



CHART STANDARDIZATION & PAPER CHART WORKING GROUP (CSPCWG)

[A Working Group of the Hydrographic Services and Standards Committee (HSSC)]

Chairman: Peter JONES
Secretary: Andrew HEATH-COLEMAN

UK Hydrographic Office
Admiralty Way, Taunton, Somerset
TA1 2DN, United Kingdom

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Telephone:
(Chairman) +44 (0) 1823 337900 ext 5035
(Secretary) +44 (0) 1823 337900 ext 3656
Facsimile: +44 (0) 1823 325823
E-mail: peter.jone@ukho.gov.uk
andrew.coleman@ukho.gov.uk

To CSPCWG Members

Date 16 February 2011

Dear Colleagues,

Subject: Draft revision of S-4 Section B-300 to B-330 – Round 1

Now that S-4 section B-400 has been fully revised and published, it is time to turn our attention to B-300, the section which deals with the charting of topography. In order to avoid over loading you, we have divided the section up, as we did for B-400. We are now ready for you to take a careful look at a first draft covering B-300 to B-330 at Annex A.

Following discussions at CSPCWG7, we have drafted a completely new introduction to this section. (Agenda item 9.4 and related Explanatory Note refer). The rest of the section is fully revised, trying to achieve a balance between conciseness and sufficient explanation to assist and educate novice compilers (in recognition of this IHO 'standard' being a resource to support capacity building). There are a few new specifications and symbols included. There are also some which we believe are no longer relevant to modern charts and could be 'retired'.

As usual, we would be grateful for your comments on the draft, paying particular attention to all the track changes and marginal comments. Marginal comments prefixed 'DID' are instructions to an internal UKHO section, who will be responsible for preparing the draft for publication and updating the graphics before submitting to Member States; you can ignore these comments. Blue text is used to give visibility to new text or minor changes which we believe to be uncontroversial.

For your convenience, we have included a response form at Annex B with particular questions on which we would welcome your views; however, please feel free to comment on any other points as well.

Please respond, using Annex B, but also with a track change version of Annex A if necessary, **by 13 April 2011.**

Yours sincerely,

A handwritten signature in black ink, appearing to read "Peter G.B. Jones". The signature is written in a cursive style with a large initial "P" and "J".

Peter G.B. Jones,
Chairman

Annex A: Draft revision of S-4 Section B-300 to B-330 – Round 1 (sent separately)

Annex B: Response form

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SECTION 300 - TOPOGRAPHY**B-300 TOPOGRAPHY (LAND REPRESENTATION) - GENERAL REMARKS**

B300.1 The requirements for the representation of land (both natural and man-made features) on nautical charts are different from topographic maps. Conventional topographic maps show land features in accordance with the scale and purpose of the map. The purpose of a chart means that only a limited selection of topographic detail is required and usually only in areas adjacent to the coast. Too much detail may obscure the relevant information that the mariner requires.

The main factors affecting the extent and selection of topographic detail are:

- o User needs
- o The scale and purpose of the chart
- o The source data available.

B-300.2 **User Needs.** Despite the increasing reliance for positioning placed on global navigation satellite systems (GNSS), both its continued vulnerability (eg to interruption) and the good practice of using independent methods to confirm position are such that it is still important to chart sufficient topographic detail to enable position fixing by traditional methods. The mariner also needs to be able to visualize, from the chart, the general lie of the land and to be presented with detail of maritime interest in port areas. The charted representation of topography, especially the coast, should be adequate to compare with the radar image for operations such as blind pilotage and radar fixing. The mariner uses topography in varying circumstances (eg day or night, good or bad visibility, under pressure in busy shipping areas) and for the following main purposes:

- a. To confirm a landfall. In this case, he will be interested in general representation of topography in the coastal zone, including relief (eg flat areas, cliffs, valleys). Where the coastal zone is flat or featureless, but backed by a mountain range, details of these mountains should be charted.
- b. To visually fix his position or to check on a position already established by other means, eg GNSS. The items of principal interest will be concentrated in the coastal or near-coastal zone and will range from prominent features (eg tall buildings, isolated hills, cliffs) to less prominent, but unusual or unique, features (eg: a boathouse on a deserted shoreline, a monument, a waterfall).
- c. To find and enter a port or harbour and to berth his vessel. In this case he will be interested in prominent marks around the port and details of quays, berth numbers and relevant buildings (eg: harbour offices, customs) in the port itself.
- d. To identify and use natural transit and clearing lines particularly in rocky areas lacking aids to navigation.
- e. To deduce bathymetric relief as a continuation of land gradients, especially in areas of sparse hydrographic survey detail.

Some chart users (eg leisure, cruise, defence, research) may have a requirement for additional topography. This may be included as appropriate to the likely need, providing clarity for the primary chart users is not compromised.

B-300.3 **The scale and purpose of the chart.** The following guidelines apply in most cases, although there may be variations and exceptions:

- a. **Landfall charts** (smaller than about 1:350 000): The navigator using such charts will be primarily interested in recognising a landfall, in fixing his position and in locating ports, harbours, anchorages, etc. Topography shown should be limited to meeting these needs. See C-301 for small-scale INT charts.

- b. **Port approach and coastal navigation charts** (1:30 000 to 1: 350 000 approximately): A general depiction of relief (eg island heights, mountains by contours and spot heights, rivers, major lakes) and prominent fixing marks should be shown. Settlements should be shown sufficiently to provide a guide to size and extent (which may be prominent at night), but detailed road layouts should not be shown in towns. Dependant on scale, settlements may be symbolized by one building (eg church) plus the settlement name. All ports should be clearly named. Coastal features and roads and railways between settlements may be shown.
- c. **Large-scale Harbour plans** (usually larger than 1:30 000): Topography of relevance to the mariner should be most detailed in areas immediately adjacent to the coast (up to about 1M inland) and to areas further inland which are clearly visible from seawards (e.g. on a sea-facing hillside). There is usually no need to chart roads at this scale. Outside these approximate limits, only significant buildings and other fixing marks should be shown.

B-300.4 Source data. The mariner always sees the land in profile, whereas it is depicted on the chart in plan. The cartographer's source data is also generally in plan. It is a cartographic skill to perceive a plan image in profile in order to select relevant detail to make this process as easy as possible for the chart user (ie to make the chart easy to interpret). The cartographer should, if possible:

- Study any hydrographic surveys (and associated reports) that are available for an indication of topography which is of value to the mariner.
- Supplement this with examination of any perspective views, aerial photographs (particularly obliques) and imagery which may be available.
- Study the relevant official and commercial pilot books (including views) and port handbooks.
- Consult the best and appropriate scale topographic maps available, particularly examining the relief in coastal areas.

B-301 LAND TINT

B-143 states that a colour, usually buff or grey, must be used as a land tint.

Note: If the minimum four colours are used, the land tint colour must be carefully selected so that a satisfactory colour over inter-tidal areas is derived from printing the land tint over the shallow water blue tint. all charts shall have a colour to be used solely as a land tint except that, overprinted with blue, it shall form a satisfactory intertidal tint. The selection of a colour is left to national discretion provided a clear distinction between land and water tint is maintained.

B-301.1 Land tint should normally be shown continuously over all land areas and not be broken for the title, tidal tables, compass roses, ~~conversion tables or scales~~, etc.

Exceptions to this rule are:

- diagrams where it is necessary to make a distinction between land and sea, ie:
 - source diagrams (see B-293.3)
 - ~~diagrams for other purposes such as those~~ showing the incidence of grid letters (see B-215.2 and B-298.1)
 - diagrams showing the limits of larger scale charts (see B-254.2 and B-298.1)
- ~~where it is necessary to make a distinction between land and sea, within the diagram; and~~ glaciers (see B-353.8).

B-302 PLANE OF REFERENCE FOR HEIGHTS

The Hydrographic Dictionary (S-32) defines 'height' as:

'The vertical distance of a level, a point or an object considered as a

point, measured from a specified datum'

and as

'The vertical dimension of an object'

In the latter definition, this is used to describe the vertical length of an object, ie its height above ground level, see B-303.

The Hydrographic Dictionary (S-32) defines 'elevation' as:

'The vertical distance of a level, on or affixed to the surface of the Earth measured from Mean Sea Level. The term elevation is sometimes used synonymously with Altitude which in modern use refers particularly to the distance of points or objects above the Earth's surface, and also as an area higher than its surroundings, as a hill'

In most charting contexts, the words (in English) are synonymous. In S-4 (and INT1) the word 'height' is generally used, except that 'elevation' is used, in accordance with tradition, to describe the height of the focal plane of a light above height datum. (Note: only S-32 refers to Mean Sea Level; other dictionaries refer to sea level or a given level)

This sub-section **excludes drying heights**, ie heights of features submerged at high water; for drying heights, see B-413.1.

In correct English usage the word "elevations" should, strictly, be substituted for "heights" where heights above a sea level datum are meant. "Heights" should be reserved for such purposes as heights of structures above ground level; see B-303. However, in common usage, this distribution is usually made only when describing lights and light structures; see B-471.6.

For **vertical** clearances of bridges and other obstructions, see B-380.

B-302.1 **The explanatory notes** beneath the chart title **must** always quote the plane of reference for heights. See B-241.6.

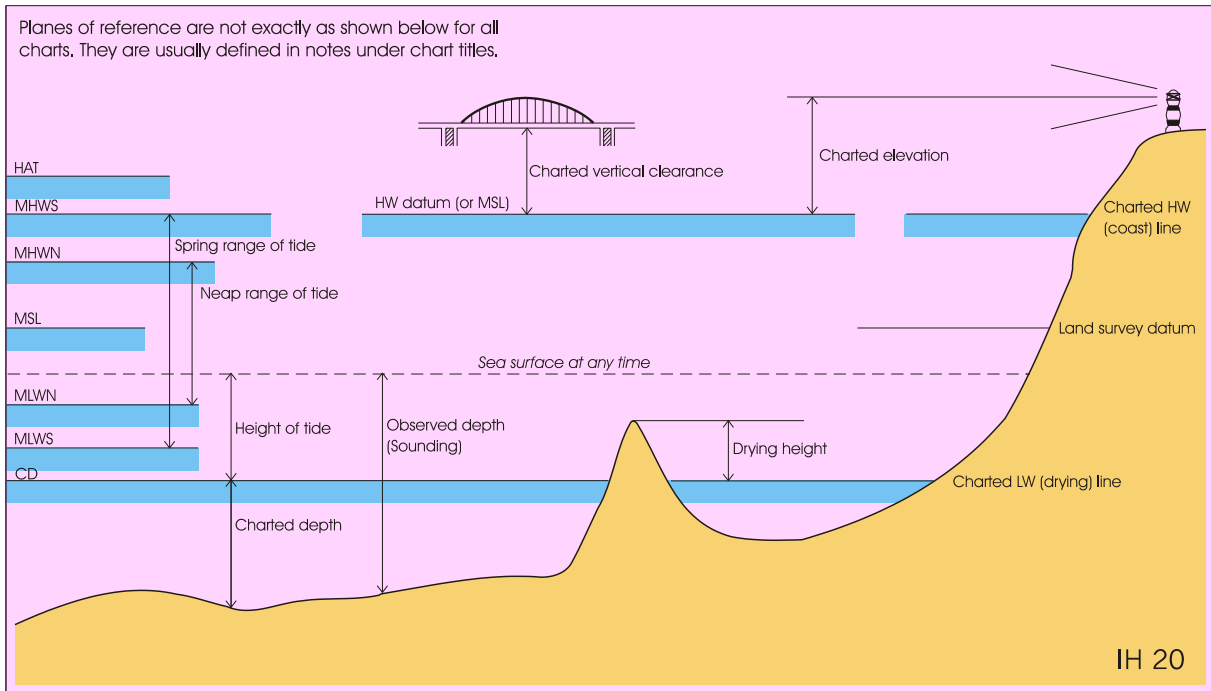
B-302.2 **The plane of reference** for all heights (including elevations of lights but excluding drying heights) must normally be a High Water (HW) datum, eg shall be ~~Mean Sea Level~~ High Water Springs (MHWS), Mean Higher High Water (MHHW), Highest Astronomical Tide (HAT). Where there is little appreciable tide or change in water level at the adjacent shoreline, then Mean Sea Level (MSL) may be used. ~~Elsewhere, it is recommended that a High Water (HW) datum is used.~~

Comments: TR 3/1919 (as amended 2008), contains the following statements:

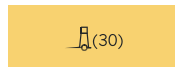
1. It is resolved that heights on shore, including elevations of lights, should be referred to a HW datum. Heights should be referred to Mean Sea Level (MSL) where the tidal range is not appreciable. The datum used should be clearly stated on all charts.

2b. It is resolved that Highest Astronomical Tide (HAT) be adopted as the datum for vertical clearances where tides have an appreciable effect on the water level. Alternatively the differences between HAT and national datums for vertical clearances may be specified on nautical documents. If high water levels in a specific area frequently deviate from HAT, the datum for vertical clearances may be adapted accordingly. It is further resolved that a HW datum be used for vertical clearances in non-tidal waters.

paragraphs 1 and 2, resolve that heights on shore and elevations of lights shall be referred to mean sea level. However, the use of a HW datum in tidal areas is necessary for clearances under bridges and is consistent with the definition of the coastline (see B-310). It is also a safety factor for navigators using a quoted height and vertical angle to determine distance offshore. Many IHO members use an HW datum for elevation of lights.




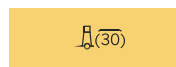
B-302.3 All height figures relating to features on land **must** be upright. Height figures relating to a summit or spot height **must** be placed immediately adjacent to the symbol marking the position. All other ‘out of position’ height figures are to be enclosed in brackets (see also B-421.1), except elevations of lights forming part of a light description (see B-471.6), eg:



E4

B-303 HEIGHTS ABOVE ~~PHYSICAL~~ GROUND LEVEL

It may aid recognition of some structures, such as chimneys and towers, if their heights are given ~~on charts. Also, it may happen that only the heights of the structure~~ above ground level, if known, ~~instead of or in addition to~~ the height of its top above the ~~normal~~ plane of reference (~~ie, its elevation~~). In such cases, the height of a structure above ground level should be shown by the symbol  placed above the figures, eg:



E5

The figures are enclosed in brackets because they are necessarily displaced to one side of the symbol for the structure.

B-304 SURVEY CONTROL POINTS

Special symbols of interest mainly to the hydrographic surveyor rather than the navigator **must normally** be limited to the largest scale charts or omitted altogether.

B-304.1 A triangulation point **must** be represented (if shown) by the symbol:



B20

This symbol should be used to indicate the existence of a pillar or other visible mark.

B-304.2 An **observation spot**, as used by surveyors for determining a precise position by astronomical means, **must** be represented (if shown) by **the symbol**:



B-304.3 A **benchmark**, ie, a visible mark whose height is precisely known relative to a particular datum **must** be represented (if shown) by **the symbol**:



B-305 OTHER CONTROL POINTS

B-305.1 A **fixed point**, ie, a point whose position has been accurately determined ~~and plotted~~, **where not represented by another symbol, must** be represented by a small circle with a dot in the middle, generally referred to in these specifications as a ‘position circle’:



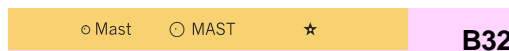
The larger position circle, used for conspicuous objects, must be about 2mm in diameter. The smaller circle, used for other objects, should be about 1mm in diameter. See B-340.5. Where the position circle does not represent a physical feature, then it should be in magenta.

The position of symbols shown in profile (pictorial symbols) is usually a very small position circle (about 0,5mm diameter) without centre dot, in the middle of the baseline:

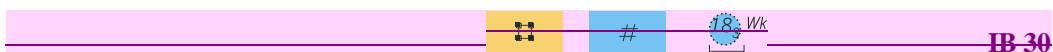


Note: there are a few profile symbols which do not have a position circle incorporated into the symbol. If such symbols incorporate another position feature, eg a light star, then that is the position. If such symbols have a baseline, then the position is the centre of the baseline (eg deviation dolphin, F21; notice board Q126). Where there is no baseline, the position is the centre of the symbol (eg reported anchorage, N10; mark, Q101).

The position of symbols shown in plan is the centre dot or, where there is no centre dot, the position is represented by the centre of the primary symbol (ie excluding associated text, detached lines, flares).



Where an object is represented by a position circle located only **approximately** on the chart, the central dot should be omitted and a warning legend such as ‘PA’ added.



B-305.2 A point or summit, the height of which has been determined, must be represented by a dot accompanied by a figure indicating the height in metres.

.359 C11

B-306 BOUNDARY MARKS

It is left to the discretion of each country to choose a conventional sign. If required to be charted, a boundary mark may be portrayed by an appropriate existing symbol which corresponds to the natural form of the boundary mark. If necessary, a descriptive legend may be added adjacent to the symbol.

B-307 DISTANCE MARKS

Marks which indicate distances along a channel (eg nautical miles, kilometres) or some other unit, shall may be shown where considered useful. A small black circle (diameter about 0,5mm) or an appropriate symbol shall should be used, either ashore or in the channel, and will be chosen at the discretion of each country where it represents a visible mark, eg a notice board (Q126). The unit of measurement (eg M, km) should must be shown, before the number alongside the symbol.

B25.2

Where there are no visible marks, the distance figures, with units, should be shown in magenta with no symbols a small magenta circle (diameter about 0,5mm). The unit of measurement (M, km, etc) must be shown, after the number alongside the symbol.



B25.1

B-310 COASTLINE, GENERAL

The following paragraphs deal primarily with the line of high water (HW) and features on the landward side of it. For the line of low water (LW or drying line) and drying areas, see B-411 and B-413.

The coastline (shoreline) **must be a representation of** the high water mark, or ~~by~~ the line of mean sea level where there is no appreciable tide or change in water level. In tidal waters where there is a beach the coastline is the landward limit of the beach and therefore corresponds **approximately** to the high water **mark** of the highest tides, see B-302.2.

B-310.1 A surveyed coastline **must normally** be represented by a continuous bold line (see B-127), delimiting the land-~~line~~. It ~~shall~~ **should** be unbroken by **text** and other detail as far as possible.



B-310.2 The coastline **must be generalized** (~~smoothed~~) as necessary ~~on smaller~~ according to chart scale, but its essential characteristics **must** be preserved. An islet too small to be shown **true to scale** **must** not be reduced to a width less than the width of the coastline symbol to ensure visibility, avoid confusion with pinhole imperfections in chart plates.

B-310.3 The line weight used for the coastline (see B-310.1) may be varied for quays, see B-321.

B-311 UNSURVEYED COASTLINE INADEQUATELY SURVEYED

An unsurveyed (or approximate) coastline must be represented on large-scale charts by a dashed line delimiting the land-~~line~~.



B-312 COAST, NATURAL FEATURES

~~The following paragraphs deal primarily with the HW line and features to landward of it. For drying areas and LW lines see B-413 and B-41.~~

B-312.1 A **steep coast**, ie, a coast backed by rock or earth cliffs, may give a good radar return and be useful for visual identification from a considerable distance ~~off, where cliffs alternate with low lying coast along the shoreline~~. Where cliffs are prominent features they should be charted on scales larger than 1:500 000 ~~generally; as an exception, where cliffs predominate over extensive stretches of coastline, it may be neither feasible nor particularly useful to insert a cliff symbol throughout.~~ Clifftop heights ~~are useful~~ may be used for ~~calculating or~~ estimating distance off (eg. for clearing inshore dangers) and should be shown where possible.

A **steep coast backed by rocky cliffs** **must** be **charted** with the cliff **top** in its true position on large-scale charts. On medium scales the **cliff top** may have to be displaced inland slightly for the symbol to be **shown** clearly.

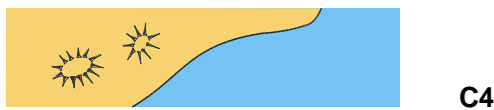


Where it is considered desirable to distinguish between different types of steep coast, the above symbol should be used to represent a coast with rocky cliffs and, where the rocky symbol is not appropriate, hachures should be used thus A steep coast without rocky cliffs should be charted by hachures, thus:



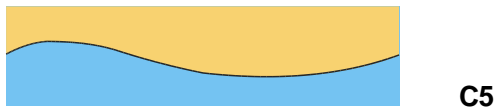
Cliffs inland may, where prominent from seaward, also be represented by the above symbols. As the top of the cliff is more important for fixing-estimating distance offshore than the base, any necessary displacement of the symbol should be made along the base.

Prominent, small hills adjacent to the coast may be portrayed by simple hachures if the contour interval is too large to show outline.

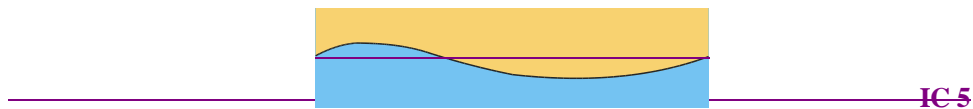


Cliffs inland may, where prominent from seaward, be represented by the above symbols. As the crest of the cliff is more important for fixing than the base, any necessary displacement should be made along the base.

B-312.2 A flat coast may be represented simply by the absence of a cliff or steep coast symbol (and topographic contours):



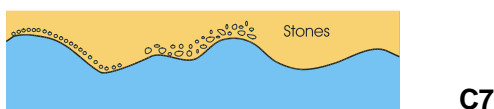
Low number spot heights may also be shown behind the coastline to indicate its low-lying nature. but, in order to draw the navigator's attention to the fact that a coast is very lowlying, it is often preferable, at least on the largest scales, to use the following symbols, where appropriate.



A sandy shore must be represented, if useful on large-scale charts, by a single dotted line on the landward side of the coastline:

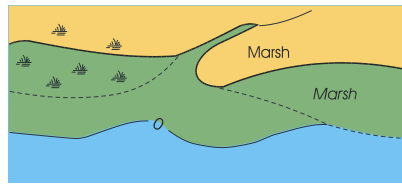


A stony or shingly shore must be represented, if useful on large-scale charts, either by a band of small circles, a wider band of irregular circles-shapes of different diameters or on the landward side of the coastline: or, exceptionally, by a legend on the land side of the coastline:



A marshy shore (sometimes called saltings) must be represented, if useful on large-scale charts, either

by marsh symbols or, exceptionally, by a legend. They may be shown either side of the coastline:



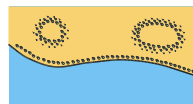
C33

Where the seaward edge of the marshes represents the only visible indication of the coast drying line, it must be shown by a fine dashed line (as used for delimiting intertidal areas of different characteristics, see B-426.1) in addition to the actual coastline (HW line). Land tint should not extend beyond the HW line.

Where it is not possible to determine the HW line, the coastline shall be an approximate coastline should be charted at the outer limits of vegetation emerging at high water, ie, the apparent coastline.

Reed beds may be charted using the same symbol as marsh; however, reed beds may extend beyond the low water line. The cartographer should ascertain, where possible, that the part of the marsh or swamp shown as land is visible to the navigator at all normal stages of the tide and in all seasons.

B-312.3 Prominent sandhills or dunes adjacent to the coast should be portrayed: by a dotted surface in which the shadow effects of the dunes shall be produced by enlarging some of the dots and deleting others.



C8

For extensive areas a legend may be used exceptionally.



C8

B-312.4 **Mangroves.** The seaward limit of the mangroves must be a fine dashed line, backed by small mangrove symbols at intervals of about 10mm. The area of mangroves should normally be covered by intertidal tint. The landward limit of the mangrove area (where it is the high water line) must be shown as coastline, using C1 or C2 as appropriate. On smaller scale charts or if detailed information on the extent of the intertidal area is not available it may be sufficient to show the seaward limit only, with land tint on the landward side.

If the area is extensive, mangrove symbols may be spread across it spaced in a diagonal pattern about 10mm apart. Alternatively, a legend 'Mangroves' may be inserted within the area, repeated as necessary. The legend should be in upright type, as the actual mangroves are an above water feature.

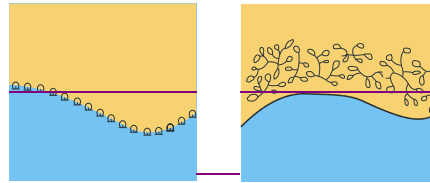
C32



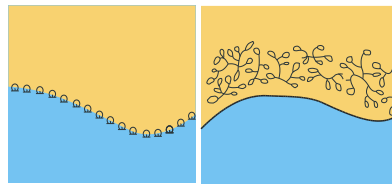
Note that the seaward limit of the mangrove area may not coincide with the low water line (eg if mudflats extend further seaward), nor the landward limit coincide with the high water line. In such cases, the limits of the mangrove area must be depicted by a fine dashed line backed by mangrove symbols, as an isolated area within a larger intertidal area.

If it is required to show an individual mangrove tree, the symbol **C31.2** should be used. If it is conspicuous, the legend 'TREE' should be inserted alongside the symbol.

A mangrove shore was formerly represented by one of the following symbols as below, with land tint extended to the seaward limit of the mangrove area as this represents the apparent coastline and the limit of navigation.



—With the increasing use of charts for non-navigational purposes, it is now considered better to show the ‘real-world’ situation, ie areas of mangroves should be shown over intertidal tint, as mangroves only exist in intertidal areas. The following symbols are now obsolescent.



B-313 COASTAL ARTIFICIAL PROTECTION FEATURES STRUCTURES

The following paragraphs concern features found mainly outside ports and harbours. For piers, jetties, breakwaters, etc, associated with harbours, see B-321. Dykes, seawalls and groynes generally have regular outlines and the cartographer should be careful not to mislead the navigator into thinking that a seawall is a wharf where a ship could lie alongside, or that a groyne is a jetty or other landing place. Dykes and seawalls are primarily designed to prevent inundation. For other types of embankment, see B-364.

B-313.1 A dyke, levee or similar embankment (usually composed of earth or rubble) **must** be represented by ~~one~~ of the following symbols:

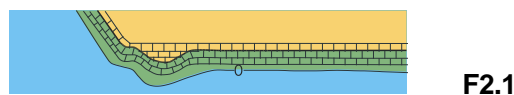


F1

~~The double line symbol (in which the seaward line is the thinner one) is preferred as it is less laborious to draw over long stretches. The former ‘double line of hachures’ symbol below is obsolescent.~~



B-313.2 A seawall is a solid structure, usually of masonry, with a sloping face. If, on very large-scale charts, an accurate representation of a seawall is considered **useful**, it ~~may~~ **should** be shown **thus**:



F2.1

On smaller scale charts, a seawall may be shown by the same symbol as used for a dyke. ~~See also B-322.1 Breakwaters.~~



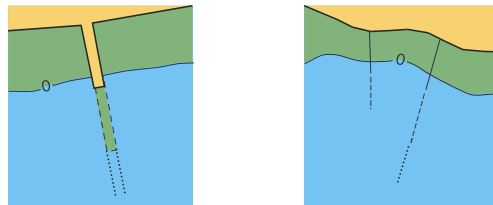
IF2.2

- B-313.3** A **causeway** is a raised roadway of solid structure built primarily to provide a route across wet ground or an intertidal area. It **must** be represented by the symbol for a road or track as appropriate (see B-365.2) with land tint and the legend ‘Causeway’ or equivalent. **If** scale permits and useful, the embankment may be represented by hachures. Where a causeway is intertidal, it **must** be represented by dashed lines, with intertidal tint and the legend ‘Causeway’ or equivalent.



F3

- B-313.4** A **groyne** (US: groin) is a low wall-like structure, usually extending at right angles from the shore, to reduce coastal erosion. Groynes submerged at high water may be a danger to small craft. On large-scale charts, groynes should be charted in their true positions, by unbroken bold lines where they cross drying areas and by dashed lines of the same weight (unless they are known to be above water at all times) where they extend beyond the low water line and are submerged at CD. If any part of the groyne is known to be always underwater, it should be shown as a dotted line:



F6

The assumption is that over at least part of its course over the drying area, the top of the groyne will at all times be above water level, and part of the groyne beyond the low water line will dry out.

On smaller scale charts, numerous groynes may be shown by a regular series of short lines. See also B-322.2, training walls.

B-320 PORTS AND HARBOURS IN GENERAL

The following [specifications](#) mainly concern detail shown on large-scale [charts of ports and harbours](#). On smaller scale [charts](#), many features will be omitted or, in the case of coastline details, greatly generalised.

On large-scale harbour charts, ~~it is generally accepted that topographic detail in proximity to the harbour should be fairly comprehensive even though inessential for navigation. The charting of significant inland features such as a hospital and main post office usually results also in the inclusion of an outline of streets and buildings extending from the vicinity of the harbour to the charted inland features. However, there are very wide differences in the practice of chart producers, varying between those who show virtually no buildings—except landmarks—or roads, and those who show map-like detail right up to the chart limits; to some extent, the differences reflect broad topographic differences in the countries concerned.~~

~~Because the extra detail is not of great importance,~~ it is unnecessary to strive too hard for standardization. However, the preferred representation is: [sufficient](#) details of roads and buildings in dock areas and adjacent to the coastline, [to enable](#) a mariner unfamiliar with the port [to be aware](#) of the layout of the port and access to shore facilities of [general](#) maritime interest. Depiction of landmarks is required but surrounding built-up areas ~~need not necessary by~~ [should be shown in accordance with B-370.4. Berth designations and names of quays, docks, etc, may provide useful identification information for the mariner.](#)

B-320.1 Fishing harbours or ports are equipped to provide for the particular needs of fishing boats. Where appropriate, fishing harbours [must be shown, if required](#), by the following [magenta](#) symbol:

**F10**

B-320.2 Boat harbours and marinas are areas of sheltered water, [often](#) within [larger](#) harbours or ports, set aside for the use of small craft, usually with moorings, buoys ~~and, in the case of marinas, and~~ berthing facilities. [Where appropriate, boat harbours or marinas must be shown, if required, by the following magenta symbol:](#)

**F11.1 (formerly U1.1)**

[Yacht berths without facilities must be shown, if required, by the magenta symbol \(diameter about 3.5mm\):](#)

**F11.2**

[A yacht club or sailing club must be shown, if required, by the magenta symbol \(height about 3mm\):](#)

**F11.3**

[If required, the name of the marina, berth or club must be inserted in upright black text.](#)

B-321 BERTHS: QUAYS, WHARVES, PIERS, MOLES, JETTIES

Large-scale charts should make clear whether any structure along the coastline is intended for [ships to berthing](#) alongside or not. In most instances, the associated detail ~~(name or berth number, depths alongside, dolphins, cargo sheds, cranes or railway lines)~~, in addition to the [usually](#) distinctive outline of such features as piers, will be sufficient to show that ships may come alongside. [Additionally, changing the thickness of the charted coastline may be increased to approximately 0,5mm for the length of the berth. For the means of indicating positively that it would be dangerous to come alongside certain structures, see B-322.](#)

As far as possible, all berths should be named on large-scale [charts](#). [For berth designations, see B-321.6-8. and special attention should be paid to](#) [The general depths alongside should be charted, the distance off for depths selected being appropriate to the size of vessel using the berth, if possible; depths alongside see also B-412.2.](#) The following terms are defined according to normal usage; however,

sometimes the usage is inconsistent (in English) and names may be applied differently (eg ‘West Pier’ may actually be a jetty, according to the definitions below).

For anchor berths see B-431.2 and for berths at mooring buoys see B-431.6.

B-321.1 **Quays and wharves.** A quay or wharf generally is a solid structure usually of stone, masonry or concrete (as distinguished from a pile structure) alongside which vessel may lie to work cargoes. It usually runs along or nearly along the line of the shore. A wharf is a structure similar to a quay but usually constructed of wood, iron or concrete and supported on piles. It may be either in continuous contact with the land or connected to the shore by one or more approach piers. On charts, they will usually only be distinguished by the name. The general depths alongside should be charted, the distance off for depths selected being appropriate to the size of vessel using the quay, if possible.

~~runs parallel with the shoreline and is used for loading and discharging cargo. The general depths alongside should be charted, the distance off for depths selected being appropriate to the size of vessel using the quay, if possible.~~

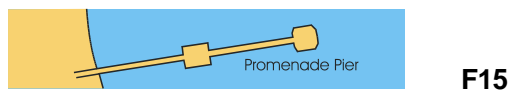


B-321.2 A pier is a long narrow structure, usually on piles, extending into the water to provide a berth generally at the pierhead on the seaward end. The legend ‘Pier’, or equivalent, may be needed if the pier is small and could be confused with a groyne.



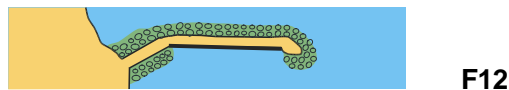
Deep water terminals requiring very deep water, are generally piers, often with dolphins on each side of the pierhead to take the tanker's mooring lines.

Piers built only as promenades for recreational purposes should be distinguished by a legend such as ‘Promenade pier’, or equivalent.



Note: the English word ‘pier’ may also be used for a bridge support.

B-321.3 A mole is a breakwater at which vessels may berth alongside the sheltered side. Also, a concrete or stone structure, within an artificial harbour, at right-angles to the coast or the structure from which it extends, alongside which vessels can lie.



B-321.4 A jetty is a pier-like structure alongside which vessels may lie parallel with the main axis (UK usage). Note: in US usage a jetty is a form of training wall or breakwater, see B-322.

B-321.5 A roll on, roll off ferry is one designed to allow road vehicles to drive on and off. Berthingarves and jetties with facilities for roll on, roll off ferries should be identified by the **international abbreviation:**

RoRo **F50**

B-321.6 Names of berthing structures, if shown on appropriate large-scale charts, must in black upright text.

B-321.7 **Designated berths** may be shown on appropriate large-scale charts. The number (or letter) must be inserted in a circle, all in magenta. Numbers and letters should be upright. If necessary, eg to contain a 3-figure, or longer, designation, the circle may be extended to an oval. |

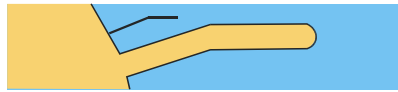
④ Ⓟ **F19.1** |

B-321.8 **A visitors' berth** (for example in a marina) may be indicated by the magenta symbol (diameter about 2.5mm):

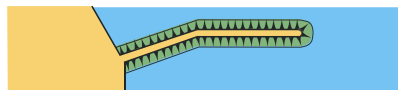
 **F19.2** |

B-322 STRUCTURES NOT INTENDED FOR BERTHING ALONGSIDE

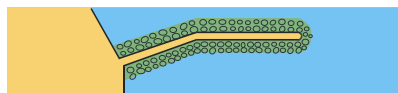
B-322.1 A **breakwater** is generally not intended for berthing, even on the sheltered side (~~although there may be exceptions, as the use of the terms for structures protecting harbours is far from precise, in English except moles, see B-321.3~~). On very large-scale charts, the above-water nature of the structure may ~~often~~ be represented, ~~to give~~ an indication that ships do not go alongside, ~~may be given~~ by showing the sloping sides. Examples of **appropriate** symbols are the use of hachures, small ~~irregular~~ circles indicating loose boulders, or the seawall symbol (see B-313.2) indicating a slope of masonry or concrete.



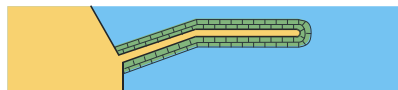
F4.1



F4.1

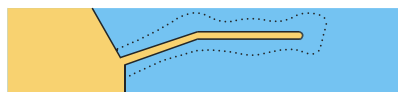


F4.2



F4.3

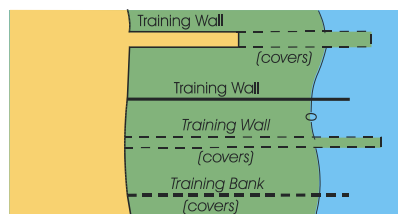
If there is a possibility of misinterpretation by the mariner, a danger line (**K1**) may be inserted around the structure to indicate the danger.



F4.1

B-322.2 A **training wall** is a structure built alongside a channel to direct ~~the tidal stream or currents~~ water flow through the channel to promote a scouring action. Training walls are often submerged at high water.

~~The recommended symbol, unless the scale is large enough to show the actual outline, with appropriate coloured tint, a training wall should be shown as a very bold line (approximately 0.5mm width), continuous where the wall always remains above water, dashed where it may be submerged. If submerged, or partly submerged, any associated lettering should be sloping upright, unless the breakwater is always entirely submerged.~~



F5

B-323 Not currently used

B-324 **LANDING AND LAUNCHING PLACES**

Constructions Structures which are partially submerged at some states of the tide must be represented, as follows:

- a. The parts which are always dry must be delimited by the coastline and must have land tint;
- b. The parts which cover and uncover must be delimited by a dashed line and must have intertidal tint;
- c. The parts which never dry must be delimited by a **danger** line (**K1**).

B-324.1 **Slipways and patent slips** (ie slips with rails for ship cradles) must be shown in accordance with the principles above, ~~with two parallel lines down the centre of the slip.~~ The **international legend** ‘Slip’ should be used where necessary to avoid misinterpretation; lettering should be upright. If it is required to distinguish patent slips, ~~two parallel lines may be inserted down the centre of the slip, the two parallel lines may be omitted from other slipways~~ and a legend used to identify the feature.



B-324.2 **Landings** for boats, if shown, may take the form of very small piers or areas of hard bottom where the rest of the foreshore is mud. In the latter case, the hard area should be delimited by dashed lines. On large-scale **charts**, the **international abbreviation** ‘Lndg’ should be added in sloping text if it is sometimes submerged or upright text if it is always above water.~~is used for boat landings.~~



B-324.3 A **pontoon** is a floating structure, usually rectangular in shape, which often serves as a landing or pierhead. A pontoon must be charted by a true to scale outline, filled with land tint. The legend ‘Pontoon’, or equivalent, may be added where space permits, or, if more appropriate the international abbreviation ‘Lndg’, in sloping text in all cases. A legend may be needed because the symbol is not a distinctive one.



[c33]B-324.4 Steps and landing stairs may be shown on large-scale charts by the symbol:

F18

B-325 **HARBOUR OFFICES**

The symbols below may be used on large-scale **port charts**. The outlines of the building ~~should may~~ also be shown where scale permits. ~~Symbols should not be placed beside the buildings to which they refer because there would in some cases be no means of knowing whether the symbol was ‘out of position’ or not.~~

For pilot stations and certain other marine services, see **section** B-490.

B-325.1 A **harbour-master's office** must be shown by:



F60

B-325.2 A custom office must be shown by a circle with a horizontal band:



F61

B-325.3 A health office, or quarantine building must be shown by:



F62.1

A hospital may be distinguished by the legend 'Hospital' or equivalent, with its name if useful.



F62.2

of possible maritime interest may be shown by the same symbol and

B-326 DOCKS

Large-scale charts should show clearly which docks and basins are normally enclosed and which are normally open to the sea. All docks should be portrayed as true to scale as possible. Locks, caissons and gates should always be charted in the closed (to the sea) position.

B-326.1 A dry dock (or graving dock) is an artificial basin into which a vessel can be floated for cleaning and repairs. The entrance can be closed by gate or caisson and the water pumped out to expose the vessel's bottom.

The chart representation shall be a true to scale outline of the upper part of the dock walls. Land tint must be shown over dry docks to distinguish them from wet docks (see B-326.3). Exceptionally, the legend 'Dry Dock' or equivalent, in upright text, may be used where the outline of the dock might be mistaken for another feature.



F25

B-326.2 A floating dock is a form of dry dock consisting of a floating structure, which can be partly submerged by controlled flooding to receive a vessel, then raised by pumping out the water.

A floating dock must be shown by the symbol, portrayed as true to scale as possible:



F26

The bold lines may be omitted when the symbol is reduced to minimum size (about 4mm long):

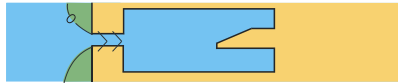


F26

Land tint should be inserted on floating dock symbols. Legends, if required for the smaller version to distinguish it from other features such as pontoons, , not normally shown, should be in sloping text.

B-326.3 A wet dock or non-tidal basin (French: "bassin à flot") is an artificially enclosed area within which water can be maintained at any level to keep ships afloat while loading or discharging cargo, etc. It is

entered either through a lock, or by means of a gate which can be opened at a high water level.

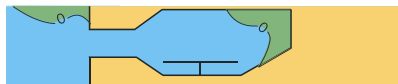


F27

The name of a wet dock should be in sloping **text**.

The minimum water level within a wet dock does not normally correspond to chart datum for depths outside the dock. Where a constant level is maintained, an explanatory note may ~~sometimes~~ be added. Blue shallow water tint should ~~normally~~ be consistent with that shown on the chart.

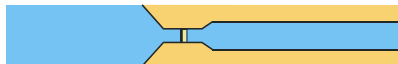
- B-326.4** A **tidal basin** (French: "bassin de marée") or **tidal harbour** is one in which the tidewater level freely rises and falls, ie there is no gate to regulate water level. ~~The name of a basin should be shown in sloping lettering. Depths and tints within a tidal basin shall be represented in the same way as elsewhere in non-enclosed waters.~~



F28

The name of a basin should be shown in sloping **text**. Depths and tints within a tidal basin **must** be shown in the same way as **elsewhere on the chart** for ~~in~~ non-enclosed waters.

- B-326.5** A **caisson** is a steel structure which either floats or slides into place to close the entrance to a dry dock, lock or non-tidal basin. It **must** be charted in the closed position, usually by a double line filled with land tint, with the lines of the dock entrance carried across the ends thus:



F42

- B-326.6** A **lock** is an enclosure at the entrance to a non-tidal basin or within a canal, used to raise or lower a vessel to a different water level or non-tidal basin. Its ends are closed by lock gates which must be shown by one of true to scale outline on large scales. Where true to scale representation is not possible, the symbols, depending on scale: ~~shall be in the form of wide V~~



F41

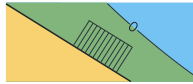
On large-scale charts, there may be two or more symbols, according to the number of gates represented. On smaller scale charts, one 'V' is sufficient representation for a single lock, or even for a flight of locks. If required, the legend 'Lock' or the name of the lock may be added, shall be in sloping text.

- B-326.7** A **flood barrage** is an opening dam across a channel which, when required, is closed to control flood waters. The outline of the barrage **must** be charted true to scale if possible, in its closed with the sections normally open to traffic shown as dashed lines. A legend, in upright text, should be added if space permits: or open position by means of bold dashed lines and legend.



F43

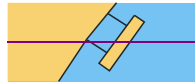
- B-326.8** A **gridiron, careening** or scrubbing grid is a flat structure in the intertidal zone to support vessels at low stages of the tide to permit work on the exposed portion of the vessel's hull, flat erected on the foreshore so that a small vessel may dry out on it for painting or repair at low water. The symbol for a gridiron shall be a series of parallel lines with intertidal tint carried across them~~is~~:



F24

If the word 'Gridiron', etc., or equivalent, is used, it should be in sloping text.

~~B-326.9 — A pontoon is a floating structure, usually rectangular in shape, which generally serves as a landing or pierhead. A pontoon is shown by a true to scale outline, with land tint superimposed. The legend 'Pontoon', or equivalent, may be added where space permits, or, if more appropriate 'Lndg' for Landing, in sloping lettering in all cases. A legend may be needed because the symbol is not a distinctive one.~~



F16

B-327 DOLPHINS, POSTS AND PILES, BOLLARDS

The features described below are associated with moorings (and include remains of posts which may be a danger).

For perches, postspoles, stakes etc used for marking ~~out~~ navigable channels, see B-456.

B-327.1 A dolphin (French: "due d'Albe") is a very substantial post, group of posts or structure used for mooring or hauling off vessels or for the protection of other ships or constructions. It is usually located in the water.

Where dolphins are very large, eg on either side of the pierhead of a deep-water tanker terminal, their outlines should be shown true to scale (possibly with small light stars where appropriate). Land tint should be superimposed inserted. Small dolphins (or large ones on smaller scale charts) must be shown symbolically by a small square, two of the sides being aligned with the centre line of any moored vessel. Single dolphins to which vessels may secure in any direction must be shown with the symbol having two sides horizontal. Land tint need be shown on may be omitted from the small square symbol. The legend international abbreviation 'Dn' or 'Dns', or equivalent, should be inserted only if the nature of the feature is not self-evident unclear or the dolphin is isolated.



F20

B-327.2 A deviation dolphin is one which a vessel swings around for compass adjustment. The symbol is: to be used for a deviation dolphin (with legend if considered necessary).



F21

A legend may be added if considered necessary.

B-327.3 Minor posts or piles should be represented by small circles filled in black:



F22

B-327.4 A bollard is a small, shaped post mounted on a wharf, dolphin, etc, to which a vessel's mooring line is secured. Bollards are not generally charted.

B-327.5 Stumps of posts or piles which are wholly submerged at times and may be dangerous to surface navigation must be represented either as an obstn (K40) or by the symbol:



K43.1

In the latter case, **if required** to show the exact position of the object, a small circle **must** be added at the base of the sloping stroke:

 **K43.2**

Where stumps of posts or piles exist in groups close together, they may be enclosed by a **dotted** danger line (**K1**) and accompanied by a legend in sloping text. **For wellheads, see B-445.1.**

B-328 DOCKSIDE BUILDINGS AND STRUCTURES

The purpose of charting these features is primarily to assist the mariner in identifying particular berths, **etc.**, not to give definitive information on the facilities available (such as cranes).

For Harbour Offices, see B-325. For overhead transporters and conveyors, see B-382.3.

B-328.1 Transit sheds and warehouses are generally to be charted as individual buildings on large-scale port plans. If they are numbered, the numbers may be charted:



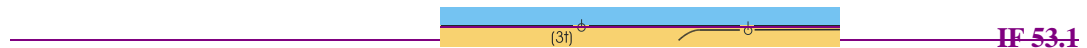
B-328.2 A timber yard, where stacked timber may be a prominent feature near the coastline, may be indicated by legend or the symbol (which may be repeated for extensive areas):



B-328.3 A crane **must** be represented by the symbol:



Travelling cranes may be represented by crane symbols superimposed on the railway symbol (see B-328.4).



Large container cranes may be represented by the symbol:



The lifting capacity of cranes may be shown where considered useful.

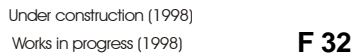
Conspicuous sheerlegs (a tripod structure) may be shown by a position circle and legend:



B-328.4 **Dock railways** should be charted as part of the general detail but sidings should be generalised. For symbol, see B-362.1.

B-329 **WORKS UNDER CONSTRUCTION AND PROJECTED**

A chart can seldom show the exact state of work under construction because it may not be known by the cartographer and, even if known, **is liable to change**. Explanatory legends are usually necessary on the chart and should be phrased as specifically as possible within a few words, ending with the year date of the information eg.



B-329.1 **Works on land.** Features likely to be prominent from seaward should be shown by a dashed outline, ~~where possible~~, and legend, **in upright text**. New docks, locks, canals, etc, being excavated should be charted similarly; land tint should extend across them until completion.



B-329.2 **Works at sea which will extend the coastline seaward.** Where the line of the future coastline (including piers, etc) is known, it should be charted by a bold dashed line with a legend, **in upright text**. The existing coastline should remain until the new coastline can be shown **as a continuous** line. The area of reclamation or construction should ~~preferably~~ be left without any colour tint.



B-329.3 **Works at sea which will be wholly or partly submerged** when completed, such as training walls or pipelines should be shown by the symbol used for completed features of that nature, but with a legend such as ‘Under **construction (2011)**’. For areas being dredged, see B-414.6

B-329.4 Where ~~detailed~~ information is lacking, or the scale of the chart is too small to show ~~detailed~~ limits of work under construction, a legend such as ‘Works in progress (2011)’, spaced out if necessary to cover the approximate area, should be inserted.

B-329.5 **Limits of works marked by buoys or lights.** Because **buoys and lights** may be moved without notice as construction or reclamation progresses, their positions should be shown only where ~~it seems safe to do so~~ they are likely to be stable (eg buoys marking the outer limit of the planned works). In other cases, a ~~subsidiary~~ legend such as ‘(Outer end marked by red lights)’ may be ~~added~~ more appropriate.

B-329.6 **Work projected** **must** not be inserted on charts unless it is about to begin, in which case it **must** be indicated as work under construction.

B-330 MOORED AND FIXED VESSELS, HULKS

Vessels may be built for, or converted to, some use which does not require them to move, eg museum ships, houseboats, floating hotels or conference centres, storage hulks. Permanently fixed vessels should normally be charted as a true to scale and orientation outline, filled with land tint. If scale does not allow, the symbol should be used, eg:



If useful, the vessel's name may be shown in upright text adjacent to the outline or symbol.

A hulk may be defined as the hull of an old vessel from which fittings and superstructure have been removed. It may be abandoned or put to some non-navigable use.

DRAFT REVISION OF S-4 SECTION B-300 TO B-330 – ROUND 1

Response Form

(please return to CSPCWG Secretary by 13 April 2011)

andrew.coleman@ukho.gov.uk

Specification	Question	Yes	No
304.2	Should we 'retire' symbol B21 and related specification?		
304.3	Should we 'retire' symbol B23 and related specification?		
305.1	This specification is generic (not limited to topography). Should we move it to B-125.3?		
	Should we 'retire' symbol B33 and related specification?		
312.1	The C3 symbols are hand drawn. Should these be replaced by computer generated symbols?		
312.2	The middle version in C7 is hand drawn. Can we remove this version?		
313.1	Can we remove the second version of F1 for standardization?		
321	Do you agree that it is logical to include all specifications related to berths in this sub-section, therefore moving the content of existing B-323 here (ie new B-321.6-8)?		
324.3	Do you agree to move 'pontoon' here, instead of at B-326.9, as it is more appropriately described as a 'landing' rather than a 'dock'?		
326.6	Should we delete ' <i>is an enclosure at the entrance to a non-tidal basin or within a canal, used to raise or lower a vessel to a different water level. Its ends are closed by lock gates which</i> '? It seems unnecessary to describe a lock in such detail.		
327.1	Would a small solid black square be a better symbol for a dolphin than the open square (similar to the solid circle for a post)?		
328.3	Should we 'retire' symbol F53.3 and related specification?		
330	Do you agree with the placement of B-330?		

Further comments:

Name:

Member State: