

# map design sign

a guide to good looking maps

# About the Guide

## Introduction

This document is offered as an aid to producing professional, good looking maps. It highlights the various issues which create appearance problems along with suggestions and guidance in formulating good solutions.

The intention is not to be unduly prescriptive but rather that mappers should develop an individual style based on their own flair, imagination and experience. For the inexperienced, part of that process would, ideally, involve seeking external opinion from experienced designers on the effectiveness of the final result rather than working in isolation.

## Graphic Design

The term 'Map Design' perhaps needs further clarification. From a design point of view, once the cartography has been completed, the cartographic element subsequently becomes a single object which forms part of the overall design.

On that basis, the principles involved in a good result are those which apply to graphic design more generally such as a magazine or brochure cover. The key criteria are generally the size and positioning of the individual elements along with the effectiveness of the colour scheme used.

## The Way Forward

The key points relating to a good design are undoubtedly:

- A high level of motivation to succeed
- The ability to recognise problems through self-criticism
- The enthusiasm to experiment with different options
- A willingness to allocate considerable time initially

Whilst the inexperienced designer may take a considerable time to arrive at a truly satisfactory result, once the necessary skills have been attained, the process will become relatively speedy. With experience, problems will be recognised more swiftly and strategies for solving them will have developed.

## How Long Does it Take?

That's down to the individual and level of experience. The author, for example, has produced designs for over 100 maps and can now produce a good design in around 30 minutes. When it comes to something entirely new, it's a different matter. The front cover graphic of this guide took about 4 hours. Like many mappers, he is only an amateur who has learned by trial and error but he enjoys the satisfaction of achieving a decent result regardless of the time it takes!

# Test Your Skills!

On the following page are four potential brochure cover designs for a company called 'Infinity'. The company specialises in producing software system solutions for a wide range of industries.

Your task is to select the design which best conveys an impression that the company would care about producing a professional and effective solution for your particular problem.

Turn to the next page ....



1



2



3



4

When you have chosen, turn to the next page ....

# How did you get on?

## Design 1

Well at least it's cheerful and pretty effective in some ways but gaudy colours make it look more suited to a company that sells lollipops. Is this really an advert for quality solutions?

## Design 2

The additional rectangle and circles largely destroy the impact of an otherwise respectably designed graphic. This conveys an impression that the company doesn't think too seriously, or care, about what it produces.

## Designs 3 & 4

Here are two designs which are identical in principle. The only differences lie in the size of the individual elements and their positions on the page. Either design in isolation might create a good impression.

## So which is the winner?

The interpretation of graphic design can, to some extent, be down to individual opinion. If pushed for an absolute decision, the author would choose design 3. The slightly smaller size somehow looks a tad more refined than design 4.

## What's all this got to do with Map Design?

Well, design 1 illustrates that flashy colours are only suited to specific circumstances. Design 2 illustrates that cramming a page with unnecessary or oversized items makes the essential aspects harder to see. Designs 3 & 4 illustrate beautifully that a good result can be achieved by putting very little on the page.

In an orienteering map, the key item is the cartography. That's what orienteers need to see. What they don't want to see is unnecessary extras which distract attention away from what they are really meant to be viewing.

Many orienteers are simply not interested in layout anyway so why waste time cluttering a map with superfluous or oversized items? If the aim is to impress other people such as teachers, park managers, etc then this can be done in a refined way. Such an approach would clearly be of benefit to orienteers even if their appreciation is in the subconscious. Who knows, it might even bring the mapper more business and create a better impression of orienteering to outsiders.

# The Key Issues

## What makes a Good Design?

### Efficient to Use

The prime requirement for a good map is that it is easy and efficient to use.

### Clear Cartography

An experienced competitor will want a map which allows the cartography element to stand out clearly against other items on the sheet. The design items surrounding the cartography need to be attractive but inobtrusive. The competitor will know this information off by heart and is not likely to refer to it but neither will they wish to be distracted by it.

### Well Laid Out Information

A novice competitor or POC user, on the other hand, may need to make regular reference to the surrounding information. They will appreciate a map where the information is well laid out and easy to find.

## What makes an Attractive Design?

### Correct Symbol Size

The cartography will only look good if appropriate sized symbols have been used in relation to the map scale. Too small and everything will look lost in space. Too big and the effect will be positively ugly. Information on symbol sizes can be downloaded from the British Orienteering website.

### Design Items a Sensible Size

Design items need to be a sensible size in relation to the cartography. Using text which is too large, logos which are too large, lines which are too bold, etcetera, can soon ruin the looks of an otherwise perfectly good map.

### Design Item Positioning

The positioning of design items will have a significant effect on both the looks and efficiency of use. An inexperienced mapper may need to spend considerable time experimenting with different design options in to obtain a satisfactory result.

### Design Colours

Good designs only use two inobtrusive colours in order to avoid gaudy looks. For the inexperienced, choosing even two colours which blend well both with each other and with the many colours already used for the cartography, is a considerable challenge.

### Printing Colours

Printers have individual colour output characteristics. Print the same map file on 50 different printers and the outcome is likely to be 50 different results. The standard IOF colours may need to be tailored within the OCAD file to suit the specific printer or colours adjusted with the printer software.



# A Thoroughly Poor Map!

It's hard to believe that maps of this nature can hit the streets but occasionally they have. This example is extremely gaudy but, fortunately, make believe to illustrate the points concerned.

The layout items are:

1. Spread illogically across the map and hard to find.
2. The boldness of the layout items de-emphasises the cartography.
3. There is no white space space around any layout items to allow clarity.

Using large objects to fill space just because it's there is the first step towards a poor result. If there's too much white space, consider reducing the border dimensions rather than filling the space in inappropriate ways.

## A Layout Analysis

### Title Font

Ugly - the majority of 'fancy' fonts are poorly designed and best avoided.

### Logos

The logos are too big for the space which has been allowed for them.

### North Arrowheads

The arrowheads are far too large and over dominant. They could usefully be made much smaller.

### Legend

The legend symbols have been sandwiched between the cartography and the legend text. They almost become part of the cartography itself.

Note the white space to the right of the legend text. This could have been put to better use in a different arrangement.

### Scale Bar

The deep scale bar looks far from attractive and the over-emphasis created by the bold colour worsens the effect further. A slimline version would look far more attractive.

### Scale Text

The text used on the scale bar is too large and dominant creating an unrefined look.

'1cm on the map represents 50 metres on the ground' is needlessly large - it will rarely be looked at. It is also at the opposite corner of the map to the scale bar.

### Supplementary Text

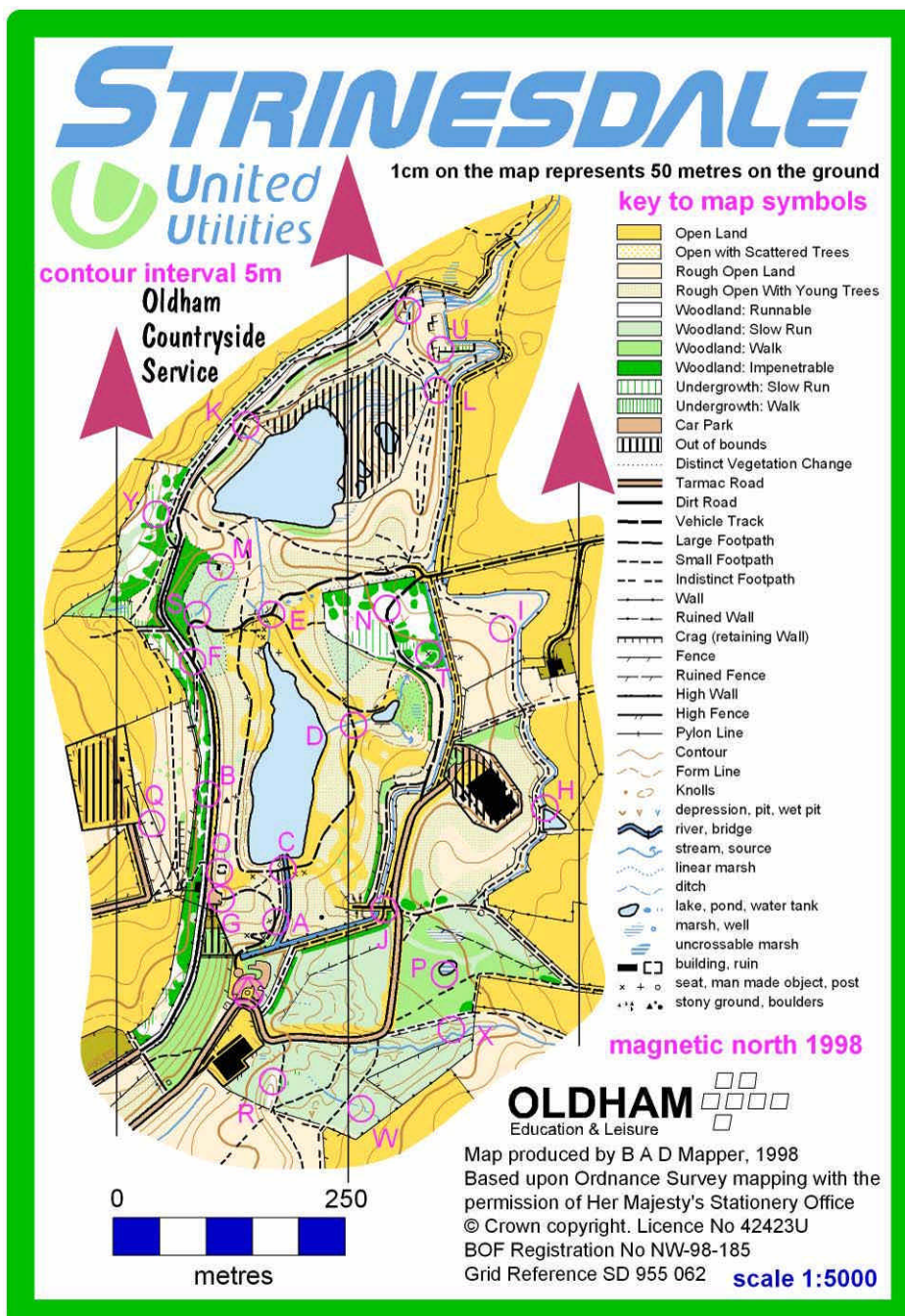
'Contour Interval', 'Key to Map Symbols', 'Magnetic North 1998' and 'Scale 1:5000' are spread all over the page and hard to find. To make matters worse, 'Scale 1:5000' is in a different colour.

### Credits Text

Orienteers are not likely to look at the credits text while actually orienteering. It simply doesn't need to be this big and takes up far too much space as a result.

### Colours

The design uses four different colours. In particular, the thick bold green line used for the border is a major distraction from the cartography.



## A Layout Analysis

### A Good Map

It's hard to believe that this map is of the same area as the previous example. The border is actually marginally smaller in height and width yet the map shows more information with the addition of a location map and a logo within the lower border bar.

The key to the outstanding clarity of this map is the white space around all the individual design items.

### White Space Matters

#### Title Font

An attractive, well designed font is used here. The use of a serif font is visually more lively but not all serif fonts look good.

#### Logos

The logos have been reduced to a much smaller size and grouped together in an out-of-the-way position at the side of the map. Logos are only there to keep sponsors and local authorities happy. They are of no significance for orienteering and simply do not need to dominate a map.

#### North Arrowheads

Small arrowheads are amply adequate to indicate north. They are visually less intrusive and take up far less space.

#### Legend

Aligning the legend symbols against the border with the text to the inner side allows much more white space around the map

#### Scale Bar

Scale bars do not necessarily have to be constructed from a series of rectangles. An inobtrusive alternative is shown here.

#### Scale Bar Text

Scale bar text need not be unduly large. An orienteer may only look at this once and it therefore has no need to look prominent.

#### Supplementary Text

'Contour Interval', 'Magnetic North 1998' and 'Scale 1:5000' are neatly grouped together beneath the map title where they can all be easily read in one go. The colour is much easier on the eye than before.

#### Credits Text

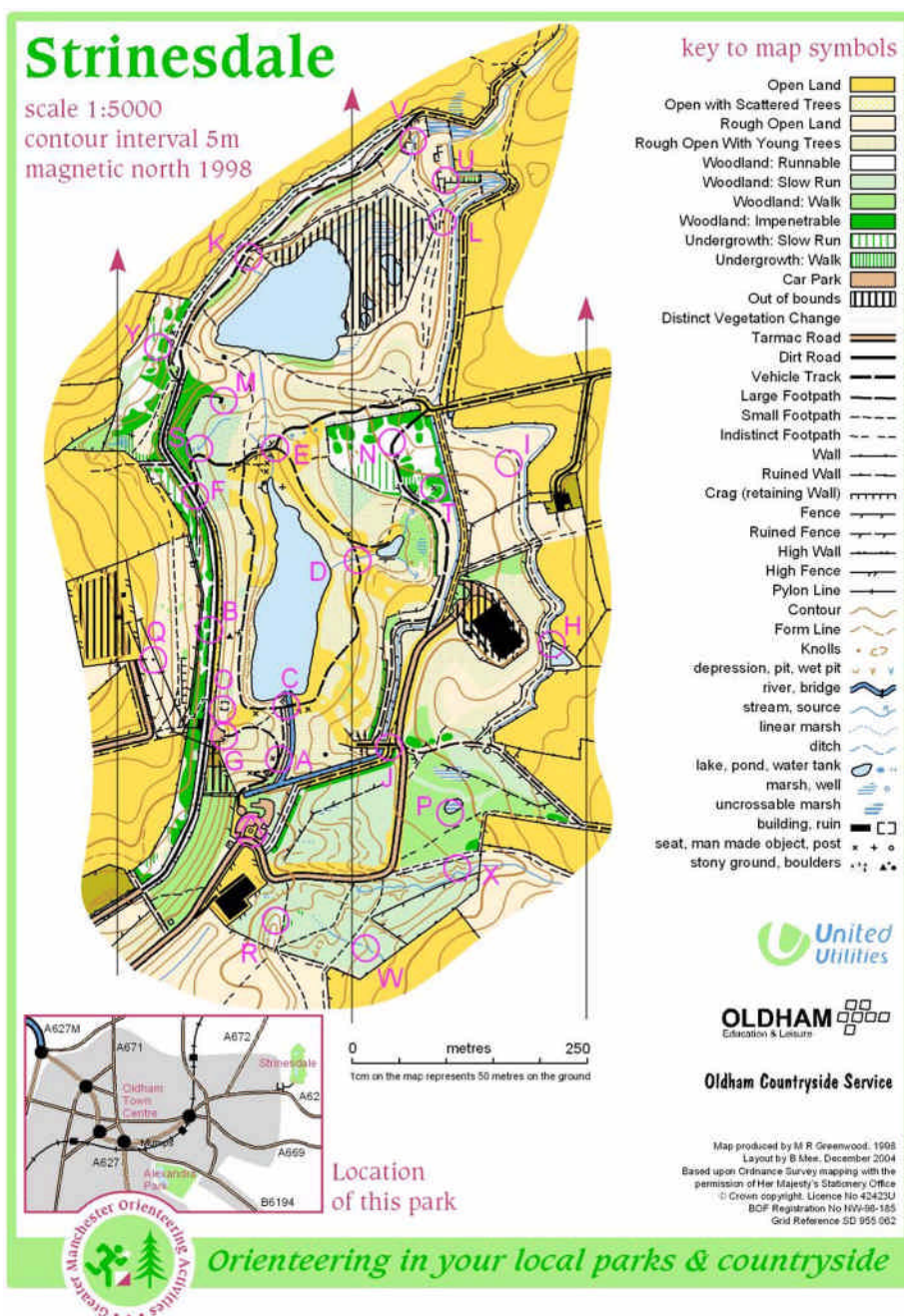
The credits text is 6pt. It is there primarily for legal and administrative purposes and has no need to look prominent. Note that the text is right-aligned against the border.

#### Colours

The layout uses only two colours - mid green and burgundy - which blend well and are inobtrusive.

#### Border

The border is only 2mm wide and coloured in a paler green to avoid visual domination of the map.

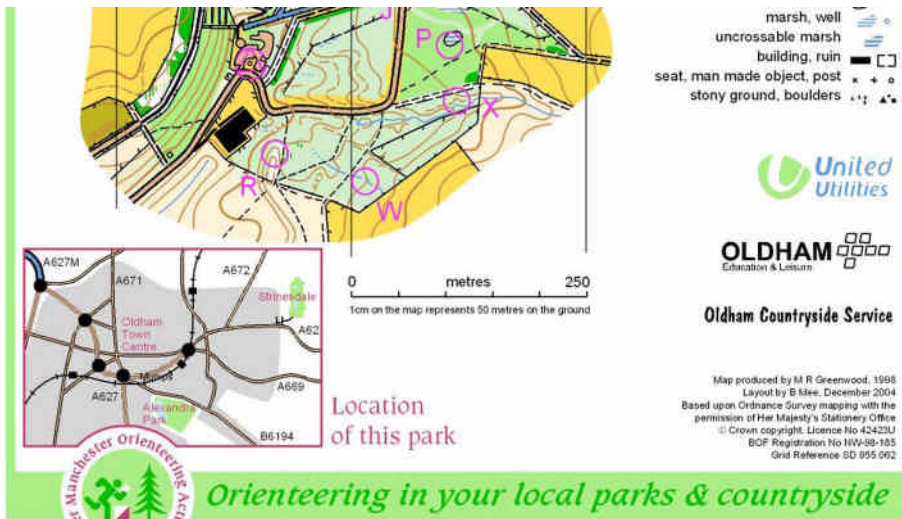




# Particular Issues

The remainder of the document will examine various issues in more detail.

It is impossible to say, 'This exactly how to design a map' as there are several variables involved and much will hinge around the size and shape of the cartography. The key to a good layout is recognising the problems involved in each instance and having a flexible approach to solving them.

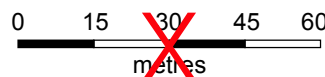
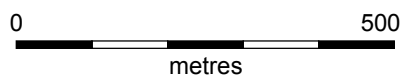
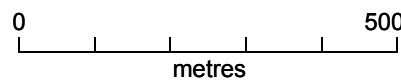


## Scale Bar Position

Many mappers like to align the scale bar beneath or above the north lines to indicate the spacing of the north lines. There is intrinsically nothing wrong with this but it can occasionally create design problems.

In the example, extending the right hand north line downwards cuts across a great deal of white space. In this instance it does not cause a problem. In some instances the white space might be better used for another layout item and the scale bar positioned independently of the north lines.

## Scale Bars



A scale bar constructed from lines only is neat and inobtrusive. The tag lines should be no higher than 2mm.

A scale bar constructed from slim black and white rectangles is less obtrusive than a coloured version. The rectangles here are 1mm high and should certainly be no more than 2mm high for good looks.

Awkward Scales e.g. 1:1500

1:1500 translates into 1cm to 15 metres. The average human does not think in multiples of 15m when estimating distance, they think in multiples of 10m. The scale bar should reflect this by using intervals of 10m, 20m, 50m, etc. For 1:1500 the individual rectangles need to be 6.66mm in length to represent 10m intervals.

## Scale Bar Text

The examples here use 9pt text. Anything bigger than 10pt usually looks too big.

The font used is Arial which is very clear to read and everyone has it installed on their systems.



# Lymm High School

scale 1:3000  
magnetic north 2006

# Lymm High School

scale 1:3000  
magnetic north 2006

## Design Text

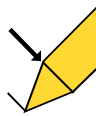
For most of the small design text, Arial is a good choice as it is clear and easy to read even at small point sizes. Arial Narrow can help where space is tight.

For the map title and subheadings, Arial Bold may suffice but can look rather formal. However, it's a safe starting point for those with limited artistic imagination. Arial Black looks far too dominant.

Those wishing to use a font which looks livelier will need to choose very carefully. Have a good, long look at it over a few days and see if it still really does look good!

The final choice of title font will reflect the mapper's individuality and reputation for producing good maps. A sensible size will normally lie within the 30pt - 40pt range.

If other people are likely to print the map and don't have the chosen fonts on their system then the result will not look as intended. It's always worth checking what fonts potential printers possess before finalising the choice.



A simple alternative is to use the 'Convert to Graphics' tool to convert the text into graphic objects. Simply select the text block and click on the icon on the toolbar.

This will convert the letters into individual graphic objects so that they are no longer text. The map can now be printed by anyone who doesn't have the font installed. The process will add a new symbol to the palette alongside the original text symbol.

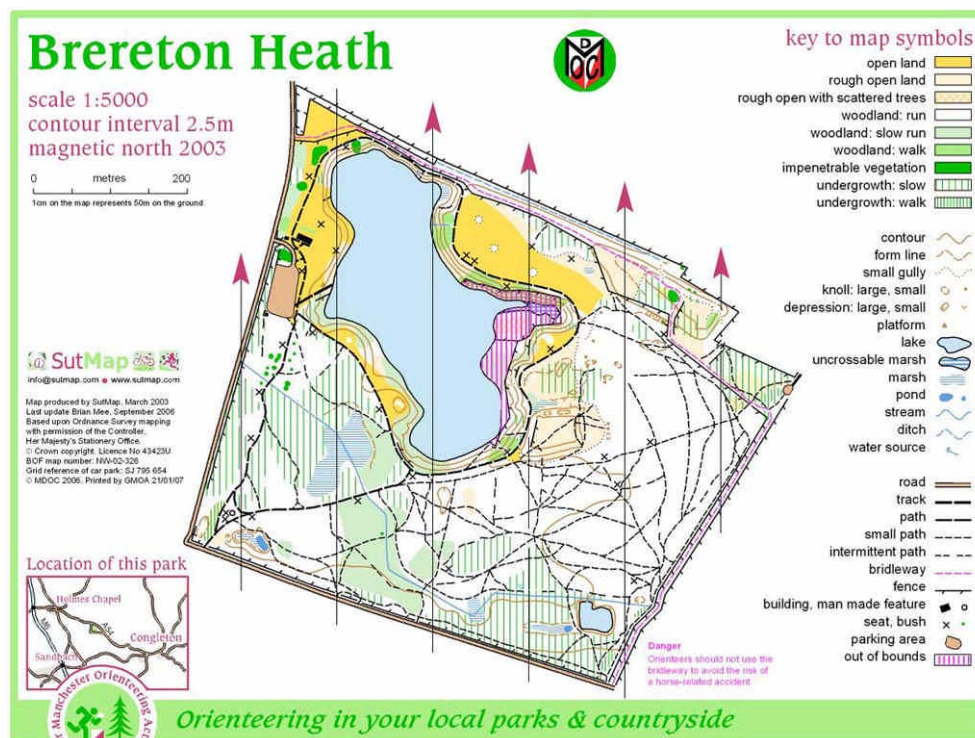
By selecting all the letters in a word or block of words simultaneously, the block can be scaled by dragging the handles at the corner of the selection box as with any other graphic object on the map.



In a logo, converting all the text to graphics is particularly useful as the logo can then be scaled easily to different sizes to fit the available space sensibly. The text elements of a logo would otherwise have to be resized rather inconveniently via the symbol editor. The examples left show a logo at different sizes produced by this process.

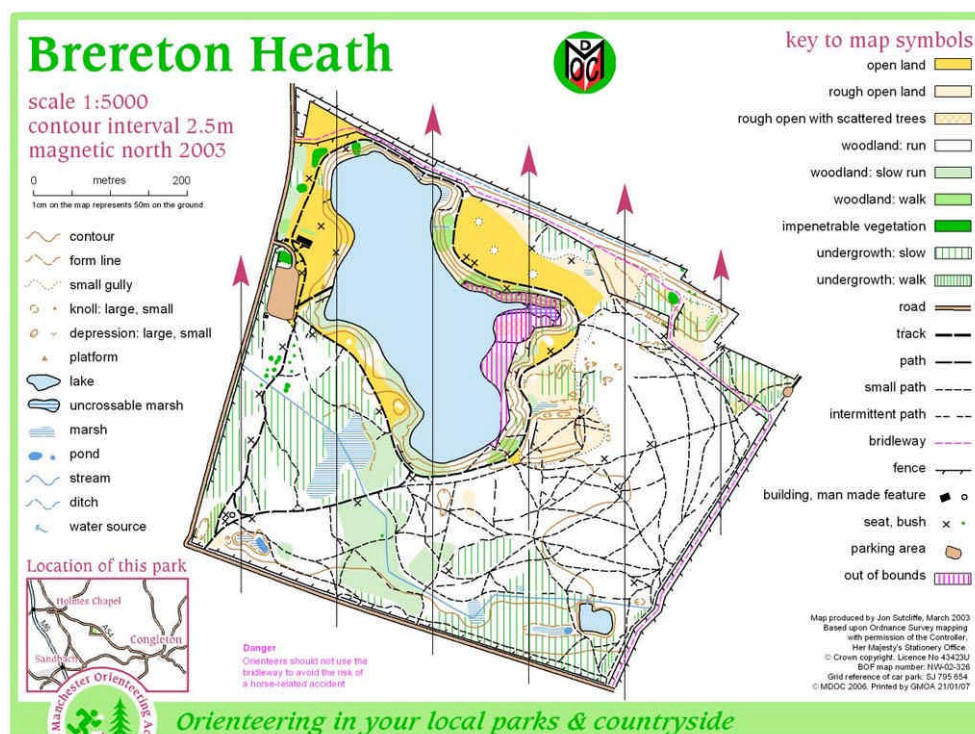
The same approach can be used to scale title text which has been converted to graphics. Compare the title (left) with the title at the top of the page.

# Lymm High School



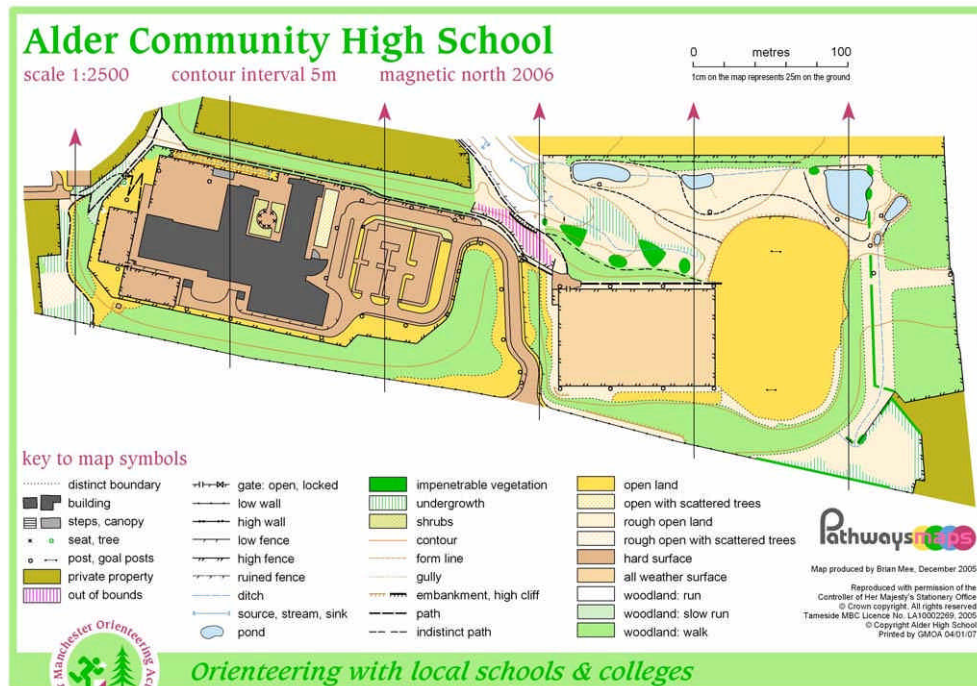
## Legend at One Side of Map Only

The most desirable position for a legend is adjacent to one side of the map (L or R) in a single block. In this format the information is all in one place with a need for the eye to scan up and down only and not across the page as well, making for fast retrieval of the information needed. Without doubt the most efficient option in usage terms.











## Legend Split between Left and Right Sides









This arrangement seems to make the legend much clearer as everything is spread out with wider line spacing. However, the eye now has to cover a far greater area to find the information needed as well as having to look in two different places. From a reading efficiency point of view, this idea is not so good. The large line spacing also means that the legend takes up more space than necessary, potentially making the layout of other items more difficult.



## Multi Column Legend

Sometimes it is impossible to achieve the ideal of a legend at the left or right side only. In this case it will be necessary to split the legend into columns. This is fine providing they are adjacent to each other and not spread all over the map.

distinct vegetation boundary	.....	pond		open land	
form line	- - - - -	steps		open with scattered trees	
embankment	- . - . -	single tree	o	rough open land	
road		post	o	hard surface	
path	- - - - -	seat/picnic table	x	all weather surface	

distinct vegetation boundary	.....	pond		open land	
form line	- - - - -	steps		open with scattered trees	
embankment	- . - . -	single tree	o	rough open land	
road		post	o	hard surface	
path	- - - - -	seat/picnic table	x	all weather surface	

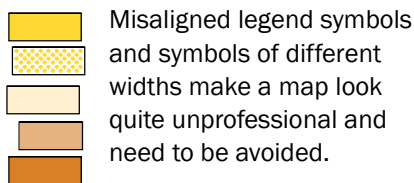
## Legend Column Spacing

There are two ways of spacing legend columns:

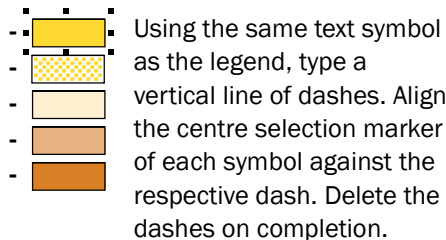
1. Keep the space between the symbols equal.
2. Keep the space between the symbols and the adjacent text equal.

Which looks best is affected primarily by the length of the text lines. There is no right and wrong and mappers must decide which looks best in the circumstances. In these examples the lower one looks better. In the upper one the left hand space is too large.

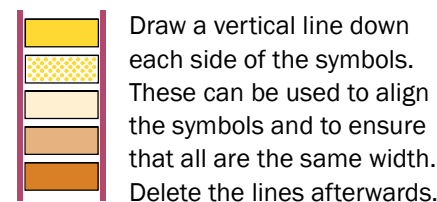
## Misalignment



## Horizontal Alignment



## Vertical Alignment



## Font Size/Line Spacing

The font size and line spacing chosen for the legend can have a huge impact on design. 9pt Arial text is remarkably clear to read when laser printed. The use of larger text is unnecessary except, perhaps, on maps for the partially sighted in schools etc.

The smaller area taken up by 9pt text allows considerably more freedom when considering layout issues. 140% line spacing is about the smallest setting acceptable without the text looking too cramped.

When adjusting line spacing in the text editor, ensure that 'Space after Paragraph' is set to zero and just use the line spacing setting. A space after paragraph value is not needed for a legend and is best avoided by mappers who don't know why it's there.

## Arrange Symbols in Groups

Maps use Area, Line and Point symbols. It is useful in terms of reading efficiency if each symbol type is positioned within a specific symbol group within the legend.

If space permits, leaving gaps between the symbol groups allows each group to stand out clearly against the others.

### Group Positioning

Positioning the area symbols at the top of the legend provides solid blocks of colour which seem to act as a frame for what goes below which seems visually satisfying.

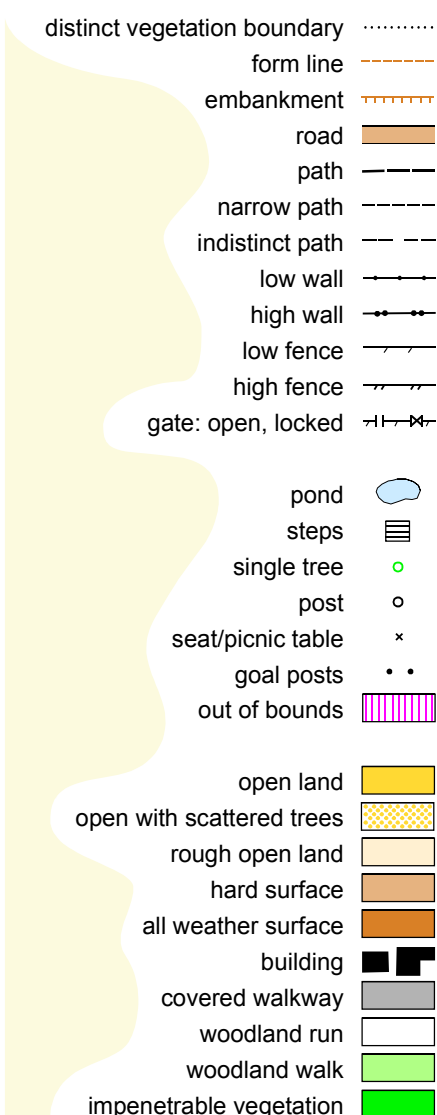
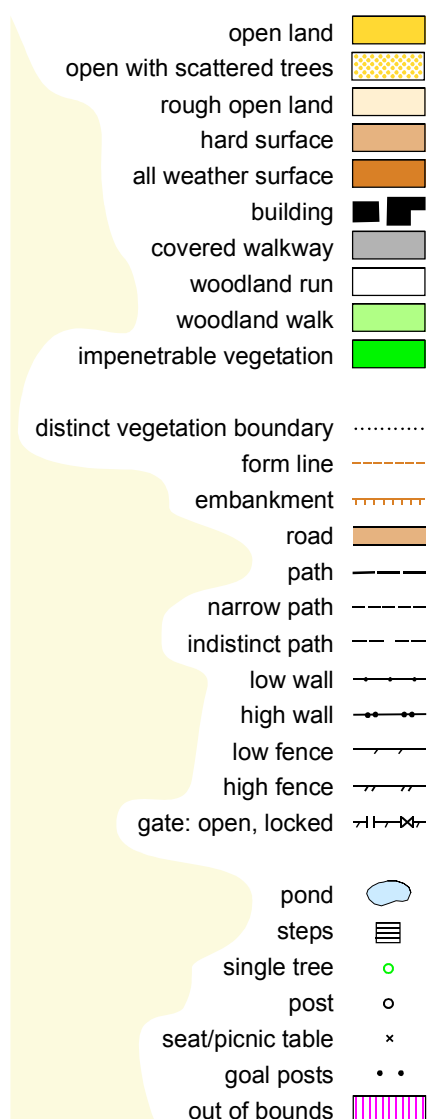
However .....

The positioning of the symbol groups can affect the resulting outline shape of the text and whether it will fit round the cartography in a satisfactory manner. Having the area symbols at the top will not always allow the legend to fit in the space available.

For three different symbol group types there are six possible arrangements and it may be worth considering which will fit around the map in the most appealing fashion.

### Area Symbols

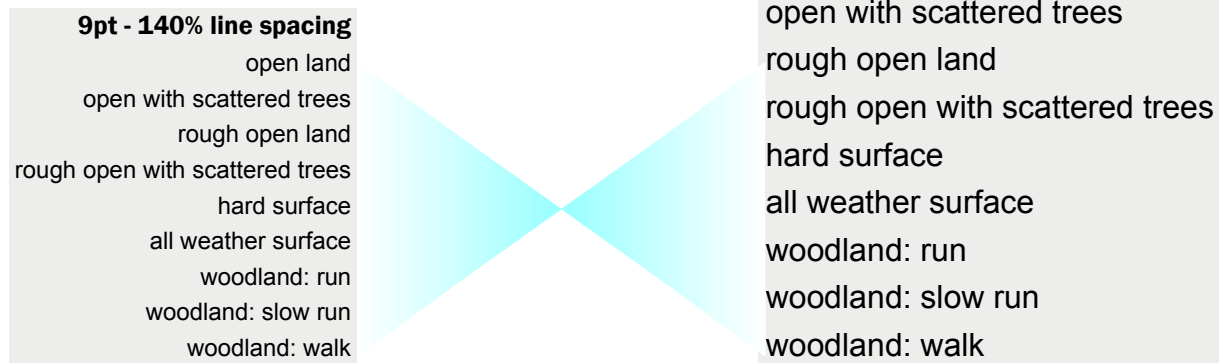
Area symbols in a legend look best if they are not too large in relation to the font size. Spaces between them help each one to stand out clearly. Taller symbols merged one into the other look less attractive.





## Legend Readability

For a given angle of view, a compact legend will always enable more information to be viewed at once. Spreading out the legend text to make it (arguably) clearer to read can only be achieved at the expense of reading efficiency.



## Map Borders

The design of a map border can impact hugely on the overall appearance of a map. A bold border may look 'impressive' to an inexperienced designer but, in reality, it will generally serve only to distract attention away from what the user is really meant to be looking at. Generally, the less obvious the border, the more readily the cartography will stand out.



Narrow borders in a pale or medium tint are inobtrusive and allow the cartography to stand out more effectively.



If it really is necessary to add a second coloured line to a border then a thin one will generally look best.



Really thick, dark coloured borders can look overpowering. The effect really starts to look noticeable with widths above 2.5mm.



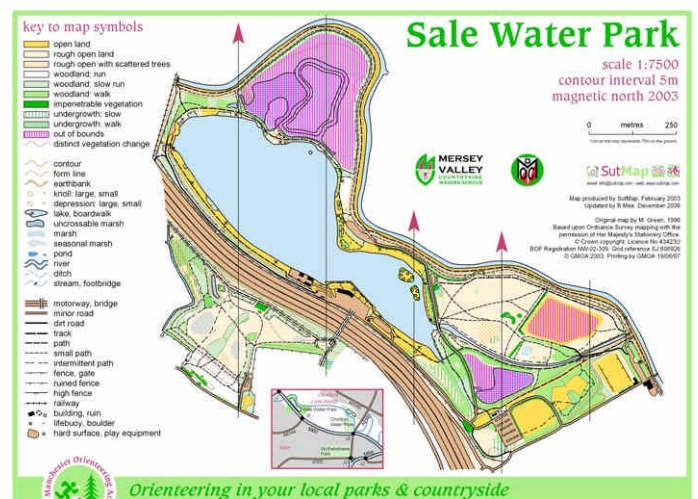
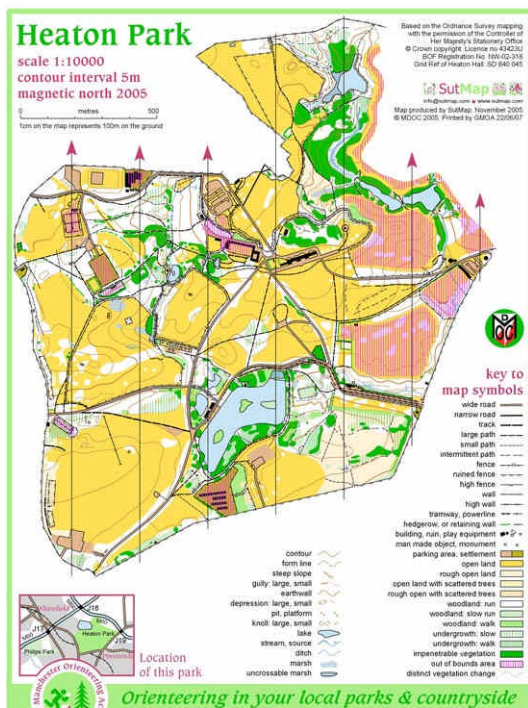
The use of flashy border colours is generally a definite no go for a refined, professional looking map.



## Problem Solving

Each of these maps was produced for a single organisation with a requirement for a corporate image applied to each design. Solutions to the problems created by the differing shapes of the cartography element can clearly be seen.

In the case below, there was insufficient space to fit the location map above the logo. The resulting relocation results, unavoidably, in a less attractive design. The importance of object positioning for best results can clearly be seen here.



## **Parting Thoughts**

Readers may be surprised to hear that the author is not an orienteer though he does know a great deal about orienteering. Brian has provided graphics support for orienteering in the Greater Manchester area for over 10 years in respect of both mapping and the production of materials for local coaching courses.

He has produced around 30 school maps, has mapped three local parks for POC use and has done a great deal of update work on local POC maps. Additionally, for the last four years he has taken on the role of monitoring layout standards locally and has amended the layouts of over 100 school maps, produced by other mappers, to a high standard to maintain a uniform corporate image. He has also performed a similar role for many local POC maps.

The Map Group hopes that the example set by Brian, Jon and other leading map designers will inspire all mappers to pay close attention to design issues such that all maps can look truly professional.

## **Acknowledgements**

Jon Sutcliffe for mapping and updating many local POC areas prior to Brian's own involvement. Jon's fine work on map design provided a great example to follow and he willingly gave considerable advice to form the basis for Brian's subsequent work.

Jon Sutcliffe and Colin Spears for scrutinising this document and offering advice which has contributed to a better result.

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Brian Mee

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Greater Manchester Orienteering Activities

Jon Sutcliffe for the cover design map extract



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