

**Notes**

- Topographical information has been taken from drawing 'K223003 2D', some information may have been removed for clarity. Please refer to original drawing for full details.
- This drawing should be read in conjunction with the utility survey report.
- All depths are taken to top of service, unless "L" is indicated, in this instance the depth is to the invert of the pipe. This is for drainage pipes at manholes only.
- As this is a non-intrusive survey only, all utilities should be visually verified by safe digging practices to confirm depths and alignments of survey.
- Non-intrusive surveys cannot guarantee every possible service under the ground is located. Care must be taken when site works begin, as services that are not locatable through non-intrusive methods may exist on site.

**DISCLAIMER**

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The data presented in this drawing has been collected using a combination of the following: consultation of utility asset information, visual survey & inspection of manholes and inspection chambers, electromagnetic location techniques, ground penetrating radar, and, where applicable, trial hole excavations. These techniques have been employed in accordance with the BS PAS 238 Specification for Underground Utility Detection, Verification and Location using the search methodologies indicated below and described in the accompanying report. This drawing should be used in conjunction with the accompanying report which details the limitations of these techniques and any remedial factors encountered during this survey.

Unless otherwise stated, all utilities shown on this plan have been surveyed using approved detectors and the connections between inspection chambers, if unable to be detected, are generally assumed to be direct unless there are some indications to the contrary. The detection confidence for each utility segment is indicated in line with the PAS 238 scheme outlined below. Information depicted as CL-C or CL-D cannot be guaranteed as it is based on historic utility records which can be inaccurate and incomplete.

The utility routes depicted may reflect the routes of multiple cables or pipes. It is not always possible to differentiate between buried construction features, utilities and other subsurface linear features therefore it is possible that some features shown are not utility related, and due to the limitations of electromagnetic techniques all utility identifications should be treated with caution and verified prior to use during design/building works.

If the location or depth of utilities and features is of particular importance to a project then it is recommended that excavations are held with Precision Utility Mapping regarding any possible limitations or anomalies.

Please note that not all buried pipes, cables and ducts can be detected and mapped in consideration of their depth, location, material type, geology and proximity to other utilities. Even an appropriate and professionally executed survey may not be able to achieve a 100% detection rate. Where an area of utilities is likely to affect client project requirements, it is strongly recommended that a PAS 238 Quality Level A verification survey is carried out.

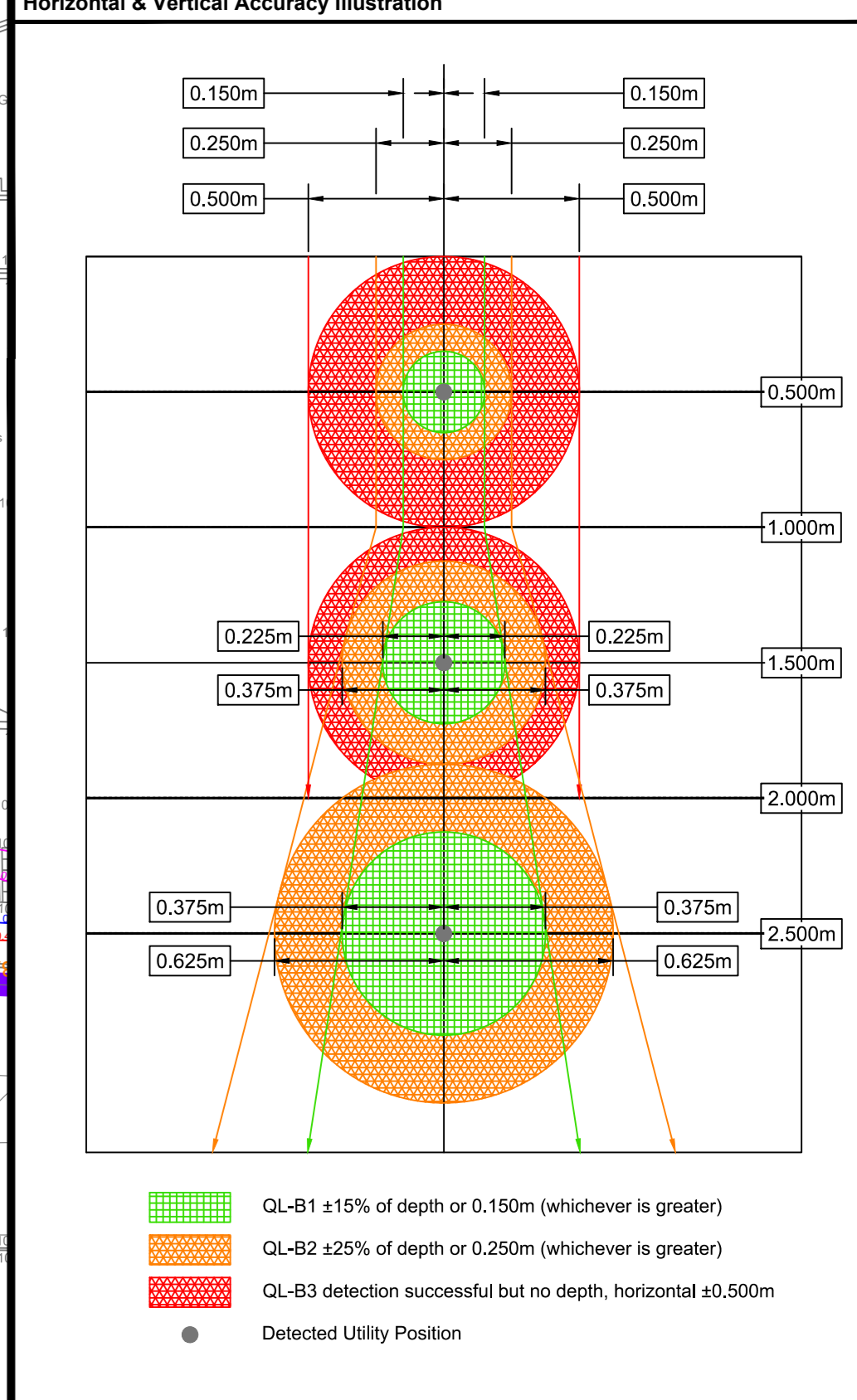
No utility mapping survey can be considered a 100% accurate depiction of the sub-surface environment, and the use of these drawings does not remove the requirement for the use of safe digging techniques at all times, in line with the requirements of HSE 247 and current CDM regulations.

**SUB-SURFACE KEY**

COMBINED HEATING AND POWER	
DISTRICT HEATING	
DRAINAGE COMBINED*	
DRAINAGE COAT	
DRAINAGE SURFACE*	
DRAINAGE UNIDENTIFIED*	
FLOW DIRECTION INDICATED BY ARROW (D) or (U) (IF KNOWN)	
ELECTRIC	
ELECTRIC LV	
ELECTRIC HV	
ELECTRIC STREET LIGHTING	
GAZ	
OPTICAL FIBRE LINE	
STREET FURNITURE CABLES	
TELECOMS	
TELECOMS - FIBRE OPTIC	
TELECOMS - BT	
TELECOMS - VIRGIN MEDIA	
BROADBAND	
TRAFFIC CONTROL	
WATER	
UNIDENTIFIED UTILITY	
UNIDENTIFIED CABLES	
UNIDENTIFIED EMPTY DUCT	
GPR LINEAR FEATURE	
GPR AREA ANOMALY	
GPR AREA ANOMALY - REBAR	
CHAMBER EXTENTS	
MEASURED DEPTH BGL TO PIPE/CABLE/DUCT	
INVERT LEVEL OF PIPE/CABLE/DUCT (TO ORIENTATION)	
DEPTH LEVEL (TO OS DATUM)	
COVER LEVEL OF INSPECTION CHAMBER (TO OS DATUM)	
DIAMETER OF PIPE/DUCT IN MILLIMETERS	
AREA UNABLE TO BE SURVEYED DUE TO SURFACE OBSTRUCTIONS, RESTRICTION LACK OF ACCESS	
TRENCH SCAR / SURFACE SCAR	
EXTENT OF SURVEY - BOUNDARY	

**UTILITY CONFIDENCE LEVELS (Listed from High to Low)**

(A)	HORIZONTAL AND VERTICAL POSITION VERIFIED VISUALLY (Accuracy: Horizontal ±25mm Vertical ±50mm)
(B1P)	HORIZONTAL AND VERTICAL POSITION DETECTED BY MULTIPLE METHODS WITH POST PROCESSING OF GPR DATA (Estimated Accuracy: ±150mm OR ±15% of detected depth)
(B1)	HORIZONTAL AND VERTICAL POSITION DETECTED BY MULTIPLE METHODS (Estimated Accuracy: ±150mm OR ±15% of detected depth)
(B2P)	HORIZONTAL AND VERTICAL POSITION DETECTED VIA POST-PROCESSED GPR (Estimated Accuracy: ±250mm OR 44% of detected depth)
(B2)	HORIZONTAL AND VERTICAL POSITION DETECTED BY A SINGLE METHOD (Estimated Accuracy: ±250mm OR 44% of detected depth)
(B3P)	HORIZONTAL POSITION DETECTED VIA POST-PROCESSED GPR (Estimated Accuracy: ±500mm in the Horizontal - Depth is undefined)
(B3)	HORIZONTAL POSITION DETECTED BY A SINGLE METHOD (Estimated Accuracy: ±500mm in the Horizontal - Depth is undefined)
(B4)	A utility segment which is supposed to exist (either on CL-D or CL-C records) but has not been detected and is therefore shown as an assumed route.



1

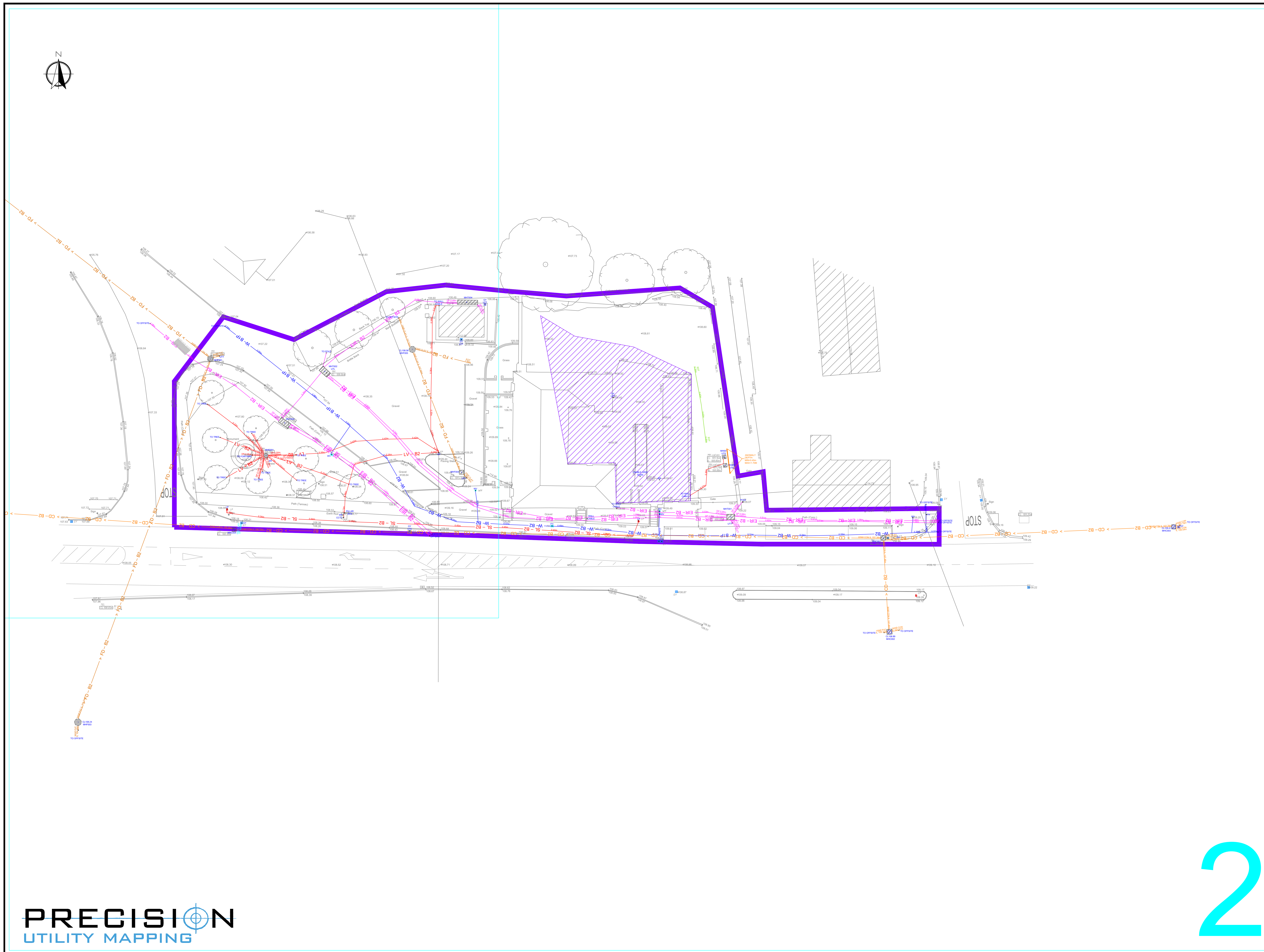
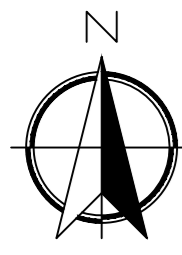
	MIP - EM SEARCH TRANSECT AT 2m INTERVALS - TRACED AT 0.5m INTERVALS. GPR SURVEY GRID AT 5m INTERVALS OR HIGH DENSITY ARRAY. POST PROCESSING OF GPR DATA.		M1 - EM SEARCH TRANSECT AT 2m INTERVALS - TRACED AT 0.5m INTERVALS. GPR SURVEY GRID AT 5m INTERVALS. GPR MARKUP ON SITE.
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	MIP - EM SEARCH TRANSECT AT 10m INTERVALS - TRACED AT 5m INTERVALS. GPR SURVEY AS APPROPRIATE. POST PROCESSING OF GPR DATA.		M4 - EM SEARCH TRANSECT AT 10m INTERVALS - TRACED AT 5m INTERVALS. GPR SURVEY AS APPROPRIATE. GPR MARKUP ON SITE.

Rev	Date	Drawn	Description	Chkd	Appd
02	24/04/2023	G.S.	Survey updated with GPR Data	K.S.	J.M.
01	19/04/2023	C.D.	Survey Completed	K.S.	J.M.

Client	HHC
Title	Borris In Ossory Courthouse

Surveyor	N.Fuentes	N.F.	Eng. check	-	-
Drawn	C.Dous	C.D.	Coordination	-	-
Dwg check	K.Sheehan	K.S.	Approved	J.Markham	J.M.
Scale at A0	1:200	Status	Complete	Rev	02
Drawing Number	PUM-11273-U-DR-0001-02				





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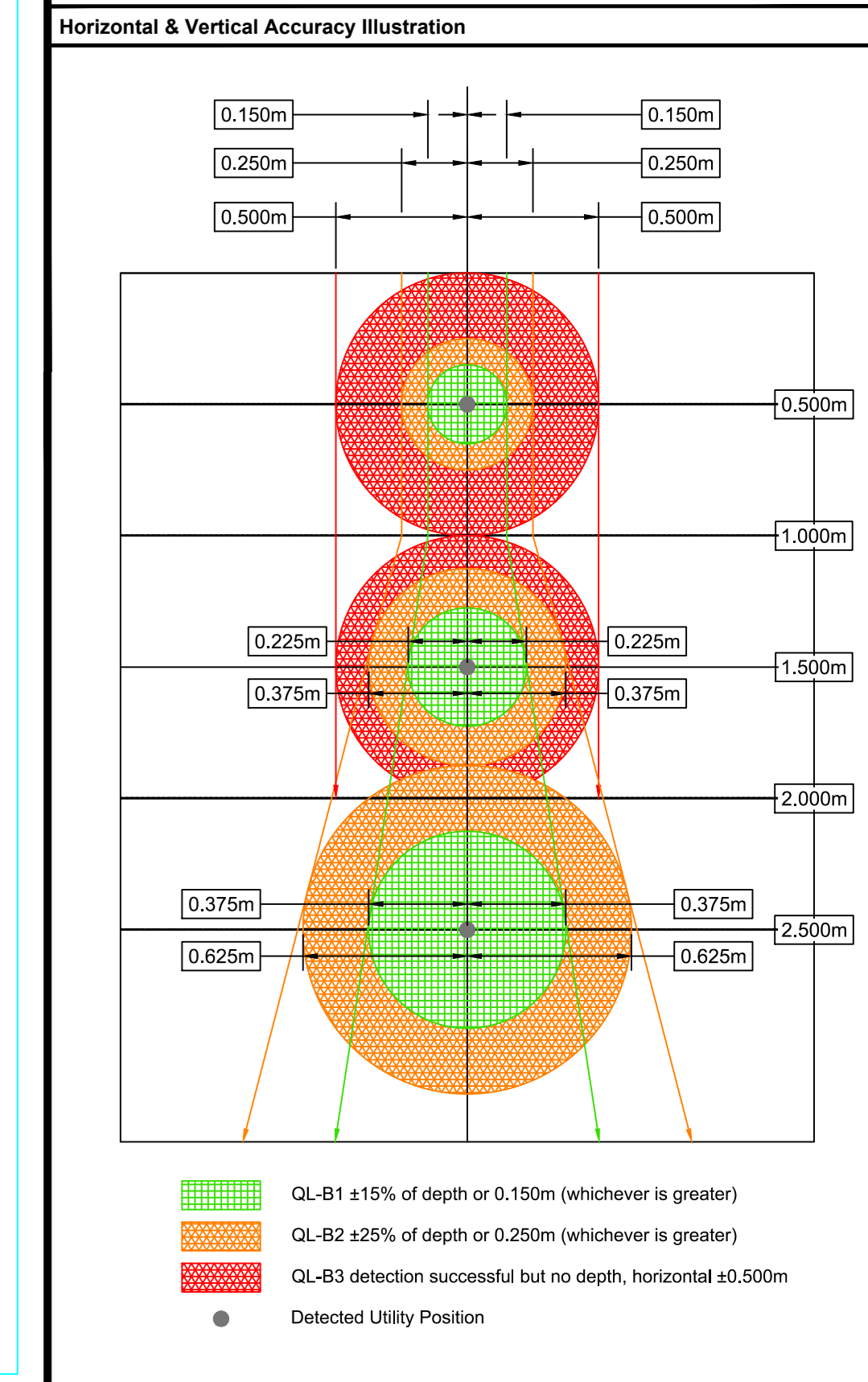
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**SUB-SURFACE KEY**

COMBINED HEATING AND POWER	Blue line
DISTRICT HEATING	Red line
DRAINAGE COMBINED	Orange line
DRAINAGE COAT	Yellow line
DRAINAGE SURFACE	Green line
DRAINAGE UNIDENTIFIED	Light blue line
ELECTRIC	Red line
ELECTRIC LV	Red line
ELECTRIC HV	Red line
ELECTRIC STREET LIGHTING	Red line
GAS	Orange line
OPTICAL FIBRE LINE	Blue line
STREET FURNITURE CABLES	Blue line
TELECOMS	Blue line
TELECOMS - FIBRE OPTIC	Blue line
TELECOMS - BT	Blue line
TELECOMS - VIRGIN MEDIA	Blue line
TELECOMS	Blue line
TRAFFIC CONTROL	Blue line
WATER	Blue line
UNIDENTIFIED UTILITY	Blue line
UNIDENTIFIED CABLES	Blue line
UNIDENTIFIED EMPTY DUCT	Blue line
GPR LINEAR FEATURE	Blue line
GPR AREA ANOMALY	Blue line
GPR AREA ANOMALY - REBAR	Blue line
CHAMBER EXTENTS	Blue line
MEASURED DEPTH (M) TO PIPE/CABLE/DUCT	Blue line
INVERT LEVEL OF PREDICTABLE (TO OS DATUM)	Blue line
DEPTH LEVEL (TO OS DATUM)	Blue line
COVER LEVEL OF INSPECTION CHAMBER (TO OS DATUM)	Blue line
DIAMETER OF PIPE/DUCT IN MILLIMETERS	Blue line
AREA UNABLE TO BE SURVEYED DUE TO SURFACE OBSTRUCTION, WIDE EXTENSION LACK OF ACCESS	Blue line
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**PRECISION UTILITY MAPPING**

Rathmole, Munster, Limerick, Ireland  
www.Precision-UM.ie

Rev	Date	Drawn	Description	Chkd	Appd
02	24/04/2023	G.S.	Survey updated with GPR Data	K.S.	J.M.
01	19/04/2023	C.D.	Survey Completed	K.S.	J.M.

Client	HCC
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Title	Borris In Ossory Courthouse
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Surveyor	N.Fuentes	N.F.	Eng check	-	-
Drawn	C.Dous	C.D.	Coordination	-	-
Dwg check	K.Sheehan	K.S.	Approved	J.Markham	J.M.
Scale at A0	1:200	Status	Complete	Rev	02
Drawing Number	PUM-11273-U-DR-0001-02				