

# EMOA Officials Conference 2025

IOF Mapping Standards Update

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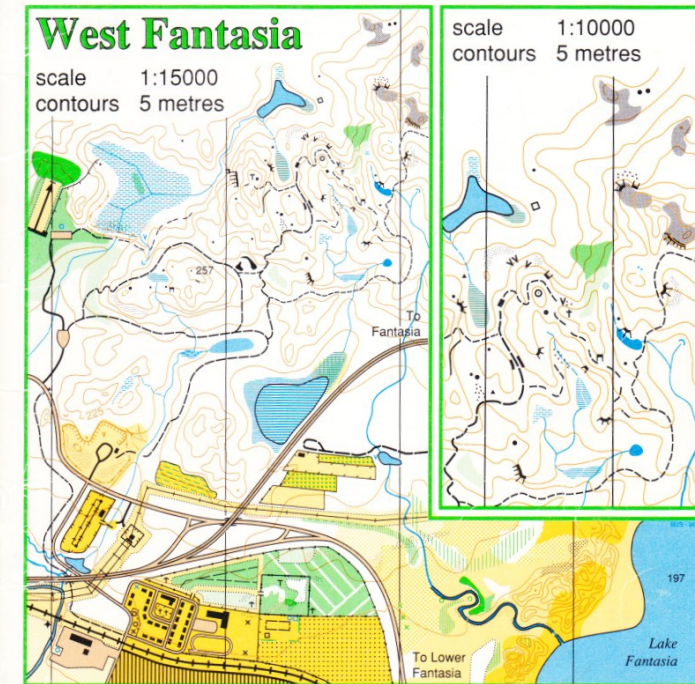
# IOF Mapping Standards

- “It is of the greatest importance that the maps used for international competitions all use the same symbols and are drawn to a common set of basic rules. Only if these recommendations are followed will competitors have an equal chance of good **results**.” - July 1975 IOF Map Committee
- The experience of competitors and fairness of competition depends on clarity of the map. The IOF specifications are designed to do this and to produce a printed map that is readable.
- Oversight of new maps by Map Group disappeared in 2009. Great number of changes since then, it looks to fall more to planners and controllers to act as overseers of map quality.
- Who has read the latest ISOM and ISSprOM specifications?

# Brief History of ISOM

- First Introduced in 1975
- Used for Worlds Champs in Scotland 1976
- Has remained basically the same
- Major revisions in
  - 1982
  - 1990
  - 2000
  - 2017
  - Revisions in
    - January 2019
    - September 2022
    - January 2024
- Greater emphasis on clarity

## International Specification for Orienteering Maps



INTERNATIONAL ORIENTEERING FEDERATION 1990

International Orienteering Federation, P O Box 76, S-19121 Sollentuna, Sweden

# ISOM 2017-2 Revisions

Rev. 5 September 2022 and Rev. 6 January 2024

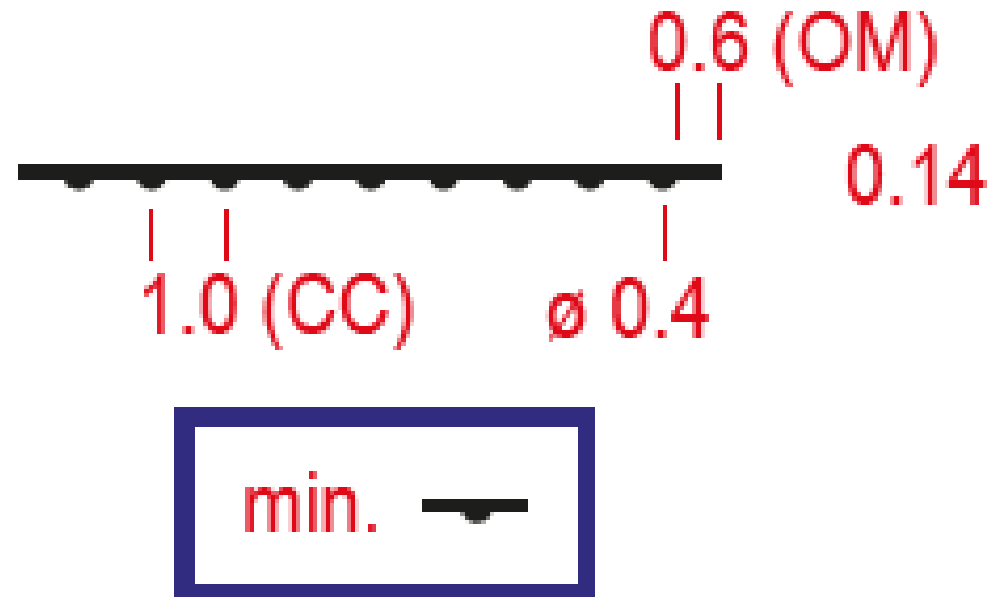
# ISOM 2017-2 - Rev. 5

## 513.2 Retaining wall (L)

A significant wall of stone, concrete, wood or other materials which is seen only from one side. Half dot must point to the lower level.  
Minimum height: 0.5 m.

Minimum length (isolated): 1.4 mm  
(footprint 21 m).

Colour: black.



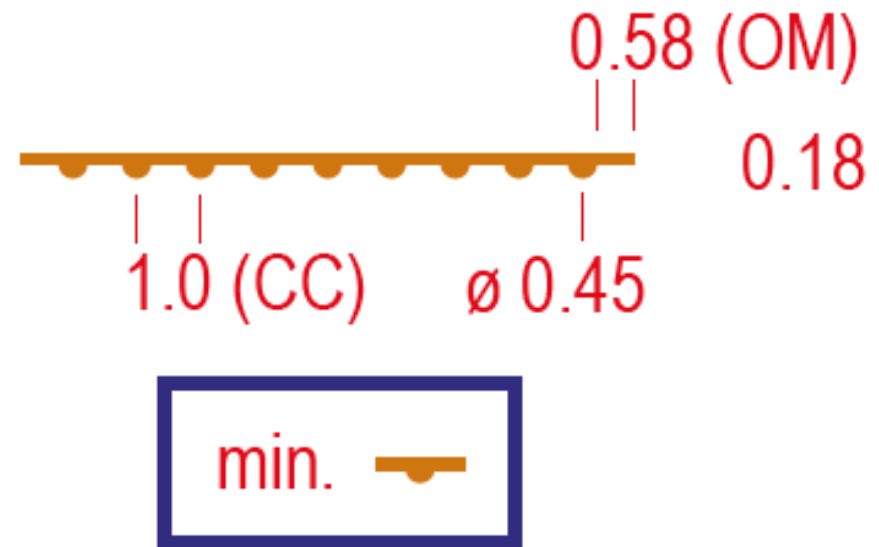
# ISOM 2017-2 - Rev. 6

## 105.2 Retaining earth wall (L)

A retaining earth wall is an abrupt change in ground level which can be clearly distinguished from its surroundings used for minor peat edges and cultivation terraces. If such a feature is higher than 1 m, it should be drawn with the symbol Earth bank (104).

Minimum height: 0.5 m, minimum length (isolated): 1.4 mm.

Colour: brown.



# ISOM 2017-2- Rev. 6

## 203.2 Dangerous pit (P)

A highly dangerous pit, vertical shaft or abyss where a fall into the pit could cause severe injury or death. It is strongly recommended not to use such a feature as a control point. If this object is part of a possible route choice, it should be marked in the terrain with tape.

Footprint: 13.5 m diameter.

Colour: black, white.

0.9 (OM)



0.35

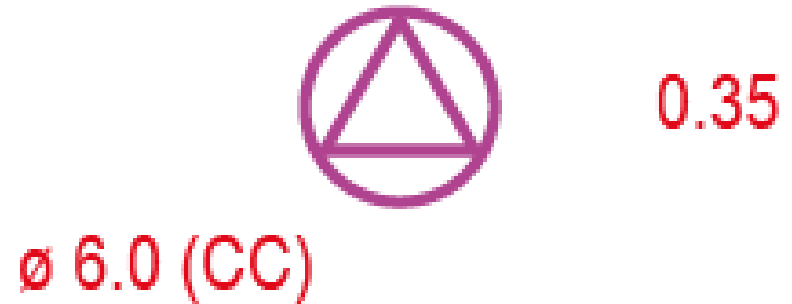
# ISOM 2017-2 - Rev. 6

## 715 Continuing point after map exchange (P)

Symbol marking the continuation of the course after the map flip or the map

exchange. The triangle points in the direction of the following control.

Colour: purple (lower purple).





# Definition of impassable / uncrossable

- New in 2024 in para. 1.1 Conventions
- **Impassable / Uncrossable** features mean that a feature is too difficult or dangerous to go through or over by the average elite orienteer under normal conditions. It is not forbidden, but it may pose a risk to the competitor.
- Discuss

# ISOM 2017-2 Changes from 2017:

- 18 changes to symbols, colour and dimensions.
- 8 changes to minimum dimensions
- 15 changes to the symbol definitions
- 58 changes in total.

Errata (changes to the document):

Date	Nr	Symbol	Description
20.01.2020	415	Distinct cultivation boundary	Change of line width: 0.14 --> 0.10 mm.
20.01.2020	214	Bare rock	Change of colour: grey or black 25% --> black 30%.
20.01.2020	521	Building	Change of colour: black 65% --> black 60%.
20.01.2020	701-713	Course planning symbols	Precise definition of colour: upper and lower purple.
23.01.2022	108	Small erosion gully	Minimum number of dots: 3 --> 2.
23.01.2022	416	Distinct vegetation boundary	Change of color: green 100% and black 50% --> dark green (100 0 80 30).
23.01.2022	513.1	Wall	Change of symbol number: 513 --> 513.1.
23.01.2022	513.2	Retained wall	New symbol.
23.01.2022	521	Building	Change of colour of large buildings: 60% --> 50%.
23.01.2022	601	Magnetic north line	Change of line width of blue line: 0.18 --> 0.12 mm.
23.01.2022	709	Out of bounds area	Change of line width of cross hatch: 0.25 --> 0.2 mm; Change of gap of cross hatch: 0.8 --> 1.2 mm; Change of minimum sizes.
15.02.2022	307	Uncrossable marsh	Change of minimum size.
15.02.2022	408	Vegetation: walk	Correction of the graphic of the symbol.
15.02.2022	416	Distinct vegetation boundary	Correction of minimum size.
15.02.2022	514	Ruined wall	Correction of the graphic of the symbol.
15.02.2022	517	Ruined fence	Correction of the graphic of the symbol.
15.02.2022	520	Area that shall not be entered	Correction of minimum size.
15.02.2022	711	Out-of-bounds route	Correction of the graphic of the symbol.
07.04.2022	704	Control number	Change of colour: upper --> lower purple.
16.09.2022			Correction of the name of the Colour appendix.
16.09.2022	104	Earth bank	Correction of the graphic of the symbol.
16.09.2022	201	Impassable Cliff	Correction of the graphic of the symbol
16.09.2022	202	Cliff	Change of minimum distance: 0.2 --> 0.15; Correction of the graphic of the symbol.
16.09.2022	206	Gigantic boulder or rock pillar	Correction of Minimum size: 0.3 --> 0.25.
16.09.2022	408	Vegetation: walk	Addition of colour green 30%.
16.09.2022	410	Vegetation: fight	Addition of colour green 60 % / green 30%; Correction of green 20% --> green 30%; Correction of the graphic of the symbol.

# ISOM 2017-2 Changes from 2019:

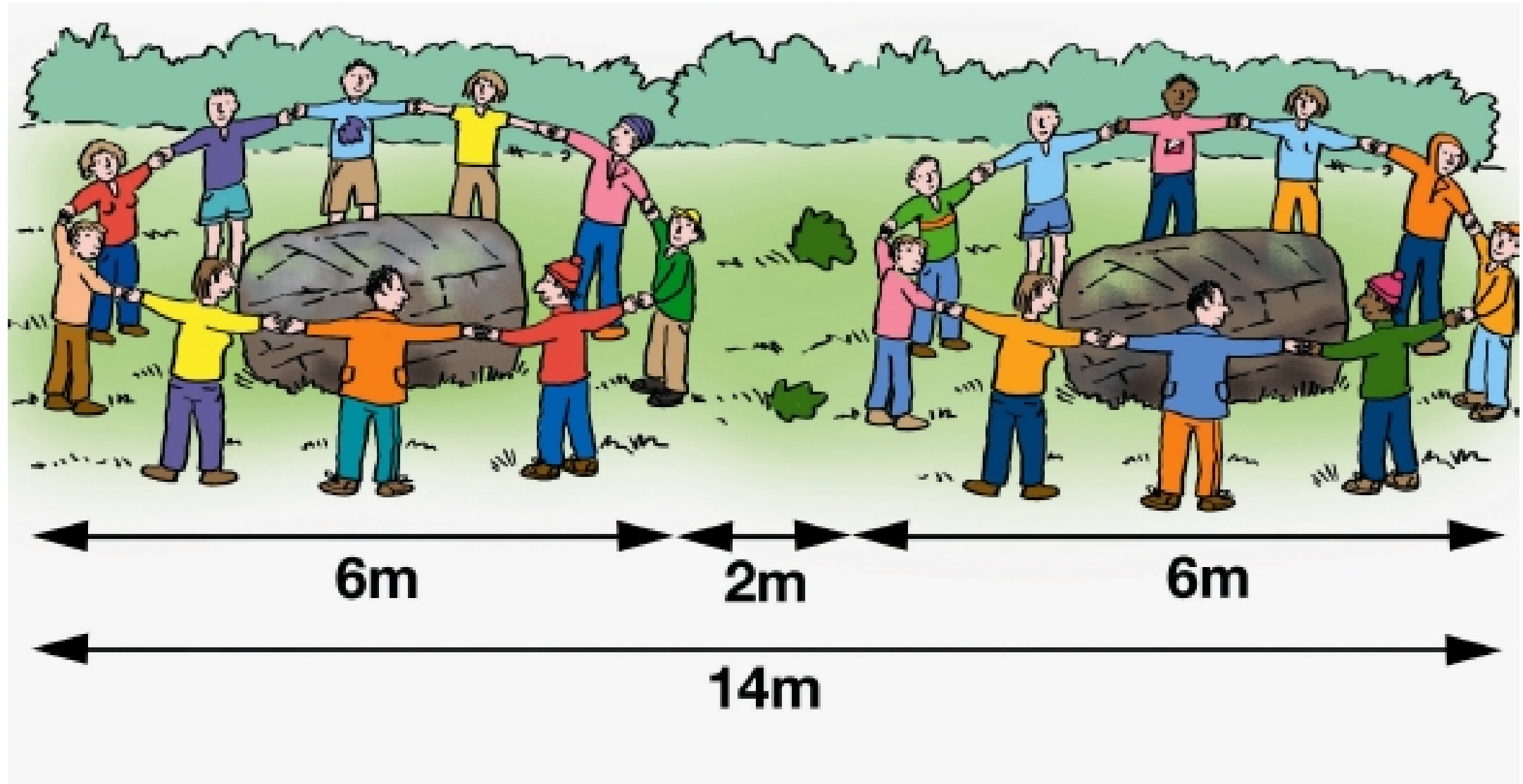
Contour	Change of text: Contours shall be adapted or broken
Earth bank	Change of line width: 0.18 --> 0.25 mm.
Earth wall	Renumbering of symbol.
Retained earth wall	New symbol.
Erosion gully	Change of footprint: 17 --> 17.25 m; Change of text: Contour lines may be broken around this symbol for better readability.
Small erosion gully	Change of text: A small erosion gully or dry ditch. Contour lines shall be broken around this symbol.

# Symbol Footprint

- Smallest point feature symbol is a small boulder / black dot.
- $15,000 \times 0.4 \text{ mm diameter} = 6 \text{ m diameter}$
- 6 m diameter has circumference of 19 m.



# Symbols Footprint



# ISSprOM 2019-2 Revisions

Rev. 6 January 2024

# Brief History of ISSprOM 2019-2

- First Introduced in 2004 - Sprint and Urban mapping
- Major revisions in
  - ISSOM 2007
  - ISSprOM 2019
  - Revisions in
    - January 2020
    - January 2022
    - January 2024
- Guidelines for complex urban structures - January 2022
- Best practices for sprint mapping - May 2025

# ISSprOM 2019-2 - Rev. 5

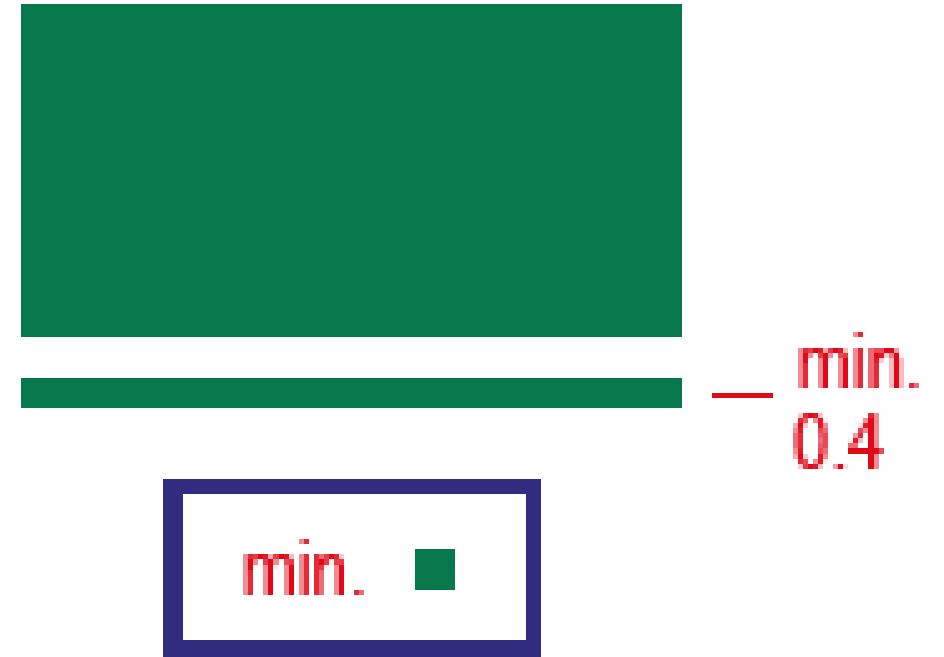
## 411 Uncrossable vegetation (A)

Uncrossable vegetation is an area of vegetation (for example a hedge) that shall not be crossed or passed through since there may be a danger that private property or the vegetation itself is damaged.

Minimum area: 0.3 mm<sup>2</sup> (footprint 5 m<sup>2</sup>).

Minimum width: 0.4 mm.

Colour: dark green



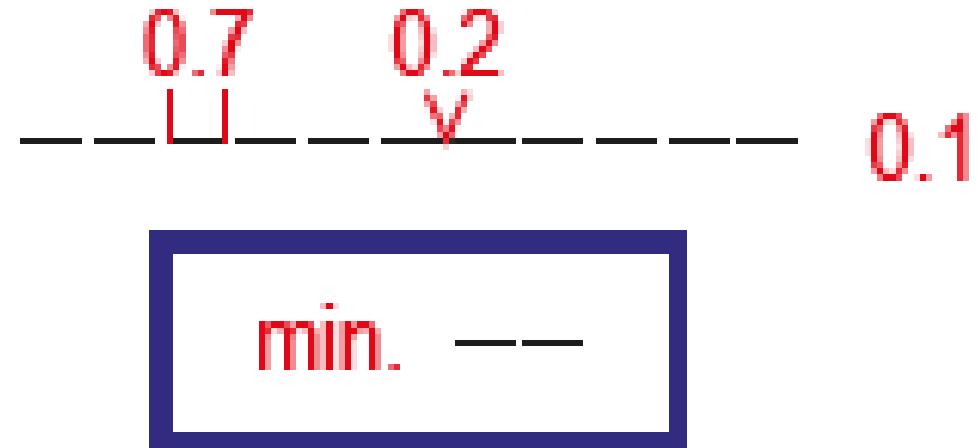


# ISSprOM 2019-2 - Rev. 5

## 501.2 Step or edge of paved area at lower level (L)

This symbol shall only be used in large areas with two levels, when it is necessary for orientation. A cartographic gap of 0.15 mm shall apply at both ends of the line.

Colour: black



### 3.3 Use of new symbol 501.2 Step or edge of paved area at lower level

If the two-level area structure is large, mapping of important edges at lower level using symbol 501.2 Step or edge of paved area at lower level can help navigation. Cartographic gap 0.15 mm is applied on both sides of the bridge. No other symbols shall be used on the lower level.



Photo not available

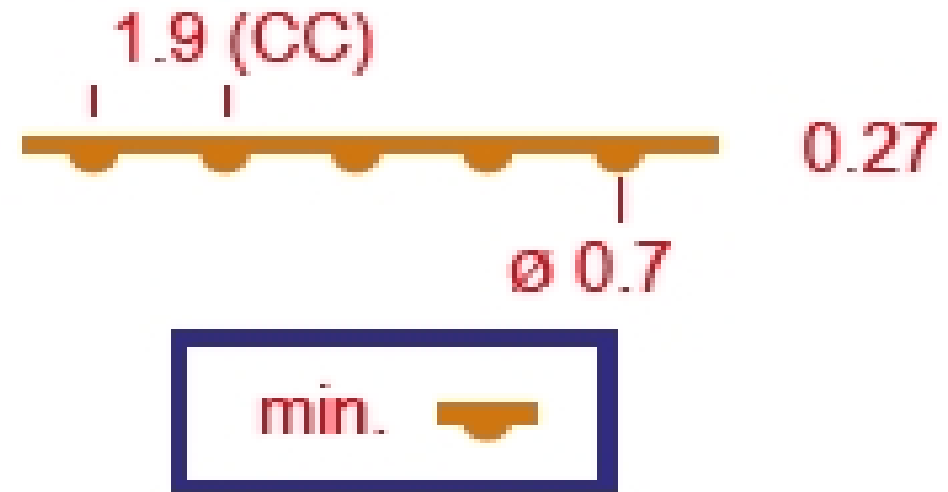
# ISSprOM 2019-2 - Rev. 6

## 105.2 Retaining earth wall seen only from one side (L)

A retaining earth wall is an abrupt change in ground level which can be clearly distinguished from its surroundings used for minor peat edges and cultivation terraces. If such a feature is higher than 1 m, it should be drawn with the symbol Earth bank (104).

Minimum height: 0.5 m.

Minimum length (isolated): 1.4 mm (footprint 5.6 m).



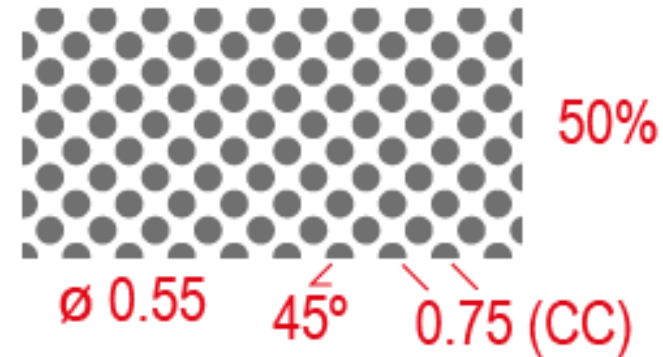
# ISSprOM 2019-2 - Rev. 6

## 533 Area with obstacles (A)

An area with several man-made features that are too small or close to be mapped individually and that constitute obstacles to the runners. The area cannot be crossed at full speed.

Minimum area: 65 m<sup>2</sup>

Colour: black 50%.



# ISSprOM 2019-2 - Rev. 6

## Area with obstacles (533)



Due to the illustration in the specification, the mapper believed that this symbol shall have a white background. Additionally, the diagram in ISSprOM section 3.5 was not updated with the new symbol corroborated this view.



It is the intent that symbol 533 is to be combined with any colour, such as 30% brown, 100% yellow, 50% yellow or white forest.

# ISSprOM 2019-2

## Changes

- 23 changes to symbols, colour and dimensions.
- 9 changes to minimum dimensions
- About 10 changes to definitions and how the symbol is used, and these are dealt with in more detail in the Best Practices document.
- 67 changes in total

Errata (changes to the document):

Date	Nr	Symbol	Description
20.01.2020	701-714	Course planning symbols	Precise definition of colour: upper and lower purple.
17.05.2020	501.3	Paved area with scattered trees	Correction of the symbol for exaggeration from Open Land (401) to Paved area (501); Complementing 50% to the colour brown; Correction of the percentage in the graphic: 30% (50%).
17.05.2020	101	Contour	Adding Stairway (532) as a symbol, where contour lines shall be cut out for better legibility.
02.01.2022	104	Earth bank	Correction of dimensioning corresponding to the precise definition of symbols.
02.01.2022	108	Small erosion gully	Change of minimum number: 3 → 2 dots.
02.01.2022	201	Uncrossable cliff	Change of the name of the symbol; Correction of dimensioning corresponding to the precise definition of symbols.
02.01.2022	202	Passable rock face	Correction of dimensioning corresponding to the precise definition of symbols.
02.01.2022	410	Vegetation: tight	Change of the name of the symbol; Change of minimum width: 0.4 → 0.25 mm.
02.01.2022	411	Uncrossable vegetation	New symbol.
02.01.2022	417	Prominent large tree	Change of diameter of symbol (white mask): 1.0 (1.2) → 1.2 (1.4) mm.
02.01.2022	501.2	Step or edge of paved area at lower level	New symbol.
02.01.2022	505	Unpaved footpath or track	Change of line width: 0.1 → 0.12 mm.
02.01.2022	512.1	Bridge or tunnel entrance	Change of the name of the symbol; New symbol graphics.
02.01.2022	512.2	Underpass or tunnel	Change of size: 0.25 x 0.25 → 0.25 x 0.2 mm; Change of gap: 0.25 → 0.2 mm.
02.01.2022	512.3	Area passable at two levels	Former symbol Paved area in multilevel structures (501.2); Completed with all possible combinations.
02.01.2022	515	Uncrossable wall	Change of the name of the symbol.
02.01.2022	518	Uncrossable fence	Change of the name of the symbol.
02.01.2022	521	Building	Change of colour: 60% → 50%.
02.01.2022	529	Prominent uncrossable line feature	Change of the name of the symbol.
02.01.2022	532	Stairway	Correction of the graphic of the symbol.
02.01.2022	701-714	Course planning symbols	Graphics of the symbols are drawn at the scale of 1:4 000
02.01.2022	709	Out of bounds area	Change of line width of cross hatch: 0.25 → 0.2 mm; Change of gap of cross hatch: 0.8 → 1.2 mm; Change of minimum sizes,
02.01.2022	710.1 710.2	Crossing point, crossing section	..., they may be emphasized ....

# Recommendations

- ISOM Rev 6 lists 58 changes in total
- ISSprOM 2019-2 lists 67 changes in total
- Many are aimed at improving clarity
- If a map pre-dates 2022 / 5 years the symbol set at least should be updated
- Discuss with mapper
- Updating Magnetic North
- Magnetic North continues to move by about 50 - 60 kilometres a year (about  $1^\circ$  a year)
- OCAD recommends changing MN only about every 5 years (not less).

# Sprint / Urban - Supporting Documents

- Guidelines for complex urban structures - January 2022
- Best practices for sprint mapping May 2025



# BOF Symbol sets - ISOM 2017-2

- Almost identical to OCAD symbol sets
  - Prominent small tree or bush: The BOF version has a 0.24 mm rather than 0.2mm white dot - for better legibility - although it has the same outside diameter.
  - Dangerous pit: The BOF version has a 0.24 mm rather than 0.2mm white dot - for better legibility. Line thickness is maintained so the outside diameter increases from 0.90 to 0.94mm.
- CMYK values are intentionally different to the IOF Printing Appendix for Blues.
- Darken Blend Mode overprint is ticked on for Purple and Brown 100%.

# BOF Symbol sets - ISSprOM 2019-2

- Almost identical to OCAD symbol sets
  - Prominent small tree or bush: The BOF version has a 0.24 mm rather than 0.2mm white dot - for better legibility - although it has the same outside diameter.
- CMYK values are intentionally different to the IOF Printing Appendix for Blues and Browns.
- Darken Blend Mode overprint is ticked on for Purple and Brown 100%.

# Proposed New MTB Symbol

- BOF Map Group initiative
- Intended for use in areas with permanent MTB Trails
- It is in the latest BOF symbol sets
- Proposed adoption by IOF Map Commission.

