

**Little Potheridge**

**An Earth Resistance Survey**

**October 2012/June 2014**

**By Bob Shrigley**

## **Summary**

This report describes two earth resistance surveys carried out at Little Potheridge, Devon by members of the North Devon Archaeological Society. Due to the high density of tobacco clay pipe surface waste in the vicinity, both surveys were undertaken to determine what underlying archaeology there might be.

## **The Purpose of an Earth Resistance Survey**

An Earth Resistance Meter measures the resistance of an electrical current being passed through the ground. The amount of resistance is affected by how much moisture there is in the soil. If there is a lot of moisture, a low resistance is produced as electric current passes through the wet ground more easily. Conversely, if there is little moisture, then there is high resistance to the electric current.

The amount of water present in the soil is affected by some archaeological features. For example, if there is a wall under the surface, then there is less soil to store moisture, which will evaporate quicker, making that patch of ground high resistance. Conversely, if you have a ditch or pit (canal), it can store more moisture for longer, giving a lower resistance.

In a geophysics (earth resistance) survey, resistance readings are taken at fixed intervals over a grid. The data is then downloaded to a computer and manipulated with relevant software to produce an image which is interpreted to look for relevant archaeological features.

## **Methodology**

An earth resistance survey was conducted by the North Devon Archaeological Society at Little Potheridge, Devon, (grid reference SS 52310 13979). Two areas were surveyed, area 'A' in October 2012 and area 'B' in June 2014, (see figure 1).

Survey areas 'A' and 'B' both consisted of eight 20 x 20 metre grids (see figures 3 & 6). A 40m baseline was established in both the survey areas with the ends referenced to fixed points in the landscape (see figures 2 & 5). Grid squares were then offset from the baseline.

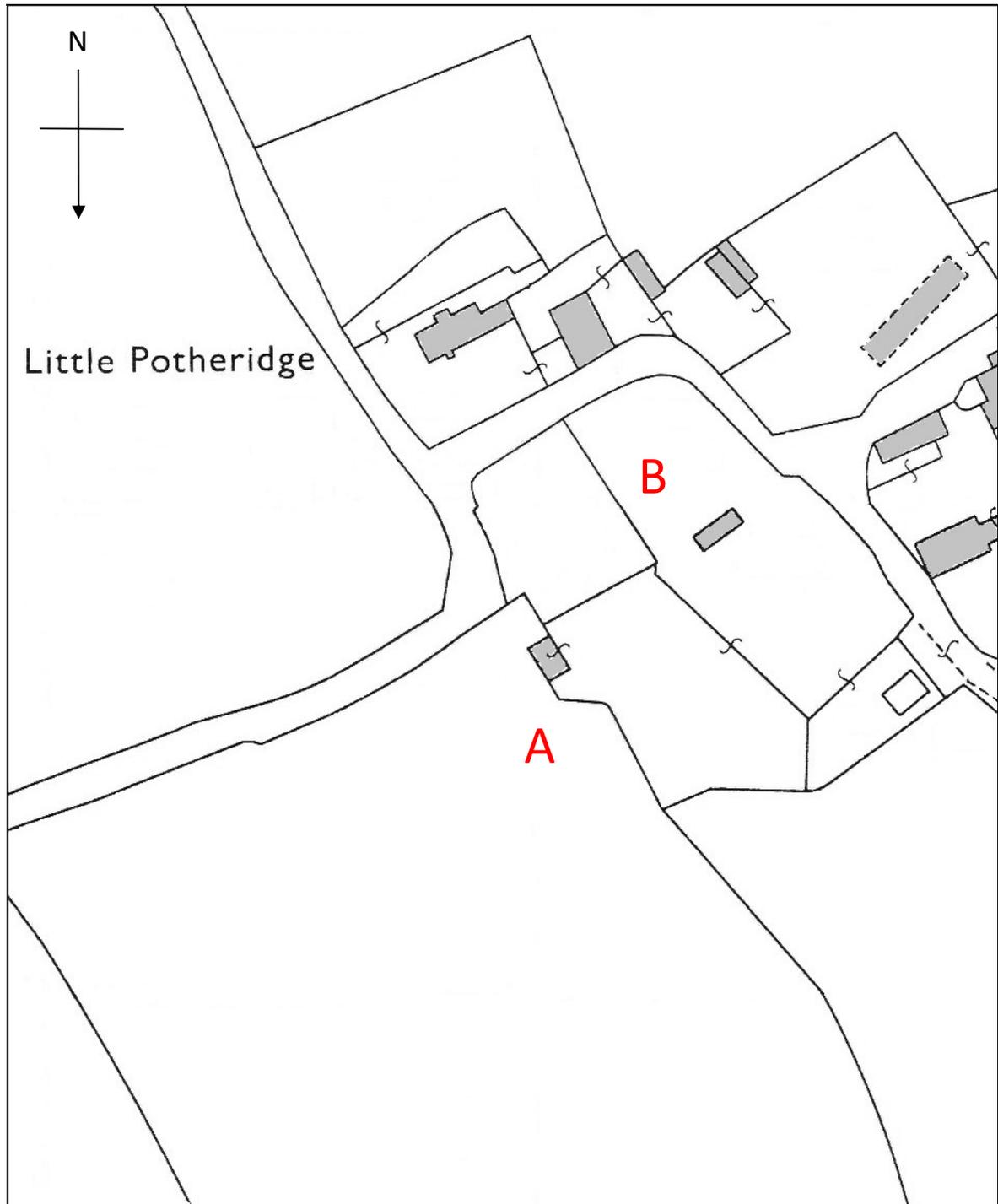
Each grid was surveyed with 1.0m traverses and samples were taken every 0.5m. A zigzag traverse method was used. Some of the grids in area 'B' were partially surveyed due to boundary and heavy vegetation restrictions.

The survey for area 'A' was undertaken over the course of one day with the weather overcast and soil conditions wet after prolonged rain. The survey of area 'B' was undertaken over the course of one day with the weather bright and soil conditions moist.

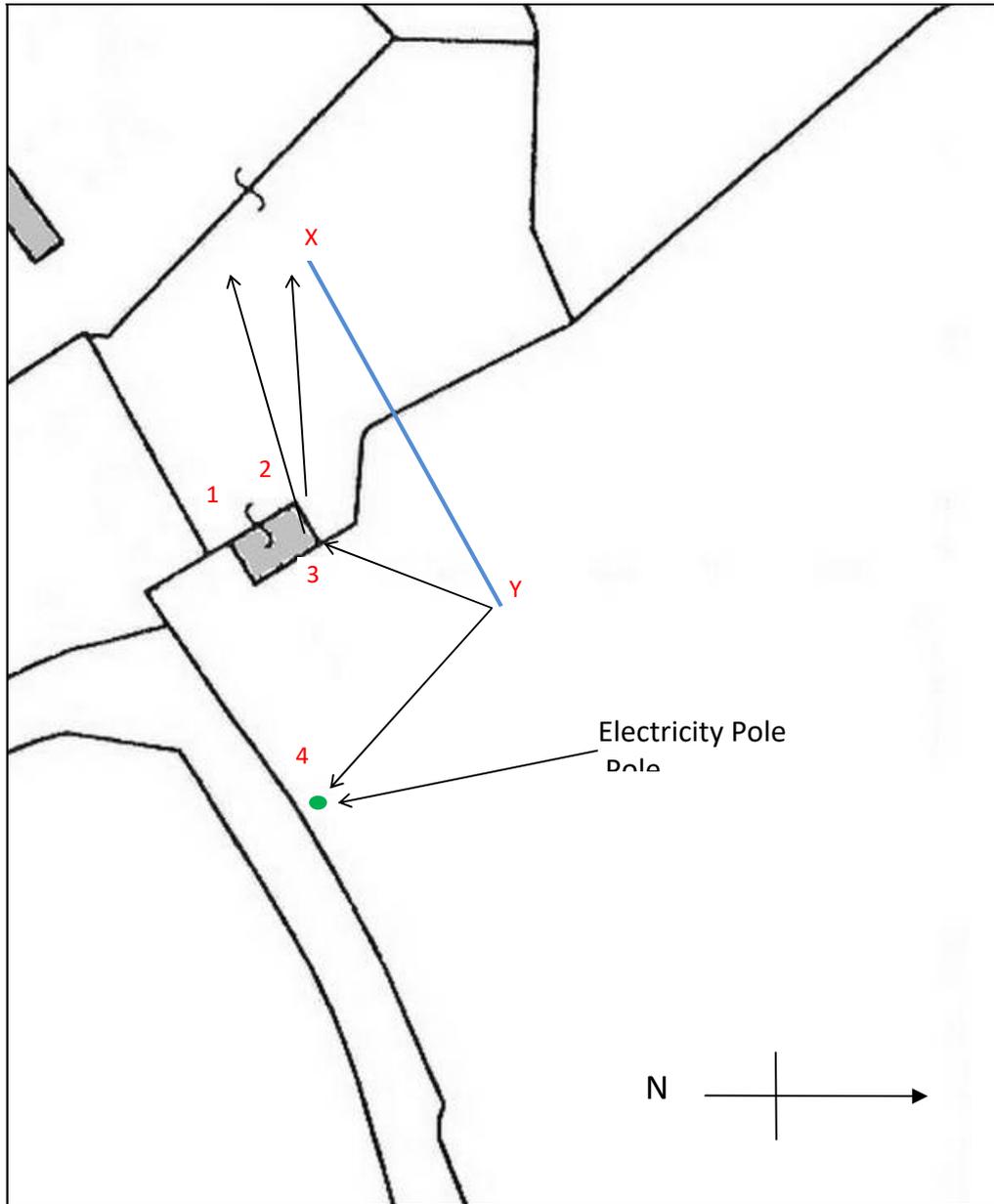
All the earth resistivity meter data readings were downloaded into 'Snuffler' computer software. This was then used to map the grids, in the two survey areas, into the correct order in which they were surveyed. An image was then produced for the surveyed area which was further enhanced using the software's filters (see figures 4 & 7).

## Earth Resistance Instrumentation

The resistance survey was carried out using a twin probe array TR/CIA Resistance Meter with an on-board data logger. The two probes of the array had 0.5m spacing and were connected to a remote probe placed at least 15m away.



**Figure 1. Location of survey areas A & B**  
(Map based on Ordnance Survey map 1979. Not to scale.)



Key:

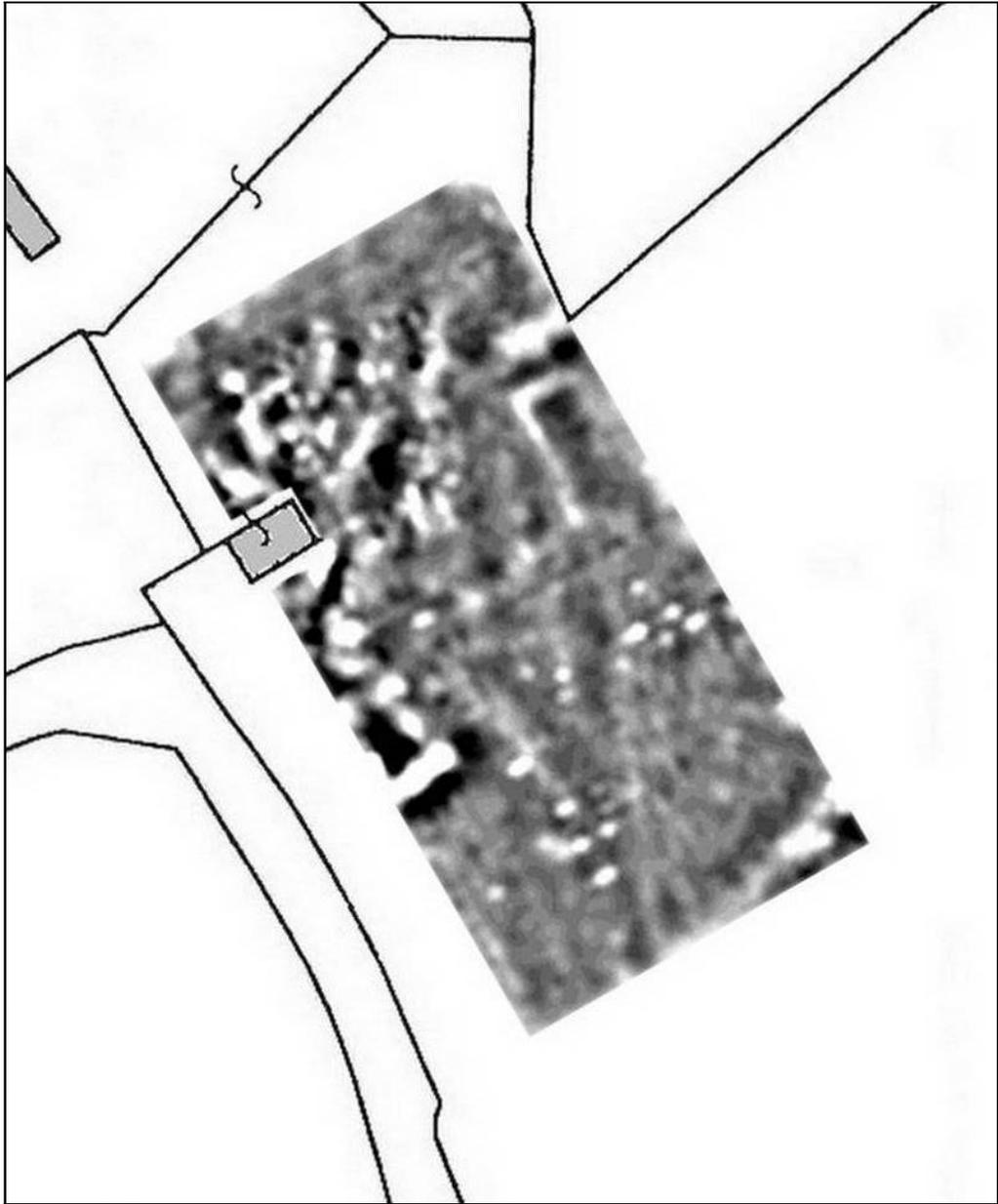
1, 2 & 3 = Building Corners, 4 = Electricity Pole

X1 = 29.3m    X2 = 23.90m    Y3 = 19.20m    Y4 = 26.30m

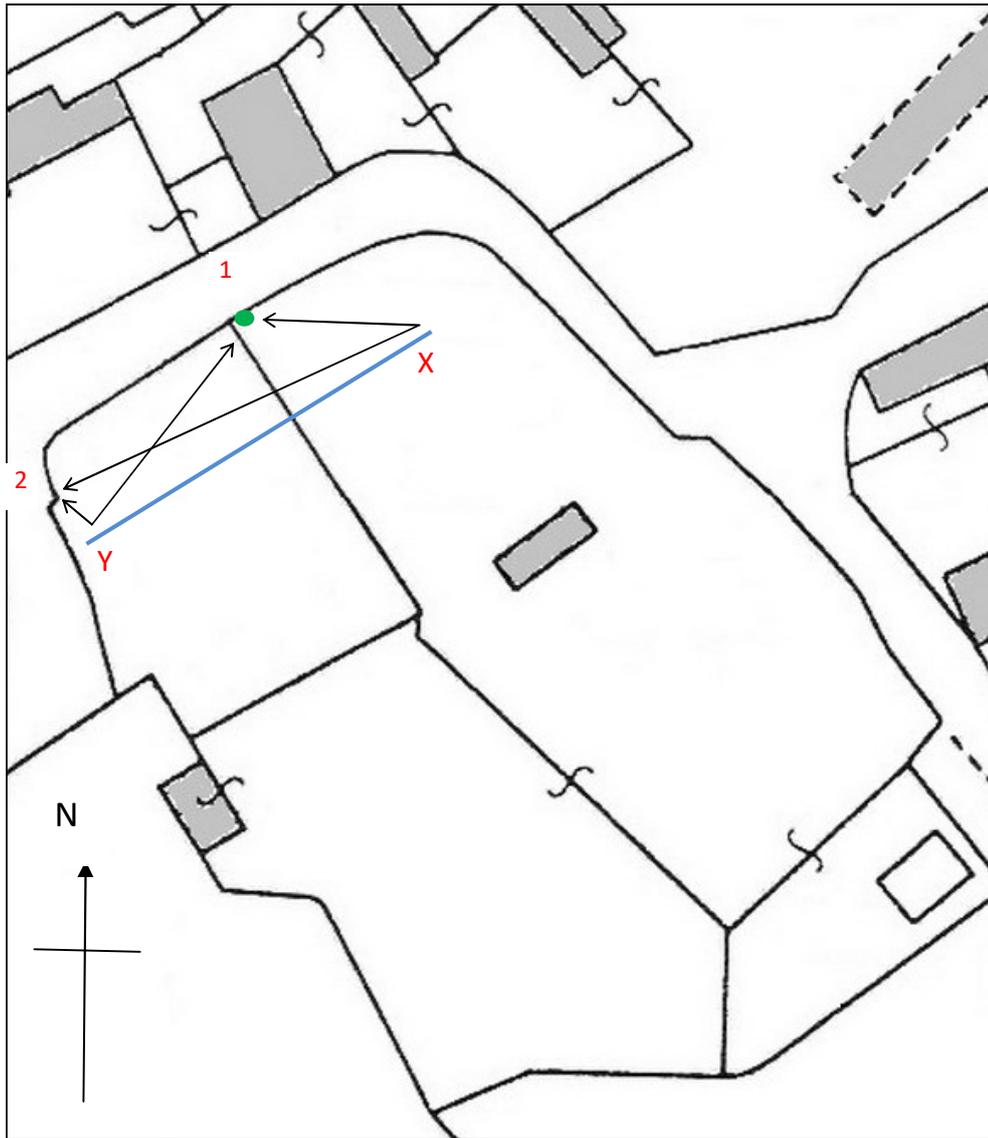
**Figure 2. Survey Area 'A' - Setting-out of 40m Baseline**  
 (Map based on Ordnance Survey map 1979. Scale 1:750)



**Figure 3. Survey Area 'A' Grid Layout and Baseline**  
(Map based on Ordnance Survey map 1979. Scale.1:750)



**Figure 4. Survey area 'A'**  
(Map based on Ordnance Survey map 1979. Scale.1:750)

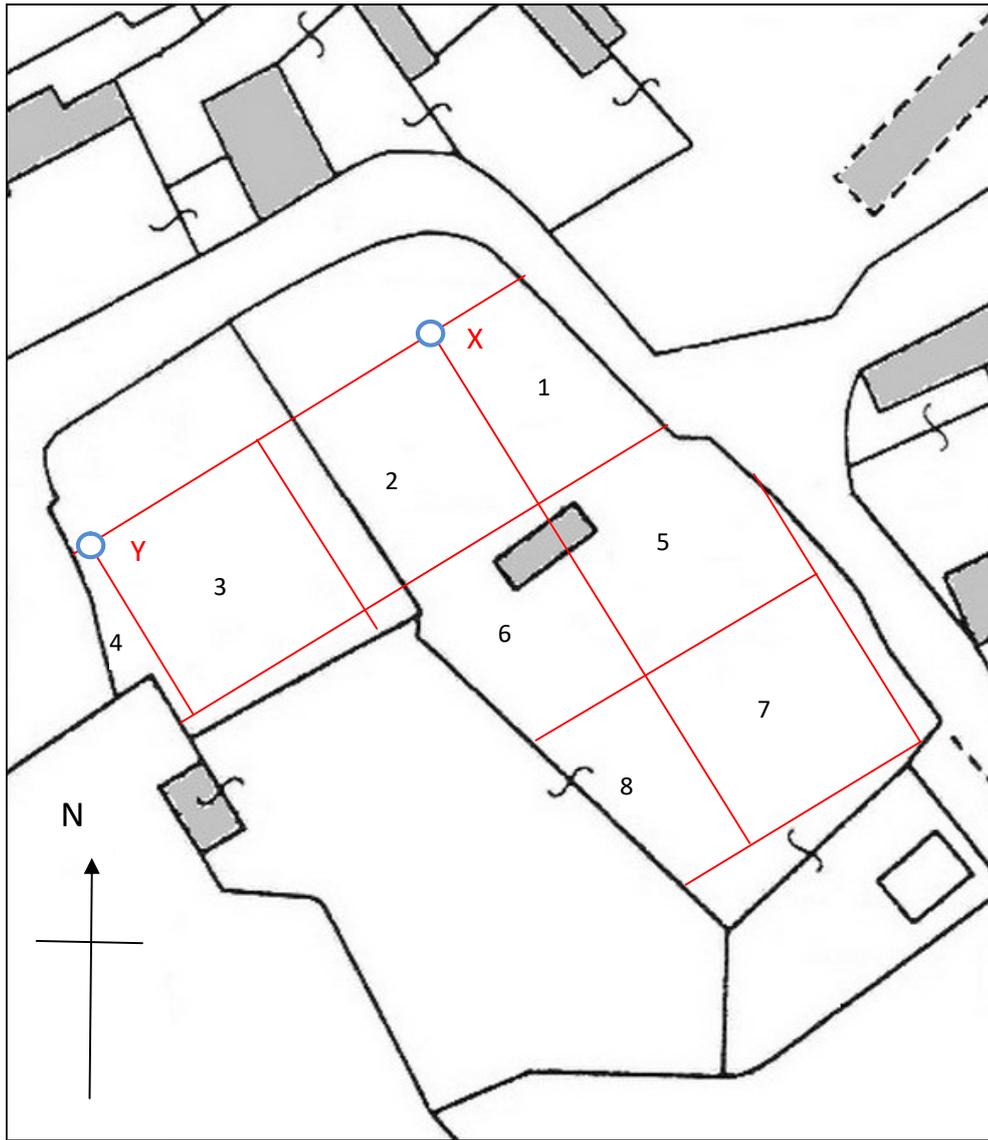


Key:

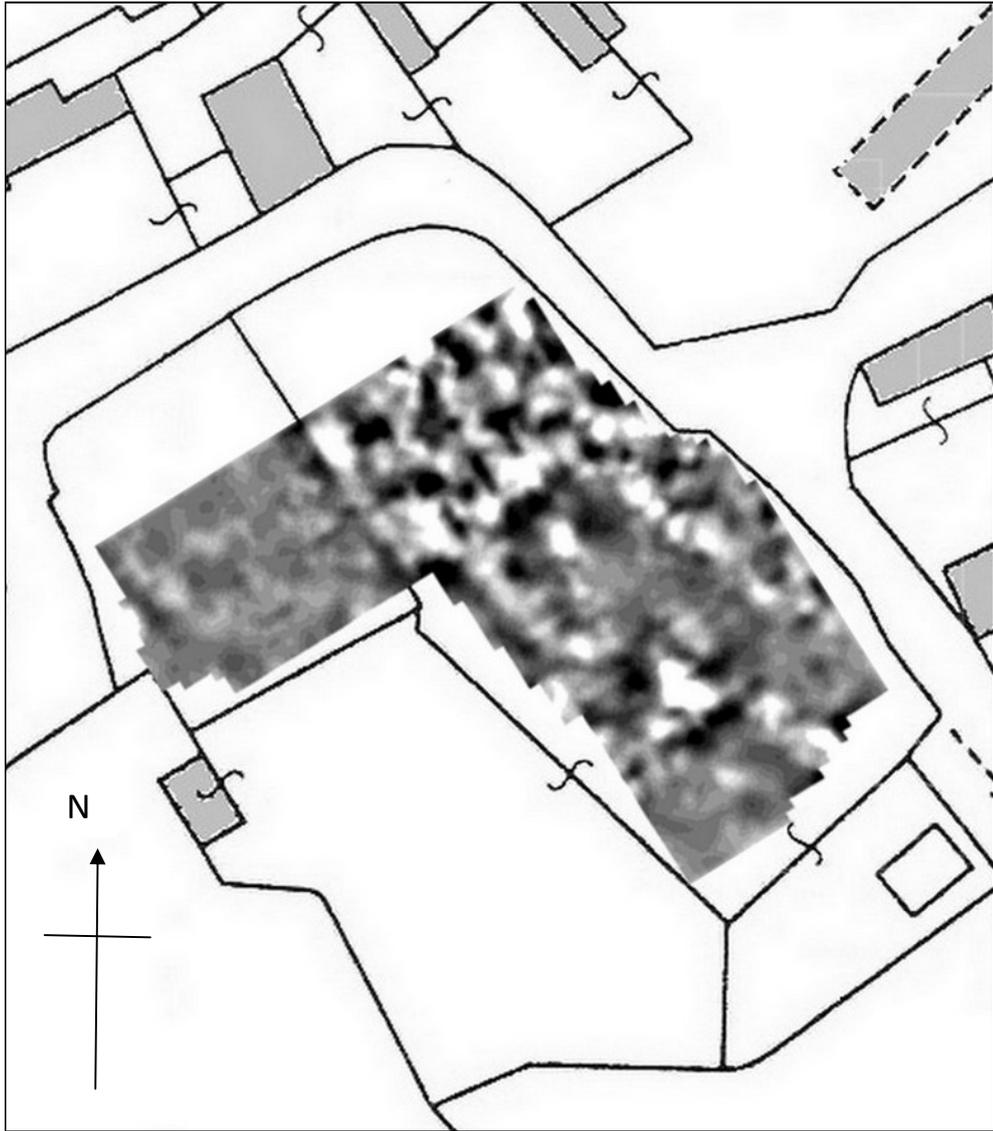
1 = Electricity Pole 2 = Right-hand Gate Post

X1 = 16.30m X2 = 40.10m Y1 = 16.20m Y2 = 5.60m

**Figure 5. Survey Area 'B' - Setting-out of 40m Baseline**  
 (Map based on Ordnance Survey map 1979. Scale 1:750)



**Figure 6. Survey Area 'B' Grid Layout and Baseline**  
(Map based on Ordnance Survey map 1979. Scale.1:750)



**Figure 7. Survey Area 'B'**  
(Map based on Ordnance Survey map 1979. Scale 1:750)