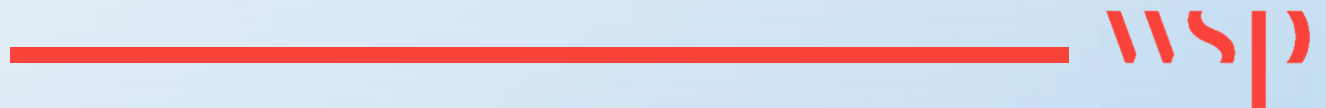
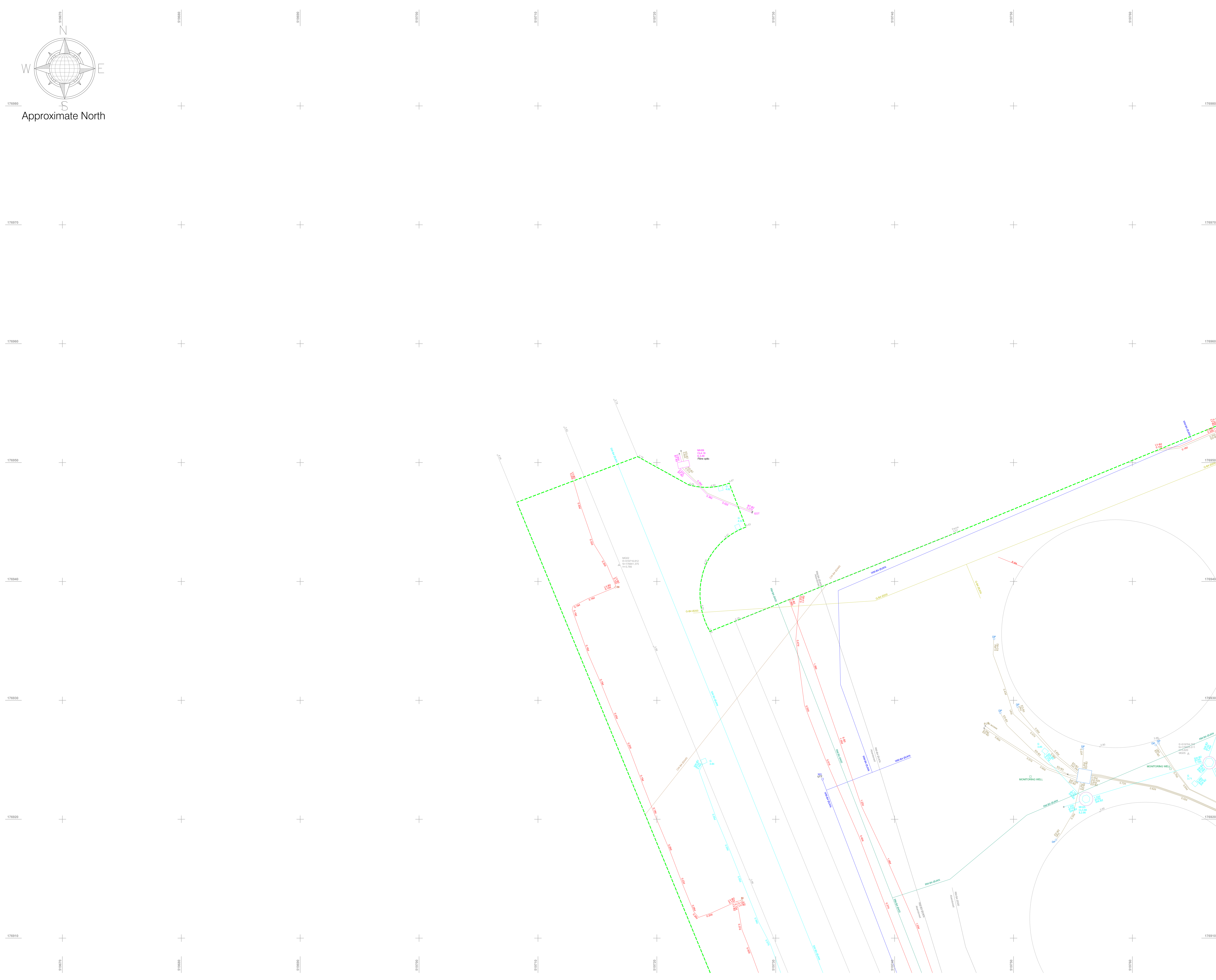
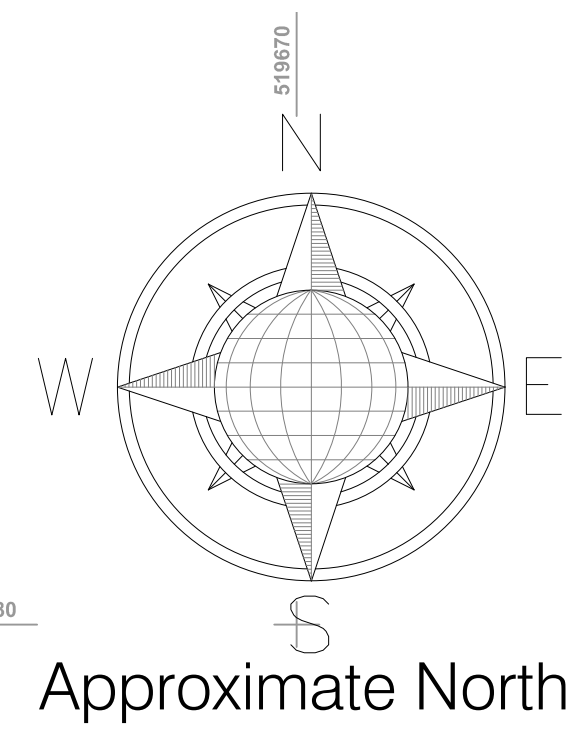


# Appendix A

## **GROUND PENETRATING RADAR (GPR) SURVEY**





### LEGEND

#### Utility Survey Point Features

AV	Air Valve	IC	IC - Comms	MH	MH - Round
BB	Belisha Beacon	IC	IC - Electric	MH	MH - Surface Water
CP	CCTV Camera Pole	IC	IC - Round	MK	Marker Post
CR	Cable Riser	IC	IC - Telecom	12.24	Pipe Riser
DP	Down Pipe	IC	IC - TCSUTFL	RE	Recessed Light
DPG	Down Pipe To Ground	IC	IC - CATV	RE	Rodding Eye
EP	Electrical Pole	IC	IC - CATV	SC	Stop Cock
ER	Earth Rod	LP	Lamp Post	TL	Traffic Light
FR	Fire Hydrant	MH	MH	TP	Telegraph Pole
GM	Gas Meter	MH	MH - District Heat	V	Valve General
GV	Gas Valve	MH	MH - Foul	WM	Water Meter
G	Gully			WV	Water Valve

#### Utility Survey Linework Features

BT	British Telecom	EHV	Electrical - Extra High Voltage
CATV	Cable TV	HV	Electrical - High Voltage
CCTV	Closed Circuit TV	LV	Electrical - Low Voltage
COMMS	Communications	TFL	Electrical - TFL
FOL	Fibre Optic Line	SL	Street Lighting
FOLD	Fibre Optic Line - Colt	TCSU	Traffic Control System Unit
FOLE	Fibre Optic Line - Energis	G	Gas
FOLF	Fibre Optic Line - Fibernet	GP	Gas Service
FOLL	Fibre Optic Line - Level 3	GLP	Gas Low Pressure
FOLM	Fibre Optic Line - Mercury	GIP	Gas Intermediate Pressure
FOLMF	Fibre Optic Line - MFS/C	GMP	Gas Medium Pressure
FOLT	Fibre Optic Line - Tinet	GHP	Gas High Pressure
FOLV	Fibre Optic Line - Virgin	ED	Empty Duct
FOLVF	Fibre Optic Line - Vodafone	GPR	GPR Anomaly
FOLVN	Fibre Optic Line - Verizon	UA	Unknown Asset
FOLW	Fibre Optic Line - WCOM	UAPS	UA Passive Sweep
TS	Telecom Service	UCL	Unknown Cable

#### PAS128 Quality Levels

(Consult document 'PAS128-2014.pdf' for full details)

XX - A	Quality Level A	XX - B3	Quality Level B3
XX - B1	Quality Level B1	XX - B3P	Quality Level B3P
XX - B1P	Quality Level B1P	XX - B4	Quality Level B4
XX - B2	Quality Level B2	XX - C	Quality Level C
XX - B2P	Quality Level B2P	XX - D	Quality Level D

#### Special Survey Features

ER-XXXX-XXXX	ER-XXXX-XXXX
ID A NYYYYYYY Survey Station	ID NYYYYYYY Scan Target
HZZZZ ZZZ	HZZZZ ZZZ

#### Utility Survey Abbreviations

AB	Abandoned	CSER	Confined Space Entry Required
AR	Assumed Route	MH	Manhole
BI	Illuminated Bollard	NVO	Not Visible Outlet
BLD	Blocked	OE	Overhead Electric
CPD	Capped	OT	Overhead Telecom
CL	Cover Level	SOF	Soffit Level
CPD	Capped	TR	Taken From Records
CUT	Disconnected Utility	TYM	Ticket Vending Machine
EOCCTV	End of CCTV Survey	UTO	Unable to Open
EOG	End of GPR Signal	UTS	Unable to Survey
EOT	End of Trace	UTT	Unable to Trace
EOS	End of Survey	UKN	Unknown
IC	Inspection Cover	WL	Water Level
IL	Invert Level	XXS	Service Depth

#### Utility Material Abbreviations

AC	Asbestos Cement	CO	Concrete	SI	Spun Iron
BC	Brick Chamber	DI	Ductile Iro	ST	Steel
CI	Cast Iron	PE	Polyethylene	WTR	Water

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#### Location Plan

#### Revisions

Rev	Description	Surveyed by	Drawn by	Checked by
A	First Issue	JA - 09/05/24	BK - 12/05/24	DG - 12/05/24



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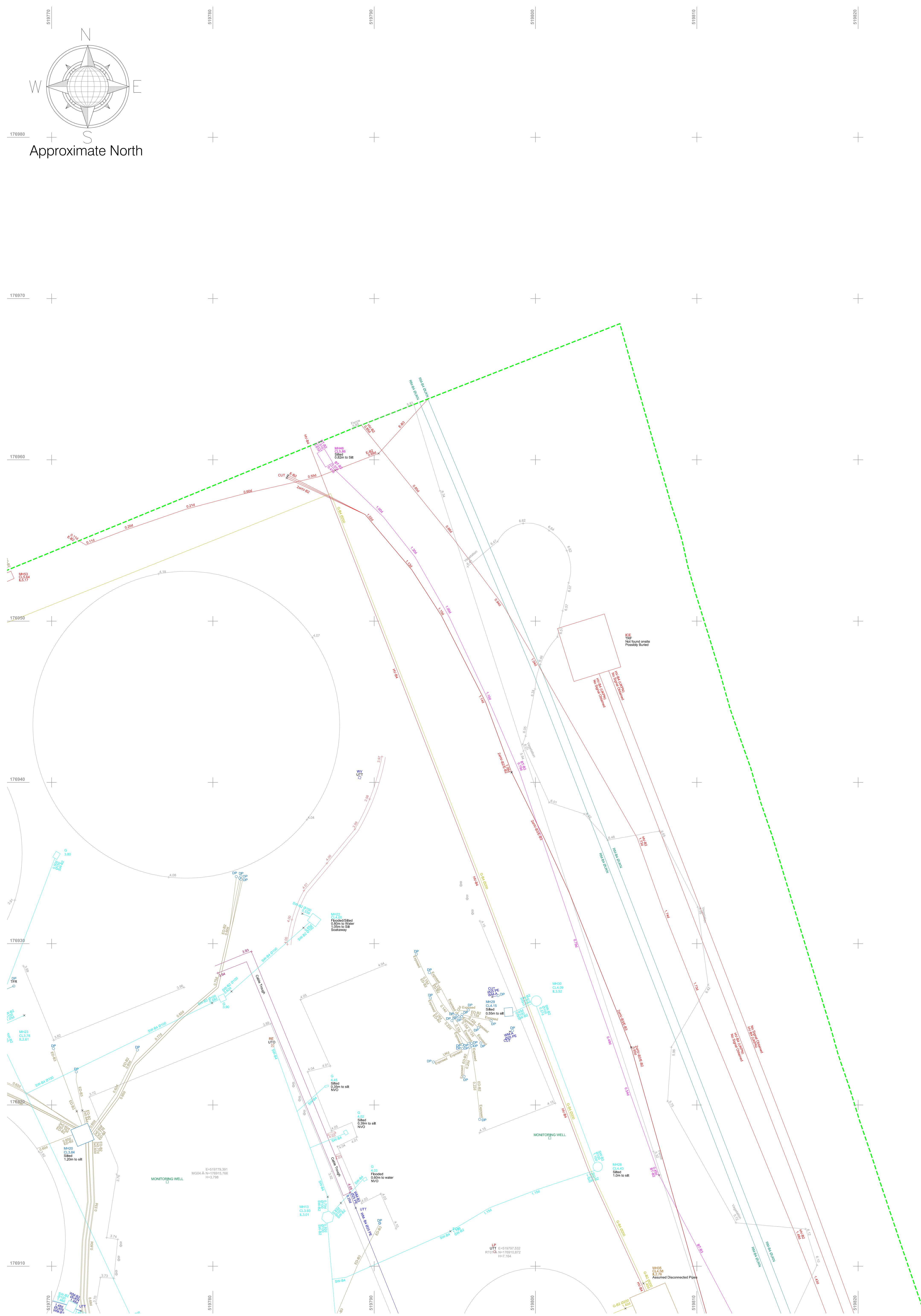
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London Manchester Birmingham Glasgow Belfast Cork Kildare

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Description	Underground Utility Survey(PAS128)
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Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band E
Drawing Scale	1:100 @A0
Drawing Number	MGS58642-U-A11-01

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LEGEND			
Utility Survey Point Features			
AV	Air Valve	GR	Gully Round
BB	Belisha Beacon	IC	IC
CP	CCTV Camera Pole	IC-C	IC - Comms
CR	Cable Riser	IC-E	IC - Electric
DP	Down Pipe	IC-R	IC - Round
DPG	Down Pipe To Ground	IC-T	IC - Telecom
EP	Electrical Pole	IC-TCSUTFL	IC - TCSUTFL
ER	Earth Rod	LP	Lamp Post
FM	Fire Hydrant	MH	MH
GM	Gas Meter	MH-D	MH - District Heat
GV	Gas Valve	MH-F	MH - Foul
G	Gully		
MH	MH - Round		
MH	MH - Surface Water		
MK	Marker Post		
12.24	Pipe Riser		
RE	Recessed Light		
RE	Rodding Eye		
SC	Stop Cock		
TL	Traffic Light		
TP	Telegraph Pole		
V	Valve General		
WM	Water Meter		
WV	Water Valve		

Utility Survey Linework Features			
BT	British Telecom	EHV	Electrical - Extra High Voltage
CATV	Cable TV	HV	Electrical - High Voltage
CCTV	Closed Circuit TV	LV	Electrical - Low Voltage
COMMS	Communications	TFL	Electrical - TFL
FOL	Fibre Optic Line	SL	Street Lighting
FOL-C	Fibre Optic Line - Cott	TCSU	Traffic Control System Unit
FOL-E	Fibre Optic Line - Energis	G	Gas
FOL-F	Fibre Optic Line - Fibernet	G-P	Gas Service
FOL-L	Fibre Optic Line - Level 3	GLP	Gas Low Pressure
FOL-M	Fibre Optic Line - Mercury	GIP	Gas Intermediate Pressure
FOL-MF	Fibre Optic Line - MFS/C	GMP	Gas Medium Pressure
FOL-T	Fibre Optic Line - Tanet	GHP	Gas High Pressure
FOL-V	Fibre Optic Line - Virgin	GPR	GPR - Unknown
FOL-VF	Fibre Optic Line - Vodafone	ED	Empty Duct
FOL-VN	Fibre Optic Line - Verizon	GPR-A	GPR Anomaly
TS	Telecom Service	UA	Unknown Asset
		UA-S	UA Passive Sweep
		UCL	Unknown Cable
		GPR-S	GPR Slab
		GPR-SA	GPR Survey Area
		GPR-BS	GPR buried structure
		GPR-RS	GPR Reinforced Slab
		GPR-IL	GPR interface layer (change in material)
		Other	
		DH	District Heat
		FU	Fuel Pipe
		XX	Decommissioned/Abandoned
		XX	Manhole Chamber
		PEO	Pot End
		SW	Scope of Works

PAS128 Quality Levels			
(Consult document PAS128-2914.pdf for full details)			
XX-A	Quality Level A	XX-B3	Quality Level B3
XX-B1	Quality Level B1	XX-B3P	Quality Level B3P
XX-B1P	Quality Level B1P	XX-B4	Quality Level B4
XX-B2	Quality Level B2	XX-C	Quality Level C
XX-B2P	Quality Level B2P	XX-D	Quality Level D

Special Survey Features			
E-XXXX-XXX	Survey Station	E-XXXX-XXX	Scan Target
HZZZZ	Survey Station	HZZZZ	Scan Target

Utility Survey Abbreviations			
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AR	Assumed Route	MH	Manhole
BI	Illuminated Bollard	NVO	Not Visible Outlet
BLD	Blocked	OE	Overhead Electric
CPD	Capped	OT	Overhead Telecom
CL	Cover Level	SOF	Soffit Level
CPD	Capped	TFR	Taken From Records
CUT	Disconnected Utility	TYM	Ticket Vending Machine
ECCCTV	End of CCTV Survey	UTD	Unable to Open
EOG	End of GPR Signal	UTS	Unable to Survey
EOT	End of Trace	UTT	Unable to Trace
EOS	End of Survey	UKN	Unknown
IC	Inspection Cover	WL	Water Level
IL	Invert Level	XXS	Service Depth

Utility Material Abbreviations			
AC	Asbestos Cement	CO	Concrete
BC	Brick Chamber	DI	Ductile Iro
CI	Cast Iron	PE	Polyethylene
		SI	Spun Iron
		ST	Steel
		WTR	Water

Level Measured For Ducts/Pipes At Pits Is To Top of The Service

Level Measured For Drainage At Pits Is To Invert Level of The Service

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Location Plan			

Revisions			
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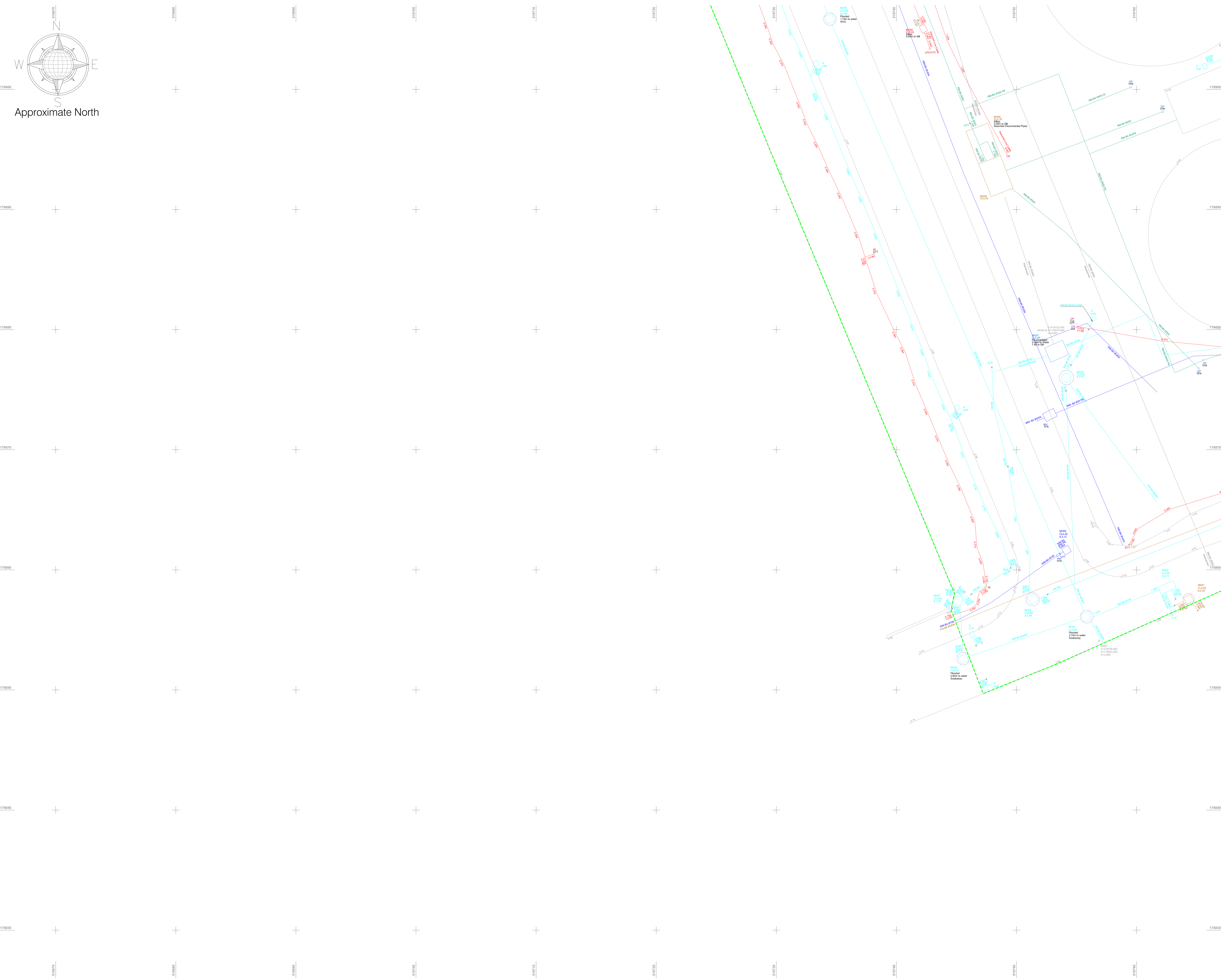
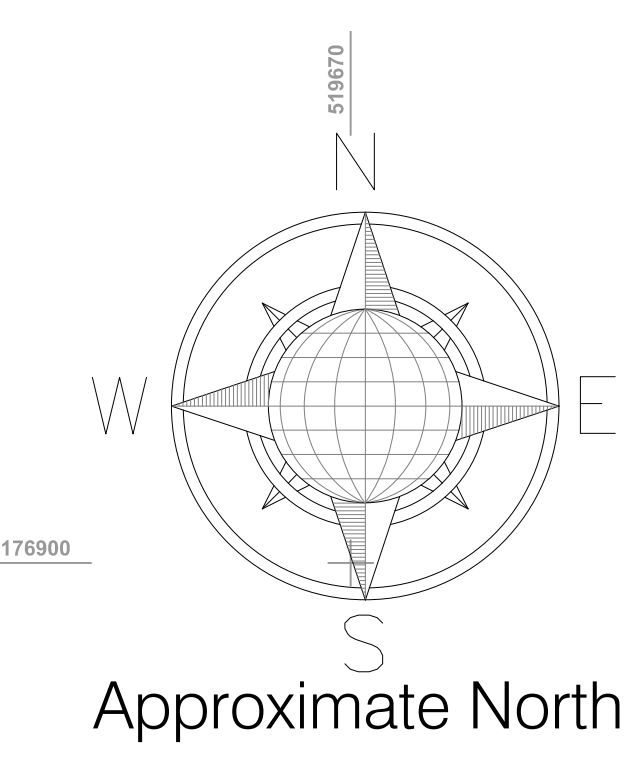
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London Manchester Birmingham Glasgow Belfast Cork Kildare

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Site Address	Melliss Avenue, Former Biothane Site, Richmond, TW9 4BD
Description	Underground Utility Survey(PAS128)
Survey Grid	Localised OSGB36(15) - Scale Factor 1.0
Survey Datum	GNSS - Ordnance Datum Newlyn (ODN)
RICS Band	Band E
Drawing Scale	1:100 @A0
Drawing Number	MGS58642-U-A11-02





LEGEND			
Utility Survey Point Features			
AV	Air Valve	IC	IC - Round
BB	Belisha Beacon	IC	IC - Square
CP	CCTV Camera Pole	IC	IC - Comms
CR	Cable Riser	IC	IC - Electric
DP	Down Pipe	IC	IC - Round
DPG	Down Pipe To Ground	IC	IC - Telecom
EP	Electrical Pole	IC	IC - TCSUTFL
ER	Earth Rod	IC	IC - CATV
FR	Fire Hydrant	LP	Lamp Post
GM	Gas Meter	MH	MH
GV	Gas Valve	MH	MH - District Heat
G	Gully	MH	MH - Foul
		MH	MH - Round
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		RE	Recessed Light
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FOLVZ	Fibre Optic Line - Verizon	GR	GPR Anomaly
FOLW	Fibre Optic Line - WCOM	UA	Unknown Asset
TS	Telecom Service	UAPS	UA Passive Sweep
		UCL	Unknown Cable
			GPR Slab
			GPR Survey Area
			GPR buried structure
			GPR Reinforced Slab
			GPR interface layer (change in material)
			Other
			District Heat
			Fuel Pipe
			Decommissioned/Abandoned
			Manhole Chamber
			Manhole ID
			Pot End
			Scope of Works

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XX - B2P	Quality Level B2P	XX - D	Quality Level D

Special Survey Features			
ERXXXX-XXX	ERXXXX-XXX	ERXXXX-XXX	ERXXXX-XXX
ID A NYYYYYYY Survey Station	ID NYYYYYYY Scan Target	HZZZZZZ	HZZZZZZ

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CI	Cast Iron	PE	Polyethylene
		SI	Spun Iron
		ST	Steel
		WTR	Water
			Level Measured For
			Level Measured For Drainage
			At Pits Is To Invert Level
			Of The Service

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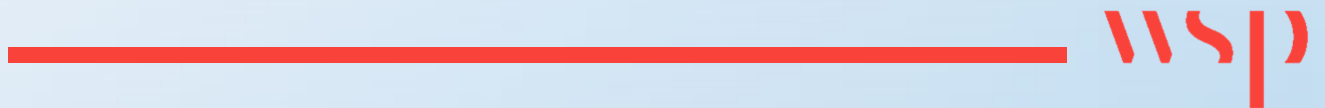
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RICS Band	Band E
Drawing Scale	1:100 @A0
Drawing Number	MGS58642-U-A11-03



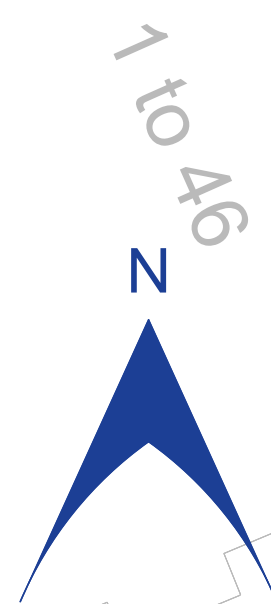


# Appendix B

## **TRANSFER TUNNEL LINE AND LEVEL SURVEY**







Terrano House

SHAFT S3B

SHAFT S3A

INDICATIVE EXTENT OF PILING PLATFORM. TBC BY PILING CONTRACTOR. PILING PLATFORM TO MAKE USE OF SUITABLE SURPLUS SITE WON MATERIAL FROM DEMOLITION WORKS

MAINTAIN BATTER FROM HIGH LEVEL AT THE BOUNDARY DOWN TO PILING PLATFORM LEVEL.

EXISTING THAMES WATER TRANSFER TUNNEL. INTERNAL DIAMETER 2.440m. APPROX IL -5.500m AOD.

2.440 diameter transfer tunnel

PROVIDE BATTER FROM HIGH LEVEL AT THE BOUNDARY DOWN TO PILING PLATFORM LEVEL

ENGINEERED BATTERS ALL BATTERS AROUND THE SITE PERIMETER TO BE OF SUITABLE MATERIAL TO PROVIDE STABILITY AND RESTRAINT TO THE ADJACENT PROPERTY AND A SAFE ANGLE OF SLOPE - TO THE TEMP WORKS ENGINEERS DESIGN.

Oak House

8 to 14

1 to 54

Maple House

MELLIS AVENUE

PROVIDE BATTER FROM HIGH LEVEL AT THE BOUNDARY DOWN TO PILING PLATFORM LEVEL

EXISTING BURIED SERVICES IN PAVEMENT / ROAD

Sluice

Cedar House

1 to 62

Saffron House

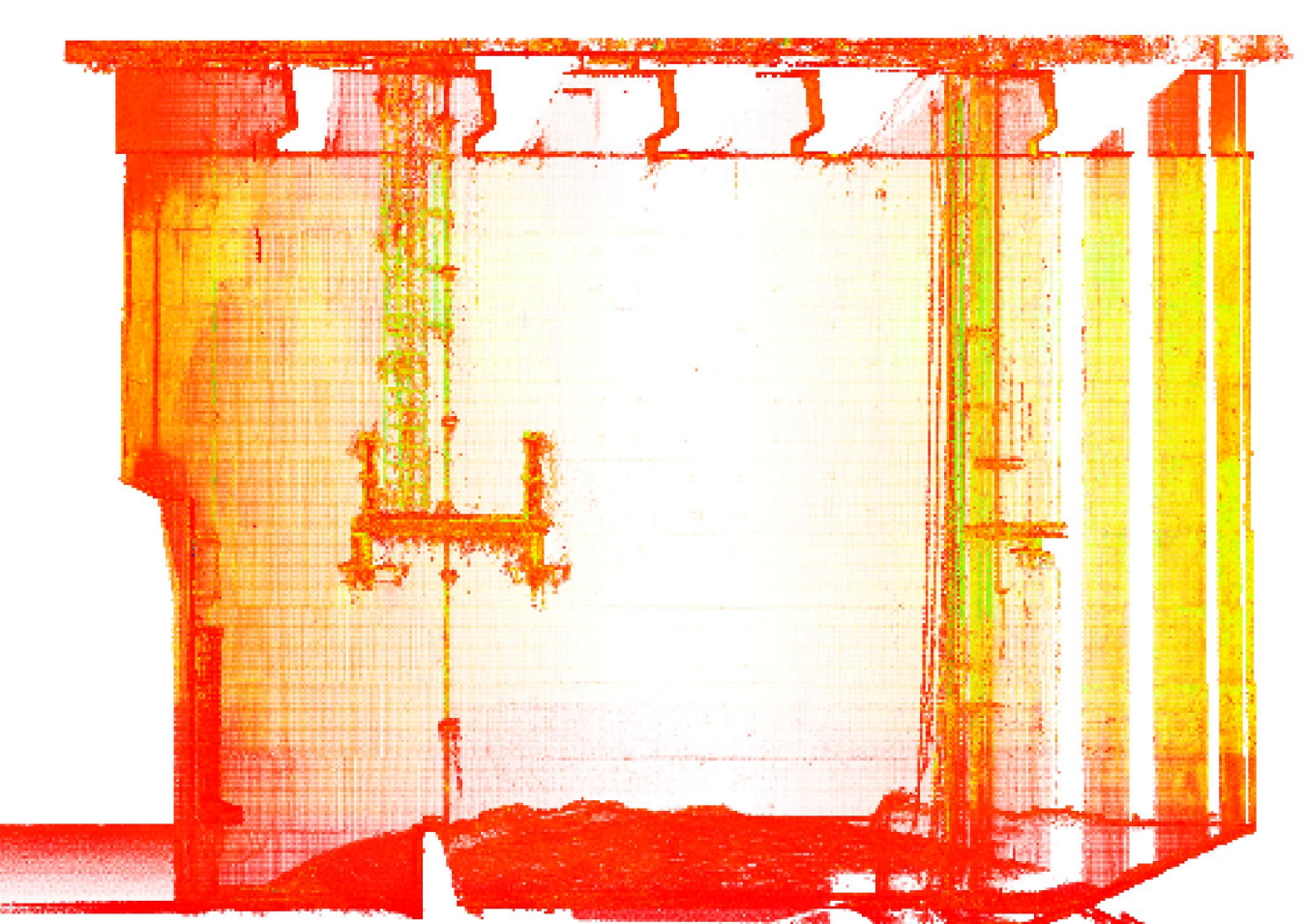
1 to 43

- BURIED UTILITIES: REFER TO SITE TOPOGRAPHICAL AND BURIED SERVICES SURVEY AS WELL AS UTILITIES ASSET INFORMATION. CONTRACTOR TO SATISFY THEMSELVES OF LOCATION OF ALL BURIED SERVICES BEFORE COMMENCEMENT OF WORKS
- RISK OF CONTAMINATION OF GROUND AND GROUND GASES. ANY CONTAMINATION ENCOUNTERED TO BE REPORTED AND ADDRESSED IN LINE WITH THE AGREED REMEDIATION STRATEGY
- DUST, NOISE & VIBRATION: CONTRACTOR TO PROVIDE AN ENVIRONMENTAL MANAGEMENT PLAN FOR THE DEMOLITION WORKS
- UXO DESK STUDIES IDENTIFIES THE SITES AS HIGH RISK OF UXO. REFER TO PPA FOR UXO RISK ASSESSMENT
- EXCAVATIONS MAY ENCOUNTER GROUND WATER. GROUND WATER MAY BE CONTAMINATED. GROUND WATER LEVEL BETWEEN 2.0 & 5.0MBGL. REFER TO PPA 1/1

- SITE DEEMED LOW RISK FOR ENCOUNTERING ASBESTOS. REFER TO ASBESTOS SURVEYS. CONTACTOR TO CARRY OUT PHASE 2 ASBESTOS SURVEY
- REFER TO AIRBORNE REPORT FOR TRIP PROTECTION PLAN

- OVERNIGHT PERMANENT LIGHTING PROHIBITED
- PEST CONTROL. INSTALL PEST CONTROL MEASURES. I.E. RAT PREVENTION.

- PRIMARY SITE ENTRY. PEDESTRIANS TO BE RE-DIRECTED AROUND SITE ENTRY. PROVIDE ADEQUATE PEDESTRIAN SAFETY CONTROL



5m 10m  
E 1:200

ASSET ABBREVIATIONS			
AS	Address Corner	Invert Level	
AC	Access Point	IP	Intersect
BS	Boundary	IS	Intersect
BR	Back	IS	Intersect
CA	Canal	IS	Intersect
CI	Canal	IS	Intersect
CL	Canal	IS	Intersect
CO	Canal	IS	Intersect
CR	Canal	IS	Intersect
CS	Canal	IS	Intersect
CT	Canal	IS	Intersect
CU	Canal	IS	Intersect
CV	Canal	IS	Intersect
CA	Canal	IS	Intersect
CB	Canal	IS	Intersect
CC	Canal	IS	Intersect
CD	Canal	IS	Intersect
CE	Canal	IS	Intersect
CF	Canal	IS	Intersect
CG	Canal	IS	Intersect
CH	Canal	IS	Intersect
CI	Canal	IS	Intersect
CJ	Canal	IS	Intersect
CK	Canal	IS	Intersect
CL	Canal	IS	Intersect
CM	Canal	IS	Intersect
CN	Canal	IS	Intersect
CO	Canal	IS	Intersect
CP	Canal	IS	Intersect
CQ	Canal	IS	Intersect
CR	Canal	IS	Intersect
CS	Canal	IS	Intersect
CT	Canal	IS	Intersect
CU	Canal	IS	Intersect
CV	Canal	IS	Intersect
CW	Canal	IS	Intersect
CX	Canal	IS	Intersect
CY	Canal	IS	Intersect
CZ	Canal	IS	Intersect
DA	Canal	IS	Intersect
DB	Canal	IS	Intersect
DC	Canal	IS	Intersect
DD	Canal	IS	Intersect
DE	Canal	IS	Intersect
DF	Canal	IS	Intersect
DG	Canal	IS	Intersect
DH	Canal	IS	Intersect
DI	Canal	IS	Intersect
DJ	Canal	IS	Intersect
DK	Canal	IS	Intersect
DL	Canal	IS	Intersect
DM	Canal	IS	Intersect
DN	Canal	IS	Intersect
DO	Canal	IS	Intersect
DP	Canal	IS	Intersect
DQ	Canal	IS	Intersect
DR	Canal	IS	Intersect
DS	Canal	IS	Intersect
DT	Canal	IS	Intersect
DU	Canal	IS	Intersect
DV	Canal	IS	Intersect
DW	Canal	IS	Intersect
DX	Canal	IS	Intersect
DY	Canal	IS	Intersect
DZ	Canal	IS	Intersect

ASSET LEGEND	
VOLTADE UNIFORM	STRENGTH
STREET LIGHTING	HIGH VOLTAGE
TRAFFIC CONTROL	LOW VOLTAGE
TR	GAS LP
COBBER AIR	GAS HP
HEATING	GAS MP
CONDENSATE	GAS WIP
FIRE MAIN	FUEL
WATER	CITY
WATER WERING MAIN	DATA
BRITISH TELECOM	EU NETWORKS
COY	WATER ROUTE
ON	METRO MEDIA
LEVEL 3	SCOTIA
VERION MEDIA	ZAVID TELECOM
VERION	CITY
SKY TELECOM	NEOS
TELNET	LUMEN
GENERAL COMMS	PROFIBALOX
COMBRED	EMPTY DUCT
POLY WATER	CONCRETE
SURFACE WATER	GPR
GPR ANOMALY	CHAMBER
GPR MI COVER	ASSUMED CHAMBER
GPR VOID	SURVEY AREA
GPR REINFORCEMENT	RESTRICTIONS

**PAS 128:2022 QUALITY LEVELS**

CL-2 Asset added from records  
 CL-24 Asset added from records  
 CL-24 Asset shown as assumed route  
 CL-25 Asset located horizontally by one technique only  
 CL-25 Asset located horizontally and vertically by one technique only  
 CL-25 Asset as 'IT' including GPR data processing  
 CL-25 Asset located horizontally and vertically by multiple techniques  
 CL-4 Asset located by physical verification

Where details are recorded at inspection covers such as depths, pipe sizes, number of ducts etc. these are classified as CL-4.

**UNDERGROUND SERVICES SURVEY CAVEATS**

The user or recipient of the survey data understands and acknowledges that the data provided may contain errors or omissions and the user or recipient assumes full responsibility for any risk or damage resulting from, arising from or in connection with any use of the captured information.

Multiple methods of detection have been used in the location and identification of underground assets. The results are not reliable due to several factors outside of Plowman Craven's control. With any uncertainty in the provided data we strongly recommend that excavations be carried out to confirm exact position and depth. Plowman Craven's liability for the accuracy of the results is limited to the completion of the underground asset drawings cannot be guaranteed. Drainage designations or marks or other features on the surface do not result in any new excavations or design works must obtain the correct permissions from the local Water Authority before commencing work.

GPR anomalies located on site or from post processed data must be deemed as a live asset until proven otherwise. GPR data is not able to identify an asset. It will only indicate that there is an anomaly. Further information is available in the supplied UGS Survey report which must be read in conjunction with this drawing.

Groundwater monitoring results are dependent on many measuring factors. It is possible that GPR is ineffective on assets or anomalies 50mm in diameter or less. Site specific procedure should be followed regarding the results obtained to the final deliverable or on site. Site responsibility lies with the contractor conducting any excavations or design work.

All drawings supplied as part of this deliverable should be viewed in conjunction with the PAS 128:2022 compliant Underground Utility Survey Report.

Unless otherwise stated drainage pipes are typically drawn at 100mm, other pipes at 150mm. Cable Tension Drawing at 100mm. High Voltage Cables at 200mm and Low Voltage Cables at 100mm.

**LINE, LEVEL AND CONDITION SURVEY CAVEATS**

Traditional Line and level Surveys:  
 All levels are in metres and are above Ordnance Survey Mean Sea Level Datum derived by multiple network RTK GPRS observations.

The survey grid shown on this drawing is positioned on Ordnance Survey (OS) National Grid, obtained by multiple network RTK GPRS observations.

Laser Scanning:  
 The alignment and dimensions of the sewer have been captured using a laser scanner. Multiple scans were conducted to ensure comprehensive data collection. The reported accuracy as represented in this drawing is ± 20mm X, Y, and Z over a 20m length of pipe. Factors such as distance between access points, surface irregularity and environmental conditions may affect the precision of the measurements.

**BACKGROUND TOPOGRAPHICAL INFORMATION**

The grey-scale framework is the existing topographical survey drawing. It was created by the client as a digital drawing by the "NEWSP-SW-XX-DR-5-S03-model 01.dwg".

Plowman Craven cannot accept responsibility for its accuracy.

Due to the inherent instability of paper materials, drawings plotted on paper may be stretched and distorted - dimensions stated from paper plots should therefore be treated with caution.

This drawing has been produced for the purpose of the original commissioning agent. Plowman Craven reserves the right to share the collected data with the associated utility operator.

Plowman Craven Limited will accept no responsibility for details that are subsequently found to be the consequence of uncollected facts that were obscured from view at the time of survey or that have been altered since the survey.

STATUS CODE & REVISIONS				
Stat	Rev	Details	Checked By	Date
S3	P01	First Issue	PL	05/11/2024

All levels are in metres and are above Ordnance Survey Mean Sea Level Datum. The survey grid shown on this drawing is positioned on Ordnance Survey (OS) National Grid.

Unless otherwise stated, levels have been taken to finished floor surface. Drainage and service diameters are quoted in millimetres at other depths and dimensions are in metres.

Drawing units are metres.

**CLIENT**  
 WSP GROUP PLC  
 WSP House,  
 70 Chancery Lane  
 London WC2A 1AF  
 United Kingdom

**PROJECT TITLE**  
 Kew Transfer Tunnel  
 TW9 4BZ

**2D Line, Level and Condition Survey**

**PRESENTATION SCALE**  
 1:200 @ A0

**DATE OF ORIGINAL SURVEY**  
 28 October 2024

**PC PROJECT No.** 49480 **STATUS & REVISION**  
 S3 P01

**DRAWING No.**

**Plowman Craven**  
 Plowman Craven House 115 Southwark Bridge Road  
 2 Lea Business Park London SE1 0AX  
 Harpenden  
 Hertfordshire AL5 5EQ  
 Tel: +44 (0)1582 755566 Tel: +44 (0)207 490 7700  
 Email: post@plowmancraven.co.uk  
 Web: www.plowmancraven.co.uk



## Curtis, Sam

---

**From:** James Mayfield <James.Mayfield@thameswater.co.uk>  
**Sent:** 11 June 2024 09:23  
**To:** Curtis, Sam  
**Cc:** Coleman, Matthew; Chan, Micheala  
**Subject:** Re: Kew Transfer tunnel survey (X2039-1959)

Hi Sam,

The survey tolerance should be considered in defining the exclusion zone. In the absence of as-built drawings for this tunnel, it is reasonable to assume a wall thickness of 0.4m for assessment purposes.

Kind regards,

**James Mayfield**

Senior Project Engineer – Developer Services, Major Projects

Mobile: 07747 642 662  
[James.Mayfield@thameswater.co.uk](mailto:James.Mayfield@thameswater.co.uk)

Clearwater Court, Vastern Road, Reading, RG1 8DB



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**From:** Curtis, Sam <samuel.curtis@wsp.com>  
**Sent:** 10 June 2024 12:17  
**To:** James Mayfield <James.Mayfield@thameswater.co.uk>  
**Cc:** Coleman, Matthew <Matthew.Coleman@wsp.com>  
**Subject:** FW: Kew Transfer tunnel survey

**This e-mail originated from outside of Thames Water. Do not click links, open attachments or reply, unless you recognise the sender's e-mail address and know the content is safe. If in doubt, contact the Digital Service Desk. Report Phishing via the Report Message option.**

Hi James

I had a call with the WRC on Friday with regard to surveying the transfer tunnel at Kew with the use of a Sahara survey. They have provided this response below with their proposal and its limitations.

Before I get this instructed I wanted to give you the opportunity to confirm / comment that with scope of the survey given enough accuracy for use of follow on approvals with TW. We don't want to be in a position during approvals process where this is not sufficient. We're also reviewing it's suitability for our design purposes and GMA etc.

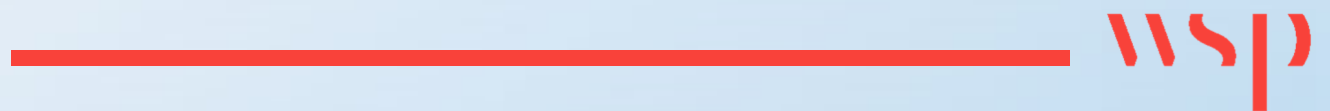
We also cannot survey the sewer wall thickness which is required for our piling distance from its extremity. Without a survey and in absence of any record drawings is there any accepted guidance that we can use for this?

Regards,



# Appendix C

## TRANSFER TUNNEL CCTV SURVEY







## Project

**Project Name:** Melliss Avenue

**Project Description:** CCTV Survey

**Project Number:** 49480

**Project Status:** Issued

**Project Date:** 28/10/2024

**Inspection Standard:** MSCC5 Sewers & Drainage GB (SRM5 Scoring)







## Table of Contents

Project Name	Project Number	Project Date
Melliss Avenue	49480	28/10/2024

Project Information ..... P-1

Section Item 1: TQ19766801 > Penstock (TQ19766801X) ..... 1





## Project Information

**Project Name**  
Melliss Avenue

**Project Number**  
49480

**Project Date**  
28/10/2024

### Client

**Company:** Plowman Craven  
**Contact:** Gosia Niemiec  
**Street:** 2 Lea business Park  
**Town or City:** Lower Luton Road  
**County:** Heartforshire  
**Post Code:** AL5 5EQ  
**Phone:** 01582 765566  
**Mobile:** 07718563175  
**Email:** gniemiec@plowmancraven.co.uk



### Site

**Company:** PLOWMAN CRAVEN  
**Description:** Project 49480  
**Street:** Melliss Avenue  
**Town or City:** Richmond  
**Post Code:** TW9 4BA



### Contractor

**Company:** McAllister Group  
**Contact:** Dave Paul  
**Department:** Operations  
**Street:** Unit B, Horton Trading Estate, Stanwell Road  
**Town or City:** Horton  
**County:** Slough  
**Post Code:** SL3 9PF  
**Phone:** 01753 376 884  
**Email:** dave.paul@mcallistergroup.com







## Project Information

**Project Name**  
Melliss Avenue

**Project Number**  
49480

**Project Date**  
28/10/2024

### Project Notes

Arrived on site and carried out a condition survey of sewer as per plans and instructions.

We set up on upstream manhole TQ19766801 and attempted to float camera down to penstock chamber.

At 87m the survey was abandoned due to high silt levels and slow flows in sewer. The 87m of the pipe that were surveyed was in good condition with no major defects.

Please refer to CCTV report for further details.





## Section Inspection - 28/10/2024 - TQ19766801X



Item No. 1	Insp. No. 1	Date 28/10/24	Time 9:52	Client's Job Ref 49480	Weather No Rain Or Snow	Pre Cleaned No	PLR TQ19766801X
Operator Shane		Vehicle SH71 JCY		Camera Main Camera	Preset Length Not Specified	Criticality Grade Category A	Alternative ID Not Specified

Town or Village:	Richmond	Inspection Direction:	Downstream	Upstream Node:	TQ19766801
Road:	Melliss Avenue	Inspected Length:	87.26 m	Upstream Pipe Depth:	10.700 m
Location:	Gardens (private)	Total Length:	100.00 m	Downstream Node:	PENSTOCK
Surface Type:	Grass	Joint Length:	1.00 m	Downstream Pipe Depth:	10.000 m
Use:	Foul	Pipe Shape:	Circular		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	2,440 mm	Width:	2,440 mm
Flow Control:	No flow control	Material:	Concrete		
Year Constructed:	Not Specified	Lining Type:	No Lining		
Inspection Purpose:	Sample condition survey	Lining Material:	No Lining		
Comments:	None				
Recommendations:	None				

Scale:	1:866	Position [m]	Code	Observation	MPEG	Photo	Grade																																																																																																								
<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>Depth: 10.70 m TQ19766801</p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: right;">0.00</td> <td style="width: 5%;"></td> <td style="width: 5%;">MH</td> <td style="width: 5%;">Start node, manhole, reference: TQ19766801</td> <td style="width: 10%;">00:00:00</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">0.00</td> <td></td> <td>WL</td> <td>Water level, 50% of the vertical dimension</td> <td>00:00:02</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">5.56</td> <td>S01</td> <td>DEF</td> <td>Attached deposits, fouling from 10 o'clock to 2 o'clock, 15% cross-sectional area loss, start</td> <td>00:01:23</td> <td>TQ197668 01_D_241 028_0952</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">10.05</td> <td></td> <td>GP</td> <td>General photograph taken at this point: Condition photo</td> <td>00:02:46</td> <td>TQ197668 01_D_241 028_0952</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">20.16</td> <td></td> <td>GP</td> <td>General photograph taken at this point: Condition photo</td> <td>00:04:06</td> <td>TQ197668 01_D_241 028_0952</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">30.36</td> <td></td> <td>GP</td> <td>General photograph taken at this point: Condition photo</td> <td>00:05:15</td> <td>TQ197668 01_D_241 028_0952</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">40.27</td> <td></td> <td>GP</td> <td>General photograph taken at this point: Condition photo</td> <td>00:05:52</td> <td>TQ197668 01_D_241 028_0952</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">47.56</td> <td>F01</td> <td>DEF</td> <td>Attached deposits, fouling from 10 o'clock to 2 o'clock, 15% cross-sectional area loss, finish</td> <td>00:06:28</td> <td></td> <td></td> <td style="text-align: center;">3</td> </tr> <tr> <td style="text-align: right;">50.43</td> <td></td> <td>GP</td> <td>General photograph taken at this point: Condition photo</td> <td>00:06:32</td> <td>TQ197668 01_D_241 028_0952</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">70.22</td> <td></td> <td>GP</td> <td>General photograph taken at this point: Condition photo</td> <td>00:07:41</td> <td>TQ197668 01_D_241 028_0952</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">80.07</td> <td></td> <td>GP</td> <td>General photograph taken at this point: Condition photo</td> <td>00:08:42</td> <td>TQ197668 01_D_241 028_0952</td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">87.26</td> <td></td> <td>SA</td> <td>Survey abandoned: Unable to continue float grounded out of silt / Slow flows</td> <td>00:39:46</td> <td></td> <td></td> <td></td> </tr> <tr> <td style="text-align: right;">100.00</td> <td></td> <td></td> <td>End of pipe</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> </div>								0.00		MH	Start node, manhole, reference: TQ19766801	00:00:00				0.00		WL	Water level, 50% of the vertical dimension	00:00:02				5.56	S01	DEF	Attached deposits, fouling from 10 o'clock to 2 o'clock, 15% cross-sectional area loss, start	00:01:23	TQ197668 01_D_241 028_0952			10.05		GP	General photograph taken at this point: Condition photo	00:02:46	TQ197668 01_D_241 028_0952			20.16		GP	General photograph taken at this point: Condition photo	00:04:06	TQ197668 01_D_241 028_0952			30.36		GP	General photograph taken at this point: Condition photo	00:05:15	TQ197668 01_D_241 028_0952			40.27		GP	General photograph taken at this point: Condition photo	00:05:52	TQ197668 01_D_241 028_0952			47.56	F01	DEF	Attached deposits, fouling from 10 o'clock to 2 o'clock, 15% cross-sectional area loss, finish	00:06:28			3	50.43		GP	General photograph taken at this point: Condition photo	00:06:32	TQ197668 01_D_241 028_0952			70.22		GP	General photograph taken at this point: Condition photo	00:07:41	TQ197668 01_D_241 028_0952			80.07		GP	General photograph taken at this point: Condition photo	00:08:42	TQ197668 01_D_241 028_0952			87.26		SA	Survey abandoned: Unable to continue float grounded out of silt / Slow flows	00:39:46				100.00			End of pipe				
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Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	2.0	15.1	84.0	5.0





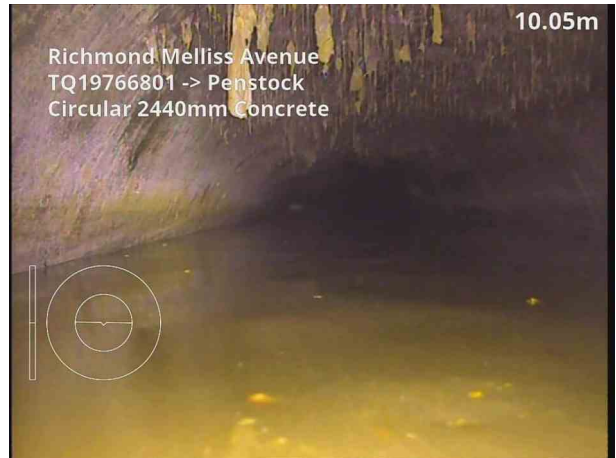
### Section Pictures - 28/10/2024 - TQ19766801X

Item No.	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
1	Downstream	TQ19766801X	49480	



TQ19766801\_D\_241028\_095218\_49480\_2.jpg, 00:01:23, 5.56 m

Attached deposits, fouling from 10 o'clock to 2 o'clock, 15%



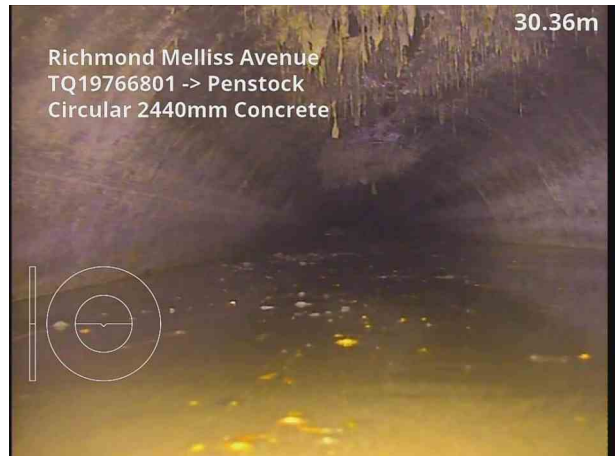
TQ19766801\_D\_241028\_095218\_49480\_3.jpg, 00:02:46, 10.05 m

General photograph taken at this point, Condition photo



TQ19766801\_D\_241028\_095218\_49480\_4.jpg, 00:04:06, 20.16 m

General photograph taken at this point, Condition photo



TQ19766801\_D\_241028\_095218\_49480\_5.jpg, 00:05:15, 30.36 m

General photograph taken at this point, Condition photo



TQ19766801\_D\_241028\_095218\_49480\_6.jpg, 00:05:52, 40.27 m

General photograph taken at this point, Condition photo



TQ19766801\_D\_241028\_095218\_49480\_7.jpg, 00:06:32, 50.43 m

General photograph taken at this point, Condition photo