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Survey Control Markers have been established for Topographic Mapping purposes only and should not be used for Construction or Setting-Out without written approval from CWLS Ltd

**Legend**

- RS Road Sign
- RG Road Gully
- LP Lighting Column or Post
- EP Electric Transmission Pole
- GP Gate Post
- Gate
- Tree/Large Shrub
- PGM / Site Control Station
- MHC Manhole Cover Circular
- MHR Manhole Cover Rectangular
- Kerb Channel Line
- Kerb Top/Back
- Verge
- Fence/Line

Extents of Vegetation Canopy

Station	Easting	Northing	Level
1	332157.252	352364.969	91.145
2	332145.818	352375.469	92.508
3	332109.614	352388.312	94.094
4	332106.210	352412.092	93.906
5	332102.207	352455.922	93.571
6	332098.169	352499.726	93.178
7	332095.771	352539.062	92.890

**BURIED ASSETS DETECTED ON SITE:**

LINE/TYPE	SERVICE DESCRIPTION
BT	TELECOMMUNICATIONS (BT)
CATV	TELECOMMUNICATIONS (CATV)
TELE	TELECOMMUNICATIONS (OTHER)
G	GAS
TCSU	TRAFFIC CONTROL SENSOR UNIT
SL	STREET LIGHTING
LV	LOW VOLTAGE
HV	HIGH VOLTAGE
W	WATER
FWD	FOUL WATER DRAINAGE
SWD	SURFACE WATER DRAINAGE
FWRM	FOUL WATER RISING MAIN
CS	COMBINED SEWER
OF	OIL/FUEL
U(GPR)	UNKNOWN UTILITY (GPR)
U(EM)	UNKNOWN UTILITY (RADIO)

EOT	END OF TRACE	A/R	ASSUMED ROUTE
01	07/12/21	CW	TB CW

Issue	Date	By	Chkd	Appd

Carl Williams Land Surveys Ltd  
 The Studio  
 15 Millfield  
 Neston  
 CH64 3TF  
 info@cwlandsurveys.com  
 www.cwlandsurveys.com

Client  
 Castle Green Homes

Job Title  
 Land off Mold Road  
 Gwersyllt

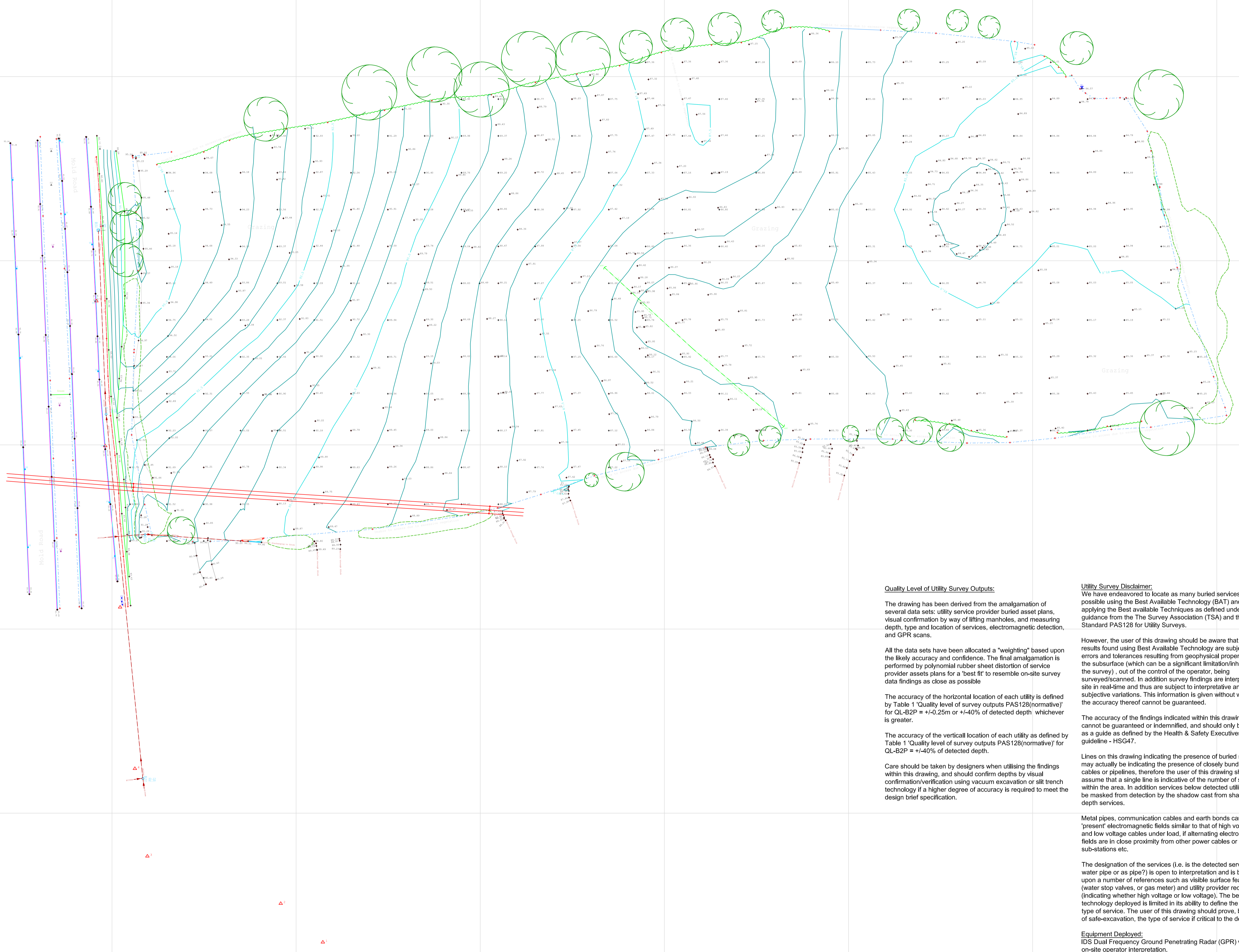
Drawing Title  
 Topographic & GPR  
 Utility Surveys

Scale at A1  
 1:500

Plot ID  
 Drawing Status

**For Information**

Job No	Drawing No	Issue
<b>B444-00</b>	<b>Figure 01</b>	<b>01</b>



**Quality Level of Utility Survey Outputs:**

The drawing has been derived from the amalgamation of several data sets: utility service provider buried asset plans, visual confirmation by way of lifting manholes, and measuring depth, type and location of services, electromagnetic detection, and GPR scans.

All the data sets have been allocated a "weighting" based upon the likely accuracy and confidence. The final amalgamation is performed by polynomial rubber sheet distortion of service provider assets plans for a "best fit" to resemble on-site survey data findings as close as possible

The accuracy of the horizontal location of each utility is defined by Table 1 'Quality level of survey outputs PAS128(normative)' for QL-B2P = +/-0.25m or +/-40% of detected depth whichever is greater.

The accuracy of the vertical location of each utility as defined by Table 1 'Quality level of survey outputs PAS128(normative)' for QL-B2P = +/-40% of detected depth.

Care should be taken by designers when utilising the findings within this drawing, and should confirm depths by visual confirmation/verification using vacuum excavation or slit trench technology if a higher degree of accuracy is required to meet the design brief specification.

**Utility Survey Disclaimer:**

We have endeavored to locate as many buried services as possible using the Best Available Technology (BAT) and applying the Best available Techniques as defined under guidance from the The Survey Association (TSA) and the British Standard PAS128 for Utility Surveys.

However, the user of this drawing should be aware that the results found using Best Available Technology are subject to errors and tolerances resulting from geophysical properties of the subsurface (which can be a significant limitation/inhibitor to the survey), out of the control of the operator, being surveyed/scanned. In addition survey findings are interpreted on site in real-time and thus are subject to interpretative and subjective variations. This information is given without warranty, the accuracy thereof cannot be guaranteed.

The accuracy of the findings indicated within this drawing, cannot be guaranteed or indemnified, and should only be used as a guide as defined by the Health & Safety Executives (HSE) guideline - HSG47.

Lines on this drawing indicating the presence of buried services may actually be indicating the presence of closely bundled cables or pipelines, therefore the user of this drawing should not assume that a single line is indicative of the number of services within the area. In addition services below detected utilities may be masked from detection by the shadow cast from shallower depth services.

Metal pipes, communication cables and earth bonds can 'present' electromagnetic fields similar to that of high voltage and low voltage cables under load, if alternating electromagnetic fields are in close proximity from other power cables or sub-stations etc.

The designation of the services (i.e. is the detected service a water pipe or as pipe?) is open to interpretation and is based upon a number of references such as visible surface features (water stop valves, or gas meter) and utility provider records (indicating whether high voltage or low voltage). The best technology deployed is limited in its ability to define the exact type of service. The user of this drawing should prove, by means of safe-excavation, the type of service if critical to the design.

**Equipment Deployed:**  
 IDS Dual Frequency Ground Penetrating Radar (GPR) with on-site operator interpretation.

Radiodetection RD8000 & T10 Electromagnetic Generator and Precision Cable Locator.