JN Bentley
Hutton Cranswick SPS

Utility Mapping Survey

Site Report – Rev A

Project No. 1775

Prepared by: Martin B Walker 40SEVEN Limited	
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Commissioned by: Gohir Rashid JN Bentley	

Utility Surveyor: Martin B Walker

Topographical Surveyor: Richard Ellis

Date of Survey: July 2019

Drawings Number Issued to the Client: 1775_P_Rev.A.dwg

Type of Survey: Underground Utility Location & Mapping Survey.

Survey Grid: OS Grid - Related to the survey grid via GPS.

Survey Datum: OS Datum - Related to the survey datum via GPS.

Accuracies:
Depth by GPR: +/- 10% of depth (in Normal Ground Conditions)
Plan position by GPR: +/- 10% of Depth.

Specification Notes:

1. All survey works carried out in the areas defined by JN Bentley
2. All drawings must be read in conjunction with record information.
3. Field distortions from any above ground metallic objects i.e. temporary Heras fences, temporary safety barriers or parked vehicles can limit the locatable signal due to interference from above ground fields.
4. JN Bentley has provided all available statutory authority information.
5. All services have been surveyed robustly using a combination of Electromagnetic Detection & Ground Penetrating Radar (GPR). All utility positions were surveyed in using an Electronic Total Station

Existing Service Records Provided to Surveyor

Service	Provider	Remarks
BT	Openreach	Map reference (centre): SJ2361807020
Gas	Northern Gas Networks	Map reference: 323618, 307020
Electric	Northern Power Grid	Map reference: 323618, 307020
Other		NOTE: Other existing statutory undertakers records were not available at the time of the survey or during the course of post processing.

Field Equipment

Type	Make	Model	Company I.D No.	Operator(s) Initials
Electrolocation Instrument	RD	N/A	N/A	N/A
Ground Radar	Mala	MALA	MIRA 1	MBW
Electronic Total Station	Trimble	S7	ROB44	RE
GPS Receivers	Trimble	Trimble	R10	MBW

Utility Location & Mapping Survey Results

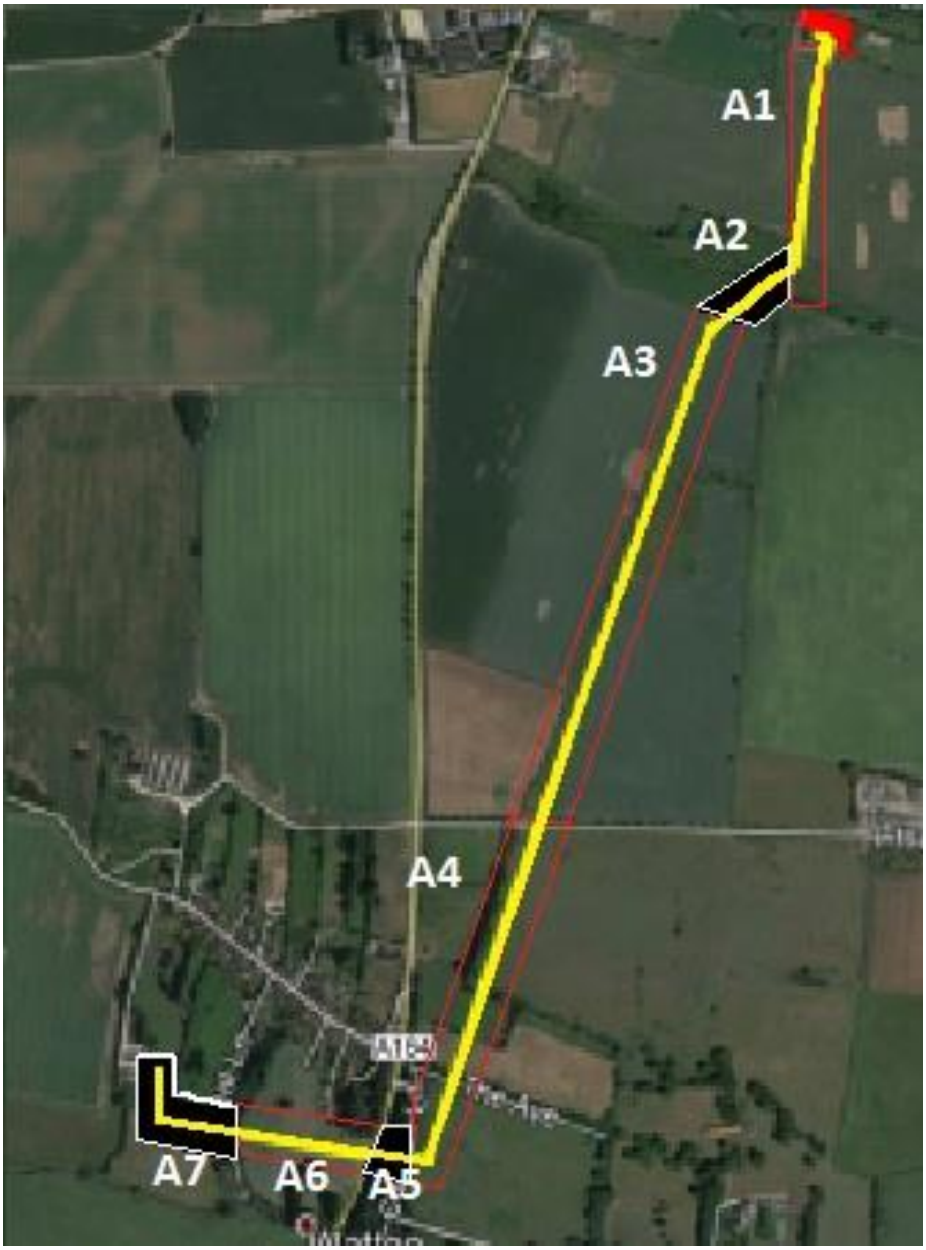
GPR Scans	**1**	**A GPR survey has been carried out across the site where possible.**
	2	**Number of unknown routes detected, but only partially due to losses of reflection. Unable to associate any fittings or features in the vicinity to help establish utility types.**

Site Notes:

1. **Survey was undertaken in the areas defined by JN Bentley.**
2. **Various utilities on site could not be proven or completed and the appropriate comments have been added to the drawing.**
3. **Services plotted outside survey extents should not be considered to be exhaustive.**
4. **Through non-intrusive surveying techniques it always remains possible that there are additional services within the survey boundary that we have not been able to detect. We recommend that care is taken on site and that all service providers records should be checked prior to any works being carried out.**

Site Photos:

Photo 1



Description: Coverage plan;

A2- Ground too rough for the radar to work on, major movement in the radar will result in poor data and damage to equipment, ground to uneven/bumpy to survey.

A5- Area beside Beverley Road, no GPS signal due to overhanging trees and multiple parked cars in layby, and 50mph road and high traffic on Beverley road resulting in coverage of that area being abandoned.

A7- Same as A2, ground very uneven, damage to radar would occur and radar results would be too poor to interpolate, smaller area beside pumping station had locked gate, unable to contact land owner due to her living in another village and not on site.

Photo 2

Description: Pea Field in A1. Photo taken before work commenced. Full coverage achieved with no issues.

Photo 3

Description: Grassed area in A2. Very bumpy ground, area abandoned due to possible equipment damage and collected data would be too poor to interpolate.

Photo 4

Description: Cropped area in A3. Full coverage achieved except for a pile of rubble towards the bottom of the field. Area around the rubble scanned to eliminate the possibility of any utilities running under unscanned area.

Photo 5

Description: A3 Area after scanning works complete.

Photo 6

Description: Photo taken halfway through scanning A4. Full coverage achieved except for the concrete bunkers and raised concrete platforms towards the tree line.

Photo 7

Description: Photo taken halfway through scanning in another part of A4, no issues encountered.

Photo 8

Description: Horse training area in A6, owner asked us not to scan inside due to new chippings being put down for the horses. Perimeter of fencing covered.

Photo 9

Description: Field owner had a bonfire beside scanned area. Some of this area scanned short due to fire, and another area scanned short due to the smoke from the fire becoming very thick/black and covering the field.

Photo 10

Description: Field in A7, ground too uneven to survey, damage to equipment would occur and radar data would be too poor to interpolate

Photo 11

Description: Extended area: Treatment works. Photo of ground coverage. Some grassed area and road covered. Other areas too small/not safe to survey.

QA Comments:

1. All procedures have been followed.
2. Checked that all topographical features have utilities connected, or if not are appropriately notated.
3. Checked all guided information has been transferred correctly where appropriate.
4. Services shown outside the survey extents should not be considered to be exhaustive.

CAD Operators Comments:

1. Survey work corresponds to Utility Surveyor's fieldwork.
2. All record information added where necessary.
3. Services shown outside the survey extents should not be considered to be exhaustive.

Project Managers Comments:

1. A full GPR survey was carried out across the site.
2. GPR works by emitting electromagnetic signals into the ground and analysing signal returns. The use of GPR is strongly dependent upon local soil properties. Depth of penetration is limited by the presence of clays of other highly conductive materials. There must be a significant electrical contrast between the target and the host materials.
3. If the survey interacts with any above ground metallic features this may hinder the survey therefore caution should be taken within those areas while excavating.
4. Numerous unknown routes were detected by GPR, although it was not possible to decipher function. Future intrusive works (eg: trial pits) are recommended to gather further information.
5. It is recommended that statutory authority records are acquired and read in conjunction with this information, as no guarantee can be made for the completeness of this drawing.
6. Access was not granted to the area at the North of the site, therefore no GPR has been completed in this area.
7. We have provided basic topographical information for an extra area at the a STW site at the South of the site, as well as GPR coverage. Access was only permitted until 11am on the day of access, so the topographical data collected is limited.