

# Tomographic Resistivity Survey

By Professor DH Griffiths and Dr RF King

During August 1999, Professor DH Griffiths and Dr RF King, Geophysics, University of Birmingham, carried out a resistivity survey across the site of the Iron Age hillfort at Mellor. For each test, the method consisted of placing 50 electrodes along a line at 1 metre intervals (0.5m for one test). Resistance measurements between electrodes at different distances were collected on a portable PC, analysis by appropriate software then gave a vertical resistivity section below the surface of the line.

Plate 5: Prof. Griffiths and Dr. King setting up the survey

Within the following plots the top diagram shows a direct record of measurements, the bottom plot shows the calculated estimate of the actual resistances as functions of lateral position and depth, which gives the calculated plot of measurements in the middle diagram. Iterations are used to produce the bottom plot so as to minimise differences between the middle and top plot (note error value). Some colour differences however, which are clear on screen, are not clear on prints.

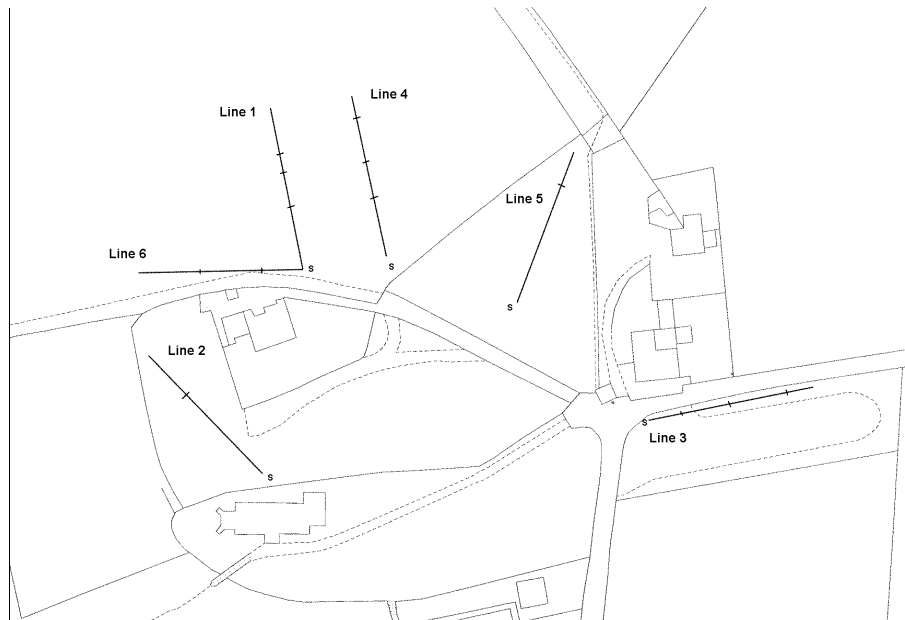
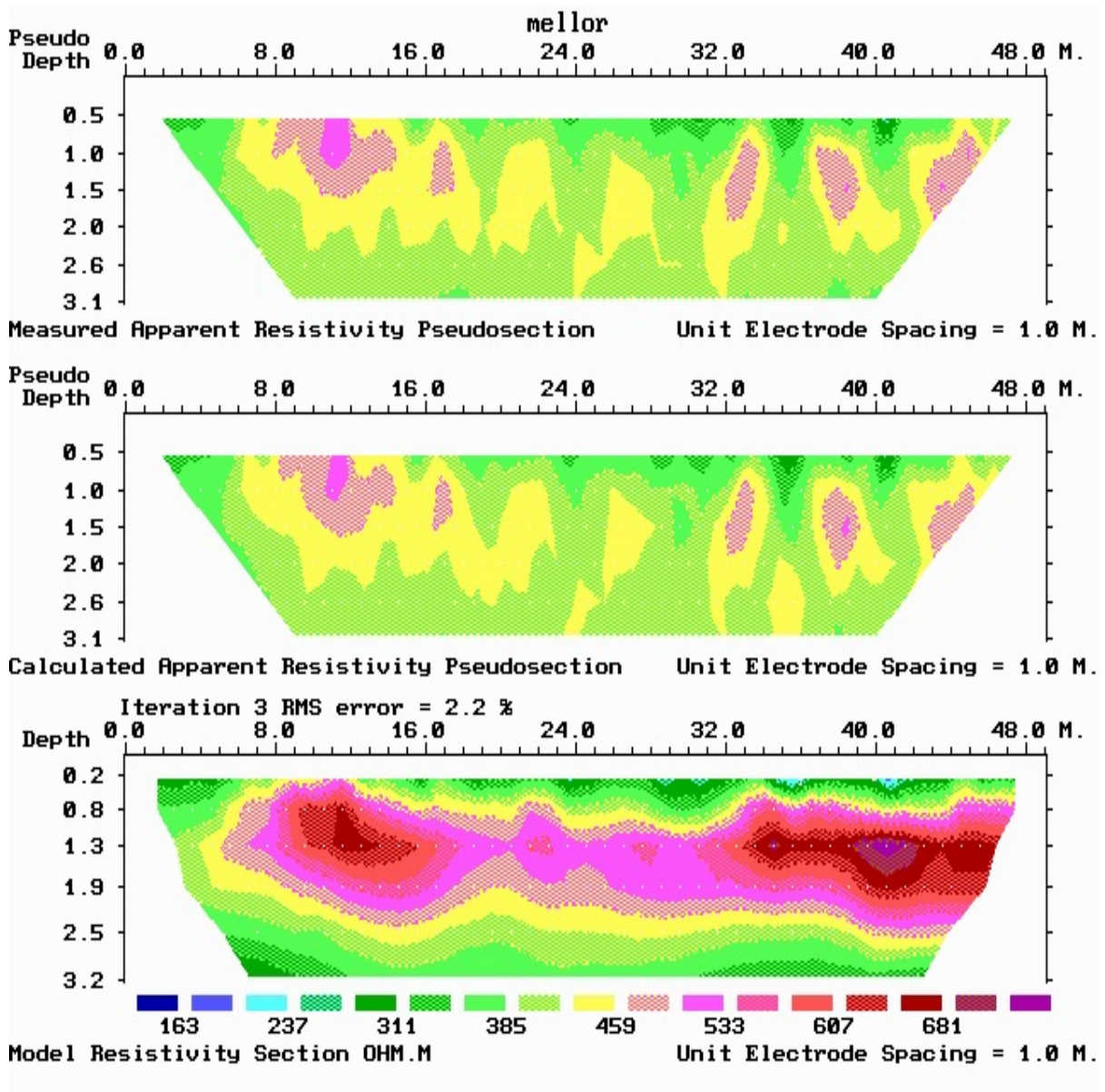


Figure 5: Plan showing the location of the Tomographic survey lines

Mellor 1

Located within the field to the north of the Old Vicarage and orientated approximately north-south.

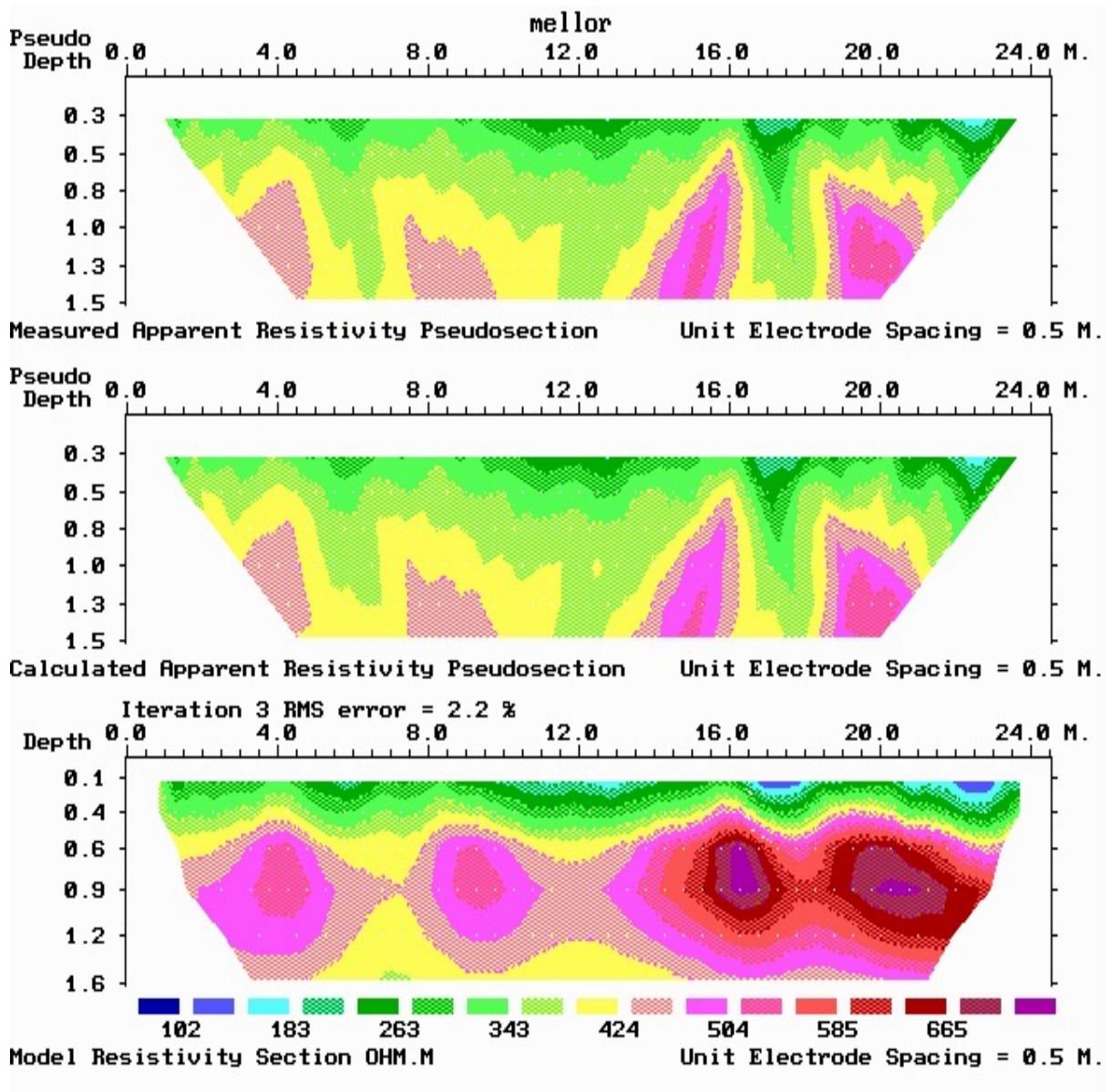
Anomalies at (15 ½), 18 ½, 24, 29-31, 35, 40 ½



Mellor 1b

Along line of Mellor 1 but with electrodes spaced at 0.5m intervals. Line starts 18m from start of Mellor 1.

Anomalies consistent with those showing on Mellor 1.

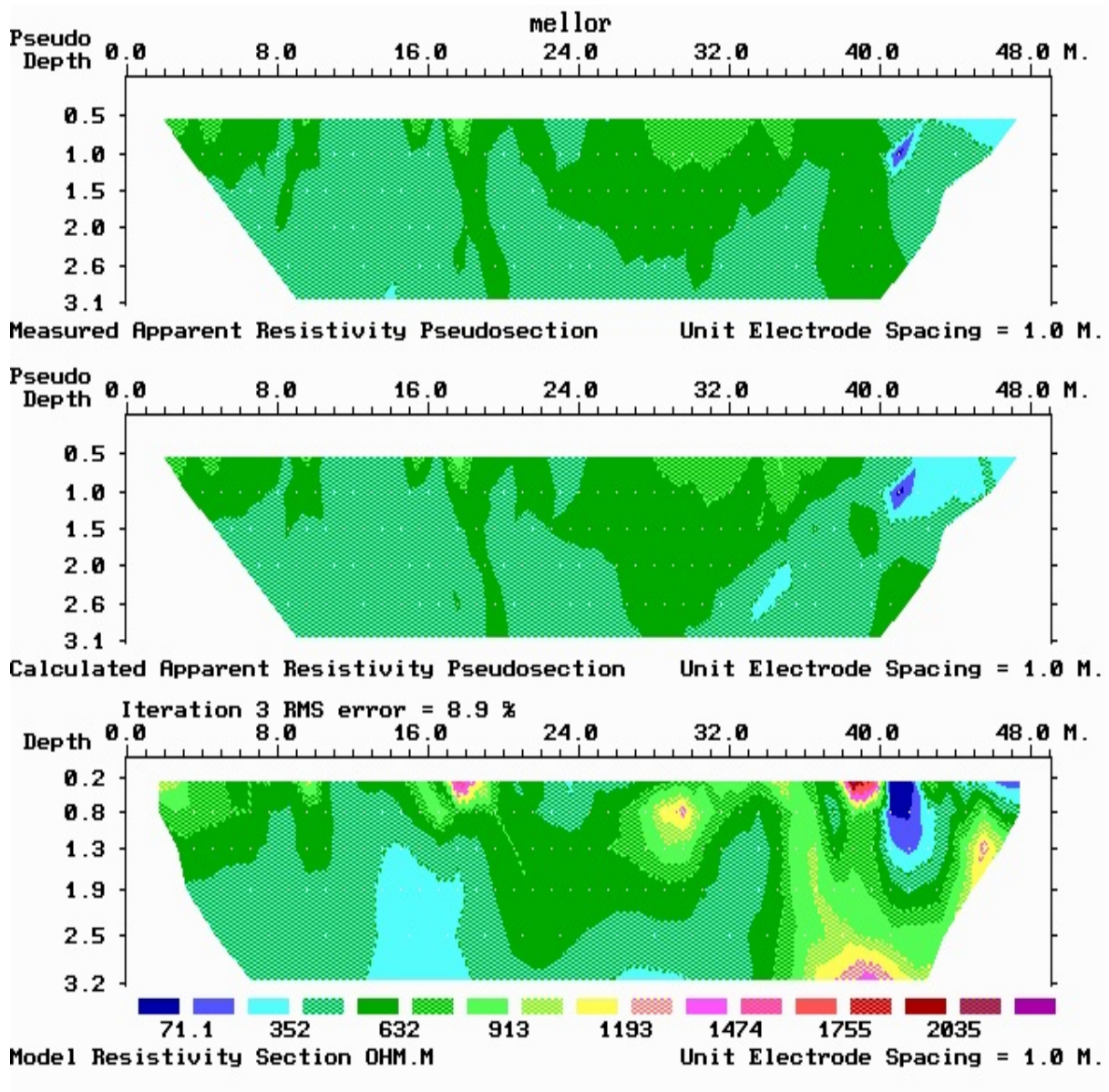


Mellor 2

Within the Old Vicarage gardens aligned southeast-northwest, approximately parallel to and 4m to the south of trench 1.

Bad contact problems were encountered with this line therefore it was repeated as Mellor 2b

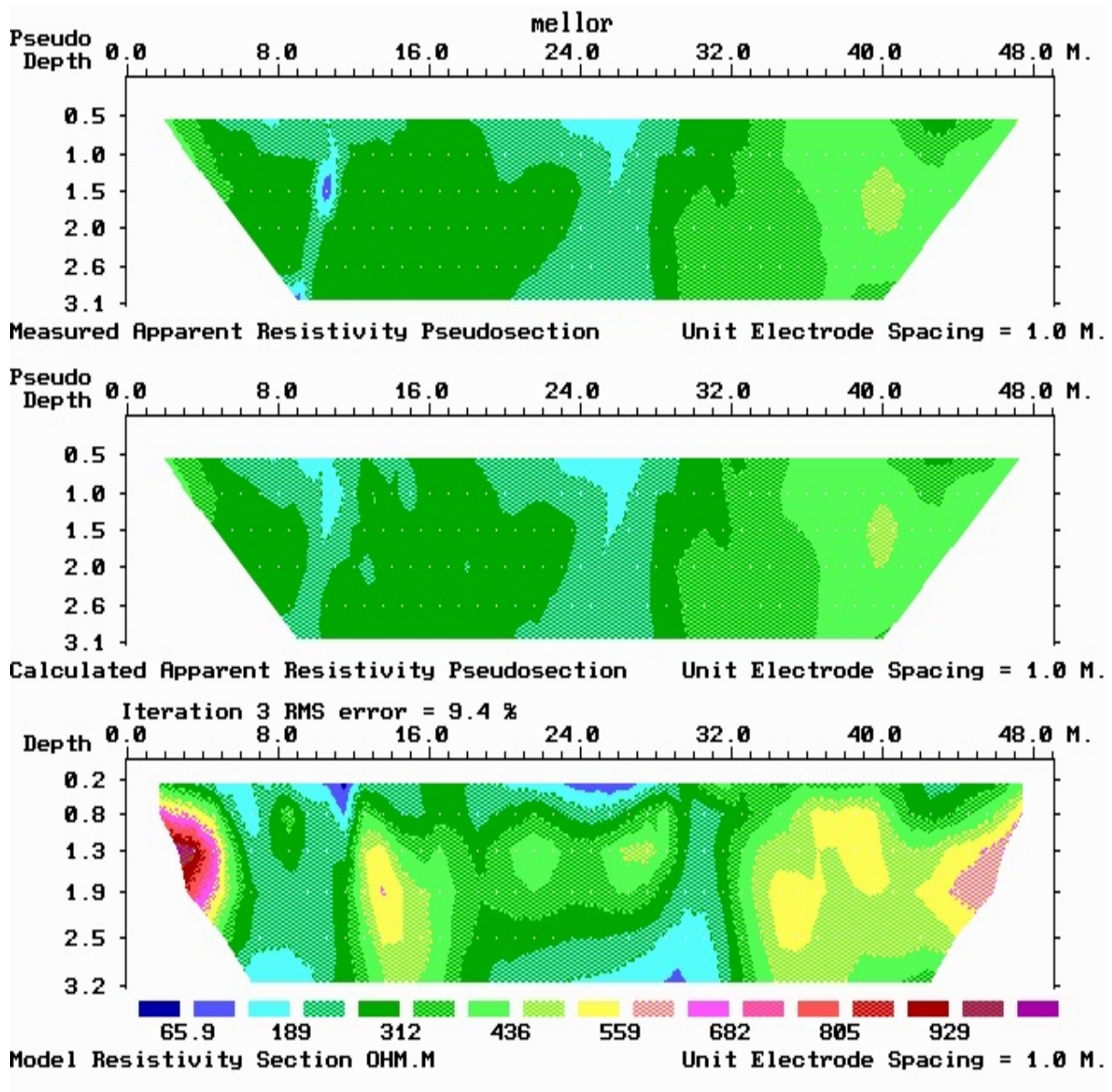
Better results were obtained however there appears to be a problem showing up with electrode 41.



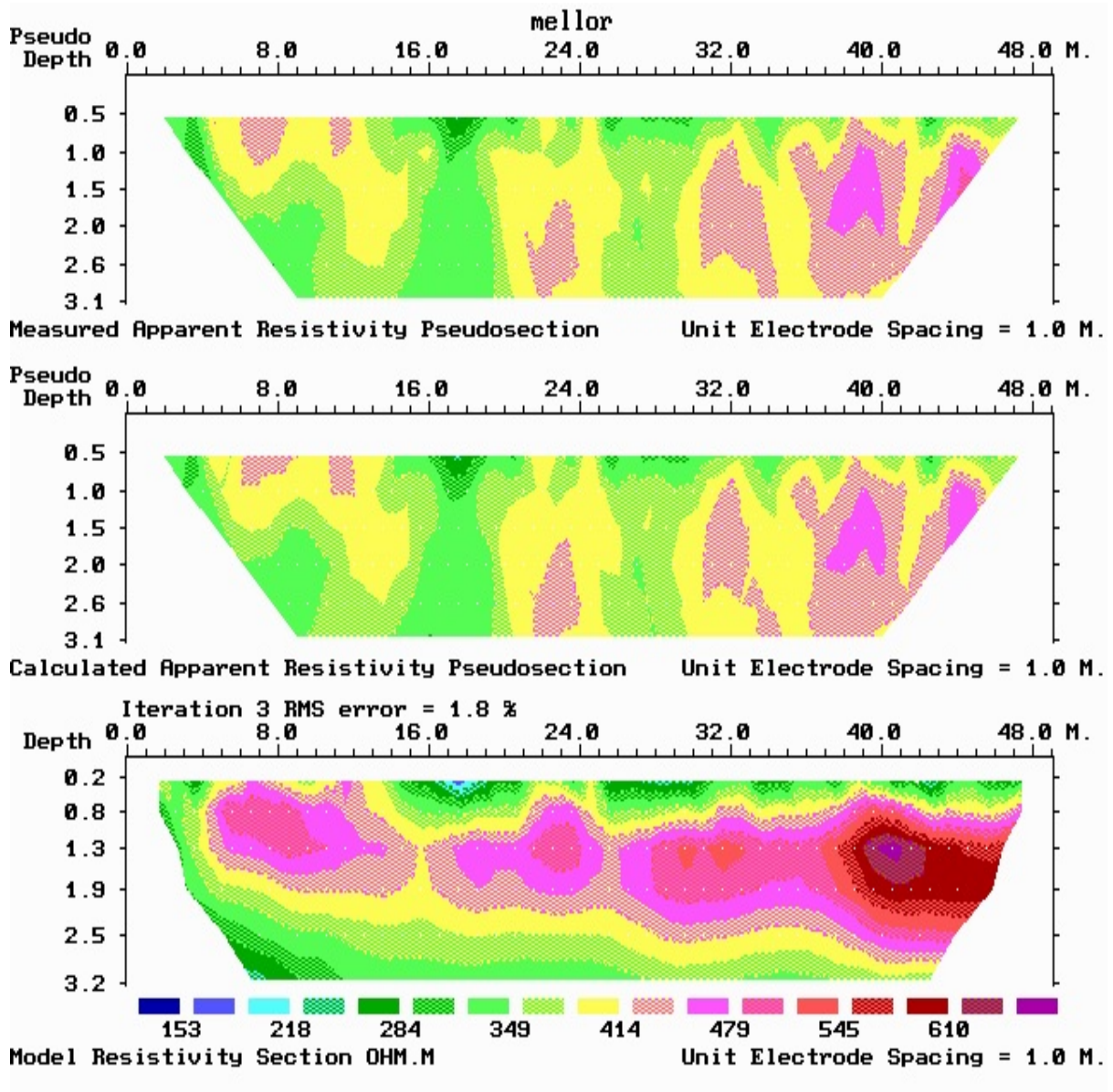
### Mellor 3

Located along the grassed strip to the north of the car park, approximately 11m to the south of the Vicarage wall. With the centre of the line corresponding with a section of subsidence visible in the drystone wall.

Anomalies at 10 ½ (off-line?), 23-27, 33, 40-47(not extending laterally?)



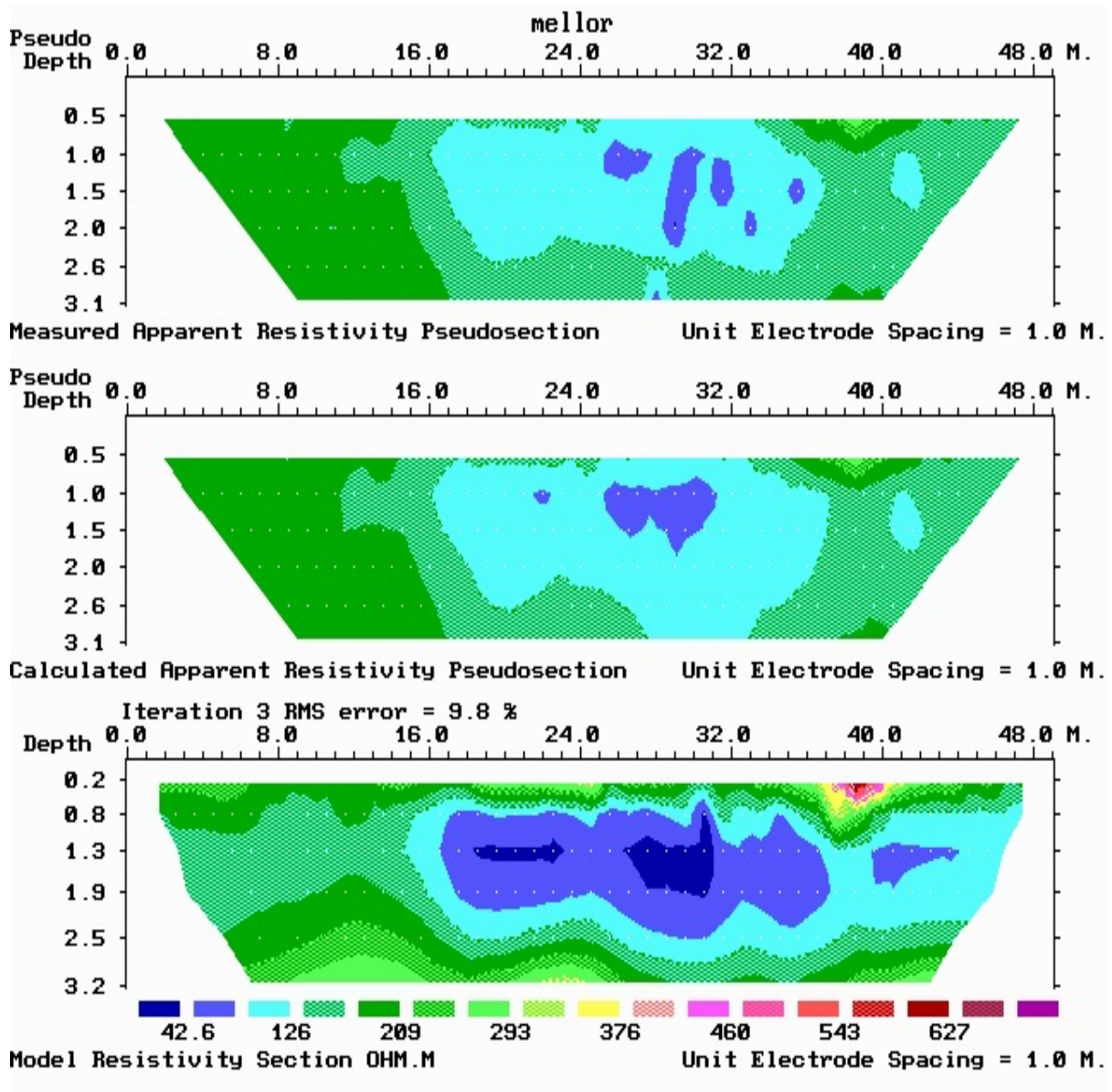
Mellor 4  
 Parallel to Mellor 1, 25m to the east.  
 Anomalies at 3?, 17 ½, 25-30, (34), (37 ½), (42 ½).



### Mellor 5

Located within the triangular field to the west of the Vicarage and Glebe Cottage, aligned approximately south, southwest-north, northeast extending towards the stile in the northern corner.

Anomalies present at a depth of 1-2m at 17-35m and on the surface at 36-41m



Mellor 6

Beginning from the start of Mellor 1, aligned east-west and extending to the west.  
Anomalies at 3?, 11-14, 26-41.

