How To Survey Your Garden
And Draw A Scale Plan ~
The Critical First Stage to a Great Garden

By Rachel Mathews
Successful Garden Design
How To Measure Your Garden And Draw A Scale Plan

Having an accurate survey plan of your garden is critical if you want to plan your garden properly.

The majority of people don’t plan their gardens. Which tends to mean the majority of people don’t get the garden they really want. The thing is, with a bit of thought put in at the beginning, it’s not anywhere near as hard as you may think to create a beautiful garden.

The few individuals that do think about and plan their garden often make a huge error right at the start. They don’t measure their garden and draw a scale plan. Fatal mistake.

So the fact you are reading this and are going to get things right from the start, makes you a near genius (in the garden planning world). Seriously, well done for being considerably smarter than the vast majority of the population!
Why You Need To Survey Your Garden Accurately

An accurate garden survey is vital to successful designing. Without it, you won’t be able to create a design that will work properly when you come to build it.

A good design inter-links. If you’ve guessed what size and shape your garden is, then the chances of your design actually fitting when you build it are slim to none. This is because if you have to change one part to fit, it has a knock-on effect on the rest of the garden, so all the time you spent planning will have been in vain without an accurate scale plan.

If you’ve hired contractors to build your garden or even if you are doing it yourself, without an accurate plan, you will waste a lot of time and potentially money. There is no point in spending hours on a design if it doesn’t fit when you come to build it or you end up ordering the wrong quantity of materials!

OK. Now you know how important this is, let’s get you started.
What Equipment Do You Need?

You will need the following items:

- Long tape measure 30m (100ft)
- Short tape measure 5m (15ft)
- A4 (or letter size) notepad & pen
- Compass
- Scale rule (we will cover which scale later)
- Set square
- Sheet of large paper (A1-A2 size)
How To Do A Basic Survey

Get yourself a notepad or a sheet of paper, something to lean on and a good length tape measure.

The first thing you need to do is draw a basic outline of your garden as shown in Figure 1. Draw in the house, showing positions of windows and doors and the basic boundary shape.

Include any features or trees that you want to keep onto this survey drawing. Also make sure you plot the position of any manhole covers and other services on your plan.

Once you have your outline sketch then you need to start taking some measurements.
Survey Process

Start by taking your tape across the house and measure the overall length, then individual elements such as windows & doors as shown in Figure 2.
Once you have obtained the measurements of the house then measure the length of the boundary walls or fences. It is a good idea to also measure into each corner from two different locations so you can cross check the exact position of each corner as shown in Figure 3.

It’s very important to measure where your boundary is in relation to the house.
It may look like a bizarre spider’s web but there is a good reason for all the crossing lines. It is very unusual to have a perfectly square garden – it may look like everything runs parallel to the house but it rarely does. By taking corner measurements from two different locations from the house, it will enable the exact position of the corner to be determined on the plan.
If you measure along a boundary that is at an angle from the house, unless you have taken measurements across the garden into the corners, you won’t be able to determine its exact location accurately by the boundary length measurements alone.

I’m a great believer in measuring everything. It’s very easy to write something down or read the tape measure incorrectly, so the more measurements you have taken, the easier it is to double check.

Solutions For Measuring Established Gardens

If your garden has a lot of established plants that make access impossible to measure the boundary, then you will need to improvise. There are several things you can do:

1. If the boundary outside the garden is more accessible, e.g. next to a road, it’s much easier to measure the length of the fence from outside your property rather than crawling through bushes inside it.

2. If there is a plant preventing you measuring to the end of the garden take a long cane or broom handle, push it underneath the plant until it hits the boundary. Then measure how far under it went and add that onto the tape measurement you have so far.
If you can’t measure the length or width at the boundary because there are plants in the way, take your measurements just in front of the plants. Make note of how far up the garden you are for this measurement (see Fig. 5).
Figure 5 shows a more straightforward garden survey than shown in figure 4. The red and green lines represent where measurements have been taken. You will notice that only one corner was accessible to take cross measurements from because of shrubs on the one side. This is OK because if one corner is correctly positioned, it’s often enough to get the rest of the measurements to plot correctly.

To plot trees and other features onto your plan, use the same method you used for determining the position of the boundary corners. Measure the tree or feature from two different locations so that you will be able pinpoint it precisely on the plan. Whenever possible take these two cross-checking measurements from the house because that will be your fixed starting point on the plan.

How To Survey More Complex Gardens

Sometimes it is just not possible to get close enough to the boundaries on each side of the garden to measure accurately. On those occasions you’ll need a different survey method.

Run a tape measure down the length of the garden from the house to the end. Make sure the tape is a 90 degree angle to the house. Over long distances, it will be difficult to do it perfectly at 90 degrees, just do the best you can.
Then with a second tape measure held at 90 degrees (right angle) to the first tape, measure across the garden wherever there are gaps in the plants that allow it, as shown in Fig 5a below and in the video tutorial.

Now watch the accompanying video so you can see how this method works.

If you don’t have a large set square to use, then something like a large book or square piece of wood will help you ascertain where 90 degrees is. This method isn’t 100% accurate but as long as you are consistent as possible, it is the only way to determine where a boundary is when all other methods fail.
The last piece of survey information you will need is to know where North is. If you have a compass, great! If not, look at the deeds that came when you purchased your property. There should be a tiny Ordnance survey plan; this will show you the location of North.

Alternatively, go online and put your postcode into Google Maps, or Bing, or any other mapping service. Go to the ‘Satellite’ setting so you can identify your property and see where the North arrow is in relation to your house.

Failing all of the above, at midday when it’s sunny, see which direction shadows fall – this will be North (see figure 6).

Whist you are gathering this information about your garden, it’s also a good idea to view the garden at different times of the day. Pay particular attention to the times you are most likely to use it. Is the main patio area likely to be in sun or shade when you’ve finished for the day? Perhaps a second seating area may be needed?

Figure 6.
Midday shadow
Photographs

A quick mention about taking photos of your garden. Even though you may be designing from a location where you can see your garden, it is still a good idea to take photographs of the whole garden.

Photographs will save you needing to go back out into the garden every time you have a query on the position of the boundaries as you are drawing up your survey plan. There are also numerous other uses that will be covered in the Great Garden Formula home-study course.

Take a succession of photos from different locations and join them together to form a panoramic image as shown below. This will really help you to see as much of the garden as possible as you progress through your design.
How To Survey Changes in Level - Sloping Gardens

If your garden is sloping, on top of the survey procedure you’ve just learned, you will also need to take note of the start and finish of any slopes and the height differences as shown below in figure 7.

If you have fence panels that are different heights along the boundary, simply measure the height difference all the way down the garden and then add the measurements you’ve taken together and this will give you the overall difference in height from one end of the garden to the other.

Also mark on your plan how far down the garden each noticeable level change occurs and plot this onto your drawing.
Other Simple Methods To Determine Levels

If there is a retaining wall already in place where a level change occurs, measure the height and position in the garden of it.

In the absence of existing retaining walls, run a taut string line or tape measure down the garden. Use a spirit level to make sure your string line is level and measure the difference in height as also shown in green on the close up of figure 7 below.

The last method isn’t accurate over long distances as the string line will dip in the middle. If this is the case, then you will need to use a laser level. Don’t worry, that’s not anywhere near as scary or complicated as it may sound.
How To Survey More Complex Level Changes

For complex gardens with lots of level changes, it would be worth hiring or buying a laser level to obtain accurate measurements. They are relatively inexpensive and easy to operate (see video segment).

To work out the height of the change of level with a laser level, aim the light beam to the fence or wall at the end of the garden. Measure the height of the red dot of light on the fence from the ground.

The laser level is usually on a stand, so you will need to deduct the starting height of the laser beam from the finished height at the other end of the garden. For example, if your laser level beam starts at 50cm above ground level and the light-beam is 1.50m high at the other end of the garden, it means there is a fall of 1m down the length of the garden.
If the slope in your garden is really severe, and too much of a difference in height to survey in one go with the laser level, then you will need to start in the middle of the garden as shown in the photographs below.

In the first photo above, you will see that the laser beam goes right to ground level at the back of the garden. This would be marked on the plan as 0. Then, when the laser beam is turned back towards the house, as shown in the second photograph, the height of the laser beam will be the total difference in height down the garden, when the measurement is taken from ground level by the house.

It is also important to note how far down the garden the changes in level occur (measurements in green on figure 7 on page 15) so that you can mark these on your survey plan as shown in figure 9 on page 23.
Tape Measure Tips

One last thing about using a tape measure; if there are lots of undulations and level changes, you will need to make sure the tape is taut. Otherwise, your measurements will show the area to be longer than it actually is. See figure 8. If the undulations are as noticeable as shown in figure 8, make a note of where they are on your survey plan.

The best way to secure the tape when you start measuring is with a peg. A meat skewer works really well! You can also use a bamboo cane pushed firmly into the ground but you will need to make sure that the tape can’t come loose when tugged on.
QUICK REFERENCE - Survey Process

- Sketch the outline of your house and garden boundary onto a sheet of paper. Mark on your sketch where the doors and windows are along with any trees and features you are planning on keeping. Also include the position of manhole covers and any other services.
- Take measurements into the boundary corners from two different locations from the house.
- Measure the length of each boundary as well as the width of your garden. You will need to measure the width at the top and bottom of your garden as they may differ.
- With a compass, work out where north is and draw this onto your sketch.
- Photograph your garden from one side to the other and then join up the pictures to form a panoramic view.
Part 2 How To Draw A Scale Plan
How To Draw A Scale Plan

Once you have all the measurements you need then it is time to put pencil to paper and draw up a survey plan to show all the relevant information. This drawing will need to be drawn to scale. Don’t worry - scale really is much easier than you think!

What Scale Is And How It Works

A scale drawing enables you to design in proportion, which is essential if your design is to work properly in the garden. It will also enable you or whoever builds the garden to work out the actual material quantities needed. To make scale easier, it’s a good idea to get a scale rule.
How To Choose The Right Scale For Your Garden

An easy metric scale is 1:100, which means 1cm on paper is equal to 1m (100cm) on the ground. It is used for medium sized gardens. Wherever possible, I like to work with a scale of 1:50, which means every 1cm on the drawing is 50cm on the ground (or 2cm = 1m, if you prefer!).

The reason I like a larger scale drawing is because it’s easier to put in plenty of detail, which I find enables me to get a better feel for the garden and the correct proportions for the design.

If you have a really large plot then you will probably need to use a scale of 1:200. In this scale every 1cm on the drawing represents 2m on the ground.

For those of you who prefer to work in imperial, the following chart shows the imperial equivalents:

<table>
<thead>
<tr>
<th>Metric Scale</th>
<th>Imperial equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:50 1cm = 50cm</td>
<td>1/4” = 1’0”</td>
</tr>
<tr>
<td>1:100 1cm = 100cm</td>
<td>1/8” = 1’0”</td>
</tr>
<tr>
<td>1:200 1cm = 200cm</td>
<td>1/16” = 1’0”</td>
</tr>
</tbody>
</table>
How To Draw Up Your Survey Plan

Purchase a large sheet of paper, preferably A1 size which is approximately 80cm by 60cm (32 x 23 inches). Choose a scale that will allow the garden to fit on the paper. Check the width and length at different scales on the paper to see which is the best fit.

Start at the bottom of the paper and draw in pencil the house first. Once you’ve done this you can then measure off the house to plot your boundary.

I would recommend that you purchase a scale rule because you won’t have to work out the scale adjustments in your head (see photo below). This already has the scales worked out, so all you have to do is use it like a normal ruler.

If you have a measurement of 5.50m at a scale of 1:50 it would 11cm on a normal ruler. But on the scale rule it would show as 5.50m. Which makes life a lot easier. Imperial scale is even harder to work out in your head, so definitely get a scale rule for that!
In order to draw any right angles, such as house walls, you will need to use a set square (as shown in photograph) or protractor to get the angle correct. Alternatively, if you have access to a drawing board with parallel motion rules, these will automatically be set at right angles.

### Double Check Your Shape

If you have the small OS plan or a Google Satellite image of your property, you will be able to see the overall shape of the garden boundary line. Compare this to your survey plan to make sure you have the shape right.

When you are sure you have the shape correct, draw over your pencil boundary, house and any trees or features that are staying in marker pen. This will make sure that nothing gets accidentally erased when you are roughing out the design concepts in pencil.

Your finished scale survey drawing should look something like Figure 9 (shown on the next page). You’ll notice that some of the boundary lines are at slight angles to the house, which differ from our rough survey on Figure 5. This often happens when you draw up the survey to scale. It’s not always obvious when you are in the garden that a boundary is at an angle.
You will also notice that I’ve not included the existing patio or one of the shrub borders on the plan. This is because we will be putting in a new patio and the shrub border wasn’t worth keeping. Although I’ve kept the finished survey plan as simple as possible, it is still good to know dimensions of the old patio. This will help you to judge how big to make the new one in your design. I’ve also shown where the level changes are in green on the plan.
QUICK REFERENCE - Drawing Up Your Garden Survey

- Choose a scale to work from that enables the garden to fit on the paper.
- Draw the house on the paper first, marking on the position of windows & doors. When positioning the house on the plan make sure there is enough room left to fit on rest of garden.
- Then draw in the boundary – start with measurements taken from the house.
- Show position of any changes in level with the height difference.
- Check the final shape with an OS plan or an aerial picture of the garden.
- Show position of North on the plan

It can take a while to do the survey and draw it up, but do persevere. The more accurate you can get your initial survey, the better the design and build process will be.
Some designers jot ideas down on bits of paper and don’t worry about getting scale right. Whilst this can be a good method to free up your creativity, you will still need to have it to scale at some point, to check it will work. I would advise you to start using scale at the outset. Doing this will get you thinking about things in the right proportions from the beginning, which does make life easier in the long run.

If the scale design works on paper, it will work in the garden. If you haven’t used a scale drawing and have just guessed the size, you will have to try to convert what you have drawn and make it work on site, which can be very difficult, if not impossible.

The Design Phase

You are now ready for the next stage in the process, coming up with the right design shape. It’s really important to both know and understand how the design principles work with each other to create a good design. How to do this is covered in step-by-step detail in Great Garden Formula Home Study Course.
About The Author

Rachel Mathews has been professionally designing gardens for nearly 20 years. She runs the international garden design and construction company ORIGIN garden design specialising in creating beautiful, bespoke gardens for clients in the South East of England.

Rachel also teaches homeowners how they can improve their gardens on the Successful Garden Design blog.

Other Books Coming Soon In the Series Are:

The 5 Minute Plant Expert.
How To Create The Perfect Planting Plan.
How To Get The Best From a Small Garden.
How To Design A Garden With Level changes.
How To Design A Contemporary Garden.

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