Surveying, Metal Detecting and Field Walking

FSARG undertake a number of different types of surveying in connection with the archaeology. These are:

- Levels surveying
- Geo-Resistivity
- Metal Detecting
- Field Walking
- Garden Surveys

Levels surveying

When a single large, or a series of adjacent excavations take place, it's important to establish the height and relative levels of features, contexts and on occasions individual finds. Surveying is also useful in plotting the profile of the ground surface and underlying geology, particularly where extractive workings have interfered with the structure of the land. The equipment is relatively inexpensive, with basic Dumpy Level kits starting at under £200.

The phots on the left and right are examples of benchmarks that can be found on some buildings. The horizontal line signifies a known elevation point used for referencing back to.

Left: The measuring staff being held up, and *Right:* The dumpy being levelled prior to using it.

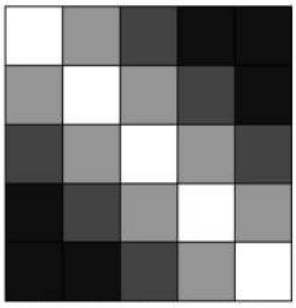
Geo-Resistivity Surveying

Geo-resistivity surveying is an excellent tool that is able to identify possible structures or ditches beneath the ground. Since this is a non-intrusive method of surveying, it's possible to survey over quite sensitive areas such as lawns and open grassland where no damage is done.

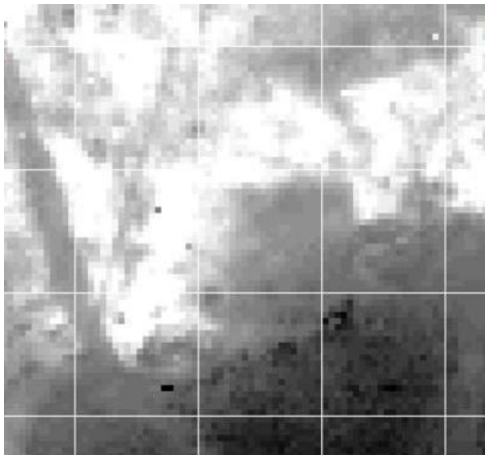
Surveying is carried out using a geo-resistivity meter. Two probes penetrate the ground and measure the electrical resistance (how difficult it is for an electric current to pass between the probes). By comparing relative resistances at specific points on a laid-out grid, a table of measurements is produced, with high resistance signifying dry areas, and low resistance, wet areas. Computer software (we currently use *Snuffler*) then transforms the resistance values into shades of grey to produce a pictorial representation of the surveyed area (see below).

10	7	3	1	1
7	10	7	3	1
3	7	10	7	3
1	3	7	10	7
1	1	3	7	10

Resistance values are recorded across a grid



Software converts the values to shades of grey



After many measurements are taken, a picture like that shown above can be produced.

A geo-resistivity survey in action using FSARGs very own meter. We were lucky to have the expertise in the group to build our own. There are a number of online resources to show how to build one, otherwise they can be purchased from a very limited number of suppliers for around £3,000.

Metal Detecting

Metal Detectors are another excellent tool, used to locate metallic items buried just under the ground surface, or in the spoil heap. Buried metal artefacts can, given good ground conditions, survive for several thousands of years. Metal items can be extremely useful in providing valuable dating evidence. Items such as coins can pin-point dates very accurately – sometimes within a few years span, while other items such as buttons, brooches, furniture fittings and the many other items discarded or lost can, through changes in fashion, design, and material give a very good indication of historic period.

FSARG uses metal detectors in a variety of instances:

* To help identify possible underground obstructions (such as old pipes) prior to excavation.
* Detecting over large open areas as part of a wider field walking survey.
* Detecting over the spoil heap to locate items that may have slipped though sieving, or when only *sample* sieving has been carried out.
* To verify the absence of any metal at the bottom of a trench at the end of an excavation.
* To periodically detect over the trench during excavation to identify metal targets for the diggers to be aware of.

Metal detecting on a grassed area using C-Scope metal detectors.

Metal detectors can be relatively inexpensive to purchase, starting at around £200 for a basic machine.

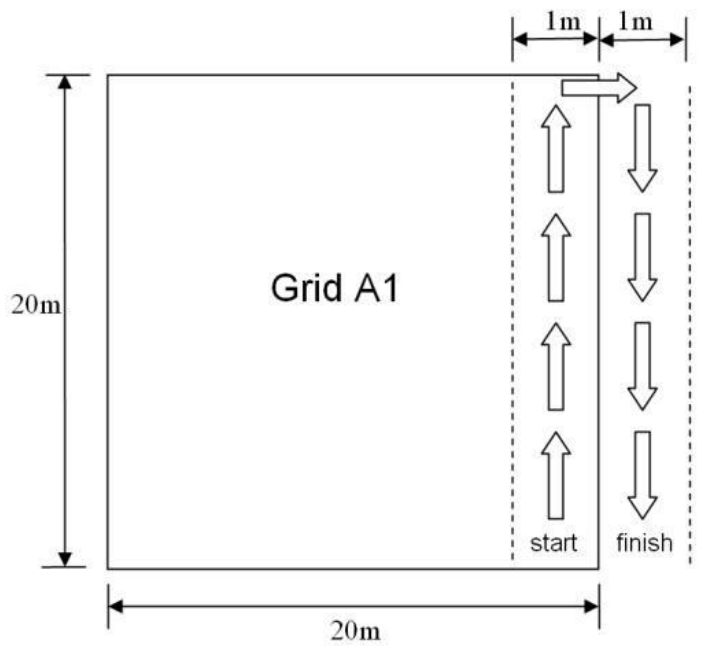
Anybody using a metal detector should acquaint themselves with the Treasure Act 1996 Code of Practice which stipulates various legal obligations the finder has if an item is found that falls under the definition of *treasure*.

It also includes a section on the National Council for Metal Detecting *Code of Conduct* which detectorists should abide by.

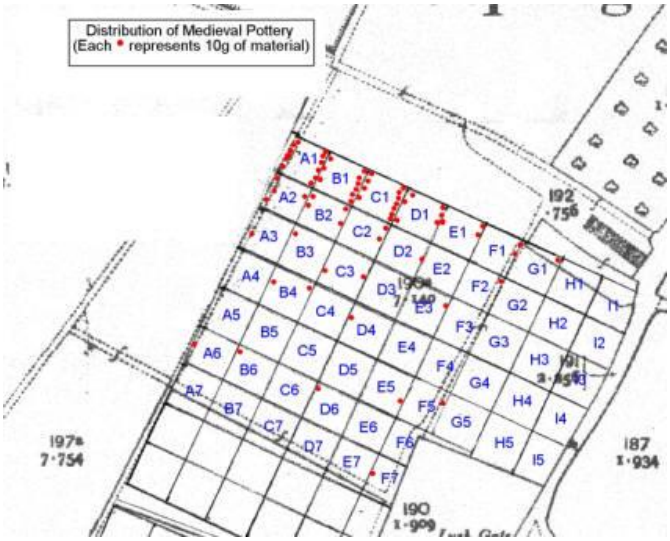
Field Walking

Field walking is an exercise used to evaluate an open area of arable land using sampling methods in order to analyse the distribution of datable material. It can help identify 'hot spots' of activity, or to establish particular periods of use. Although field walking is a structured and disciplined process, it's an activity where practically anybody can take part - adults and children alike. No special skills are needed - just a keen eye.

The field to be walked is divided up into grids (we use 20m x 20m) and marked out using bamboo canes. Each of these grids are assigned a reference number and each person is assigned their own grid. They are given a bag with the grid reference number written on it and stand at the starting point shown below.



A whistle is blown to start the activity. While walking straight ahead, the person looks at the ground over a 1m wide stretch and picks up any items they see (other than natural material). This will include pottery, clay pipe fragments, building material, pieces of glass, plastic, drinks cans, pull-rings, crisp packets etc.



When they reach the end of their 1m section, they turn around and walk back repeating the process on the second 1m wide stretch. They have 10 minutes to complete this task at which point a whistle is blown and everybody stops. The finds are set aside, the next grids set up, and the process repeated. This method obtains a 10% sample of the total area covered.

At the end of the survey, finds are cleaned, identified and weighed, with the details recorded for further analysis. The information can then be transposed onto a map; an example is shown here.

Garden Surveys

Garden surveys (which we refer to as 'foraging') take on a similar approach to field walking. In this case the garden is divided up into grids using an overlay on a street plan. Only areas such as flower beds or vegetable patches (where the soil can be seen) are examined. The grids are obviously smaller than those used for field walking, but the process is similar. Because of the relatively small areas involved, 100% of the area is examined without a time constraint. The results are again tabulated and the different periods of material assessed. This technique is particularly useful when a number of adjacent properties are compared, as was the case during our work in Davington 2010.