MAPsport's ISOM/ISSprOM Symbol Combination

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Background

There's a yawning gap between areas suitable for mapping to ISOM (which specifies 1:15,000) and areas suitable for mapping to ISSprOM (1:4000). This includes many areas used for club events week in week out. And it includes areas used for beginner/sprint MTBO. While it is desirable to follow international specifications, they get twisted in the process and we end up with maps that are neither consistent nor usable. In particular ISOM doesn't let us represent the detail we want to use in small areas; and ISSprOM is illegible in steep or non-urban settings. The brown paths are a particular problem.

Using Hutt Valley areas, Michael Wood has developed a combination symbol/colour set for OHV's parks and bush reserves. It is nominally at 1:5000, though it could be used from 1:5000 to 1:7500 – different areas have differing amounts of detail. If you used it at 1:4000 you would get something a sprint map though containing some non-standard symbols. If you used it at 1:10,000 you would get something like a forest map, and you may wish to use the "proper" specifications for these 😊

Please note that these symbol sizes are designed for orienteers in the prime of life, and the print scale needs to be enlarged for older/younger orienteers. We recommend enlarging (at the print stage) to at least 133% for orienteers over 40 and up to 14, and at least 150% for orienteers over 60 and up to 12. For club events where you get a mixture, go big! Until you reach A3 paper size, what's the downside?

Michael has used the symbols for many OHV maps and MAPsport Services clients. This document describes the symbol set and colours. It is also available as an OCAD file. In the file, OCAD icons for introduced symbols are identified by a red square in the bottom left of the icon space. Symbols from ISSprOM which are avoided are there but protected.

This is a step towards an all-purpose symbol set for any orienteering map. The biggest obstacle to getting there remains the colours and colour order.

Origin and Numbering of Symbols

The symbol/colour set is ***based on the OCAD implementation of ISSprOM at May 2022, known as ISSprOM2019-2***. (Note that the colour order changed at the end of 2019 AFTER ISSprOM was first published, ***and there were changes to ISSprOM at the beginning of 2022***.) We describe additions to those symbols and colours, some that are not used, and a few that are changed.

Symbols have been "borrowed" from ISOM with a size increase to 150%. (In other words, at the 1:10,000 sizes.) Symbols have been "borrowed" from ***the original*** ISMTBOM again using the 150% size. Symbols have been "borrowed" from an IOF/OCAD symbol set for school mapping, using 80% of their size.

Symbols have been included for cartography aids and map management – designed to be hidden on production prints. These are separately described in the document “MAPsport’s Hidden Symbols”.

We note with relief that the various IOF specifications use symbol numbering that is coordinated. This wasn’t always so, and a few anomalies persist. OCAD symbol numbering follows this, with subscripts often indicating variations, eg 123.001 is a variation on 123.000. Knowing that IOF and OCAD will invent new symbols and variations, we tend to use eg 123.900 etc to try and insulate ourselves from change.

The IOF doesn’t specify a numbering for colours. OCAD does however, using numbers in the 1-99 range. After discussion with OCAD we have numbered additional colours in the 901-999 range. We note that OCAD 8 cant handle 900 numbers but expect that use of this software is low and will diminish.

What follows is a table of fine print because this is a collection of map-maintenance detail. There is no agreement by anyone else to use these symbols or numbers, though their use would minimise symbol table bloat. They are recorded here mainly for the benefit of OHV, MAPsport's clients, and anyone working on maps that Michael Wood has produced.

Symbol additions are in a normal font. Symbol variations are in bold. Symbols we stay away from are in italic.

Landforms

- Contour interval – 5m suits many areas where we have used these symbols. This is a major contributor to improved legibility on steep terrain. But see below.
- 101.900, 102.900, 103.900, 101.901, 103.901 Contour/Index contour between the usual contours, associated slope tag and formline. These allow finer contours (eg 2.5m) to be separately identified in the file so that the contour interval can be halved/doubled with a couple of clicks. Eg in Wgtn/Hutt Valley mapping where 2.5m may be wanted for flat urban areas but that doesn’t work for hilly areas. You don’t HAVE to have these extra contours!
- 101.950, 10**2**.950, 101.951 Contour/Index contour from “other mapping” and associated slope line. Might be used for raw contours which are sometimes too fine and wiggly, or for old contours while new ones are being developed. File size can be reduced significantly by deleting these contours when a map is “finished”, but its sometimes useful to have them immediately available for progressive map updating. (PS export before deleting, never throw source material away completely!)
- 104.001 Earth bank topline only. 104.004 Tag line used with above for DIY earth banks eg very high or curvy ones. Both as used in ISOM.
- 104.900 Earth bank with shorter tags (two thirds) for places where there isn’t much room; eg useful alongside roads and tracks.
- 106.000 Ruined earth wall, as used in ISOM.
- 107.900 Large erosion gully with point at one end only. Handy for branching gullies where you don't want an end to taper into a junction.

Rock and Boulders

- 201.002 Impassable cliff topline only. 201.003 Tag line used with above for DIY cliffs eg very high or curvy ones. Both as used in ISOM.
- 204.001 Medium boulder, as used in ISOM.
- 207.001 Boulder cluster, 20% larger than normal. Its in ISSprOM, but inexplicably missing from the OCAD symbol set.
- The 208.00x symbol numbering in ISSprOM is strangely different from OCAD's ISOM numbering
- 208.904 Minimum Boulder field consisting of two triangles. This is used in ISOM, but keeping clear of OCAD's messy numbering!

Water and Marsh

- 302.905 30% Blue area only. OCAD gives us this symbol with a built-in border but not without. (It provides a 100% blue and reluctantly gave us a 70% blue but not the 30%.) I prefer to draw my lake borders separately, as they sometimes don't go all the way round, eg at the edge of the map.
- 304.000 Crossable stream over 2m, as used in ISOM.
- 304.900 Uncrossable stream similar width to above, with its own black sidelines. There may be steep-sided channels associated with water storage dams, and you might not want crossing even in urban parks.

Vegetation

- **402.000, 402.001, 404.000, 404.001 The spacing increased by about 20% and the dot size reduced by about 20%, to make the symbols look more "scattered" and less like just another shade with poor light or older eyes.**
- **402.001, 404.001 The green-dot versions of scattered trees, the dots increased from 60% to 100% green for the same reasons as above.**
- **410.002 Hedge of "fight" increased to 0.4mm as 0.25 in spec seems an anomaly**
- 410.900 Large green blob for eg patches of fight not quite big enough to shape. Its about the footprint of the big distinct tree; and about twice the area of the small distinct tree.
- 417.900 and 418.900 Smaller (two thirds) versions of the big and small distinct tree. May be used to create ultra-detailed parts of the map to be used for maze-type events or parts of a course at a seriously enlarged scale. Such symbols are otherwise hidden. See also 531.9xx and 541.000ff, which might be used in the same way. This is an extremely clumsy step towards making a map which changes detail when you zoom in and out, as you have all seen on the web.

Man-made features

- *501.00x and 501.01x ISSprOM symbols for paving and paved paths and roads with light traffic are NOT USED. Neither are 501.200, 501.300, or 505.000 to 003.They use light brown and the result is to make them very hard to see in a rural context – this colour is quite similar to pale yellow. They are especially bad on steeper slopes where tracks often follow contours – they can even become invisible.)*

- **501.02x and 501.03x ISSprOM symbols for paving and paved paths with heavy traffic are used no matter what the traffic might be. (This is ridiculous, if heavy traffic can't be excluded then it should be made "out of bounds"!!! But this move is mainly about using the darker brown for legibility.) See below for alternative paved and unpaved symbols for a wider range of widths.**
- *501.300 is NOT USED. It uses light brown which we don't like, see above.* **We use the darker version 501.301 regardless of traffic. As with vegetation symbols above the dot spacing of both are increased by about 20% and the dot size reduced by about 20%, to make the symbol look more "scattered".**
- 501.921 We see a need for a paved area symbol which covers road sidelines eg for bulges and tapers from standard-width symbols, so this is an alternative to 501.021. We occasionally see a need for a similar symbol which lets the white halo of a distinctive tree show through – 501.922 – but it doesn't cover sidelines!
- 501.923 Darker yellow area to go with mowed grass "paths" eg in a cemetery setting. See Darker yellow "paths" below. Analogous to paved area above.
- 502.202, 203, 204, 206, 208, 210, 212. Set of alternative paved paths/roads using the darker "high traffic" brown fill. This is often faster than drawing sidelines plus fill. Symbol names/numbers reflect width at a scale of 1:5000 but this link would not apply at other scales. (NB 502.202 is really a bit thin, see 505.900 which might be better provided there isn't too much black around.)
- 502.292, 293 Darker yellow "paths" with black sidelines for use with mowed grass in a cemetery setting.
- 502.904, 906, 908, 910. Roads of various widths with red infill. An elegant way of showing out of bounds main roads, by changing the fill colour to red. Other methods clobber paths that go closely alongside, eg on bridges. Of course its an unfortunate colour for colour-blind people.
- 504.202, 203, 204, 206, 208, 210, 212. Set of alternative unpaved paths/roads using the darker "high traffic" brown fill. This is often faster than drawing sidelines plus fill. Symbol names incorporate width at a scale of 1:5000, but this link would not apply at other scales. (NB 502.202 is really a bit thin, see 505.900 which might be better provided there isn't too much black around.)
- 505.004. Given the higher black as for "step/edge of paved area", otherwise the brown can eat into it.
- 505.900 Bigger black dashed track as used in ISOM. I use this for CONSTRUCTED paths under 2m instead of the brown sandwich as it stands out much better. The smaller dashed line 506.000 is used for informal tracks. Avoid both black tracks among urban walls but ideal in bush/open areas.
- 512.100 Bridge side symbol updated to new spec but (a) all need reversing and (b) probably everything round bridges needs review anyway.
- 512.900 Bridge with no ends, as sometimes the small leg on the end is inappropriate. Now redundant – see new sawtooth symbol bridge 512.100. Leave in until all bridges reviewed.
- The std fence symbol 516.000 is used for "fences on all maps". Other fence varieties as follows: 516.900 fence no tags on all maps (useful for stockyards). 516.901 fence on some maps (to allow hiding). 516.902 fence no tags on some maps (to allow hiding).
- **The ISOM ruined fence number 517.000 is used, but the gap is** doubled (formerly trebled)**. The rationale is that it should clearly be used for, and look like, a fence with gaps. An old fence which still has continuous wires and takes time to cross is functionally no different for the orienteer than a new fence.**
- 517.900 ruined fence on some maps (to allow hiding).
- 519.000 Crossing point. My convention is that no crossing point symbol is used where a road or track crosses the fence, since a crossing point is implied. Other varieties as follows:

519.900 Smaller (66%))crossing point, the std one is sooo big! 519.901 Smaller crossing point on some maps (to allow hiding). Don't forget to hide these crossing points if you are hiding the fences!

- 520.900 Area not fieldworked. Especially handy in urban areas, can underlie everything and detail be progressively drawn on top. Past practice is to use a gray for this, gradually getting used to olive green, see colours.
- 521.901 60% Black building fill. OCAD gives us this symbol with a built-in border but not without. I like to be able to draw my own large building borders which sometimes need to be interrupted.
- 522.901 Canopy area only. OCAD gives us this symbol with a built-in border but not without. I like to be able to draw my own canopy borders which sometimes need to be interrupted.
- 523.000 Ruin as used in ISOM. I use them for kids' huts and forts. 523.001 minimum ruin as used in ISOM.
- 531.900 Grave, as used in the old ISOM/ISSOM. Also 531.901, 902, 903, 904 X's for special objects type 1, 2, 3 and 4. I use 901 for seats, normally hidden, but can be revealed for large-scale special maze courses. Others have a meaning only for a particular map.
- *532.000, 001, 002 ISSprOM symbols for stairways are NOT USED. They use light brown and the result is to make them illegible in a rural context; especially on steeper slopes.*
- 532,202, 203, 204, 206, 208. Stairways of various widths with NO infill. Fill them with either the corresponding path, or paving, or canopy, or two-level canopy etc.
- 541, 542, 543, 544, 545. Some symbols from the school spec reduced to 80%. I regularly use 542.000 Table for picnic tables and fixed barbeques but don't usually show seats. Others might be used for objects revealed only at a large scale, otherwise hidden.

Technical, Course Planning and other symbols

- 601.901 Blue north line with arrow-head. May be "drawn" with OCAD's "create grid" tool. When interrupting these lines for detail, turn the southern section into a regular north line to avoid a second arrow-head.
- 709.000 Purple cross-hatch. To see detail through it we have increased spacing by 20% and reduced line thickness by 20%. Spec now uses my line thickness, and even greater spacing.
- 711.000 Forbidden route purple X from ISOM
- 711.002, 711.003 Zig-zag "Do Not Use" symbol from ISMTBOM.
- 712.000 First aid symbol from ISOM
- 713.000 Drink station symbol from ISOM
- 831.000 to 840.000 MTBO track and other symbols (NZ version).
- The foregoing are all supposed to scale up with larger print scales, although one might wonder about the 600- series. The 900- series which follows relates to layout, and should NOT scale up. Unless you want the map to look like a childrens story-book.
- 904.000 to 948.999 various text symbols, with the 2nd and 3rd digit implying the point size. Generally the .000 and .001 suffixes are used for arial fonts, and .005, .006 suffixes for fancy fonts. I like Segoe Print, modify to your own favourite.
- 960.000 Border lines here, just have a simple thick green one, modify to your own favourite.
- 961.000, 001, 002, 003. Various areas for use by logos. 962.000, 001, 002, 003. Various lines for use by logos. Adapt to your own requirements but stay in this number range.

Colours

The colour table is based on the ***May 2022*** OCAD default, which follows ***the IOF Map Specifications Printing and Colour Definitions.*** (This was previously called the ISOM Appendix 1, which had a Chapter 7 dealing with ISSprOM. Whew!) Note the colour order has changed since ISSprOM was first

published in 2019 ***and there was a small change in 2022***. Quite a convoluted situation. Note the colours are for offset printing, they state that every laser printer is different so we have to tune our own. **We have made some changes to brown and blue based on OHV's printing service.**

The IOF does not give colour numbers, these have been made up by OCAD. And OCAD has made up additional colours to achieve particular results, eg street infill overpowering sidelines at junctions.

We have attempted to stay clear of current and future OCAD colour numbers by adding new/alternative colours using 900-series numbers, with the last 2 digits referring to a related OCAD number. Some of them are not used on this map but are part of a wider picture.

In colour table order from top to bottom:

- 912 Overpowering gray. Non-spec colour to delineate a path within a wide underpass area such as occurs under bridges over a riverbank area – an unauthorised Michael technique. Above everything except course markings, use with discretion. Normally same as the canopy gray ie 20%. Should be obsoleted by ISSprOM2019-2 but leave in just in case.
- 902 Black for MTBO symbols and text. This alternative black lets all the other black symbols be reduced for MTBO with a couple of clicks (ie change Black 2 to 70%) while retaining THESE symbols at full strength.
- 908 Red road infill. An elegant (although bad for colour-impaired eyesight) way of showing OOB major roads is to use a red infill. Have sometimes used red circles too, eg special controls in score events. Placed just below black.
- 916 Dark blue for artwork. 100/100/0/25. Have sometimes used blue circles too, eg special controls in score events. Placed just below lower purple for course planning.
- 944 Brown 50% for stairs (for legibility reasons as for paths). Placed next to Brown 30% for stairs - fairly high up. I think these special stair browns are a shortcut to hide contours passing under stairs without having to cut them.
- **15 Brown. We bump up the magenta and black percentages by one third to ensure contours don't get lost. The shades of brown for paving are left as they are.**
- 942 Upper yellow for grass paths eg cemeteries. This is 25% more of all components. Placed with the street infill as it needs to overpower sidelines at junctions in the same way.
- **14 and 16 blue. We add 30% magenta to the pure cyan. We think this is the way it used to be – anyway gives water features more visibility. 17 blue 70% and 3 blue 30% magenta added in proportion.**
- 932 Orange for smooth MTBO. The new MTBO spec has this bilious colour for ridable off-track land. NZ doesn't like it, here just in case it finds a use. Placed above colour 32 100% Yellow.
- 33 Yellow 75% from ISOM for large areas
- 935 Yellow 37.5% to be used for pale yellow (rough open etc) when the full yellow is toned down by a quarter for largely open maps. Appears to be an oversight in the spec, and OCAD has resisted a request to provide it. Placed just below colour 34 50% yellow.
- 939 Lower brown 50%. This is the one used for paving that shows distinctive trees properly. Have put it with Lower brown 30%.
- 924 Lazy Olive Green. Version of the OOB olive (colour 24) placed at the very bottom of the colour order enables whole suburbs or farms etc to be coloured in, with passable features progressively drawn on top as required.
- 930 Lazy Gray. OHV's traditional "not mapped" colour has served us well for years. 30% black. May be able to abandon it in favour of Lazy Olive. Bottom of the colour order.