Annex B

Proposed Redline Changes to S-4

B-412 SOUNDINGS

Charted soundings must represent the depth measured from Chart Datum to the sea floor placed in such a way that the centre of gravity (geometric centre) of the set of numerals coincides with the position referred to.

The standard units of measure for the display of depths, including drying heights, on charts must be metres (m) and decimetres (dm) (see B-130).

Rounding of depths, including drying heights, must always be on the safe (shoaler) side (that is: soundings must be rounded down and drying heights rounded up, if necessary). The rounding should be:

For depths

- to the nearest decimetre between 0,001 and 21m:
  0,001 to 0,099 rounds **down** to the nearest decimetre. For example: a recorded depth, adjusted to Chart Datum, of 4,38m rounds down to 4,3m.
- to the nearest half metre between 21.001 and 31m*:
  0.001 to 0,499 rounds **down** to 0,0. For example: a recorded depth, adjusted to Chart Datum, of 23,49m rounds down to 23m;
  0,501 to 0,999 rounds **down** to 0,5. For example: a recorded depth, adjusted to Chart Datum, of 23,81m rounds down to 23,5m.
- ~~thereafter,~~ to the nearest metre from 31,001m:
  0,001~~m~~ to 0,999 rounds **down** to ~~0,0~~ the nearest metre. For example: a recorded depth, adjusted to Chart Datum, of 31,85m rounds down to 31m.

* Soundings sourced from high order surveys using modern survey techniques may be of a degree of accuracy such that the depths between 21.001 and 31m may be rounded down to the nearest decimetre as for depths up to 21m.

~~For depths stored in a source bathymetric database, the above rounding conventions equate to truncating the stored depth values to the required resolution. For ENC where depths may be stored in the dataset to the nearest centimetre, all numbers after the second decimal place of a metre should be truncated. For display of these depths in ECDIS, rounding to the nearest decimetre should be applied between 0.001 and 31m; and to the nearest metre from 31.001m, in accordance with the above rounding conventions.~~

ENC may have different rounding rules as stated in the relevant standards.

For drying heights

- to the nearest decimetre:
  0,001 to 0,099 rounds **up** to the nearest decimetre. For example: a recorded depth, adjusted to Chart Datum, of -2,32m rounds up to -2.4m.

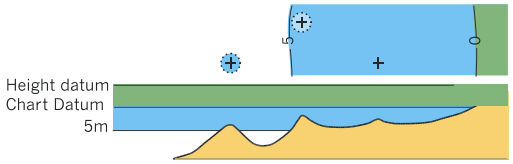
~~For depths stored in a source bathymetric database, the above rounding conventions equate to truncating the stored depth values to the required resolution and adjusting the resolved value up by one where any removed integer is non-zero. For ENC where drying heights may be stored in the dataset to the nearest centimetre, the second decimal place of a metre should be rounded up if required (for example, -2.321m rounds up to -2.33m). For display of these drying heights in ECDIS, rounding up to the nearest decimetre should be applied in accordance with the above rounding convention.~~

ENC may have different rounding rules as stated in the relevant standards.

However, these soundings must be adjusted as a function of the degree of accuracy with which depths were actually measured, so that the precision with which soundings are recorded on charts can never be misleading as to the accuracy of such soundings.

B-421.4 **Rocks which are always underwater** must be shown as follows, according to their depth:

a. Where the depth is unknown but the rock is considered to be dangerous to some surface vessels capable of navigating in the vicinity, by the symbol + with danger line and blue tint.



K13

b. Where the depth is known, by either:
- the symbol + with the depth, in metres and decimetres, alongside it in brackets, or
- by a sounding with the abbreviation for a rocky seabed beneath it (see B-425).

35
R **K15** Underwater rock of known depth, not dangerous to surface navigation.

Numerals for the depth must be shown, in metres and decimetres, in the normal style for soundings (see B-412). Blue tint should be added as appropriate to the depth.

If the rock is considered to be dangerous to some surface vessels capable of navigating in the vicinity, because the rock is significantly shoaler than the general depth in the vicinity, the symbol + or the sounding should be enclosed in a danger line.

……

B-422 **WRECKS, FOUL GROUND, OBSTRUCTIONS**

a. The **international abbreviation** '*Wk*' must be used wherever the symbol for a charted feature does not identify it as a wreck.

b. To give the mariner the maximum useful information, the least depth over a wreck (or, if unknown, an estimated safe clearance), in metres and decimetres, must be charted in preference to symbols K28 and K29. Numerals for the depth must be shown in the normal style for soundings (see B-412). An exception is the remains of a wreck which are charted as foul ground (see B-422.9). For wrecks visible or partly visible at chart datum, the height or drying height should be shown in brackets, if known. Drying heights must be shown above Chart Datum in the standard way (see B-413.1). The symbol K29 should be used for all wrecks in waters over 200 metres deep.

c. …..

B-444.8 **Pipeline installations.** Diffusers and cribs at the end of pipes, and templates, manifolds (see B-445.1) and other underwater installations associated with pipelines should be charted in the same way as other obstructions, either with the abbreviation *'obstn'* or an appropriate legend, eg *'Diffuser', 'Manifold'.* All specifications relating to obstructions apply; see B-411.6 and B-422.10.

B-422.9 A **foul area** is ……

The **foul ground** symbol should be used as a point symbol to indicate small areas of sea floor debris, for example: the distributed remains or a wreck; a dropped anchor; the site of cleared production platform (provided the platform has been removed to the sea floor):.

\# **K31/L22**

Note: Platforms which have been cut-off **above** the sea floor must be charted as obstructions, see B-422.10.

The depth over the area, if known and required, may be shown in metres and decimetres, adjacent to the symbol, for example:

 # (22)

Numerals for the depth must be shown in the normal style for soundings (see B-412).

Larger areas of foul ground should ….

B-445.1 **Wells, Wellheads, Templates and Manifolds**.

a. **Abandoned wells.** In the course of developing an oil or gas field, ……...

b. '**Wellhead**' is a term used to describe a submarine structure projecting some distance above the sea floor …...

The symbol must be a danger circle with the legend '*Well*'. Where the depth of water over the top of the wellhead is known, it may be inserted within the danger circle (as for any other obstruction, see B-422.10).

L21.1

L21.2

……..

f. **Templates and Manifolds.** ……..

These installations must be charted, if required, as obstructions (see B-422.10) with the legends *'Template', 'Manifold'*, or equivalent, instead of *'Obstn'*.

B-445.10 **Underwater turbines,** for generating electricity from tidal currents, must be represented:

L24

Where the depth of water over the turbine is known, it may be inserted within the danger circle. The rules for blue tint, swept and safe clearance depths must be applied as for wrecks and other obstructions (see B-411.6, B-415, B-422.3-5 and B-422.10), for example:

……