InTouch GIS Services

How to Use and Read Map Co-ordinates

Specifying correct map co-ordinates is an essential aspect of all surveying and mapping work. Whether its identifying site locations, a set of monitoring locations or the locations of a wind turbine, incorrect or inaccurate co-ordinates can lead to confusion at best or at worst, the need to redo whole aspects of work.

Eastings and Northings (X,Y co-ordinates)

The fundamental aspect of co-ordinates is the specifying of the Easting and Northings (or the X and Y co-ordinates). **Eastings** are equivalent to the 'X' co-ordinate and increase in value as you go East **Northings** are equivalent to the 'Y' co-ordinates and increase in value as you go North.

The standard way of specifying co-ordinates is to **ALWAYS** specify the Easting first.
Eg. 416456,335678 or SK164356 where Easting = 416456 and Northing = 335678

Note: When using co-ordinates provided by a client, always do a 'reality check' that the co-ordinates are the right way round, sites in the southwest will have low value eastings and northings, sites in the Northeast will have high value easting and northings.

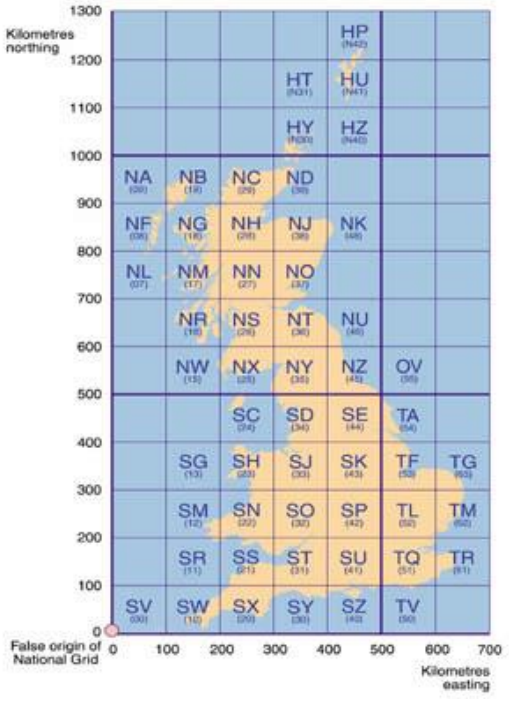
The Ordnance Survey Grid

Within the UK (excluding Republic of Ireland and Northern Ireland), co-ordinates are usually given in relation to the British Ordnance Survey national grid which has its origins just off the south west coast of the Isles of Scilly and reaches right up to the Shetland Isles off the north east coast of Scotland.

Using the Ordnance Survey grid, locations can be given to an unlimited degree of precision depending on how many digits are used in specifying the co-ordinate. For example, a co-ordinate of 416456, 335678 is to 1 metre precision, a co-ordinate of 416456.24,335678.45 is to 1cm precision while a co-ordinate of the form SK164356 is to only 100 metre precision (beware of confusing precision with accuracy, very precise co-ordinates to several decimal places may not be all that accurate).

Ordnance Survey Letter Prefixes

The UK is divided into 100km x 100km squares, each of which is identified by a two letter code. Eg. Huddersfield lies in grid square "SE" which lies 400Km east and 400Km north of the OS Grid origin.



For use in most GIS software (eg. ArcGIS or MapInfo) the full co-ordinate must be given which replaces the 2 letter prefix with the corresponding 100Km grid square reference.

So to use the co-ordinates of the InTouch GIS office in Huddersfield (SE139147), the SE prefix must be replaced by the reference to the 100km grid square "SE" refers to, giving **4**139 for the easting and **4**147 for the northing. As this is currently accurate to 100m, this will need to be converted to the full 1 metre accuracy needed in most spatial software giving 6 digits for the easting and 6 digits for the northing. Multiplying both the easting and the northing by 100 will give the required level of precision (eg. 4139 x 100 = 413900, 4147 x 100 = 414700) or to put it another way, just add 2 zeros to the end of the easting and northing.

So **SE139147** will become 413900**,** 414700 for use in GIS and other spatial modelling software. An explanation of the UK's Ordnance Survey co-ordinates is given on Wikipedia at http://en.wikipedia.org/wiki/British_national_grid_reference_system.

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