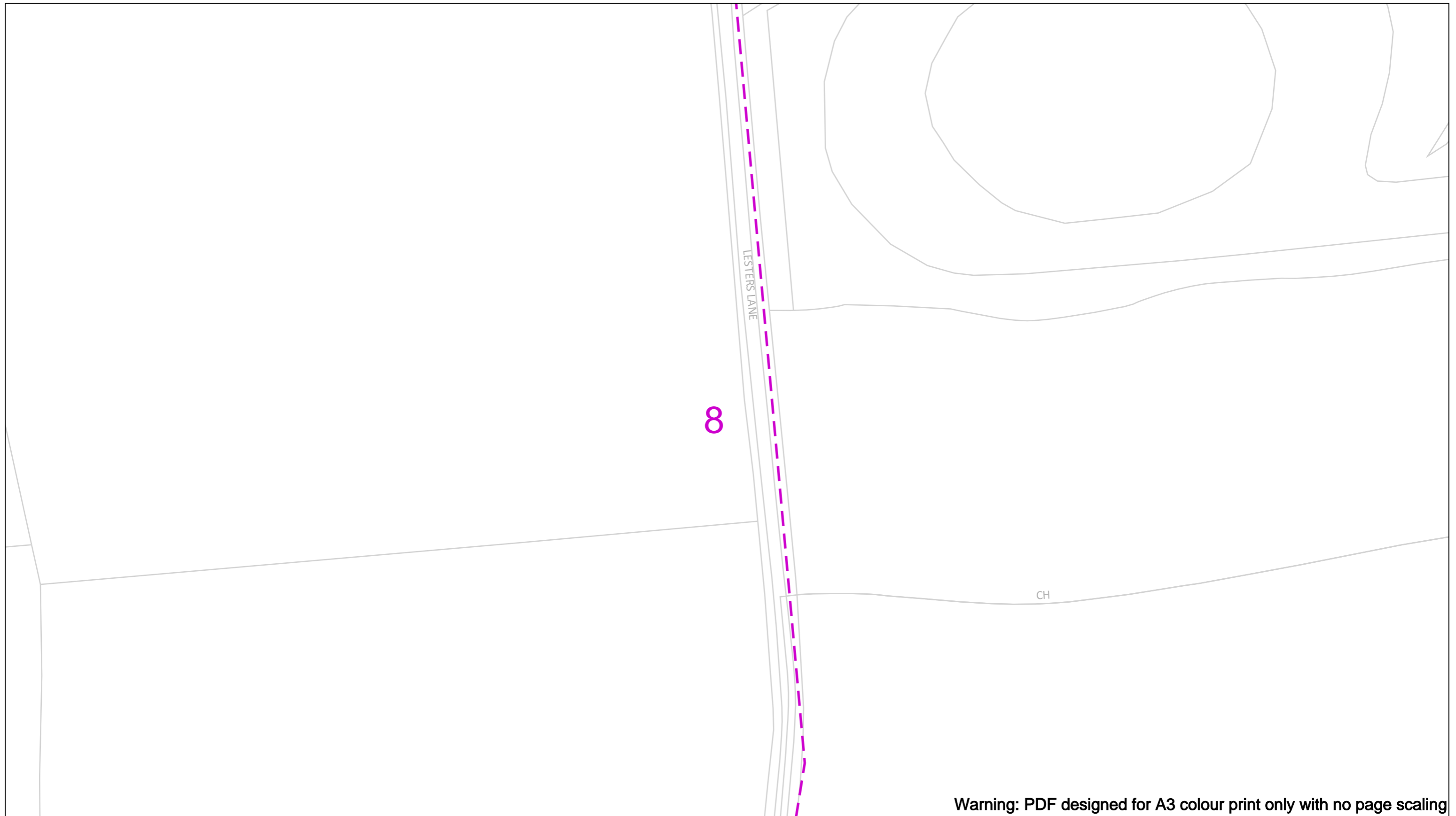
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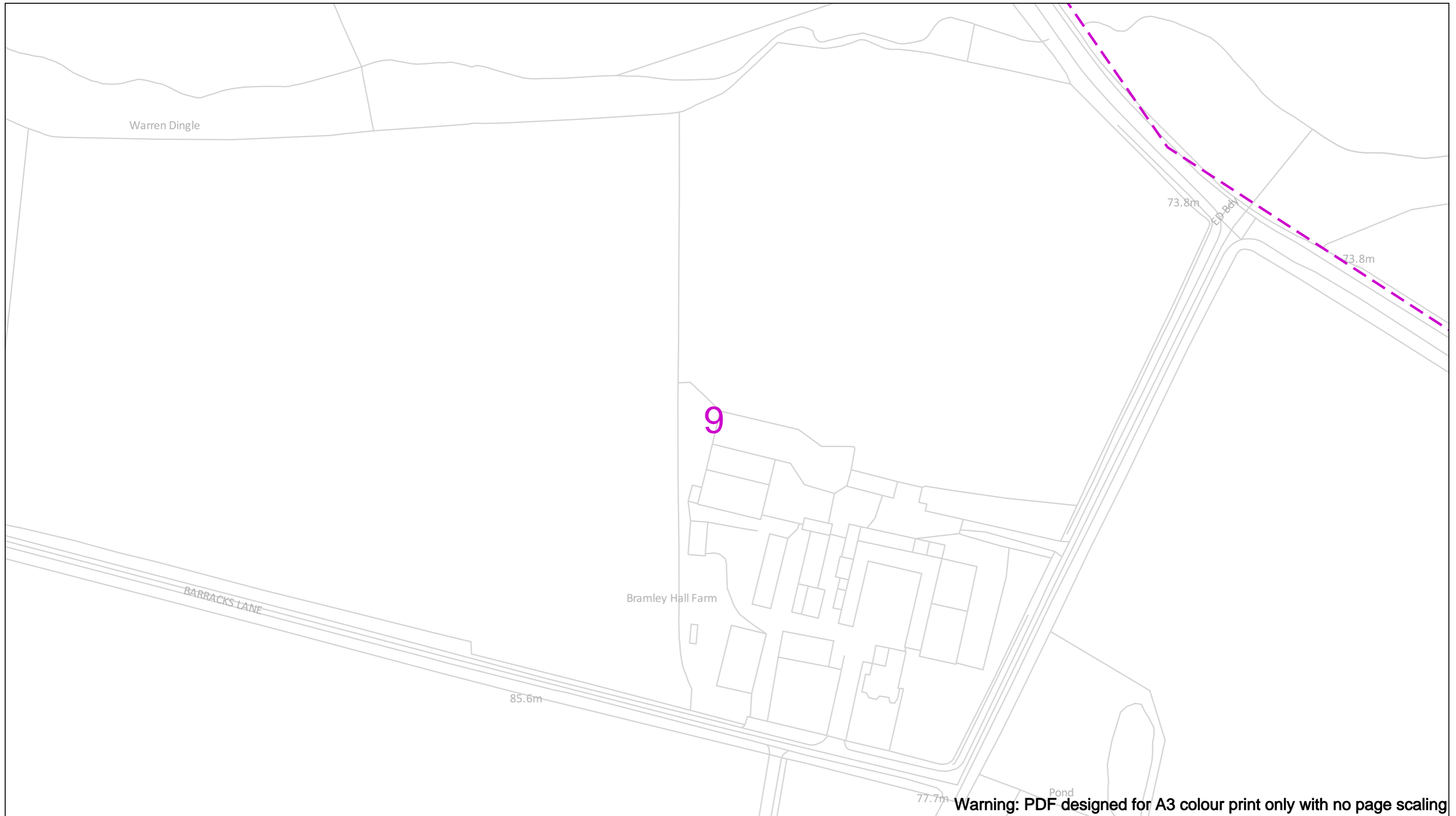
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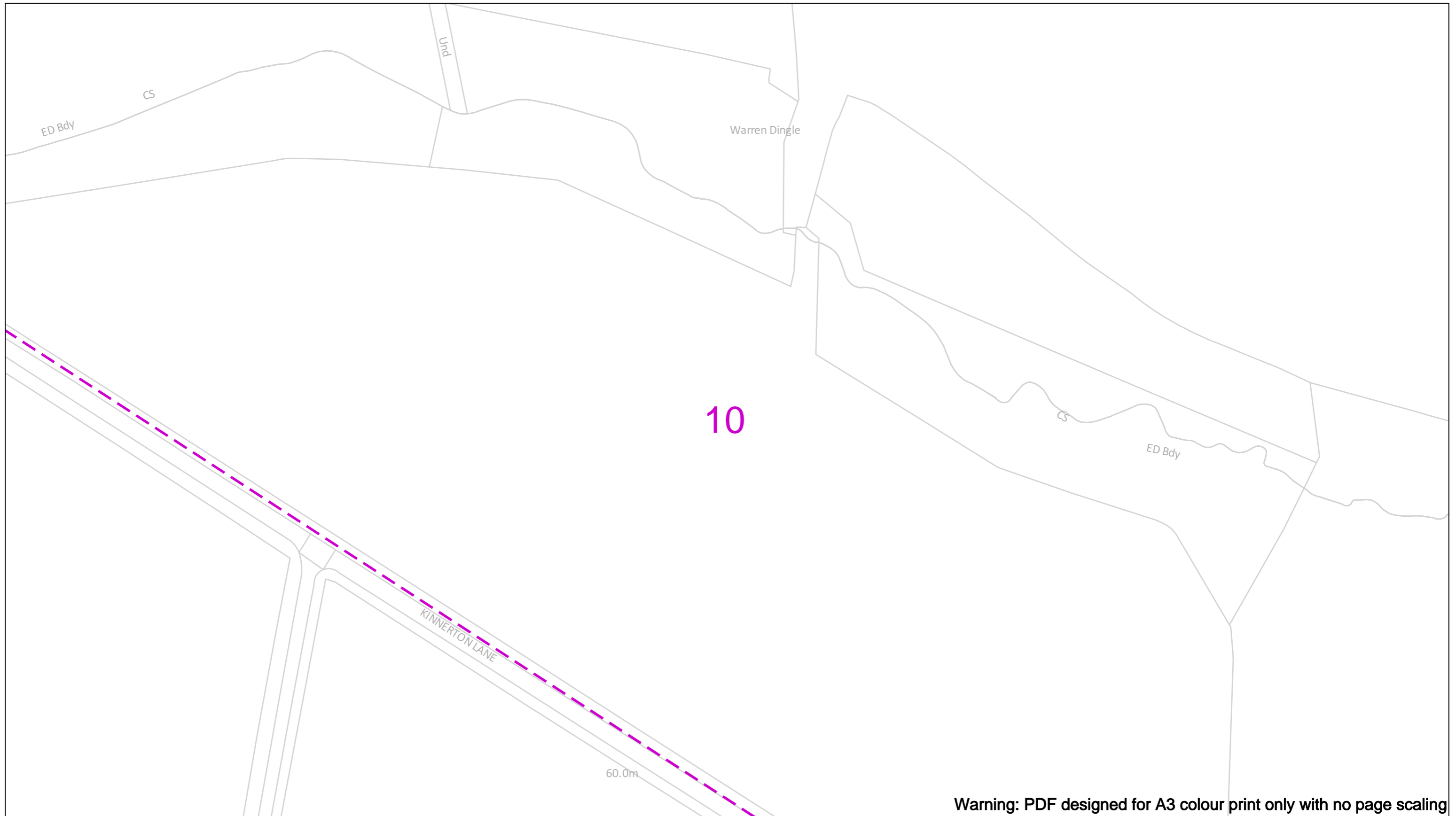
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AC	ASBESTOS CEMENT	MDPE	MEDIUM DENSITY POLY
AK	ALKATHENE	O	OTHER
C	CONCRETE	PC	PRE-STRESSED CONCRETE
CI	CAST IRON	PF	PITCH FIBRE
CU	COPPER	PP	POLY PROPYLENE
DI	DUCTILE IRON	PSC	PLASTIC STEEL COMPOSITE
GF	GLASS FIBRE	PVC	POLY VINYL CHLORIDE
GRC	GLASS REINFORCED CONCRETE	RPM	REINFORCED PLASTIC MATRIX
GRP	GLASS REINFORCED PLASTIC	SI	SPUN IRON
HDPE	HIGH DENSITY POLY	SST	STAINLESS STEEL
HPPE	HIGH PERFORMANCE POLY	ST	STEEL
LDPE	LOW DENSITY POLY	UPVC	UNPLASTICISED PVC

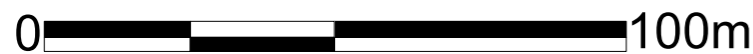
Hafren Dyfrdwy  
 GISmapping Team  
 PO Box 5344  
 Coventry  
 CV3 9FT  
 Tel: 0330 678 1492  
 Fax: 02477 715862

Scale: 1:1250 (When plotted at A3)

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Date Requested: 01/03/2019  
 Job Reference: 14789083  
 Site Location: 331088 361596  
 Requested by:  
 Mrs Justine Martin  
 Your Scheme/Reference: Warren Hal

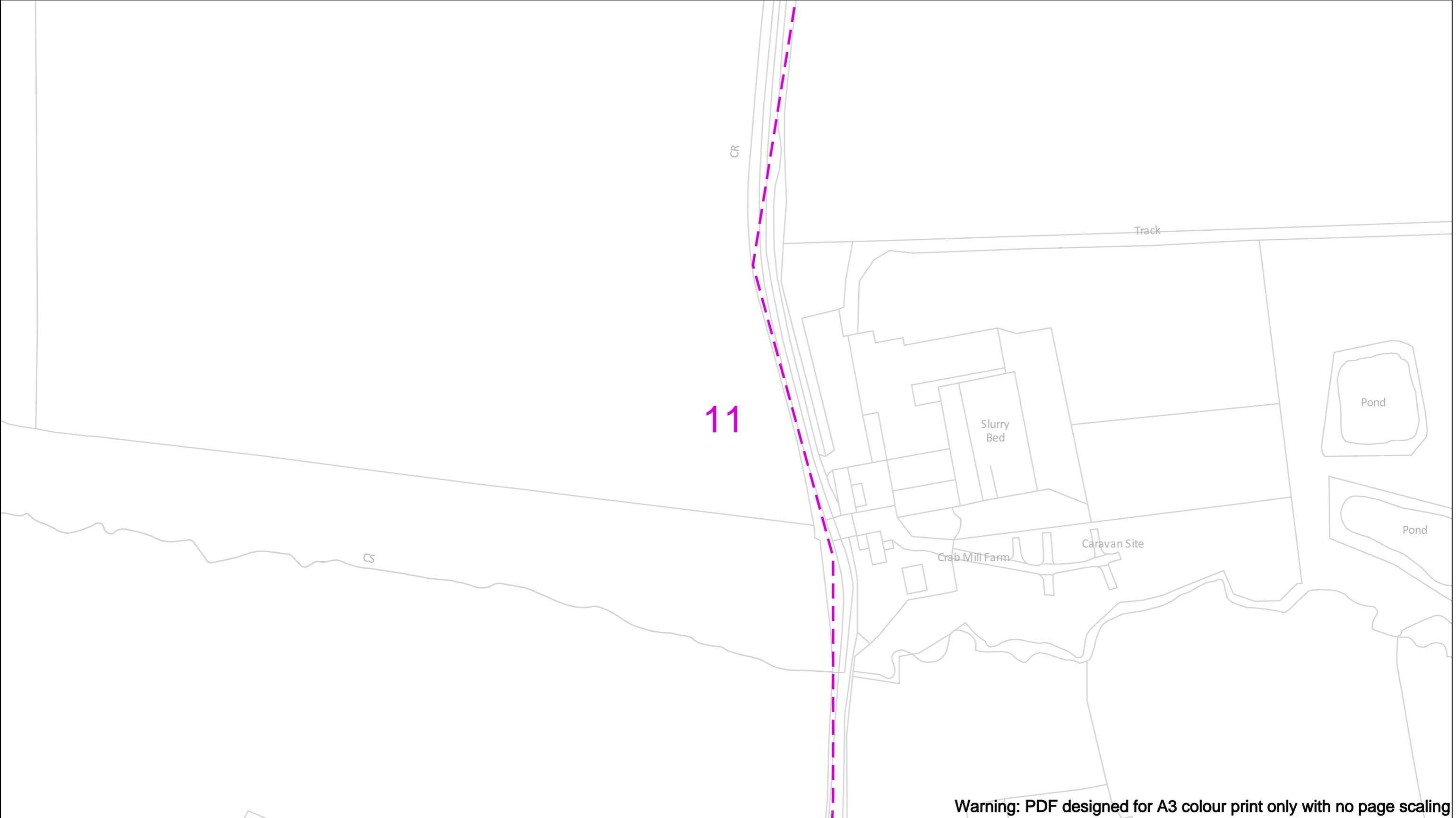
	Discharge		Abandoned
	Duct		Trunk Main
	Valve		Fire Main
	Fire Hydrant		Water Main
	Washout Hydrant		

Materials			
AC	ASBESTOS CEMENT	MDPE	MEDIUM DENSITY POLY
AK	ALKATHENE	O	OTHER
C	CONCRETE	PC	PRE-STRESSED CONCRETE
CI	CAST IRON	PF	PITCH FIBRE
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0 100m

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Date Requested: 01/03/2019  
 Job Reference: 14789083  
 Site Location: 331088 361596  
 Requested by:  
 Mrs Justine Martin  
 Your Scheme/Reference: Warren Hal

- Discharge
- Duct
- Valve
- Fire Hydrant
- Washout Hydrant

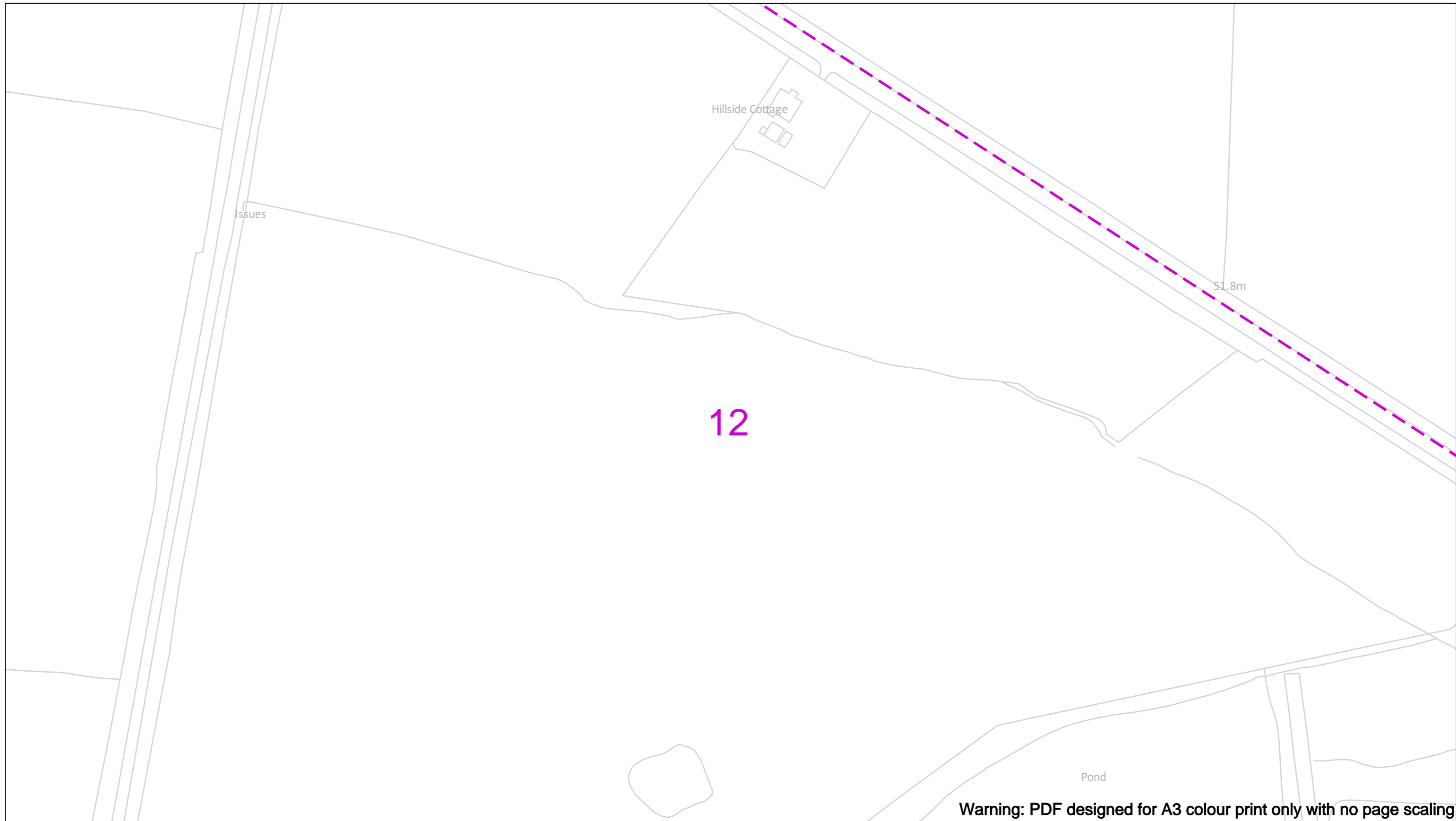
- Abandoned
- Trunk Main
- Fire Main
- Water Main

Materials			
AC	ASBESTOS CEMENT	MDPE	MEDIUM DENSITY POLY
AK	ALKATHENE	O	OTHER
C	CONCRETE	PC	PRE-STRESSED CONCRETE
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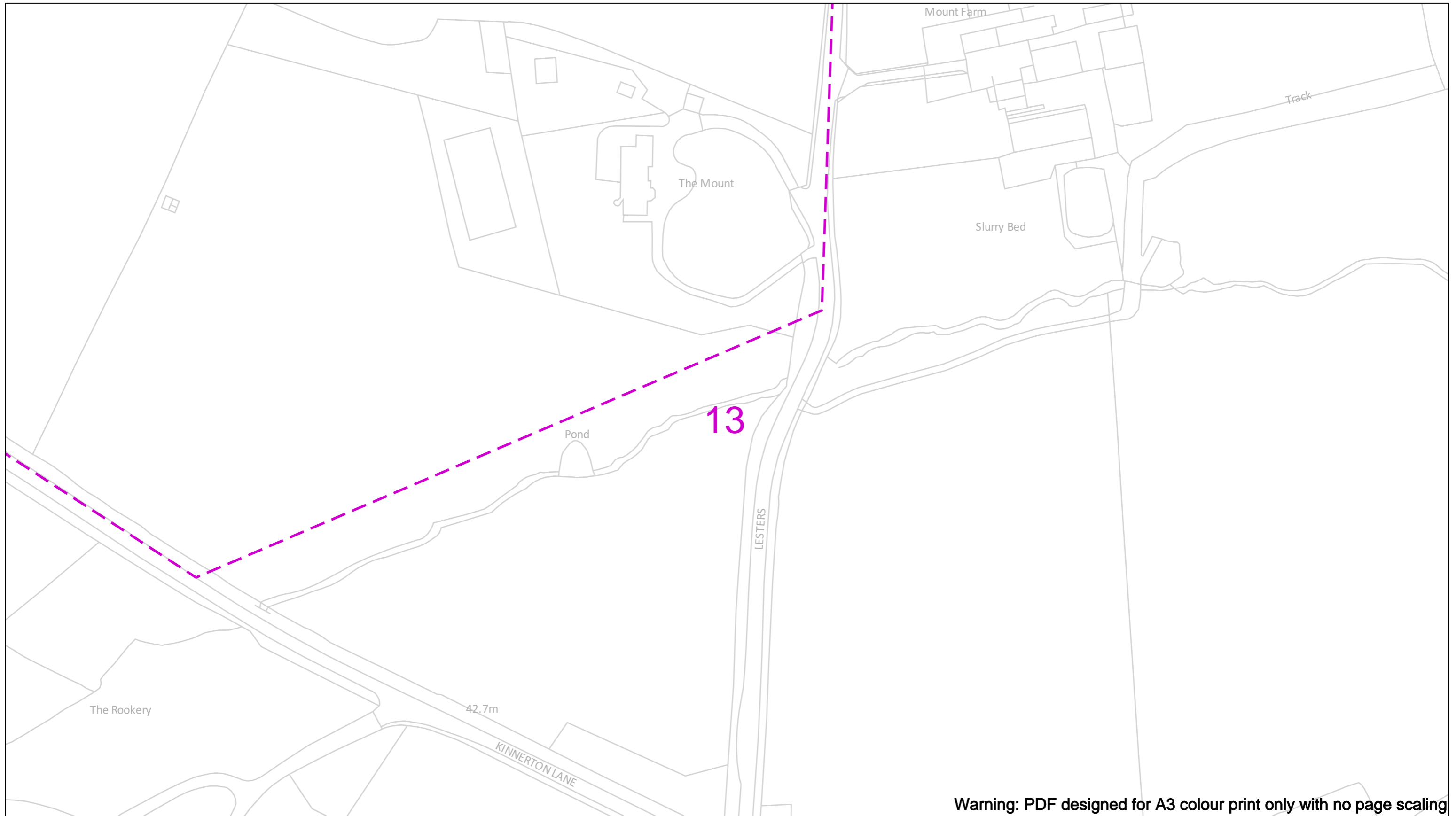
	Discharge		Abandoned
	Duct		Trunk Main
	Valve		Fire Main
	Fire Hydrant		Water Main
	Washout Hydrant		

Materials			
AC	ASBESTOS CEMENT	MDPE	MEDIUM DENSITY POLY
AK	ALKATHENE	O	OTHER
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	Discharge		Abandoned
	Duct		Trunk Main
	Valve		Fire Main
	Fire Hydrant		Water Main
	Washout Hydrant		

Materials			
AC	ASBESTOS CEMENT	MDPE	MEDIUM DENSITY POLY
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severn dee

3 June 2019

FAO JUSTINE MARTIN  
WYG ENGINEERING LTD  
EXECUTIVE PARK  
AVALON WAY  
ANSTEY  
LEICESTERSHIRE  
LE7 7GR

**Hafren Dyfrdwy Cyfyngedig**

Accounts Receivable  
PO Box 5311  
Coventry  
CV3 9FL

[www.hdcymru.co.uk/developers](http://www.hdcymru.co.uk/developers)

Tel 07702 543 997  
03306 781 481

e-mail [Ryan.Sly@hdcymru.co.uk](mailto:Ryan.Sly@hdcymru.co.uk)

PLEASE QUOTE REFERENCE <b>8356685</b> IN ANY FUTURE CORRESPONDENCE
--

Dear Justine,

**Clean Water Development Enquiry For: Warren Hall, L/O Lesters Lane, Broughton, Flintstone, CH4 0HG**

Thank you for your recent enquiry regarding the above site. Please find enclosed a copy of our records which show the approximate position of our existing water mains. The water mains shown would normally be laid to a cover of 900mm and our services (which are not shown on the plan are normally laid at right angles to the main) must be laid to a minimum of 750mm. When excavating, care should be taken to accurately locate our mains and services, as they may be found at shallower or deeper depths than indicated. There may also be private pipework crossing the site.

**About Your Application**

Based on the details provided in your application, unfortunately it will be necessary to reinforce our network to supply your proposed development of 303 domestic dwellings and 19 commercial units. Unfortunately we can't give any specifics of these reinforcements as the entire area surrounding this development will need to be looked into.

As your development potentially includes process water and private fire fighting, then a contribution towards this reinforcement work will be required. This amount will be calculated upon receipt of your formal application and final flow details for the site. We will then be in a position to design and price the works required to supply your development. Please note that due to this it will take longer to deliver your connection due to the additional work required.

Due to the size of your development this will need to be applied for in phases. Phases should be designed to allow for no more than 250 properties per phase where possible, with an aim to occupy these properties within a 5 year period.

## Cost Estimates

When the site is developed, your contribution to the new water main(s) will be reduced by the anticipated income we will receive from the connected properties, this is known as the Developer Contribution. If you choose to install a spine main initially through the main access road(s) for the site, this mains construction will be at full contribution under our current policies and processes. If a phase exceeds more than 250 properties costs for the onsite mains will be at a bespoke cost.

Please note that the following is a **budget** estimate only, based on a desktop assessment of your site and the information provided by yourselves. These costs will be subject to change upon receipt, assessment and design of your formal application.

As you have not provided a build profile or phasing plan with your application we have based on the following cost estimates on the assumption that each phase will be no greater than 250 plots. Based on this estimate we have provided a budget cost based on 2 phases of 250 plots and a remaining phase of 53 plots. These costs are solely based on the 303 domestic dwellings as we can't cost for the commercial units without fixtures and fittings for each unit so it is likely the estimated costs below will increase when this list is provided with a formal application.

As the source of water is over 22m from your site boundary this will need to be priced as a bespoke cost upon receipt of your formal application and is excluded from the below estimate

As you have stated that your site history is greenfield it has been assumed that all pipework will be suitable in MDPE. If there are sections of your site that are not greenfield, have had imported ground or are within 50m of a contamination issue a ground investigation report will be required as part of your formal application for assessment to confirm MDPE is suitable.

Where your site includes buildings for commercial use, a full fittings list would be required for these units onsite to enable us to calculate the anticipated income for this section of the site and your contribution. If fittings lists for these units are not available we would only be in a position to estimate the domestic properties within that phase.

The **budget** cost (exclusive of VAT for Hafren Dyfrdwy constructing the new water main(s)) is:

Phase 1 = 250 plots

New Water Mains (inclusive of connection cost)	£224,000.00
<b>Developer Contribution</b>	<b>£22,400.00</b>

Phase 2 = 53 plots

New Water Mains (inclusive of connection cost)	£47,500.00
<b>Developer Contribution</b>	<b>£4,750.00</b>

If preferred, you may instead elect a Water Industry Regulation Scheme (WIRS) accredited contractor to self-construct the new water mains and services (in accordance with Hafren Dyfrdwy's published scheme). Further details and a list of registered contractors can be found at <http://www.lr.org/en/utilities-building-assurance-schemes/uk-schemes/water-industry-registration-scheme/>

Hafren Dyfrdwy is prepared to give an Asset payment for the constructed water mains laid by a WIRS accredited company. This will be paid to the developer or SLO for the work they complete. Your Developer Contribution will remain the same as it would if you elected for Hafren Dyfrdwy to install the main. The estimated asset value payment for this site is:

#### Phase 1

<b>Estimated Asset Payment</b>	£202,000.00
--------------------------------	-------------

#### Phase 2

<b>Estimated Asset Payment</b>	£42,800.00
--------------------------------	------------

Service connection charges are not included in the cost of mains laying or your agreement and would be issued under separate cover once your mains terms have been accepted. The charges will vary depending on the work being carried out for each connection.

The following estimate has been provided based on the number of properties on your site and the infrastructure charges they would incur. This estimate **does not** include the cost of this individual service connection work or take into account any infrastructure credits or discounts that may be applicable. For further details please refer to our Developer Charges which can be found on our website.

#### Phase 1

Infrastructure Charges Water	£109,722.50
Infrastructure Charges Waste	£80,319.24

#### Phase 2

Infrastructure Charges Water	£23,261.17
Infrastructure Charges Waste	£14,049.24



## **What Happens Next**

When you wish to proceed with obtaining water infrastructure for the development, you will need to submit a formal water mains application form for design and quotation. The application can either be downloaded from our website at [www.hdcymru.co.uk/developers](http://www.hdcymru.co.uk/developers) or a copy emailed or posted from our new connections office. If you would like a copy by email or post, or wish to discuss the scheme further before submitting your form please contact myself on the details below or our New Connections Team line on 03306 781 481 / [new.connections@hdcymru.co.uk](mailto:new.connections@hdcymru.co.uk)

When you submit your application form please include a copy of the overall phasing layout for the site, showing entry/exit points between phases so that each phase can be designed to cater for any future demand where shared between parcels. Each submission should also be cross referenced with the scheme it is linked to throughout the construction/development period.

Each application will need to be clearly marked with the phase number/name with a site layout in AutoCad DWG format showing the parcel's details for design. As above it will need to include the entry/exit points to future parcels for reference but will not need to show outside the boundary(s)

Yours sincerely

Ryan Sly  
On behalf of  
Lewis Yates  
Infrastructure Design Manager

# Appendix C – Hafren Dyfrdwy Cymru Drinking Water Quality Report



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ACCEPT & CLOSE

# My Services

## Saltney zone

Supply Zone Z16

### Source of water

The supply to this area is from surface water treated from the River Dee

### Water quality

Depending on its origin, water can contain a variety of natural mineral salts. All water in supply is carefully purified at modern treatment plants to ensure that potential contaminants are removed in order to meet strict UK and European standards

### Quality control

Each year we take many thousands of samples direct from the customers' taps to ensure its quality. The table below shows typical values for your area. Individual results may vary slightly due to natural changes in the raw water, and also to changes which occur within the domestic plumbing system

## Hardness Results

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

## Hardness Results

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

### Hardness Level

Value	Slightly Hard
Standard	No standard applies
UK/EU Limit	

### Hardness Clark

Value	7.58
Standard	No standard applies
UK/EU Limit	Degrees Clark

### Hardness German

Value	6.07
Standard	No standard applies
UK/EU Limit	German Degrees

### Hardness French

Value	10.83
Standard	No standard applies
UK/EU Limit	French Degrees

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

### 1,2-Dichloroethane

Average	<0.09
Maximum	<0.09
Minimum	<0.09
UK/EU Limit	3
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

### Aldrin

Average	<0.001
Maximum	<0.001
Minimum	<0.001
UK/EU Limit	0.03
Units	µg/l
Number of Results	3
Samples above PCV Limit	0

### Aluminium

Average	11
Maximum	14
Minimum	6
UK/EU Limit	200
Units	µg/l



Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Number of Results	7
-------------------	---

Samples above PCV Limit	0
-------------------------	---

### Ammonium

Average	<0.012
---------	--------

Maximum	<0.015
---------	--------

Minimum	<0.012
---------	--------

UK/EU Limit	0.5
-------------	-----

Units	mg/l
-------	------

Number of Results	7
-------------------	---

Samples above PCV Limit	0
-------------------------	---

### Antimony

Average	0.14
---------	------

Maximum	0.16
---------	------

Minimum	0.12
---------	------

UK/EU Limit	5
-------------	---

Units	µg/l
-------	------

Number of Results	2
-------------------	---

Samples above PCV Limit	0
-------------------------	---

### Arsenic

Average	0.22
---------	------

Maximum	0.24
---------	------

Minimum	0.20
---------	------

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

UK/EU Limit	10
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

## Benzene

Average	<0.04
Maximum	<0.04
Minimum	<0.04
UK/EU Limit	1
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

## Benzo-3,4-Pyrene

Average	<0.001
Maximum	<0.001
Minimum	<0.001
UK/EU Limit	0.01
Units	µg/l
Number of Results	1
Samples above PCV Limit	0

## Boron

Average	0.020
---------	-------

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Maximum	0.022
Minimum	0.017
UK/EU Limit	1
Units	mg/l
Number of Results	2
Samples above PCV Limit	0

## Bromate

Average	<0.20
Maximum	<0.20
Minimum	<0.20
UK/EU Limit	10
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

## Cadmium

Average	0.01
Maximum	0.01
Minimum	0.01
UK/EU Limit	5
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

### Chloride

Average	28.39
Maximum	33.20
Minimum	23.58
UK/EU Limit	250
Units	mg/l
Number of Results	2
Samples above PCV Limit	0

### Chromium

Average	<0.3
Maximum	0.3
Minimum	<0.2
UK/EU Limit	50
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

### Clostridium perfringens

Average	0
Maximum	0
Minimum	0
UK/EU Limit	0
Units	No. / 100ml

## Data is for period 01-March-2018 to 31-May-2018

### Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Number of Results	27
Samples above PCV Limit	0

### Coliform Bacteria

Average	0
Maximum	0
Minimum	0
UK/EU Limit	0
Units	No. / 100ml
Number of Results	8
Samples above PCV Limit	0

### Colony Count After 48 Hours at 37°C

Average	0
Maximum	1
Minimum	0
UK/EU Limit	No abnormal change
Units	No. / 100ml
Number of Results	7
Samples above PCV Limit	0

### Colony Count After 72 Hours at 22°C

Average	0
Maximum	0
Minimum	0

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

UK/EU Limit	No abnormal change
Units	No. / 100ml
Number of Results	7
Samples above PCV Limit	0

## Colour

Average	0.81
Maximum	1.90
Minimum	0.33
UK/EU Limit	20
Units	mg/l Pt/Co
Number of Results	7
Samples above PCV Limit	0

## Conductivity

Average	311
Maximum	441
Minimum	251
UK/EU Limit	2500
Units	µS/cm at 20°C
Number of Results	27
Samples above PCV Limit	0

## Copper

Average	0.0066
---------	--------



Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Maximum	0.0111
Minimum	0.0021
UK/EU Limit	2
Units	mg/l
Number of Results	2
Samples above PCV Limit	0

## Cyanide

Average	<2
Maximum	<2
Minimum	<2
UK/EU Limit	50
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

## Dieldrin

Average	<0.003
Maximum	<0.003
Minimum	<0.003
UK/EU Limit	0.03
Units	µg/l
Number of Results	3
Samples above PCV Limit	0

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

### E. coli

Average	0
Maximum	0
Minimum	0
UK/EU Limit	0
Units	No. / 100ml
Number of Results	8
Samples above PCV Limit	0

### Enterococci

Average	0
Maximum	0
Minimum	0
UK/EU Limit	0
Units	No. / 100ml
Number of Results	2
Samples above PCV Limit	0

### Fluoride

Average	0.06
Maximum	0.07
Minimum	0.04
UK/EU Limit	1.5
Units	mg/l

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Number of Results	2
-------------------	---

Samples above PCV Limit	0
-------------------------	---

### Free Chlorine

Average	0.41
---------	------

Maximum	0.51
---------	------

Minimum	0.33
---------	------

UK/EU Limit	No abnormal change
-------------	--------------------

Units	mg/l
-------	------

Number of Results	9
-------------------	---

Samples above PCV Limit	0
-------------------------	---

### Heptachlor

Average	<0.001
---------	--------

Maximum	<0.001
---------	--------

Minimum	<0.001
---------	--------

UK/EU Limit	0.03
-------------	------

Units	µg/l
-------	------

Number of Results	3
-------------------	---

Samples above PCV Limit	0
-------------------------	---

### Heptachlor epoxide

Average	0.000
---------	-------

Maximum	0.000
---------	-------

Minimum	0.000
---------	-------

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

UK/EU Limit	0.03
Units	µg/l
Number of Results	3
Samples above PCV Limit	0

### Iron

Average	<12
Maximum	18
Minimum	<10
UK/EU Limit	200
Units	µg/l
Number of Results	7
Samples above PCV Limit	0

### Lead

Average	<0.3
Maximum	<0.3
Minimum	<0.3
UK/EU Limit	10
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

### Manganese

Average	<0.4
---------	------

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Maximum	0.8
Minimum	<0.2
UK/EU Limit	50
Units	µg/l
Number of Results	7
Samples above PCV Limit	0

## Mercury

Average	<0.022
Maximum	<0.022
Minimum	<0.022
UK/EU Limit	1
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

## Nickel

Average	1.3
Maximum	1.9
Minimum	0.6
UK/EU Limit	20
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

### Nitrate

Average	10.30
Maximum	10.80
Minimum	9.79
UK/EU Limit	50
Units	mg/l
Number of Results	2
Samples above PCV Limit	0

### Nitrite

Average	<0.004
Maximum	<0.004
Minimum	<0.004
UK/EU Limit	0.5
Units	mg/l
Number of Results	2
Samples above PCV Limit	0

### Nitrite - Nitrate Calculated

Average	0.21
Maximum	0.22
Minimum	0.20
UK/EU Limit	<1
Units	-



## Data is for period 01-March-2018 to 31-May-2018

### Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Number of Results	2
Samples above PCV Limit	0

### Odour

Average	0
Maximum	0
Minimum	0
UK/EU Limit	Acceptable to Customer and no abnormal change
Units	Dilution Number
Number of Results	7
Samples above PCV Limit	0

### PAH

Average	0.00
Maximum	0.00
Minimum	0.00
UK/EU Limit	0.1
Units	µg/l
Number of Results	1
Samples above PCV Limit	0

### Pesticides Other

Average	<0.005
Maximum	0.011
Minimum	<0.002

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

UK/EU Limit	0.1
Units	µg/l
Number of Results	32
Samples above PCV Limit	0

## pH

Average	7.60
Maximum	7.70
Minimum	7.49
UK/EU Limit	Min 6.5, Max 9.5
Units	pH value
Number of Results	7
Samples above PCV Limit	0

## Selenium

Average	0.08
Maximum	0.08
Minimum	0.08
UK/EU Limit	10
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

## Sodium

Average	20.7
---------	------

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Maximum	22.3
Minimum	19.1
UK/EU Limit	200
Units	mg/l
Number of Results	2
Samples above PCV Limit	0

## Sulphate

Average	44
Maximum	49
Minimum	39
UK/EU Limit	250
Units	mg/l
Number of Results	2
Samples above PCV Limit	0

## Taste

Average	0
Maximum	0
Minimum	0
UK/EU Limit	Acceptable to Customer and no abnormal change
Units	Dilution Number
Number of Results	7
Samples above PCV Limit	0

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

### Tetrachloroethene and Trichloroethene

Average	0.00
Maximum	0.00
Minimum	0.00
UK/EU Limit	10
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

### Tetrachloromethane

Average	<0.06
Maximum	<0.06
Minimum	<0.06
UK/EU Limit	3
Units	µg/l
Number of Results	2
Samples above PCV Limit	0

### Total Organic Carbon

Average	1.8
Maximum	1.9
Minimum	1.7
UK/EU Limit	No abnormal change
Units	mg/l

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

Number of Results	2
-------------------	---

Samples above PCV Limit	0
-------------------------	---

### Total Pesticides

Average	0.026
---------	-------

Maximum	0.027
---------	-------

Minimum	0.025
---------	-------

UK/EU Limit	0.5
-------------	-----

Units	µg/l
-------	------

Number of Results	2
-------------------	---

Samples above PCV Limit	0
-------------------------	---

### Total Trihalomethanes

Average	36.65
---------	-------

Maximum	38.12
---------	-------

Minimum	35.17
---------	-------

UK/EU Limit	100
-------------	-----

Units	µg/l
-------	------

Number of Results	2
-------------------	---

Samples above PCV Limit	0
-------------------------	---

### Turbidity

Average	<0.08
---------	-------

Maximum	0.12
---------	------

Minimum	<0.06
---------	-------

Data is for period 01-March-2018 to 31-May-2018

## Water Quality Summary Report

For most analysis, results are from samples taken at random in the water quality zone of your area. In some cases, results are from samples taken from water treatment supply points feeding the zone.

UK/EU Limit	4
Units	NTU
Number of Results	7
Samples above PCV Limit	0

### Key for units

mg/l

is equivalent to one part per million

µg/l

is equivalent to one part per billion

Dilution number

is a standard method for detecting taste and odour

mg/l Pt/Co

is a reference scale for assessing the clarity of the water

µS/cm

measures the natural mineral composition

Hardness Level

the three measures shown are the most common used by washing machine manufactures

Less than

means that this is the lowest value that the high quality equipment can measure



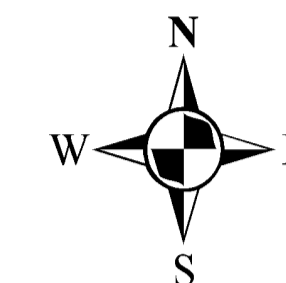






Dŵr Cymru  
Welsh Water

LR001984



**LEGEND(Representative of most common features)**

	Foul chamber		Outfall
	Surface water chamber		Lamphole
	Combined chamber		Storm Overflow
	Combined sewer overflow		Rising main
	Special purpose chamber		Gravity sewer
	Treatment works		Private sewer
	Pumping station		Private sewer subject to Sect. 104 adoption agreement
	Combined		Private Sewer Transfer
	Surface Water		Lateral Drain
	Foul		Inspection Chamber
	Former S24 sewers (for indicative purposes only)		

**Notes:**

NB: Sewer symbol colour indicates the type.

RED - Combined  
GREEN - Surface Water  
BROWN - Foul  
Purple - Former S24 sewers (for indicative purposes only)

Whilst every reasonable effort has been taken to correctly record the pipe material of DCWW assets, there is a possibility that in some cases pipe material (other than Asbestos Cement or Pitch Fibre) may be found to be asbestos cement (AC) or Pitch Fibre (PF). It is therefore advisable that the possible presence of AC or PF pipes be anticipated and considered as part of any risk assessment prior to excavation

Dŵr Cymru (Welsh Water) gives this information as to the position of its underground apparatus by way of general guidance only and on the understanding that it is based on the best information available and no warranty is made by the Company in relation to the accuracy of the information. The user of this information is responsible for its use and for any excavation or other works made in the vicinity of the Company's apparatus. The user of this information is advised to consult the Company's records and to take appropriate precautions before carrying out any excavation or other works. The information which is supplied by the Company is done so in accordance with statutory requirements of sections 198 and 199 of the Water Industry Act 1991 which is based upon the best information available and, in particular, but without prejudice to the generality of the foregoing, should be noted that the records that are available to the Company may not disclose the existence of a water main, service pipe, sewer, lateral drain or disposal main and any associated apparatus laid before 1 September 1989, or, if they do, the particulars thereof including their position underground may not be accurate. It must be understood that the furnishing of this information is entirely without prejudice to the provisions of the New Roads and Street Works Act 1991 and the Company's right to be compensated for any damage to its apparatus.

Service pipes are not generally shown but their presence should be anticipated.

**EXACT LOCATIONS OF ALL APPARATUS TO BE DETERMINED ON SITE.**

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Map Ref: 332483,362515  
Map scale: 1:3000  
Printed by: Diligente Manfred  
Printed on: 01 May 2019





Appendix E – Cadent Gas Correspondence



Justine Martin  
WYG  
Executive Park  
Avalon Way  
Anstey  
Leicester  
LE7 7GR

Plant Protection  
Cadent  
Block 1; Floor 1  
Brick Kiln Street  
Hinckley  
LE10 0NA  
E-mail: [plantprotection@cadentgas.com](mailto:plantprotection@cadentgas.com)  
Telephone: +44 (0)800 688588

**National Gas Emergency Number:**  
**0800 111 999\***

**National Grid Electricity Emergency Number:**  
**0800 40 40 90\***

\* Available 24 hours, 7 days/week.  
Calls may be recorded and monitored.

[www.cadentgas.com](http://www.cadentgas.com)

**Date:** 08/02/2019

**Our Ref:** NW\_TW\_Z2\_3SWP\_515748

**Your Ref:** A093950-15 (NC)

**RE: Proposed Works, Warren Hall, Broughton, Wales, CH4 0EH**

Thank you for your enquiry which was received on 07/02/2019.  
Please note this response and any attached map(s) are valid for 28 days.

An assessment has been carried out with respect to Cadent Gas Limited, National Grid Electricity Transmission plc's and National Grid Gas Transmission plc's apparatus. Please note it does not cover the items listed in the section "Your Responsibilities and Obligations", including gas service pipes and related apparatus.

For details of Network areas please see the Cadent website (<http://cadentgas.com/Digging-safely/Dial-before-you-dig>) or the enclosed documentation.

**As your works are at a "proposed" stage, any maps and guidance provided are for information purposes only. This is not approval to commence work. You must submit a "Scheduled Works" enquiry at the earliest opportunity and failure to do this may lead to disruption to your plans and works. Plant Protection will endeavour to provide an initial assessment within 14 days of receipt of a Scheduled Works enquiry and dependent on the outcome of this, further consultation may be required.**

**In any event, for safety and legal reasons, works must not be carried out until a Scheduled Works enquiry has been completed and final response received.**

## Your Responsibilities and Obligations

The "Assessment" Section below outlines the detailed requirements that must be followed when planning or undertaking your scheduled activities at this location.

It is your responsibility to ensure that the information you have submitted is accurate and that all relevant documents including links are provided to all persons (either direct labour or contractors) working for you near Cadent and/or National Grid's apparatus, e.g. as contained within the Construction (Design and Management) Regulations.

This assessment solely relates to Cadent Gas Limited, National Grid Electricity Transmission plc (NGET) and National Grid Gas Transmission plc (NGGT) and apparatus. This assessment does **NOT** include:

- Cadent and/or National Grid's legal interest (easements or wayleaves) in the land which restricts activity in proximity to Cadent and/or National Grid's assets in private land. You must obtain details of any such restrictions from the landowner in the first instance and if in doubt contact Plant Protection.
- Gas service pipes and related apparatus
- Recently installed apparatus
- Apparatus owned by other organisations, e.g. other gas distribution operators, local electricity companies, other utilities, etc.

It is **YOUR** responsibility to take into account whether the items listed above may be present and if they could be affected by your proposed activities. Further "Essential Guidance" in respect of these items can be found on either the [National Grid](#) or [Cadent](#) website.

This communication does not constitute any formal agreement or consent for any proposed development work; either generally or with regard to Cadent and/or National Grid's easements or wayleaves nor any planning or building regulations applications.

Cadent Gas Limited, NGGT and NGET or their agents, servants or contractors do not accept any liability for any losses arising under or in connection with this information. This limit on liability applies to all and any claims in contract, tort (including negligence), misrepresentation (excluding fraudulent misrepresentation), breach of statutory duty or otherwise. This limit on liability does not exclude or restrict liability where prohibited by the law nor does it supersede the express terms of any related agreements.

If you require further assistance please contact the Plant Protection team via e-mail ([click here](#)) or via the contact details at the top of this response.

Yours faithfully

Plant Protection Team

# ASSESSMENT

## Affected Apparatus

The apparatus that has been identified as being in the vicinity of your proposed works is:

- Low or Medium pressure (below 2 bar) gas pipes and associated equipment. (As a result it is highly likely that there are gas services and associated apparatus in the vicinity)

## Requirements

**BEFORE carrying out any work you must:**

- Carefully read these requirements including the attached guidance documents and maps showing the location of apparatus.
- Contact the landowner and ensure any proposed works in private land do not infringe Cadent and/or National Grid's legal rights (i.e. easements or wayleaves). If the works are in the road or footpath the relevant local authority should be contacted.
- Ensure that all persons, including direct labour and contractors, working for you on or near Cadent and/or National Grid's apparatus follow the requirements of the HSE Guidance Notes HSG47 - 'Avoiding Danger from Underground Services' and GS6 – 'Avoidance of danger from overhead electric power lines'. This guidance can be downloaded free of charge at <http://www.hse.gov.uk>
- In line with the above guidance, verify and establish the actual position of mains, pipes, cables, services and other apparatus on site before any activities are undertaken.



# GUIDANCE

## **Excavating Safely - Avoiding injury when working near gas pipes:**

[http://www.nationalgrid.com/NR/rdonlyres/2D2EEA97-B213-459C-9A26-18361C6E0B0D/25249/Digsafe\\_leaflet3e2finalamends061207.pdf](http://www.nationalgrid.com/NR/rdonlyres/2D2EEA97-B213-459C-9A26-18361C6E0B0D/25249/Digsafe_leaflet3e2finalamends061207.pdf)

## **Standard Guidance**

### **Essential Guidance document:**

<http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=8589934982>

### **General Guidance document:**

<http://www2.nationalgrid.com/WorkArea/DownloadAsset.aspx?id=35103>

### **Excavating Safely in the vicinity of gas pipes guidance (Credit card):**

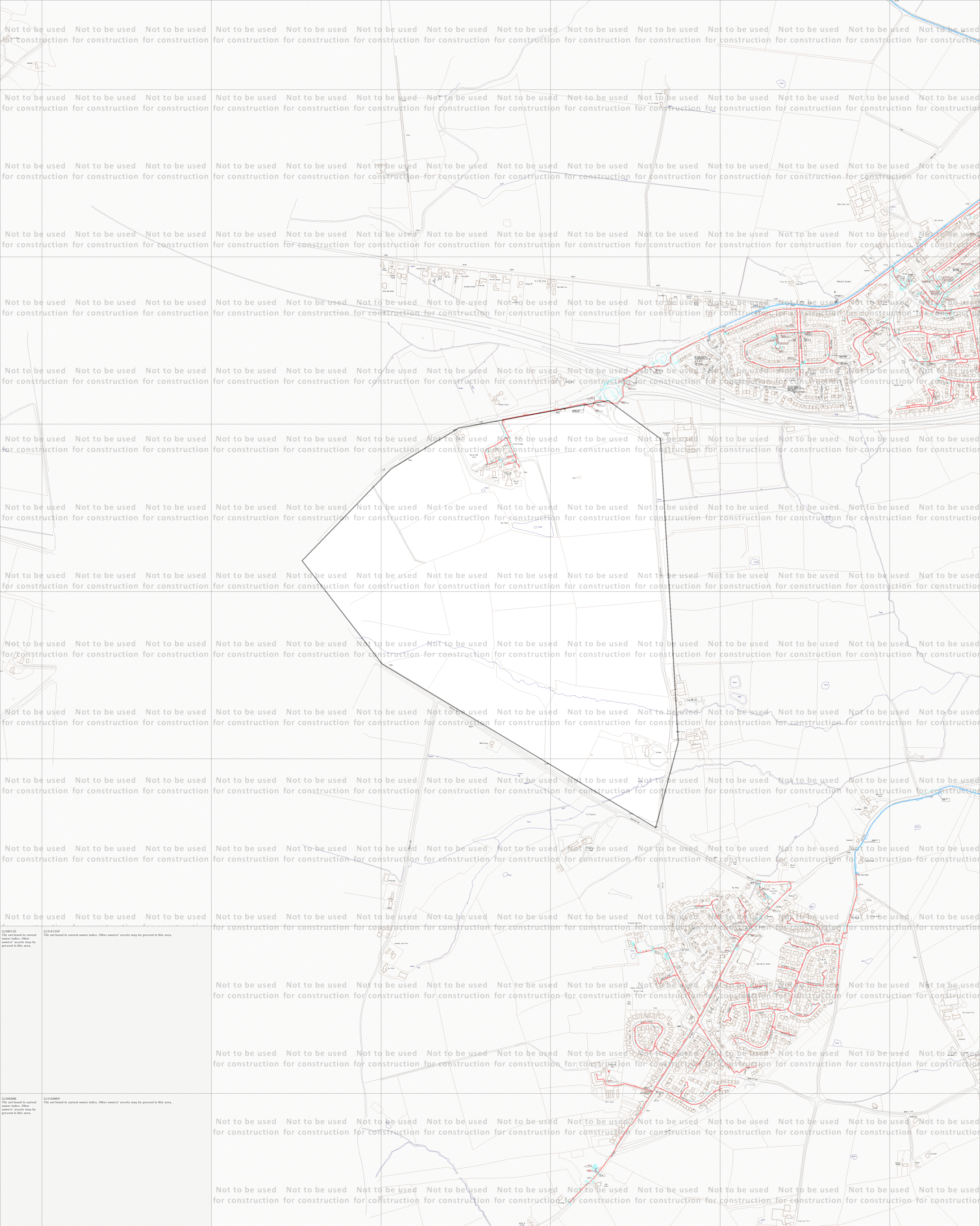
<http://www.nationalgrid.com/NR/rdonlyres/A3D37677-6641-476C-9DDA-E89949052829/44257/ExcavatingSafelyCreditCard.pdf>

### **Excavating Safely in the vicinity of electricity cables guidance (Credit card):**

<http://www.nationalgrid.com/NR/rdonlyres/35DDEC6D-D754-4BA5-AF3C-D607D05A25C2/44858/ExcavatingSafelyCreditCardelectricitycables.pdf>

Copies of all the Guidance Documents can also be downloaded from the [National Grid](#) and [Cadent](#) websites.





ID: NW\_TW\_Z2\_3SWP\_515748  
 USER: Natalie.Creane  
 DATE: 08/02/2019  
 DATA DATE: 07/02/2019  
 REF: A093950-15 (NC)  
 MAP REF: SJ3262  
 CENTRE: 332322, 362432

View extent: 2890m, 3670m

LP MAINS ————  
 MP MAINS ————  
 IP MAINS ————  
 LHP MAINS ————  
 NHP MAINS ————

0m ———— 200m  
 Approximate scale 1:10000  
 on A3 Colour Portrait

**Map not to be used for construction**

This plan shows those pipes owned by Cadent Gas Limited in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and 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 on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

Map 1 of 1 (GAS)

MAPS Plot Server Version 1.11.0

**Cadent**  
 Your Gas Network

Requested by: WYG

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Some examples of Plant Items:

Valve Depth of Cover Syphon Diameter Change Material Change Out of Standard Service



# ENQUIRY SUMMARY

## Received Date

07/02/2019

## Your Reference

A093950-15 (NC)

## Location

Centre Point: 332322, 362432

X Extent: 1112

Y Extent: 1280

Postcode: CH4 0EH

Location Description: Warren Hall, Broughton, Wales, CH4 0EH

## Map Options

Paper Size: A3

Orientation: PORTRAIT

Requested Scale: 10000

Actual Scale: 1:10000 (GAS)

Real World Extents: 2890m x 3670m (GAS)

## Recipients

pprsteam@cadentgas.com

## Enquirer Details

Organisation Name: WYG

Contact Name: Justine Martin

Email Address: justine.martin@wyg.com

Telephone: 01162348165 (07773166818)

Address: Executive Park, Avalon Way, Anstey, Leicester, LE7 7GR

## Description of Works

C2 Plans only (E)

## Enquiry Type

Proposed Works

## Activity Type

General Excavation

## Work Types

Work Type: Plans Only



SCALE: 1:1250

USER ID: Kristina.Karasjova

DATE: 5/5/2019

NRSWA RESPONSE

MAP REF: SJ3262

CENTRE: 332445,362961

Some examples of plant items:

Valve	Depth of Cover	Syphon	Diameter Change	Material Change
-------	----------------	--------	-----------------	-----------------

This plan shows those pipes owned by Cadent Gas Limited in their role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc. are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HSG147, must be used to verify and 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 on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.



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**Network Enquiry No** : 180011046  
**Your Reference** : WARREN HALL 4

## Cadent Gas Limited

National Gas Emergency Service - 0800 111 999\* (24hrs)  
\*calls will be recorded and may be monitored

Justine Martin  
WYG  
EXECUTIVE PARK  
AVALON WAY  
ANSTEY  
LEICESTER  
LE7 7GR

**Date** : 24th April 2019  
**Contact** : Performance and Support  
**Direct Tel** : 0845 3666758  
**Email** : networkdesign@cadentgas.com

www.cadentgas.com

**Dear Justine,**

**Re: Land Enquiry for Proposed Development Site at NEW SUPPLY, LAND OFF, LESTERS LANE, BROUGHTON, FLINTSHIRE, CH4 0HG.**

Thank you for your enquiry which we received on 15th April 2019. I enclose details of Cadent Gas plant in the vicinity of your proposed supply.

The nearest main with sufficient capacity is 470 metres from the site boundary and it is a Medium Pressure main.

Please be aware of existing mains or services within the site boundary that may require diversionary or abandonment works, this will be costed upon receipt of a firm request.

This Developer Enquiry response is a reflection of the network at the time delivered and is not a guarantee of gas flow or capacity due to the changing dynamics of the gas distribution network. If you wish to secure capacity and connect to the network please submit quotation Connections Request via the official connections route allowing for further analysis to verify the capability of the network again.

Plans attached: Yes

A copy of the Cadent Connections Charging Statement referenced in this letter can be found on Cadent's website:

<http://cadentgas.com/Get-connected>

If you require a printed version please contact us on the details provided above.

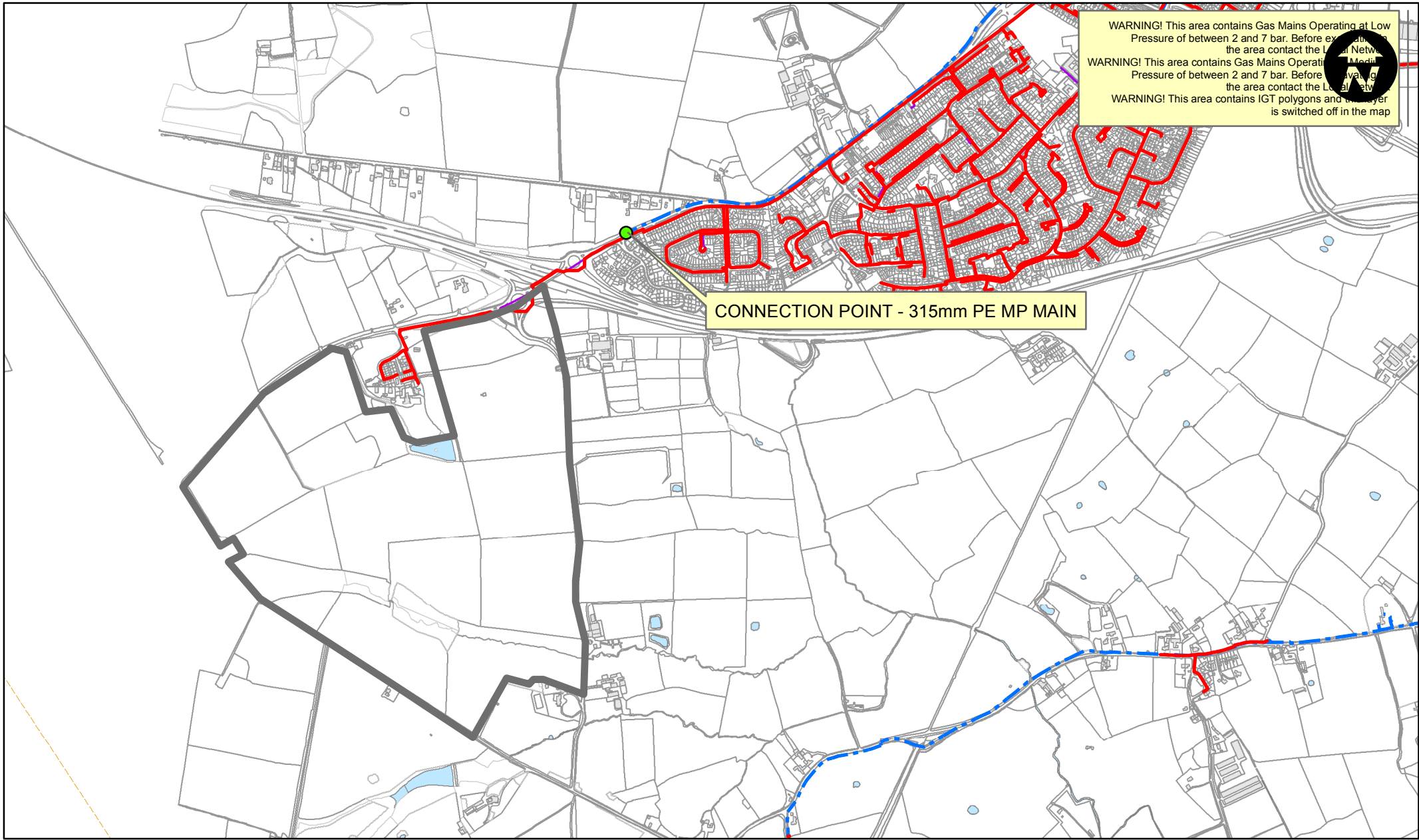
I trust this meets with your requirements at this stage. If you have any queries please do not hesitate to contact Performance and Support on the above number.

Yours sincerely,



Claire Wilcox  
Design Specialist





WARNING! This area contains Gas Mains Operating at Low Pressure of between 2 and 7 bar. Before excavating in the area contact the Local Network Manager.

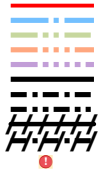
WARNING! This area contains Gas Mains Operating at Medium Pressure of between 2 and 7 bar. Before excavating in the area contact the Local Network Manager.

WARNING! This area contains IGT polygons and the Gas Mains layer is switched off in the map.

CONNECTION POINT - 315mm PE MP MAIN

SCALE: 1:500 @ A4  
 USER ID: joanne.bebington  
 DATE: 24-Apr-2019 11:55:18  
 INTERNAL USE ONLY  
 OS Ref: 333193, 362769  
 CENTRE: <Centre>

L/P GAS MAIN  
 M/P GAS MAIN  
 I/P GAS MAIN  
 H/P GAS MAIN  
 N/H/P GAS MAIN  
 PROPOSED PIPE - LP  
 PROPOSED PIPE - MP  
 PROPOSED PIPE - IP  
 ABANDON - LP  
 ABANDON - MP  
 Out Of Standard Service



SCHEME: <NG GDFO Scheme Name>  
 DESIGN: <NG GDFO Design Number>  
 REVISION: <NG GDFO Revision>

This plan shows those pipes owned by Cadent in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and any 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 on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

Some examples of Plant Items:  
 Valve Syphon Depth of Cover Change of Dia Change of Material

180011046



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**Network Enquiry No** : 180011045  
**Your Reference** : WARREN HALL 3

## Cadent Gas Limited

National Gas Emergency Service - 0800 111 999\* (24hrs)  
\*calls will be recorded and may be monitored

Justine Martin  
WYG  
EXECUTIVE PARK  
AVALON WAY  
ANSTEY  
LEICESTER  
LE7 7GR

**Date** : 24th April 2019  
**Contact** : Performance and Support  
**Direct Tel** : 0845 3666758  
**Email** : networkdesign@cadentgas.com

www.cadentgas.com

**Dear Justine,**

**Re: Land Enquiry for Proposed Development Site at NEW SUPPLY, LAND OFF, LESTERS LANE, BROUGHTON, FLINTSHIRE, CH4 0HG.**

Thank you for your enquiry which we received on 15th April 2019. I enclose details of Cadent Gas plant in the vicinity of your proposed supply.

The nearest main with sufficient capacity is 2 metres from the site boundary and it is a Low Pressure main.

Standard design pressures have been used. Refer to [www.Cadentgas.com](http://www.Cadentgas.com)  
Please be aware of existing mains or services within the site boundary that may require diversionary or abandonment works, this will be costed upon receipt of a firm request.

This Developer Enquiry response is a reflection of the network at the time delivered and is not a guarantee of gas flow or capacity due to the changing dynamics of the gas distribution network. If you wish to secure capacity and connect to the network please submit quotation Connections Request via the official connections route allowing for further analysis to verify the capability of the network again.

Plans attached: Yes


A copy of the Cadent Connections Charging Statement referenced in this letter can be found on Cadent's website:

<http://cadentgas.com/Get-connected>

If you require a printed version please contact us on the details provided above.

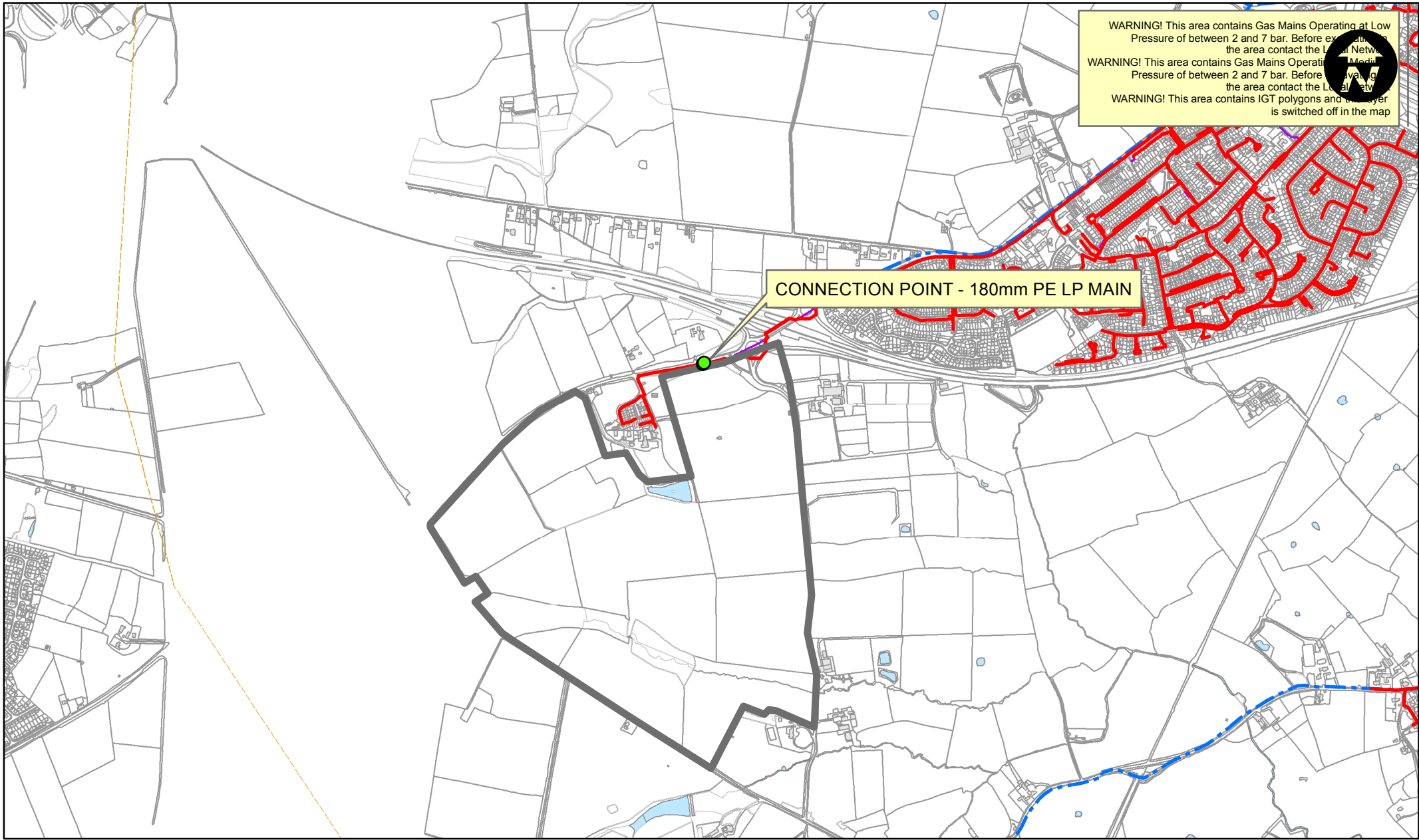
I trust this meets with your requirements at this stage. If you have any queries please do not hesitate to contact Performance and Support on the above number.

Yours sincerely,



Claire Wilcox  
Design Specialist





WARNING! This area contains Gas Mains Operating at Low Pressure of between 2 and 7 bar. Before excavating in the area contact the Local Network Operator.

WARNING! This area contains Gas Mains Operating at Medium Pressure of between 2 and 7 bar. Before excavating in the area contact the Local Network Operator.

WARNING! This area contains IGTF polygons and the gas supply is switched off in the map.

CONNECTION POINT - 180mm PE LP MAIN

SCALE: 1:500 @ A4  
 USER ID: j.panne.bebbington  
 DATE: 24-Apr-2019 11:29:52  
 INTERNAL USE ONLY  
 OS Ref: 332562, 362888  
 CENTRE: <Centre>

L/P GAS MAIN  
 M/P GAS MAIN  
 I/P GAS MAIN  
 H/P GAS MAIN  
 N/H/P GAS MAIN  
 PROPOSED PIPE - LP  
 PROPOSED PIPE - MP  
 PROPOSED PIPE - IP  
 ABANDON - LP  
 ABANDON - MP  
 Out Of Standard Service



SCHEME: <NG GDFO Scheme Name>  
 DESIGN: <NG GDFO Design Number>  
 REVISION: <NG GDFO Revision>

This plan shows those pipes owned by Cadent in its role as a Licensed Gas Transporter (GT). Gas pipes owned by other GTs, or otherwise privately owned, may be present in this area. Information with regard to such pipes should be obtained from the relevant owners. The information shown on this plan is given without warranty, the accuracy thereof cannot be guaranteed. Service pipes, valves, syphons, stub connections, etc., are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Cadent Gas Limited or their agents, servants or contractors for any error or omission. Safe digging practices, in accordance with HS(G)47, must be used to verify and establish the actual position of mains, pipes, services and any 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 on or near gas apparatus. The information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

Some examples of Plant Items:  
 Valve Syphon Depth of Cover Change of Dia Change of Material

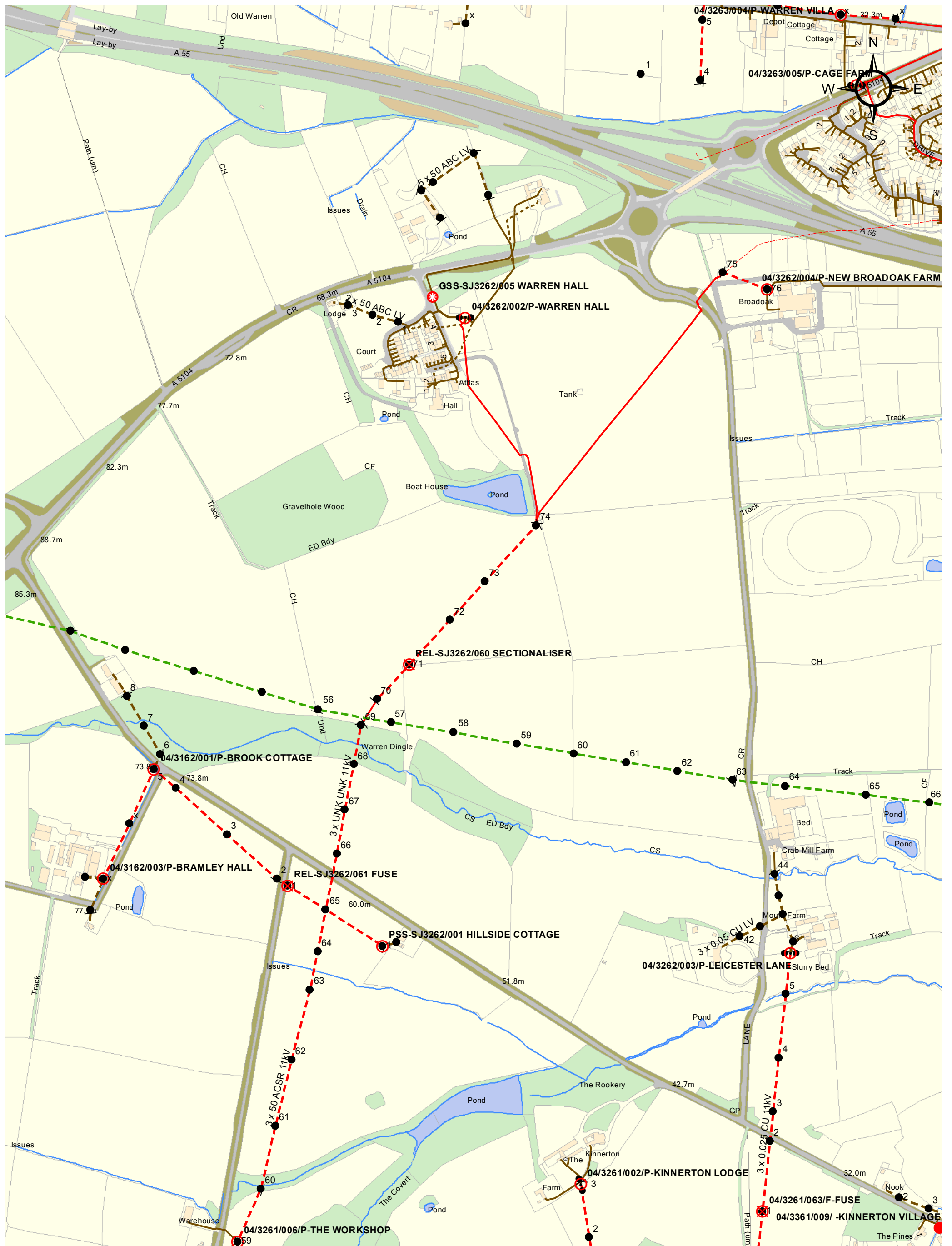
180011045



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The position and depths of underground and overhead apparatus as indicated on this plan are approximate and are intended for guidance only. The depths may have changed if the land surface levels have altered. You are also informed that the plan may not show, or may inaccurately show, individual property services and services to street lighting installations. The onus of locating the apparatus precisely before commencing any excavations or other works in the immediate vicinity therefore rests entirely upon the person undertaking or responsible for those works. Before any such works are undertaken the precise location of the apparatus and cables should therefore be ascertained by suitable means. In the event of an emergency or for further assistance please contact 0800-092-9290 (ScottishPower area) or 0800-001-5400 (SP Manweb area).

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**SP ENERGY NETWORKS**  
On behalf of SP Manweb plc

SP Manweb plc  
Registered Office: c/o PowerSystems  
3 Prenton Way, Prenton, CH43 3ET  
Registered in England and Wales No 2366937

**OVERHEAD LINE** ————

**UNDERGROUND CABLES**

In Use ————  
Out of Use - - - - -  
Assumed route <----->

**VOLTAGE COLOUR KEY**

EHV	132kV	BLUE
HV	33kV	GREEN
LV		RED
		BROWN

Where cables have been laid SINCE 1 OCTOBER 1988, the following depths in mm apply (to the tops of cables or ducts) UNLESS OTHERWISE SHOWN, but see comments. (TO TOP OF CABLE, ADD 75mm FOR BOTTOM OF TRENCH)

	EHV	HV	LV
IN FOOTPATHS :	775	600	450
ACROSS ROADS :	775	700	600
ALONG ROADS :	775	700	600
AGRICULTURAL :	910	910	910

Your attention is drawn to the Health and Safety Executive Booklet HSG47, available from HSE.

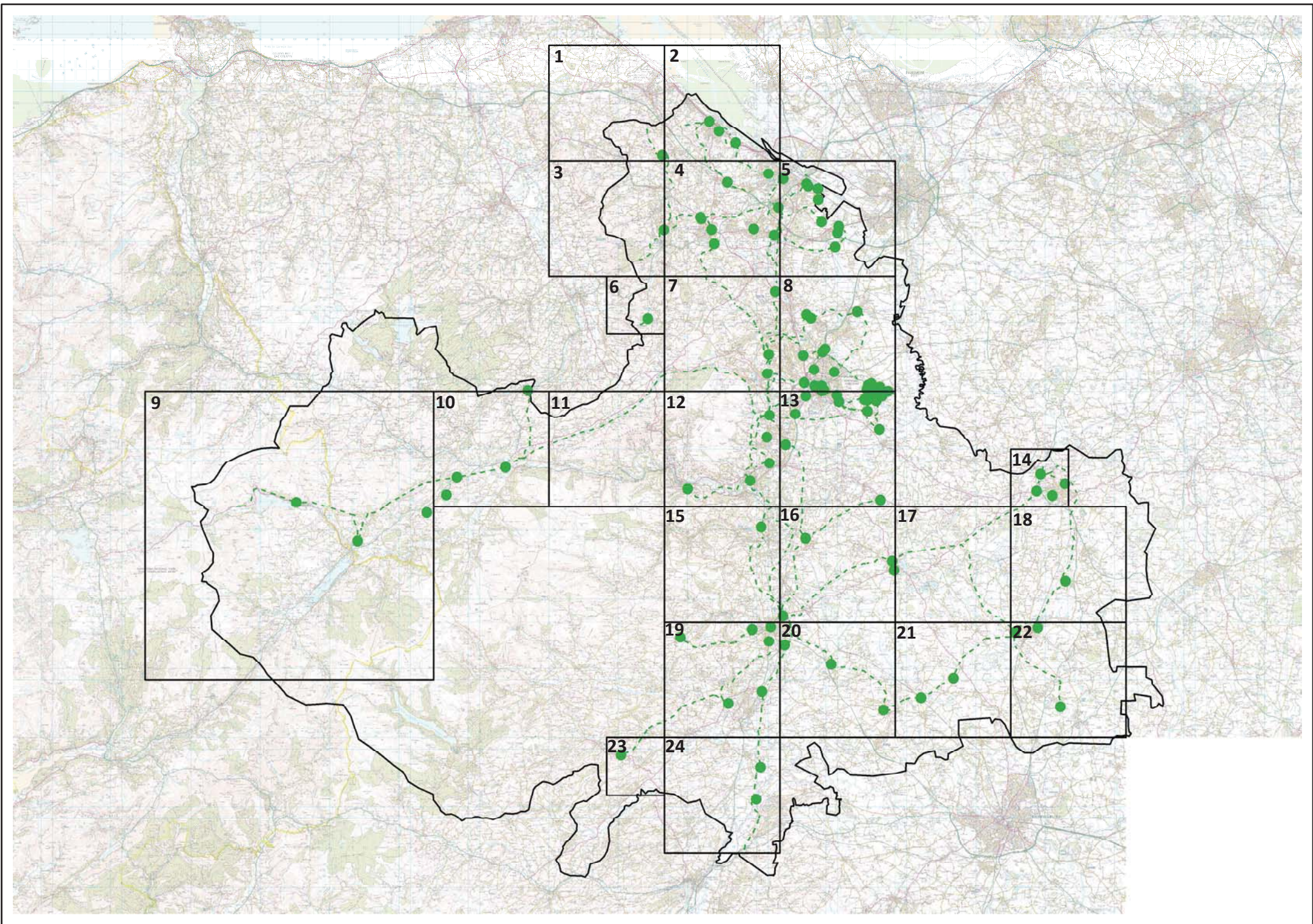
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SCALE: 1 : 5,000

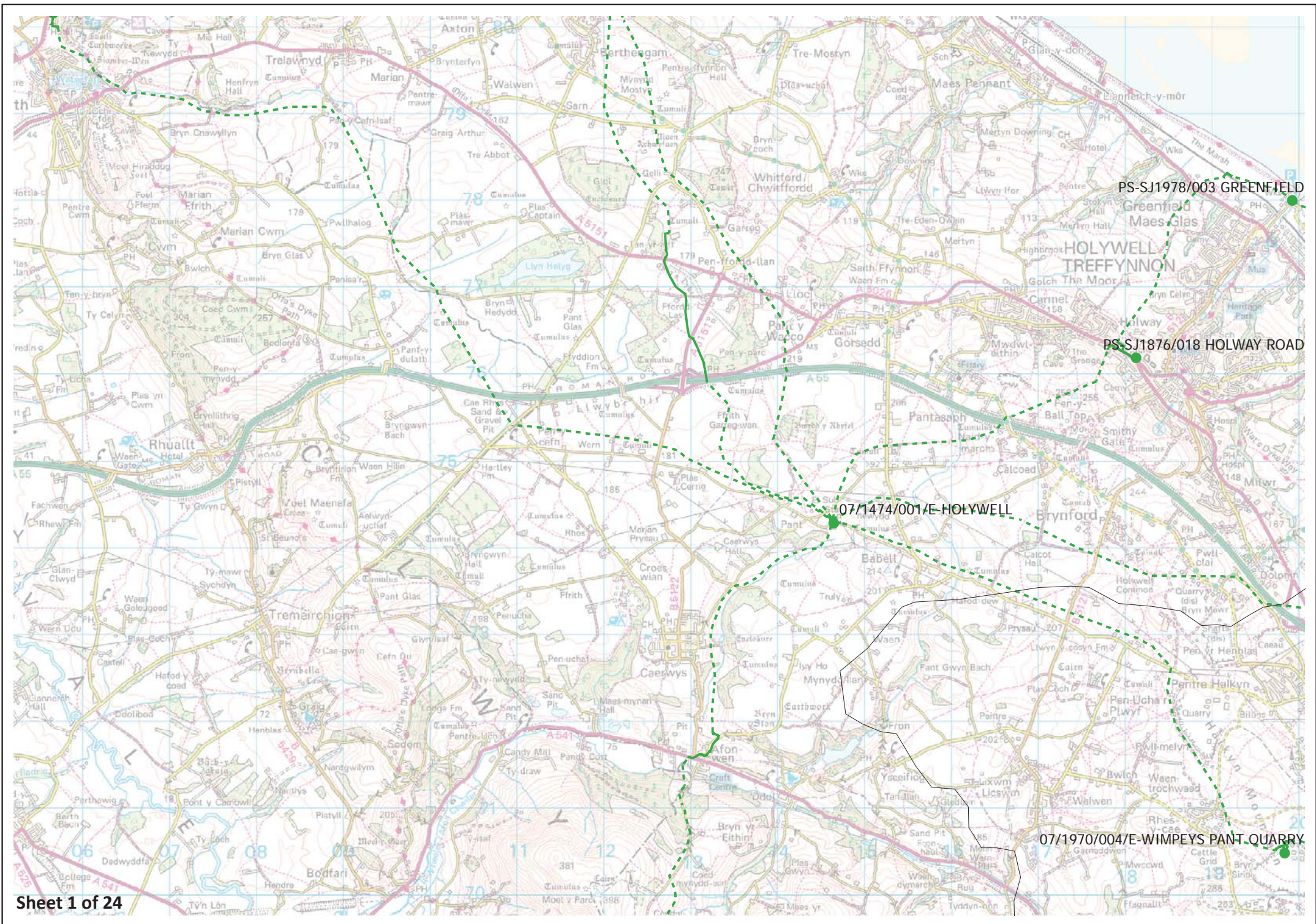
MAP REFERENCE: 332,431 362,425

0 15 30 60 90 120 Metres









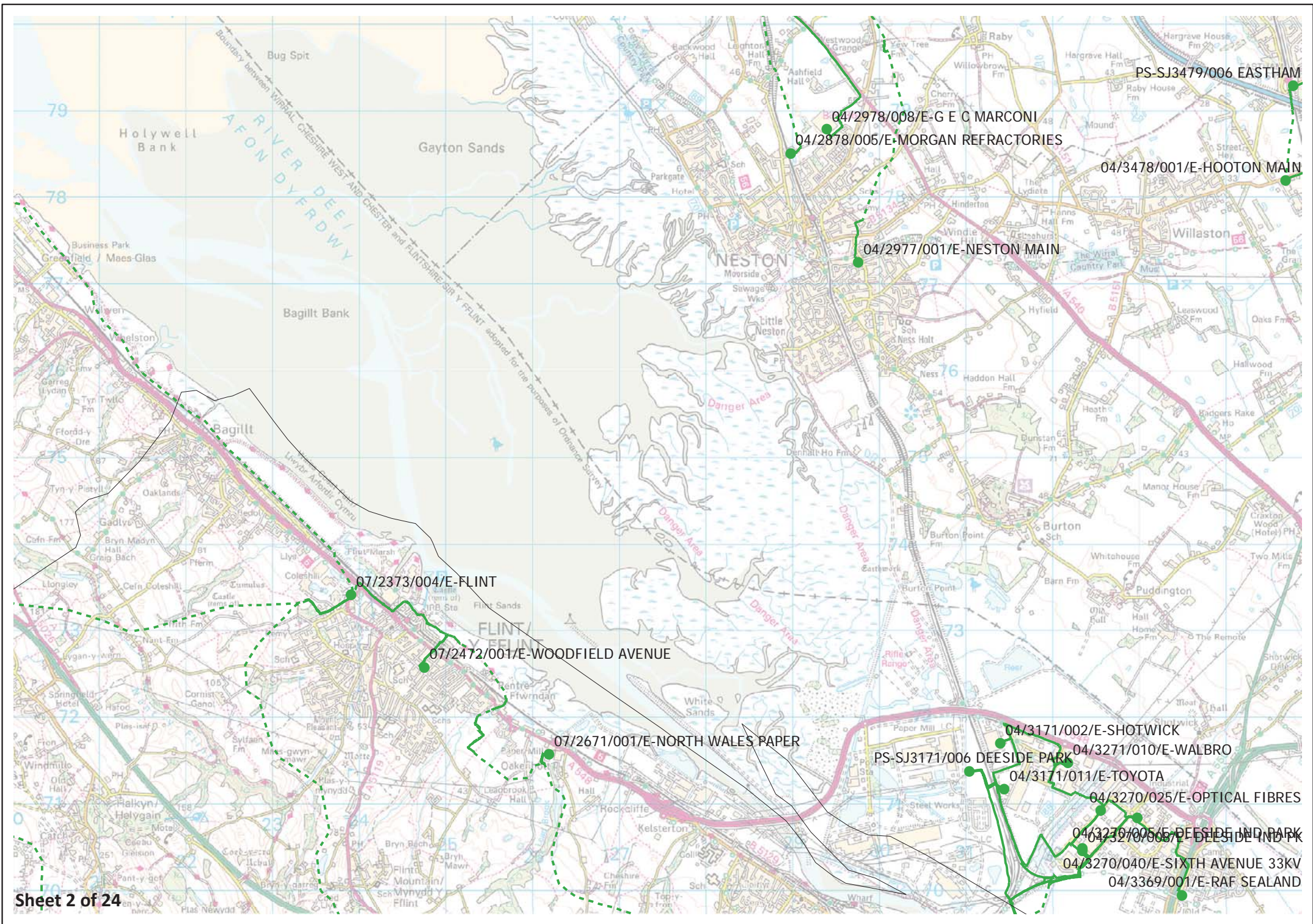
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PS-SJ1876/018 HOLWAY ROAD

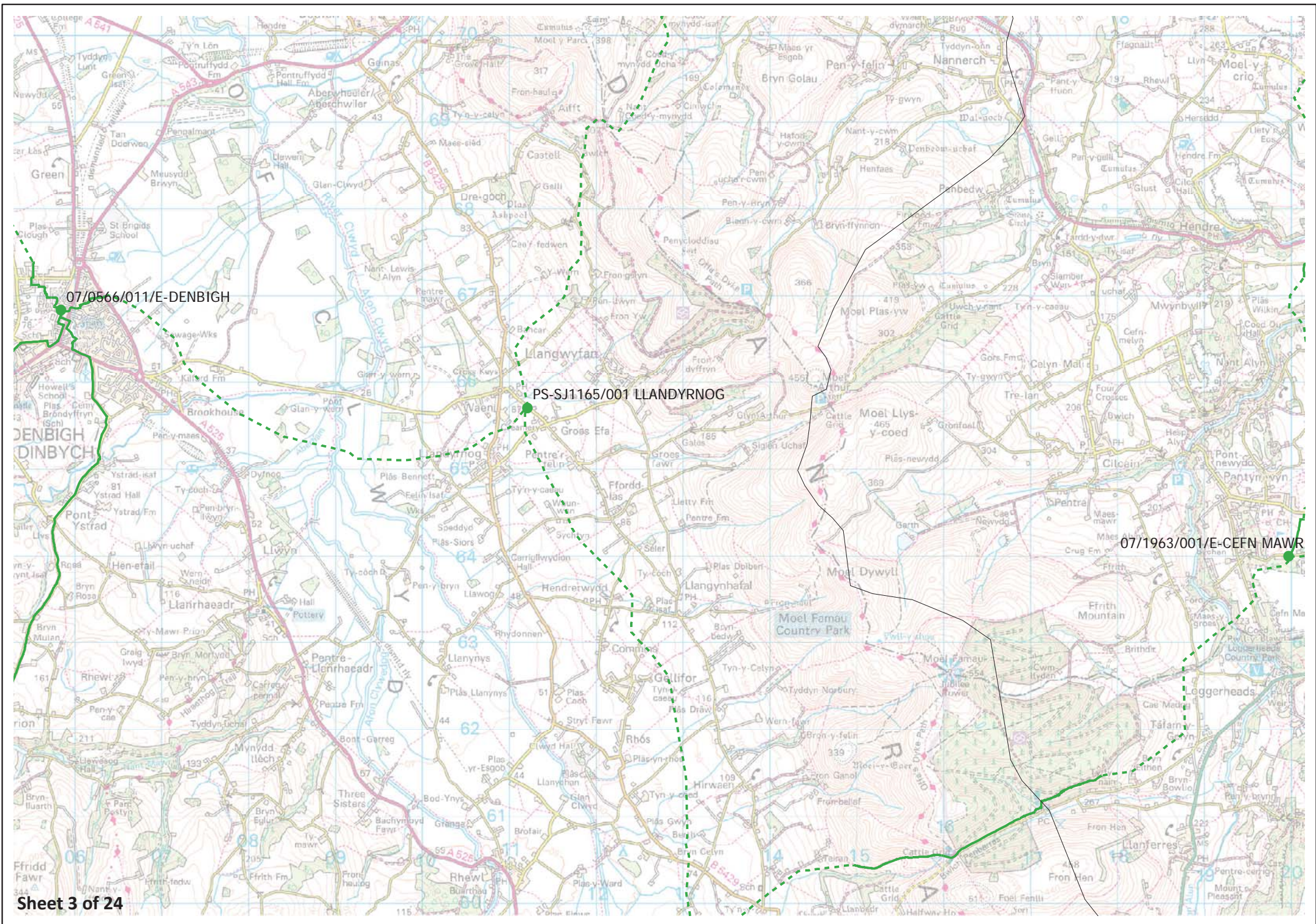
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07/1970/004/E WIMPEYS PANT QUARRY







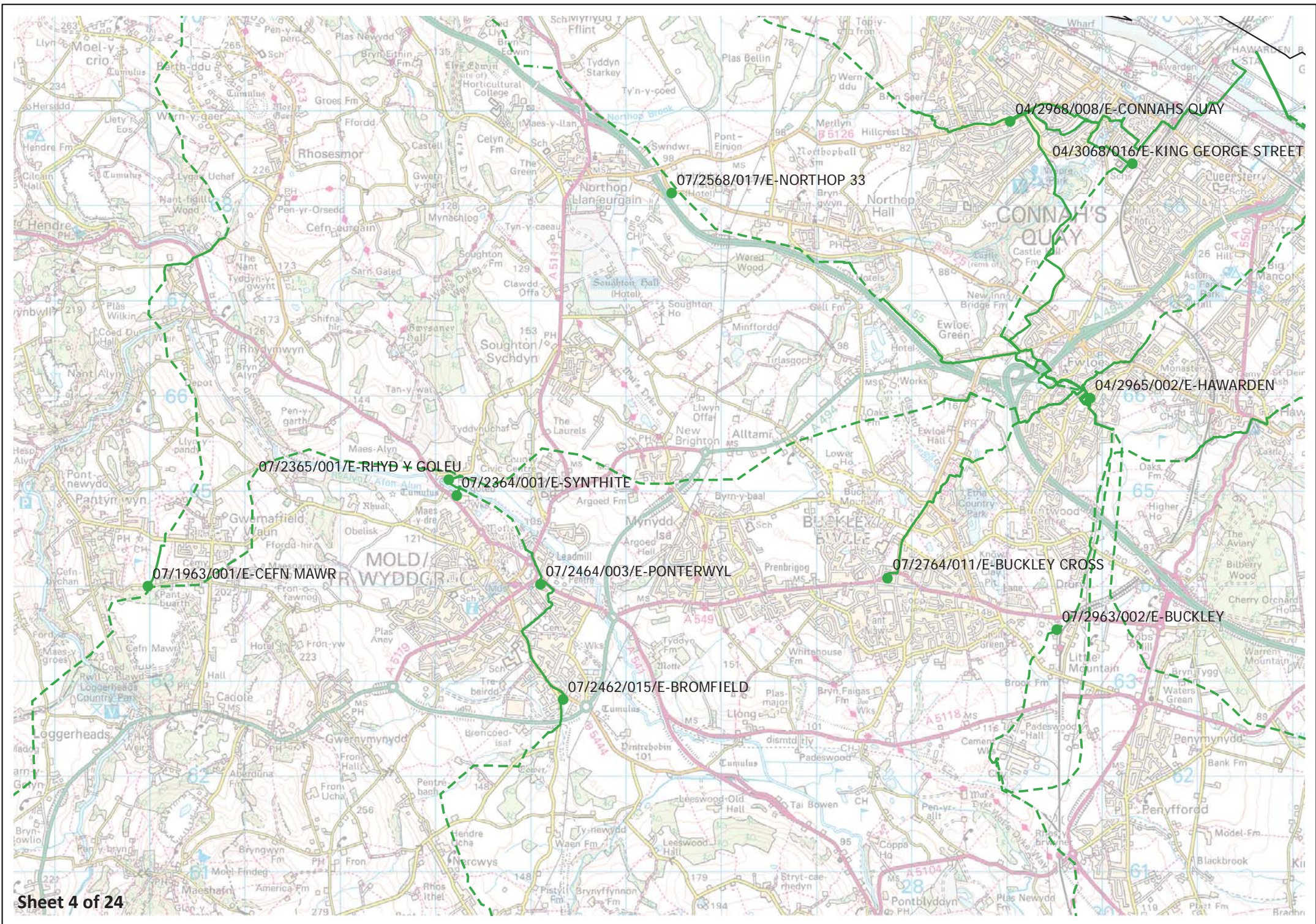


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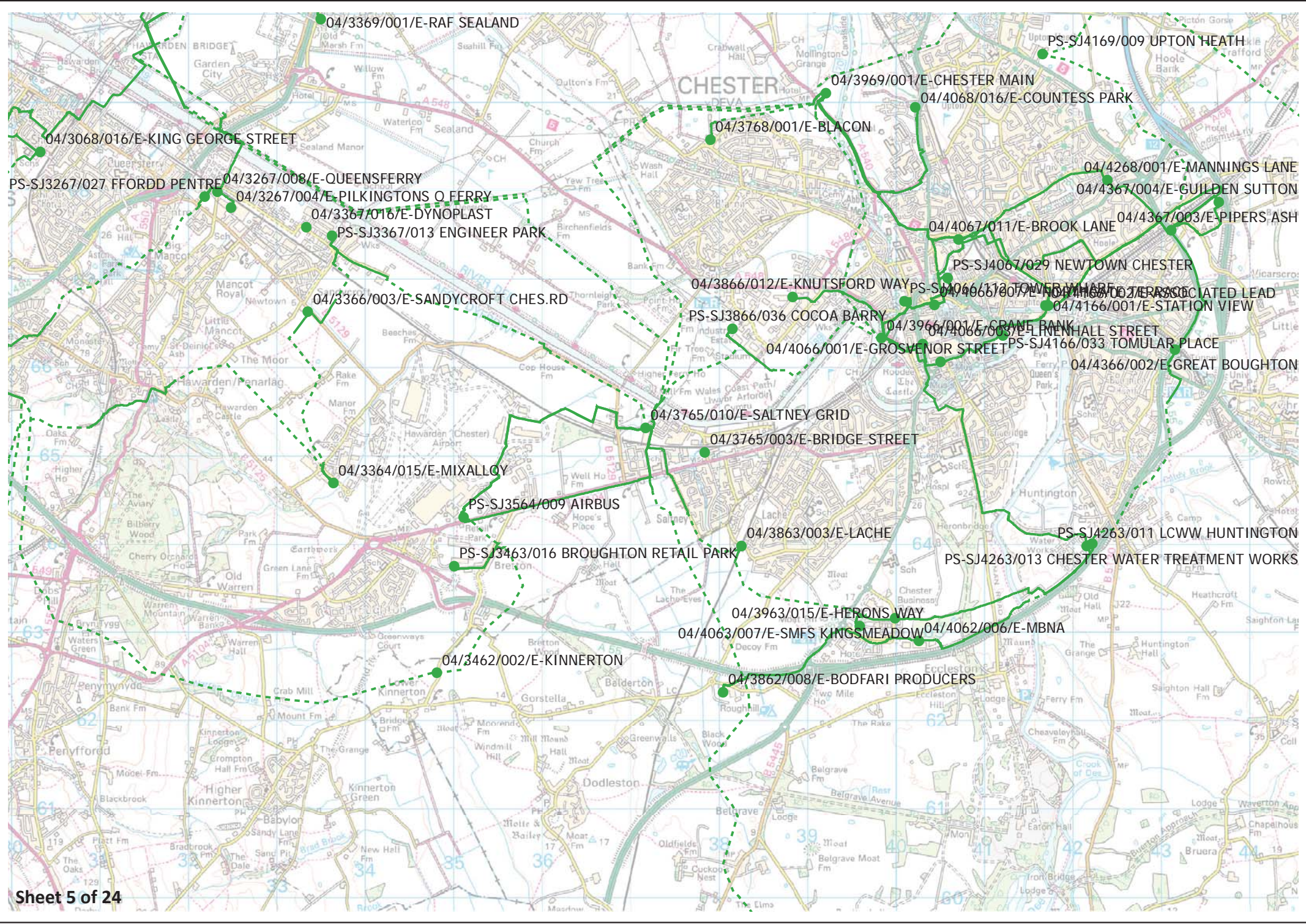
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07/1963/001/E-CEFN MAWR

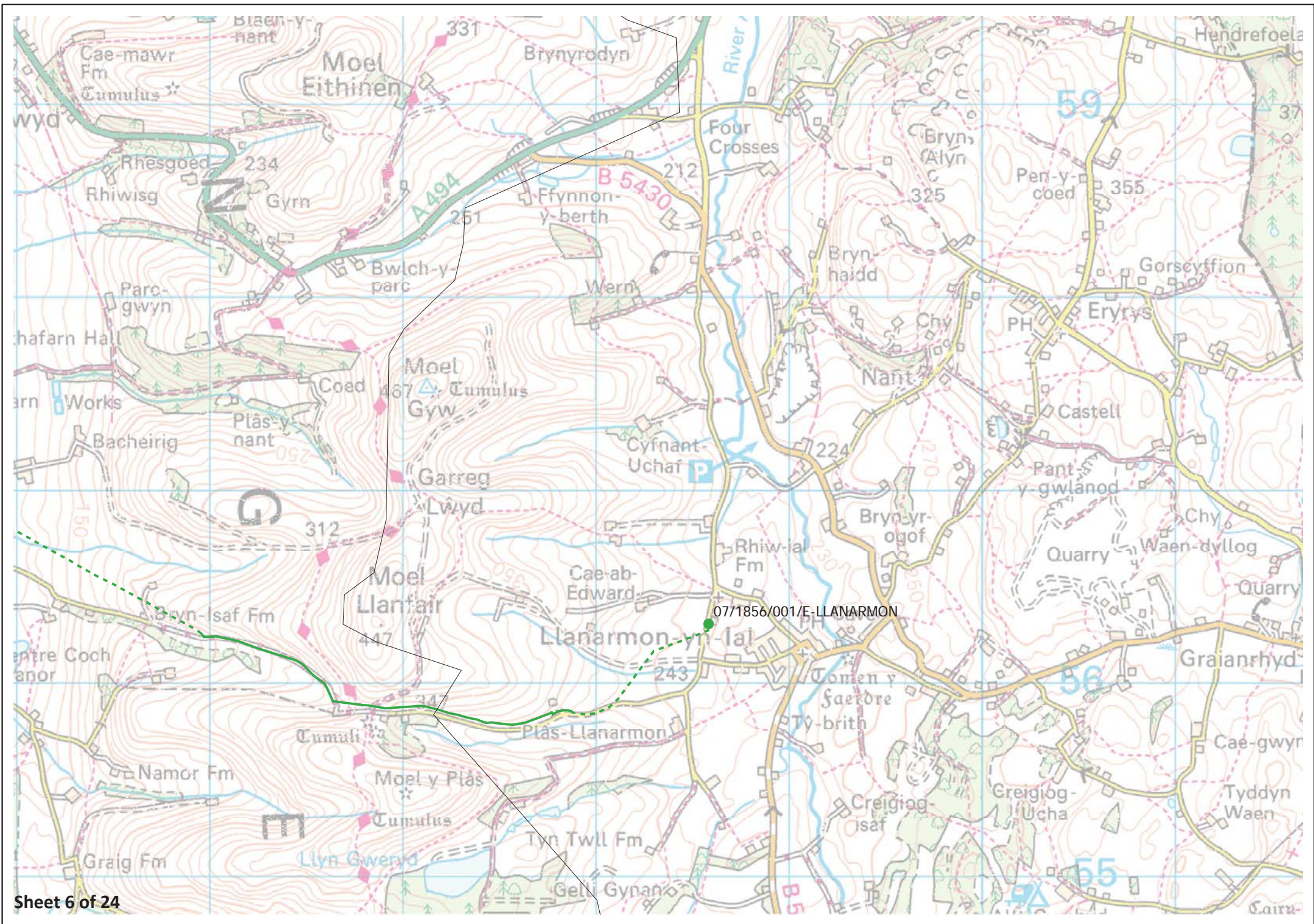




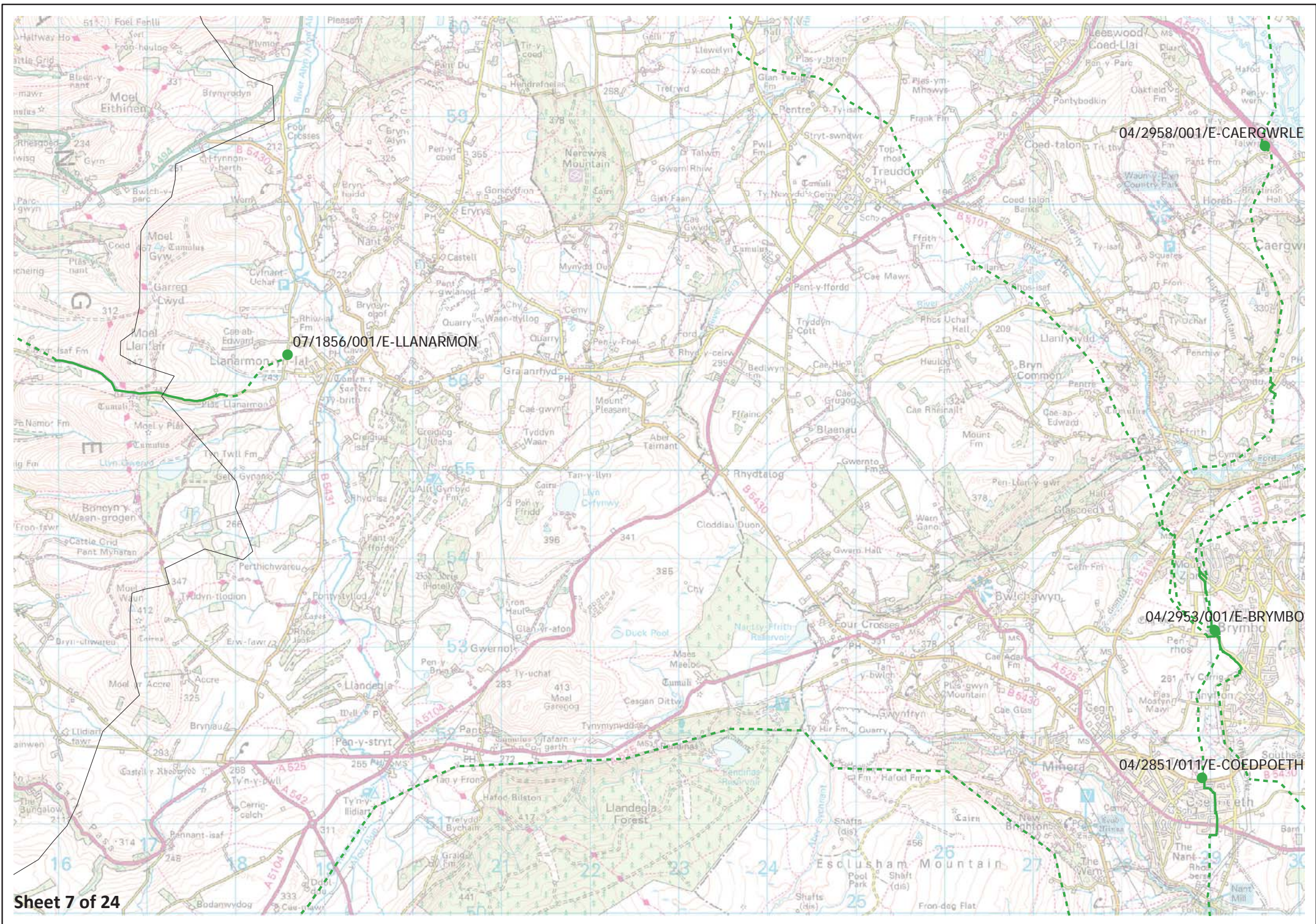












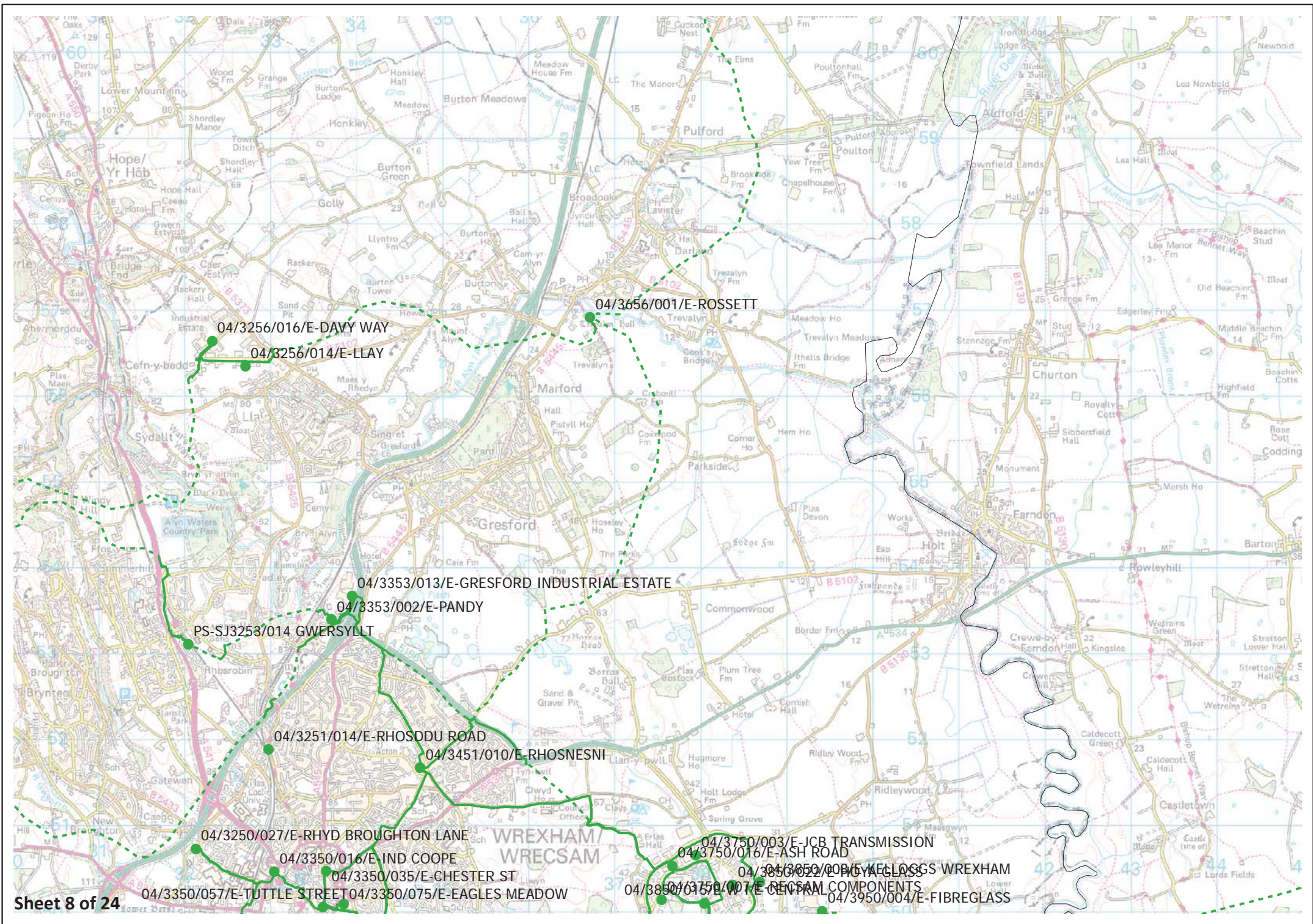
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07/1856/001/E-LLANARMON

04/2953/001/E-BRYMBO

04/2851/011/E-COEDPOETH





04/3256/001/E-ROSSETT

04/3256/016/E-DAVY WAY

04/3256/014/E-LLAY

04/3353/013/E-GRESFORD INDUSTRIAL ESTATE

04/3353/002/E-PANDY

PS-SJ3253/014 GWERSYLLT

04/3251/014/E-RHOSDDU ROAD

04/3451/010/E-RHOSNESNI

04/3250/027/E-RHYD BROUGHTON LANE

04/3350/016/E-IND COOPE

04/3350/035/E-CHESTER ST

04/3350/057/E-TUTTLE STREET 04/3350/075/E-EAGLES MEADOW

04/3750/003/E-JCB TRANSMISSION

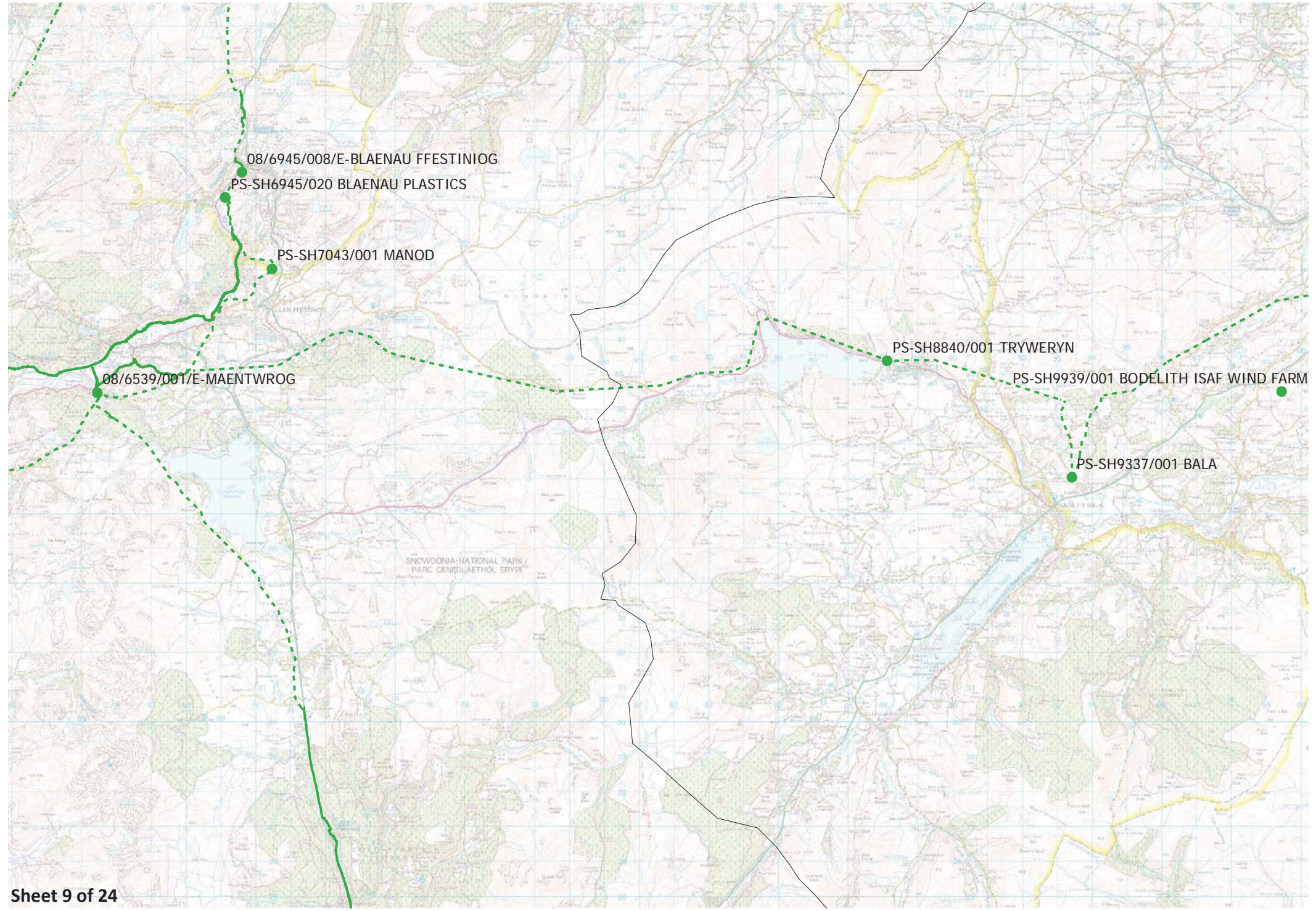
04/3750/016/E-ASH ROAD

04/3850/052/E-PHOSPHATE WREXHAM

04/3850/075/E-WREXHAM COMPONENTS

04/3950/004/E-FIBREGLASS





08/6945/008/E-BLAENAU FFESTINIOG  
PS-SH6945/020 BLAENAU PLASTICS

PS-SH7043/001 MANOD

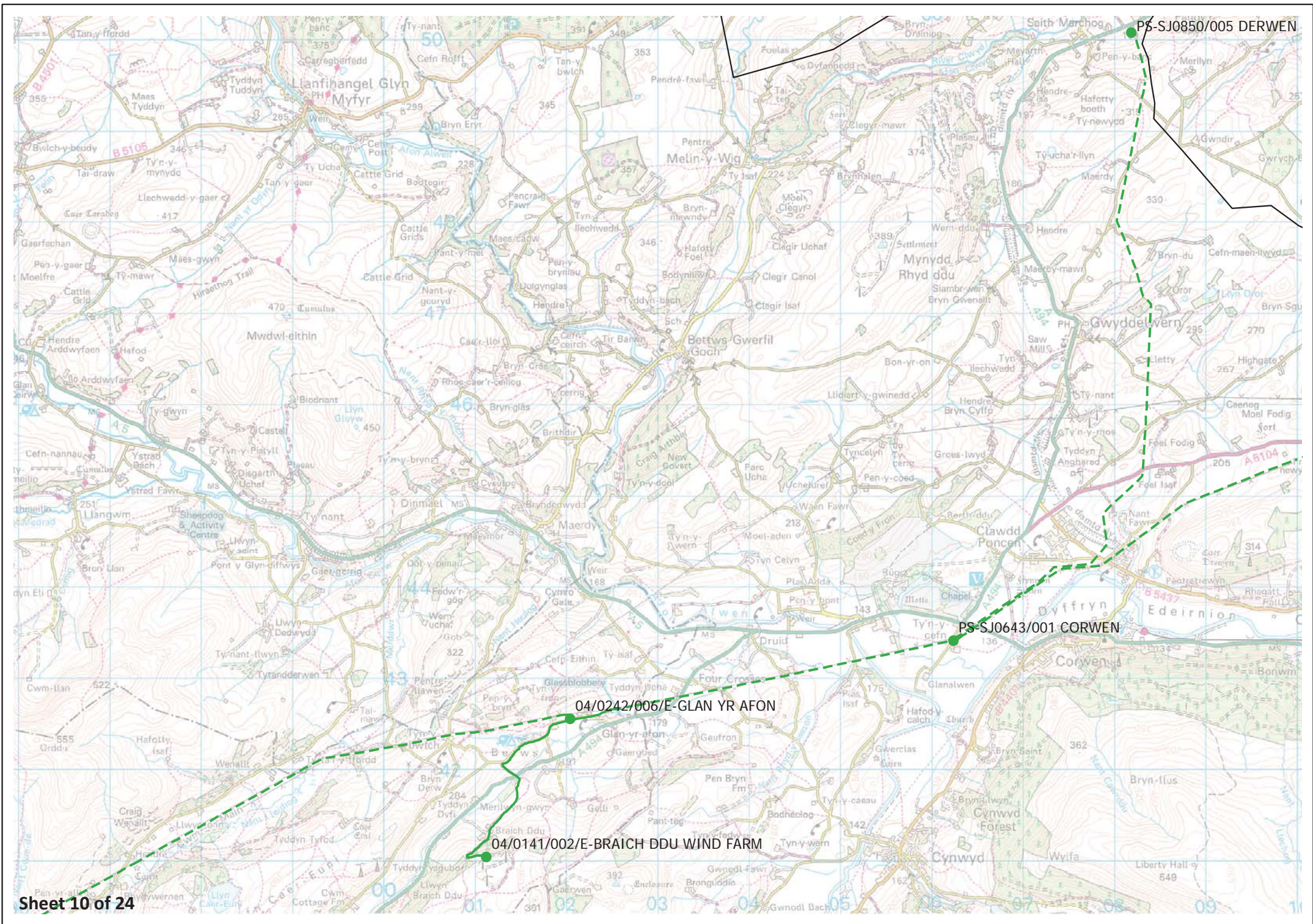
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PS-SH8840/001 TRYWERYN

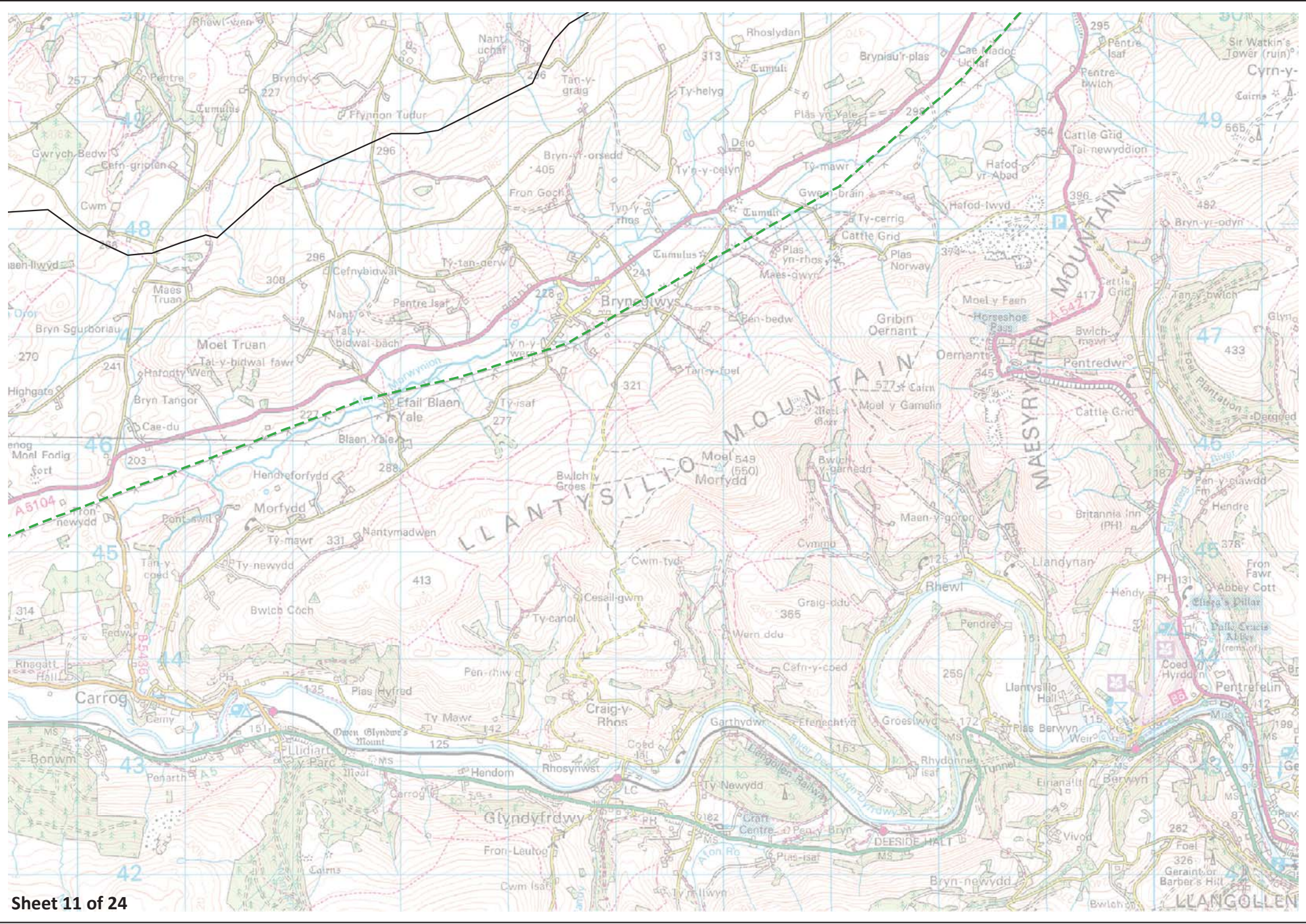
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PS-SH9337/001 BALA

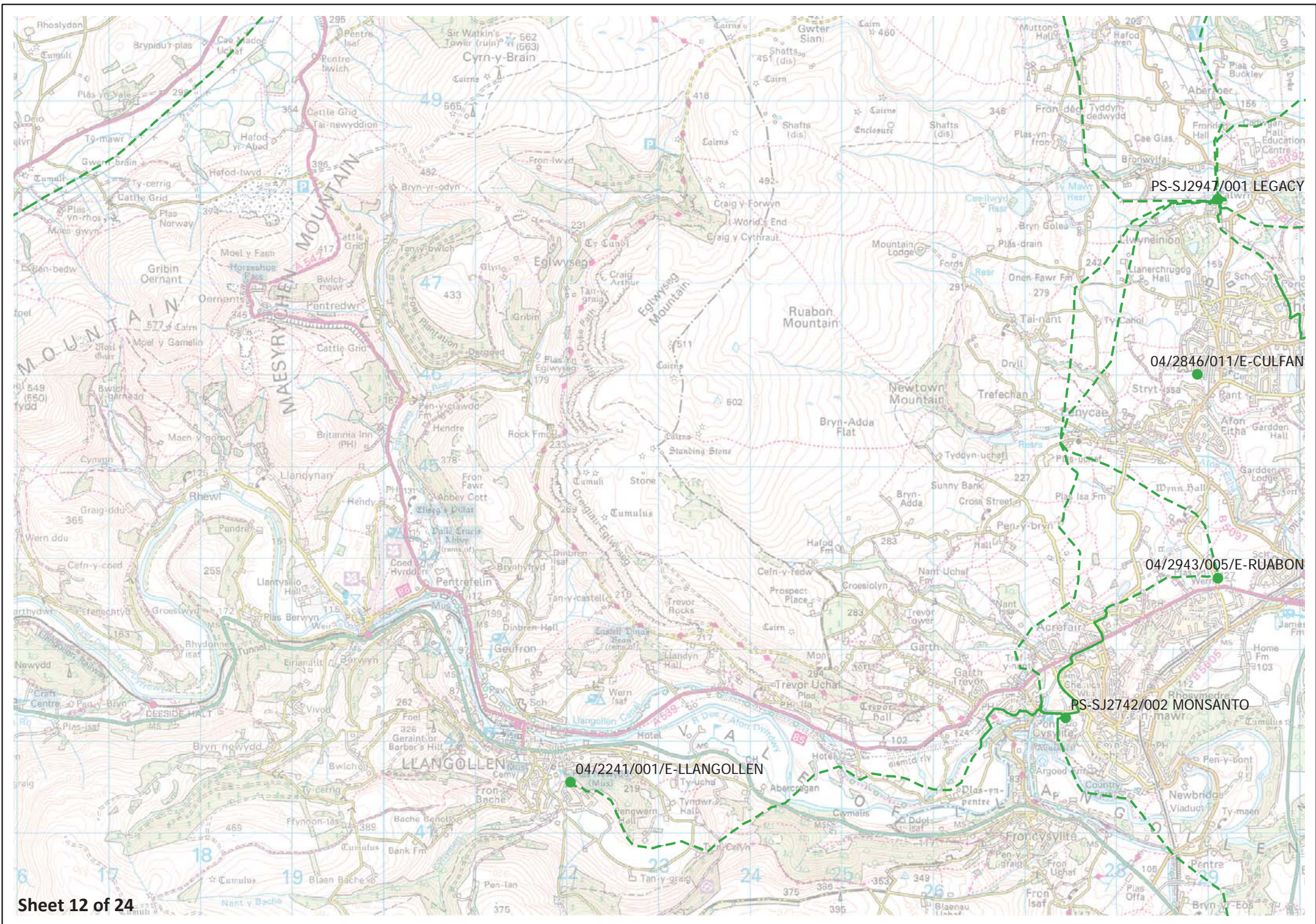












PS-SJ2947/001 LEGACY

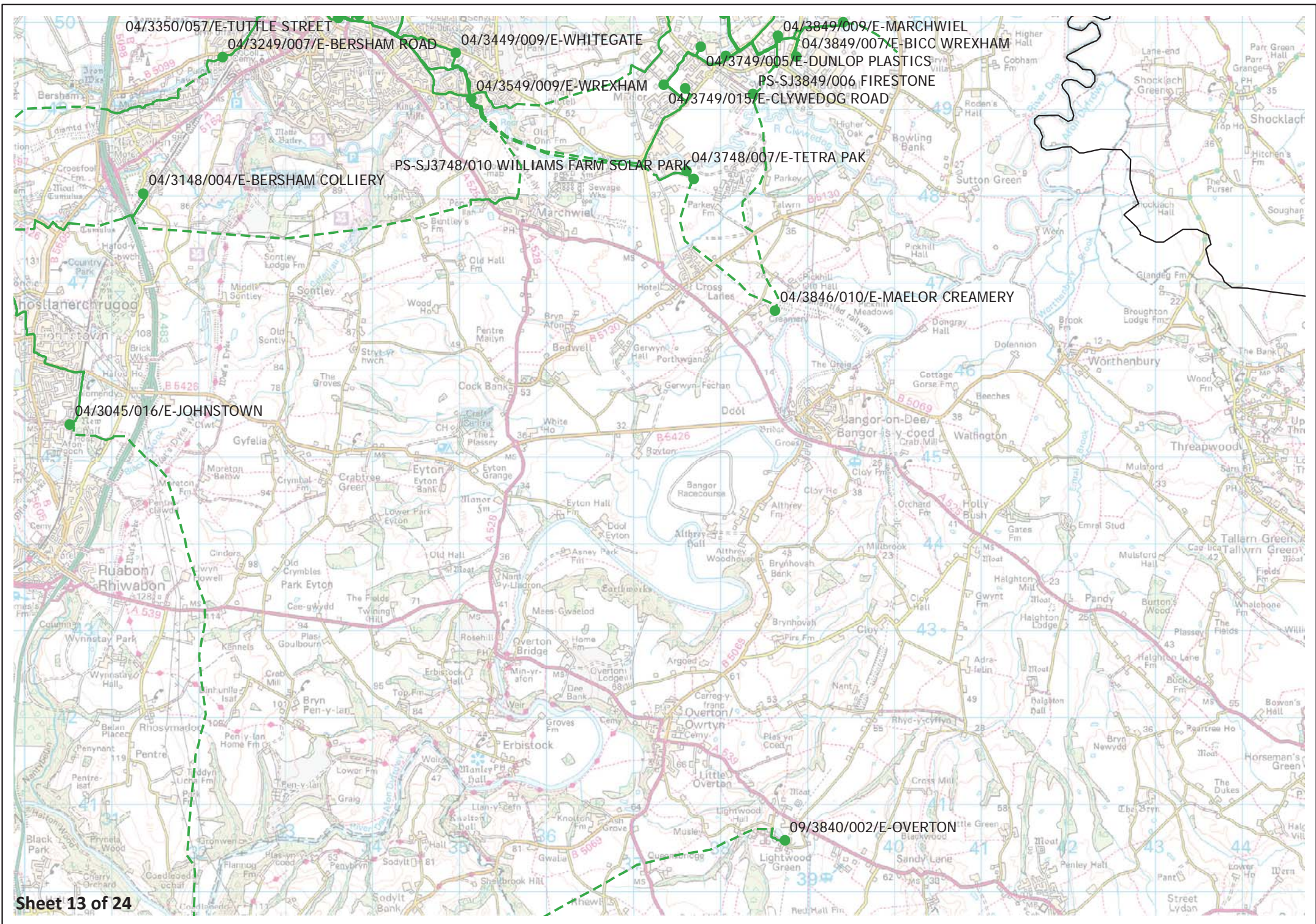
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04/2943/005/E-RUABON

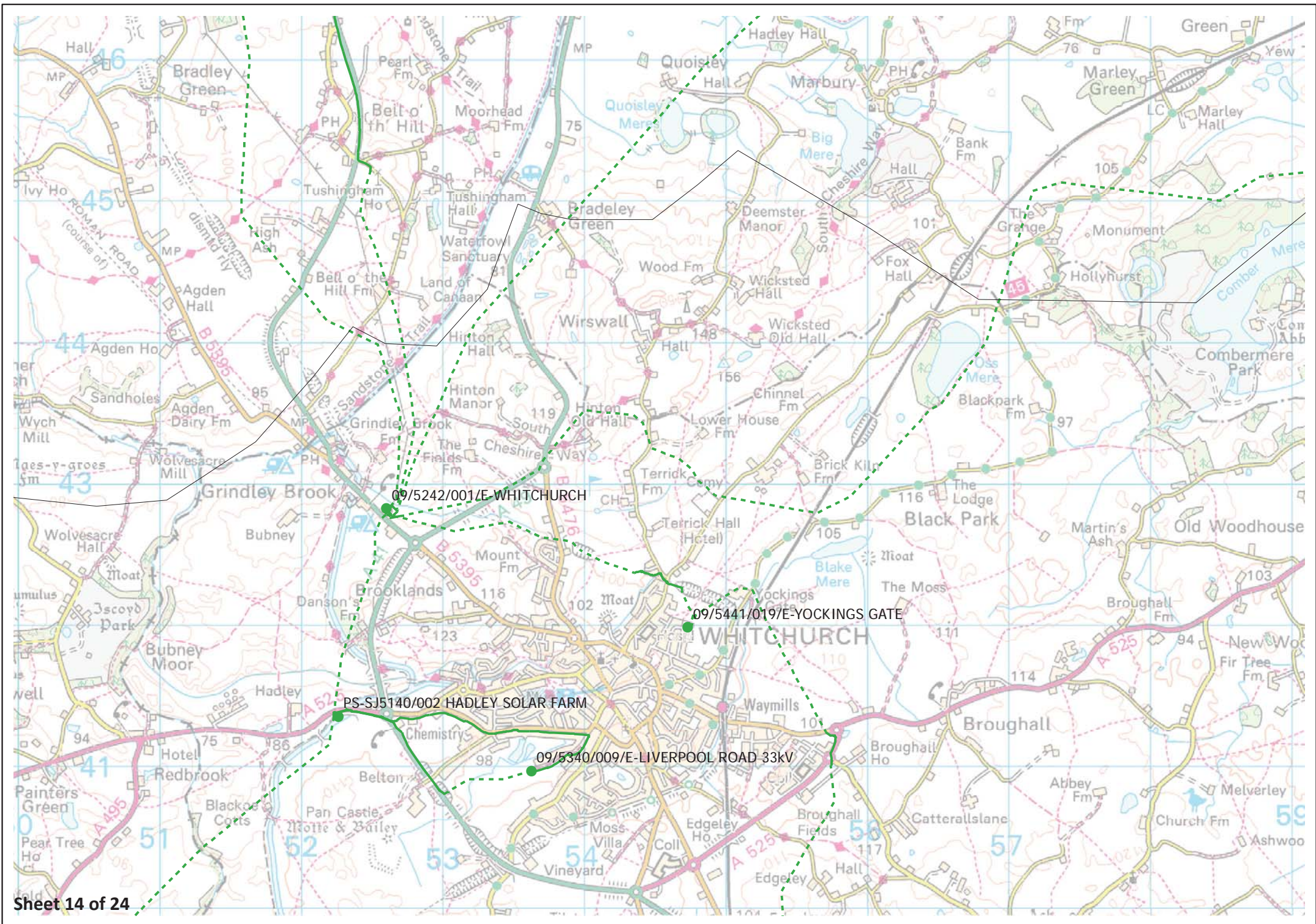
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04/2241/001/E-LLANGOLLEN

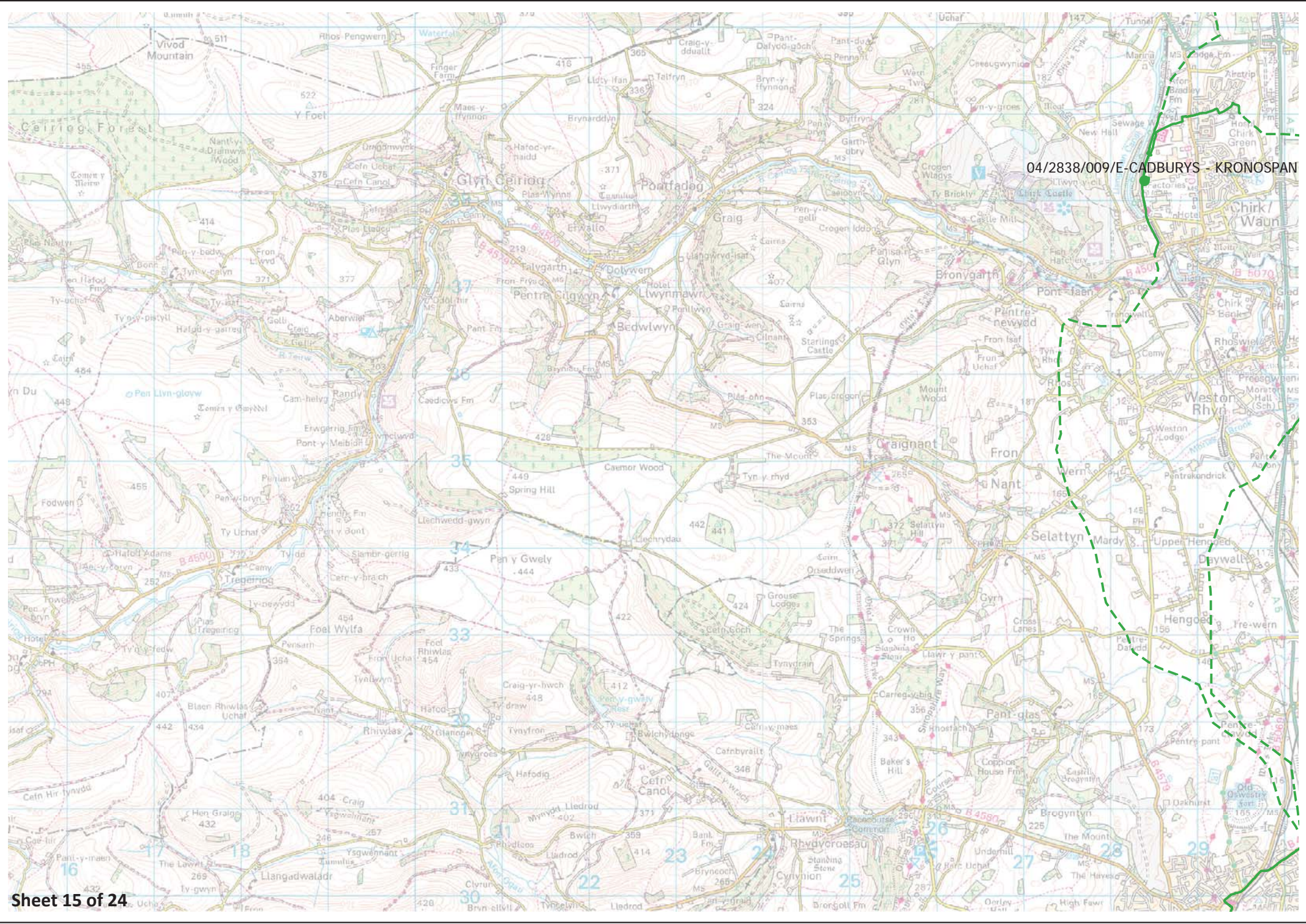






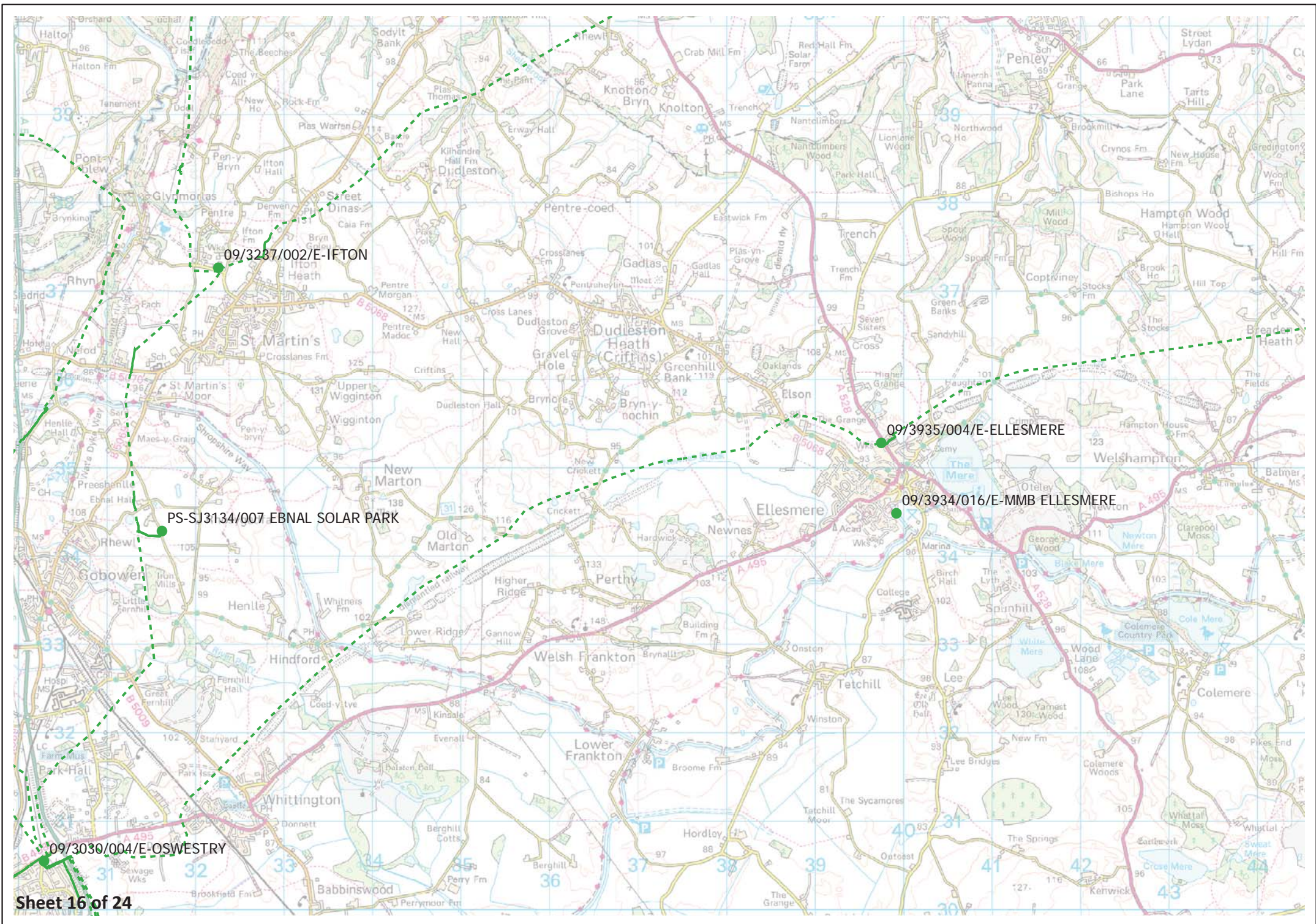






04/2838/009/E-CADBURYS - KRONOSPAN





09/3287/002/E-IFTON

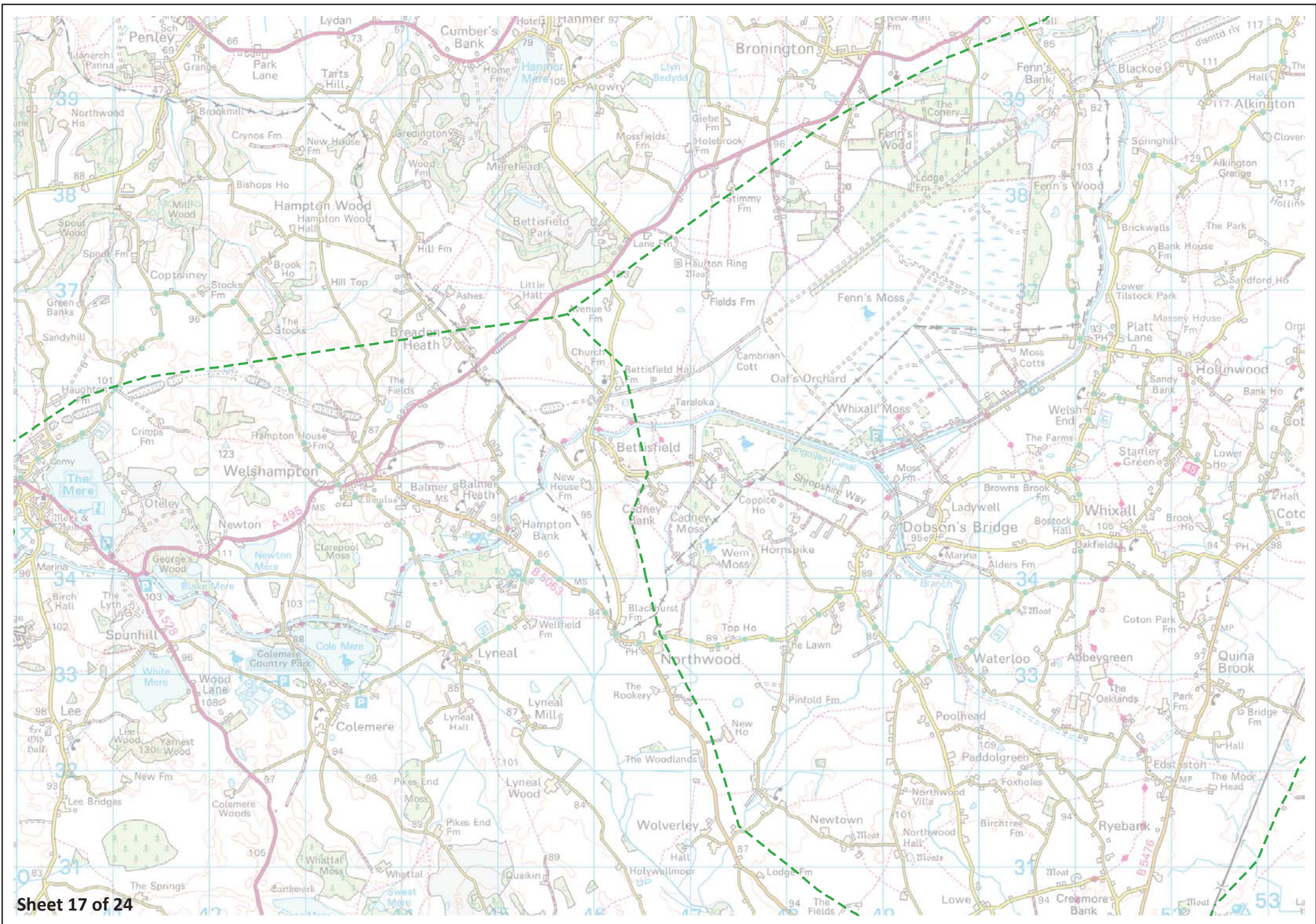
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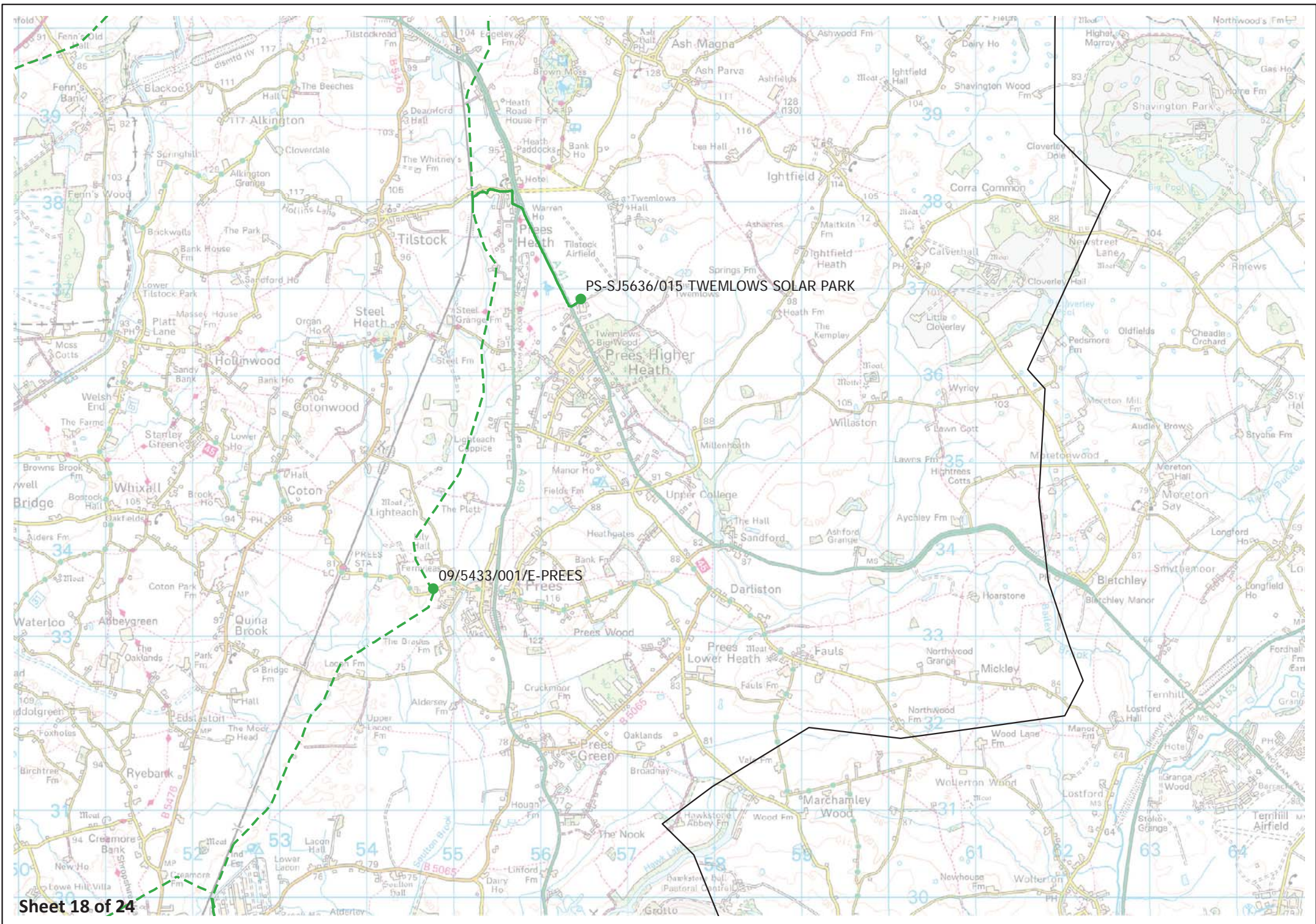
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09/3030/004/E-OSWESTRY





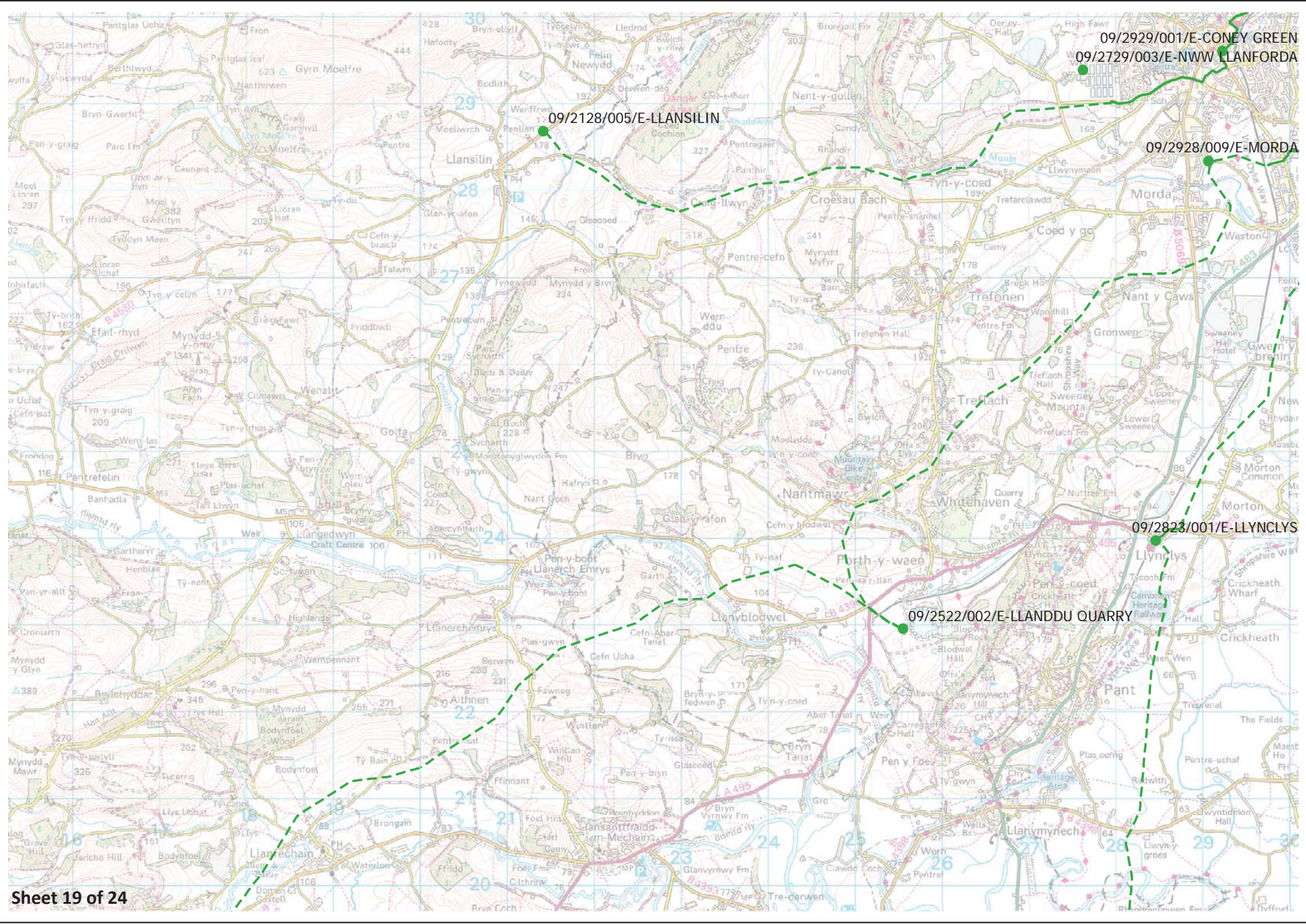




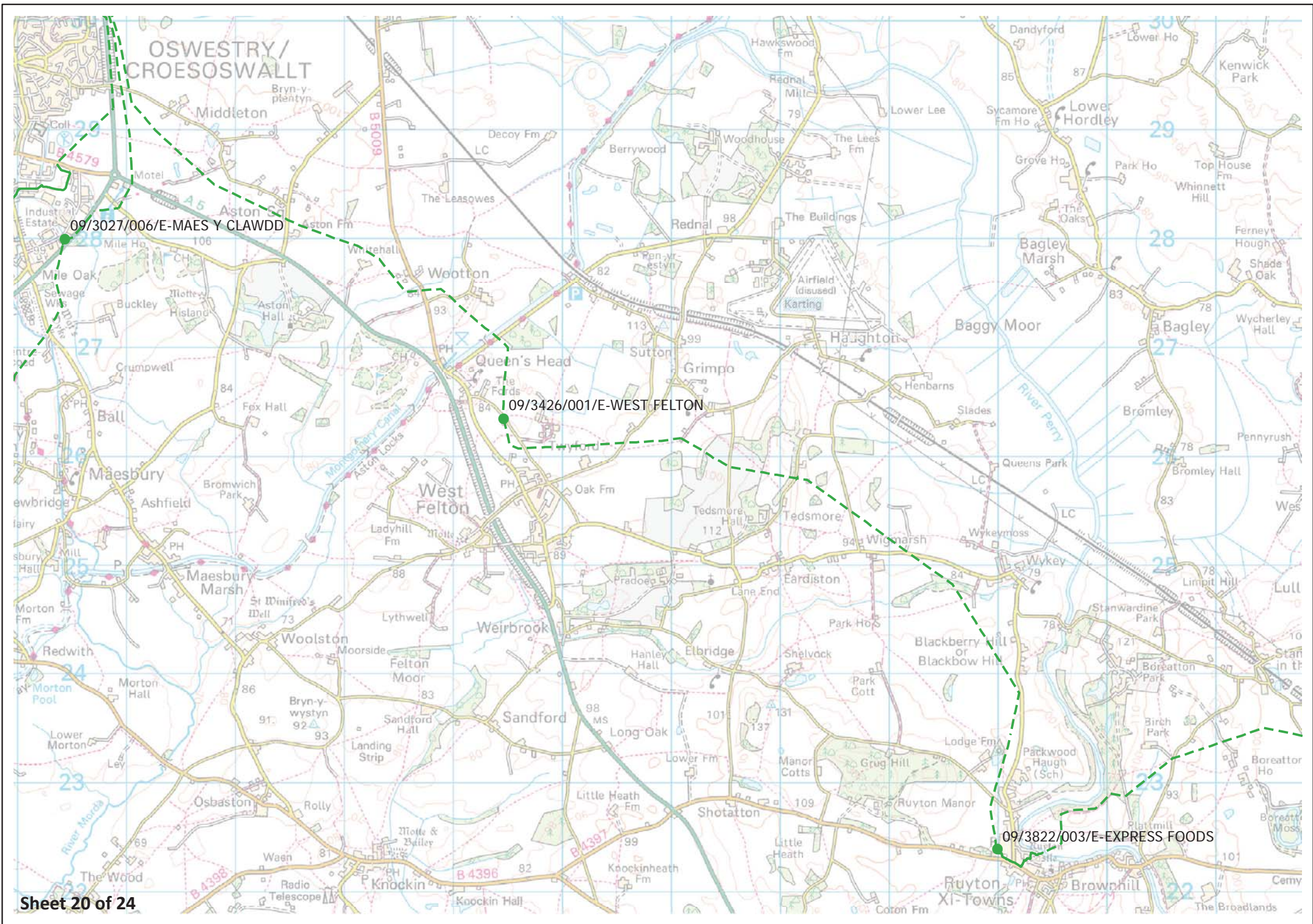
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09/5433/001/E-PREES









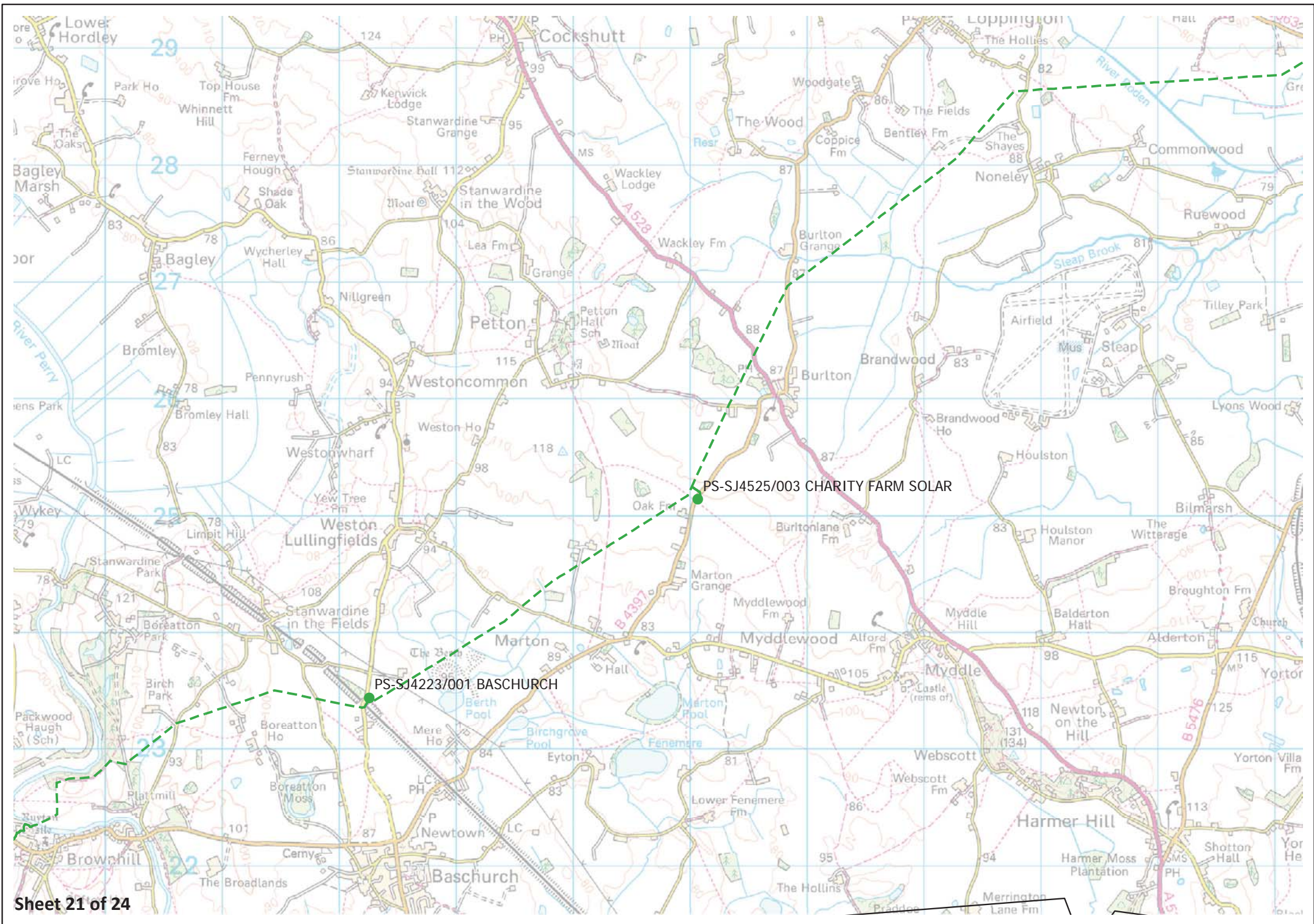
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CROESOSWALLT

09/3027/006/E-MAES Y CLAWDD

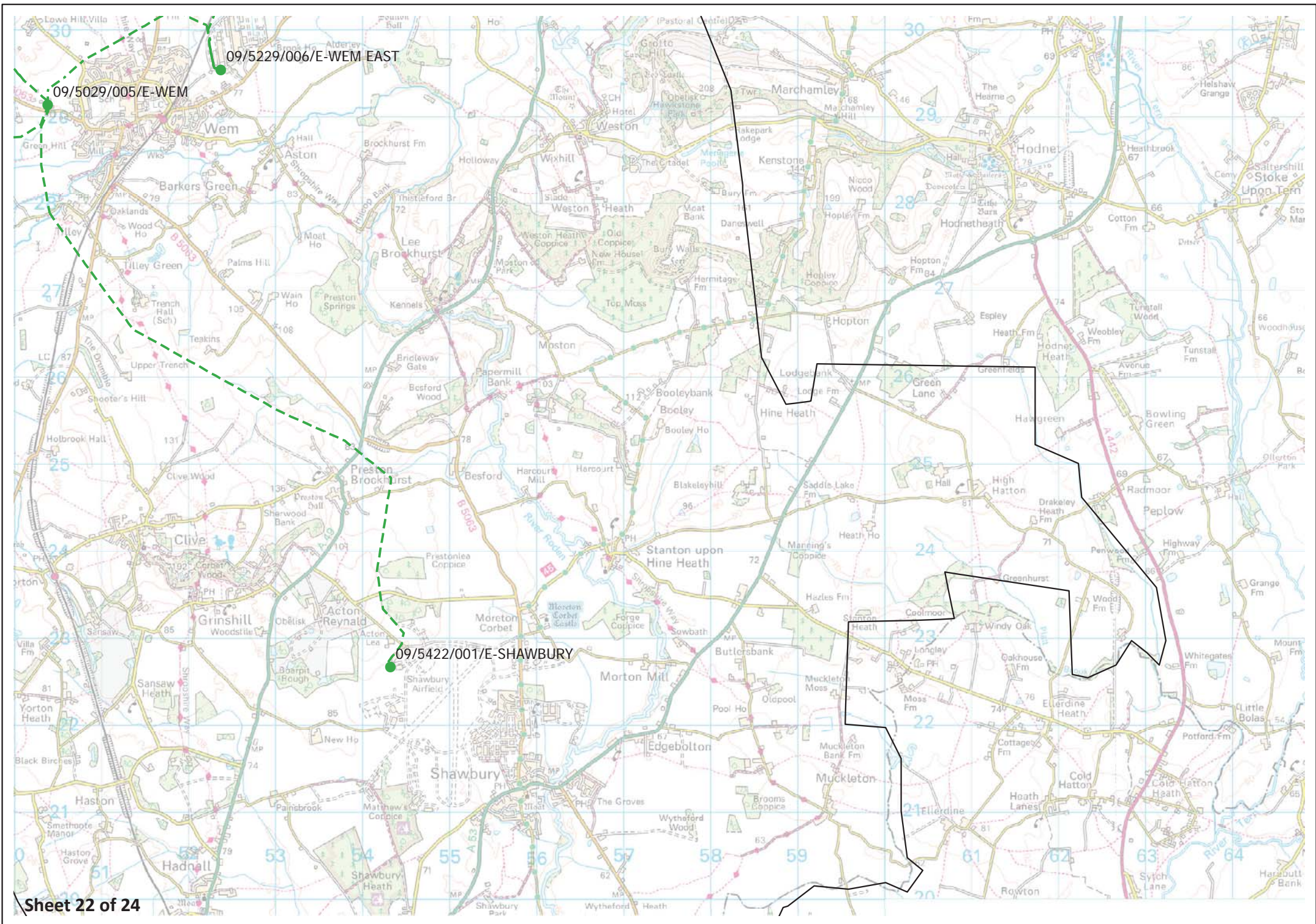
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09/3822/003/E-EXPRESS FOODS







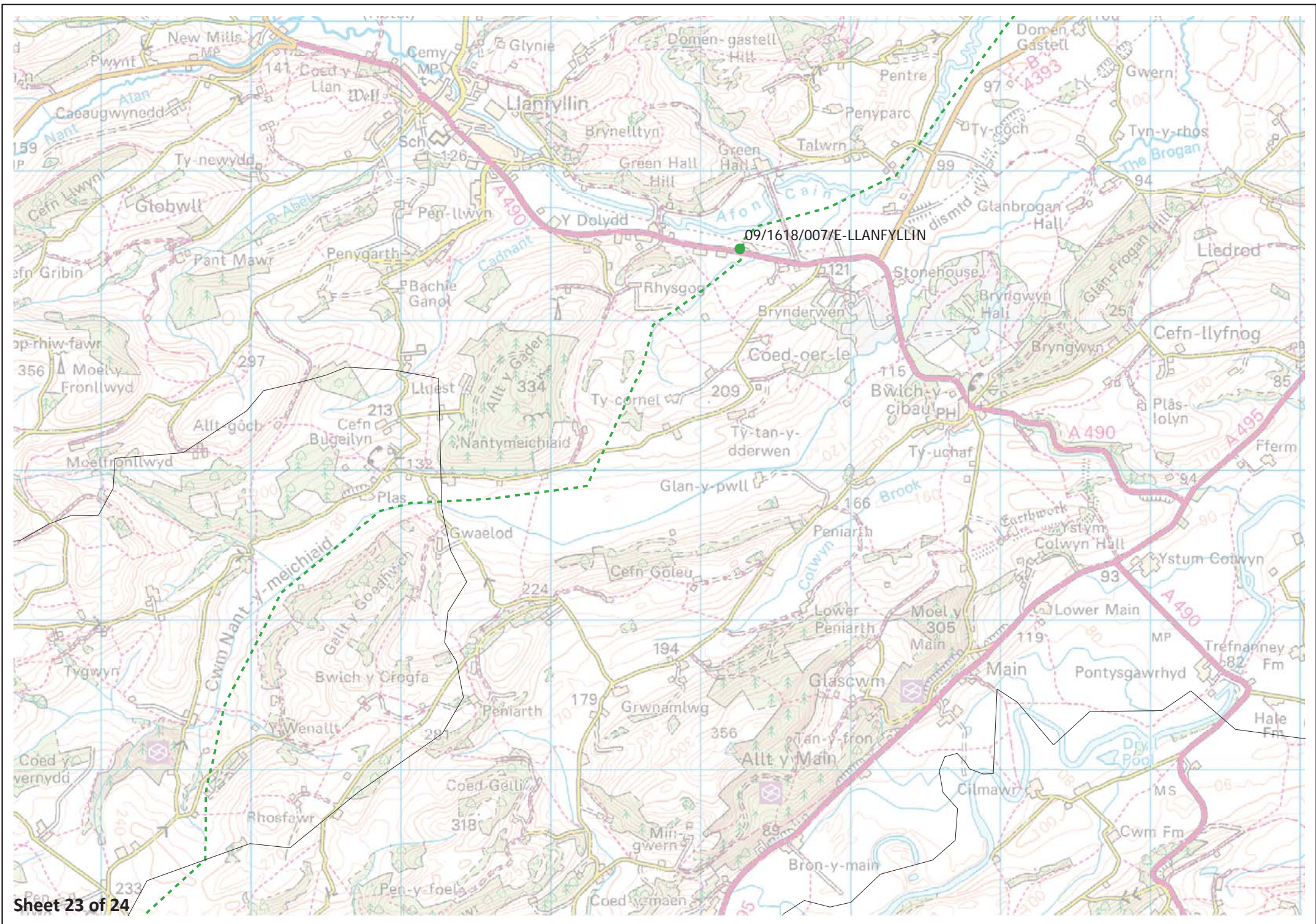


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09/5029/005/E-WEM

09/5422/001/E-SHAWBURY







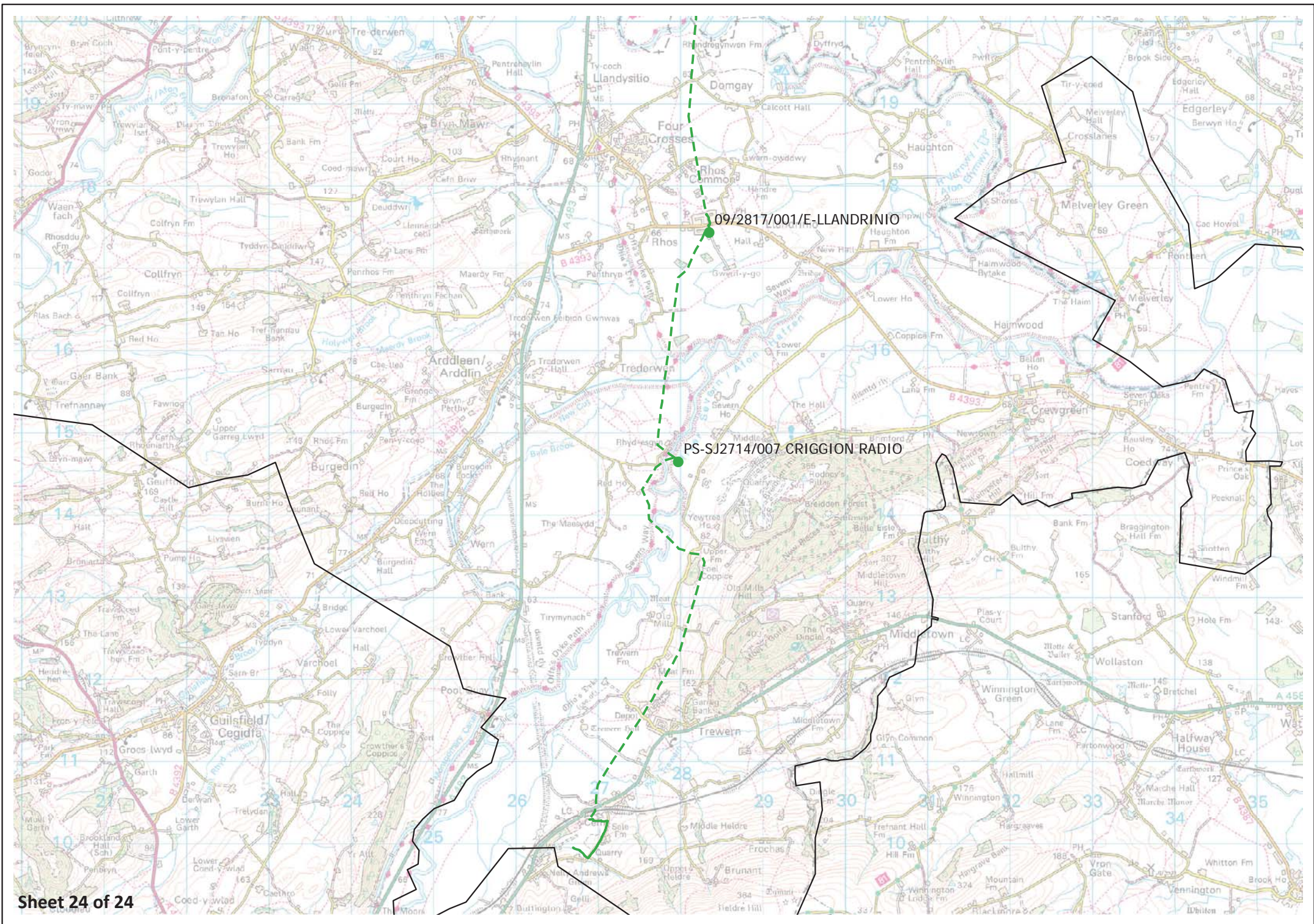




TABLE 3 - LOAD INFORMATION

<sup>(1)</sup> Group Maximum Demand increased by measured distribution generation to provide true system demand.

S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments	
			MW	MVA <sup>(1)</sup>	MVA	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023				
BR BROMBOROUGH	BR BROMBOROUGH	11	-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
BXL BROMBOROUGH T1 / TULIP T1	BXL BROMBOROUGH TULIP	11	3.69 3.93	0.68 1.62	7.96	8.00	8.06	8.11	8.17	8.23	10.00	37%		
CEREAL PARTNERS T1 / LEVER GEORGIA AVE T1 / POOL LA T1 / UML LEVER BROMBOROUGH T2	CEREAL PARTNERS LEVER GEORGIA AVE POOL LA UML LEVER BROMBOROUGH	11	2.79 3.00 2.95 3.12	-0.34 1.34 1.09 1.43	12.78	12.84	12.93	13.01	13.11	13.21	30.00	37%		
DIBBINSDALE T1 / PLYMYARD T1 / WIBP HARDKNOTT RD T1	DIBBINSDALE PLYMYARD WIBP HARDKNOTT RD	11	4.33 4.03 4.34	0.33 0.27 0.17	12.73	12.79	12.88	12.97	13.06	13.16	20.00	37%		
LEVER SUNLIGHT T1 / LEVER SUNLIGHT T2	LEVER SUNLIGHT T1 LEVER SUNLIGHT T2	11	-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
LOWER BEBINGTON T1 / NEW FERRY T1 / SPITAL T1 / UNILEVER RESEARCH T1	LOWER BEBINGTON NEW FERRY SPITAL UNILEVER RESEARCH	11	4.36 4.36 3.72 4.22	0.96 0.77 -1.30 0.65	16.70	16.78	16.90	17.01	17.13	17.27	30.00	37%		
NWWA BROMBOROUGH T1 / NWWA BROMBOROUGH T2	NWWA BROMBOROUGH T1 NWWA BROMBOROUGH T2	11	-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
ARROWE PK HOSP T1 / CHAMPION PLUGS T1 / CHAMPION PLUGS T2 / WOODCHURCH T1	ARROWE PK HOSP CHAMPION PLUGS T1 CHAMPION PLUGS T2 WOODCHURCH	11	2.71 2.46 2.50 2.58	0.35 -0.10 0.93 -0.41	10.28	10.34	10.41	10.47	10.55	10.63	30.00	37%		
BARNSTON T1 / GAYTON T1 / IRBY T1 / THINGWALL T1	BARNSTON GAYTON IRBY THINGWALL	11	5.68 5.72 4.10 5.21	0.94 0.11 -0.85 -0.65	20.70	20.80	20.94	21.08	21.24	21.40	30.00	37%		
CALDY T1 / HOYLAKA T1 / MEOLS T1 / WEST KIRBY SOUTH T1	CALDY HOYLAKA MEOLS WEST KIRBY SOUTH	11	3.86 3.01 6.14 4.04	0.58 -0.58 -0.32 1.04	17.07	17.15	17.27	17.38	17.51	17.65	30.00	37%		
BUILDWAS ROAD / MORGAN REFRACTORIES T1 / NESTON MAIN T1	BUILDWAS ROAD MORGAN REFRACTORIES NESTON MAIN	11	3.05 3.53 3.40	-0.46 0.52 -0.11	9.98	10.03	10.09	10.16	10.24	10.32	20.00	37%		
GREASBY T1 / SAUGHALL MASSIE T1 / UPTON T1	GREASBY SAUGHALL MASSIE UPTON	11	5.79 0.00 6.97	-0.09 0.00 1.08	12.80	12.87	12.95	13.04	13.13	13.24	20.00	37%		
BENTINCK ST T1 / BENTINCK ST T2 / CHESTER ST (BIRKENHEAD) T1	BENTINCK ST T1 BENTINCK ST T2 CHESTER ST (BIRKENHEAD)	6.6	0.00 4.79 4.83	0.00 0.05 1.02	9.68	9.73	9.79	9.86	9.93	10.01	18.20	37%	BENTINCK ST T1 on Open Standby	
BIRKENHEAD CENTRAL T1 / SINGLETON AVE T1 / TRANMERE T1	BIRKENHEAD CENTRAL SINGLETON AVE T1 TRANMERE	6.6	3.71 3.78 4.02	0.43 0.40 0.30	11.57	11.62	11.70	11.78	11.87	11.96	18.20	37%		
BR SHORE ROAD	BR SHORE ROAD T1 BR SHORE ROAD T2	11	-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
CAMMELL LAIRD NORTH -CAMMELL LAIRD SOUTH T1 T2	CAMMELL LAIRD NORTH CAMMELL LAIRD SOUTH T1 CAMMELL LAIRD SOUTH T2	6.6	-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
EGERTON T1 / ROCK FERRY T1 / SHELL TRANMERE T1	EGERTON ROCK FERRY SHELL TRANMERE	11	5.14 5.39 5.45	0.04 1.78 2.07	16.44	16.52	16.63	16.74	16.86	17.00	20.00	37%		
FORD T1 / OXTON T1 / PRENTON LOCAL T1 / SINGLETON AVE T2	FORD OXTON PRENTON LOCAL SINGLETON AVE T2	11	4.86 5.80 5.76 5.91	No Data 1.25 0.57 1.03	22.51	22.62	22.77	22.92	23.09	23.27	30.00	37%		
MDHB EGERTON DOCK T1 / MDHB EGERTON DOCK T2	MDHB EGERTON DOCK T1 MDHB EGERTON DOCK T2	6.6	2.94 3.17	0.65 0.74	6.27	6.30	6.34	6.38	6.43	6.48	9.10	37%		
NWW WOODSIDE T1 / NWW WOODSIDE T2	NWW WOODSIDE T1 NWW WOODSIDE T2	11	-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
CADBURY T1 / CADBURYS T2 / HOPFIELD RD T1	CADBURY T1 CADBURYS T2 HOPFIELD RD	11	4.43 4.08 4.16	0.64 0.67 0.53	12.81	12.88	12.96	13.05	13.14	13.25	20.00	37%		
EGREMONT T1 / LISCARD T1 / POULTON T1 / STONE MANGANESE T1	EGREMONT LISCARD POULTON STONE MANGANESE	11	4.81 4.53 4.83 4.40	0.19 0.56 0.26 0.22	18.61	18.71	18.83	18.96	19.10	19.25	30.00	37%		
GILBROOK DOCK T1 / HILL RD T1 / MOBIL OIL (WALLASEY) T1	GILBROOK DOCK HILL RD MOBIL OIL (WALLASEY)	6.6	5.38 0.00 4.26	2.12 0.00 -0.08	9.86	9.91	9.97	10.04	10.11	10.19	18.20	37%		
NEW BRIGHTON T1 / SEAVIEW RD T2 / WALLASEY T1 / WALLASEY VILLAGE T1	NEW BRIGHTON SEAVIEW RD WALLASEY VILLAGE WALLASEY	11	4.90 4.44 4.45 4.11	1.35 0.22 0.36 -0.71	17.94	18.03	18.15	18.27	18.40	18.55	30.00	37%		
BOWATER CONTAINERS T1 / ELLESMERE PORT LOCAL T1 / HH ROBERTSONS T1 / MOBIL OIL (E PORT) T1 / WHITBY MAIN T1	BOWATER CONTAINERS ELLESMERE PORT LOCAL HH ROBERTSONS MOBIL OIL (E PORT) WHITBY MAIN T1	11	2.93 4.04 4.24 2.85 4.21	0.92 1.22 1.08 -0.16 1.45	19.10	19.20	19.33	19.45	19.60	19.75	25.50	37%		
CHESTER GATES T1 / UNILEVER DUNKIRK T1	CHESTER GATES UNILEVER DUNKIRK	11	3.40 3.37	0.73 0.06	6.81	6.85	6.89	6.94	6.99	7.04	10.00	37%		



<sup>(1)</sup> Group Maximum Demand increased by measured distribution generation to provide true system demand

S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments	
			MW	MVA <sup>(1)</sup>	MVA <sup>(1)</sup>	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023				
						MVA	MVA	MVA	MVA	MVA				
GREAT SUTTON T1 / LITTLE SUTTON T1 / STRAWBERRY ROUNDABOUT T1 / SUTTON HALL WWB T1 / WHITBY MAIN T2	GREAT SUTTON	11	5.34	0.72	25.99	26.12	26.30	26.47	26.67	26.88	26.42	37%		
	LITTLE SUTTON		5.23	-0.03										
	STRAWBERRY ROUNDABOUT		5.37	0.70										
	SUTTON HALL WWB		5.32	0.71										
	WHITBY MAIN T2		4.68	-0.42										
HOOTON MAIN T1	HOOTON MAIN	11	4.22	0.35	4.54	4.56	4.59	4.62	4.66	4.69	7.50	37%		
MORGANITE CERAMICS T1 / PLYMYARD T2	MORGANITE CERAMICS	11	2.20	-0.03	4.34	4.36	4.39	4.42	4.45	4.49	10.00	37%		
	PLYMYARD T2		2.08	0.76										
VAUXHALL NORTH RD T1	VAUXHALL NORTH RD	11	1.92	0.51	1.99	2.00	2.02	2.03	2.04	2.06	3.60	37%		
ASSOCIATED LEAD T1 / GREAT BOUGHTON T1 / PIPERS ASH T1	ASSOCIATED LEAD	11	4.66	-0.13	14.28	14.35	14.45	14.54	14.65	14.77	20.00	37%		
	GREAT BOUGHTON		4.83	0.93										
	PIPERS ASH		4.76	-0.02										
	BLACON		4.45	0.27										
BLACON T1 / COCOA BARRY T1 / CRANE BANK T1 / KNUTSFORD WAY T1 / TOWER WHARF T1	COCOA BARRY	11	3.71	-0.03	20.70	20.81	20.95	21.08	21.24	21.41	37.50	37%		
	CRANE BANK		4.06	0.29										
	KNUTSFORD WAY		4.21	0.40										
	TOWER WHARF		4.22	0.59										
	BODFARI PRODUCERS T1		BODFARI PRODUCERS	11										2.29
BROOK LA T1 / MANNINGS LA T1 / NEWTOWN CHESTER T1 / UPTON HEATH T1	BROOK LA	11	4.44	0.03	18.06	18.15	18.28	18.40	18.53	18.68	30.00	37%		
	MANNINGS LA		4.76	0.01										
	NEWTOWN CHESTER		4.49	-0.11										
	UPTON HEATH		4.36	0.82										
CHESTER WTW T1 - CHESTER WTW T2	CHESTER WTW T1	6.6	-	-	-	-	-	-	-	-	-	-	Demand data redacted	
	CHESTER WTW T2		-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
DUDDON T1	DUDDON	11	2.32	0.25	2.34	2.35	2.36	2.38	2.40	2.42	7.50	37%		
GOWY LANDFILL GEN T1	GOWY LANDFILL GEN	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted	
GROSVENOR ST T1 / LINENHALL ST T1 / NORTHGATE TERRACE T1 / STATION VIEW T1 / TOMULAR PLACE T1	GROSVENOR ST	11	5.37	1.41	25.38	25.51	25.68	25.85	26.04	26.24	30.00	37%		
	LINENHALL ST		4.61	0.26										
	NORTHGATE TERRACE		5.22	0.27										
	STATION VIEW		5.13	-0.73										
	TOMULAR PLACE		4.94	1.19										
HERONS WAY T1 / LACHE T1 / MBNA T1 / SMFS KINGSMEADOW T1	HERONS WAY	11	2.69	-0.57	12.53	12.59	12.68	12.76	12.85	12.95	30.00	37%		
	LACHE		4.19	2.27										
	MBNA		2.88	0.24										
	SMFS KINGSMEADOW		2.75	-1.32										
	SALTNEY GRID T1		SALTNEY	11										3.25
LCWW HUNTINGTON T1 / LCWW HUNTINGTON T2	LCWW HUNTINGTON T1	6.6	0.68	0.16	4.45	4.47	4.50	4.53	4.56	4.60	9.10	37%		
	LCWW HUNTINGTON T2		3.71	0.53										
TARVIN T1	TARVIN	11	6.67	0.45	6.69	6.72	6.77	6.81	6.86	6.91	7.50	37%		
WERVIN T1	WERVIN	11	3.42	0.36	3.43	3.45	3.48	3.50	3.52	3.55	7.50	37%		
BARBAULD ST T1 / HORROCKS LA T1 / WARRINGTON CENTRAL T1	BARBAULD ST	11	3.15	-0.22	9.30	9.35	9.41	9.47	9.54	9.62	20.00	37%		
	HORROCKS LA		2.90	-0.02										
	WARRINGTON CENTRAL		3.23	0.88										
BATTERSBY LA T1 / RYLANDS ELDON ST T2	BATTERSBY LA	6.3	0.64	-0.39	1.40	1.41	1.42	1.43	1.44	1.45	9.10	37%		
	RYLANDS ELDON ST T2		0.76	0.33										
BEWSEY T1 / OWEN ST T1 / RODNEY ST T1 / RYLANDS ELDON ST T1	BEWSEY	11	3.48	0.05	17.97	18.06	18.18	18.30	18.44	18.58	30.00	37%		
	OWEN ST		3.40	0.60										
	RODNEY ST		5.68	1.09										
	RYLANDS ELDON ST T1		5.32	0.07										
	BOULEVARD		4.48	0.17										
BOULEVARD T1 / CHAPELFORD T1 / HAWLEYS LA T1 / WESTBROOK T1 / WINWICK QUAY T1	CHAPELFORD	11	4.81	0.17	23.30	23.41	23.57	23.73	23.90	24.09	37.50	37%		
	HAWLEYS LA		4.45	-1.33										
	WESTBROOK		4.79	-0.01										
	WINWICK QUAY		4.76	1.49										
	BRITISH ALUMINIUM LATCHFORD		4.32	1.58										
BRITISH ALUMINIUM LATCHFORD T1 / GREENHALL WHITLEY T1 / LATCHFORD T1 / LATCHFORD T2 / THAMES BOARD MILL T1	GREENHALL WHITLEY	11	3.54	-1.34	16.53	16.61	16.72	16.83	16.96	17.09	30.00	37%		
	LATCHFORD T1		0.00	0.00										
	LATCHFORD T2		4.35	0.65										
	THAMES BOARD MILL		4.18	1.27										
	CROSSFIELDS T1		3.02	1.78										
CROSSFIELDS T1 / CROSSFIELDS T2 / LEVERS CROSSFIELDS T3 / GATEWARTH SEWAGE T1	CROSSFIELDS T2	11	2.97	1.41	11.86	11.92	12.00	12.08	12.17	12.27	30.00	37%		
	CROSSFIELDS T3		2.86	0.44										
	GATEWARTH SEWAGE		2.36	0.25										
	GIGG LA THELWALL		5.46	0.78										
	HILLCLIFFE		5.33	0.29										
GIGG LA THELWALL T1 / HILLCLIFFE T1 / STOCKTON HEATH T1 / STRETTON IND EST T1	STOCKTON HEATH	11	5.51	-0.56	21.18	21.28	21.43	21.57	21.73	21.90	30.00	37%		
	STRETTON IND EST		4.88	-0.44										
	GREAT SANKEY		3.84	-0.52										
	PENKETH		4.30	0.94										
GREAT SANKEY T1 / PENKETH T1 / WIDNES RD T1	WIDNES RD	11	3.99	-0.24	12.14	12.20	12.28	12.36	12.45	12.55	20.00	37%		
	KINGSLAND 33		4.00	0.75										
	SAFEWAY		4.13	1.40										
	WOOLSTON T1		3.95	0.63										
KINGSLAND 33 T1 / SAFEWAY T1 / WOOLSTON T1 / WOOLSTON T2	WOOLSTON T2	11	3.96	0.41	16.36	16.44	16.55	16.66	16.78	16.91	30.00	37%		
	LYMM		4.81	0.30										
	WHITELEGGS LA		4.48	0.08										
	NORTH WEST WATER CAMPUS T1		2.52	-1.19										
NORTH WEST WATER CAMPUS T1 / NORTH WEST WATER CAMPUS T2 / OMEGA T1 / OMEGA T2 / ORION BOULEVARD T1	NORTH WEST WATER CAMPUS T2	11	2.61	0.68	10.22	10.27	10.34	10.40	10.48	10.56	40.00	37%		
	OMEGA T1		2.58	0.33										
	OMEGA T2		2.50	0.31										
	ORFORD		4.84	0.69										
ORFORD T1 / PADGATE T1	PADGATE	11	4.45	-0.19	9.30	9.35	9.41	9.47	9.54	9.62	10.00	37%		

<sup>(1)</sup> Group Maximum Demand increased by measured distribution generation to provide true system demand

S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments	
			MW	MVA <sup>(1)</sup>	MVA <sup>(1)</sup>	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023				
						MVA	MVA	MVA	MVA	MVA				
SOLVAY INTEROX T1 / SOLVAY INTEROX T2 / SOLVAY INTEROX T3	SOLVAY INTEROX T1	6.3	-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	SOLVAY INTEROX T2		-	-	-	-	-	-	-	-	-	-	-	
	SOLVAY INTEROX T3		-	-	-	-	-	-	-	-	-	-	-	
CLEDFORD T1	CLEDFORD	11	5.34	0.27	5.34	5.37	5.41	5.44	5.48	5.53	7.50	37%		
FISONS T1	FISONS	11	3.01	0.16	3.02	3.03	3.05	3.07	3.09	3.12	7.50	37%		
HOLMES CHAPEL T1	HOLMES CHAPEL	11	6.15	0.77	6.66	6.70	6.74	6.79	6.84	6.89	7.50	37%		
ILFORDS T1 / KNUTSFORD T1 / MOBBERLEY T1 / RADBROKE HALL T1	ILFORDS	11	4.10	0.92	16.93	17.02	17.13	17.25	17.37	17.51	30.00	37%		
	KNUTSFORD T1		4.12	1.14										
	MOBBERLEY		3.81	0.19										
	RADBROKE HALL		3.01	-1.16										
KNUTSFORD T2	KNUTSFORD T2	11	5.29	0.37	5.30	5.33	5.36	5.40	5.44	5.48	7.50	37%		
LOSTOCK T1	LOSTOCK	11	0.00	0.00	4.29	4.31	4.34	4.37	4.40	4.43	7.50	37%		
LOSTOCK TRIANGLE T1	LOSTOCK TRIANGLE	11	2.44	0.27	2.45	2.47	2.48	2.50	2.52	2.54	7.50	37%		
MERE T1	MERE	11	4.97	0.46	5.00	5.02	5.05	5.09	5.13	5.17	7.50	37%		
MIDDLEWICH T1	MIDDLEWICH	11	5.03	1.01	5.14	5.17	5.21	5.24	5.28	5.32	7.50	37%		
MIDPOINT POCHIN WAY T1	MIDPOINT POCHIN WAY	11	1.50	0.12	1.50	1.51	1.52	1.53	1.54	1.55	7.50	37%		
MORRISONS T1	MORRISONS	11	5.34	1.76	5.62	5.65	5.69	5.72	5.77	5.81	7.50	37%		
PRIMROSE HALL T1	PRIMROSE HALL	11	2.71	0.09	2.71	2.73	2.74	2.76	2.78	2.81	7.50	37%		
RHM FOODS LTD T1	RHM FOODS LTD	11	1.39	0.44	1.46	1.47	1.48	1.49	1.50	1.51	7.50	37%		
RINGWAY T1	RINGWAY	11	3.11	0.11	3.11	3.13	3.15	3.17	3.19	3.22	3.50	37%		
ANDERTON T1	ANDERTON	11	5.24	0.35	5.25	5.28	5.31	5.35	5.38	5.43	7.50	37%		
CASTLE BEESTON ST T1 / HARTFORD T2 / LEICESTER STREET T1 / NORTHWICH TOWN T1 / WINNINGTON T1	CASTLE BEESTON ST	11	4.34	-0.46	21.68	21.79	21.93	22.08	22.24	22.42	37.50	37%		
	HARTFORD T2		5.11	0.99										
	LEICESTER STREET		4.28	1.22										
	NORTHWICH TOWN		3.70	-1.44										
	WINNINGTON		4.24	0.21										
CHURCH ST WINSFORD T1 / OVER T1 / WHARTON PK T1 / WOODFORD PK T1	CHURCH ST WINSFORD	11	5.04	0.56	20.15	20.25	20.38	20.52	20.67	20.83	30.00	37%		
	OVER		4.98	0.23										
	WHARTON PK		4.99	0.76										
	WOODFORD PK		4.99	0.90										
	EDEN VALE T1		EDEN VALE	11										3.86
GADBROOK T1	GADBROOK	11	5.01	0.64	5.05	5.08	5.11	5.15	5.18	5.22	7.50	37%		
GRAVEL T1 / WCB PLASTICS T1 / WHARTON T1	GRAVEL	11	2.74	-0.32	8.14	8.18	8.23	8.29	8.35	8.41	20.00	37%		
	WCB PLASTICS		2.43	1.20										
	WHARTON		2.65	1.33										
HARTFORD T1	HARTFORD T1	11	6.36	0.24	6.36	6.40	6.44	6.48	6.53	6.58	7.50	37%		
TACO PLASTICS T1 / TACO PLASTICS T2 / UNITED PERIPHERALS T1	TACO PLASTICS T1	11	3.36	0.58	10.67	10.72	10.80	10.87	10.95	11.03	20.00	37%		
	TACO PLASTICS T2		3.26	0.42										
	UNITED PERIPHERALS		3.58	2.15										
WINCHAM T1	WINCHAM	11	2.29	0.54	2.35	2.37	2.38	2.40	2.42	2.43	7.50	37%		
ACER AVE T1	ACER AVE	11	5.78	0.23	7.30	7.34	7.39	7.43	7.49	7.55	7.50	37%		
ACTON T1	ACTON	11	4.95	0.46	4.98	5.00	5.03	5.07	5.11	5.15	7.50	37%		
AUDLEM T1	AUDLEM	11	3.77	0.33	3.78	3.80	3.83	3.85	3.88	3.91	7.50	37%		
BAE RADWAY T1 / BAE RADWAY T2	BAE RADWAY T1	11	-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
CHURCH LAWTON T1	CHURCH LAWTON	11	3.84	0.36	3.86	3.88	3.90	3.93	3.96	3.99	7.50	37%		
CIVIC CENTRE T1 / CLAUGHTON AVE T1 / ELECTRICITY ST T1	CIVIC CENTRE	11	5.62	0.43	17.01	17.09	17.21	17.32	17.45	17.59	19.18	37%		
	CLAUGHTON AVE		5.56	0.30										
	ELECTRICITY ST		5.78	0.51										
BR STATION T1 / DUCHY RD T1 / ELECTRA WAY T1 / MIDLAND ROLLMAKERS T1A / NORTH WESTERN MILLS T1	CREWE STATION	11	5.13	-0.24	26.19	26.32	26.50	26.67	26.87	27.08	37.50	37%		
	DUCHY RD		5.36	2.27										
	ELECTRA WAY		5.14	0.54										
	MIDLAND ROLLMAKERS		5.21	1.09										
	NORTH WESTERN MILLS		4.98	0.72										
	CREWE		6.64	1.37										
CREWE T1 / LEIGHTON HOSPITAL T1	LEIGHTON HOSPITAL	11	-	-	-	-	-	-	-	-	-	-		
DUCKINGTON T1	DUCKINGTON	11	4.95	0.58	4.99	5.01	5.05	5.08	5.12	5.16	4.70	37%		
FODENS T1	FODENS	11	5.49	0.19	5.50	5.52	5.56	5.60	5.64	5.68	7.50	37%		
HATHERTON T1	HATHERTON	11	1.95	0.76	2.09	2.10	2.12	2.13	2.15	2.16	4.00	37%		
MAW GREEN GEN T1	MAW GREEN GEN	11	-	-	-	-	-	-	-	-	-	-	-	Demand data redacted
NANTWICH T1	NANTWICH	11	5.95	0.35	5.96	5.99	6.03	6.07	6.12	6.16	7.50	37%		
NEWHALL T1 / NEWHALL T2	NEWHALL T1	11	4.12	0.76	4.19	4.21	4.24	4.27	4.30	4.33	5.20	37%		
	NEWHALL T2		0.00	0.00										
NWF T1	NWF	11	5.22	1.65	5.48	5.51	5.54	5.58	5.62	5.67	4.30	37%		
RADWAY GREEN T1	RADWAY GREEN	11	5.64	0.32	5.65	5.67	5.71	5.75	5.79	5.84	7.50	37%		
ROLLS ROYCE T1 / ROLLS ROYCE T2 / ROLLS ROYCE T3	ROLLS ROYCE T1	11	3.50	0.05	11.07	11.12	11.20	11.27	11.35	11.44	15.00	37%		
	ROLLS ROYCE T2		3.60	0.96										
	ROLLS ROYCE T3		3.77	1.09										
	SANDBACH T1		SANDBACH	11										7.47
SMALLWOOD T1	SMALLWOOD	11	5.43	0.82	5.49	5.52	5.55	5.59	5.63	5.68	7.50	37%		
SNOWHILL T1	SNOWHILL	11	5.86	0.67	5.89	5.92	5.96	6.00	6.05	6.09	7.50	37%		
STAPELEY T1	STAPELEY	11	4.85	0.33	4.87	4.89	4.92	4.95	4.99	5.03	7.50	37%		
TWYFORDS T1	TWYFORDS	11	3.43	0.18	3.43	3.45	3.47	3.50	3.52	3.55	7.50	37%		
WESTON T1	WESTON	11	6.94	0.46	6.99	7.03	7.08	7.12	7.17	7.23	10.00	37%		
WHEELLOCK T1	WHEELLOCK	11	5.31	0.22	5.32	5.34	5.38	5.41	5.45	5.50	7.50	37%		
WISTASTON HALL T1	WISTASTON HALL	11	4.98	0.16	4.98	5.00	5.04	5.07	5.11	5.15	7.50	37%		
WRENBURY FRITH T1	WRENBURY FRITH	11	3.15	0.45	3.18	3.20	3.22	3.24	3.27	3.29	4.00	37%		



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S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments
			MW	MVA <sup>(1)</sup>	MVA <sup>(1)</sup>	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023			
						MVA	MVA	MVA	MVA	MVA			
BROMFIELD T1 / BROMFIELD T2 / PONTERWYL T1 / RHYD-Y-GOLEU T1 / SYNTHITE T1	BROMFIELD T1	11	3.45	-0.81	16.75	16.83	16.94	17.05	17.18	17.32	37.50	37%	
	BROMFIELD T2		3.27	-0.75									
	PONTERWYL		4.14	0.69									
	RHYD-Y-GOLEU		5.78	2.78									
	SYNTHITE		0.00	0.00									
CEFN MAWR T1	CEFN MAWR	11	4.14	0.23	4.14	4.17	4.19	4.22	4.25	4.29	7.50	37%	
FLINT T1 / FLINT T2	FLINT T1	11	3.40	0.29	7.13	7.17	7.22	7.27	7.32	7.38	10.00	37%	
	FLINT T2		3.55	1.31									
NORTH WALES PAPER T1 / NORTH WALES PAPER T2 / WOODFIELD AVE T1	NORTH WALES PAPER T1	11	3.95	2.50	11.86	11.92	12.00	12.08	12.17	12.26	20.00	37%	
	NORTH WALES PAPER T2		3.84	1.56									
	WOODFIELD AVE T1		3.49	-0.38									
	GREENFIELD T1		3.47	0.29									
GREENFIELD T1 / GREENFIELD T2	GREENFIELD T1	11	3.09	0.38	6.60	6.63	6.67	6.72	6.77	6.82	10.00	37%	
	GREENFIELD T2		3.09	0.38									
HOLWAY RD T1	HOLWAY RD	11	4.66	0.23	4.69	4.72	4.75	4.78	4.82	4.85	7.50	37%	
WIMPEYS PANT QUARRY T1 / WIMPEYS PANT QUARRY T2	WIMPEYS PANT QUARRY T1	11	2.05	-0.03	4.01	4.03	4.06	4.09	4.12	4.15	5.20	37%	
	WIMPEYS PANT QUARRY T2		1.83	1.06									
AIRBUS T1 / BROUGHTON RETAIL PARK T1 / MIXALLOY T1	AIRBUS	11	2.66	0.71	7.84	7.88	7.93	7.98	8.04	8.10	20.00	37%	
	BROUGHTON RETAIL PARK		2.96	1.31									
	MIXALLOY		2.05	-0.37									
BUCKLEY T1 / BUCKLEY T2 / BUCKLEY CROSS T1	BUCKLEY CROSS	11	4.56	0.69	12.49	12.55	12.64	12.72	12.81	12.91	20.00	37%	
	BUCKLEY T1		3.85	-0.51									
	BUCKLEY T2		3.73	0.47									
CAERGWRLLE T1	CAERGWRLLE	11	6.45	0.50	6.47	6.50	6.54	6.59	6.64	6.69	7.50	37%	
CONNAHS QUAY LOCAL T1 / CONNAHS QUAY LOCAL T2 / HAWARDEN T1 / KING GEORGE ST T1	CONNAHS QUAY LOCAL T1	11	4.67	0.10	19.95	20.05	20.18	20.31	20.46	20.62	30.00	37%	
	CONNAHS QUAY LOCAL T2		4.76	0.08									
	HAWARDEN		5.35	0.09									
	KING GEORGE ST		5.14	0.68									
	ENGINEER PK		4.09	-0.15									
ENGINEER PK T1 / PILKINGTONS QUEENSFERRY T1 / QUEENSFERRY T1	PILKINGTONS QUEENSFERRY	11	5.24	2.35	15.16	15.24	15.34	15.44	15.55	15.68	20.00	37%	
	QUEENSFERRY		5.40	1.39									
	KINNERTON		3.01	0.59									
DEESIDE IND PK T1 / DEESIDE IND PK 6TH AVE T1 / RAF SEALAND T1	DEESIDE IND PK 6TH AVE	11	3.67	0.69	10.51	10.56	10.63	10.70	10.78	10.86	20.00	37%	
	DEESIDE IND PK		3.54	0.59									
	RAF SEALAND		3.10	0.71									
OPTICAL FIBRES T1 / SHOTWICK T1 / WALBRO T1	OPTICAL FIBRES	11	4.28	0.91	13.66	13.73	13.82	13.91	14.01	14.12	20.00	37%	
	SHOTWICK		4.42	1.49									
	WALBRO		4.29	1.84									
	ABERGELE		4.20	-0.04									
ABERGELE T1 / PENSARN T1	PENSARN	11	4.55	0.77	8.87	8.92	8.97	9.03	9.10	9.17	10.00	37%	
	BRYN STANLEY		2.20	0.25									
BRYN STANLEY T1	BRYN STANLEY	11	2.20	0.25	2.75	2.76	2.78	2.80	2.82	2.84	7.50	37%	
CHURCH LANE T1 / NANT HALL T1 / PRESTATYN T1	CHURCH LA	11	4.25	0.75	12.01	12.08	12.16	12.24	12.33	12.42	20.00	37%	
	NANT HALL		3.83	0.05									
	PRESTATYN		3.91	-0.08									
DENBIGH T1	DENBIGH	11	4.93	0.22	4.93	4.96	4.99	5.02	5.06	5.10	7.50	37%	
DYSERTH RD T1 / FFORDD LAS T1 / FFORDD LAS T2 / WESTBOURNE AVE T1	DYSERTH RD	11	4.93	-0.14	21.16	21.27	21.41	21.56	21.71	21.89	30.00	37%	
	FFORDD LAS T1		5.12	0.62									
	FFORDD LAS T2		5.35	0.75									
	WESTBOURNE AVE		5.64	1.09									
	EGA ELECTRIC		2.97	0.60									
EGA ELECTRIC T1	EGA ELECTRIC	11	2.97	0.60	4.05	4.07	4.10	4.12	4.15	4.19	7.50	37%	
GRAIG FAWR T1	GRAIG FAWR	11	6.30	0.30	6.34	6.37	6.41	6.46	6.50	6.55	4.34	37%	
HOLYWELL T1	HOLYWELL	11	4.54	0.33	4.55	4.57	4.60	4.64	4.67	4.71	7.50	37%	
LLANARMON T1	LLANARMON	11	1.71	0.09	1.71	1.72	1.73	1.74	1.75	1.77	7.50	37%	
LLANDYRNOG T1	LLANDYRNOG	11	4.24	0.49	4.27	4.29	4.32	4.34	4.38	4.41	4.00	37%	
LLANFWROG T1 / RUTHIN T1	LLANFWROG	11	4.01	0.37	9.26	9.30	9.37	9.43	9.50	9.57	15.00	37%	
	RUTHIN		4.49	0.83									
LLANSANNAN T1	LLANSANNAN	11	3.04	0.49	3.36	3.37	3.40	3.42	3.44	3.47	7.50	37%	
PILKINGTONS T1 / PILKINGTONS T2	PILKINGTONS T1	11	1.77	0.73	3.58	3.60	3.62	3.64	3.67	3.70	10.00	37%	
	PILKINGTONS T2		1.76	-0.16									
ST ASAPH BUSINESS PK T1	ST ASAPH BUSINESS PK	11	4.48	0.35	4.50	4.52	4.55	4.58	4.61	4.65	7.50	37%	
YSBYTY GLAN CLWYD T1	YSBYTY GLAN CLWYD	11	3.09	0.22	3.09	3.11	3.13	3.15	3.17	3.20	7.50	37%	
POINT OF AYR COLLIERY T1	POINT OF AYR COLLIERY	11	5.64	1.31	5.79	5.82	5.86	5.90	5.94	5.99	7.50	37%	
RHUDDLAN T1	RHUDDLAN	11	4.54	0.32	4.55	4.58	4.61	4.64	4.67	4.71	7.50	37%	
ASTMOOR IND EST T1 / MACKAMAX T1 / MERSEY RD T1 / PICOW FARM RD T1	ASTMOOR IND EST	11	2.96	0.34	12.04	12.11	12.19	12.27	12.36	12.45	30.00	37%	
	MACKAMAX		3.32	2.19									
	MERSEY RD		2.65	-0.70									
	PICOW FARM RD		2.91	0.32									
	BASS CHARRINGTON T1		3.70	1.08									
BASS CHARRINGTON T1 / BASS CHARRINGTON T2 / CLIFTON T1 / YKK T1	BASS CHARRINGTON T2	11	3.83	1.09	15.59	15.67	15.78	15.88	16.00	16.12	30.00	37%	
	CLIFTON		4.08	0.71									
	YKK		3.82	-0.57									
	DARESBUARY NPL T2		-	-									
DARESBUARY NPL T2/T2/T3	DARESBUARY NPL T3	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	DARESBUARY NPL T4		-	-									
	DARESBUARY NPL T1		3.06	0.49									
DARESBUARY NPL T1 / DARESBUARY PK T1	DARESBUARY PK	11	1.80	0.36	5.68	5.71	5.75	5.78	5.83	5.87	10.00	37%	
	HALTON RD		5.02	-0.16									
HALTON RD T1 / MURDISHAW T1 / PERCIVAL LA T4 / RUNCORN CENTRAL T1	MURDISHAW	11	4.89	0.31	20.49	20.59	20.73	20.87	21.02	21.19	25.00	37%	
	PERCIVAL LA		5.15	0.32									
	RUNCORN CENTRAL		5.36	1.28									
	MANOR PK		4.36	0.69									
MANOR PK T1 / NORTON CHAINS T1	MANOR PK	11	4.36	0.69	8.78	8.83	8.89	8.95	9.01	9.08	10.00	37%	
	NORTON CHAINS		4.35	0.43									

<sup>(1)</sup> Group Maximum Demand increased by measured distribution generation to provide true system demand

S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments
			MW	MVA <sup>(1)</sup>	MVA <sup>(1)</sup>	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023			
						MVA	MVA	MVA	MVA	MVA			
DUFFRYN	DUFFRYN T1 DUFFRYN T2	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
BICC HELSBY T2 / EVC T1	BICC HELSBY T2 EVC	11	2.31 2.43	0.19 0.18	4.90	4.93	4.96	4.99	5.03	5.07	10.00	37%	
BRITISH PIPE ASSOCIATION T1	BRITISH PIPE ASSOCIATION	11	2.88	0.90	3.01	3.03	3.05	3.07	3.09	3.12	7.50	37%	
BURMAH OIL T1 / VAN LEER NO 1 T1	BURMAH OIL VAN LEER NO 1	6.6	2.30 1.95	1.99 0.66	5.01	5.03	5.07	5.10	5.14	5.18	6.40	37%	
CROWTON T1	CROWTON	11	3.26	0.29	3.27	3.29	3.31	3.33	3.35	3.38	7.50	37%	
ELTON T1	ELTON	11	2.88	0.10	2.88	2.89	2.91	2.93	2.95	2.98	7.50	37%	
FRODSHAM LOCAL T1	FRODSHAM LOCAL	11	7.02	0.25	7.02	7.06	7.11	7.15	7.20	7.26	8.17	37%	
ALMONDS TURN T1 / ATLANTIC COMPLEX T1 / GIRO T1 / MIDLAND BANK T1 / NETHERTON T1	ALMONDS TURN ATLANTIC COMPLEX GIRO MIDLAND BANK NETHERTON	11	3.66 3.77 3.55 3.70 2.97	0.88 0.78 0.71 0.76 -0.98	17.78	17.87	17.99	18.11	18.24	18.39	37.50	37%	
ALTMOUTH T1	ALTMOUTH	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
BLUNDELLSANDS (NORTH) T1 / BLUNDELLSANDS (SOUTH) T1 / CROSBY T1 / KERSHAW AVE T1 / WATERLOO T2	BLUNDELLSANDS (NORTH) BLUNDELLSANDS (SOUTH) CROSBY KERSHAW AVE WATERLOO T2	11	4.70 4.81 4.92 5.04 4.70	0.00 0.00 0.18 0.97 0.07	24.20	24.32	24.48	24.64	24.82	25.02	37.50	37%	
BURLINGTON AVE T1 / FRESHFIELD T1 / MARSH BROWS T1 / SOUTHPORT RD T1	BURLINGTON AVE FRESHFIELD MARSH BROWS SOUTHPORT RD	11	3.85 3.92 4.12 3.87	0.75 0.02 0.25 0.12	15.79	15.87	15.98	16.09	16.20	16.33	28.00	37%	
DODDS LA T1 / HOLBORN HILL T1 / MAGHULL T1 / MAGHULL T2 / ROBBINS BRIDGE T1	DODDS LA HOLBORN HILL MAGHULL T1 MAGHULL T2 ROBBINS BRIDGE	11	4.82 5.17 5.17 5.13 4.39	0.34 1.75 0.19 0.17 -1.56	24.69	24.82	24.99	25.15	25.34	25.54	37.50	37%	
HASKAYNE T1	HASKAYNE	11	2.46	0.40	2.50	2.51	2.53	2.54	2.56	2.58	7.50	37%	
AINTREE LOCAL T1 / OLD ROAN T1 / WANGO LA T1	AINTREE LOCAL OLD ROAN WANGO LA	11	4.74 5.03 4.07	0.79 0.82 -0.22	13.91	13.98	14.07	14.17	14.27	14.38	20.00	37%	
BEMROSE T1 / CARR LA EAST T1 / LUCAS (FAZAKERLEY) T1 / NORRIS GREEN T1 / WEST DERBY T1	BEMROSE CARR LA EAST LUCAS (FAZAKERLEY) NORRIS GREEN WEST DERBY	11	3.62 7.15 3.50 5.51 5.96	-1.45 2.36 -1.39 0.59 1.31	25.78	25.91	26.08	26.25	26.44	26.65	37.50	37%	
ORB CL T1 / STONEBRIDGE LA T1 / STONEBRIDGE LA T2	ORB CL STONEBRIDGE LA T1 STONEBRIDGE LA T2	11	2.16 3.51 3.54	-0.96 1.18 1.16	9.32	9.37	9.43	9.49	9.56	9.64	20.00	37%	
FAZAKERLEY HOSPITAL T1 / JACOBS T1 / JACOBS T2 / SEEDS LA T1	FAZAKERLEY HOSPITAL JACOBS T1 JACOBS T2 SEEDS LA	11	3.71 3.41 3.38 3.56	1.13 0.15 0.16 1.11	14.73	14.81	14.91	15.01	15.12	15.24	30.00	37%	
BOOTLE GRID T1 / KELLOGGS T1 / PACIFIC RD T1 / WASHINGTON ST T1 / WATERLOO T1	BOOTLE GRID T1 KELLOGGS PACIFIC RD WASHINGTON ST WATERLOO T1	11	4.18 3.98 4.57 4.29 3.99	0.64 -0.07 1.01 0.00 0.81	21.14	21.25	21.39	21.53	21.69	21.86	37.50	37%	
BOOTLE GRID T2 / ORRELL MOUNT T1 / SCARISBRICK AVE T1 / TATTON RD T1	BOOTLE GRID T2 ORRELL MOUNT SCARISBRICK AVE TATTON RD	11	3.54 3.97 4.42 5.13	-2.59 -0.13 1.01 2.18	17.08	17.16	17.28	17.39	17.52	17.66	30.00	37%	
MDHB FREEPORT T1	MDHB FREEPORT	6.3	-	-	-	-	-	-	-	-	-	-	Demand data redacted
AINSDALE T1 / PINFOLD LA T1	AINSDALE PINFOLD LA	6.6	3.56 3.30	0.20 0.21	6.87	6.90	6.95	7.00	7.05	7.10	9.10	37%	
BANASTRE RD T1 / DOVER RD T1 / GRANTHAM CL T1	BANASTRE RD DOVER RD GRANTHAM CL	6.6	2.97 4.87 4.50	-0.57 0.49 0.87	12.37	12.43	12.51	12.60	12.69	12.79	9.10	37%	
IVY ST (SOUTHPORT) T1 / KENSINGTON ROAD / MARKET ST T1 / SOUTHPORT T1	IVY ST (SOUTHPORT) KENSINGTON ROAD MARKET ST SOUTHPORT T1	11	4.24 0.00 3.57 4.44	-0.31 0.00 0.09 -0.09	12.38	12.44	12.53	12.61	12.70	12.80	30.00	37%	KENSINGTON ROAD data not available
LORD ST T1 / MARSHSIDE T1 / MULLARDS BALMORAL DV T1 / SOUTHPORT T2	LORD ST MARSHSIDE MULLARDS BALMORAL DV SOUTHPORT T2	11	5.03 4.97 4.72 5.55	0.33 -0.47 -0.48 1.48	20.29	20.39	20.53	20.67	20.82	20.98	30.00	37%	
NEVILL ST T1 / OCEAN PLAZA T1 / YORK RD T1	NEVILL ST OCEAN PLAZA YORK RD	11	4.18 3.83 4.41	0.15 1.01 0.90	12.59	12.66	12.74	12.83	12.92	13.02	20.00	37%	
ACORNFIELD RD T1 / DICKINSONS T1 / HAMMOND RD T1 / KODAK T1	ACORNFIELD RD DICKINSONS HAMMOND RD KODAK	11	3.82 3.84 3.88 3.65	1.17 1.39 1.21 -0.60	16.00	16.08	16.19	16.30	16.42	16.55	30.00	37%	
KELCO T1 / NEWS INTERNATIONAL T1 / NEWS INTERNATIONAL T2 / PALCO T1 / SOUTHdene T1	KELCO NEWS INTERNATIONAL T1 NEWS INTERNATIONAL T2 PALCO SOUTHdene	11	4.06 3.72 4.05 0.00 3.90	1.27 1.25 1.23 0.00 0.83	16.67	16.76	16.87	16.98	17.10	17.24	30.00	37%	PALCO Transformer on Open Standby



<sup>(1)</sup> Group Maximum Demand increased by measured distribution generation to provide true system demand.

S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments
			KV	MW	MVA <sup>(1)</sup>	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023			
						MVA	MVA	MVA	MVA	MVA			
KIRKBY CENTRAL T1 / NORTHWOOD T1 / TOWER HILL (BANK LA) T1 / WESTVALE T1	KIRKBY CENTRAL	11	4.51	0.67	17.97	18.06	18.18	18.30	18.44	18.58	30.00	37%	
	NORTHWOOD		4.03	-0.63									
	TOWER HILL (BANK LA)		4.17	-0.22									
	WESTVALE		5.23	1.22									
OTIS ELEVATOR T1 / ST IVEL FOODS T1	OTIS ELEVATOR	11	2.99	-0.31	6.74	6.78	6.82	6.87	6.92	6.97	10.00	37%	
	ST IVEL FOODS		3.63	1.61									
	ASH RD		4.70	1.84									
ASH RD T1 / KELLOGGS (WREXHAM) T1 / KELLOGGS (WREXHAM) T2	KELLOGGS (WREXHAM) T1	11	4.61	1.77	15.62	15.70	15.80	15.91	16.03	16.15	20.00	37%	
	KELLOGGS (WREXHAM) T2		5.24	2.08									
	BERSHAM COLLIERY		2.09	0.19									
BERSHAM COLLIERY T1	BERSHAM COLLIERY	11	2.09	0.19	2.11	2.12	2.13	2.14	2.16	2.18	4.00	37%	
	BERSHAM RD		4.60	0.47									
	IND COOPE		4.28	0.34									
	RHYD BROUGHTON LA		4.29	1.31									
BERSHAM RD T1 / IND COOPE T1 / RHYD BROUGHTON LA T1 / TUTTLE ST T1	TUTTLE ST	11	4.22	-0.55	17.45	17.54	17.65	17.77	17.90	18.04	30.00	37%	
	BICC WREXHAM		3.59	0.93									
	MARCHWIEL		3.74	1.75									
	WIE CENTRAL		3.80	1.87									
BICC WREXHAM T1 / MARCHWIEL T1 / WIE CENTRAL T1	CHESTER ST (WREXHAM)	11	4.44	0.75	12.02	12.08	12.16	12.24	12.33	12.43	20.00	37%	
	EAGLES MEADOW		4.13	-0.34									
	RHOSNESNI		3.48	-0.33									
	WHITEGATE		4.19	1.30									
CHESTER ST (WREXHAM) T1 / EAGLES MEADOW T1 / RHOSNESNI T1 / WHITEGATE T1	CHOWLEY T1	11	7.61	0.89	7.67	7.70	7.76	7.81	7.86	7.93	4.70	37%	
	COEDPOETH T1	11	7.70	1.11	7.78	7.82	7.87	7.92	7.98	8.05	7.50	37%	
	DAVY WAY T1 / LLAY T1	11	4.11	0.61	8.19	8.23	8.28	8.34	8.40	8.46	10.00	37%	
	LLAY		3.77	1.56									
DEESIDE ALUMINIUM T1 / DUNLOP PLASTICS T1 / FIRESTONE T1 / TETRAPAK T1	DEESIDE ALUMINIUM	11	4.42	0.97	17.91	18.01	18.13	18.25	18.38	18.52	30.00	37%	
	DUNLOP PLASTICS		4.02	0.94									
	FIRESTONE		4.19	1.01									
	TETRAPAK		3.96	1.11									
GWERSYLLT T1	GWERSYLLT	11	6.11	0.32	6.11	6.14	6.19	6.23	6.27	6.32	7.50	37%	
MAELOR CREAMERY T1	MAELOR CREAMERY	11	2.95	0.96	3.10	3.12	3.14	3.16	3.18	3.21	7.50	37%	
PANDY T1 / PANDY T2	PANDY T1	11	4.43	0.43	8.98	9.02	9.08	9.14	9.21	9.28	10.00	37%	
	PANDY T2		4.50	0.41									
ROSSETT T1	ROSSETT	11	3.44	0.25	3.70	3.72	3.74	3.77	3.80	3.83	7.50	37%	
TARPORLEY T1	TARPORLEY	11	4.61	0.31	4.62	4.64	4.67	4.70	4.74	4.77	7.50	37%	
BASCHURCH T1	BASCHURCH	11	4.46	0.38	6.16	6.19	6.23	6.27	6.32	6.37	7.50	37%	
BRD T1	BRD	11	5.09	0.84	5.74	5.77	5.81	5.85	5.89	5.94	7.50	37%	
BUTTINGTON CROSS T1	BUTTINGTON CROSS	11	4.64	1.53	4.89	4.91	4.94	4.98	5.01	5.05	7.50	37%	
RAVEN SQUARE T1	RAVEN SQUARE	11	6.70	1.53	6.88	6.91	6.96	7.01	7.06	7.11	7.50	37%	
WELSHPOOL GRID T1	WELSHPOOL	11	4.15	0.91	4.30	4.32	4.35	4.38	4.41	4.44	7.50	37%	
CADBURYS KRONOSPAN T1 / CADBURYS KRONOSPAN T2	CADBURYS KRONOSPAN T1	11	3.60	2.46	7.10	7.13	7.18	7.23	7.28	7.34	10.00	37%	
	CADBURYS KRONOSPAN T2		3.09	-0.10									
CAERSWS T1	CAERSWS	11	2.96	0.44	3.28	3.30	3.32	3.34	3.37	3.39	7.50	37%	
MORDA T1	MORDA	11	3.77	0.03	5.16	5.18	5.22	5.25	5.29	5.33	7.50	37%	
CONEY GREEN T1 / OSWESTRY T2 / OSWESTRY T1	CONEY GREEN	11	4.27	-0.06	13.26	13.33	13.42	13.51	13.61	13.71	20.00	37%	
	OSWESTRY T1		4.43	0.97									
	OSWESTRY T2		4.43	0.95									
	CRIGGION RADIO STATION		1.68	0.33									
CRIGGION RADIO STATION T1	CRIGGION RADIO STATION	11	1.68	0.33	1.71	1.72	1.73	1.75	1.76	1.77	4.00	37%	
ELLESMERE T1 / MMB ELLESMERE T1	ELLESMERE	11	3.71	0.65	8.20	8.24	8.29	8.35	8.41	8.48	9.00	37%	
	MMB ELLESMERE		3.77	0.48									
	EXPRESS FOODS		0.06	0.08									
EXPRESS FOODS T1	EXPRESS FOODS	11	0.06	0.08	0.97	0.98	0.99	0.99	1.00	1.01	7.50	37%	
FORDEN T1	FORDEN	11	3.97	0.31	3.98	4.00	4.03	4.06	4.09	4.12	4.00	37%	
IFTON T1 / IFTON T2	IFTON T1	11	2.84	-0.61	6.24	6.27	6.31	6.35	6.40	6.45	10.00	37%	
	IFTON T2		3.38	1.09									
JOHNSTOWN T1	JOHNSTOWN	11	5.68	0.94	6.78	6.82	6.86	6.91	6.96	7.01	7.50	37%	
LEGACY LOCAL T1	LEGACY LOCAL	11	2.76	0.13	2.76	2.77	2.79	2.81	2.83	2.85	7.50	37%	
LIVERPOOL RD 33 T1	LIVERPOOL RD 33	11	5.16	0.69	5.24	5.27	5.30	5.34	5.37	5.42	11.00	37%	
WHITCHURCH T1	WHITCHURCH	11	6.54	0.97	6.61	6.65	6.69	6.74	6.79	6.84	11.00	37%	
YOCKINGS GATE T1	YOCKINGS GATE	11	3.94	0.46	4.02	4.04	4.07	4.10	4.13	4.16	10.00	37%	
LLANDDU QUARRY T1	LLANDDU QUARRY	11	3.12	0.81	3.22	3.24	3.26	3.28	3.31	3.33	4.00	37%	
LLANDRINIO T1	LLANDRINIO	11	3.23	0.33	3.32	3.33	3.36	3.38	3.40	3.43	4.00	37%	
LLANFAIR CAEREINIION T1	LLANFAIR CAEREINIION	11	3.54	0.75	4.21	4.23	4.26	4.29	4.32	4.35	7.50	37%	
LLANFYLLIN T1 / LLANFYLLIN T2	LLANFYLLIN T1	11	2.80	0.17	5.50	5.52	5.56	5.60	5.64	5.68	7.80	37%	
	LLANFYLLIN T2		2.68	0.29									
LLANGOLLEN T1	LLANGOLLEN	11	5.57	0.37	5.59	5.61	5.65	5.69	5.73	5.78	5.00	37%	
LLANIDLOES T1 / LLANIDLOES T2	LLANIDLOES T1	11	1.88	0.68	4.86	4.88	4.91	4.95	4.98	5.02	5.73	37%	
	LLANIDLOES T2		1.87	-0.32									
LLANSILIN T1	LLANSILIN	11	3.82	0.41	3.89	3.91	3.93	3.96	3.99	4.02	7.50	37%	
LLYNCLYS T1	LLYNCLYS	11	4.30	0.93	4.40	4.43	4.46	4.49	4.52	4.55	7.50	37%	
MAES-Y-CLAWDD T1	MAES-Y-CLAWDD	11	5.19	1.08	5.30	5.33	5.36	5.40	5.44	5.48	7.50	37%	
MILFORD T1	MILFORD	11	4.97	0.40	4.99	5.01	5.05	5.08	5.12	5.16	7.50	37%	
MOCHDRE T1	MOCHDRE	11	3.56	0.89	3.67	3.69	3.72	3.74	3.77	3.80	7.50	37%	
MONSANTO T1	MONSANTO	11	1.90	0.03	1.95	1.96	1.98	1.99	2.00	2.02	7.50	37%	
OVERTON T1	OVERTON	11	1.98	0.35	3.26	3.28	3.30	3.32	3.34	3.37	7.50	37%	
PREES T1	PREES	11	4.72	0.76	4.78	4.80	4.84	4.87	4.90	4.94	7.50	37%	
RUABON T1	RUABON	11	6.46	0.43	6.81	6.84	6.89	6.93	6.98	7.04	10.00	37%	
SHAWBURY T1	SHAWBURY	11	5.20	0.55	5.44	5.46	5.50	5.54	5.58	5.62	2.80	37%	
WEM EAST T1	WEM EAST	11	3.33	0.49	3.36	3.38	3.40	3.43	3.45	3.48	7.50	37%	
WEM T1	WEM	11	4.85	0.47	4.87	4.90	4.93	4.96	5.00	5.04	7.50	37%	
WEST FELTON T1	WEST FELTON	11	2.72	0.57	2.78	2.79	2.81	2.83	2.85	2.87	4.00	37%	

<sup>(1)</sup> Group Maximum Demand increased by measured distribution generation to provide true system demand.

S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments
						2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023			
			kV	MW	MVA <sup>(1)</sup>	MVA	MVA	MVA	MVA	MVA	MVA		
ATHOL ST T1 / CHISENHALE ST T1 / SANDHILLS LA T1	ATHOL ST	6.3	3.07	0.44	9.37	9.41	9.48	9.54	9.61	9.69	17.40	37%	
	CHISENHALE ST		2.74	-0.39									
	SANDHILLS LA		3.47	1.24									
BIBBYS T1 / INLAND REVENUE OFFICES T1 / REGENT RD T1	BIBBYS	6.3	4.51	3.07	12.60	12.67	12.75	12.84	12.93	13.03	17.50	37%	
	INLAND REVENUE OFFICES		3.77	0.74									
	REGENT RD		3.51	0.11									
BROOK ST T1 / KINGSWAY TUNNEL T1 / NWWA SANDON DOCK T1 / NWWA SANDON DOCK T2	BROOK ST	11	4.28	1.30	14.82	14.89	14.99	15.09	15.20	15.32	30.00	37%	
	KINGSWAY TUNNEL		0.00	0.00									
	NWWA SANDON DOCK T1		4.53	1.28									
BUCKINGHAM ST T1 / EVERTON RD T1 / SUBURBAN RD T1	NWWA SANDON DOCK T2	6.3	4.24	0.25	8.78	8.82	8.88	8.94	9.01	9.08	17.50	37%	
	BUCKINGHAM ST		4.38	-0.08									
	EVERTON RD		0.00	0.00									
CLUBMOOR T1 / DUNLOPS WALTON T1 / WALTON T2	SUBURBAN RD T1	6.3	4.37	0.79	8.13	8.17	8.22	8.28	8.34	8.40	17.50	37%	
	CLUBMOOR T1		2.60	0.02									
	DUNLOPS WALTON		2.90	0.50									
CLUBMOOR T2 / LISTER DV A T1 / SUBURBAN RD T2	WALTON T1	6.3	3.35	0.58	12.74	12.80	12.89	12.97	13.07	13.17	17.50	37%	
	CLUBMOOR T2		4.39	0.55									
	LISTER DV A T1		4.14	0.07									
DELAMORE ST T1 / KIRKDALE T1 / WALTON T1	SUBURBAN RD T2	6.3	4.14	0.57	10.71	10.76	10.83	10.91	10.99	11.07	17.40	37%	
	DELAMORE ST		3.71	0.66									
	KIRKDALE		3.55	0.22									
EVERTON BROW T1 / GARDNERS ROW T1 / SHEIL PK T1	WALTON T2	6.3	2.60	0.12	11.14	11.20	11.28	11.35	11.43	11.52	17.50	37%	
	EVERTON BROW		3.85	0.78									
	GARDNERS ROW		3.30	-0.86									
MDHB CANADA DOCK	SHEIL PK	6.3	3.97	0.82	-	-	-	-	-	-	-	-	Demand data redacted
	MDHB CANADA DOCK T1		-	-									
	MDHB CANADA DOCK T2		-	-									
NORTON SCRAP T1 / NORTON SCRAP T2	NORTON SCRAP T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	NORTON SCRAP T2		-	-									
	NORTON SCRAP T2		-	-									
BIXTETH ST T1 / LITTLEWOODS T1	BIXTETH ST	6.3	3.24	0.22	6.57	6.60	6.65	6.69	6.74	6.79	8.70	37%	
	LITTLEWOODS		3.31	0.29									
	BOLTON ST		4.17	0.64									
BOLTON ST T1 / GREEK ST T1 / HPO COPPERAS HILL T1 / OLDHAM PLACE T1	GREEK ST	11	4.06	-0.14	16.63	16.71	16.83	16.94	17.06	17.20	20.00	37%	
	HPO COPPERAS HILL		4.17	0.47									
	OLDHAM PLACE T1		4.15	0.71									
CABLE ST T1 / GRADWELL ST T2 / OLDHAM PLACE T2	CABLE ST T1	11	4.81	0.69	14.67	14.74	14.84	14.94	15.05	15.17	20.00	37%	
	GRADWELL ST T2		4.74	-0.10									
	OLDHAM PLACE T2		5.05	0.88									
CABLE ST T2 / CROWN COURTS T1 / GRADWELL ST T1	CABLE ST T2	11	4.38	0.73	13.11	13.18	13.27	13.35	13.45	13.56	20.00	37%	
	CROWN COURTS T1		4.27	-0.17									
	GRADWELL ST T1		4.40	0.74									
DAILY POST & ECHO T1 / DAILY POST & ECHO T2	DAILY POST & ECHO T1	6.3	2.16	1.43	4.17	4.19	4.22	4.25	4.28	4.31	8.70	37%	
	DAILY POST & ECHO T2		2.00	-1.06									
	HARRINGTON ST T1		3.22	0.58									
HARRINGTON ST T1 / PARADISE ST T1	PARADISE ST T1	6.3	2.90	0.29	6.18	6.21	6.25	6.29	6.34	6.39	8.70	37%	
	HARRINGTON ST T2		3.42	0.69									
	HARRINGTON ST T2		3.42	0.69									
HARRINGTON ST T2 / HIGHFIELD ST T1	HIGHFIELD ST T1	6.3	3.36	0.12	6.83	6.86	6.91	6.95	7.01	7.06	8.70	37%	
	HARRINGTON ST T3		2.22	-0.26									
	LIME ST T1		2.41	0.46									
HARRINGTON ST T3 / LIME ST T1	HIGHFIELD ST T2	11	3.45	0.81	10.43	10.48	10.55	10.62	10.70	10.78	20.00	37%	
	LIME ST T2		3.53	1.64									
	OLD HAYMARKET		3.30	-0.71									
HIGHFIELD ST T2 / LIME ST T2 / OLD HAYMARKET T1	MANN ISLAND T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	MANN ISLAND T2		-	-									
	MANN ISLAND T2		-	-									
MANN ISLAND T1 / MANN ISLAND T2	ROYAL INSURANCE (NEW QUAY) T1	6.3	1.98	0.23	4.03	4.05	4.08	4.11	4.14	4.17	8.70	37%	
	ROYAL INSURANCE (NEW QUAY) T2		2.03	0.22									
	ROYAL INSURANCE (NEW QUAY) T2		2.03	0.22									
ROYAL INSURANCE (NEW QUAY) T1 / ROYAL INSURANCE (NEW QUAY) T2	ROYAL LIVERPOOL HOSP T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	ROYAL LIVERPOOL HOSP T2		-	-									
	ROYAL LIVERPOOL HOSP T2		-	-									
AIGBURTH VALE T1 / IVY AVE T1 / MATHER AVE T1 / MOSSLEY HILL T1 / WAVERTREE T1	AIGBURTH VALE	11	4.81	0.10	25.63	25.76	25.93	26.10	26.30	26.50	37.50	37%	
	IVY AVE		4.93	0.71									
	MATHER AVE		5.41	1.03									
AIRPORT T1 / ALDERWOOD AVE (CROYDE RD) T1 / HAREFIELD RD T1 / METAL BOX (SPEKE) T1	MOSSLEY HILL	11	4.68	-1.19	10.74	10.80	10.87	10.94	11.02	11.11	30.00	37%	
	WAVERTREE		5.76	0.76									
	AIRPORT		2.56	0.20									
AIRPORT T1 / ALDERWOOD AVE (CROYDE RD) T1 / HAREFIELD RD T1 / METAL BOX (SPEKE) T1	ALDERWOOD AVE (CROYDE RD)	11	2.82	-0.22	15.57	15.64	15.75	15.85	15.97	16.10	37.50	37%	
	HAREFIELD RD		2.50	-0.74									
	METAL BOX (SPEKE)		2.86	1.05									
ALLERTON T1 / ECP WEST-BANKS RD T1 / GARSTON T1 / WEAVER IND EST T1 / YEW TREE RD T1	ALLERTON	11	2.90	-0.25	10.21	10.26	10.33	10.40	10.48	10.56	30.00	37%	ESTUARY COMMERCE PK on open standby at time of print.
	ECP WEST-BANKS RD		3.15	0.43									
	GARSTON		3.37	0.57									
ESTUARY COMMERCE PK T1 / LEEWARD DR T1 / LEEWARD DR T2 / SPEKE HALL RD T1 / SPEKE SKY PK T1	WEAVER IND EST	11	3.79	2.15	10.21	10.26	10.33	10.40	10.48	10.56	30.00	37%	ESTUARY COMMERCE PK on open standby at time of print.
	YEW TREE RD		2.33	-1.96									
	ESTUARY COMMERCE PK		0.00	0.00									
ALBERT DOCK T1 / KINGS DOCK T1 / KINGS DOCK T2 / WAPPING T1	LEEWARD DR T1	11	2.31	0.37	7.19	7.23	7.28	7.32	7.38	7.44	30.00	37%	
	LEEWARD DR T2		2.35	0.37									
	SPEKE HALL RD		2.91	1.62									
ALBERT DOCK T1 / KINGS DOCK T1 / KINGS DOCK T2 / WAPPING T1	SPEKE SKY PK	11	2.26	0.41	7.19	7.23	7.28	7.32	7.38	7.44	30.00	37%	
	ALBERT DOCK		1.74	0.41									
	KINGS DOCK T1		1.85	0.41									
ALBERT DOCK T1 / KINGS DOCK T1 / KINGS DOCK T2 / WAPPING T1	KINGS DOCK T2	11	1.86	0.40	7.19	7.23	7.28	7.32	7.38	7.44	30.00	37%	
	WAPPING		1.71	-0.50									
	KINGS DOCK T2		1.71	-0.50									



<sup>(1)</sup> Group Maximum Demand increased by measured distribution generation to provide true system demand

S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments
			MW	MVA <sup>(1)</sup>	MVA <sup>(1)</sup>	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023			
						MVA	MVA	MVA	MVA	MVA			
BEAUMONT ST T1 / DINGLE VALE T1 / LARK LA T1 / MDHB BRUNSWICK DOCK T1	BEAUMONT ST	11	6.34	1.17	24.72	24.85	25.02	25.18	25.37	25.57	30.00	37%	
	DINGLE VALE		6.15	0.68									
	LARK LA		6.42	0.80									
	MDHB BRUNSWICK DOCK		5.72	-0.38									
ARUNDEL T1 / GROVE PK T1 / WAVERTREE VALE T1	ARUNDEL	6.3	4.14	0.25	11.82	11.88	11.96	12.04	12.13	12.23	17.50	37%	
	GROVE PK		3.39	-0.54									
	WAVERTREE VALE		4.26	1.20									
BEECH ST T1 / LISTER DV A T2	BEECH ST	6.3	2.03	-0.24	4.48	4.50	4.53	4.56	4.59	4.63	8.70	37%	
	LISTER DV B T2		2.44	0.48									
BLUNDELL ST T1 / ST JAMES T1 / ROPEWALKS	BLUNDELL ST	11	4.41	-0.22	9.15	9.19	9.25	9.32	9.38	9.46	8.75	37%	ST JAMES T1 on open standby at time of print.
	ROPEWALKS		4.71	0.85									
	ST JAMES T1		0.00	0.00									
DINGLE T1 / GRANBY T1 / ST JAMES T2	DINGLE	6.3	3.62	0.40	10.83	10.88	10.95	11.03	11.11	11.19	17.50	37%	
	GRANBY		3.79	0.41									
	ST JAMES T2		3.39	-0.09									
EDGE HILL T1 / LIVERPOOL UNIVERSITY T1 / LIVERPOOL UNIVERSITY T2 / LIVERPOOL UNIVERSITY T3	LIVERPOOL UNIVERSITY T1	11	4.51	1.64	16.75	16.84	16.95	17.06	17.19	17.32	30.00	37%	
	LIVERPOOL UNIVERSITY T2		4.02	-0.31									
	LIVERPOOL UNIVERSITY T3		4.10	0.71									
			4.05	-0.44									
EDGE LA (TAPLEY PLACE) T1 / LISTER DV B T3 / MILL LA (WAVERTREE) T1 / PLESSEY (EDGE LA) T1 / STONEYCROFT T1	EDGE LA (TAPLEY PLACE)	11	4.52	0.07	23.65	23.77	23.93	24.08	24.26	24.45	37.50	37%	
	LISTER DV B T3		4.85	0.97									
	MILL LA (WAVERTREE)		4.56	0.10									
	PLESSEY (EDGE LA)		4.83	0.19									
	STONEYCROFT		4.80	0.78									
			2.71	0.00									
WAVERTREE BOULEVARD T1 / WAVERTREE BOULEVARD T2	WAVERTREE BOULEVARD T1	11	-0.22	0.00	2.54	2.55	2.57	2.58	2.60	2.62	7.50	37%	
	WAVERTREE BOULEVARD T2		3.49	-0.40									
BANGOR HOSP T1 / EITHINOG T1 / BANGOR UNIVERSITY T1 / HIRAEI T1	BANGOR HOSP	11	3.70	0.15	16.05	16.13	16.24	16.35	16.47	16.60	30.00	37%	
	EITHINOG		4.18	0.32									
	BANGOR UNIVERSITY		4.65	1.07									
	HIRAEI		1.43	-0.17									
			1.51	0.27									
MINFFORDD T1 / PARC BRYN CEGIN T1 / PARC BRYN CEGIN T2	PARC BRYN CEGIN T1	11	1.47	0.26	4.43	4.45	4.48	4.51	4.55	4.58	20.00	37%	
	PARC BRYN CEGIN T2												
BETHESDA T1	BETHESDA	11	4.76	0.32	5.23	5.25	5.29	5.32	5.36	5.40	7.50	37%	
CAERNARFON T1	CAERNARFON	11	5.86	0.56	5.89	5.92	5.96	5.99	6.04	6.09	7.50	37%	
FERODO T1	FERODO	11	3.22	0.28	3.23	3.25	3.27	3.29	3.32	3.34	7.50	37%	
LLANBERIS T1	LLANBERIS	11	3.07	0.38	3.58	3.60	3.62	3.65	3.67	3.70	5.00	37%	
PARC MENAI T1	PARC MENAI	11	2.00	0.13	2.00	2.01	2.03	2.04	2.05	2.07	7.50	37%	
PEBLIC MILLS T1	PEBLIC MILLS	11	1.31	0.03	1.31	1.32	1.33	1.34	1.35	1.36	7.50	37%	
PEN-Y-GROES T1	PEN-Y-GROES	11	3.06	0.33	3.56	3.58	3.60	3.63	3.65	3.68	5.20	37%	
ST HELENS RD T1	ST HELENS RD	11	4.17	0.64	4.56	4.59	4.62	4.65	4.68	4.72	7.50	37%	
WAENFAWR T1	WAENFAWR	11	3.77	0.22	3.78	3.80	3.82	3.85	3.88	3.91	7.50	37%	
BETWS-Y-COED T1	BETWS-Y-COED	11	3.65	0.29	3.88	3.90	3.92	3.95	3.98	4.01	7.50	37%	
COLWYN BAY T1 / COLWYN BAY T2 / RHOS-ON-SEA T1	COLWYN BAY T1	11	2.60	0.61	7.76	7.80	7.85	7.90	7.96	8.02	18.00	37%	
	COLWYN BAY T2		2.50	-0.36									
	RHOS-ON-SEA		2.61	0.67									
			4.31	-0.16									
CONWY T1 / DEGANWY T1 / LLANDUDNO JUNCTION T1	DEGANWY	11	4.53	0.53	13.55	13.62	13.71	13.80	13.90	14.01	20.00	37%	
	LLANDUDNO JUNCTION		4.69	0.35									
DOLGARROG GRID T1 / DOLGARROG GRID T2	DOLGARROG T1	11	2.75	0.30	3.47	3.49	3.51	3.53	3.56	3.59	7.50	37%	
	DOLGARROG T2		0.65	0.02									
IVY ST T1 / LLYSFAEN RD T1 / OLD MILL T1	IVY ST	11	4.74	-0.39	14.09	14.16	14.25	14.35	14.45	14.57	20.00	37%	
	LLYSFAEN RD		4.66	0.24									
	OLD MILL		4.66	1.04									
LLANDUDNO T1 / LLANDUDNO T2	LLANDUDNO T1	11	3.05	-0.26	6.43	6.46	6.50	6.55	6.59	6.65	10.00	37%	
	LLANDUDNO T2		3.37	0.56									
LLANFAIRFECHAN T1	LLANFAIRFECHAN	11	2.54	0.04	2.54	2.55	2.57	2.59	2.61	2.63	7.50	37%	
LLANRWST T1	LLANRWST	11	3.05	0.26	3.31	3.32	3.35	3.37	3.39	3.42	7.50	37%	
NANT-Y-GAMAR T1	NANT-Y-GAMAR	11	6.49	0.53	6.51	6.54	6.59	6.63	6.68	6.73	7.50	37%	
PENMAENMAWR T1	PENMAENMAWR	11	2.79	-0.12	2.79	2.81	2.83	2.85	2.87	2.89	7.50	37%	
REFORM ST T1	REFORM ST	11	6.59	0.98	6.66	6.69	6.74	6.78	6.83	6.89	7.50	37%	
RHYD-Y-FOEL T1	RHYD-Y-FOEL	11	1.43	0.23	2.82	2.83	2.85	2.87	2.89	2.91	7.50	37%	
BRITISH OXYGEN T1 / WINDLEHURST T1	BRITISH OXYGEN	6.6	3.57	0.80	6.84	6.87	6.92	6.96	7.02	7.07	9.10	37%	
	WINDLEHURST T1		3.17	0.35									
CARBORUNDUM T1 / HOUGHTONS LA T1 / RAINFORD T1 / WINDLEHURST T2	CARBORUNDUM	11	5.50	0.96	19.45	19.55	19.68	19.81	19.96	20.11	30.00	37%	
	HOUGHTONS LA		3.83	0.07									
	RAINFORD		5.13	0.56									
	WINDLEHURST T2		4.61	-0.39									
			3.77	0.28									
CARLTON ST T1 / CARLTON ST T2 / CHALON WAY T2	CARLTON ST T1	6.6	3.07	0.07	11.40	11.45	11.53	11.61	11.69	11.78	18.20	37%	
	CARLTON ST T2		4.47	0.99									
	CHALON WAY T2		4.07	0.67									
			0.00	0.00									
CHALON WAY T1 / TECHNOLOGY CAMPUS T1 / WOODVILLE ST T1	CHALON WAY T1	6.6	4.01	0.32	8.13	8.17	8.23	8.28	8.34	8.41	9.10	37%	TECHNOLOGY CAMPUS under construction
	TECHNOLOGY CAMPUS												
	WOODVILLE ST												
PILKINGTONS PLATE	PILKINGTONS PLATE T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	PILKINGTONS PLATE T2												
DESOTO RD T1 / MERSEY BRIDGE T1 / PITT ST T1	DESOTO RD	11	1.30	0.08	5.34	5.37	5.40	5.44	5.48	5.52	20.00	37%	
	MERSEY BRIDGE		2.58	-1.16									
	PITT ST		1.28	-0.29									
APPLETON T1 / HORNSBRIDGE T1 / LUGSDALE T2	APPLETON	11	7.00	3.08	18.79	18.88	19.01	19.14	19.28	19.43	20.00	37%	
	HORNSBRIDGE		5.65	-1.19									
	LUGSDALE T2		6.07	-0.27									

<sup>(1)</sup> Group Maximum Demand increased by measured distribution generation to provide true system demand

S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments
			MW	MVA <sup>(1)</sup>	MVA <sup>(1)</sup>	2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023			
						MVA	MVA	MVA	MVA	MVA			
CLOCKFACE T1 / GEC ST HELENS T1 / HILLS MOSS T1 / NCB SUTTON MANOR T2	CLOCKFACE	11	4.09	1.40	14.72	14.80	14.90	15.00	15.11	15.23	30.00	37%	
	GEC ST HELENS		3.61	0.42									
	HILLS MOSS		4.01	0.41									
	NCB SUTTON MANOR		2.90	-0.45									
DITTON T1 / GAVIN RD T1 / HOUGH GREEN T1 / RTZ T1	DITTON	11	4.50	0.32	18.88	18.98	19.10	19.23	19.37	19.52	30.00	37%	
	GAVIN RD		5.20	-0.43									
	HOUGH GREEN		4.11	0.16									
	RTZ		5.08	0.31									
HOLT LA (WARRINGTON RD) T1 / PRESCOT GRID T1 / RAINHILL LOCAL T1 / WHISTON HOSP T1	HOLT LA (WARRINGTON RD)	11	4.22	-0.32	16.99	17.08	17.19	17.30	17.43	17.57	30.00	37%	
	PRESCOT		4.15	-0.43									
	RAINHILL LOCAL		4.25	0.66									
	WHISTON HOSP		4.36	0.79									
LUGSDALE T1 / PILK SULLIVAN T1 / PILK SULLIVAN T2 / USAC T1	LUGSDALE T1	11	3.27	0.04	14.52	14.60	14.70	14.79	14.90	15.02	30.00	37%	
	PILK SULLIVAN T1		3.95	1.26									
	PILK SULLIVAN T2		3.48	0.27									
	USAC		3.61	0.94									
NWW SHELL GREEN T1 / NWW SHELL GREEN T2	NWW SHELL GREEN T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	NWW SHELL GREEN T2		-	-									
PETER SPENCE T1 / PETER SPENCE T2	PETER SPENCE T1	6.6	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	PETER SPENCE T2		-	-									
ALMATEX T1 / DELTA METALS T1 / WATERY LA T2	ALMATEX	6.6	3.36	0.71	10.06	10.11	10.18	10.25	10.32	10.40	18.20	37%	
	DELTA METALS		3.96	2.03									
	WATERY LA T2		2.62	-1.22									
BRITISH SIDAC T1 / SHERDLEY RD T1 / ST HELENS LINKWAY T1 / WATERY LA T1	BRITISH SIDAC	6.6	2.92	0.65	9.75	9.80	9.86	9.93	10.00	10.08	18.20	37%	ST HELENS LINKWAY under construction
	SHERDLEY RD		4.46	2.78									
	ST HELENS LINKWAY		0.00	0.00									
	WATERY LA T1		2.26	-2.00									
PILKINGTONS GREENGATE WRKS T1 / PILKINGTONS GREENGATE WRKS T2	PILKINGTONS GREENGATE WRKS T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	PILKINGTONS GREENGATE WRKS T2		-	-									
PILKINGTONS HO T1 / SOMERFIELD DISTRIBUTION T1 / RAVENHEAD RETAIL PARK T1	PILKINGTONS HO	11	4.56	0.23	15.20	15.27	15.38	15.48	15.59	15.71	20.00	37%	
	RAVENHEAD RETAIL PK		4.67	-0.64									
	SOMERFIELD DISTRIBUTION		5.32	1.33									
BEDBURN DV T1 / BLUEBELL LA T1 / BROOKBRIDGE T1 / ECCLESTON T1	BEDBURN DV	11	4.83	-0.23	20.39	20.50	20.63	20.77	20.92	21.09	30.00	37%	
	BLUEBELL LA		5.41	1.65									
	BROOKBRIDGE		5.10	-0.96									
	ECCLESTON		5.03	0.30									
BICC HUYTON QUARRY T1 / TARBOCK T1 / WHISTON T1	BICC HUYTON QUARRY	11	3.36	0.33	9.91	9.96	10.03	10.09	10.17	10.25	20.00	37%	
	TARBOCK		3.19	0.43									
	WHISTON		3.30	0.31									
BROADGREEN T1 / CROXTETH T1 / EAST PRESCOT RD (FINCH LA) T1 / KNOTTY ASH T1 / LEYFIELD RD T1	BROADGREEN	11	5.21	-0.22	26.64	26.78	26.96	27.13	27.33	27.55	37.50	37%	
	CROXTETH		4.86	-0.72									
	EAST PRESCOT RD (FINCH LA)		5.54	0.42									
	KNOTTY ASH		5.47	0.99									
	LEYFIELD RD		5.18	0.70									
CHILDWALL T1 / CHILDWALL FIVEWAYS T1 / LYNDENE RD T1 / MIDDLEMASS HEY T1 / NAYLORS RD T1	CHILDWALL FIVEWAYS	11	4.88	-0.44	25.32	25.45	25.62	25.79	25.98	26.18	37.50	37%	
	CHILDWALL		4.84	-0.41									
	LYNDENE RD		5.37	2.05									
	MIDDLEMASS HEY		4.93	0.05									
	NAYLORS RD		5.27	0.06									
HUYTON HEY RD T1 / WILSON RD T1	HUYTON HEY RD	11	4.20	0.98	7.83	7.86	7.92	7.97	8.03	8.09	10.00	37%	
	WILSON RD		3.61	-0.48									
KNOWSLEY T1 / MARLED HEY T1	KNOWSLEY	11	2.56	0.72	4.71	4.73	4.76	4.79	4.83	4.87	10.00	37%	
	MARLED HEY		2.14	-0.75									
CHIRON SHAW RD T1 / CHIRON SHAW RD T2	CHIRON SHAW RD T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	CHIRON SHAW RD T2		-	-									
CONIX T1 / CONIX T2 / MEDEVA T1	CONIX T1	11	2.40	0.65	7.70	7.74	7.79	7.85	7.90	7.97	20.00	37%	
	CONIX T2		2.35	1.62									
	MEDEVA		2.37	0.65									
HUNTS CROSS T1 / KENTON RD T1 / WOODEND AVE T1 / WOOLTON T1	HUNTS CROSS	11	0.00	0.00	20.91	21.02	21.16	21.30	21.45	21.62	30.00	37%	
	KENTON RD		6.52	-0.10									
	WOODEND AVE T1		6.51	0.71									
	WOOLTON		6.24	0.47									
ABERYDYFI T1	ABERYDYFI	11	3.71	0.17	3.72	3.74	3.76	3.79	3.82	3.85	7.50	37%	
	ABERYDYFI		5.03	0.68									
	ABERYDYFI		5.06	1.36									
	ABERYDYFI		4.70	0.03									
	ABERYDYFI		4.17	-1.15									
ABERYDYFI T1 / NORTH RD T1 / PARC-Y-LLYN T1 / PARC-Y-LLYN T2 / U C WALES T1	ABERYDYFI	11	4.67	1.25	24.29	24.41	24.57	24.73	24.92	25.11	37.50	37%	
	ABERYDYFI		5.03	0.68									
	ABERYDYFI		5.06	1.36									
	ABERYDYFI		4.70	0.03									
	ABERYDYFI		4.17	-1.15									
BOW ST T1	BOW ST	11	5.48	0.40	6.05	6.08	6.12	6.16	6.21	6.26	7.50	37%	
FAIRBOURNE T1	FAIRBOURNE	11	2.85	0.10	2.86	2.87	2.89	2.91	2.93	2.96	7.50	37%	
LLANILAR T1	LLANILAR	11	1.13	0.22	2.07	2.08	2.10	2.11	2.13	2.14	3.00	37%	
MACHYNLLETH T1	MACHYNLLETH T1	11	3.16	0.18	3.25	3.27	3.29	3.31	3.34	3.37	4.00	37%	
RHYDLYDAN T2	RHYDLYDAN	11	0.66	0.11	0.80	0.80	0.81	0.81	0.82	0.83	4.00	37%	
TYWYN T1	TYWYN	11	3.77	0.24	4.09	4.12	4.14	4.17	4.20	4.23	7.50	37%	
ABERSOCH T1	ABERSOCH	11	3.76	0.27	3.77	3.78	3.81	3.84	3.86	3.89	4.00	37%	
BALA T1	BALA	11	3.55	0.34	3.74	3.76	3.79	3.81	3.84	3.87	7.50	37%	
BARMOUTH T1	BARMOUTH	11	3.10	0.39	3.34	3.35	3.37	3.40	3.42	3.45	7.50	37%	
BLAENAU FFESTINIOG T1	BLAENAU FFESTINIOG	11	2.01	0.40	2.25	2.26	2.27	2.29	2.30	2.32	4.00	37%	
BLAENAU PLASTICS T1 / BLAENAU PLASTICS T2	BLAENAU PLASTICS T1	11	0.95	-0.25	2.05	2.06	2.07	2.09	2.10	2.12	10.00	37%	
	BLAENAU PLASTICS T2		1.03	-0.27									
BOTWNNOG T1	BOTWNNOG	11	2.99	0.24	3.03	3.04	3.06	3.08	3.10	3.13	7.50	37%	
BUTLINS T1	BUTLINS	11	3.14	0.77	3.52	3.53	3.56	3.58	3.61	3.64	7.50	37%	



<sup>(1)</sup> Group Maximum Demand increased by measured distribution generation to provide true system demand

S/S Group	S/S Name	Voltage Level	Maximum Load of Previous Year (2017/2018)			Forecast Load Information					Group Firm Capacity	Minimum load scaling factor %	Comments
						2018/ 2019	2019/ 2020	2020/ 2021	2021/ 2022	2022/ 2023			
			kV	MW	MVA <sup>(1)</sup>	MVA	MVA	MVA	MVA	MVA			
CARMEL T1	CARMEL	11	2.28	0.19	2.49	2.50	2.52	2.54	2.56	2.58	4.00	37%	
CEMMAES RD T1	CEMMAES RD	11	2.01	0.17	2.18	2.19	2.20	2.22	2.23	2.25	4.00	37%	
CORWEN T1	CORWEN	11	3.54	0.75	4.32	4.34	4.37	4.40	4.43	4.47	7.50	37%	
CWM DYLI T1	CWM DYLI	11	0.92	-0.09	1.22	1.22	1.23	1.24	1.25	1.26	4.00	37%	
DOLGELLAU T1	DOLGELLAU	11	4.23	-0.03	4.24	4.26	4.29	4.32	4.35	4.39	7.50	37%	
DYFFRYN ARDUDWY T1	DYFFRYN ARDUDWY	11	2.76	0.19	2.76	2.78	2.80	2.81	2.84	2.86	7.50	37%	
EDERN T1	EDERN	11	3.35	0.39	3.38	3.39	3.41	3.44	3.46	3.49	4.00	37%	
FOUR CROSSES T1	FOUR CROSSES	11	2.11	0.50	2.32	2.33	2.35	2.36	2.38	2.40	4.00	37%	
GLAN-YR-AFON T1	GLAN-YR-AFON	11	-3.20	1.34	2.71	2.73	2.74	2.76	2.78	2.81	7.50	37%	
HARLECH T1	HARLECH	11	2.89	0.09	2.94	2.96	2.98	3.00	3.02	3.04	7.50	37%	
LLANBEDROG T1	LLANBEDROG	11	3.27	0.18	3.28	3.29	3.32	3.34	3.36	3.39	4.00	37%	
LLANFROTHEN T1	LLANFROTHEN	11	2.96	0.26	2.99	3.00	3.02	3.04	3.07	3.09	7.50	37%	
MACHYNLLETH T2	MACHYNLLETH T2	11	1.57	0.19	1.94	1.95	1.97	1.98	1.99	2.01	4.00	37%	
MAENTWROG T1	MAENTWROG	11	1.97	0.09	2.10	2.11	2.12	2.14	2.15	2.17	7.50	37%	
MANOD T1	MANOD	11	0.92	0.10	1.68	1.69	1.70	1.71	1.73	1.74	4.00	37%	
PORTHMADOG T1 / PORTHMADOG T2	PORTHMADOG T1	11	2.52	0.31	4.98	5.01	5.04	5.07	5.11	5.15	10.00	37%	
	PORTHMADOG T2		2.43	0.25									
PWLLHELI T1	PWLLHELI	11	4.54	0.37	4.55	4.57	4.61	4.64	4.67	4.71	7.50	37%	
RHOSLAN T1	RHOSLAN	11	3.57	0.50	3.63	3.64	3.67	3.69	3.72	3.75	7.50	37%	
RIVALS T1	RIVALS	11	1.57	0.12	1.57	1.58	1.59	1.60	1.61	1.62	4.00	37%	
TRYWERYN T1	TRYWERYN	11	-2.75	1.59	2.09	2.10	2.11	2.13	2.14	2.16	4.00	37%	
ALPOCO T1	ALPOCO	11	2.30	0.61	2.37	2.39	2.40	2.42	2.44	2.45	7.50	37%	
AMLWCH T1 / AMLWCH T2	AMLWCH T1	11	No Data	No Data	4.64	4.67	4.70	4.73	4.76	4.80	10.00	37%	
	AMLWCH T2		No Data	No Data									
BEAUMARIS T1	BEAUMARIS	11	4.02	0.35	4.04	4.06	4.08	4.11	4.14	4.17	3.28	37%	
CAERGEILIOG T1	CAERGEILIOG	11	5.10	0.42	5.12	5.14	5.18	5.21	5.25	5.29	7.50	37%	
CEMAES BAY T1	CEMAES BAY	11	1.73	0.04	2.28	2.29	2.31	2.33	2.34	2.36	4.00	37%	
GAERWEN VIEW T1	GAERWEN VIEW	11	1.84	0.31	1.87	1.88	1.89	1.90	1.92	1.93	7.50	37%	
LLAINGOCH T1	HOLYHEAD	11	2.92	0.38	3.63	3.65	3.67	3.70	3.73	3.75	7.50	37%	
HOLYHEAD T1	LLAINGOCH	11	3.62	0.27	2.94	2.96	2.98	3.00	3.02	3.04	7.50	37%	
LLANDDEUSANT T1	LLANDDEUSANT	11	3.49	0.32	3.99	4.02	4.04	4.07	4.10	4.13	7.50	37%	
LLANDEGFAN T1	LLANDEGFAN	11	2.32	0.08	2.32	2.33	2.35	2.36	2.38	2.40	7.50	37%	
LLANDYFRYDOG T1	LLANDYFRYDOG	11	3.47	0.37	3.54	3.56	3.58	3.60	3.63	3.66	7.50	37%	
LLANFAELOG T1	LLANFAELOG	11	3.27	0.34	3.29	3.31	3.33	3.35	3.37	3.40	4.00	37%	
LLANFAIR PG T1	LLANFAIR PG	11	4.30	0.54	4.33	4.35	4.38	4.41	4.44	4.48	7.50	37%	
LLANGAFFO T1	LLANGAFFO	11	4.30	0.46	4.33	4.35	4.38	4.41	4.44	4.47	7.50	37%	
LLANGEFNI IND EST T1 / LLANGEFNI IND EST T2	LLANGEFNI IND EST T1	11	2.70	1.21	6.17	6.20	6.24	6.28	6.33	6.38	10.00	37%	
	LLANGEFNI IND EST T2		2.89	1.39									
LLANGEFNI T1	LLANGEFNI	11	4.06	0.53	4.18	4.20	4.22	4.25	4.28	4.32	7.50	37%	
MONA T1	MONA	11	1.28	0.14	2.69	2.70	2.72	2.74	2.76	2.78	7.50	37%	
PARC CYBI T1 / PARC CYBI T2	PARC CYBI T1	11	1.33	0.14	2.66	2.67	2.69	2.71	2.73	2.75	10.00	37%	
	PARC CYBI T2		1.32	0.15									
PENTRAETH T1	PENTRAETH	11	4.18	0.35	4.20	4.22	4.25	4.27	4.30	4.34	7.50	37%	
RAF VALLEY T1	RAF VALLEY	11	1.91	0.12	1.91	1.92	1.93	1.95	1.96	1.98	7.50	37%	
VAUXHALLS	VAUXHALLS T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	VAUXHALLS T3		-	-									
	VAUXHALLS T4		-	-									
	VAUXHALLS T5		-	-									
BR STEELWORKS	BR STEELWORKS T1	6.6	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	BR STEELWORKS T2		-	-									
BRITISH GYPSUM T1 T2 T3 T4	BRITISH GYPSUM T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	BRITISH GYPSUM T2		-	-									
	BRITISH GYPSUM T3		-	-									
	BRITISH GYPSUM T4		-	-									
YORKSHIRE IMPERIAL METALS	YORKSHIRE IMPERIAL METALS T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	YORKSHIRE IMPERIAL METALS T2		-	-									
FIBREGLASS	FIBREGLASS	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
BURTONHEAD ROAD (WATSON STREET T1 T2)	BURTONHEAD ROAD (WATSON STREET T1)	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	BURTONHEAD ROAD (WATSON STREET T2)		-	-									
DISTA PRODUCTS	DISTA PRODUCTS T1	11	-	-	-	-	-	-	-	-	-	-	Demand data redacted
	DISTA PRODUCTS T2		-	-									
	DISTA PRODUCTS T3		-	-									
	DISTA PRODUCTS T4		-	-									



These **Scottish Power Contacts** may be of use to you:-

**Customer Connections** - Connections to SP Energy Networks (Manweb Area) electricity network

**Diversions** - Diversions and protection of SP Energy Networks (Manweb Area) overhead lines & underground cables.

**For either of the above services:**

**Tel:** 0845 270 0783

**e-mail:** [GettingConnected@scottishpower.com](mailto:GettingConnected@scottishpower.com)

**Post:** SP Energy Networks, Customer Connections, PO Box 290, Liverpool, L13 7WX

**Disconnections** - Contact your electricity supplier for disconnection of electrical services. **If your supplier is Scottish Power:**

**Telephone:** 0141 272 6068

**Fax:** 0141 568 4744

**Emergency Disconnections:** 0800 001 5400 or 0330 10 10 400

**Post:** Scottish Power, Electricity Disconnections, 1st Floor Main Building, Cathcart Business Park, Spean Street, Glasgow, G44 4BE

**Land Agreements** - Wayleaves, Easements and Substation Licences:

**Tel:** 01978 83 2297

**e-mail:** [wayleavessouth@sppowersystems.com](mailto:wayleavessouth@sppowersystems.com)

**Post:** SP Energy Networks, Wayleaves Dept, Wrexham Rd, Pentre Bychan, Wrexham, LL14 4DU

**Faults, Emergencies & Enquiries relating to exposed cables:**

**Tel:** 0800 001 5400 or 0330 10 10 400

**General Enquiries for SP Energy Networks:**

**Tel:** 0845 273 4444 or 0330 10 10 444

### Requests

When requesting electrical network plans, please:

**Provide adequate information** to define your area of interest, this will help us in locating it. For anything more than established property (where the address may be enough), a small, clearly marked-up location plan should define the area, whilst an address, postcode, and/or grid reference will help us to find it.

Allow **10** working days for us to process the request.

**Submit requests by;**

**e-mail:** [requestforplansmanweb@spenergynetworks.co.uk](mailto:requestforplansmanweb@spenergynetworks.co.uk)

**Post:** SP Energy Networks, Data Management, Prenton Way, Prenton, CH43 3ET

**Please submit by one medium only.**

Should you require any **further information** please contact us on  
**0141 614 5666.**

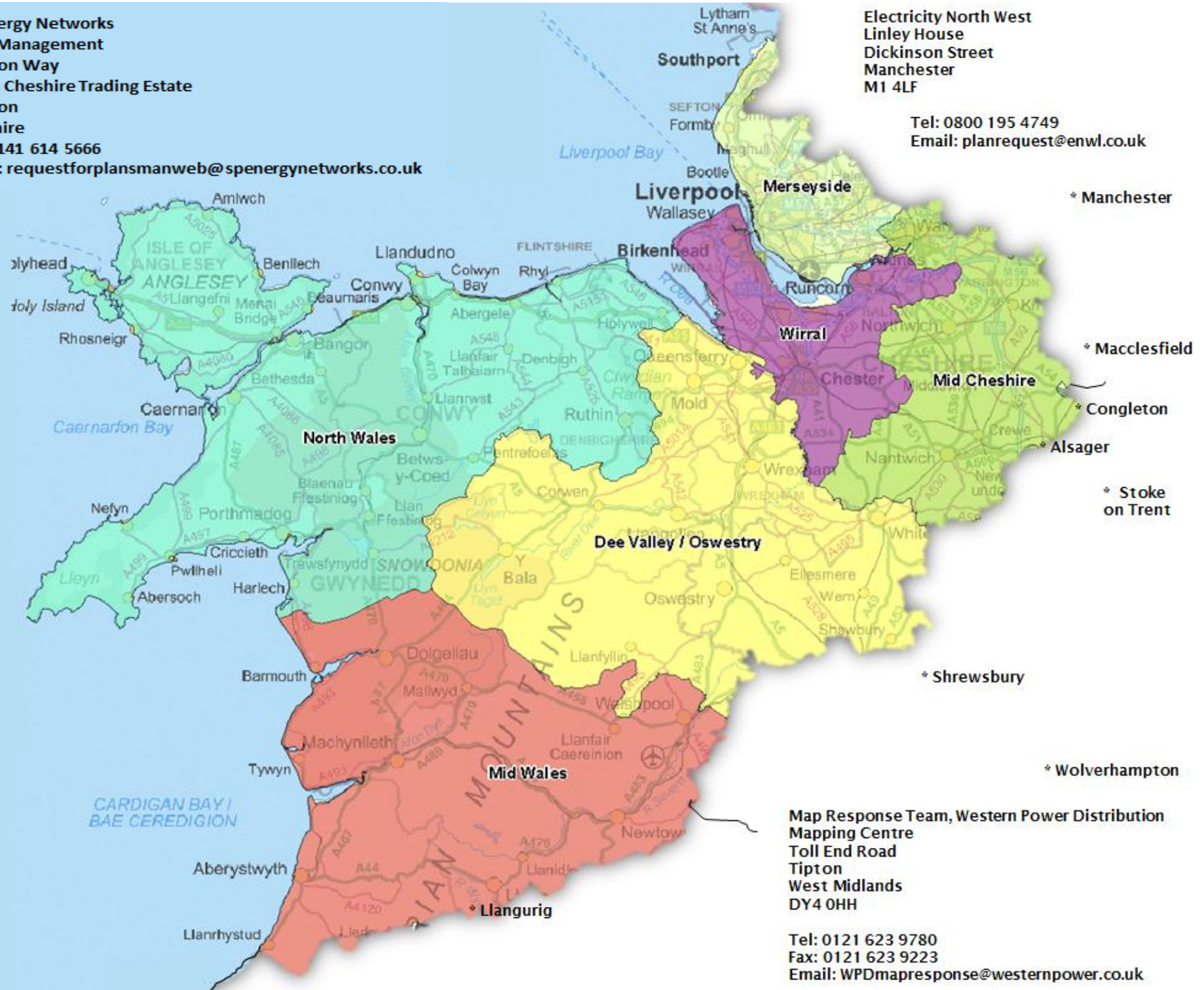




SP Energy Networks  
Data Management  
Prenton Way  
North Cheshire Trading Estate  
Prenton  
Cheshire  
Tel: 0141 614 5666  
Email: requestforplansmanweb@spenergynetworks.co.uk

Electricity North West  
Linley House  
Dickinson Street  
Manchester  
M1 4LF

Tel: 0800 195 4749  
Email: planrequest@enwl.co.uk



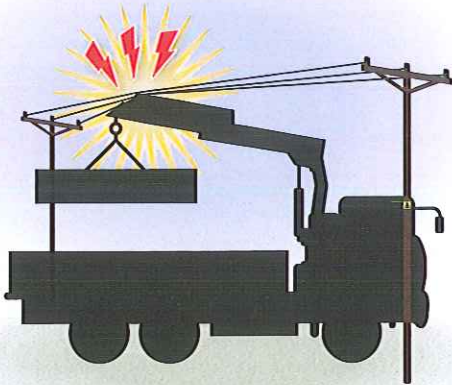
Map Response Team, Western Power Distribution  
Mapping Centre  
Toll End Road  
Tipton  
West Midlands  
DY4 0HH

Tel: 0121 623 9780  
Fax: 0121 623 9223  
Email: WPDmapresponse@westernpower.co.uk

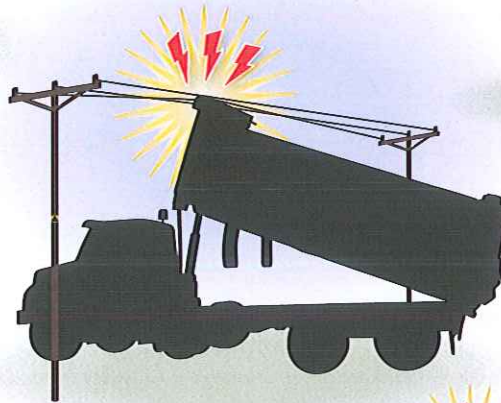


# LOOK OUT! LOOK UP!

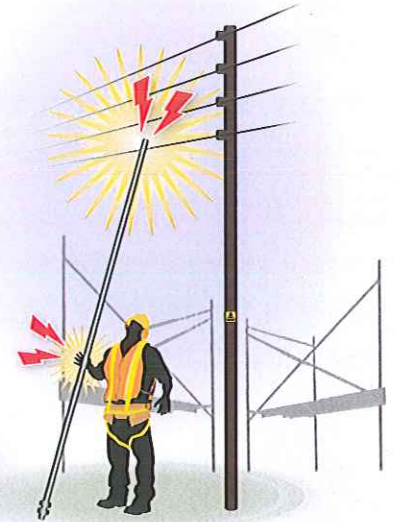
Follow the advice in HSE Guidance Note GS6  
'Avoiding Danger from Overhead Power Lines'



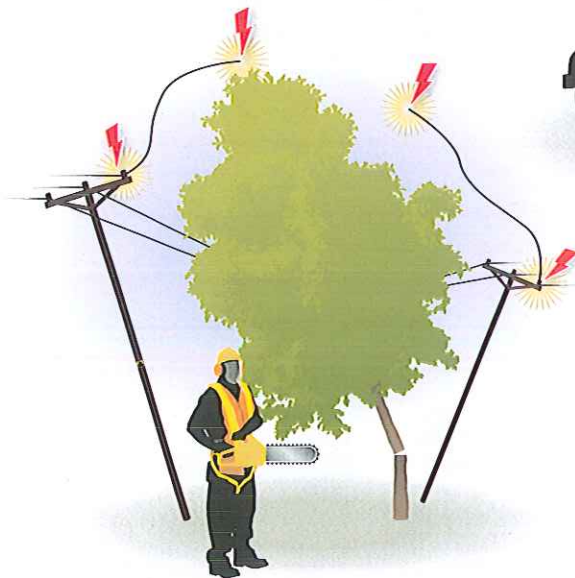
Keep overhead lines in view when unloading



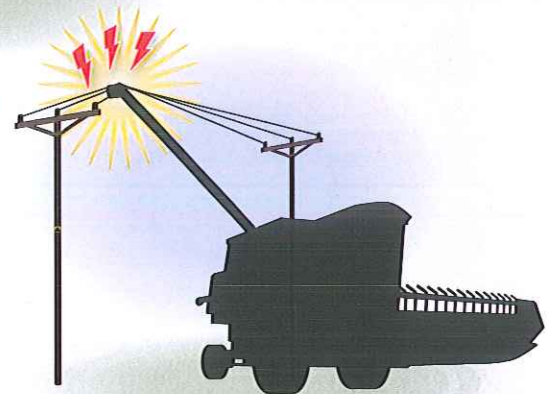
Don't tip under overhead lines and don't drive along with tipper raised



Carry long objects in a horizontal position near overhead lines



Check falling distance before felling trees



Check maximum height and reach of your own and contractors machinery



**Look out for the Danger of Death sign – it means what it says. If in doubt contact us for free safety advice.**

Visit: [www.spenergynetworks.co.uk](http://www.spenergynetworks.co.uk)

General & Safety Enquiries: 0330 10 10 444 or email [customer@spenergynetworks.com](mailto:customer@spenergynetworks.com)

Electricity Network Plans (Cheshire, Merseyside, North Wales & North Shropshire): 0141 614 5666

Electricity Network Plans (Central & Southern Scotland): 0141 614 9903

Power Loss & Emergencies (Cheshire, Merseyside, North Wales & North Shropshire): 0800 001 5400

Power Loss & Emergencies (Central & Southern Scotland): 0800 092 9290





# WATCH OUT! THERE'S A CABLE ABOUT!

## Follow the advice in HSE Guidance Note HSG47 'Avoiding Danger from Underground Services'

### REMEMBER

Houses, offices, shops, factories and street furniture all have electric cables supplying them.

### CHECK PLANS

Ensure current cable records are on site.

Carry out a risk assessment in accordance with HSG47.

Be aware that not all cables are shown on plans.



### USE CABLE LOCATORS

Before every use of CAT and Genny make sure they are calibrated and working properly.

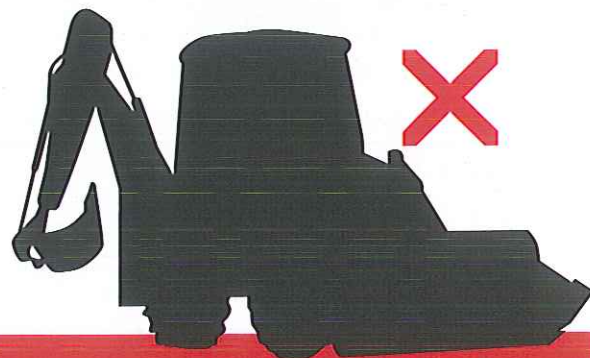
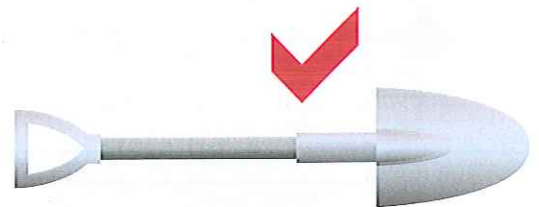
Check plans by tracing cables and marking their position using paint, crayon, chalk or pegs.

Always scan the area you intend to excavate **before** you start to dig.



### NOW DIG SAFELY

- ⚠ Hand-dig trial holes to find the exact position of cables **before** you use a mechanical excavator.
- ⚠ Be aware that cables can be found at any depth, even just below the surface.
- ⚠ If you find a cable embedded in concrete **do not** attempt to break it out. Contact us to ensure it is de-energised.
- ⚠ If you cannot find cables shown on the plan contact us. **Never assume** they are not there.
- ⚠ If you damage a cable, vacate the excavation and phone our emergency number immediately. Keep everybody clear.



Visit [www.spenergynetworks.co.uk/safety](http://www.spenergynetworks.co.uk/safety) or contact us for free safety advice

Visit: [www.spenergynetworks.co.uk](http://www.spenergynetworks.co.uk)

General & Safety Enquiries: 0330 10 10 444 or email [customer care@spenergynetworks.com](mailto:customer care@spenergynetworks.com)

Electricity Network Plans (Cheshire, Merseyside, North Wales & North Shropshire): 0141 614 5666

Electricity Network Plans (Central & Southern Scotland): 0141 614 9903

Power Loss & Emergencies (Cheshire, Merseyside, North Wales & North Shropshire): 0800 001 5400

Power Loss & Emergencies (Central & Southern Scotland): 0800 092 9290





MISS. JUSTINE MARTIN UNIT  
EXECUTIVE PARK  
AVALON WAY  
ANSTEY  
LE7 7GR

Our Ref : 61443537  
Your Ref :  
29.04.2019

Dear Miss Martin,

**Re: Development at Warren Hall, Land of Lesters Lane CH4.**

Thank you for your enquiry regarding works at the above address. We are delighted to provide this budget estimate for our associated works.

Our budget estimate is £1,000,000.00 (exclusive of VAT) for the provision of 2.2MVA Load at New Development at Warren Hall, Land of Lesters Lane, Broughton, Flintshire, CH4 0HG.

The works included in the budget estimate is as follows:

Diversion of existing 33kV Assets

Diversion of existing 11kV Assets

Reinforcement of the 11kV circuit from the Primary substation

Provision of new 11kV Assets on the proposed site including substations

Project resource requirements

Legal & Planning requirements

The above value is a high level estimate and may change as part of any formal offer or future budget estimate. The existing 11kV circuit supplied out of Kinnerton Primary substation is not sufficiently rated to cater for the demand requirements. The estimate does include for works to overlay a substantial amount of 11kV Cable in various surface types. Your application documentation seemed to be requesting a circa 21MW connection and I have emailed to clarify but have had no response. Taking into account the types of connection that you have requested I have provided this budget on the basis that the maximum demand is 2.2MVA. This budget is for project planning purposes only and as advised costs may alter significantly during the formal quote process.

If you would like a formal offer or guidance in relation to our processes, please do not hesitate to contact me.

Alternatively please visit our website at: [www.spenergynetworks.co.uk/networkconnections](http://www.spenergynetworks.co.uk/networkconnections)

0141 614 9950, quoting reference 614143537.

Your business is important to us and we look forward to working with you in the future.

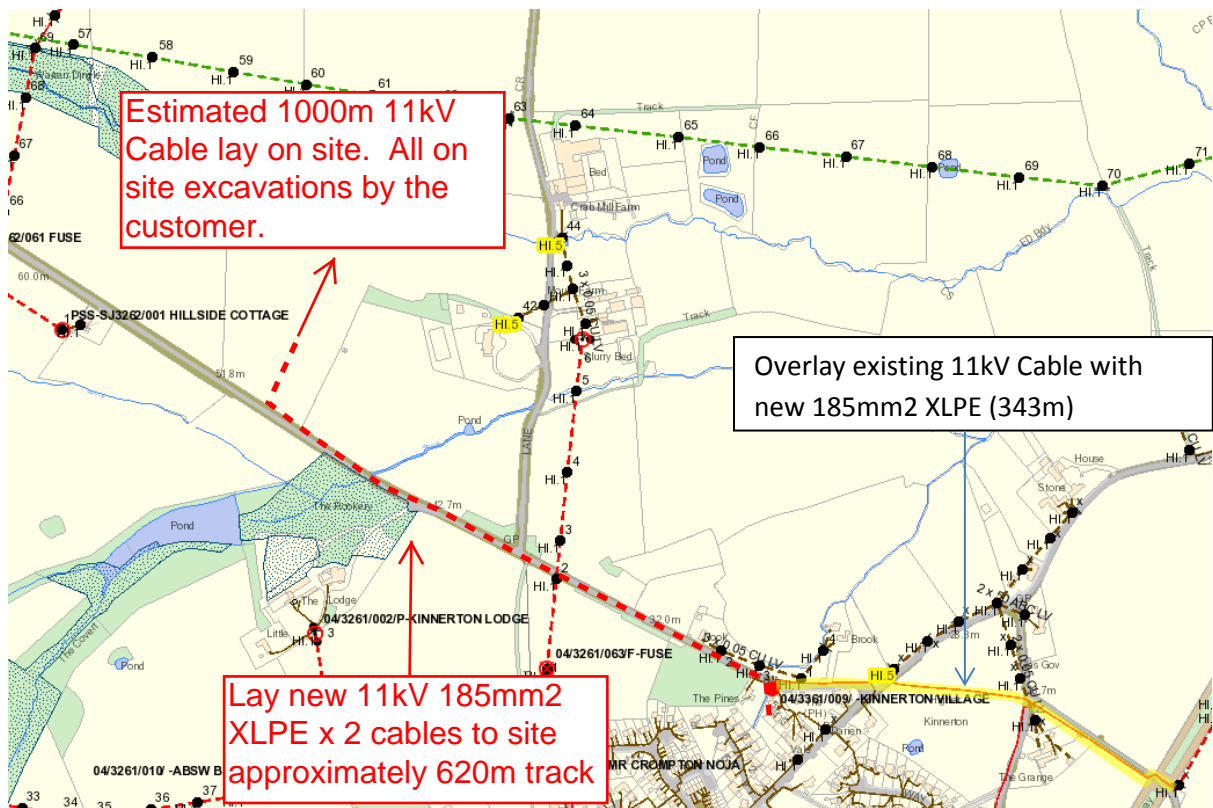
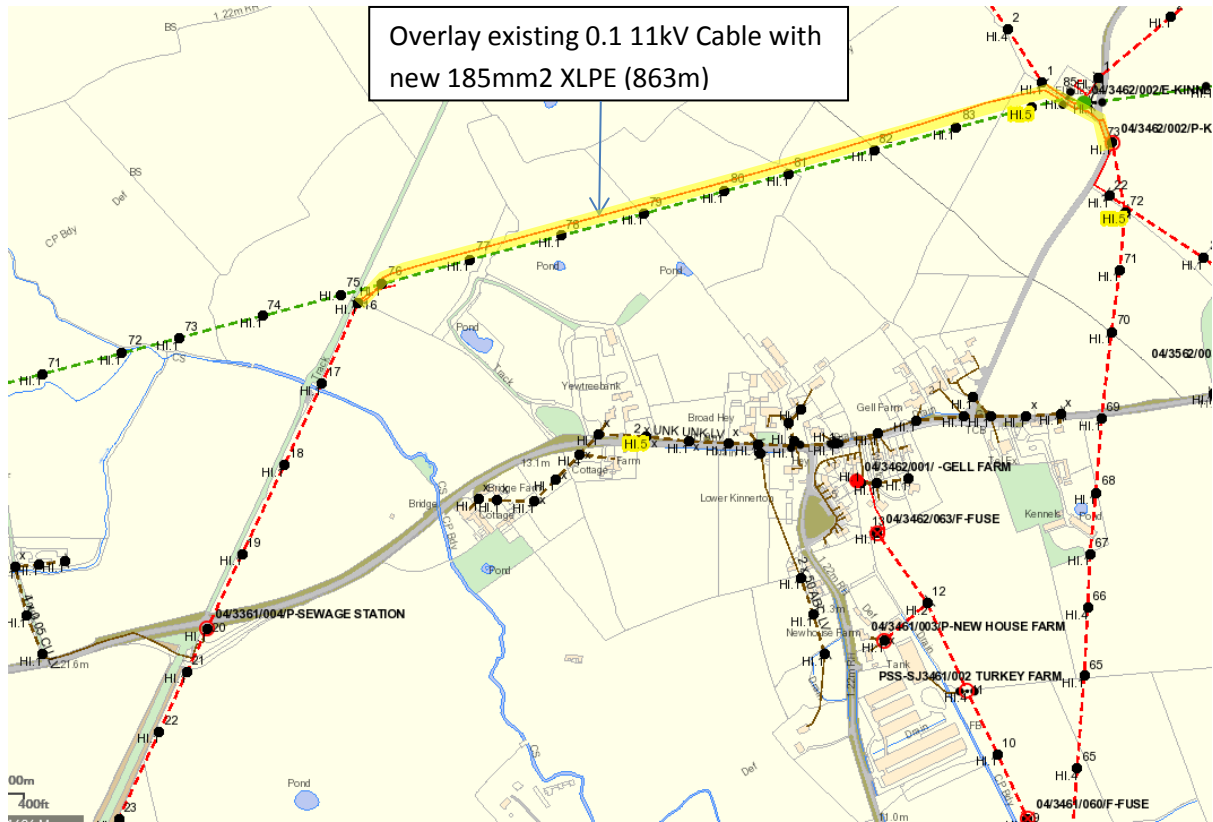
Yours faithfully,

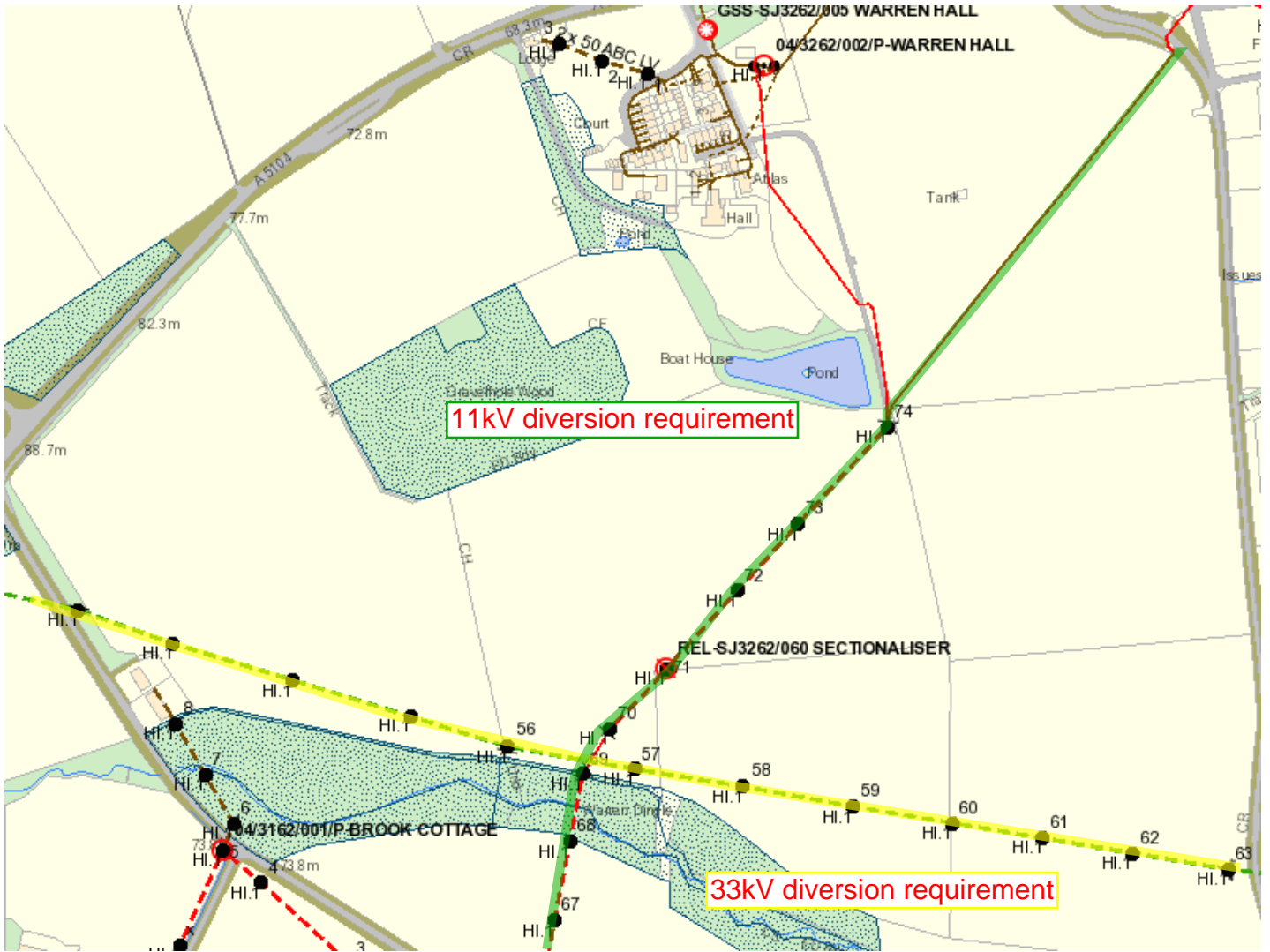
*Nicholas Davies*

NICHOLAS DAVIES  
For and on behalf of SP Manweb plc



# NN614143537 BUDGET ESTIMATE PLAN

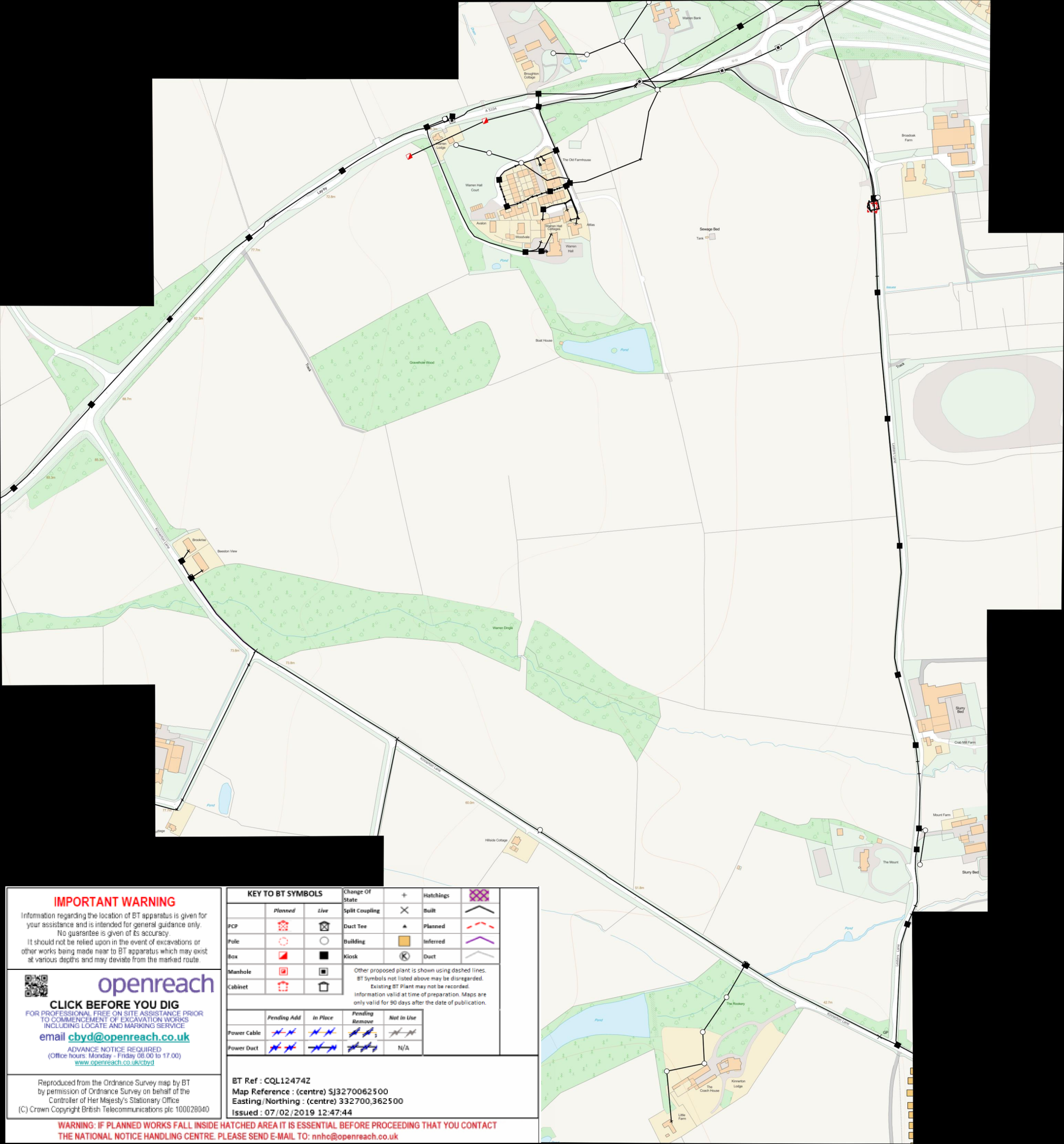






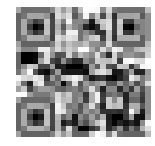






**IMPORTANT WARNING**

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.



**openreach**

**CLICK BEFORE YOU DIG**

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email [cbyd@openreach.co.uk](mailto:cbyd@openreach.co.uk)

ADVANCE NOTICE REQUIRED  
(Office hours: Monday - Friday 08.00 to 17.00)  
[www.openreach.co.uk/cbyd](http://www.openreach.co.uk/cbyd)

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**KEY TO BT SYMBOLS**

	Planned	Live	Change Of State	+	Hatchings	
PCP			Split Coupling	X	Built	
Pole			Duct Tee	▲	Planned	
Box			Building		Inferred	
Manhole			Kiosk		Duct	
Cabinet			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 time of preparation. Maps are only valid for 90 days after the date of publication.			
Power Cable			Pending Remove		Not in Use	
Power Duct					N/A	

BT Ref : CQL12474Z  
Map Reference : (centre) SJ3270062500  
Easting/Northing : (centre) 332700,362500  
Issued : 07/02/2019 12:47:44

**WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: [nnhc@openreach.co.uk](mailto:nnhc@openreach.co.uk)**





**Mrs Justine Martin**  
**WYG**  
**Executive Park Avalon Way**  
**Anstey Leicestershire**  
**LE7 7GR**

**Zayo Plant Protection Centre**  
c/o JSM Group Ltd  
Plant Protection Department  
Sterling House  
Mutton Lane  
Potters Bar  
Herts, EN6 3AR

**Date: 07/02/2019**

**Your Reference: Warren Hall**

**Our Reference: 14789083**

**Dear Mrs Justine Martin,**

#### **ZAYO GROUP LTD UK AFFECTED C2 PRELIMINARY PLANT ENQUIRY**

**We acknowledge with thanks your request dated 07/02/2019 11:24:25 AM for information on the location of our assets.**

We confirm we have reviewed your proposed plan and have enclosed maps of the area in which Zayo Group UK Ltd have apparatus.

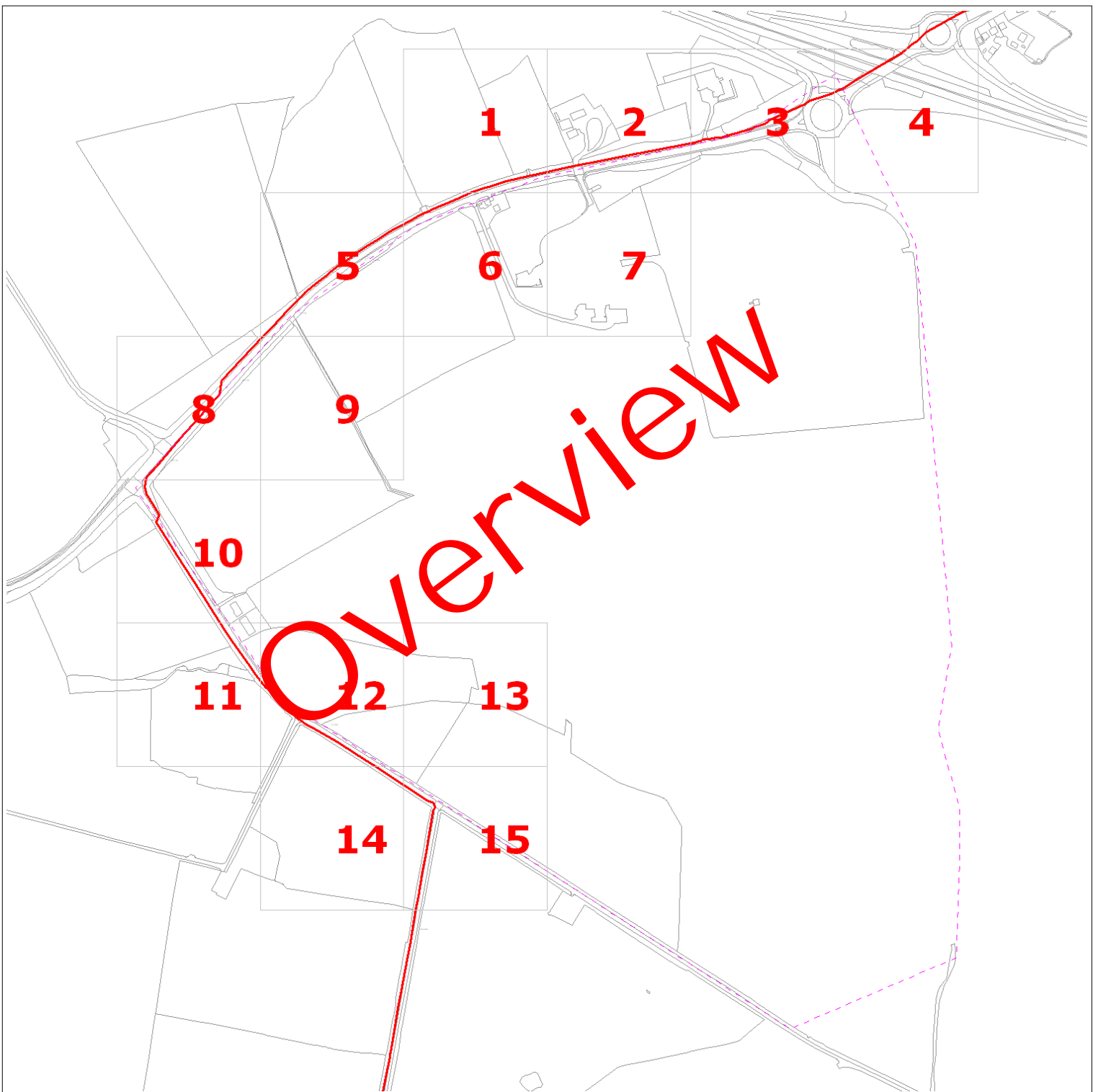
Please note these maps indicate approximate location only and their accuracy cannot be guaranteed. To determine the exact location a trial hole must be dug using extreme caution and hand dig methods only. Please refer to the attached document "Guide to Excavation within the vicinity of Zayo Apparatus".

Please forward all C3 and C4 Diversionary Estimate requests for diversionary works under the New Roads and Street Works Act 1991 "Measures necessary where apparatus is affected by Major Works (Diversionary Works), A Code of Practice", to [zayodiversions@jsmgroup.com](mailto:zayodiversions@jsmgroup.com).

Please do not hesitate to contact us for further assistance.

Yours faithfully,

Zayo Group UK Ltd c/o JSM Group Ltd  
JSM Plant Protection Department  
T: 01992 655 919  
[zayoplantenquiries@jsmgroup.com](mailto:zayoplantenquiries@jsmgroup.com)








Date Requested: 07/02/2019

Requested by: Justine Martin

Company: WYG

Job Reference: 14789083

Your Scheme/Reference: Warren Hall

 ZAYO DUCT  
 or  ZAYO CHAMBER  
 Dig Sites: Line  Area   
 Scale on A4 paper: 1:1000



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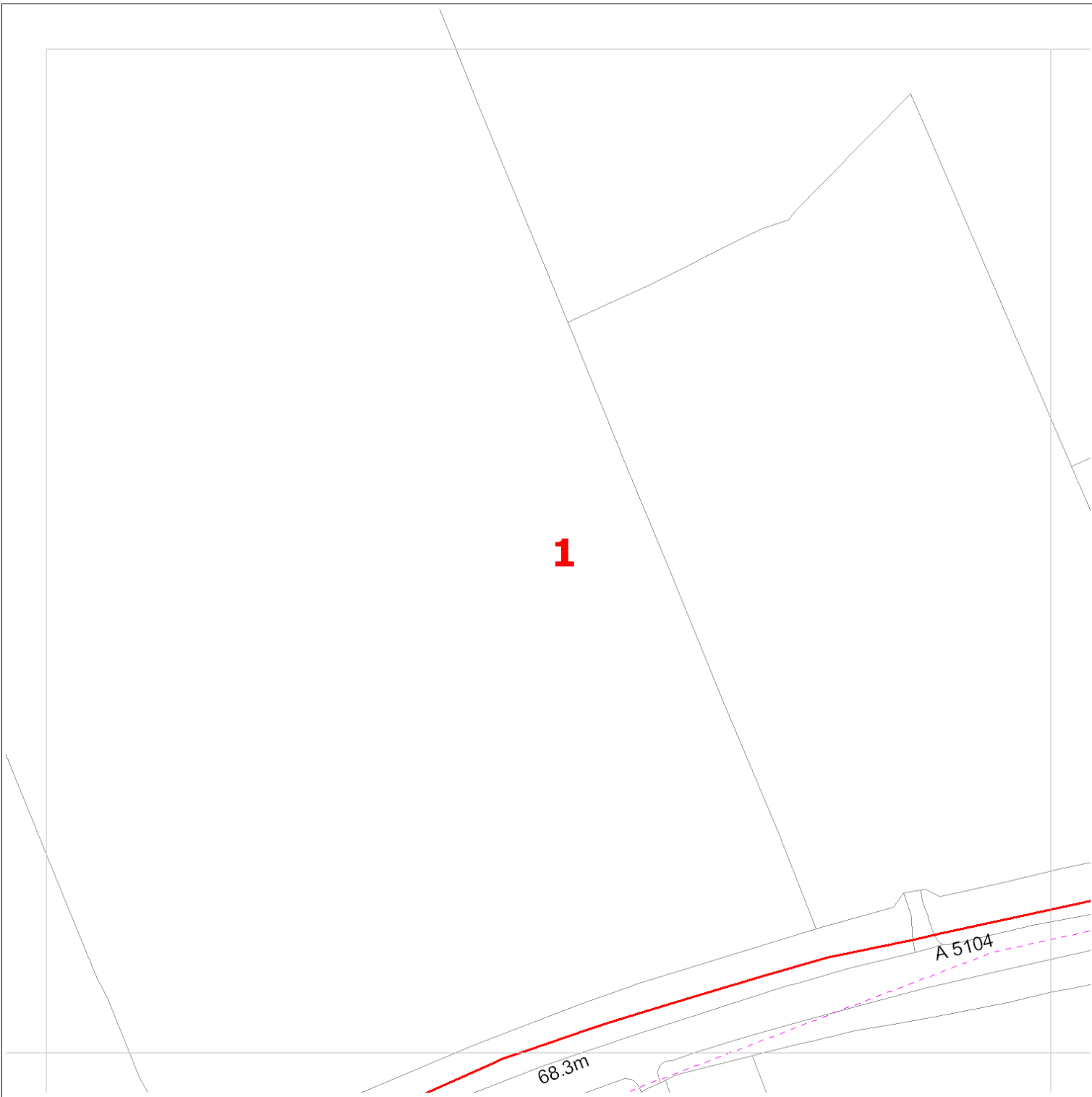


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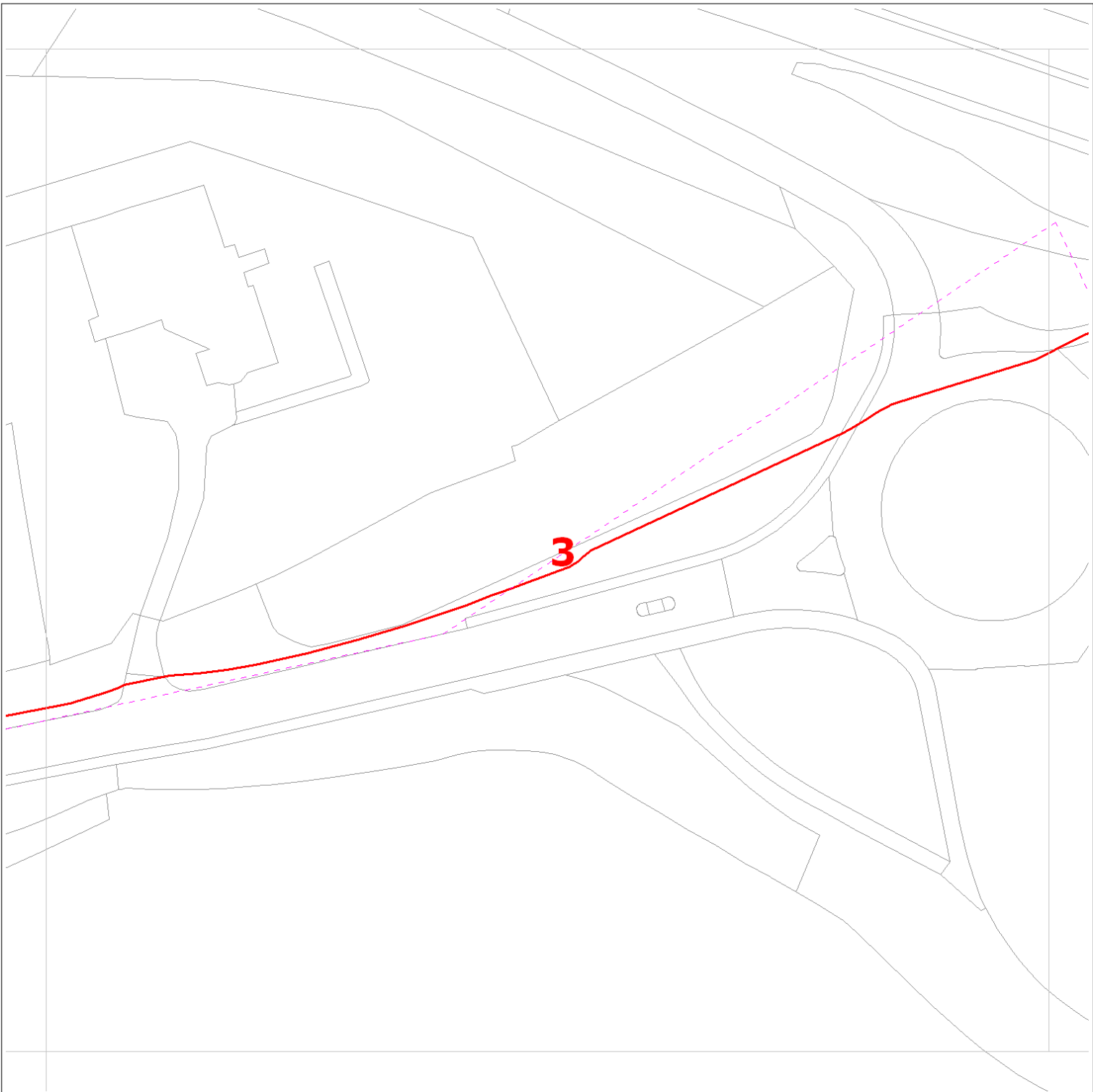
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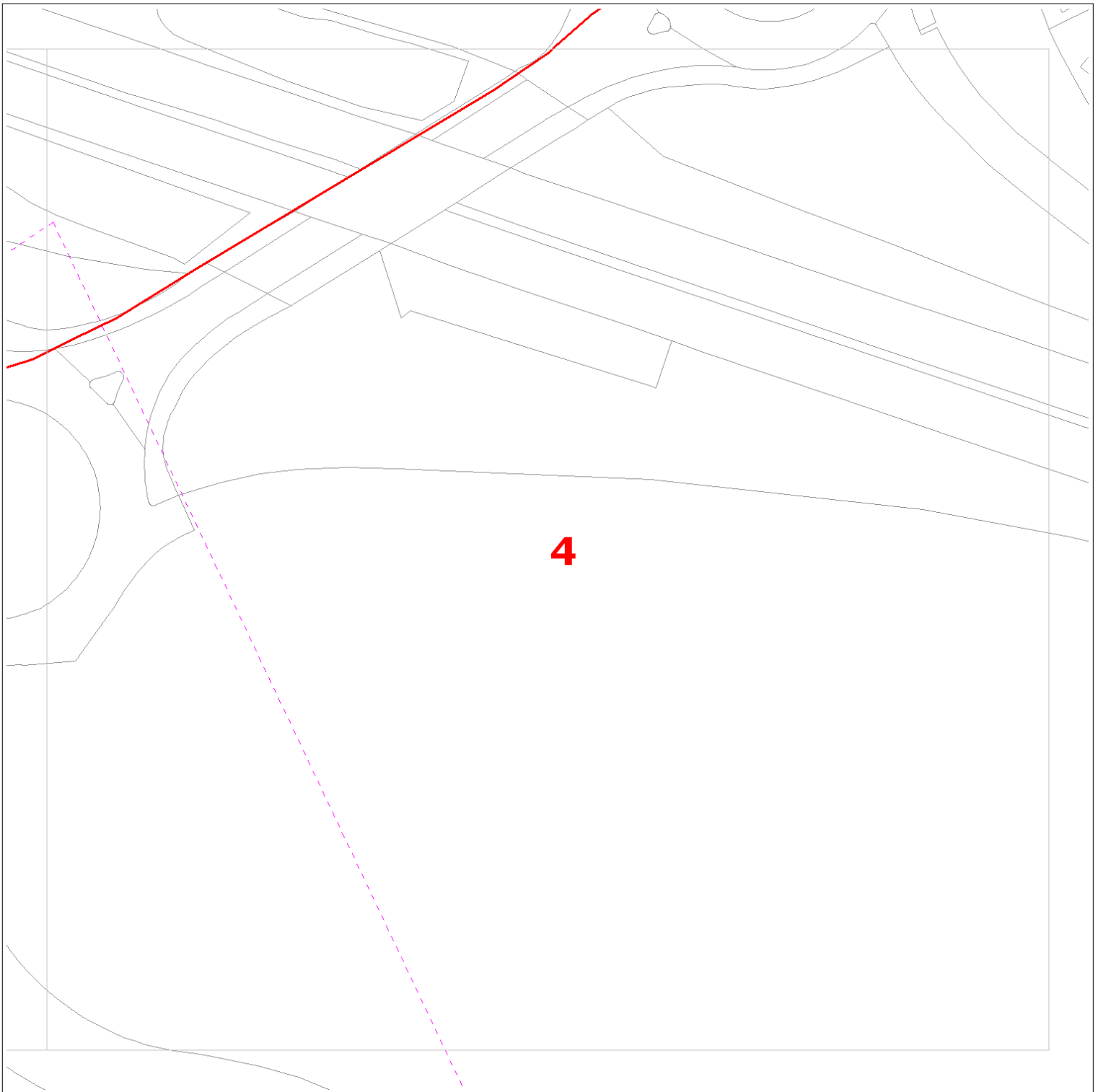
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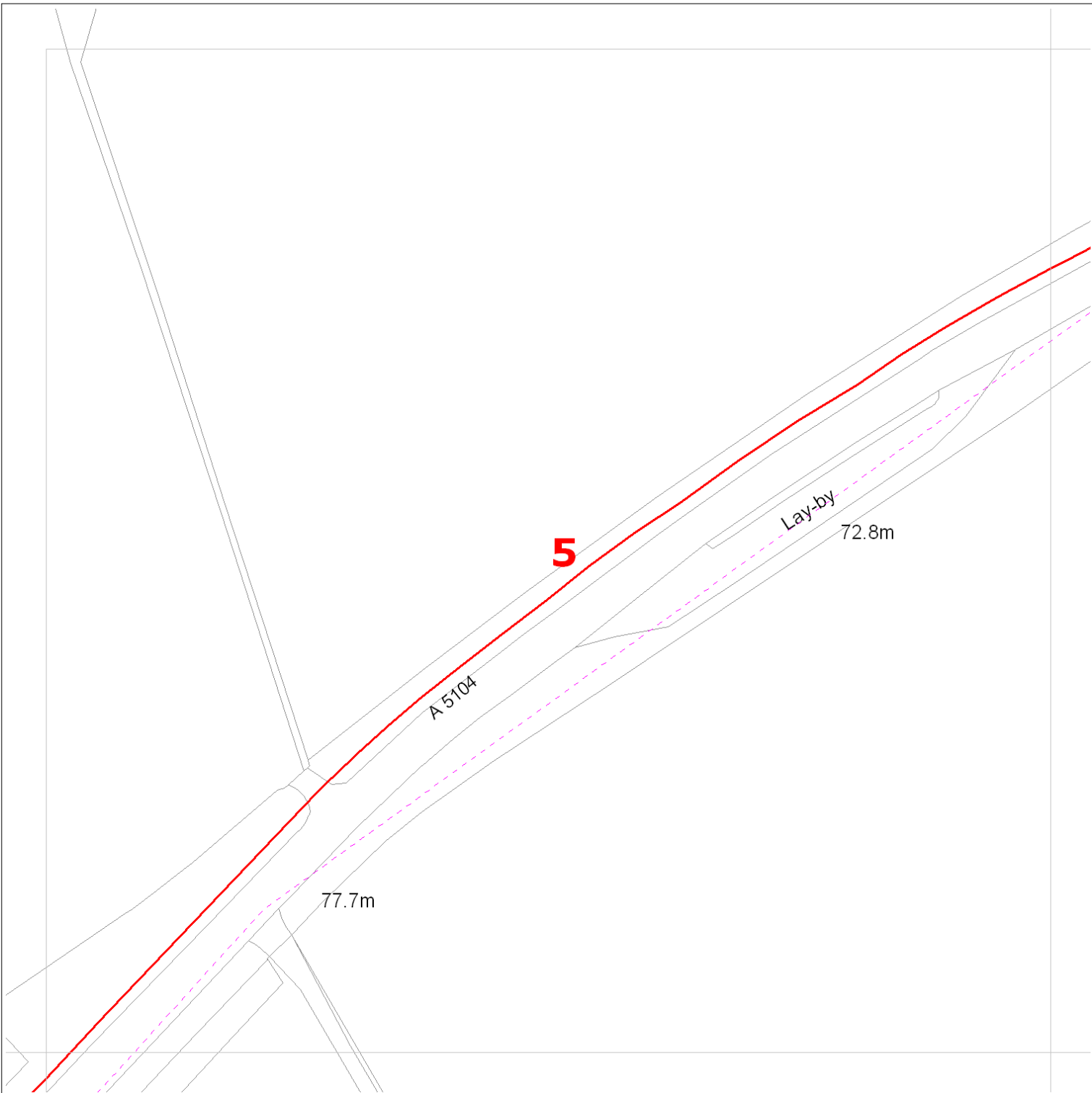


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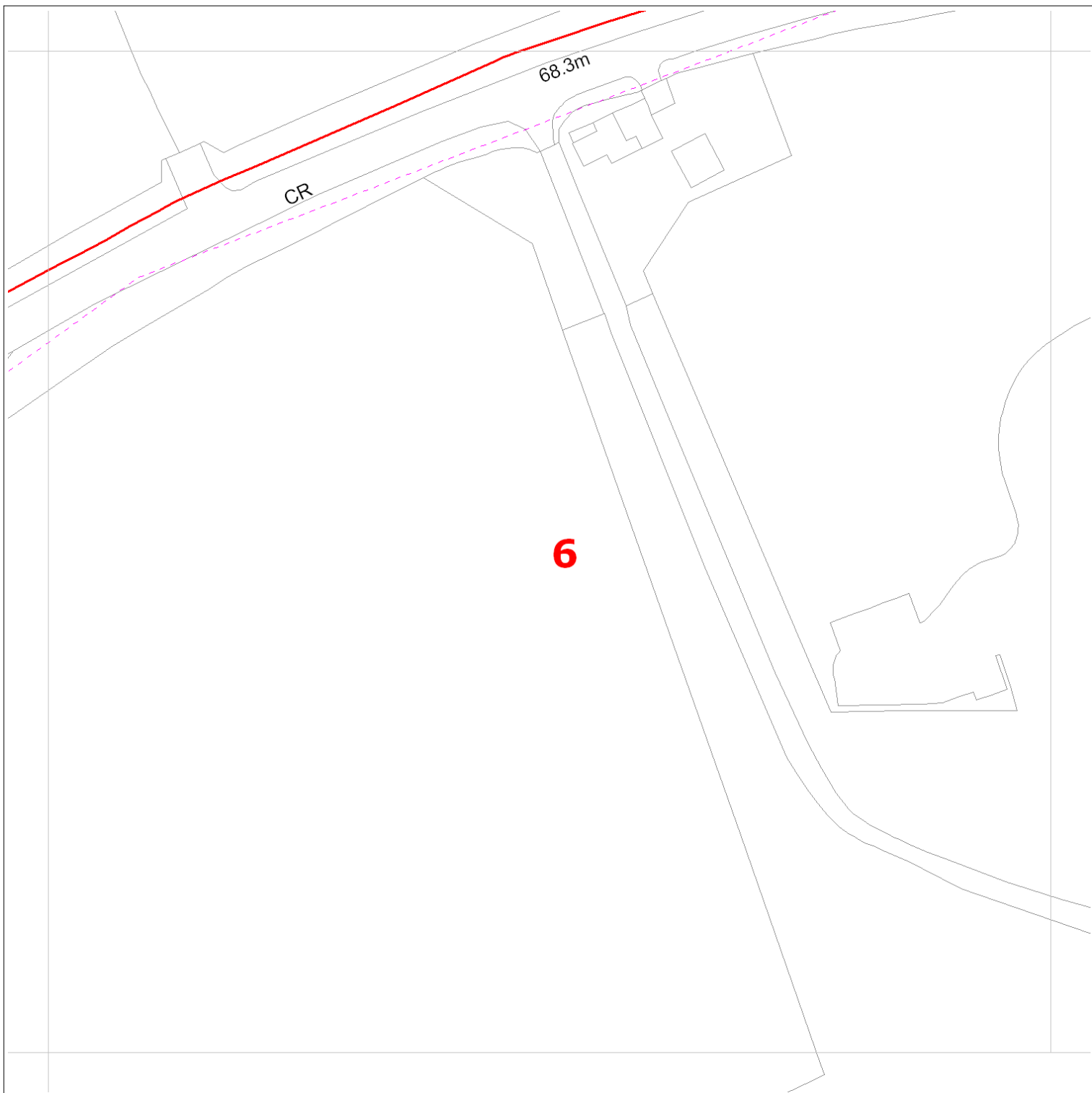
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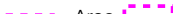

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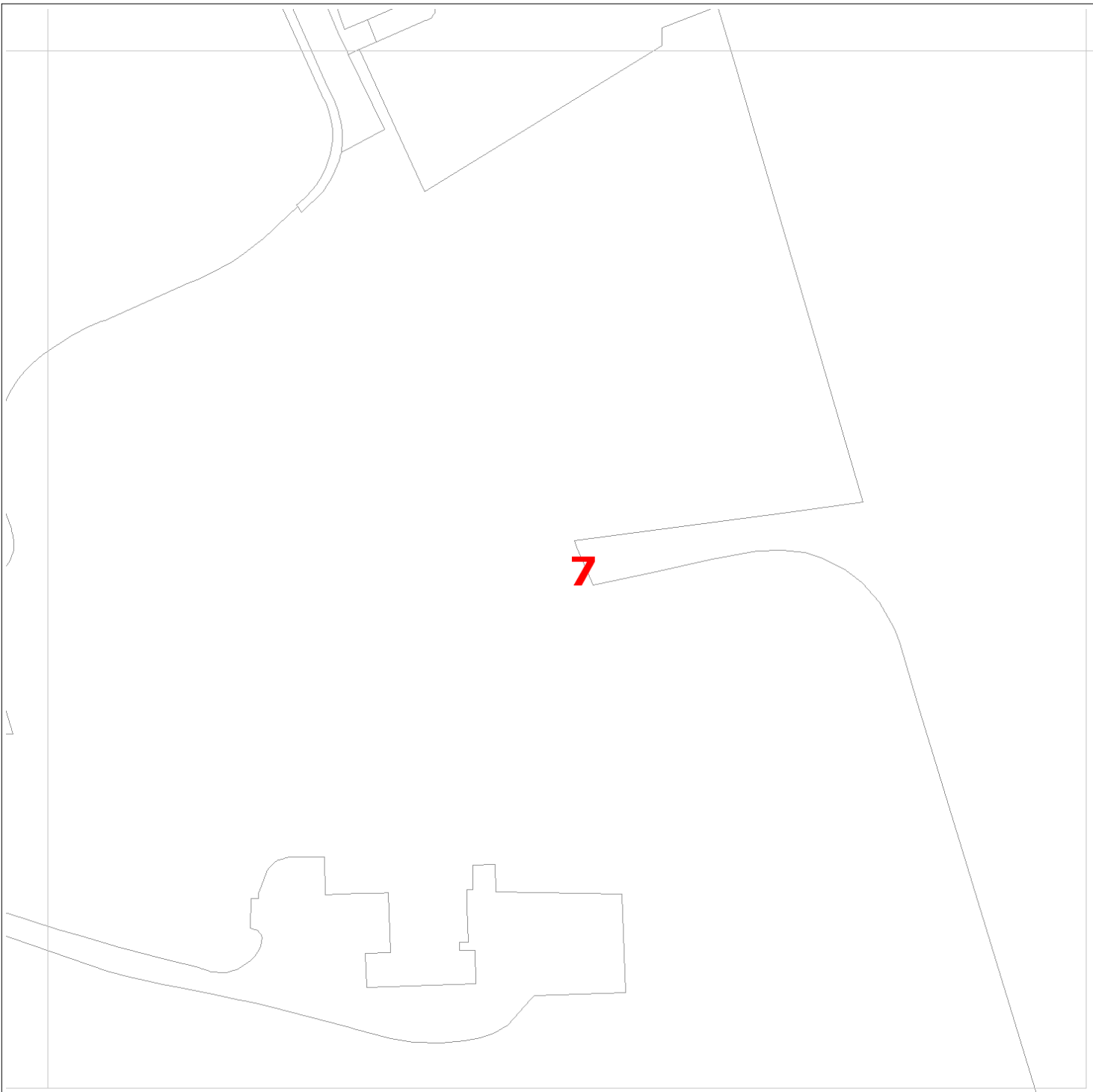
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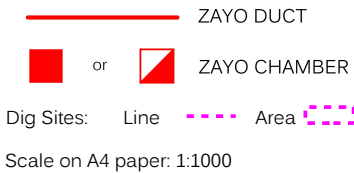
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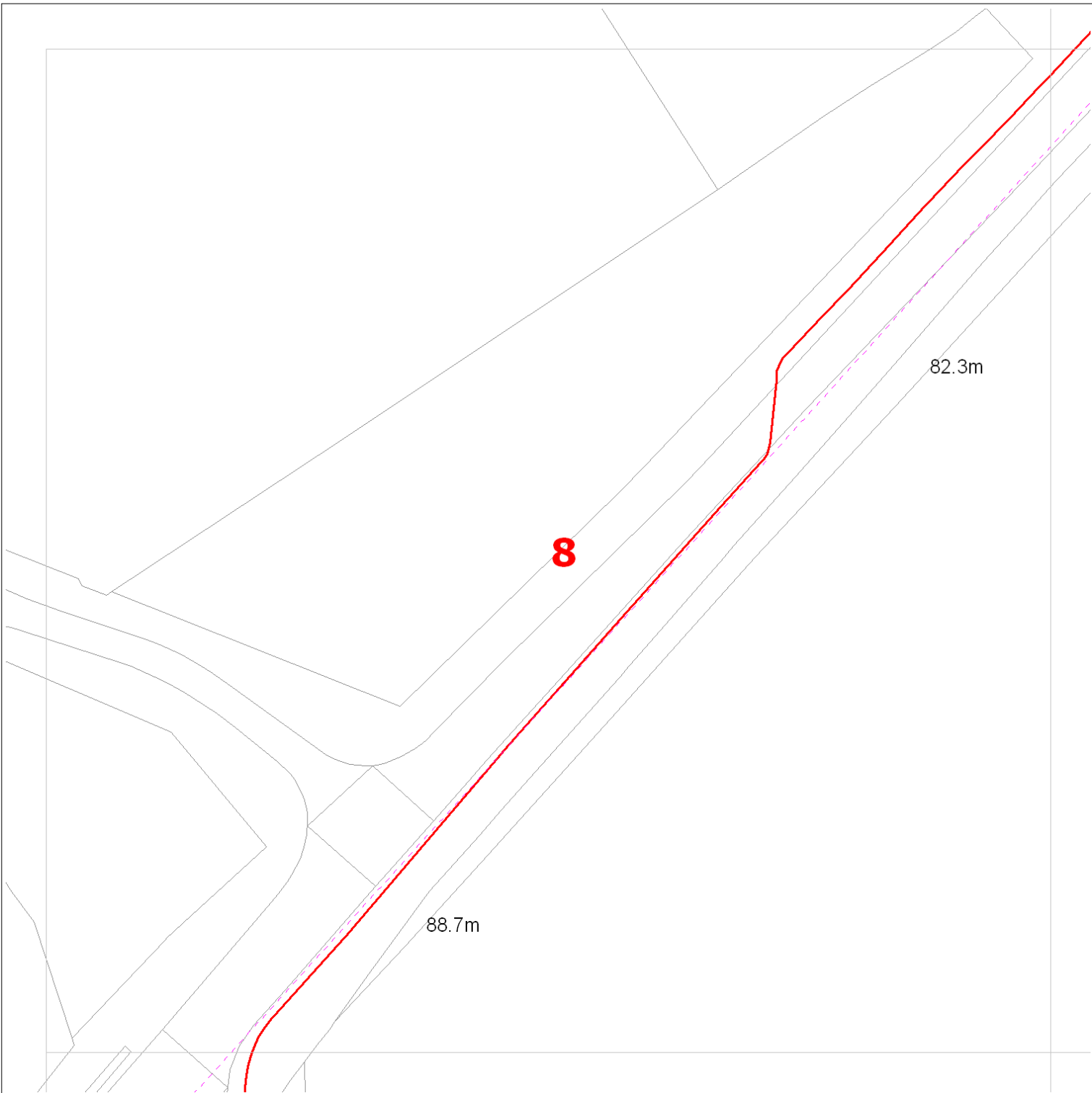


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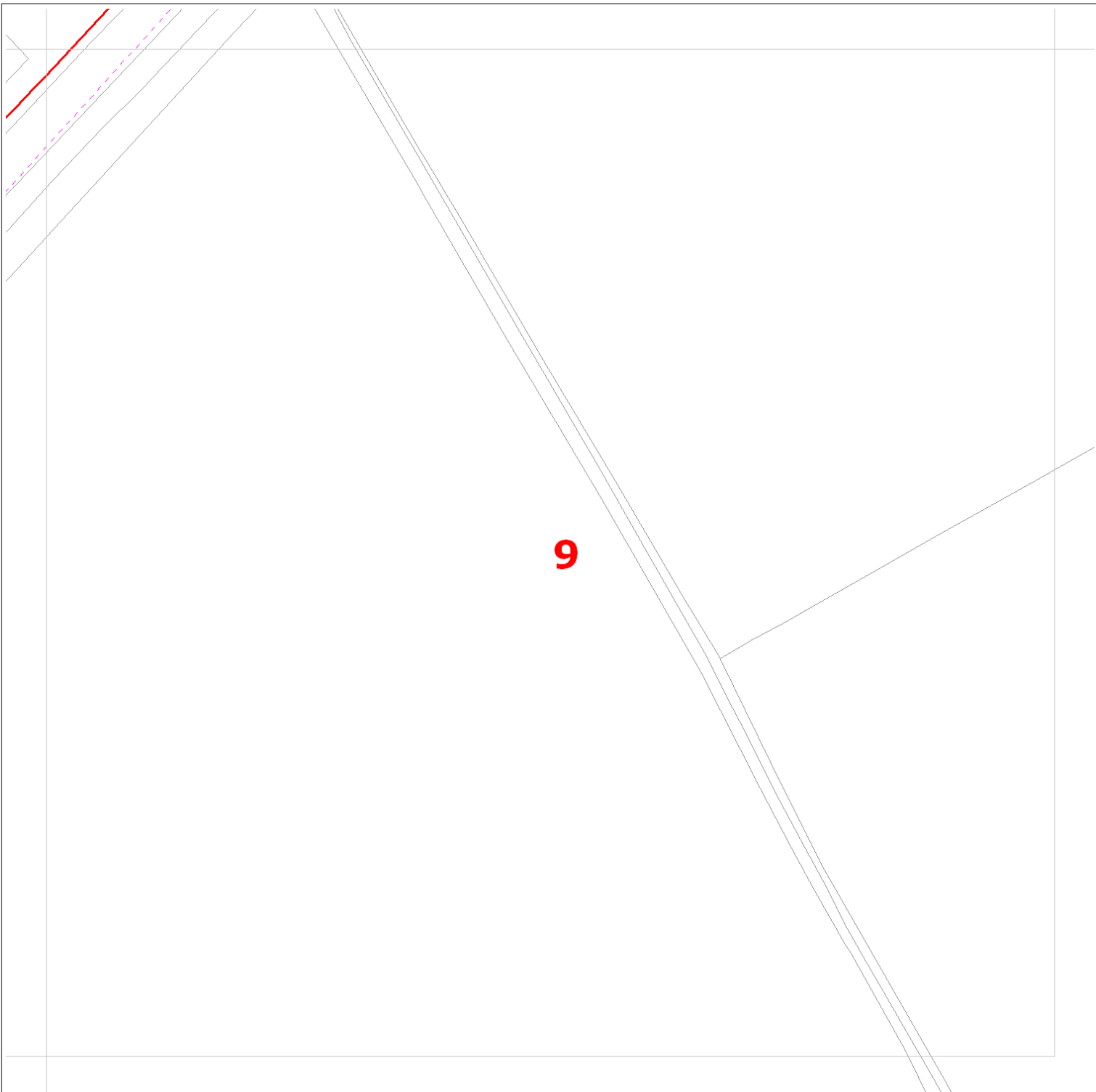


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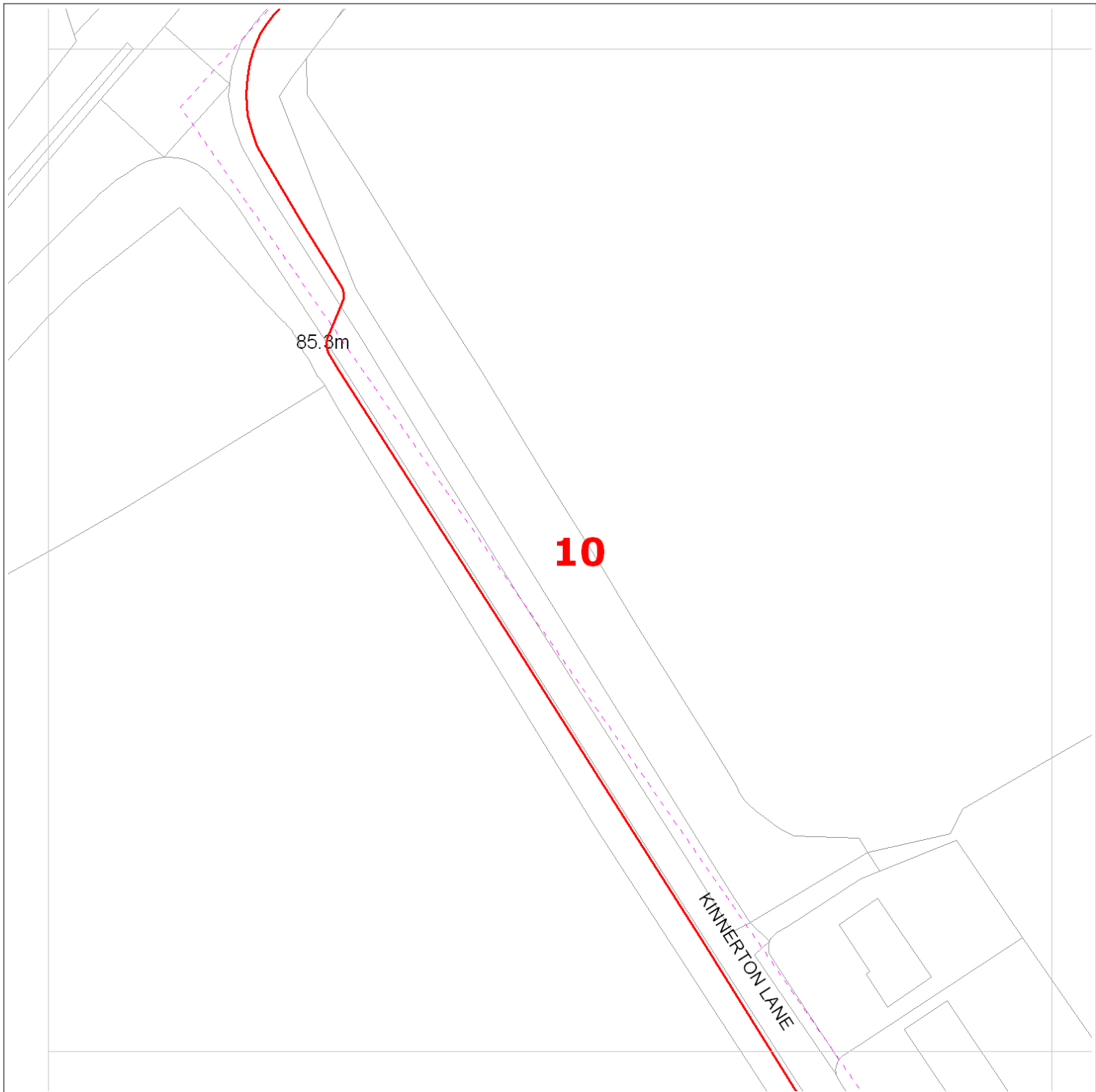
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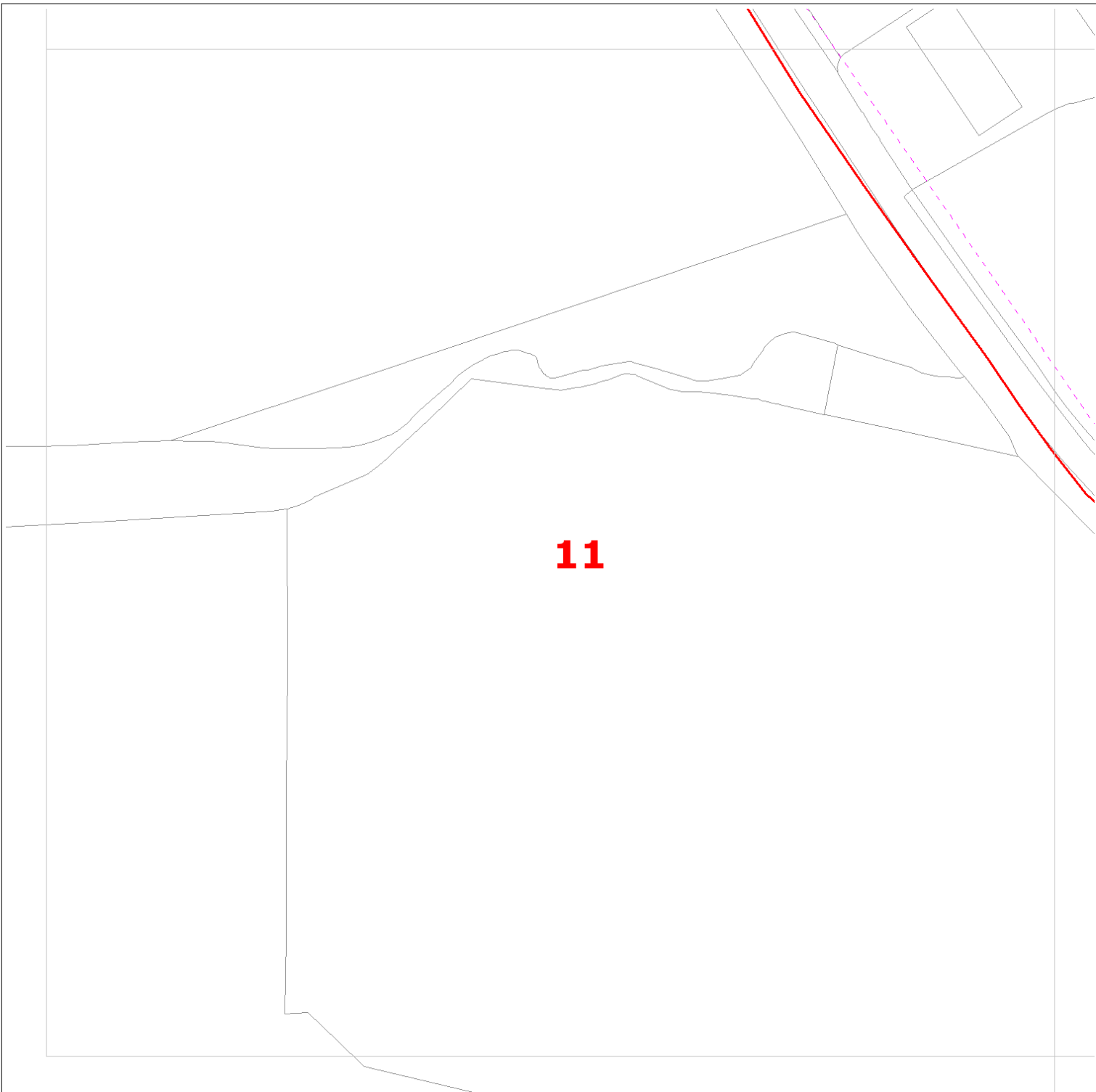


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**11**

Date Requested: 07/02/2019  
 Requested by: Justine Martin  
 Company: WYG  
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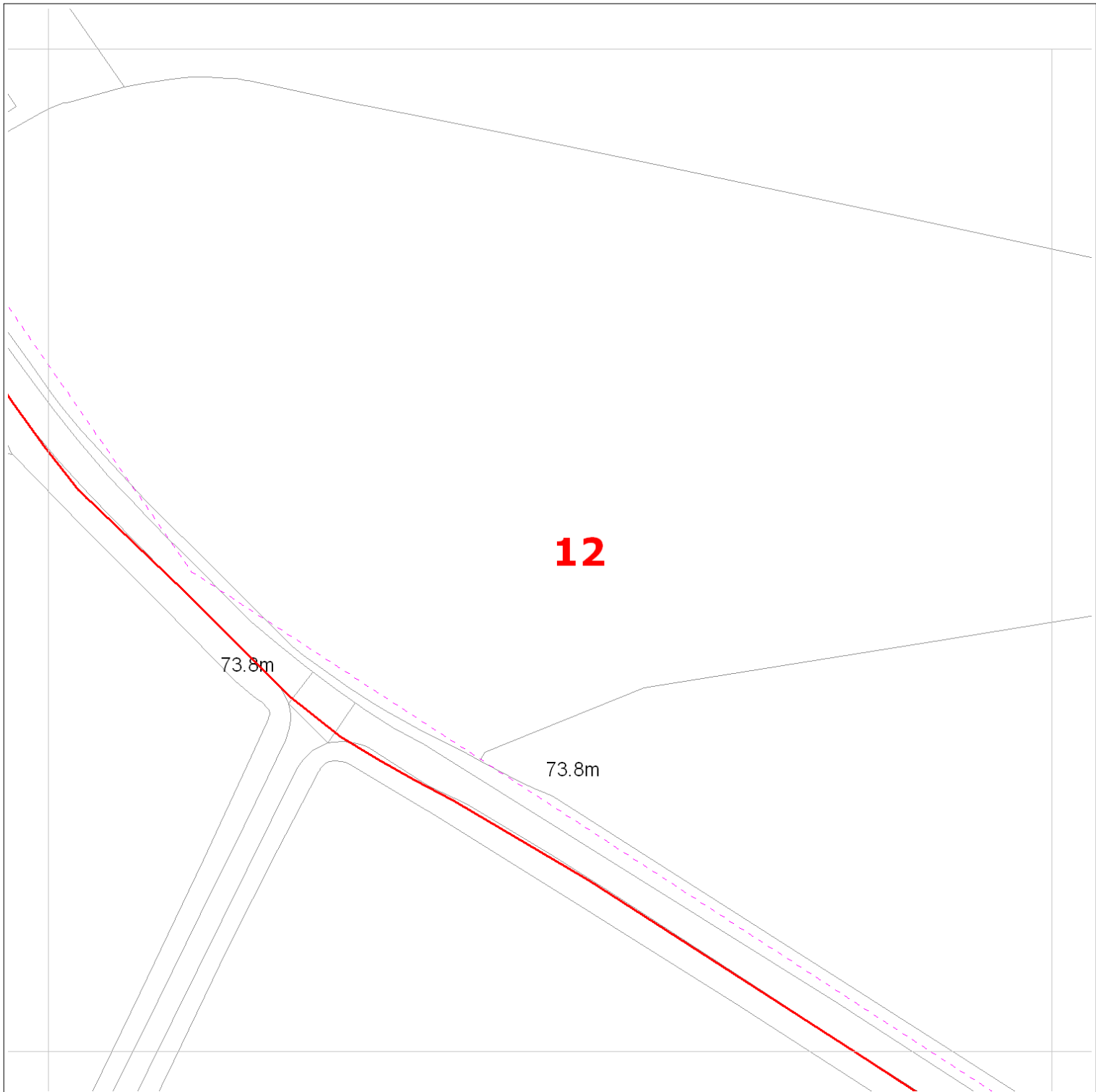


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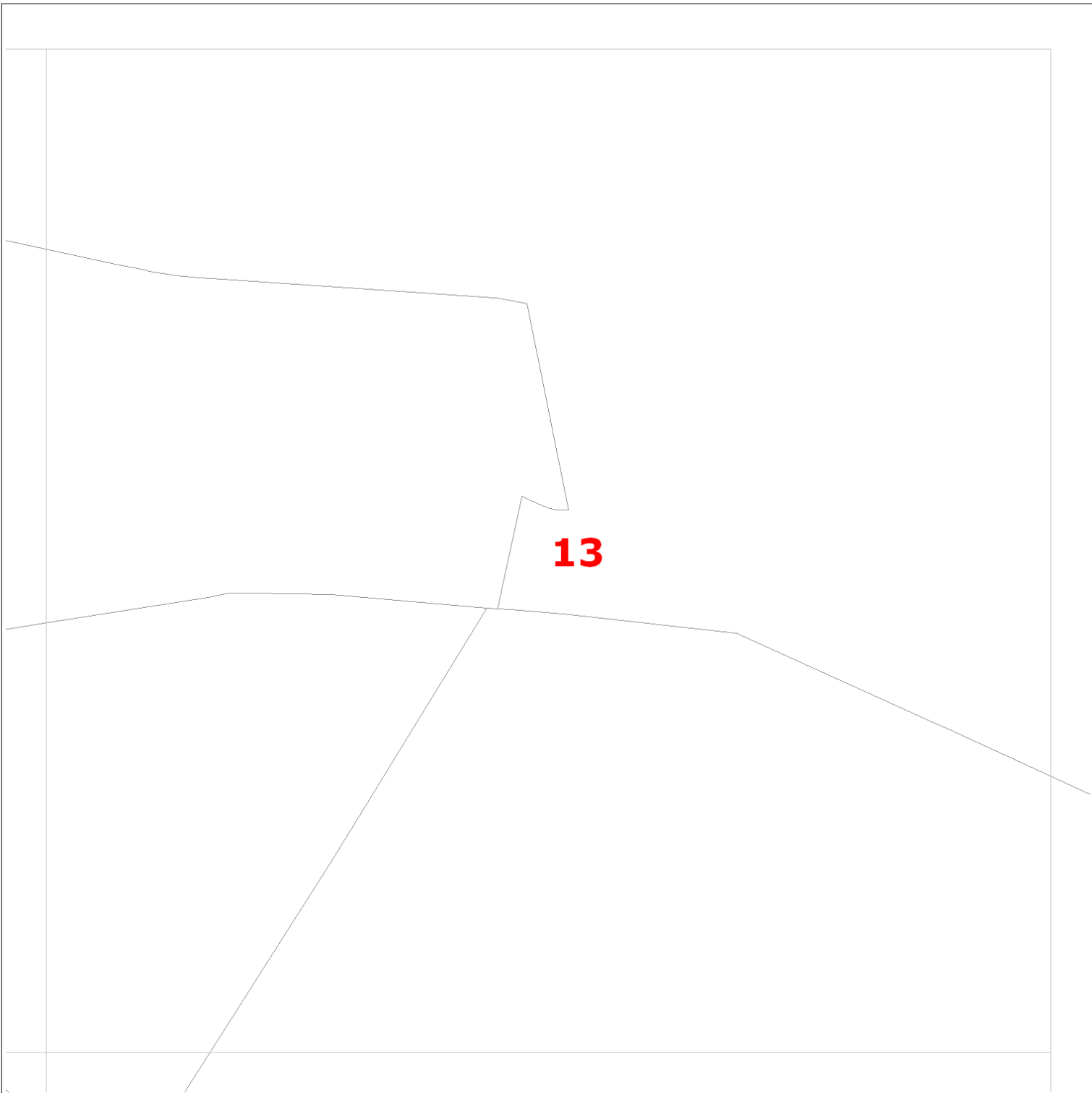


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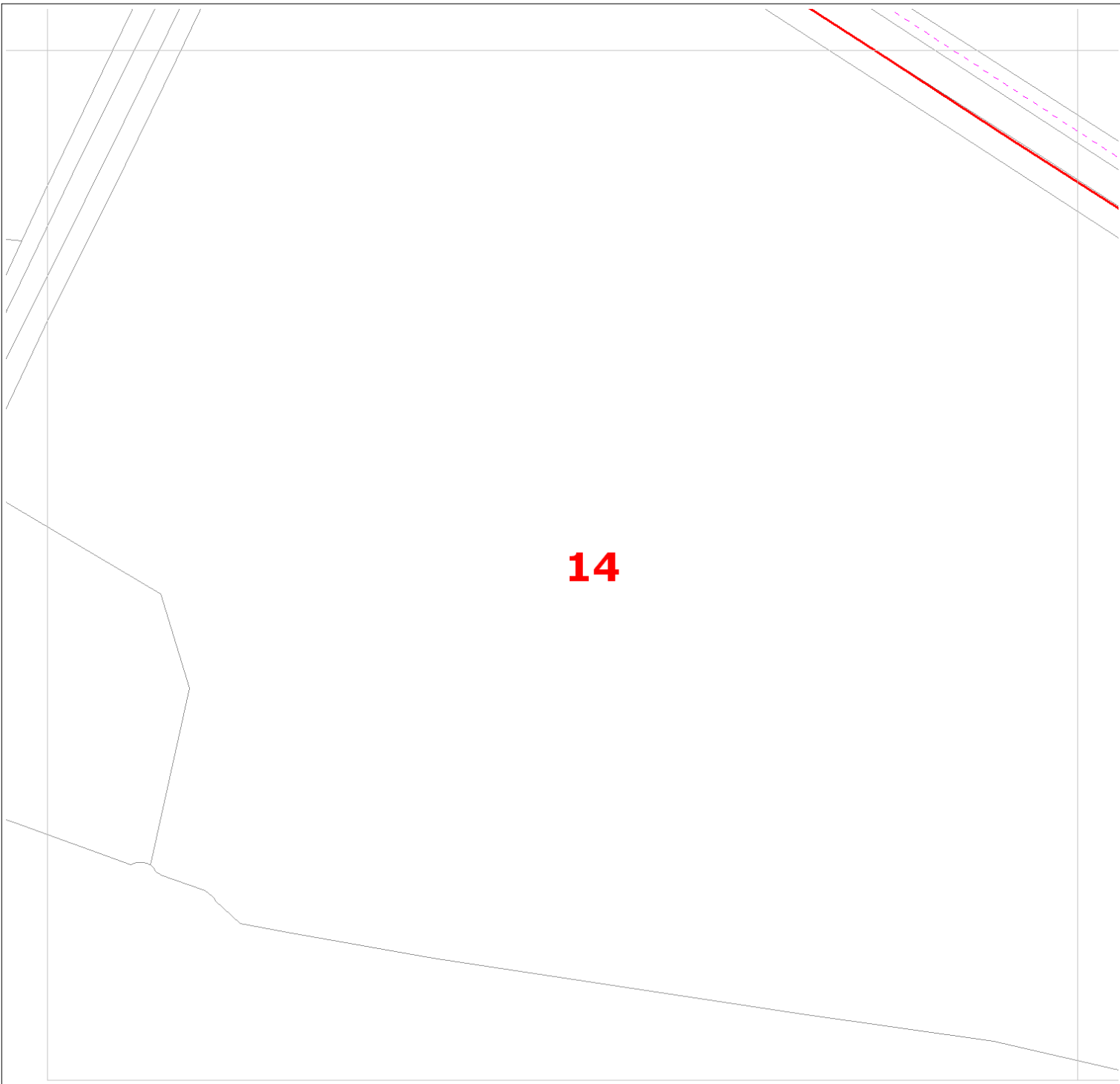
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**14**






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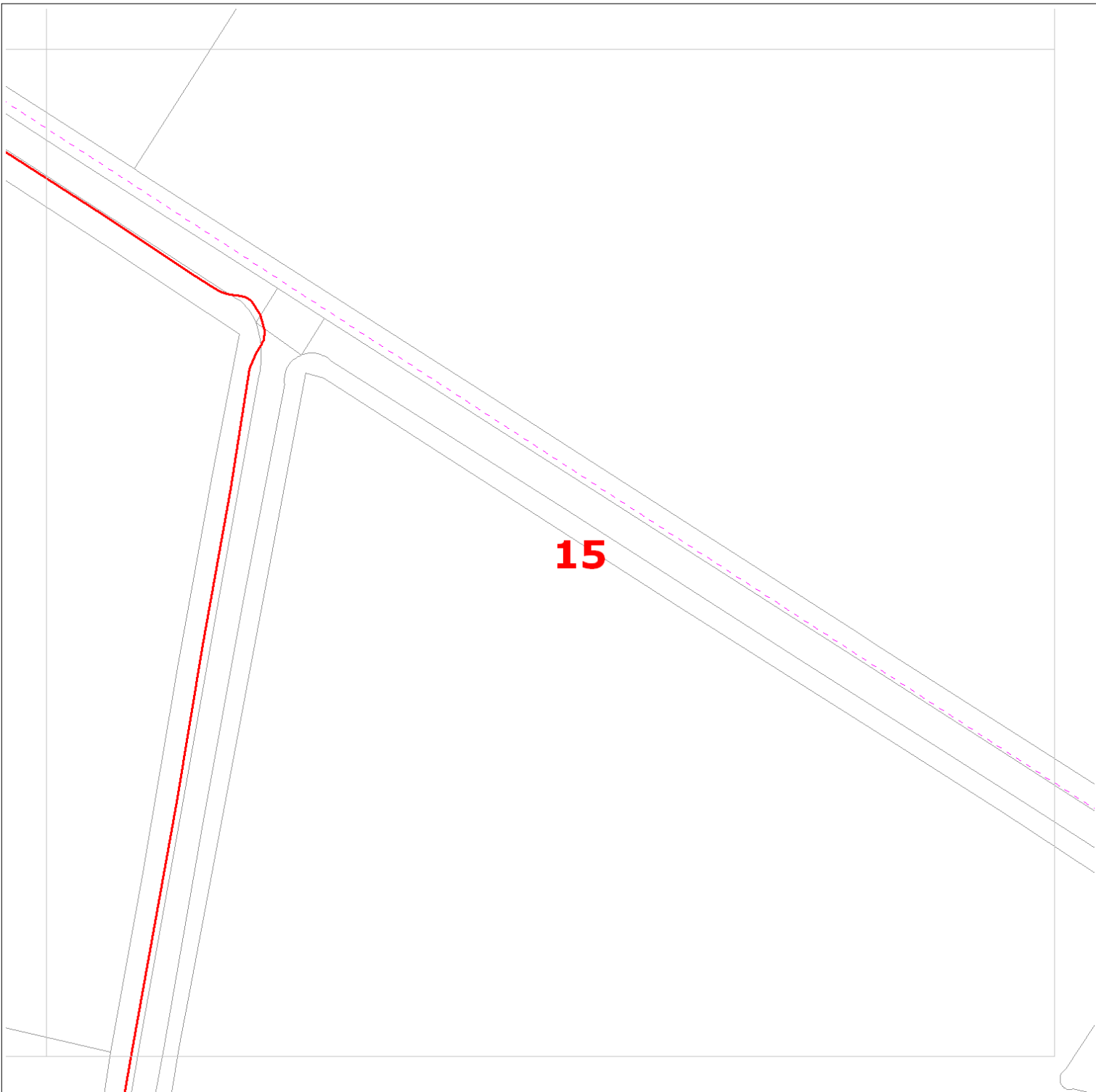
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Protecting Lives, Cables & Pipes

Warning: PDF designed for colour print only with no page scaling. This Information is given as a guide only and its accuracy cannot be guaranteed



In Emergency Only and if Zayo Plant or Cables damaged call: 0800 169 1646

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[zayoplantenquiries@jsmgroup.com](mailto:zayoplantenquiries@jsmgroup.com)

## GUIDE TO CONTRACTORS UNDERTAKING EXCAVATIONS IN THE VICINITY OF ZAYO PLANT

1. Prior to commencing any work or moving heavy plant or equipment over any portion of the site, the Contractor shall confirm details of the location of the Zayo apparatus by contacting and requesting utility drawings from LinesearchbeforeUdig

All Enquirers should register free of charge for the Zayo plant enquiry service at LinesearchbeforeUdig <http://www.linesearchbeforeudig.co.uk/>

Or follow the direct link to register at <http://onecall.linesearchbeforeudig.co.uk/RegisterNewUser> and start your search there.

If you have any queries or wish to speak to a member of the JSM Plant Protection Team please call 01992 655 919.

**The accuracy of information on the plans cannot be guaranteed and no liability can be accepted for errors or omissions.**

2. Where the utility drawings show that the works or the movement of plant or equipment may endanger the Zayo Apparatus the Contractor must mark out the location of the Zayo Apparatus and ensure the apparatus is adequately protected from damage.
3. The contractor should note that damage to Zayo's Fibre-optic network is extremely disruptive and costly to reinstate. The Contractor shall make every effort to avoid the disturbance of Zayo's apparatus for the completion of the work.
4. When excavating, moving or backfilling around Zayo's apparatus The Contractor should note that the normal depth of cover for Zayo ducts are as follows:
  - Carriageway        600mm
  - Footway            350mm
  - Verge                350mm
5. With regard to excavation in the vicinity of Zayo's apparatus the Contractor should be aware of the possibility of reduced cover and the possibility of encountering Zayo apparatus at depths of cover less than that given above.
6. All excavation adjacent to Zayo apparatus is to be carried out by hand until the exact extent and/or location of the Zayo apparatus is known. Use spades and shovels in preference to other tools.



7. Do NOT use Mechanical borers and/or excavators within 0.5m of Zayo Apparatus.
8. To prevent any movement of Zayo apparatus during excavations, complete shuttering shall be used if:
  - The excavation is deeper than the depth of cover of the adjacent Zayo apparatus.
  - The excavation is within 1.0m of Zayo apparatus in stable ground.
  - The excavation is within 5.0m of Zayo apparatus in unstable ground.
9. If for the completion of the works the Contractor intends using any of the following:
  - Pile driving equipment within 10.0m of Company Apparatus.
  - Explosives within 20.0m of Company Apparatus.

Then the Contractor shall advise the Zayo Plant Protection Centre giving a minimum 10 working days written notice.

10. All Zayo manhole, joint box and /or other access points and chambers within the site shall be kept clear and unobstructed at all times to allow access by Zayo and /or their Contractor to carryout maintenance on the network. The Contractor should particularly note that footway type jointing chambers are not specified for carriageway loadings and will need to be adequately protected and/or demolished and rebuilt by Zayo where such chambers are likely to be placed at risk, either temporarily or permanently, from the movement of plant and/or equipment on the site.
11. The covers to Zayo chambers and/or apparatus shall only be lifted by means of appropriate manhole keys under the direct supervision of a Zayo Representative. No employee of the Contractor or of any sub-contractor employed by the Contractor shall enter any Zayo chamber and/or apparatus unless under the supervision of a Zayo Representative.
12. In the event of any damage whatsoever to Zayo apparatus, the Contractor shall immediately report the incidence to Zayo by contacting Zayo as follows:

**Telephone: 0800 169 1646 (Zayo 24Hr Network Operations Centre)**

**Damage to Communications Plant is Expensive – Please Take Care**

Please note these basic safety details are explained in detail in the HSE booklet HS(G)47 – Avoiding Danger from Underground Services.



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Date: 05/03/19

Scale: 1:9045

Map Centre: 332349,362438

Data updated: 11/01/19

Telecoms Plan A4

Important Information - please read The purpose of this plan is to identify Virgin Media apparatus. We have tried to make it as accurate as possible but we cannot warrant its accuracy. In addition, we caution that within Virgin Media apparatus there may be instances where mains voltage power cables have been placed inside green, rather than black ducting. Further details can be found using the "Affected Postcodes.pdf", which can be downloaded from this website. Therefore, you must not rely solely on this plan if you are carrying out any excavation or other works in the vicinity of Virgin Media apparatus. The actual position of any underground service must be verified by cable detection equipment, etc. and established on site before any mechanical plant is used. Accordingly, unless it is due to the negligence of Virgin Media, its employees or agents, Virgin Media will not have any liability for any omissions or inaccuracies in the plan or for any loss or damage caused or arising from the use of and/or any reliance on this plan. This plan is produced by Virgin Media Limited (c) Crown copyright and database rights 2019 Ordnance Survey 100019209.

Duct, Trench



Chamber



Cabinet



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VM.1129571

