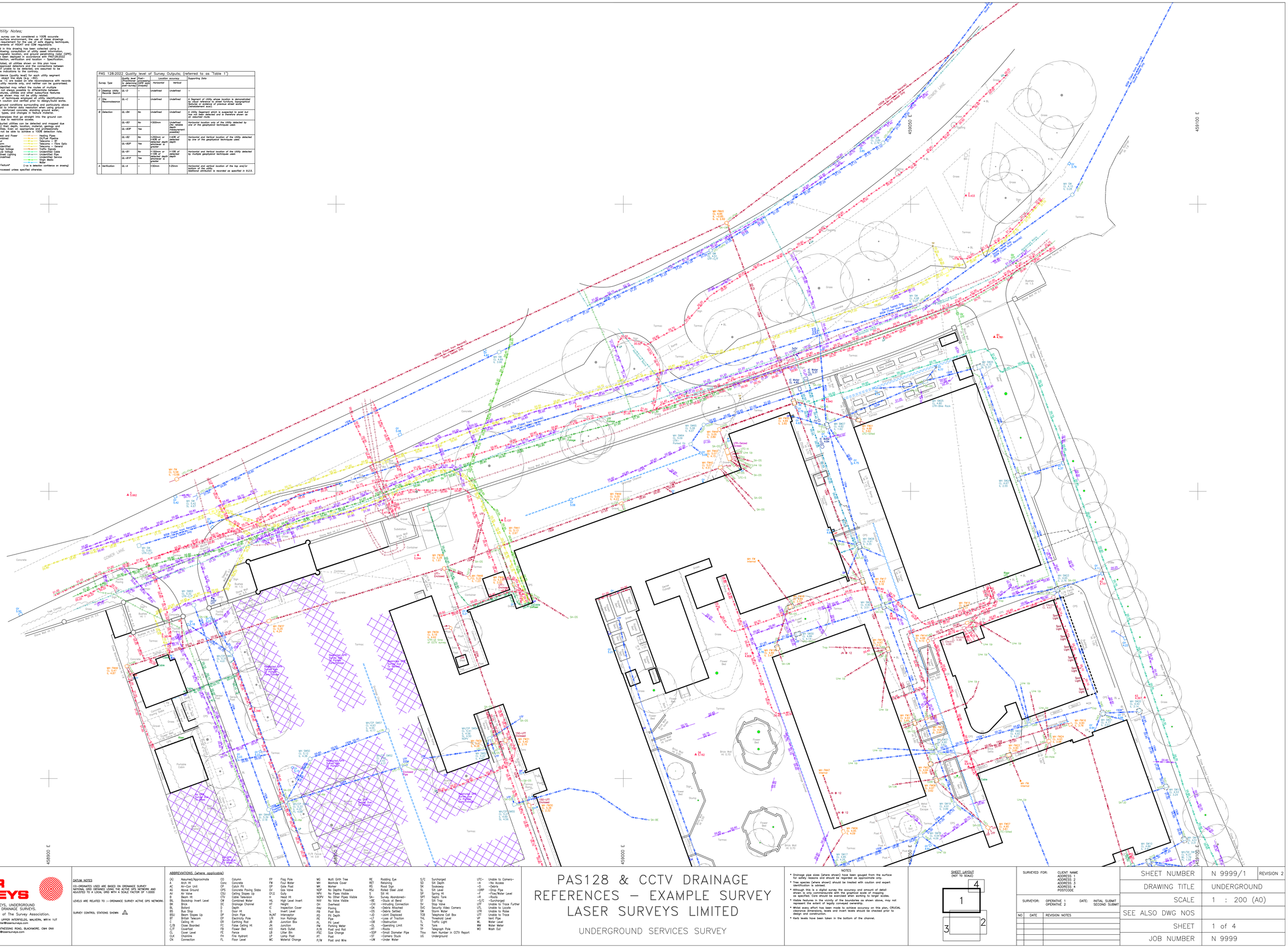

Underground Utility Notes;

1) No utility mapping survey can be considered a 100% accurate representation of the underground utilities present. This drawing does not remove the requirement for the use of safe digging techniques, in line with the requirements of HSG47 and CDM regulations.

2) The data presented in this drawing has been collected using a combination of the following; consultation of utility asset information, ground penetrating radar, electromagnetic detection and trace (GPR&). These techniques have been deployed in accordance with PAS128:2022 Underground utility detection, verification and location – Specification.

3) Unless otherwise stated, all utilities shown on this plan have been surveyed using approved detectors and the connections between surface features assumed to be correct. Depths are assumed to be direct unless there are indications to the contrary.

4) The detection confidence (quality level) for each utility segment is depicted within the object line style (e.g. –Q2). Information depicted as –C are based on site reconnaissance with records and should be treated with caution and verified prior to design/build.

5) The utility routes depicted only reflect the routes of multiple cables or pipes. It is not always possible to differentiate between buried construction features, utilities and other subsurface features therefore some features shown may not be utility related.

6) The material and ground conditions surrounding and particularly above buried utilities can lead to interior data resolution when using ground penetrating radar, e.g. reinforced concrete, standing ground water, backfilled soils. The depth information for these identifications should be treated with caution and verified prior to design/build works.

7) Small gullys and downpipes that go straight into the ground can not always be traced due to restrictive access.

8) Note that not all buried utilities can be detected and mapped due to (but not limited by) their depth, location, material, geology and other factors. Therefore the data depicted on this topographical surveyed survey may not be able to achieve a 100% detection rate.

- Combined Heat and Power
- Drainage Combined
- Drainage Foul
- Drainage Surface
- Drainage Unidentified
- Electric – High Voltage
- Electric – Low Voltage
- Electric – Street Lighting
- Electric – Unidentified
- Empty Duct
- Gas
- GPR Linear Feature*
- Heating Pipes
- Oil/Fuel Pipeline
- Telecoms – BT
- Telecoms – Fibre Optic
- Telecoms – General
- Traffic Signals
- Unidentified Cable
- Unidentified Pipe
- Unidentified Service
- Virgin Media
- Water
- (–xx is detection confidence on drawing)

* All GPR data is post processed unless specified otherwise.

PAS 128:2022 Quality level of Survey Outputs; (referred to as 'Table 1')						
Survey Type		Quality level (Practitioner processing pre-survey) (Practitioner post-survey) (Analyst)	Pipe-processing (Yes/No) (Analyst)	Location accuracy		Supporting Data
				Horizontal	Vertical	
D	Desktop Utility Records Search	QL–D	–	Undefined	Undefined	–
C	Site Reconnaissance	QL–C	–	Undefined	Undefined	A Segment of Utility whose location is demonstrated by visual reference to street furniture, topographical features or evidence of previous street works (reinstatement scar).
B	Detection	QL–B4	No	Undefined	Undefined	A Utility Segment which is suspected to exist but has not been detected and is therefore shown as an assumed location.
		QL–B3	No	±500mm	Undefined (No reliable depth measurement possible)	Horizontal location only of the Utility detected by one of the geophysical techniques used.
		QL–B3*	Yes			
		QL–B2	No	±250mm or ±40% of detected depth whichever is greater	±40% of detected depth	Horizontal and Vertical location of the Utility detected by one of the geophysical techniques used.
		QL–B2*	Yes			
		QL–B1	No	±150mm or ±15% of detected depth whichever is greater	±15% of detected depth	Horizontal and Vertical location of the Utility detected by multiple geophysical techniques used.
		QL–B1*	Yes			
A	Verification	QL–A	–	±30mm	±25mm	Horizontal and vertical location of the top and/or bottom of the utility. Additional attribution is recorded as specified in B.2.5.

DATUM NOTES

CO–ORDINATES USED ARE BASED ON ORDNANCE SURVEY NATIONAL GRID OBTAINED USING THE ACTIVE GPS NETWORK AND ADJUSTED TO A LOCAL GRID WITH A SCALE FACTOR OF 1.0000

LEVELS ARE RELATED TO :– ORDNANCE SURVEY ACTIVE GPS NETWORK.

SURVEY CONTROL STATIONS SHOWN

ABBREVIATIONS (where applicable)

(A)	Assumed/Approximate	CO	Column	FP	Flag Pole	MG	Multi Girth Tree	RE	Rodding Eye	S/C	Surcharged
A	Arch Ht	Conc	Concrete	FW	Foul Water	MH	Manhole Cover	RET	Retaining	SD	Silt Depth
AC	Air–Con Unit	CP	Catch Pit	GP	Gate Post	MK	Marker	RS	Road Sign	SK	Soakaway
AG	Above Ground	CPS	Concrete Paving Slabs	GV	Gas Valve	NDP	No Depths Possible	RSJ	Rolled Steel Joist	SL	Silt Level
AV	Air Valve	CSU	Ceiling Slopes Up	GY,G	Gully	NPV	No Pipes Visible	S	Silt Ht	SP	Spring Ht
B	Beam Ht	CTV	Cable Television	H	Head Ht	NOPV	No Other Pipes Visible	SA–	Survey Abandoned–	ST	Septic Tank
BIL	Blockstrip Invert Level	CW	Combined Water	HIL	High Level Invert	NVV	No Valve Visible	–BE	–Stuck at Bend	ST	Silt Trap
BK	Brick	DC	Drainage Channel	HT	Height	OH	Overhead	–CH	–Intruding Connection	SV	Stop Valve
BL	Bollard	D	Depth	IC	Inspection Cover	PAV	Paving	–DA	–Debris Attached	SWC	Security Video Camera
BS	Bus Stop	DO	Door Ht	IL	Invert Level	PB	Post Box	–DS	–Debris Settled	SW	Storm Water
BSU	Beam Slopes Up	DP	Drain Pipe	INT	Interceptor	PD	Pit Depth	–JD	–Joint Displaced	TCB	Telephone Call Box
BT	British Telecom	EP	Electricity Pole	IR	Iron Railings	PE	Pipe Entry	–JT	–Joint Tilted	TL	Threshold Level
C	Cover	ER	Earthing Rod	JB	Junction Box	PL	Pit Level	–OB	–Obstruction	TS	Traffic Light
C/B	Close Boarded	FC	Flare Gelling Ht	JN	Junction	PM	Parking Meter	–OL	–Operating Limit	TK	Tank
C/F	Coverfast	FB	Flower Bed	K/O	Kerb Outlet	P/P	Post and Rail	–RT	–Roots	TP	Telegraph Pipe
CL	Cover Level	FE	Fence	LB	Litter Bin	PSC	Post Change	–SDP	–Small Diameter Pipe	Tnxx	Item Number in CCTV Report
CLK	Chainlink	FH	Fire Hydrant	LP	Lamp Post	PT	Pipe Thread	–ST	–Camera Stuck	UG	Underground
CN	Connection	FL	Floor Level	MC	Material Change	P/W	Post and Wire	–UW	–Under Water		

UTC–	Unable to Camera–
–A	–No Access
–D	–Debris
–DRP	–Drop Pipe
–F	–Flow/Water Level
–R	–Roots
–S/C	–Surcharged
UTT	Unable to Trace Further
UTL	Unable to Locate
UTR	Unable to Raise
UTT	Unable to Trace
WF	Weir Plate
WL	Water Level
WM	Water Meter
WO	Wash Out

NOTES

- Drainage pipe sizes (where shown) have been gauged from the surface for safety reasons and should be regarded as approximate only.
- Tree species (where shown) should be treated with caution and expert identification is advised.
- Although this is a digital survey the accuracy and amount of detail shown is only commensurate with the graphical scale of mapping as specified. Care should be exercised when working to larger scales.
- Visible features in the vicinity of the boundaries as shown above, may not represent the extent of legally conveyed ownership.
- Whilst every effort has been made to achieve accuracy on this plan, CRUCIAL invert levels, connections, levels and invert levels should be checked prior to design and construction.
- Kerb levels have been taken in the bottom of the channel.

SHEET LAYOUT (NOT TO SCALE)

LASER SURVEYS

LAND AND BUILDING SURVEYS, UNDERGROUND SERVICES LOCATION, CCTV DRAINAGE SURVEYS.

Established 1975, Member of The Survey Association.

OPEN SPACE, LEIGH SINTON ROAD, UPPER INTERFIELDS, MALVERN, WR14 1UT
TEL 01886 833173 email: worcester@lasersurveys.com

OLD DAIRY, STUBBERS FARM, MOUNTNESSING ROAD, BLACKMORE, CM4 0NX
TEL 01277 821555 email: london@lasersurveys.com

PAS128 & CCTV DRAINAGE REFERENCES – EXAMPLE SURVEY LASER SURVEYS LIMITED

UNDERGROUND SERVICES SURVEY

SURVEYED FOR: CLIENT NAME
ADDRESS 1
ADDRESS 2
ADDRESS 3
ADDRESS 4
POSTCODE

SURVEYOR: OPERATIVE 1 DATE: INITIAL SUBMIT
OPERATIVE 2 SECOND SUBMIT

NO	DATE	REVISION NOTES

SHEET NUMBER	N 9999/1 REVISION 2
DRAWING TITLE	UNDERGROUND
SCALE	1 : 200 (A0)
SEE ALSO DWG NOS	
SHEET	1 of 4
JOB NUMBER	N 9999