

Engineering Report

Ionity EV Hub
Reading Village Hotel
Richfield Ave
Reading
RG1 8BD
United Kingdom

TABLE OF CONTENTS

1	Introduction	1
2	Scope of the Report	1
3	Description of Site & Proposed Development.....	1
3.1	Site Location & Setting.....	1
3.2	Proposed Development	2
4	Existing Infrastructure.....	3
4.1	Existing Surface Water Drainage Networks	3
4.2	Existing Foul Wastewater Networks.....	3
4.3	Existing Watermain Network	3
4.4	Existing Electricity & Services Networks.....	4
4.5	Existing Gas Infrastructure	4
4.6	Existing Telecommunications Infrastructure	4
5	Details of the Proposed Development.....	4
5.1	Internal Road Network	4
5.2	Proposed Foul Sewer Network.....	4
5.3	Water Supply	4
5.4	Street Lighting.....	5
5.5	EV Charging Infrastructure	5
5.6	Nature and Extent of EV Charging.....	5
5.7	Power Infrastructure	5
5.8	Surface Water Drainage	5
6	Flood Risk.....	8

Appendix A - Surface & Foul Water Utility Maps

Appendix B - Water Utility Maps

Appendix C - Electricity Utility Maps

Appendix D - Gas Utility Maps

Appendix E - Telecommunication Utility Maps

Appendix F - Surface Water Drainage Design & Calculations

Version	Date	Prepared By	Approved By
-	9 th December 2025	Jamie Reynolds	James Fegan

1 Introduction

This Engineering Report has been prepared to support a planning application for the installation of an electric vehicle (EV) charging hub within the existing car park of The Village Hotel, Richfield Ave in Reading, Berkshire.

The proposal comprises six EV charging bays with three 1000kW chargers, associated feeder pillars/switchgear, power cabinet, below-ground cabling, bollards, line marking, lighting columns, and associated works. The works are contained within the existing hotel car park on existing hardstanding and 185m² of landscaped/scrub land within the car park site. The redline boundary of the subject site is circa 420 sq.m.

2 Scope of the Report

This report outlines proposals for the proposed development including the provisions of road pavements, parking areas, new surface water network and other underground utilities associated with electric car charging stations including substation and associated power units subject to obtaining planning permission.

The report will also outline the existing drainage infrastructure that supports the proposed development along with the proposed drainage, proposed services & utilities.

3 Description of Site & Proposed Development

3.1 Site Location & Setting

Site Address	Village Hotel, Richfield Avenue, Reading, UK
National Grid Reference	SU 71011 74507
Site Centre (WGS84)	51°27'54"N 0°58'45"W
Existing Use	Hotel car park
Site Area	420 m ² = 0.042 ha

3.1.1 Topography

The existing site is relatively flat with levels ranging from 38.32 mAOD to 38.58 mAOD.

A topographical survey of the existing site and adjacent area is illustrated on McArdle Doyle Engineering Existing Layout drawing P2434.23.C02.



Figure 3.1 - Site Location (Source: Google Earth)

3.2 Proposed Development

Works comprise, in summary:

- 3no. Alpitronic HYC1000 electric vehicle chargers on flush concrete plinths/bases. As detailed on drawing P2434.23.C09 included in the accompanying planning application.
- 1no. package substation on a raised concrete base: as detailed on drawing P2434.23.C11 included in the accompanying planning application. Finished Floor Level (FFL) specified on drawing P2434.23.C05.
- 1no. associated feeder pillar/LV cabinet on modular plastic base: as detailed on drawing P2434.23.C08 included in the accompanying planning application.
- 1no. power cabinet on concrete base: as detailed on drawing P2434.23.C09 included in the accompanying planning application.
- Below-ground cabling in trenches.
- Bay marking, signage, bollards, and lighting columns.
- Local resurfacing/kerb adjustments. EV charging spaces and charger islands will be resurfaced with permeable block paving.



Figure 3.2 - Proposed Site Layout (Drawing No. P2434.23.C03)

4 Existing Infrastructure

There are a number of existing services noted within and in close proximity to the site boundary.

All existing services in the immediate surrounding of the site are noted in below Sections 4.1 -4.6.

4.1 Existing Surface Water Drainage Networks

The exiting public (Thames Water) surface water drainage is located 15m east of the site, within Thames Side Promenade. See attached **Appendix A**.

Within the site boundary are not records or evidence of private surface water network that requires amendment based on the proposed development. A self-contained new surface water drainage network is proposed for this development. See Section 5.8 below for details.

4.2 Existing Foul Wastewater Networks

The exiting public (Thames Water) foul wastewater drainage is located 15m east of the site, within Thames Side Promenade. See attached **Appendix A**.

There is no proposed foul sewer connection required for this development.

4.3 Existing Watermain Network

The existing public watermain (Thames Water) is located c. 40m south of the site, on the far side footpath of Richfield Avenue. See attached **Appendix B**.

No water connection is proposed as part of proposed development.

4.4 Existing Electricity & Services Networks

There is an existing low voltage line (SSE owned) east of the proposed development along Thames Side Promenade.

The SSE services map is attached as part of **Appendix C** of this report.

There will be a new High Voltage connection to this proposed development. Early engagements with SSE indicate that the point of connection will be in the footpath of Richfield Avenue.

4.5 Existing Gas Infrastructure

Attached **Appendix D** shows a SGN low pressure gas main crossing the proposed site location. The site layout has been designed to ensure no infrastructure is within 3m each side of the gas main. There has been engagement with SGN and layouts shared. The works will require a bank of ducts to be installed across the gas main. Appropriate separation distances will be included in the detailed design. During construction hand excavation will be required within 0.5m of the main.

There is no gas connection proposed to serve the proposed development.

4.6 Existing Telecommunications Infrastructure

The existing telecommunications network (BT) is located c. 5m east of the site within the footpath of Thames Side Promenade. See attached **Appendix E**.

No telecommunication connection is proposed as part of proposed development.

5 Details of the Proposed Development

The proposed works encompass development of 6 no. electric car charging bays with client substation structure, accompanying Power Cabinet, LV panel and associated electrical plant and related site works.

Details of the proposed infrastructure of the development are outlined in below Section 5.1-5.5.

5.1 Internal Road Network

The proposed development is within the existing hotel park car park and there are no proposed changes to the traffic flow or control.

The proposed development layout is shown on drawing No. P2434.23.C03.

5.2 Proposed Foul Sewer Network

No wastewater discharge connection is required for the proposed development.

5.3 Water Supply

No water supply is required for the proposed development.

5.4 Street Lighting

The proposed lighting columns are noted as 4 metres high ASD Lighting columns and have been located in between charger units as shown on site services drawing No. P2434.23.C03.

A separate detailed Lighting Report has been included with this Planning Application.

5.5 EV Charging Infrastructure

The EV charging infrastructure proposed on the subject site consists of the Installation of 3 no. electric vehicle charging units, which serves the developments proposed 8 no. parking spaces, a summary of which is noted in the following breakdown in Table 5.1.

Table 5.1 - EV Charger & Parking Summary Table

Charger Type	No. of Charger Type Units	No. of Spaces Served for Subject Charger
Alpitronic HYC1000	3	4 Standard Spaces 2 Accessible Spaces

These Charger Posts are detailed on drawing P2434.23.C09 will also require associated equipment detailed in below Section 5.7 Power Infrastructure.

5.6 Nature and Extent of EV Charging

Each standard charging bay will comprise a parking space and electric vehicle charging unit. The standard charging bays will be 5m deep and 3m wide. The DDA being 5m deep and 2.4m wide with compliant allowing for 1.2m surrounding the spaces.

The charging units will cater for level access, and each charging unit will be approximately 0.52m wide x 2.3m high.

5.7 Power Infrastructure

- Client (Ionity) Modular Substation installed on appropriate slab with substructure as per McArdle Doyle Drawing P2434.23.C11.
- LV Panel on pillar base frame as per drawing and manufacturers installation guidelines and noted on McArdle Doyle Drawing P2434.23.C08.
- Power Cabinet infrastructure on concrete substructure base as per McArdle Doyle Drawing P2434.23.C09.

5.8 Surface Water Drainage

Details of the drainage reconfiguration is shown on drawing P2434.23.C04.

The proposed EV charging spaces will be resurfaced with permeable block, trenches in existing road will be resurfaced with bituminous pavement (as existing), with cross falls and longitudinal falls to promote efficient drainage of all surfaces. Bituminous pavements will be finished with asphalt build up, to CD226 Design for new pavement

construction & CD235 Surface course materials for construction as per detail on proposed drawing No. P2434.23.C09 and as per specification for Highway Works.

All hard standing pavements will be drained to the designed internal surface water network via the permeable paving build-up of the EV parking spaces.

The proposed drainage layout will consist of permeable paving areas for the charging bays draining to a 225mm perforated pipe. The perforated pipes will be drained to a central flow control manhole to limit the discharge from the site as set out in the Engineering Report. The restricted flow will then drain into the main surface water sewer located outside of the site

5.8.1 Surface Water Drainage Strategy

5.8.1.1 *Surface Water Network Design*

The new drainage network has been designed in accordance with guidelines set out in 'The SUDS Manual, C753', published by CIRIA and National standards for sustainable drainage systems (SUDS).

Standard 1 – Runoff Destinations

Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the hierarchy below.

1. *Collected for non-potable use.*
2. *Infiltrated to the ground.*
3. *Discharged to an aboveground surface water body.*
4. *Discharged to a surface water sewer, or another piped surface water drainage system.*
5. *Discharged to a combined sewer.*

The falls on the proposed car park access road direct all run-off to the permeable paving on the EV Spaces which allows infiltration to a perforated pipe. All run off from the permeable paving will be attenuated beneath the permeable paving with discharge to the existing surface water network throttled to greenfield run off rates.

Standard 2 – Management of Everyday Rainfall (Interception)

Apply a 'SuDS approach' so that at least the first 5mm of rainfall for the majority of rainfall events does not result in runoff from the site to surface waters or piped drainage systems.

The surface water storage system has been designed for a 1 in 100 year storm.

The EV spaces will utilise the existing surface water drainage system on site. The existing drainage system has attenuation and flow control, limiting discharge to greenfield runoff rates.

Standard 3 – Management of Extreme Rainfall & Flooding

A 'SuDS approach' shall be adopted to address the management of development runoff during extreme rainfall, including allowances for climate change and urban creep. This is to protect people and property on the development from flooding, mitigate any increased flood risk to people and

property adjacent to the site and protect the receiving water body from damage or minimise impact on sewer capacity.

The EV spaces will utilise the existing surface water drainage system on site. This was designed to accommodate a 1 in 100 year storm event plus climate change.

Standard 4 – Water Quality

Apply a ‘SuDS approach’ that protects surface waters, groundwater and coastal waters by managing the quality of the surface water runoff to adequately address water quality risks from the development.

The proposed permeable paving and stone below allows for infiltrating to the perforated pipe prior to discharge to the existing surface water system.

There is a low risk of oil spills occurring from an EV charging facility compared with a standard car park which caters for standard combustion engine cars. A separator is there for not deemed to be required.

Standard 5 – Amenity

A ‘SuDS approach’ shall be adopted that maximises benefits for amenity through the creation of multi-functional places and landscapes.

The site has been provided with a large area of vegetation and green area to allow direct infiltration to the soil below. A landscape plan and BNG assessment has been prepared and submitted as part of this planning application detailing the proposed vegetation species and tree/plant selection. The layout has been designed in order to maximise the amenity space.

Standard 6 – Biodiversity

A ‘SuDS approach’ shall be adopted to ensure the surface water drainage system maximises biodiversity benefits through the development lifecycle.

The site has been provided with an area of vegetation and green area to allow direct infiltration to the soil below. A landscape plan and BNG assessment has been prepared and submitted as part of this planning application detailing the proposed vegetation species and tree/plant selection.

Standard 7 – Design of Drainage for Construction, Operation, Maintenance, Decommissioning and Structural Integrity

A ‘SuDS approach’ shall be adopted to ensure the surface water drainage system are designed so that they can be easily and safely constructed, operated and maintained taking account of the need to minimise negative impacts on natural resources and the environment.

The drainage system has been designed so that it can be easily and safely constructed, operated and maintained through its design life. Drainage runs between manholes/inspection chambers have been kept to a minimum to allow ease of cleaning and removal of any silt build up.

5.8.2 Surface Water Network

The drainage within the new proposed car parking development will meet modern environmental & SUDS standards.

The proposed drainage arrangement to serve the new development has been designed as a standalone individual gravity pipe system which will drain to perforated pipes beneath the EV charging spaces prior to discharging to the existing surface water network.

5.8.2.1 Class 02 Separator

As described above in Standard 4 Water Quality, there is no requirement for a class 2 separator to be installed as there is a low risk of oil pollution from the proposed EV charging development.

5.8.2.2 Surface Water Design/ Attenuation Area

The accompanying surface water design has been based on the Colebrook-White equation and the Rational Method. The criteria used in the design are as follows:

- Runoff: $Q = 2.78 \times \text{Area} \times \text{rainfall intensity}$
- Rainfall intensity: 50mm/hr
- Pipe Material: PVC
- Minimum / maximum velocity: 0.8 / 3.0 m/s
- Pipe roughness ks: 0.06 mm

The new drainage network has been designed in accordance with guidelines set out in 'The SUDS Manual, C753', published by CIRIA. The design embraces sustainable urban drainage (SUDS) principles – the network has been designed so that post-development runoff intensity does not exceed the pre-development equivalent greenfield runoff intensity. Surface water runoff from the hard standing areas will be attenuated and discharged at the green field run off rate.

The proposed storage solution has been sized based on the most up-to-date rainfall intensities and 20% climate change please see Appendix F for calculations.

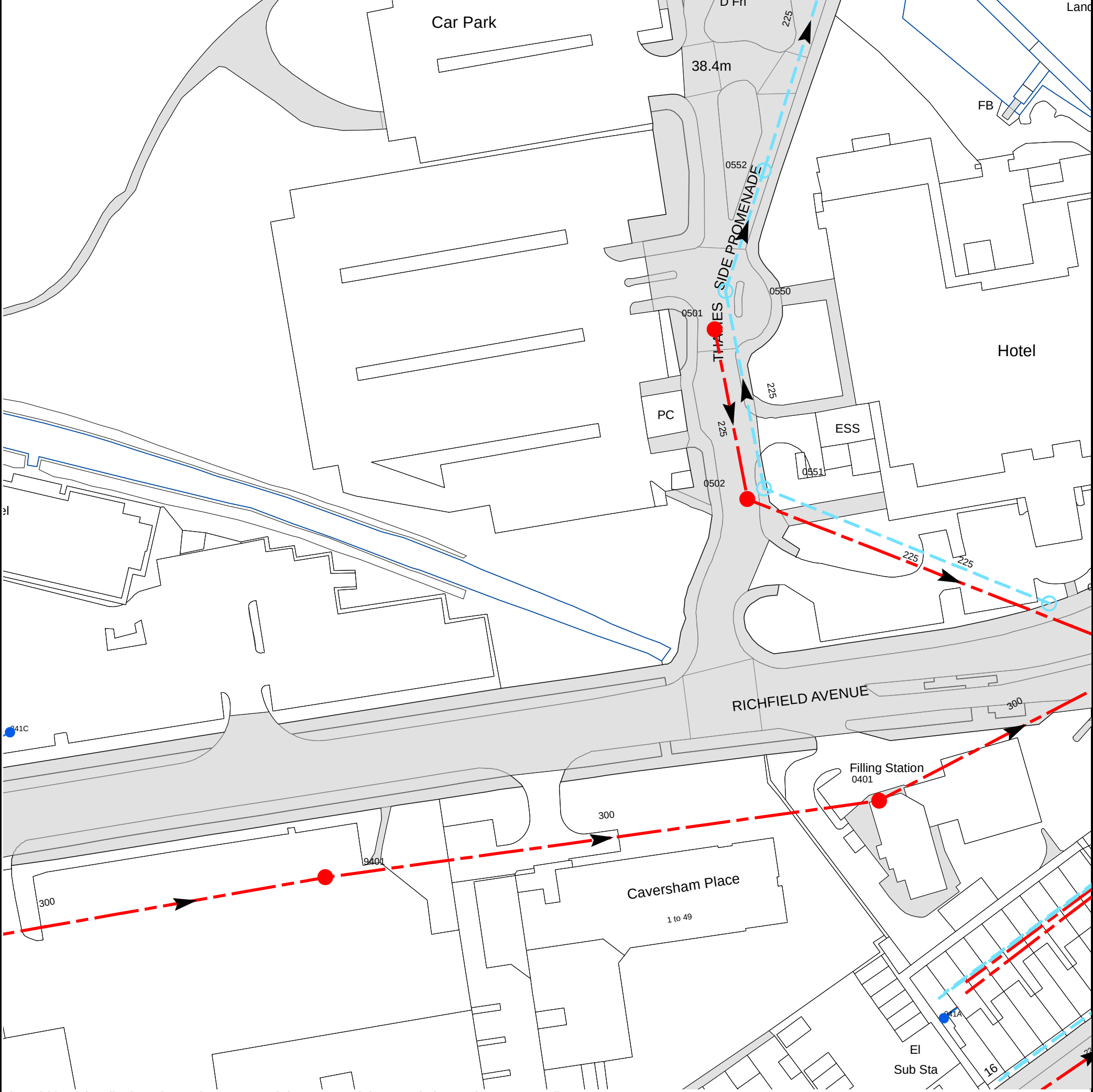
The surface water will be attenuated within a granular layer beneath the permeable paving. The system has been designed with the capacity of 13 m³, to cater for the critical 100-year storm event which requires an estimated storage volume of 13.26 m³ based on Storage estimation Calculations in Appendix F.

There is no proposed infiltration to the ground included in this calculation we note that any infiltration is beneficial but not accounted for in the storage in this instance.

6 Flood Risk

Please see standalone flood risk report for this proposed development.

Appendix A - Surface & Foul Water Utility Maps



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 470992,174499
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map (2024) with the Sanction of the controller of H.M. Stationery Office, License no. AC0000849556 Crown Copyright Reserved.

NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

Manhole Reference	Manhole Cover Level	Manhole Invert Level
041A	n/a	n/a
0450	38.91	37.03
9401	38.6	36.62
0401	n/a	n/a
841C	n/a	n/a
0502	38.38	36.37
0551	38.54	36.68
0501	38.37	36.39
0550	38.42	36.49
0552	38.25	36.48
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.		



Asset Location Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

	Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.
	Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.
	Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.
	Storm Sewer
	Sludge Sewer
	Foul Trunk Sewer
	Surface Trunk Sewer
	Combined Trunk Sewer
	Foul Rising Main
	Surface Water Rising Main
	Combined Rising Main
	Vacuum
	Thames Water Proposed
	Vent Pipe
	Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

	Sewer		Culverted Watercourse
	Proposed		Decommissioned Sewer
	Content of this drainage network is currently unknown		Ownership of this drainage network is currently unknown

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve		Meter
	Dam Chase		Vent
	Fitting		

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Ancillary		Drop Pipe
	Control Valve		Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Inlet		Outfall
	Undefined End		

Other Symbols

Symbols used on maps which do not fall under other general categories.

	Change of Characteristic Indicator		Public / Private Pumping Station
	Invert Level		Summit

Areas

Lines denoting areas of underground surveys, etc.

	Agreement
	Chamber
	Operational Site

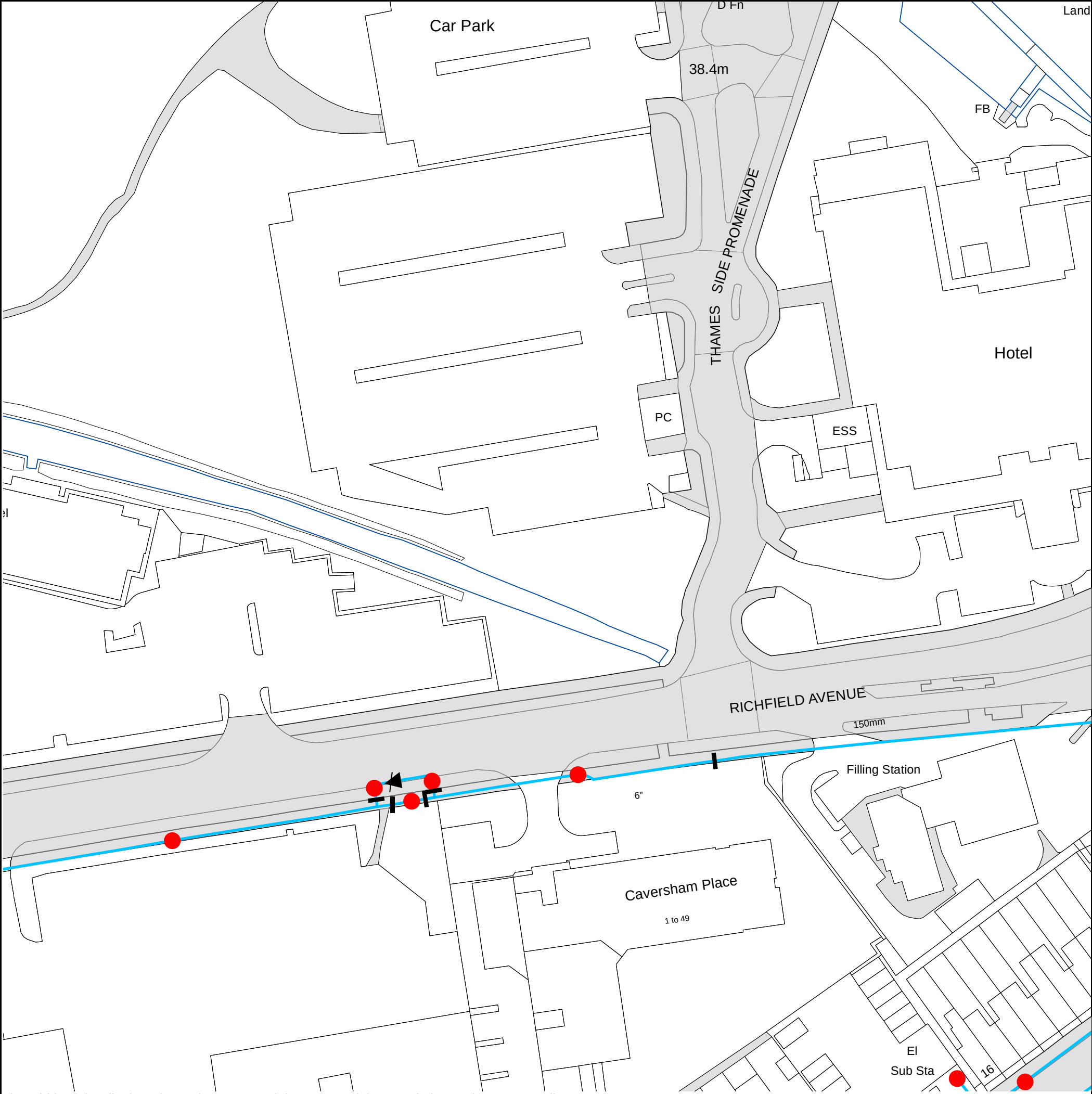
Ducts or Crossings

	Casement	Ducts may contain high voltage cables. Please check with Thames Water.
	Conduit Bridge	
	Subway	
	Tunnel	

5) 'na' or '0' on a manhole indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

Appendix B - Water Utility Maps



The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 470992, 174499.

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map (2024) with the Sanction of the controller of H.M. Stationery Office, License no. AC0000849556 Crown Copyright Reserved.



Asset Location Search - Water Key

Water Pipes (Operated & Maintained by Thames Water)

- 4"** **Distribution Main:** The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.
- 16"** **Trunk Main:** A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.
- 3" SUPPLY** **Supply Main:** A supply main indicates that the water main is used as a supply for a single property or group of properties.
- 3" FIRE** **Fire Main:** Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.
- 3" METERED** **Metered Pipe:** A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.
- Transmission Tunnel:** A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.
- Proposed Main:** A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

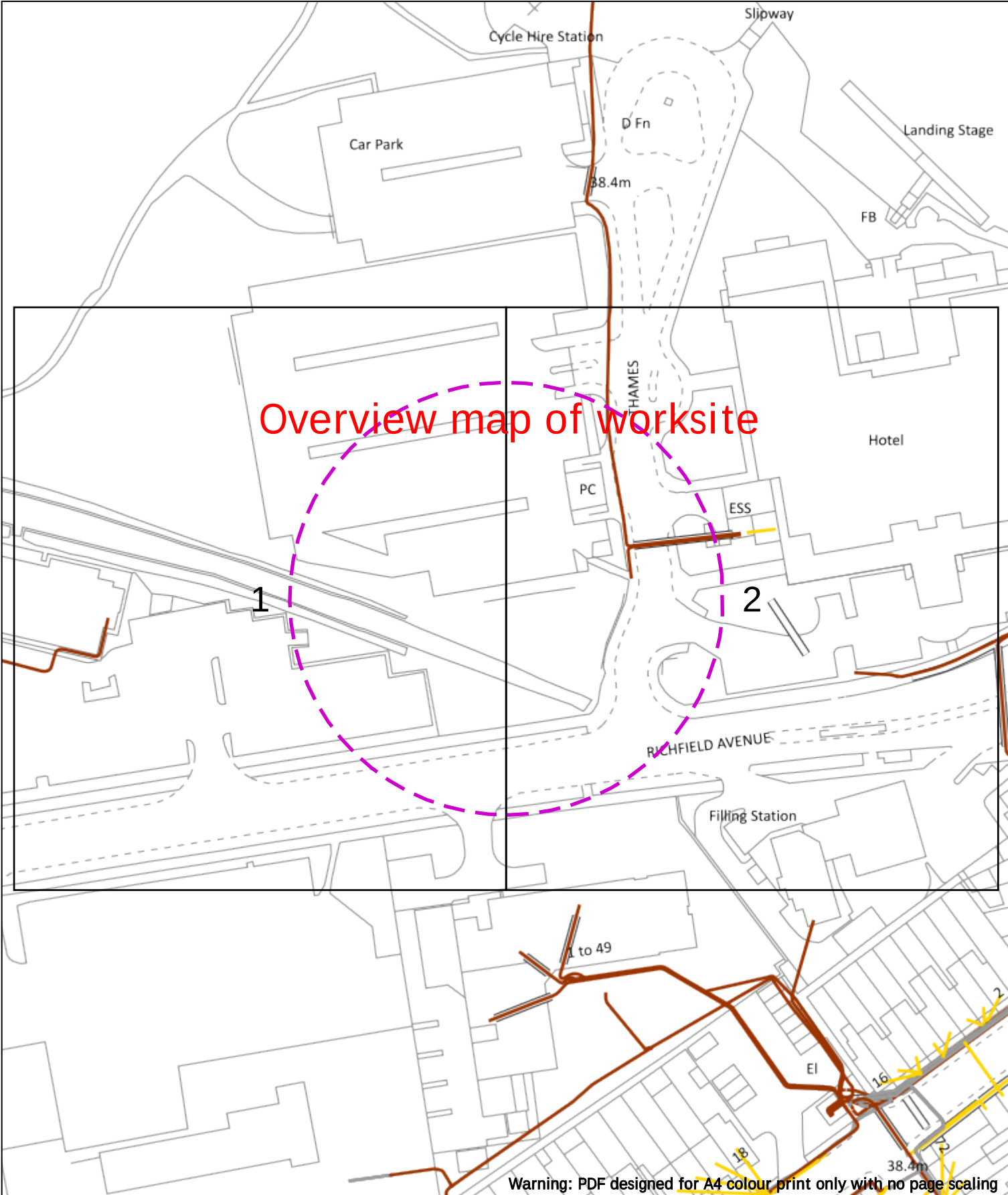
Other Symbols

- Data Logger
- Casement:** Ducts may contain high voltage cables. Please check with Thames Water.

Other Water Pipes (Not Operated or Maintained by Thames Water)

- Other Water Company Main:** Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.
- Private Main:** Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Appendix C - Electricity Utility Maps



Dig Sites Area:  Line: 

Date Requested: 30/09/2025
Job Reference: 38870879
Site Location: 470997 174498
Requested by: Miss Lauren Hartley
Your Scheme/Reference: P2434.23
IONITY Reading

Voltages (V)				
LV (Low Voltage) and Services	Up to 1,000V			
HV (High Voltage)	Over 1,000V to 11,000V			
EHV (Extra High Voltage)	22,000V to 132,000V			
Transmission	275,000V and 400,000V			

NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID				
Services	LV	HV	EHV	
Footpath/Unmade	0.45m	0.45m	0.6m	0.8m
Road Crossing	0.6m	0.6m	0.75m	0.9m
Agricultural	1m	1m	1m	1.1m

Legend

 Service Cable

 LV Mains

 2-3.3kV

 6.6kV

 11kV

 22kV

 33kV

 66kV

 132kV

 275kV

 400kV

 Fibre Optic

 Pilot Cable

 Pole, Existing Location

 Pole, Existing Location - Single

 Pole, Existing Location - H

 Duct Route

 Cross Section Route





Southern Electric Power Distribution plc

Registered Office: No.1 Forbury Place

43 Forbury Road Reading RG1 3JH

Registered In England & Wales No.04094290

If you're unsure & need to seek advice before commencing excavations, please contact:

General Enquiries: 0800 048 3516

Subject to revision – Master held by SSEN Asset Data Team:

Asset.Data@sse.com

01256 337 294

Scale: 1:1025 (When plotted at A4)

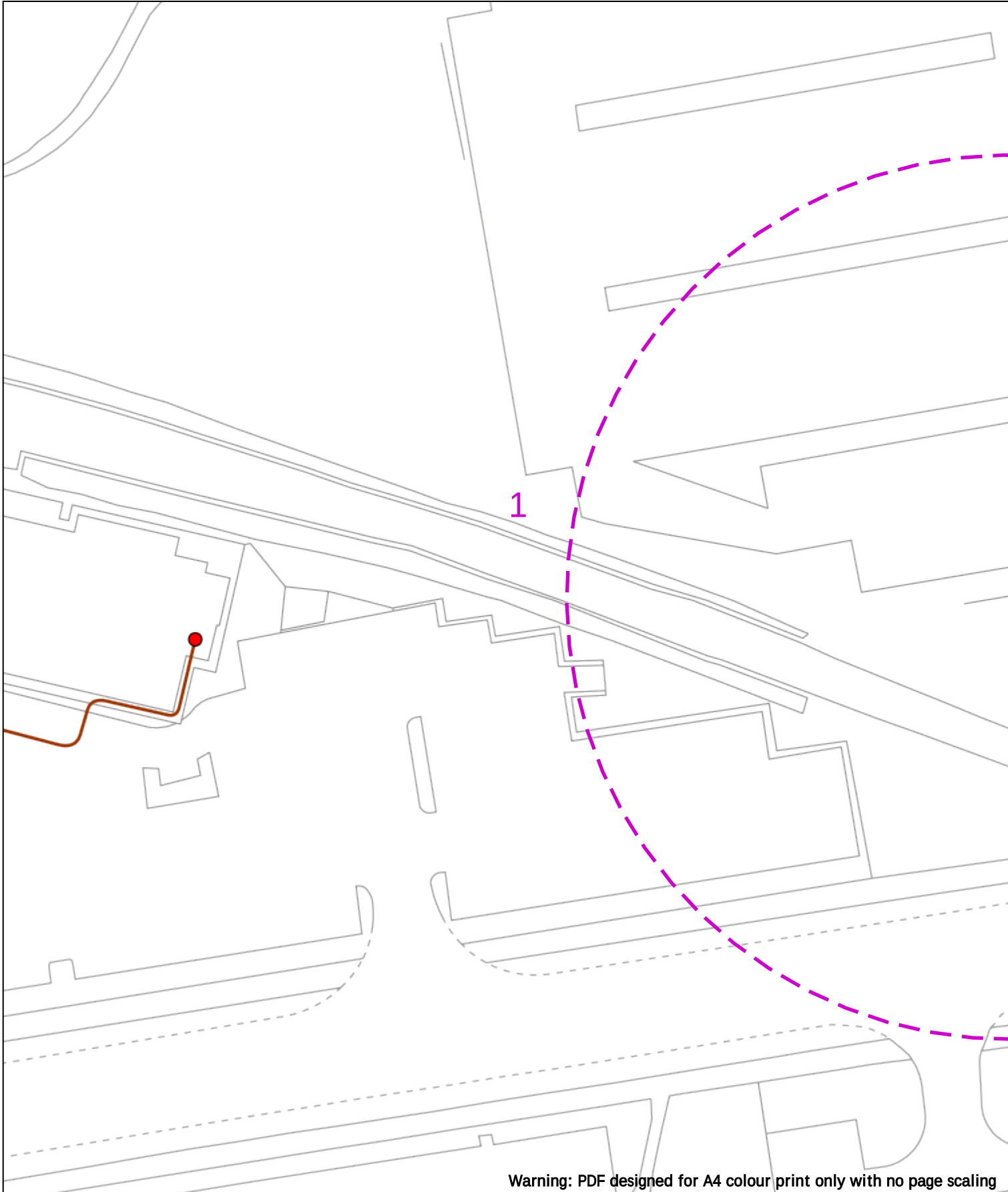
There may have been subsequent alteration to the surface levels. Trial holes must be undertaken to determine position and depths of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work.

WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES G56 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)

BASED UPON THE ORDNANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE CROWN COPYRIGHT RESERVED.

THIS COPY HAS BEEN MADE BY OR WITH THE AUTHORITY OF SCOTTISH AND SOUTHERN ENERGY POWER DISTRIBUTION LTD. PURSUANT TO SECTION 47 OF THE COPYRIGHT, DESIGNS AND PATENTS ACT 1988 ("THE ACT"). UNLESS THE ACT PROVIDES A RELEVANT EXCEPTION TO COPYRIGHT THE COPY MUST NOT BE COPIED WITHOUT PRIOR PERMISSION OF THE COPYRIGHT OWNER.

Plans generated by DigSAFE Pro™ software provided by Lineworkbeforeidig.



Warning: PDF designed for A4 colour print only with no page scaling

020m

Dig Sites

Area: 

Line: 

Date Requested: 30/09/2025

Job Reference: 38870879

Site Location: 470997 174498

Requested by: Miss Lauren Hartley

Your Scheme/Reference: P2434.23

IONITY Reading

Voltages (V)				
LV (Low Voltage) and Services	Up to 1,000V			
HV (High Voltage)	Over 1,000V to 11,000V			
EHV (Extra High Voltage)	22,000V to 132,000V			
Transmission	275,000V and 400,000V			

NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID				
Services	LV	HV	EHV	
Footpath/Unmade	0.45m	0.45m	0.6m	0.8m
Road Crossing	0.6m	0.6m	0.75m	0.9m
Agricultural	1m	1m	1m	1.1m

Legend

 Service Cable

 LV Mains

 2-3.3kV

 6.6kV

 11kV

 22kV

 33kV

 66kV

 132kV

 275kV

 400kV

 Fibre Optic

 Pilot Cable

Distribution Structures [Electric]

 Pole, Existing Location

 Pole, Existing Location - Single

 Pole, Existing Location - H

 Duct Route

 Cross Section Route





Southern Electric Power Distribution plc

Registered Office: No.1 Forbury Place

43 Forbury Road Reading RG1 3JH

Registered In England & Wales No.04094290

If you're unsure & need to seek advice before commencing excavations, please contact:

General Enquiries: 0800 048 3516

Subject to revision – Master held by SSEN Asset Data Team:

Asset.Data@sse.com

01256 337 294

Scale: 1:500 (When plotted at A4)

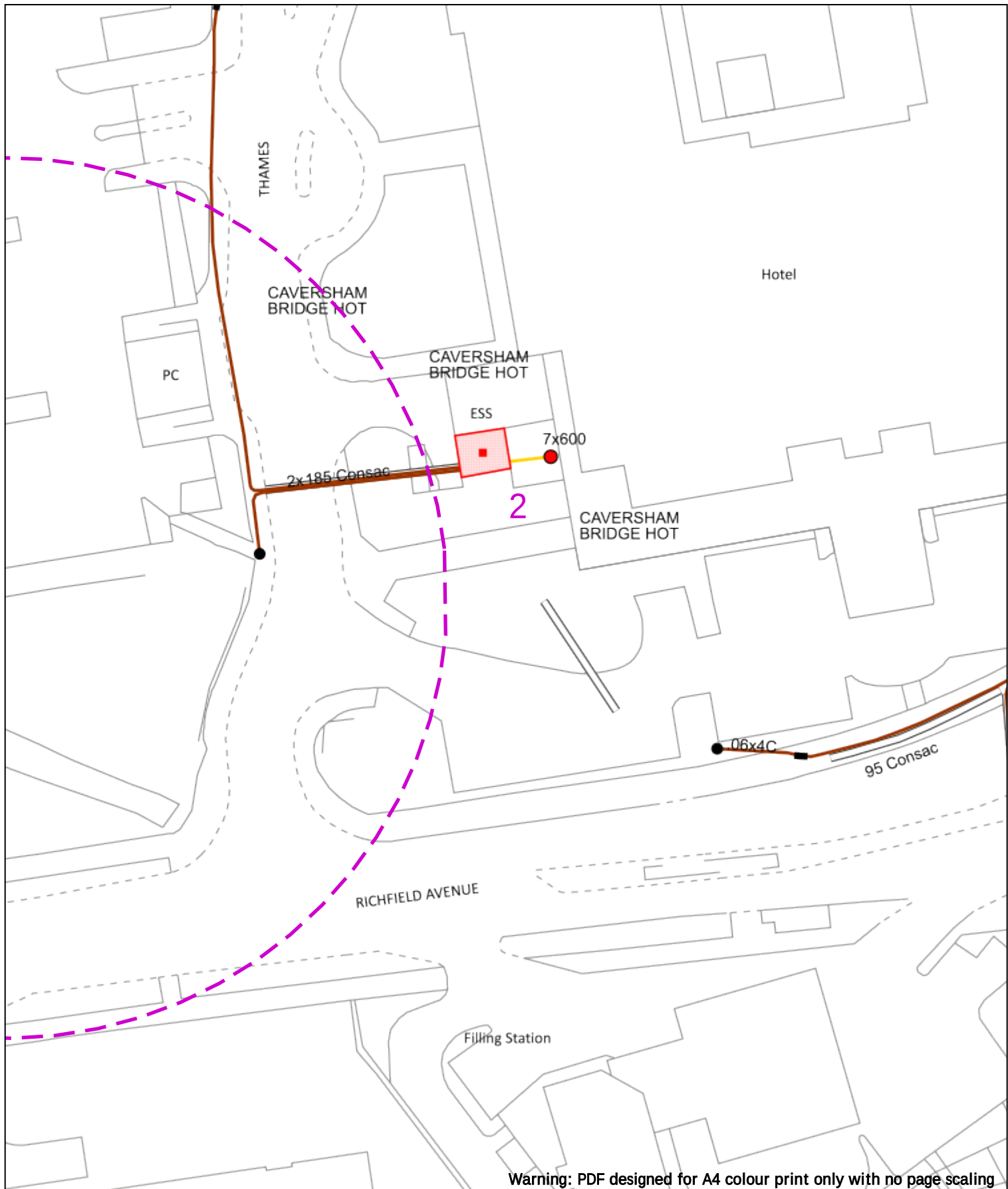
There may have been subsequent alteration to the surface levels. Trial holes must be undertaken to determine position and depths of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work.

WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES G56 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)

BASED UPON THE ORDNANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE CROWN COPYRIGHT RESERVED.

This copy has been made by or with the authority of Scottish and Southern Energy Power Distribution Ltd. Pursuant to section 47 of the Copyright, Designs and Patents Act 1988 ("The Act"). Unless the Act provides a relevant exception to copyright the copy must not be copied without prior permission of the copyright owner.

Plans generated by DigSAFE Pro™ software provided by Livesearchbeforeldig.



Warning: PDF designed for A4 colour print only with no page scaling

020m

Dig Sites

Area: 

Line: 

Date Requested: 30/09/2025

Job Reference: 38870879

Site Location: 470997 174498

Requested by: Miss Lauren Hartley

Your Scheme/Reference: P2434.23

IONITY Reading

Voltages (V)				
LV (Low Voltage) and Services	Up to 1,000V			
HV (High Voltage)	Over 1,000V to 11,000V			
EHV (Extra High Voltage)	22,000V to 132,000V			
Transmission	275,000V and 400,000V			
NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID				
Services	LV	HV	EHV	
Footpath/Unmade	0.45m	0.45m	0.6m	0.8m
Road Crossing	0.6m	0.6m	0.75m	0.9m
Agricultural	1m	1m	1m	1.1m

Legend

Service Cable

LV Mains

2-3.3kV

6.6kV

11kV

22kV

33kV

66kV

132kV

275kV

400kV

Fibre Optic

Pilot Cable

Distribution Structures [Electric]

Pole, Existing Location

Pole, Existing Location - Single

Pole, Existing Location - H

Duct Route

Cross Section Route

WARNING

There may have been subsequent alteration to the surface levels. Trial holes must be undertaken to determine position and depths of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work.

WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES G56 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)





Southern Electric Power Distribution plc

Registered Office: No.1 Forbury Place

43 Forbury Road Reading RG1 3JH

Registered In England & Wales No.04094290

If you're unsure & need to seek advice before commencing excavations, please contact:

General Enquiries: 0800 048 3516

Subject to revision – Master held by SSEN Asset Data Team:

Asset.Data@sse.com

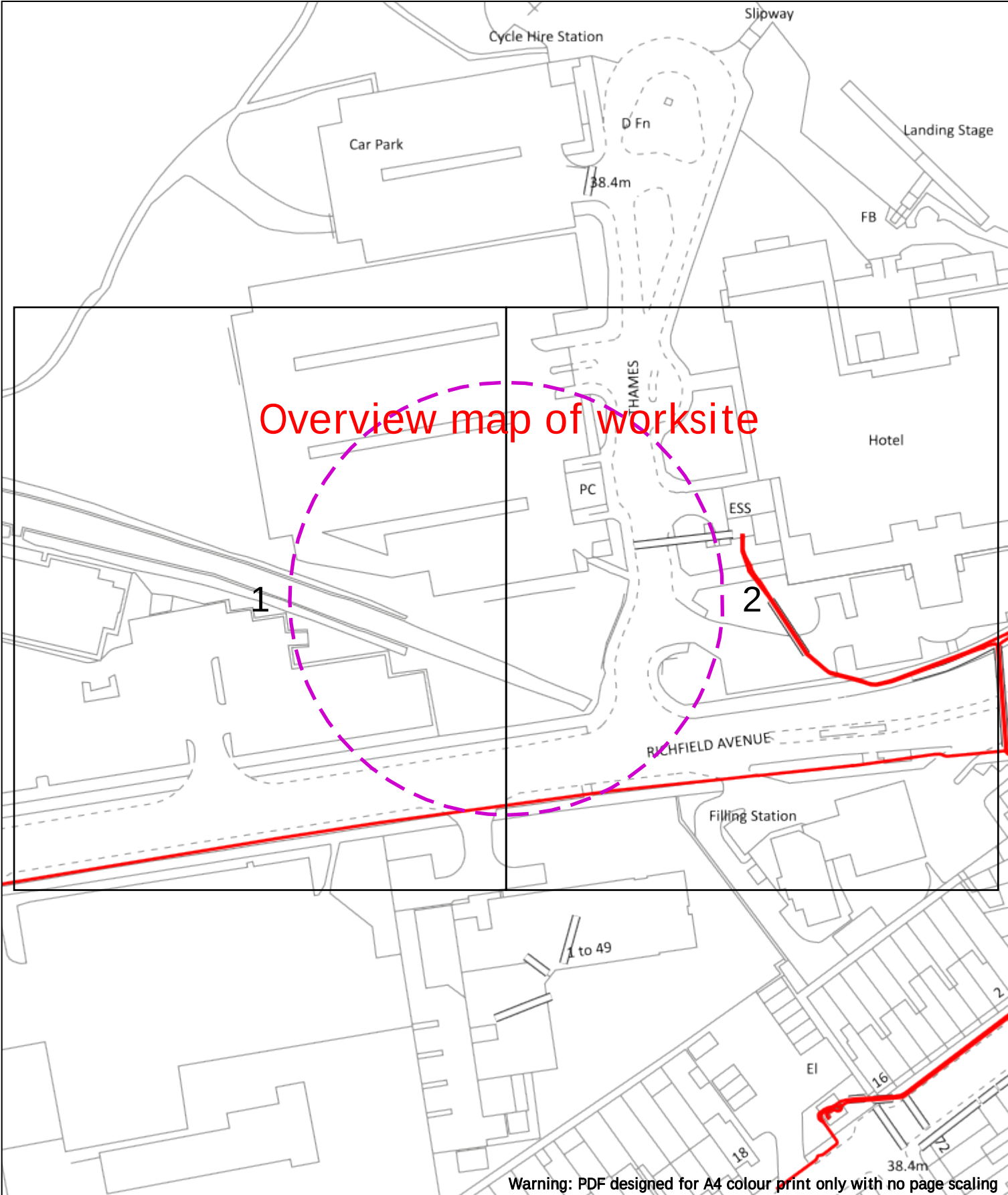
01256 337 294

Scale: 1:500 (When plotted at A4)

BASED UPON THE ORDNANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE CROWN COPYRIGHT RESERVED.

This copy has been made by or with the authority of Scottish and Southern Energy Power Distribution Ltd. Pursuant to section 47 of the Copyright, Designs and Patents Act 1988 ("The Act"). Unless the Act provides a relevant exception to copyright the copy must not be copied without prior permission of the copyright owner.

Plans generated by DigSAFE Pro™ software provided by Lineworkbeforeidig.



Warning: PDF designed for A4 colour print only with no page scaling

Dig Sites Area:  Line: 

Date Requested: 30/09/2025
Job Reference: 38870879
Site Location: 470997 174498
Requested by: Miss Lauren Hartley
Your Scheme/Reference: P2434.23
IONITY Reading

Voltages (V)					
LV (Low Voltage) and Services	Up to 1,000V				
	Over 1,000V to 11,000V				
	22,000V to 132,000V				
EHV (Extra High Voltage)	275,000V and 400,000V				
NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID					
Services	LV	HV	EHV		
Footpath/Unmade	0.45m	0.45m	0.6m	0.8m	
Road Crossing	0.6m	0.6m	0.75m	0.9m	
Agricultural	1m	1m	1m	1.1m	

Legend		Distribution Structures [Electric]	
 Service Cable		 Pole, Existing Location	
 LV Mains		 Pole, Existing Location - Single	
 2-3.3kV		 Pole, Existing Location - H	
 6.6kV		 Duct Route	
 11kV		 Cross Section Route	
 22kV			
 33kV			
 66kV			
 132kV			
 275kV			
 400kV			
 Fibre Optic			
 Pilot Cable			

WARNING

There may have been subsequent alteration to the surface levels. Trial holes must be undertaken to determine position and depths of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work.
WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES G56 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)

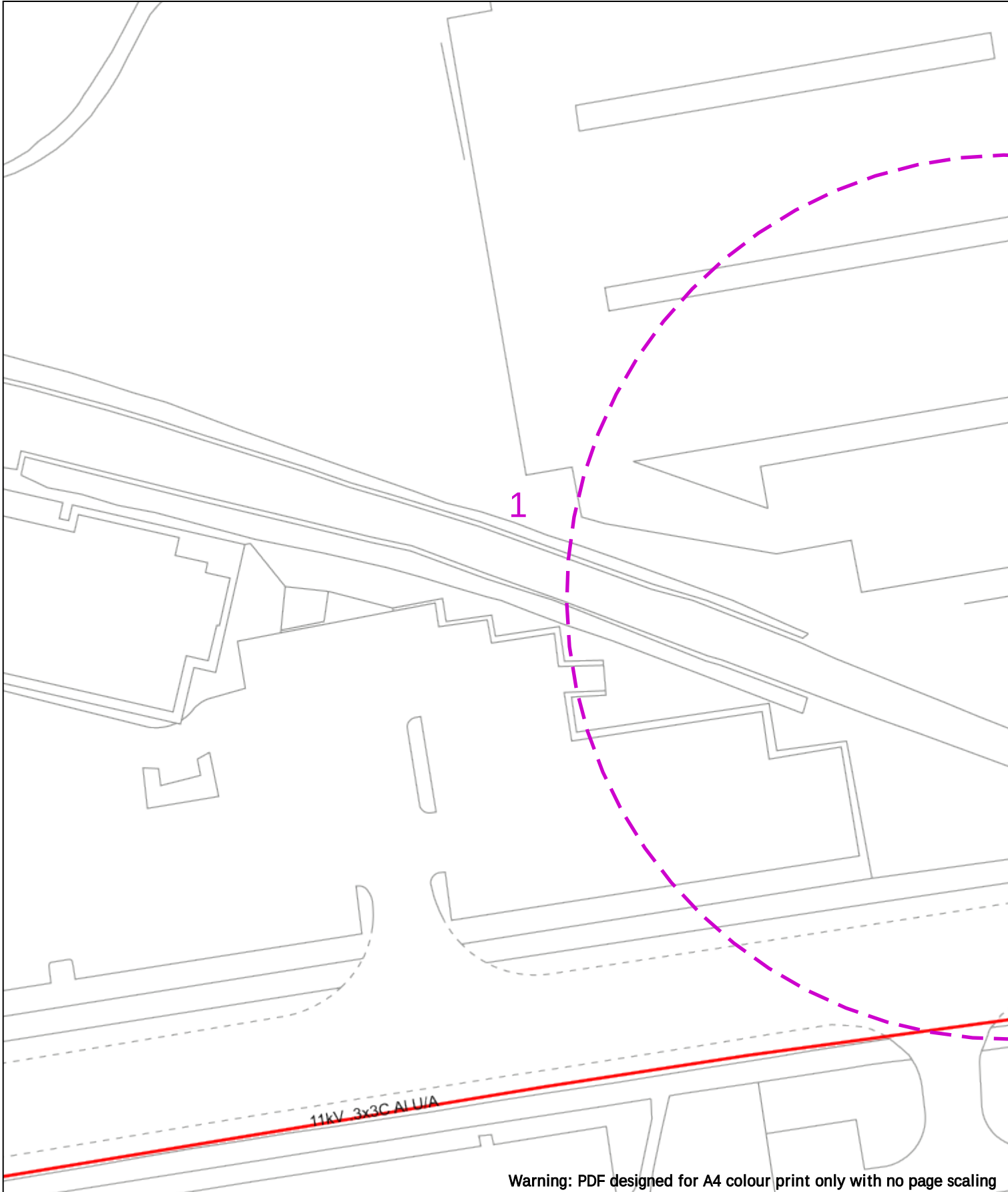


Southern Electric Power Distribution plc
Registered Office: No.1 Forbury Place
43 Forbury Road Reading RG1 3JH
Registered In England & Wales No.04094290

If you're unsure & need to seek advice before commencing excavations, please contact:
General Enquiries: 0800 048 3516

Subject to revision – Master held by SSEN Asset Data Team:
Asset.Data@sse.com
01256 337 294

Scale: 1:1025 (When plotted at A4)



020m

Dig Sites

Area: 

Line: 

Date Requested: 30/09/2025

Job Reference: 38870879

Site Location: 470997 174498

Requested by: Miss Lauren Hartley

Your Scheme/Reference: P2434.23

IONITY Reading

Voltages (V)				
LV (Low Voltage) and Services	Up to 1,000V			
HV (High Voltage)	Over 1,000V to 11,000V			
EHV (Extra High Voltage)	22,000V to 132,000V			
Transmission	275,000V and 400,000V			

NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID				
Services	LV	HV	EHV	
Footpath/Unmade	0.45m	0.45m	0.6m	0.8m
Road Crossing	0.6m	0.6m	0.75m	0.9m
Agricultural	1m	1m	1m	1.1m

Legend

 Service Cable

 LV Mains

 2-3.3kV

 6.6kV

 11kV

 22kV

 33kV

 66kV

 132kV

 275kV

 400kV

 Fibre Optic

 Pilot Cable

Distribution Structures [Electric]

 Pole, Existing Location

 Pole, Existing Location - Single

 Pole, Existing Location - H

 Duct Route

 Cross Section Route





Southern Electric Power Distribution plc

Registered Office: No.1 Forbury Place

43 Forbury Road Reading RG1 3JH

Registered In England & Wales No.04094290

If you're unsure & need to seek advice before commencing excavations, please contact:

General Enquiries: 0800 048 3516

Subject to revision – Master held by SSEN Asset Data Team:

Asset.Data@sse.com

01256 337 294

Scale: 1:500 (When plotted at A4)

WARNING

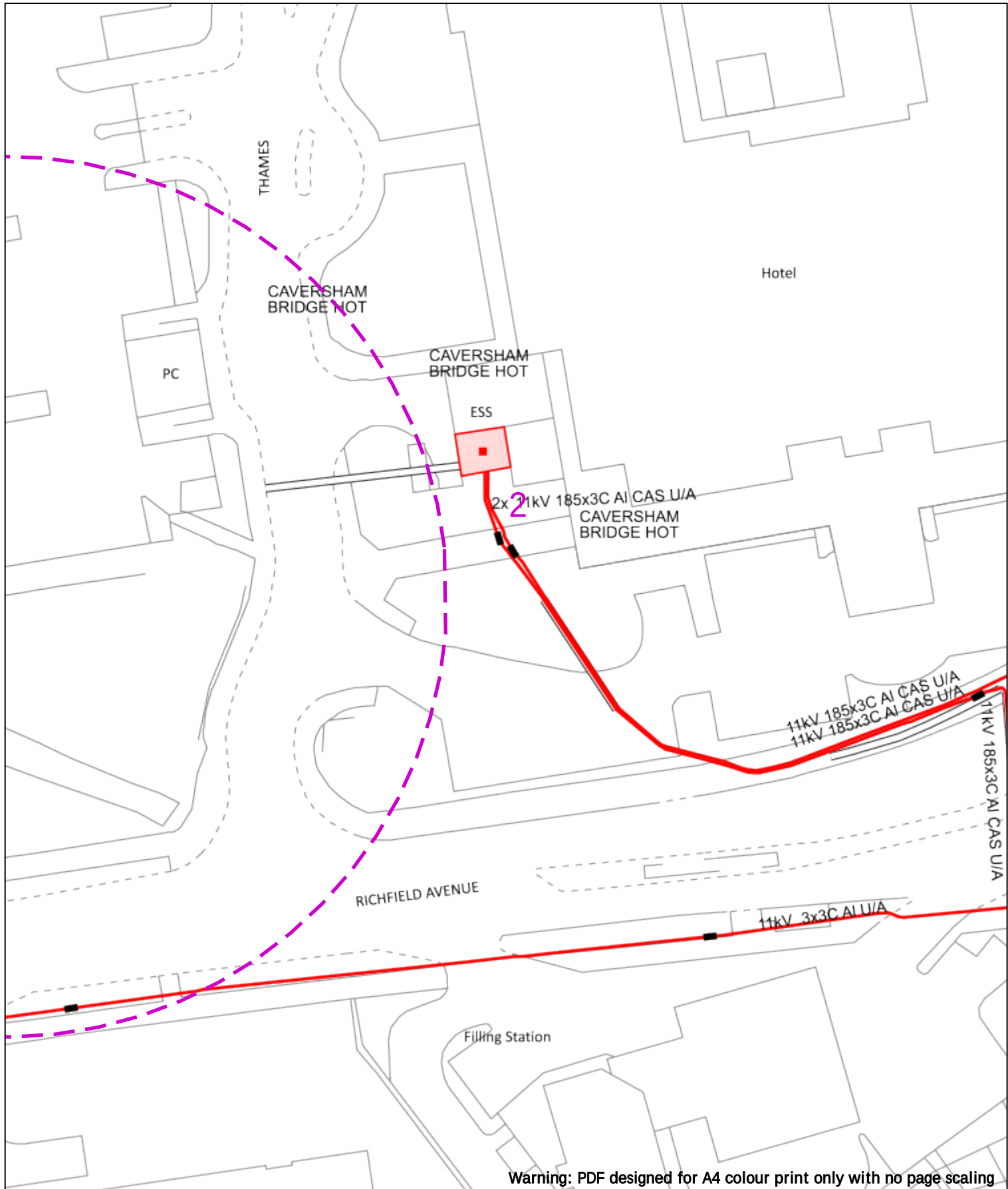
There may have been subsequent alteration to the surface levels. Trial holes must be undertaken to determine position and depths of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work.

WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES G56 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)

BASED UPON THE ORDNANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE CROWN COPYRIGHT RESERVED.

This copy has been made by or with the authority of Scottish and Southern Energy Power Distribution Ltd. Pursuant to section 47 of the Copyright, Designs and Patents Act 1988 ("The Act"). Unless the Act provides a relevant exception to copyright the copy must not be copied without prior permission of the copyright owner.

Plans generated by DigSAFE Pro™ software provided by LivesearchbeforeDig.



020m

Dig Sites

Area:

Line:

Date Requested: 30/09/2025

Job Reference: 38870879

Site Location: 470997 174498

Requested by: Miss Lauren Hartley

Your Scheme/Reference: P2434.23

IONITY Reading

Voltages (V)				
LV (Low Voltage) and Services	Up to 1,000V			
HV (High Voltage)	Over 1,000V to 11,000V			
EHV (Extra High Voltage)	22,000V to 132,000V			
Transmission	275,000V and 400,000V			

NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID				
	Services	LV	HV	EHV
Footpath/Unmade	0.45m	0.45m	0.6m	0.8m
Road Crossing	0.6m	0.6m	0.75m	0.9m
Agricultural	1m	1m	1m	1.1m

Legend

Service Cable

LV Mains

2-3.3kV

6.6kV

11kV

22kV

33kV

66kV

132kV

275kV

400kV

Fibre Optic

Pilot Cable

Pole, Existing Location

Pole, Existing Location - Single

Pole, Existing Location - H

Duct Route

Cross Section Route

Distribution Structures [Electric]

Pole, Existing Location

Pole, Existing Location - Single

Pole, Existing Location - H

Duct Route

Cross Section Route

Scottish & Southern

Electricity Networks

Southern Electric Power Distribution plc

Registered Office: No.1 Forbury Place

43 Forbury Road Reading RG1 3JH

Registered In England & Wales No.04094290

If you're unsure & need to seek advice before commencing excavations, please contact:

General Enquiries: 0800 048 3516

Subject to revision – Master held by SSEN Asset Data Team:

Asset.Data@sse.com

01256 337 294

Scale: 1:500 (When plotted at A4)

There may have been subsequent alteration to the surface levels. Trial holes must be undertaken to determine position and depths of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work.

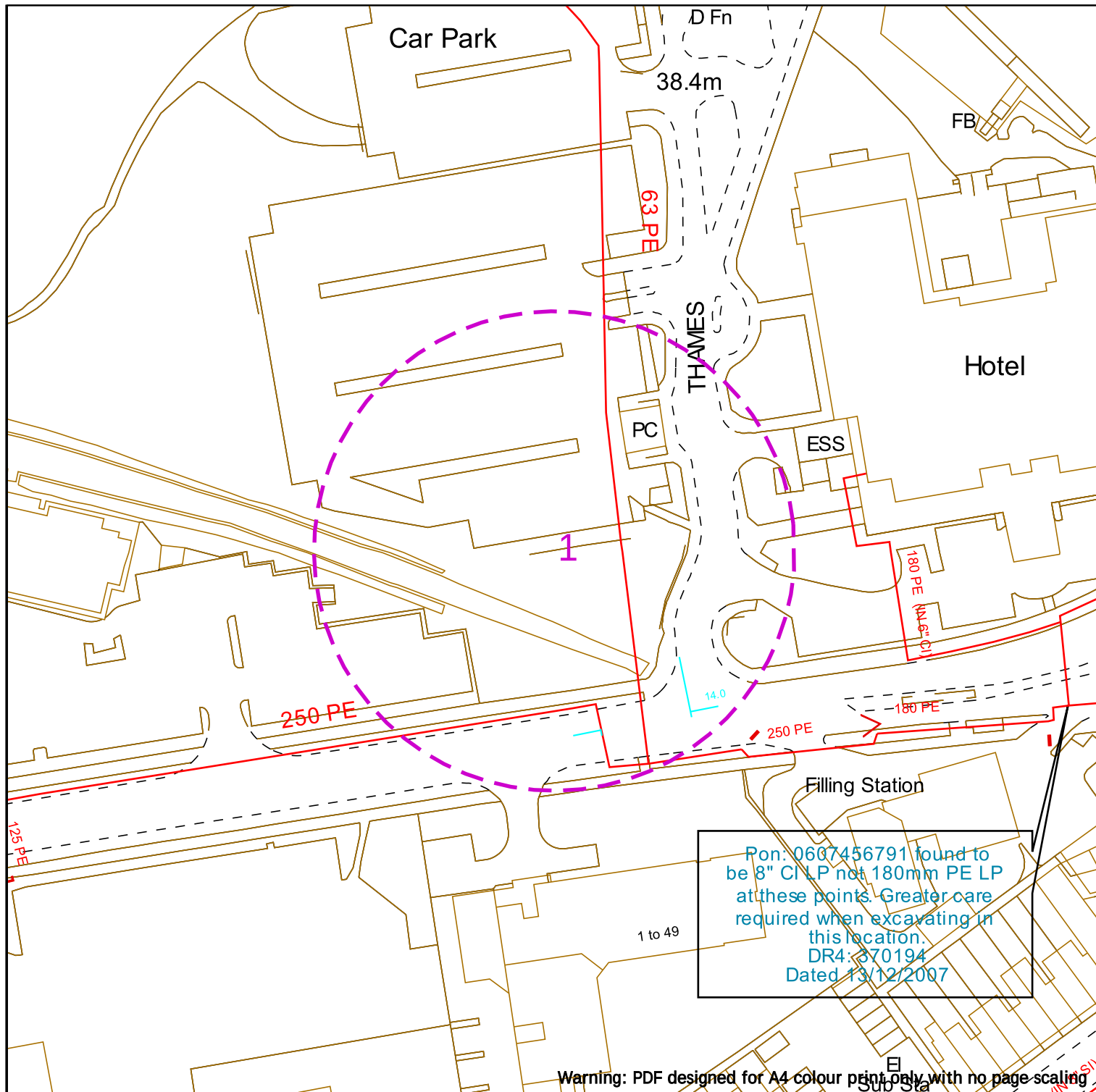
WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTES G56 SHOULD BE CONSULTED (AVAILABLE FROM THE HSE WEBSITE)

BASED UPON THE ORDNANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE CROWN COPYRIGHT RESERVED.

This copy has been made by or with the authority of Scottish and Southern Energy Power Distribution Ltd. Pursuant to section 47 of the Copyright, Designs and Patents Act 1988 ("The Act"). Unless the Act provides a relevant exception to copyright the copy must not be copied without prior permission of the copyright owner.

Plans generated by DigSAFE Pro™ software provided by Lineworkbeforeidig.

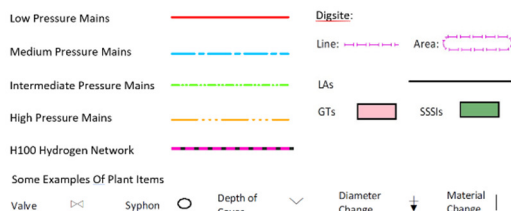
Appendix D - Gas Utility Maps



Warning: PDF designed for A4 colour print only with no page scaling



Contact Us
SGN Safety Admin Team:
 0800 912 1722
Email:
 plantlocation@sgn.co.uk



This information is given as a guide only and its accuracy cannot be guaranteed.



This plan shows the location of those pipes owned by Scotia Gas Networks (SGN) by virtue of being a licensed Gas Transporter (GT). Gas pipes owned by other GTs or third parties may also be present in this area but are not shown on this plan. Information with regard to such pipes should be obtained from the relevant owners. No warranties are given with regard to the accuracy of the information shown on this plan. Service pipes, valves, siphons, sub-connections etc. are not shown but their presence should be anticipated. You should be aware that a small percentage of our pipes/assets may be undergoing review and will temporarily be highlighted in yellow. If your proposed works are close to one of these pipes, you should contact the SGN Safety Admin Team on 0800 912 1722 for advice. No liability of any kind whatsoever is accepted by SGN or its agents, servants or sub-contractors for any error or omission contained herein. 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 plant location information is provided to all persons (whether direct labour or sub-contractors) working for you on or near gas apparatus. Information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

Report damage immediately – KEEP EVERYONE AWAY FROM THE AREA
0800 111 999

This plan is reproduced from or based on the OS map by Scotia Gas Networks plc, with the sanction of the controller of HM Stationery Office. Crown Copyright Reserved. Southern Gas – 100044373 and Scotland Gas – 100044366.

Date Requested: 29/09/2025
 Job Reference: 38870879
 Site Location: 470997 174498
 Requested by: Miss Lauren Hartley
 Your Scheme/Reference: P2434.23
 IONITY Reading

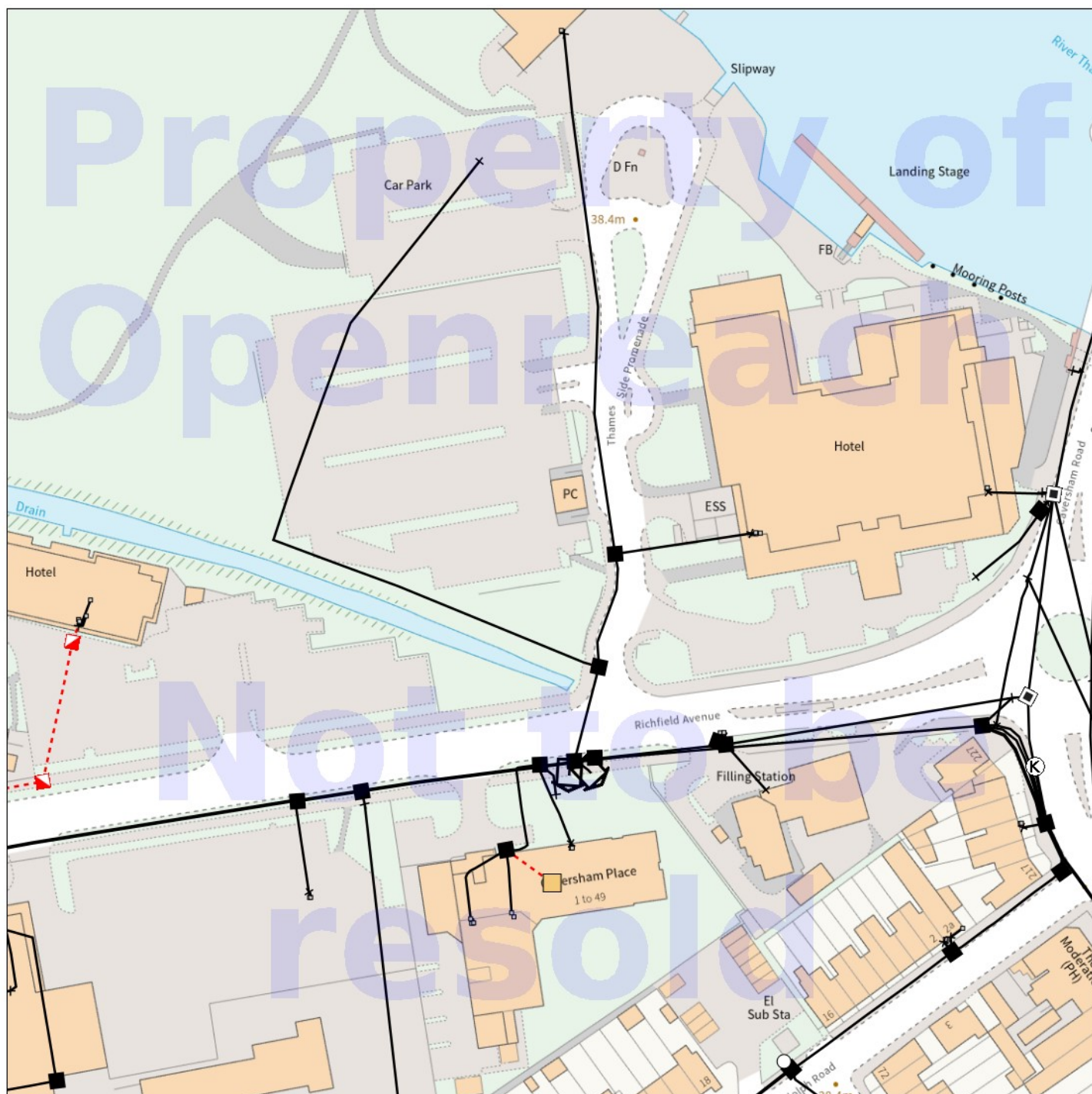
Scale: 1:1000 (When plotted at A4)

Map Symbols

VALVE OPEN	VALVE CLOSED	GOVERNOR	END CLOSURE	SYPHON	REDUCER	TEE
TEST POINT	CATHODIC PROTECTION	GENERAL REFERENCE	FLOW MEASURE	DIP POINT	MONO ETHYLENE GLYCOL	OILING POINT
FLOW STOP	PRESSURE MEASUREMENT	STAND PIPE	OFFICIAL MINISTRY RECORD	PURGE POINT	GAS CONDITIONER	DRAIN POINT
					LP MAINS	
SKETCH BUBBLE	DEPTH OF COVER	METER	MATERIAL CHANGE		MP MAINS	
					IP MAINS	
					LHP MAINS	
					HISTORY DATA	
					SSSI	
PIG TRAP	CROSSOVER CONNECTION	CHANGE OF DIAMETER	PIPE JOINT		CONTACT ZONE	
						LTS

Appendix E - Telecommunication Utility Maps

Maps on Demand Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

 **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

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

Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

© Crown copyright 2023 OS 100028040. You are permitted to use this data solely to enable you to respond to, or interact with, the organisation that provided you with the data. You are not permitted to copy, sub-license, distribute or sell any of this data to third parties in any form.

KEY TO BT SYMBOLS

	Planned	Live	Change Of State	+	Hatchings	
PCP			Split Coupling	×	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.			
	Pending Add	In Place	Pending Remove	Not In Use		
Power Cable						
Power Duct				N/A		

BT Ref : PZM16432G

Map Reference : (centre) SU7100874509

Easting/Northing : (centre) 471008,174509

Scale : 1:250

Issued : 29/09/2025 16:43:33

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

Appendix F - Surface Water Drainage Design & Calculations

Stormwater Storage and Control Calculations

INPUT

OUTPUT

Institute of Hydrology Report No. 124 for Sites Up To 24 ha

Greater Dublin Strategic Drainage Study

SITE DETAILS:

Location	Ionity Reading			
Site Area	0.07	Acre	0.03	Ha
			300.00	m ²
Impervious Area Draining To Piped Network	100%		300	m ²
Impervious Area Draining to Infiltration	0%		0	m ²
Pervious Area	0%		0	m ²
Allowance for Impervious Green Area	0%		0	m ³

RIVER REGIME PROTECTION:

Allowable Discharge From Site: $Q_{BAR} = 0.00108 \times AREA^{0.89} \times SAAR^{1.17} \times SOIL^{2.17}$

Q_{BAR} : Mean Annual Peak Flow From Site m³/s

AREA: Area of Site km²

SAAR: Standard Annual Average Rainfall 659 mm

SOIL: Soil Index SPR (as per Flood Studies Report Procedure) SOIL TYPE: 4 SPR INDEX: 0.470

1	0.1	Very Low	Sandy, well drained
2	0.3	Low	Intermediate Soil (silty)
3	0.37	Moderate	Intermediate Soil (sandy)
4	0.47	High	Clayey, poorly drained
5	0.53	Very High	Steep, rocky area

Rainfall Intensities

Climate Change Factor 20%

If site is <50ha, calculate Q-Bar for 50ha and linearly interpolate for Site Area

QT estimated from old data where not specified by GDSDS

QBAR 50 ha - STANDARD				Return Period	QT Factor	Q _{ALL.}	Q _{ALL.}	Q _{PERM.}	V
AREA	ha/km	50	0.5	Yrs	-	l/s	l/s/ha	l/s	m ³
Q _{BAR}	=	0.2249	m ³ /s	1	0.85	0.11	3.82	0.11	5
Q _{BAR}	=	224.93	l/s	2	1	0.13	4.50	0.13	7
Q _{BAR}	=	4.50	l/s/ha	5	1.3	0.18	5.85	0.18	9
QBAR Development - RESTRICTED				10	1.7	0.23	7.65	0.23	10
AREA	ha/km ²	0.030	0.0003	20	1.9	0.26	8.55	0.26	13
Q _{BAR}	=	0.0001	m ³ /s	30	2.1	0.28	9.45	0.28	14
Q _{BAR}	=	0.13	l/s	50	2.31	0.31	10.39	0.31	11
Q _{BAR}	=	4.50	l/s/ha	100	2.6	1.00	33.33	1.00	13

Interceptor Designed YES Flow Control Designed at Outlet Manhole with overflow YES

LEVEL OF SERVICE if NO, refer to details within report

No External Flooding - 100-year high intensity rainfall event fully contained within site YES

No Internal Flooding - Finished Floor Levels above 100-year high rainfall event level YES

No Internal Flooding - Finished Floor Levels above Highest Recorded/Known Stream Flood Level YES