

Use of Hidden Points

Although System 500 can measure points under the most difficult conditions, there are some points that even System 500 cannot measure, or points that the surveyor cannot physically get to.

This is when you may need to use the **Hidden Point** functionality. 4 hidden point methods are supported, **Bearing and Distance**, **Double Bearing**, **Double Distance** and **Chainage and Offset**.

This newsletter describes the first 3 methods. A future newsletter will describe the chainage and offset method and will also describe how heights can be computed for hidden points.

When measuring hidden points, **Auxiliary Points** can be surveyed and **Bearings** can be computed from previously collected points to help measure the hidden point. Note, an auxiliary point is basically the same as a “normal” surveyed point but can be assigned a different point ID template.

Telegraph Pole Survey

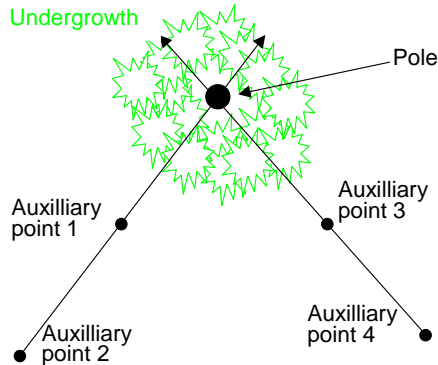
Imagine you are completing a survey of telegraph poles for a Telecommunication company. They need their poles to be surveyed to 0.3m accuracy in plan but they are not concerned about the height.

The survey is going well until you reach some poles surrounded by heavy undergrowth. It is simply not possible to directly measure the pole without taking a lot of time to cut a path through the undergrowth.

How can hidden points help you here?

Use Double Bearing

As shown in the diagram below, survey **Auxiliary point 1** which is closer to the pole and put a stick or stone on the ground to mark this point. (To survey this auxiliary point press **F5 (NEWOC)** when **Point A** is highlighted).



Now walk away from the pole to the second auxiliary point and align yourself with the pole and the first auxiliary point. To compute the bearing from this second auxiliary point to the first (and therefore the bearing to the pole) press **F6 (BRNG)** when **Bearing A** is highlighted. This allows you to survey **Auxiliary point 2** and compute the bearing.

Repeat this procedure for a second pair of auxiliary points, (**Auxiliary points 3 and 4** in the diagram), again directly in line with the pole, but from a different angle.

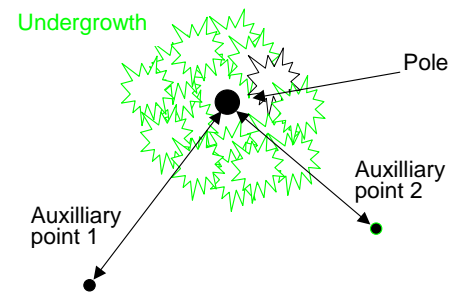
From these two bearings it is now possible to compute the position of the pole.

Use Double Distance

Luckily, you have remembered to bring your DISTO with you. (Remember, System 500 supports several laser ranging devices, including the DISTO. These devices can be directly connected to System 500 to directly read in the measured distances. Bearings and angles are also read in if

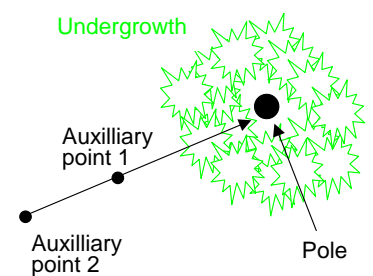
they can be measured by that hidden point device).

Survey **Auxiliary point 1** and measure the distance from this point to the pole with the DISTO. Survey **Auxiliary point 2** and again measure the distance to the pole. These two distances are then used to compute the position of the pole.



Use Bearing and Distance

Again you have a DISTO. Survey two auxiliary points directly in line with the pole and as described previously, use these two points to compute the bearing to the pole. From one of these points, measure the distance to the pole and to compute the position of the pole.



Remember

- Use hidden points to survey points that cannot be measured by GPS or cannot be physically reached.
- System 500 supports several devices that can measure distances and angles.
- Bearings can be computed from previously measured points.