

Conservation  
Services

09 NOV 2001

Highways & Planning  
Directorate

*Survey Commissioned  
by  
Archaeological Project Services*

*Surveyed  
by  
I.P. Brooks  
Engineering Archaeological Services Ltd.*

*registered in England  
Nº 2869678*

EVENTS 412588 412591 412594  
Mag RES Mag SW  
SOURCE 417191  
PMT NEGATIVE

*Aveland Way, Aslackby  
Geophysical Survey*

*October 2001*



## **CONTENTS**

### ***Introduction:***

*NGR*

*Location and Topography*

*Archaeological Background*

*Aims of Survey*

*SUMMARY*

### ***Survey Results:***

*Scanning Results*

*Survey Results*

*Conclusions*

### ***List of Illustrations***

*Figure 1 Location Map*

*Figure 2 Grey Scale Plots*

*Figure 3 X - Y Plots*

*Figure 4 Interpretation*

### ***Technical Information:***

*Techniques of  
Geophysical Survey*

*Instrumentation*

*Methodology*

*Copyright*



# **Aveland Way, Aslackby Geophysical Survey - Introduction:**

**NGR**

**Centred on TF 0843730320**

## ***Location and Topography***

*The area surveyed lies to the south of Aveland Way, Aslackby opposite the Manor House. The field is surrounded on three sides by dykes and to the south by properties facing onto Sovereign Street. The survey area formed a shallow bowl with the southern, eastern and western sides being slightly higher than the centre area, which was very damp with some standing water. A slight oval mound was also noted in Grids 4 and 5. The field was under rough pasture.*

## ***Archaeological Background***

*The proposed development lies in the centre of the village of Aslackby approximately 80 m to the south west of the church and opposite the Manor House. The church is thought to date from before the Domesday Survey of AD 1086, although the present structure dates from the late 13<sup>th</sup> or early 14<sup>th</sup> century AD. The Manor House dates from the late medieval period.*

## ***Aims of Survey***

*To evaluate, by detailed Fluxgate Gradiometer survey, the archaeological potential of the proposed development, also to test selected areas with a Resistivity Survey.*

## **SUMMARY OF RESULTS**

*A few anomalies of possible archaeological nature were recorded. These concentrated around the low mound in Grids 4 and 5. Both Magnetic and Resistivity anomalies were recorded. Areas of magnetic disturbance and possible agricultural features were also recorded.*



# Aveland Way, Aslackby Geophysical Survey - Results:

## Survey Results:

### Area

Approximately 0.7 ha was subject to a detailed Fluxgate Gradiometer survey. The results of this were used to position an area for a Resistivity Survey. (Figure 1). Approximately 0.2 ha was subjected to a Resistivity survey, across the low mound in Grids 4 and 5 and corresponding with the main areas of magnetic disturbance of possible archaeological origins.

### Display

The results are displayed as Grey Scale Image and as X-Y Trace Plots (Figures 2 and 3).

## Results:

### Detailed Survey:

Eleven 30 x 30 m grids, or part grids, were investigated in the Fluxgate Gradiometer Survey and three Grids, or part grids in the Resistivity Survey (Figure 1).

### Fluxgate Gradiometer Survey

Four areas of intense magnetic disturbance were located around the edge of the survey area. These are assumed to relate to modern disturbance along the boundaries of the site and are shown in blue on Figure 4.

The modern drainage pattern for the fields is a slight feature of the plots and is shown in green on Figure 4.

The low mound in Grids 4 and 5 gave a slightly enhanced magnetic signature with a remarkable rectilinear plan. This may be the result of archaeological activity associated with this higher ground. The anomaly is shown in red on Figure 4.

### Resistivity Survey

An area of low resistance was located in Grid 5. This corresponded to a low area within the field

which was much wetter than the surrounding area. This area is shown in purple on Figure 4.

Two areas of high resistance were located. One corresponds with the western side of the low mound in Grids 4 and 5. Whilst carrying out the survey in this area several stone blocks were felt below ground level. The second area of high resistance was on slightly higher ground on the western boundary of the survey area, in Grid 6. This area was not only higher than the surrounding area, but the mature tree along the boundary made this area drier.

Two slight, diffuse, linear, positive anomalies were also located, one leading to the positive anomaly in Grid 4 and the other forms a loop to the north of the area of low resistance. The areas of high resistance are shown in cyan on Figure 4.

### Magnetic Susceptibility

Soil samples were taken from the area of detailed survey in order to assess the magnetic susceptibility of the soils. It was not possible to obtain a subsoil sample for comparison.

Sample	Volume susceptibility $\chi_v$	Mass susceptibility $\chi_m$
Grid 1	47	50.5
Grid 3	58	66.7
Grid 5	27	25.7
Grid 7	32	41.6
Grid 9	26	28.0
Grid 11	40	50.0

The Magnetic Susceptibility values fall into two main groups. Grids 1, 3, 7 and 11 are of moderate value and reasonably consistent, whilst Grids 5 and 9 are lower. The lower values relate to low lying, wet areas, whereas the higher values relate to higher, drier grids.



## Aveland Way, Aslackby Geophysical Survey - Conclusions:

### *Conclusions*

*It is a fundamental axiom of archaeological geophysics that the absence of features in the survey data does not mean that there is no archaeology present in the survey area only that the techniques used have not detected it.*

*The slight mound in Grids 4 and 5 would appear to be a focus of anomalies, both magnetic and resistance, although the definition of these anomalies is not clear. It is possible that these anomalies may be geological, however the correspondence between the magnetic and resistance would suggest a possible archaeological component.*

*Other features would appear to relate to either modern feature, such as the drainage, or the underlying geology.*



# **Aveland Way, Aslackby Geophysical Survey - Technical Information:**

## ***Techniques of Geophysical Survey:***

### ***Magnetometry:***

*This relies on variations in soil magnetic susceptibility and magnetic remanence which often result from past human activities. Using a Fluxgate Gradiometer these variations can be mapped, or a rapid evaluation of archaeological potential can be made by scanning.*

### ***Resistivity:***

*This relies on variations in the electrical conductivity of the soil and subsoil which in general is related to soil moisture levels. As such, results can be seasonally dependant. Slower than Magnetometry this technique is best suited to locating positive features such as buried walls that give rise to high resistance anomalies.*

### ***Resistance Tomography***

*Builds up a vertical profile or pseudosection through deposits by taking resistivity readings along a transect using a range of different probe spacings*

### ***Magnetic Susceptibility:***

*Variations in soil magnetic susceptibility occur naturally but can be greatly enhanced by human activity. Information on the enhancement of magnetic susceptibility can be used to ascertain the suitability of a site for magnetic survey and for targeting areas of potential archaeological activity when extensive sites need to be investigated. Very large areas can be rapidly evaluated and specific areas identified for detailed survey by gradiometer.*

## ***Instrumentation:***

***1. Fluxgate Gradiometer - Geoscan FM36***

***2. Resistance Meter - Geoscan RM4/DL10***

***3. Magnetic Susceptibility Meter - Bartington MS2***

***4. Geopulse Imager 25 - Campus***

## ***Methodology:***

*For Gradiometer and Resistivity Survey 20m x 20m or 30m x 30m grids are laid out over the survey area. Gradiometer readings are logged at either 0.5m or 1m intervals along traverses 1m apart. Resistance meter readings are logged at 1m intervals. Data is down-loaded to a laptop computer in the field for initial configuration and analysis. Final analysis is carried out back at base.*

*For scanning transects are laid out at 10m intervals. Any anomalies noticed are where possible traced and recorded on the location plan.*

*For Magnetic Susceptibility survey a large grid is laid out and readings logged at 20m intervals along traverses 20m apart, data is again configured and analysed on a laptop computer.*

## ***Copyright:***

*EAS Ltd shall retain full copyright of any commissioned reports, tender documents or other project documentation, under the Copyrights, Designs and Patents Act 1988 with all rights reserved: excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project as described in the Project Specification.*







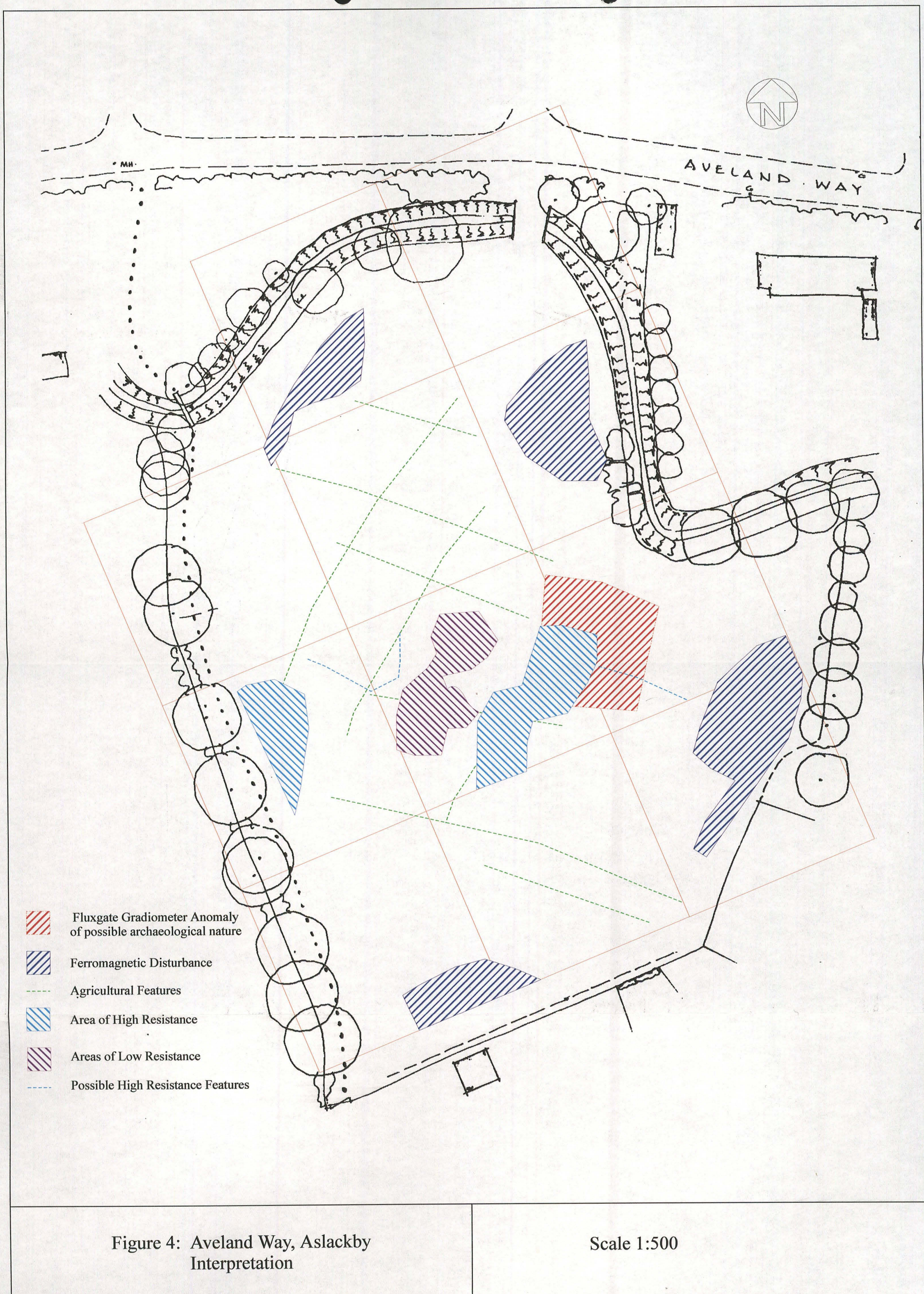
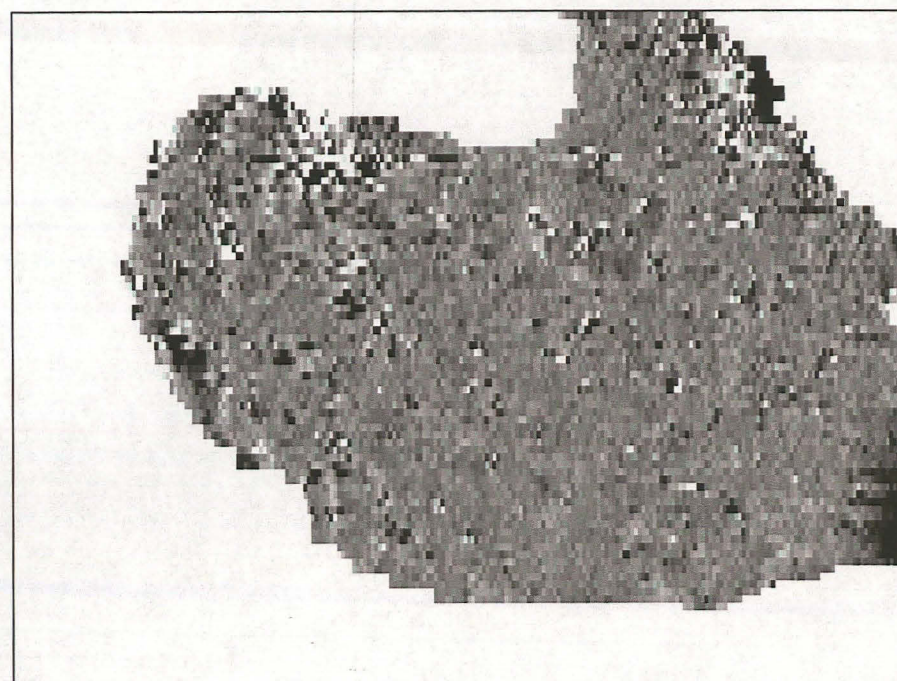


Figure 4: Aveland Way, Aslackby  
Interpretation

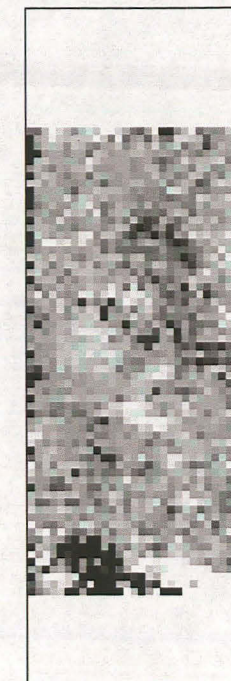
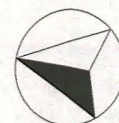
Scale 1:500





5.0  
4.2  
3.3  
2.5  
1.7  
0.8  
0.0  
-0.8  
-1.7  
-2.5  
-3.3  
-4.2  
-5.0  
nT

Fluxgate Gradiometer Survey

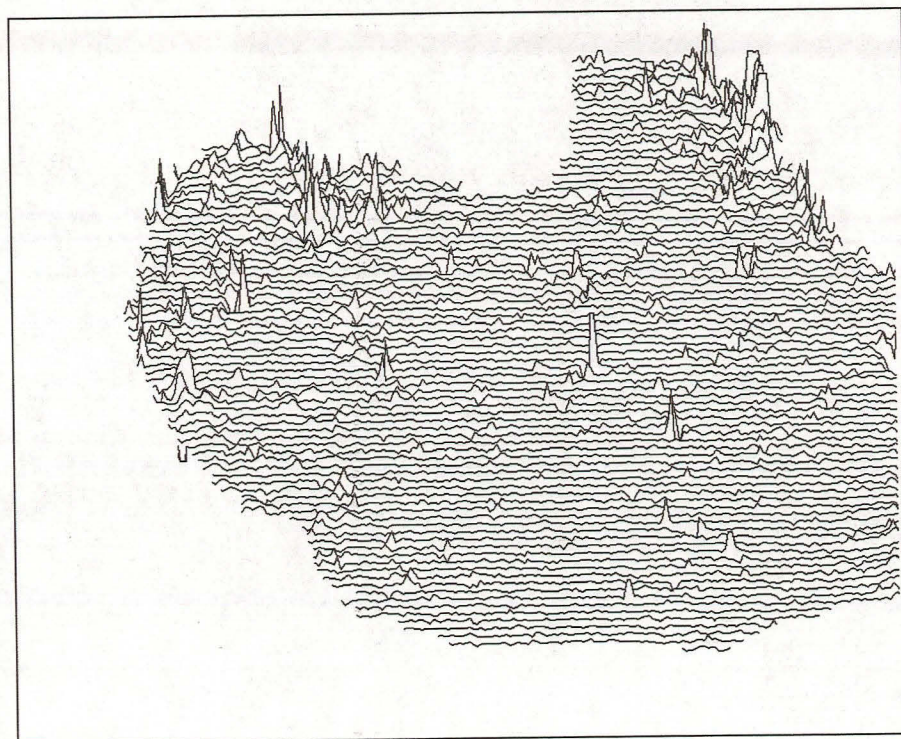


20.0  
17.5  
15.0  
12.5  
10.0  
7.5  
5.0  
2.5  
0.0  
-2.5  
-5.0  
-7.5  
-10.0  
Ohm

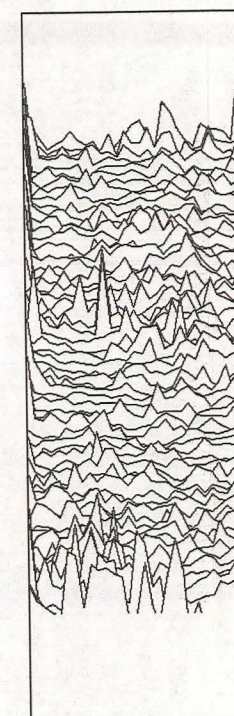
Resistivity Survey

**Figure 2: Aveland Way, Aslackby**  
**Grey Scale Plots**  
**Scale 1:1000**

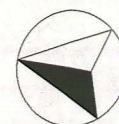




50 nT |



50 ohm |



**Figure 3: Aveland Way, Aslackby**  
**X - Y Plots**  
**Scale 1:1000**