Creating A Good Earth System

down to earth

Terry Brown G0NSA took advantage of holes created - when he had extensions added to his house and garden to create a good earth system. Read on to see how he did it.

The builders arrived and work started on the new extension at the back of my house. As the foundations were dug out, I was amazed at how deep they had to be.

As I gazed down into the hole it occurred to me that an earth rod placed down the hole might not be a bad idea!

The builder couldn't understand why I would want to put anything into his footings ... but didn't object.

That's how I started to lay down my earth system. Several five foot (1.5m) rods were hammered into the corners of the footings and connected together with stout copper wire which was carefully bought to ground level and laid to one side. The outline idea is shown in the diagrams, **Fig. 1** and **Fig. 2**.

Concrete Filled

The footings were filled with the required amount of concrete and my new system earth rods were lost from sight for ever. Whilst this was being done, another stout cable was laid from the shack through the fabric of the main building and attached to the new earth cable.

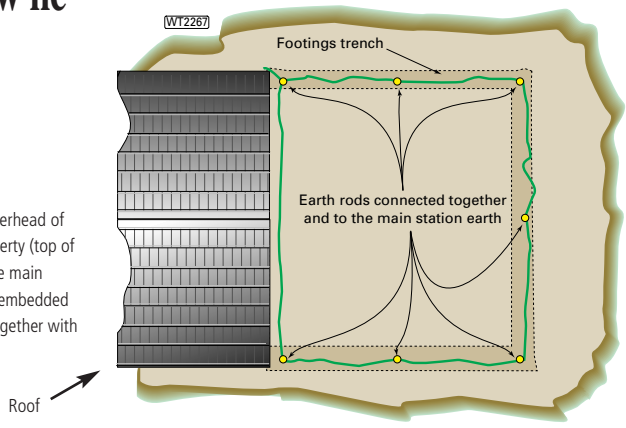

Fig. 1: The view from overhead of the rear-half of the property (top of roof on left) showing the main footings trench with its embedded earth rods all bonded together with a thick wire.

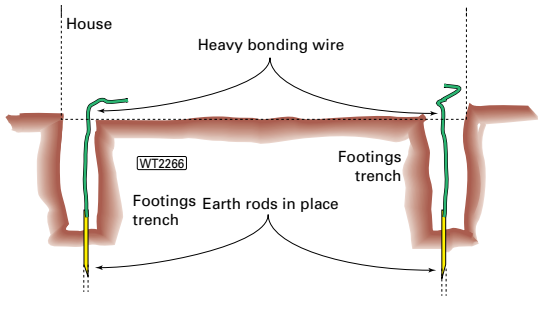

Fig. 2: Looking at the system from behind, the footings really do 'go down to earth'. I was surprised at just how deep they really were.

The rest of the building work was completed in the normal way that builders do these things. And in due course, I was left with what can only be described as a disaster area that was once my nice back garden. Additionally, to allow the builder to manoeuvre around and do his job, all the wooden fencing had to be taken down.

To put the fences back once the work had been completed on the house, I used long metal spikes with a socket on the top (the type that holds fence posts). It occurred to me that these would also make nice earth spikes so, they were also connected into my earth system too. Cutting a long story short, they were then all joined to my earth system by yet more stout wire.

At the bottom of the garden a new summer house and paved area were to be put in place. So, as not to miss another chance, I laid down an earth mat of chicken wire under the slabs and summer house. And yes, you've guessed it - that was also connected into the main earth system in its turn.

Full Stretch

Over the next few weeks of summer, the garden recovered and life returned to normal. The radio was at full stretch all the following winter with contacts being made both far and near as the band conditions allowed. All told, I was very pleased with the set-up as it stood, but every time I went into the summer house, the sight of all the left over earth wire made me feel that more could be done.

Shortly after the start of the following spring, circumstances once more lent a hand and it became obvious that mowing the lawns was going to become difficult due to health problems. We decided to replace the lawns and make both the front and rear gardens more 'disabled friendly'.

The small front garden was levelled and covered with a layer of gravel and large potted plants put on top. At the rear of the house we elected to have raised flower beds with small retaining walls and what had been lawn would also be replaced with gravel.

Out came the chicken wire again and strips were fitted into the area that was grass. All overlapping joints were soldered together, then this new earth mat joined the old system. So, now all the areas of the garden were connected to the earth cable that ran around the metal fence post holders.

Giant System

Having joined all the various earth wires into one giant system the lawn was covered with a membrane to inhibit the growth of weeds and grass. The whole lot was then covered with one and a half tonnes of gravel. To look pretty and to hold things in place, various pots with plants were placed around on the gravel area and hey presto, one disabled friendly garden and very happy Radio Amateur.

Since then the job has been extended by joining the large metal car-port at the side of the house and the wire supports down one side of the garden for a climbing plants, into the system. What this all amounts to - is that the whole of the rear garden and extension, together with the side of the house, has become one huge earth mat with my mast and h.f. antenna situated about in its centre!

As this work has been done over a period of two years, adding bits to the system as circumstances allowed, the improvement has not been very obvious. However, looking back through the logbook and allowing for the decline in band conditions at this stage of the sunspot cycle, I am still able to notice an overall improvement to my station.

As you may have guessed, I'm pleased with the final result - mind you I still have some wire left!