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The Old Power Station, Vastern Road, Reading

Utilities Appraisal Report

On behalf of **Berkeley Homes (Oxford and Chiltern) Ltd**

Berkeley
Designed for life

Project Ref: 47500/2001 | Rev: 3 | Date: November 2019

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Contents

1	Introduction	1
1.1	Report Scope.....	1
1.2	Site Specific Information.....	1
1.3	Planning Policy	2
1.4	Methodology	2
1.5	Undertaker Enquiry Responses	3
2	Utility Demand Schedule	4
2.1	Assumptions	4
2.2	Schedule.....	4
3	Electricity	5
3.1	Existing Infrastructure.....	5
3.2	Proposed New Connection Activities	5
3.3	Proposed Diversion/Disconnection Works	6
4	Gas.....	7
4.1	Existing Infrastructure.....	7
4.2	Proposed New Connection Activities	7
4.3	Proposed Diversion/Disconnection Works	7
5	Telecommunications.....	8
5.1	Existing Infrastructure.....	8
5.2	Proposed New Connection Activities	8
5.3	Proposed Diversion/Disconnection Works	9
6	Potable Water	10
6.1	Existing Infrastructure.....	10
6.2	Proposed New Connection Activities	10
6.3	Proposed Diversion/Disconnection Works	10
7	Wastewater	11
7.1	Existing Infrastructure.....	11
7.2	Proposed New Connection Activities	11
7.3	Proposed Diversion/Disconnection Works	11
8	Summary of Connections and Diversions.....	12
8.1	Planning Policy	12
8.2	New Connections	12
8.3	Diversionsary Works	12

Figures

Figure 1.1: Site Location.....	1
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Tables

Table 1.1: Undertaker Enquiry Results	3
Table 2.1: Utility Peak Demand Schedule	4

Appendices

Appendix A	Proposed Site Plan
Appendix B	Underground Utilities Survey
Appendix C	Utilities Asset Records
Appendix D	Thames Water Potable Pre-planning Enquiry and Budget Estimate
Appendix E	Thames Water Foul Pre-planning Enquiry

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1 Introduction

1.1 Report Scope

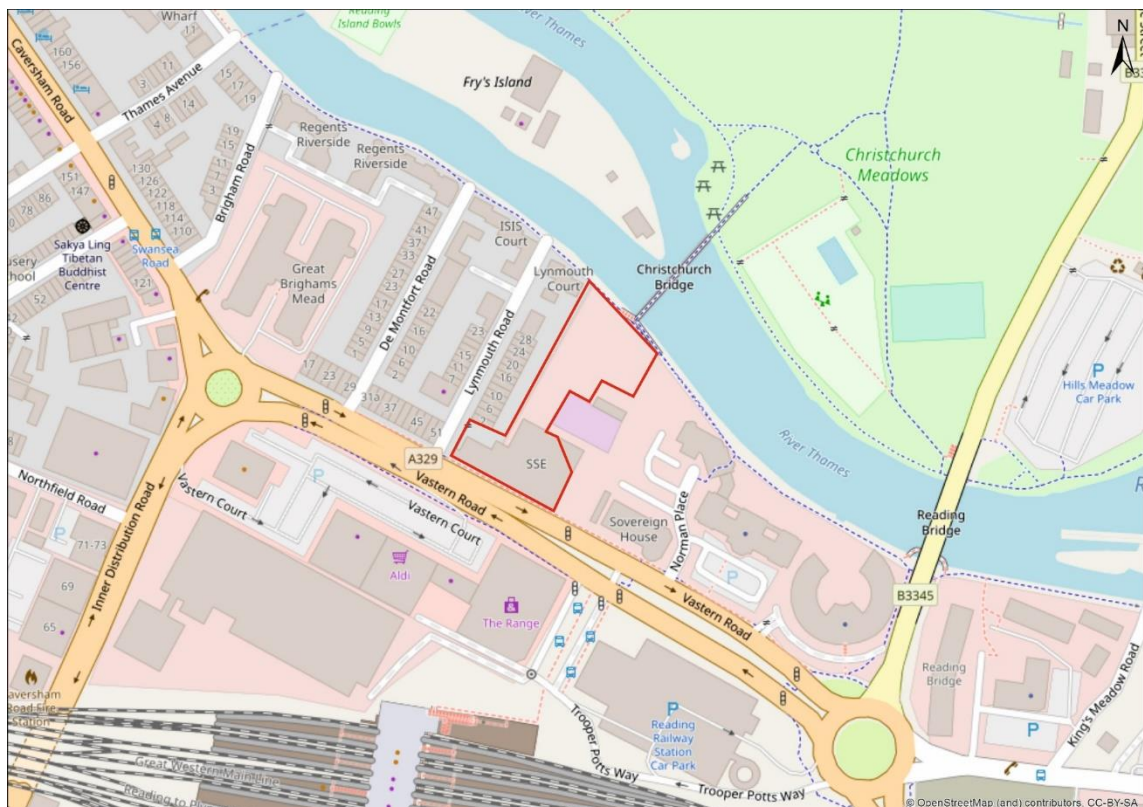
- 1.1.1 This report has been prepared by Peter Brett Associates LLP (PBA), now part of Stantec, on behalf of Berkeley Homes (Oxford and Chiltern) Ltd to support the detailed planning application for the redevelopment of a site known as 53-55 Vastern Road. It will determine the constraints and risks associated with procuring new electricity, telecommunications, potable water and wastewater services as well as demonstrating compliance with local and national planning policies.

1.2 Site Specific Information

Existing Land Use and Site Location

- 1.2.1 The site is located along Vastern Road, Reading, RG1 8BU. Reading Station is situated to the south of the site and the River Thames to the north. Christchurch Bridge is located along the northern boundary of the development.
- 1.2.2 The total development site area covers approximately 0.76ha and the land was previously occupied by former SSE offices. A primary transformer and its associated plant is located adjacent to the site.
- 1.2.3 **Figure 1.1** below show the site location of the proposed development site.

Figure 1.1: Site Location



- 1.2.4 The site lies within the administration boundary of Reading Borough Council (RBC).

Proposed Development

- 1.2.5 Demolition of existing structures and erection of buildings ranging in height from 1 to 11 storeys including residential dwellings (C3 use class) and leisure floorspace (A3 use class), together with a new north-south pedestrian link, connecting Christchurch Bridge to Vastern Road.

1.3 Planning Policy

National Policy

- 1.3.1 The National Planning Policy Framework (NPPF) (February 2019) confirms that there should be a presumption in favour of development where it can be demonstrated that the proposals are sustainable. The NPPF states strategic policies should make sufficient provision for:

[para 20] *'Infrastructure for transport, telecommunications, security, waste management, water supply, wastewater, flood risk and coastal change management, and the provision of minerals and energy (including heat)'.*

Local Policy

- 1.3.2 The development is covered by the Reading Borough Council (RBC) Local Plan adopted November 2019 and specifically Policy CR11g, Riverside. In terms of utilities the following policies apply:

- 1.3.3 Policy CC9: Securing Infrastructure states that:

"Proposals for development will not be permitted unless infrastructure, services, resources and amenities or other assets lost or impacted upon as a result of the development or made necessary by the development will be provided through direct provision or financial contributions at the appropriate time."

- 1.3.4 Policy EN16: Pollution and Water Resources states that:

"Development will only be permitted where it would not be damaging to the environment and sensitive receptors through land, noise or light pollution; where it would result in no deterioration in, or ideally enhance, ground and surface water quality; and where adequate water resources, sewerage and wastewater treatment infrastructure will be in place to support the proposed development prior to occupation."

1.4 Methodology

Assessment Procedure

- 1.4.1 This report is divided into each of the following primary service disciplines: electricity, gas telecommunications, potable water and wastewater. Each of these disciplines will be described in terms of existing infrastructure, new connection activities and diversion/alteration activities. In each of these sections the existing utility network constraints are described and where relevant one or more solutions are proposed.
- 1.4.2 A summary of planning policy compliance, new connections and diversion strategies are included in Section 8 of this report.

Drawings Referenced

- 1.4.3 The preliminary site proposals are shown on the Berkeley Homes Drawing number 446.SK.100dated August 2019included in **Appendix A**.

- 1.4.4 An underground utilities survey of the existing site was carried out by Subscan UDS Ltd in September 2017, locating the positions of the existing utilities. The results of the survey are contained in **Appendix B**.

1.5 Undertaker Enquiry Responses

- 1.5.1 For the purposes of this report, PBA has made initial capacity enquiries to the incumbent undertakers to ascertain points of connection and to determine if there is a need to reinforce any of the existing offsite utility networks.
- 1.5.2 The public gas transporter is SGN whilst Scottish and Southern Electricity (SSE) is the host electricity Distribution Network Operator (DNO). BT Openreach is the licensed open access telecommunications network provider. The potable water supply undertaker for the site is Thames Water who are also the wastewater transporter for the area.
- 1.5.3 The enquiries that have been made have been listed in **Table 1.1**.

Table 1.1: Undertaker Enquiry Results

Undertaker	Utility	Enquiry	Responses Received
SSE	Electricity	General correspondence to gain understanding of SSE / Berkeley Homes land sale agreement	No
Thames Water	Potable Water	Pre-planning Enquiry	Yes
Thames Water	Wastewater	Pre-planning Enquiry	Yes

- 1.5.4 This report refers to copies of the utility asset plans which were obtained from each undertaker in December 2016. These identify only adopted utility assets, not privately-operated networks and generally do not include individual service connections. However, the underground utilities survey undertaken in September 2017, verified asset record data just outside the site boundary and provided further detail about utilities locate within the site boundary.
- 1.5.5 It should be noted that all asset records and capacity investigations were completed at a specific point in time, therefore the results of these enquires may be subject to future refinement or change by the network operators.

2 Utility Demand Schedule

2.1 Assumptions

- 2.1.1 The development proposes to supply heat from low energy carbon and will therefore incorporate electric heating. The proposed energy strategy seeks to prioritise measures which reduce energy demand and will also include low and zero carbon technologies to further reduce site wide CO₂ emissions as well as providing a source of on-site electricity generation
- 2.1.2 Hodkinson Consultants has produced an Energy Statement for the proposed development (dated December 2019) which can be referred to for further information.

2.2 Schedule

- 2.2.1 An indicative utility loading schedule has been prepared by PBA based on a previous scheme of 197 residential units. The schedule has been prepared in line with current industry standards. The figures below have been issued to each statutory utility provider as the basis for their capacity assessment and to identify the scope of any offsite activities necessary to bring utilities to the boundary of the site.
- 2.2.2 Further discussions were then undertaken with Thames Water (for both potable and wastewater) to determine the effect on existing capacity for the proposed additional 12 units.

Table 2.1: Utility Peak Demand Schedule

Utility	Peak Demand
Electricity (kVA)	SSE has reserved capacity for Berkeley Homes and agreed this contractually as part of the land sale agreement
Potable Water (l/s)	4.33
Wastewater (l/s)	2.59

3 Electricity

3.1 Existing Infrastructure

- 3.1.1 SSE is the host electricity distribution network for this area.
- 3.1.2 The underground utility survey has identified a significant amount of infrastructure located within and adjacent to the site boundary.
- 3.1.3 From the survey and asset records, it has been identified that there are two substations located within the site boundary. The SSE Offices substation is located to the south west of the site while the SEB Works substation is in the north western corner of the site.
- 3.1.4 Adjacent to the site on its eastern boundary is a primary transformer known as the Reading Town substation. Another substation called the Statter Board No 4 substation is also present to the east of the site along with the switch room and diesel generator.
- 3.1.5 Due to the electricity infrastructure located within and adjacent to the site, there are multiple cables that are Extra High Voltage (EHV) or High Voltage (HV). Multiple 33kV and 11kV cables are interlinked between the Reading Town substation and the switch room and diesel generator located along the eastern boundary.
- 3.1.6 2 no. 132kV oil filled cables are routed along the southern footway of Vastern Road which then cross the road to the east of the site to connect into the Reading Town substation. 2 no. 33kV oil filled cables and 2 no. pilot cables also run parallel to the 132kV cables.
- 3.1.7 A 33kV oil filled cable enters the site from the west via Lynmouth Road and connects to the Reading Town substation.
- 3.1.8 2 no. 33kV oil filled cables and 2 no. pilot cables are located under the River Thames and connect into the Reading Town substation from the north.
- 3.1.9 2 no. 33 kV oil filled cables and 2 no. pilot cables are located within the central verge of Vastern Road, to the east of the site. These cables also connect into the Reading Town substation to the east of the site and continue north stopping south of the river.
- 3.1.10 The SSE Offices substation connects to the 11kV cable located within the site with cables linked from the substation connecting to the 11kV cables located along the footway of Vastern Road via Lynmouth Road.
- 3.1.11 2 no. 11 kV cables linked from the SEB Works substation continue along the northern boundary of the site and into the eastern cable corridor.
- 3.1.12 SSE low voltage (LV) assets located within the site are connected between the SEB Works substation and SSE Offices substation along the western boundary of the site. LV cables from the substations connect into the LV cables located along Lynmouth Road and Vastern Road.
- 3.1.13 SSE asset records are included within **Appendix C**.

3.2 Proposed New Connection Activities

- 3.2.1 As part of the land sale agreement, it has been agreed that a new substation will be provided on the site to serve the proposed development. Cables running from this substation will be routed underground within a proposed landscaping strip.

- 3.2.2 SSE has been contacted to obtain the current status of their proposals on the site and it is anticipated that a response will be received in the near future.

3.3 Proposed Diversion/Disconnection Works

- 3.3.1 It is proposed that the existing SEB Works substation will be disconnected and removed. This any other diversion and disconnection activities that may be required on the site will be dealt with by SSE contractually through the land sale agreement.

4 Gas

4.1 Existing Infrastructure

- 4.1.1 SGN is the gas transporter for this region and own and operate all the gas mains near the site.
- 4.1.2 There are no SGN assets located within the site boundary.
- 4.1.3 A 315mm Polyethylene (PE) low pressure (LP) main is located along the southern footway of Vastern Road, south of the site boundary.
- 4.1.4 A 125mm PE LP spur crosses the road to supply the nearby offices and flats located on Norman Place, to the east of the site.
- 4.1.5 The properties located in Lynmouth Road, to the west of the site boundary are supplied by LP mains consisting of 2inch, 3inch and 63mm PE pipes.
- 4.1.6 **Appendix C** contains the SGN asset records.

4.2 Proposed New Connection Activities

- 4.2.1 As an all-electric development is proposed, no new gas connections will be required to supply the development.

4.3 Proposed Diversion/Disconnection Works

- 4.3.1 No diversion or disconnection works are required to accommodate the proposed masterplan.

5 Telecommunications

5.1 Existing Infrastructure

- 5.1.1 The underground utilities survey identified several telecommunication duct routes located within the site boundary to the frontage of the site. These include Openreach, SSE fibre Optic cable and Virgin Media connections to the existing building. The assets records contained within **Appendix C** also show these connections.
- 5.1.2 Two Openreach duct routes are located in the footway on the northern side of Vastern Road and a duct crossing can be observed crossing Vastern Road and extending to Trooper Potts Way to the east of the site.
- 5.1.3 Five Openreach joint boxes are present within the northern footway directly in front of the existing SSE building. A spur can be observed extending from the footway and entering the site at the eastern edge of the boundary before entering the existing building, providing the telecommunications connection. Two Openreach joint boxes are present within the site boundary supplying the existing building.
- 5.1.4 Multiple Openreach ducts are present within the Lynmouth Road western footway to the west of the site boundary. The ducts extend to the river bank and one of the duct routes connects to the island located in the River Thames.
- 5.1.5 The SSE high voltage asset records indicate that there two SSE fibre optic cables located along Vastern Road, one in the carriageway and one in the northern footway. Each of these duct routes provides a connection to the former SSE building.
- 5.1.6 Two Vodafone duct routes are in the footway on the northern side of Vastern Road. Based on asset records received from Vodafone, the southernmost duct is shown to be running within the carriageway before entering the footway in front of the former SSE building.
- 5.1.7 A Vodafone joint box is present within the northern footway directly in front of the former SSE building.
- 5.1.8 A single Virgin Media duct route is in the footway on the northern side of Vastern Road. A spur can be observed extending up to the existing SSE building.
- 5.1.9 Two Virgin Media chambers are present within the northern footway directly in front of the former SSE building.
- 5.1.10 Multiple Virgin Media ducts are present within both footways on Lynmouth Road to the west of the site. The ducts extend to the riverbank and assumed to supply the residential units to the north, outside of the site boundary.
- 5.1.11 Asset records indicate that two Zayo duct routes are located within the carriageway of Vastern Road.
- 5.1.12 Openreach, SSE, Virgin Media, Vodafone and Zayo asset records have been attached in **Appendix C**.

5.2 Proposed New Connection Activities

- 5.2.1 Openreach offers Fibre to the Premises (FTTP) for new mixed residential/commercial sites with 30 premises or more free of charge, including for the construction of the fibre infrastructure.

- 5.2.2 The nearest Openreach exchange is the Reading Central Exchange, which is located within the town centre. It serves 23,005 residential premises and 1,935 non-residential premises with both Openreach and Virgin Media cable broadband availability.
- 5.2.3 PBA has produced a Superfast Broadband Strategy Statement (dated November 2019) for the site which considers the provision of superfast broadband to the proposed development. The report provides further detail on a selection of infrastructure providers that PBA been in discussions with regarding the proposed development site.

5.3 Proposed Diversion/Disconnection Works

- 5.3.1 There are no diversionary works required to the existing telecommunications duct routes to accommodate the proposed masterplan.
- 5.3.2 The existing Openreach and Virgin Media connections will be disconnected and abandoned.
- 5.3.3 Any disconnection that may be required to the existing SSE fibre Optic cable will also likely be dealt with by SSE.

6 Potable Water

6.1 Existing Infrastructure

- 6.1.1 Thames Water is the incumbent water transporter for this region.
- 6.1.2 As identified in the existing utilities survey, there are two connections to the existing buildings on site – one to the west via the existing 3inch Thames Water water main in Lynmouth Road and one to the east from the existing 4inch water main in Vastern Road.
- 6.1.3 There is also a 100mm pipe supplying the offices and flats located in Norman Place.
- 6.1.4 The Thames Water potable water asset records are included in **Appendix C**.

6.2 Proposed New Connection Activities

- 6.2.1 Thames Water has provided a budget estimate and pre-development enquiry response to supply water to the proposed development. These are included in **Appendix D**.
- 6.2.2 Thames Water's initial review of the development concludes that the existing clean water network does not have enough capacity to meet the needs of the full development. However, there is currently enough capacity to supply the first 49 properties.
- 6.2.3 Offsite reinforcement works will therefore be required to the existing Thames Water network to supply the remainder of the development. Thames Water are responsible for any modelling and reinforcement works (including associated costs) required to support the development however they will only undertake this work once planning permission has been obtained for the site.

6.3 Proposed Diversion/Disconnection Works

- 6.3.1 No diversions are required to the Thames Water water mains to accommodate the development proposals.
- 6.3.2 The existing water mains which supply the former SSE offices will be disconnected and abandoned.

7 Wastewater

7.1 Existing Infrastructure

- 7.1.1 Thames Water is the wastewater transporter for the area
- 7.1.2 The underground utility survey has identified an existing wastewater network within the site boundary which connects into the existing 300mm foul sewer located along Vastern Road and the 225mm diameter sewer in Lynmouth Road.
- 7.1.3 A 150mm diameter foul sewer serves the flats and offices located in Norman Place and connects onto the sewer located along Vastern Road.
- 7.1.4 Thames Water wastewater asset records are included in **Appendix C**.

7.2 Proposed New Connection Activities

- 7.2.1 A pre-planning enquiry was made to Thames Water in regard to the wastewater network existing capacity.
- 7.2.2 Thames Water has confirmed that there is sufficient capacity within the existing foul sewer network to support the proposed redevelopment.
- 7.2.3 The point of connection into the existing foul network has been identified as manhole reference 4001 located at the junction of Vastern Road and Lynmouth Road.
- 7.2.4 The Thames Water Pre-planning enquiry response and follow up email are contained in **Appendix E**.

7.3 Proposed Diversion/Disconnection Works

- 7.3.1 There are no diversion works required to accommodate the proposed masterplan.

8 Summary of Connections and Diversions

8.1 Planning Policy

- 8.1.1 In terms of utilities, it is considered that the proposed development accords with national policy as this report has considered the quality and capacity of utilities infrastructure and its ability to meet forecast demand.
- 8.1.2 In accordance with RBC's Adopted Local Plan (November 2019), Policy CC9, this strategy report demonstrates that the proposed development is well placed in terms of key utility infrastructure.
- 8.1.3 The report also complies with RBC's Local Plan Policy EN16 in that the potable water infrastructure required to support the proposed development will be upgraded by Thames Water following the granting of planning permission on the site.

8.2 New Connections

- 8.2.1 SSE has agreed that as part of the land sale agreement of the site to Berkeley Homes that a new substation will be provided on the site to serve the proposed all-electric development.
- 8.2.2 There are a number of options to provide telecommunication infrastructure to the site. The Superfast Broadband Strategy Statement (dated November 2019) produced by PBA should be referred to for further information.
- 8.2.3 Thames Water has confirmed that there is currently sufficient capacity in the potable water network to supply the first 49 dwellings. Modelling and offsite reinforcement works will be undertaken and funded by Thames Water once planning permission has been obtained for the site to ensure sufficient capacity is available to supply the remainder of the site.
- 8.2.4 Thames Water has confirmed that there is sufficient capacity within the existing foul sewer network to support the proposed redevelopment. The point of connection into the existing foul network has been identified as a manhole located at the junction of Vastern Road and Lynmouth Road.

8.3 Diversionary Works

- 8.3.1 Any diversionary or alteration works to existing electricity infrastructure or the SSE fibre optic cable located within the site will likely be managed by SSE.
- 8.3.2 There are no other diversion or alternation works anticipated to accommodate the proposed development.

Appendix A Proposed Site Plan



00 - Ground Floor

project
Vastern Road
Reading

drawing
Proposed Floor Plans
00 - Ground Floor

date
August 2019

scale @ a3
1:500

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DMT

drawing number
448.SK.100

revision
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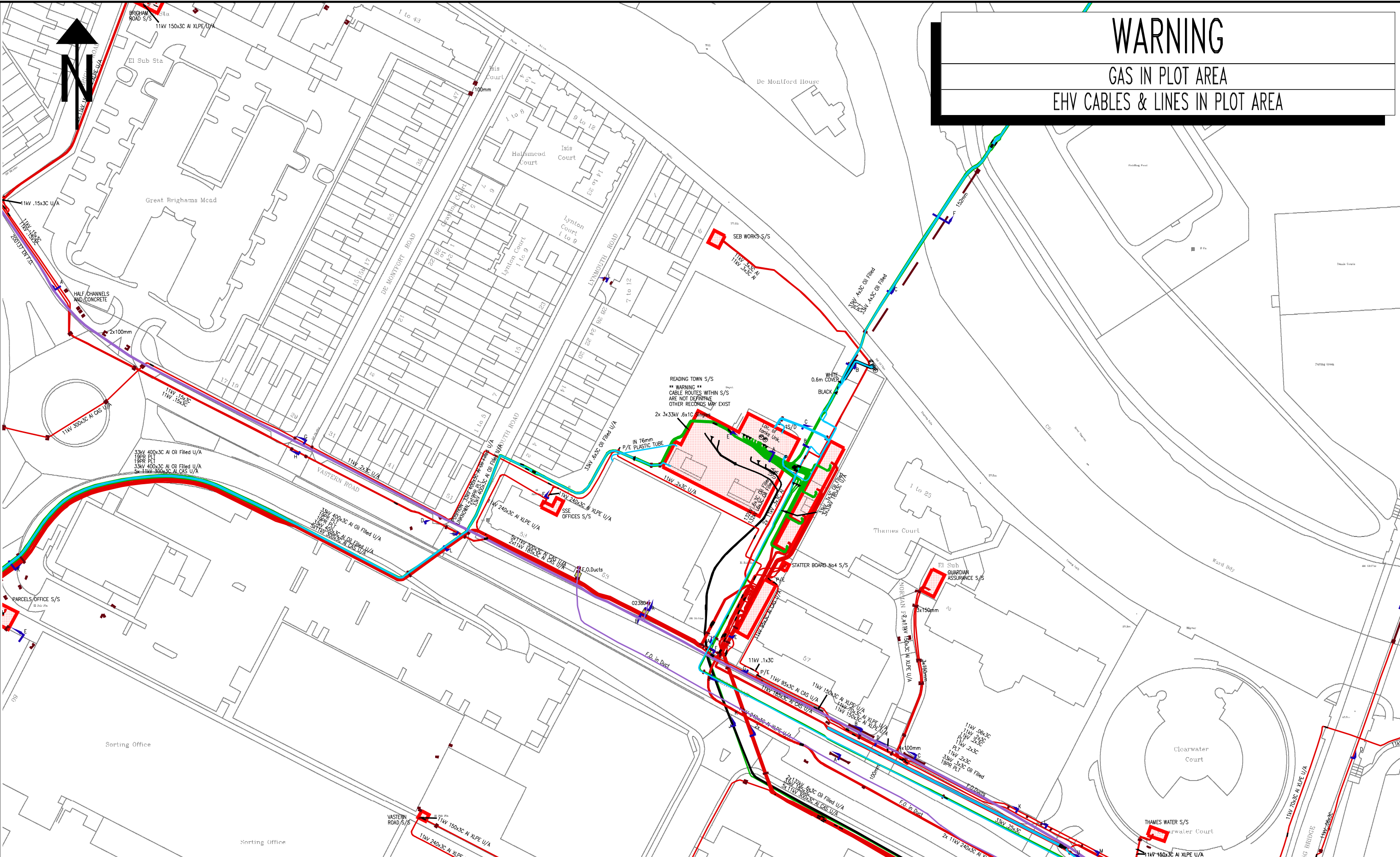
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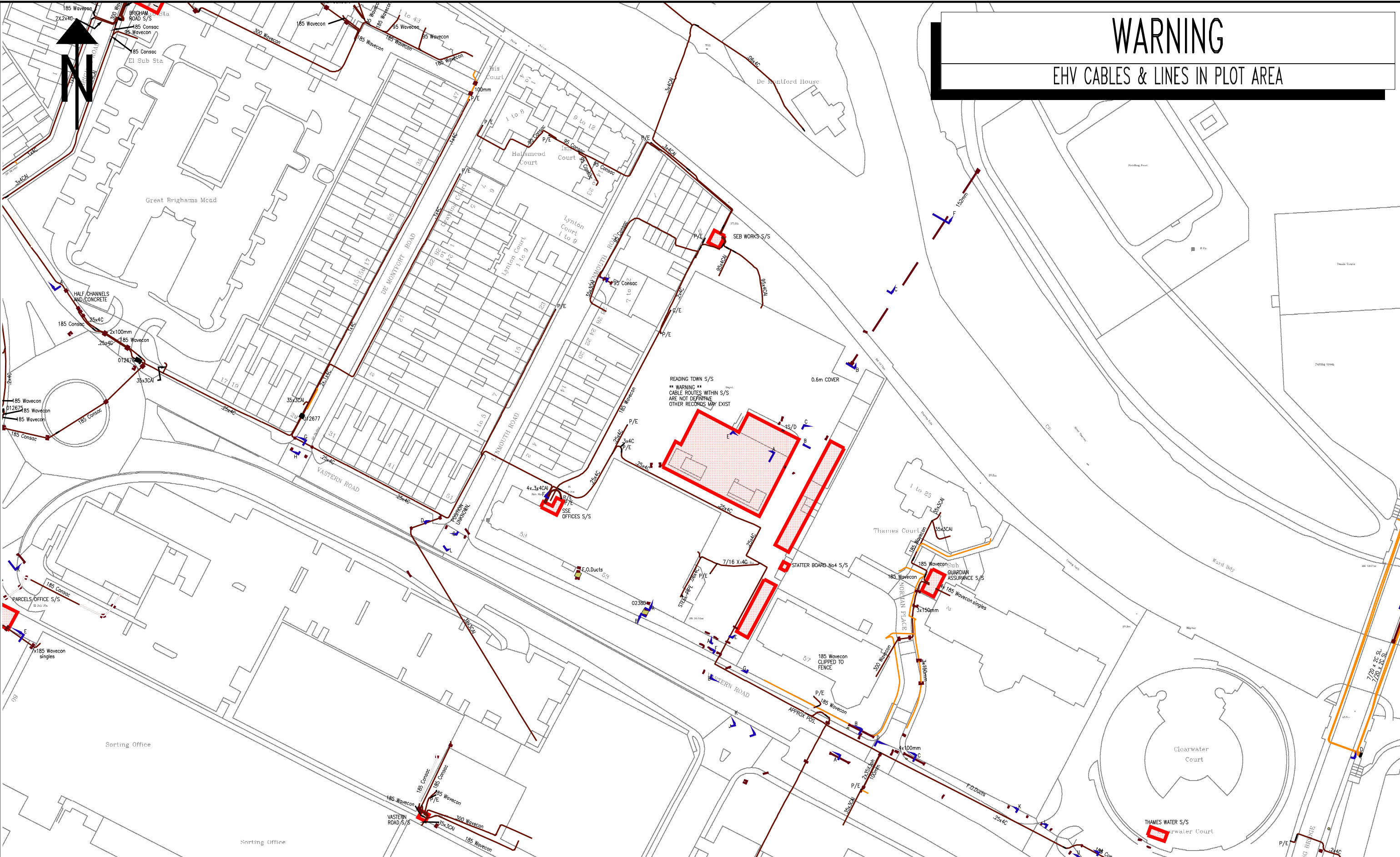
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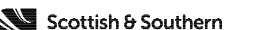
Appendix B Underground Utilities Survey

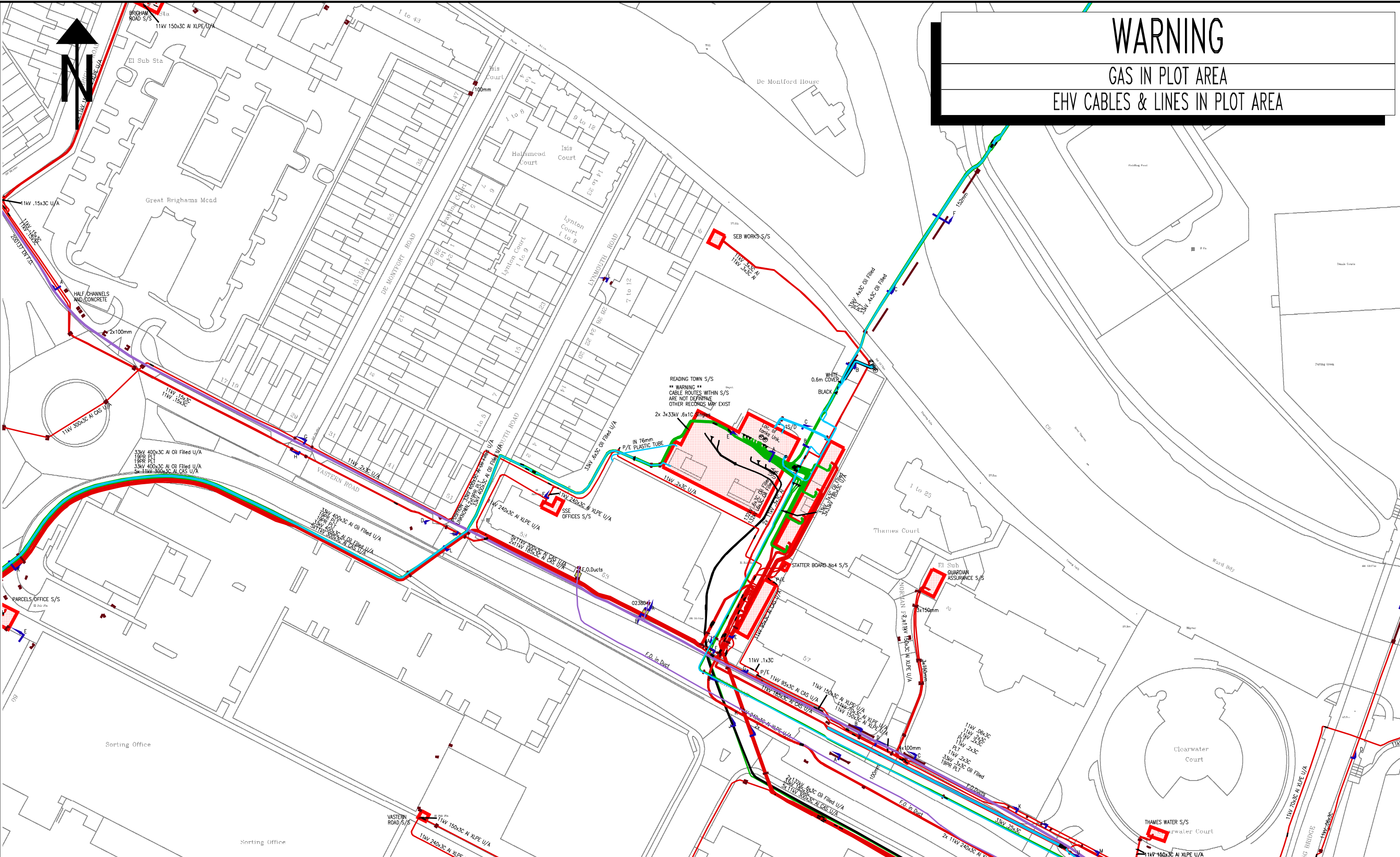
Appendix C Utilities Asset Records



NORMAL DEPTH TO THE TOP OF THE CABLE WHEN LAID					WARNING There may have been subsequent alterations to the surface levels. Trial holes must be taken to determine positions and depth of cables. HS (G) 47 Booklet from the Health and Safety Executive – Avoiding Danger from Buried Cables – should be consulted before commencing excavation work. (available from the HSE) WHEN WORKING IN THE VICINITY OF OVERHEAD LINES THE HEALTH AND SAFETY GUIDANCE NOTE G56 SHOULD BE CONSULTED. (AVAILABLE FROM THE HSE)		BASED UPON THE ORDNANCE SURVEY MAP WITH THE SANCTION OF THE CONTROLLER OF H.M. STATIONERY OFFICE. CROWN COPYRIGHT RESERVED.		 Scottish & Southern Electricity Networks	
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l.v./services – up to 1000V. h.v. – over 1000V. to 11,000V. e.h.v. – 22,000V. to 132,000V.							Subject to Revision Master held at		HV	



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l.v./services	– up to 1000V.									
h.v.	– over 1000V. to 11,000V.									
e.h.v.	– 22,000V. to 132,000V.									



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e.h.v.				- 22,000V. to 132,000V.							

