

CHART 1

SYMBOLS

ABBREVIATIONS TERMS

and S-57 OBJECTS

Used on Singaporean Nautical
and Electronic Navigational Charts



Published by the
Hydrographic Department

MARITIME AND PORT
AUTHORITY OF SINGAPORE

New Edition – 28 July 2011

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SYSTEM OF UPDATING

Revised editions of Chart 1 are published as necessary to show symbols which have been newly introduced and to record other developments in charting practice.

The more important changes introduced between editions are issued in Singapore Notices to Mariners as consecutively-numbered amendments. On receipt of these amendments the appropriate changes should be made as instructed and a record to the amendment noted in the table below.

Copies of Singapore Notices to Mariners can be obtained from the MPA website:

[http://www.mpa.gov.sg/sites/port_and_shipping/circulars_and_notices/Singapore_notices_to_mariners\(ntm\).page](http://www.mpa.gov.sg/sites/port_and_shipping/circulars_and_notices/Singapore_notices_to_mariners(ntm).page)

NOTICES TO MARINERS

NM NUMBER/YEAR	AMENDMENT NUMBER	SECTION REFERENCE	SUBJECT

The Maritime and Port Authority of Singapore gratefully acknowledge having used INT 1 of the International Chart Series and UKHO Chart 5011 (Symbols and Abbreviations used on Admiralty Charts). We hereby expresses thanks to the German Hydrographic Office and The United Kingdom Hydrographic Office.

CHART 1

(INT 1 Format)

Edition – 28 July 2011

SYMBOLS ABBREVIATIONS TERMS and S-57 OBJECTS Used on Singaporean Nautical and Electronic Navigational Charts

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INTRODUCTION

Chart 1	This edition of Chart 1 is based on the "Chart Specifications of the IHO" (International Hydrographic Organization), which came into force at the XIIth International Hydrographic Conference 1982 in Monaco with later additions and corrections. The layout and numbering accords with the IHO version of Chart INT 1.
General	Chart 1 contains Symbols Abbreviations Terms and S-57 Objects used on international as well as national charts of the Hydrographic Department, Maritime and Port Authority of Singapore (MPA). Symbols and abbreviations shown on navigational display systems using vector electronic charts may differ from those described in this document.
Publication	Additional information may be found in the publications "Singapore Tide Tables and Port Information." Information about features represented on charts can also be found in the following publications or their digital equivalents; Admiralty Sailing Directions; Admiralty List of Lights and Fogs Signals; Admiralty Tide Tables and Tidal Stream Atlases; Admiralty List of Radio Signals; Annual Notices to Mariners and IALA Maritime Buoyage System.
Copyright	Charts and publications issued by the Hydrographic Department, Maritime and Port Authority of Singapore are copyrighted in accordance with Copyright Act. Accordingly reproduction without a special permission is forbidden. Reproductions of any kind, including partial ones, are allowed only with the express permission of the Hydrographic Department, Maritime and Port Authority of Singapore. If foreign source material has been included in MPA charts, reproduction of any kind, including extracts, are allowed only with express permission of the hydrographic office involved. The source material used is listed under "the chart title" or in the Source Data Diagram.
Chart reference	Where the limits of larger scale charts or plans are shown, they should normally be used, as they contain further essential navigational information.
Projection	Standard charts are graduated on the Transverse Mercator projection.
Planes of reference	The datum for sounding reductions (chart datum) and the plane of reference for heights (height datum) are given on nautical charts under "the chart title".
Depths	The units used are given under the title of the chart. The position of a sounding is the centre of the area covered by the figures. Soundings within the Port of Singapore and the waters within the Malacca and Singapore Strait Routeing System are shown in metres and decimetres in depths of less than 31 metres. All other depths are rounded down to whole metres.
Heights above Chart datum	Underlined figures on rocks and banks which uncovers indicate height above chart datum. They are given metres and decimetres.
Heights above height datum	Heights, including overhead clearance, are normally given in metres above Mean High Water Springs or Mean Higher High Water depending on the tidal regime; in places where there is no appreciable tide they are above Mean Sea Level. The position of height is normally that of the dot alongside it, thus .99. Parentheses are used when the figure expressing height is set apart from the object (e.g. when showing the height of a small islet).
Vertical clearance	Vertical clearance is generally referred to high water. It is given from 0.1 to 10.0 in metres and decimetres and above that in whole metres.
Bearings	Bearings are given from seaward and refer to the true compass.

Schematic Layout of Chart 1

② M Tracks, Routes

③ Tracks		④ Tracks Marked by Lights → P		④ Leading Beacons → Q	
⑤ 1	<p>†</p> <p>270-5°</p> <p>2Bns≠270-5°</p>	⑦ Leading line (the firm line is the track to be followed)	⑧ NAVLNE . CATNAV = 3 ORIENT RECTRC . CATTRK = 1 ORIENT . TRAFIC	⑨ 433.1 433.2 433.3	

- ① Section.
- ② Section designation.
- ③ Sub-section.
- ④ Cross-reference to terms in other sections.
- ⑤ Column 1: Numbering following the International "Chart Specifications of the IHO".
A letter in this column, e.g. **a** indicates a supplementary national symbol for which there is no International equivalent.
- ⑥ Column 2: International (INT) symbols used on Singaporean charts. Where both are shown, true to scale representations are to the left of symbols.
- ⑦ Column 3: Term and explanation in English.
- ⑧ Column 4: S-57 Object classes and attributes
- ⑨ Column 5: Not navigationally significant. Cross references to the "Chart Specifications of the IHO". S-4 (Part B, unless a reference letter to another part is given).
- ⑩ † means: this representation or usage is obsolescent.

A Chart Number, Title, Marginal Notes

Schematic layout of an INT Chart (reduced in size)

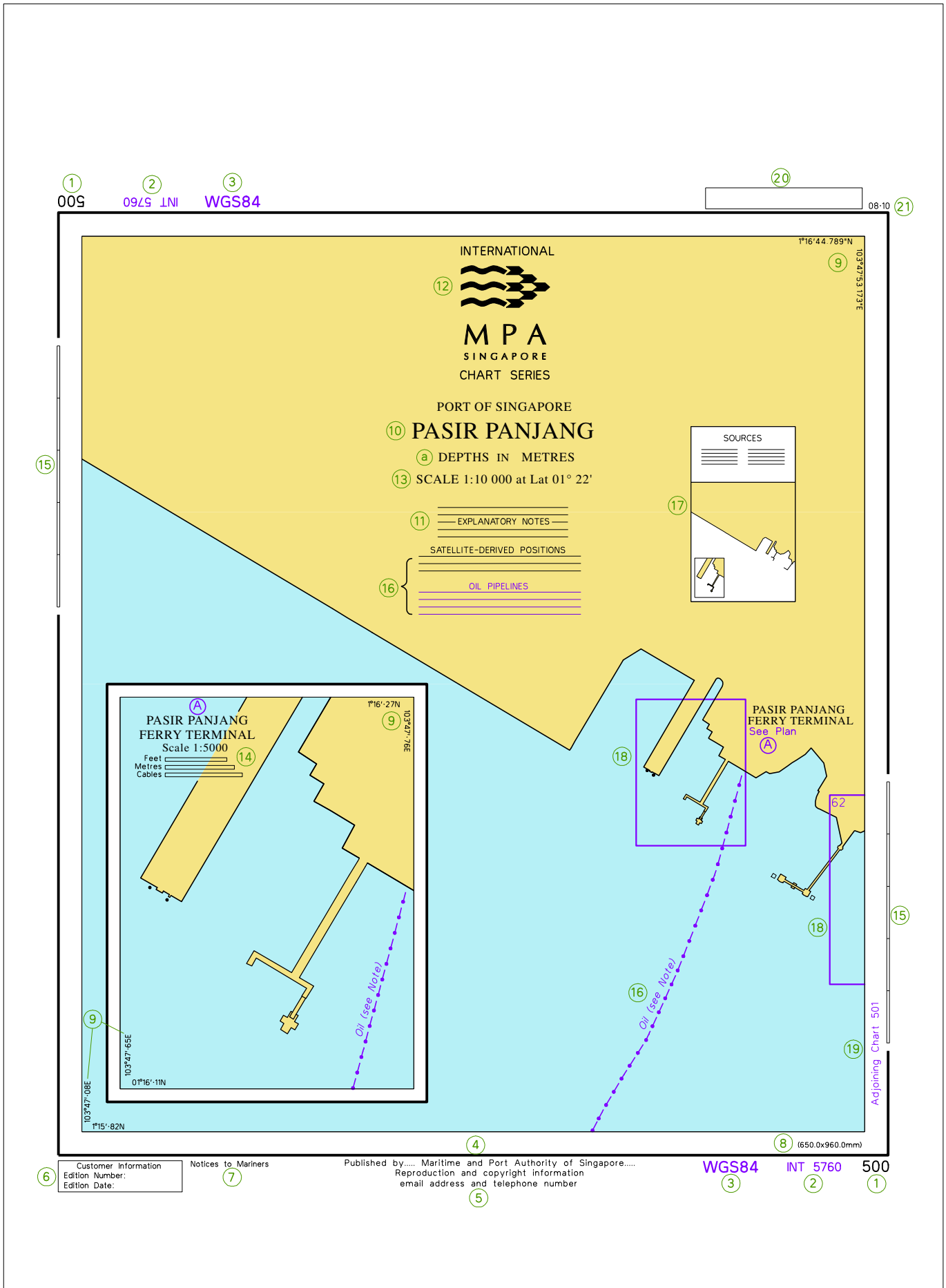




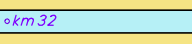













Chart Number, Title, Marginal Notes **A**

<i>Magnetic Features</i> → B	<i>Tidal Data</i> → H
① <i>Chart number in the Singaporean series.</i>	251
② <i>Chart number in the International (INT) Chart series.</i>	251.1
③ <i>Use of WGS84 geodetic reference system.</i>	201 255.3
④ <i>Publication note (imprint) showing the date of publication as a New Chart.</i>	252.1 252.4
⑤ <i>Reproduction and Copyright acknowledgement note. All Singaporean charts are subject to Copyright restrictions.</i>	253
⑥ <i>Customer Information, Edition Number, Edition Date.</i>	252.2
⑦ <i>Notices to Mariners: the year dates and numbers of Notices to Mariners.</i>	252.3
⑧ <i>Dimensions of the inner neat-lines of the chart border. In the case of charts on Transverse Mercator and Gnomonic projections, dimensions may be quoted for all borders of the chart which differ.</i>	222.3 222.4
⑨ <i>Corner co-ordinates.</i>	214
⑩ <i>Chart title. This should be quoted, in addition to the chart number, when ordering a chart.</i>	241.3
⑪ <i>Explanatory notes on chart content: to be read before using the chart.</i>	242
⑫ <i>Seals. Where Singaporean chart is in the International Chart series, the seal of the International Hydrographic Organization (IHO) is shown in addition to the national seal. Reproductions of international charts of other nations (facsimile) have the seals of the original producer (left), publisher (centre) and the IHO (right). Reproductions of other charts have the seals of original producer (left) and publisher (right); charts which are co-productions carry the seals of the nations involved in their production.</i>	241.1 241.2
⑬ <i>Scale of chart: on Mercator projection, at a stated latitude.</i>	211 241.4
⑭ <i>Linear scales on large-scale plan.</i>	221
⑮ <i>Linear border scales (metres). On smaller scale charts, the latitude border should be used to measure Sea miles and Cables.</i>	221.1
⑯ <i>Cautionary notes (if any) on charted detail: to be read before using the chart.</i>	242
⑰ <i>Source Diagram (if any). If a Source Diagram is not shown, details of the sources used in the compilation of the chart are given in the explanatory notes (see 11). The Source Diagram or notes should be studied carefully before using the chart in order to assess the reliability of the sources.</i>	290-298
⑱ <i>Reference to a larger scale chart or plan (with reference letter if plan on same chart).</i>	254
⑲ <i>Reference to an adjoining chart of similar scale.</i>	254
⑳ <i>Note 'IMPORTANT - THE USE OF SINGAPOREAN CHARTS'.</i>	243
㉑ <i>Printing date. Example : 08.10 (August 2010)</i>	252
a <i>Reference to the units used for depths measurement.</i>	241.5

B Positions, Distances, Directions, Compass

Geographical Positions				
1	Lat	Latitude		
2	Long	Longitude		
3		International Meridian (Greenwich)		
4	°	Degree(s)		130
5	'	Minute(s) of arc		130
6	"	Second(s) of arc		130
7	PA	Position approximate (not accurately determined or does not remain fixed)	*QUAPOS=4	417 424.1
8	PD	Position doubtful (reported in various positions)	*QUAPOS=5	417 424.2
9	N	North		1311
10	E	East		1311
11	S	South		1311
12	W	West		1311
13	NE	North-east		
14	SE	South-east		
15	NW	North-west		
16	SW	South-west		

Control Points, Distance Marks				
20		Triangulation point	CTRPNT.CATCTR=1	304.1
21		Observation spot	CTRPNT.CATCTR=2	304.2
22		Fixed point	CTRPNT.CATCTR=3	305.1 340.5
23		Benchmark	CTRPNT.CATCTR=4	304.3
24		Boundary mark	CTRPNT.CATCTR=5	306
25.1		Distance along waterway. no visible marker	DISMAR	307 361.3
25.2		Distance along waterway. with visible marker	DISMAR	
a		Viewpoint		390.2

Symbolised Positions (Examples)				
30	  	Symbols in plan: position is centre of primary symbol		305.1
31	  	Symbols in profile: position is at bottom of symbol		305.1
32	 Mast  MAST 	Point symbols (accurate positions)		305.1 340.5
33	 Mast PA	Approximate position	*QUAPOS=4	305.1

* Geometry Attributes

Positions, Distances, Directions, Compass B



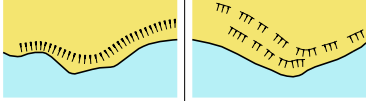


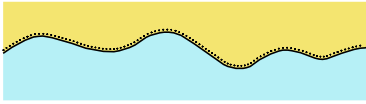
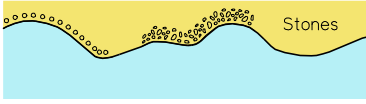
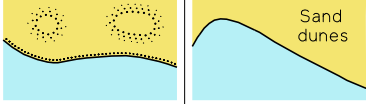
Units				
40	km		<i>Kilometre(s)</i>	
41	m		<i>Metre(s)</i>	130
42	dm		<i>Decimetre(s)</i>	130
43	cm		<i>Centimetre(s)</i>	
44	mm		<i>Milimetre(s)</i>	130
45	M		<i>International Nautical Mile(s) (1852m) or Sea Mile(s)</i>	130
46			<i>Cable (0.1M)</i>	130
47	ft		<i>Foot/feet</i>	
48			<i>Fathom(s)</i>	
49	h		<i>Hour</i>	130
50	m	min	<i>Minute(s) of time</i>	130
51	s	sec	<i>Second(s) of time</i>	130
52	kn		<i>Knot(s)</i>	130
53	t		<i>Tonne(s). Ton(s). tonnage (weight)</i>	328.3
54	cd		<i>Candela</i>	

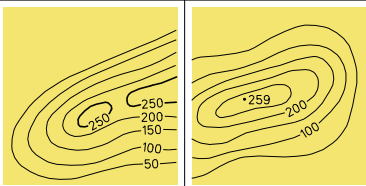
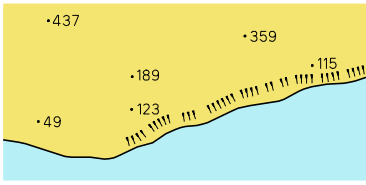
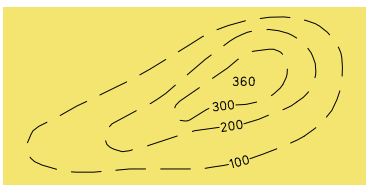
Magnetic Compass				
60			<i>Variation</i>	
61			<i>Magnetic</i>	
62			<i>Bearing</i>	132
63			<i>true</i>	
64			<i>decreasing</i>	
65			<i>increasing</i>	
66			<i>Annual change</i>	
67			<i>Deviation</i>	
68.1	Magnetic Variation 0°15'E 2011 (0.4'W)		<i>Note of magnetic variation, in position</i>	
68.2	Magnetic Variation at 01° 10'N 103° 38'E 0°15'E 2011 (0.4'W)		<i>Note of magnetic variation, out of position</i>	272.2

B Positions, Distances, Directions, Compass

<p>70</p>	<p><i>Compass Roses, True and Magnetic.</i> <i>4°30'W 2004 (9'E) on magnetic north arrow means</i> <i>Magnetic Variation 4°30'W in 2004, annual change 9'E</i> <i>(i.e. magnetic variation decreasing 9' annually)</i></p> <p><i>True Compass Rose</i> <i>Magnetic North indicated</i> <i>by arrow</i></p>	<p><i>Magnetic Variation is expressed to the nearest 5'</i> <i>and relates to 1 January of the year stated. Annual</i> <i>change E or W is given to the nearest minute.</i></p> <p><i>The arrow indicating</i> <i>Magnetic North is omitted</i> <i>on charts comprising</i> <i>separate plans and on</i> <i>charts showing isogonals.</i></p>	<p>260- 262.2 272.3</p>
<p>MAGVAR . RYRMGV . VALACM . VALMAG</p>			
<p>71</p>	<p><i>Magnetic Variation Lines.</i> <i>Isogonals (lines of equal</i> <i>magnetic variation)</i></p>	<p>MAGNETIC VARIATION LINES ARE FOR 2000 The magnetic variation is shown in degrees, followed by the letter E or W, as appropriate, at certain positions on the lines. The annual change is expressed in minutes with the letter E or W and is given in brackets, immediately following the variation.</p>	<p>272.1</p>
<p style="text-align: right;"><i>Magnetic variation values</i> <i>are for 1 January of the year stated</i></p>			
<p>82.1</p>		<p><i>Local Magnetic Anomaly</i> <i>Within the enclosed area the magnetic</i> <i>variation may deviate from the normal</i> <i>by the value shown.</i></p>	<p>LOCMAG.VALLMA</p>
<p>82.2</p>	<p>Local Magnetic Anomaly (see Note)</p>	<p><i>Where the area affected cannot be</i> <i>easily defined, a legend only is</i> <i>shown at the position.</i></p>	<p>LOCMAG.VALLMA.INFORM</p>
<p>274</p>			

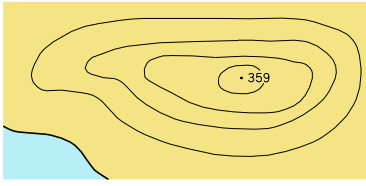
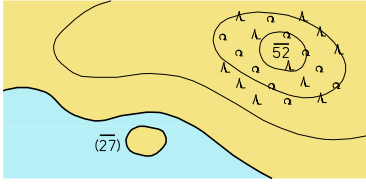
Natural Features **C**

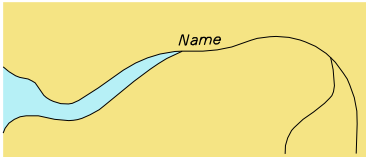

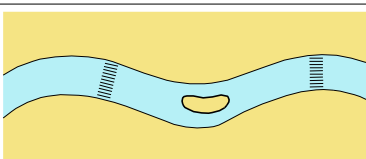
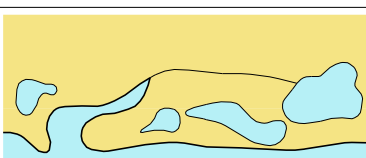
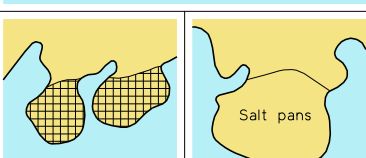
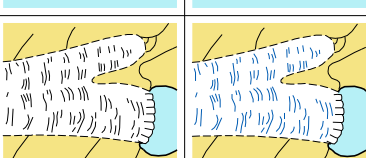
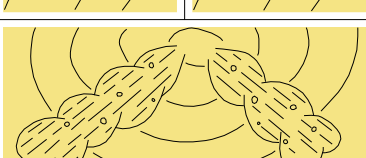
Coastline		Foreshore → I, J		
1		<i>Coastline, surveyed</i>	COALNE.*QUAPOS=1	310.1 310.2
2		<i>Coastline, unsurveyed</i>	COALNE.*QUAPOS=2	311
3		<i>Steep coast, Cliffs</i>	COALNE.CATCOA=1 SLOTOP.CATSLO=6	312.1
4		<i>Hillocks</i>	SLOGRD.CATSLO=4 SLOTOP.CATSLO=4	312.1
5		<i>Flat coast</i>	COALNE.CATCOA=2	312.2
6		<i>Sandy shore</i>	COALNE.CATCOA=3	312.2
7		<i>Stony shore, Shingly shore</i>	COALNE.CATCOA=4 COALNE.CATCOA=5	312.2
8		<i>Sandhills, Dunes</i>	SLOGRD.CATSLO=3 NATSUR=4	312.3

Relief		Plane of Reference for Heights → H		
10		<i>Contour lines with values and spot height</i>	LNDELV.ELEVAT	351.3 351.4 351.5 351.6 352.2
11		<i>Spot heights</i>	LNDELV.ELEVAT	352.1 352.2
12		<i>Approximate contour lines with values with approximate height</i>	LNDELV.ELEVAT.*QUAPOS=4	351.3 351.4 351.5 351.6 352.3

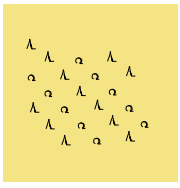
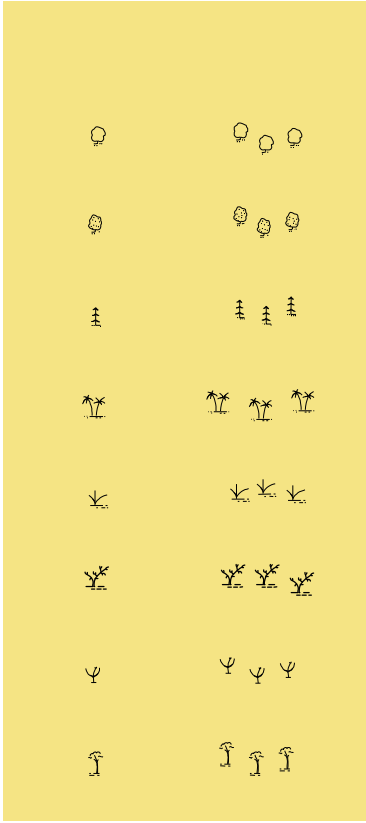
















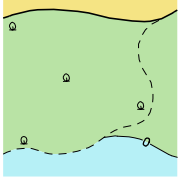


* Geometry Attributes

C Natural Features

13		Form lines with spot height	LNDELV.ELEVAT	351.2 351.3 351.7 352.2
14		Approximate height of top of trees (above height datum)	VEGATN.HEIGHT	352.4

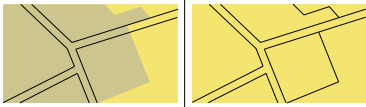
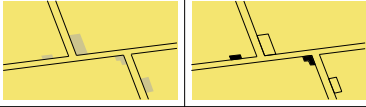



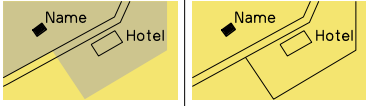


Water Features, Lava				
20		River, Stream	RIVERS	353.1 353.2 353.4
21		Intermittent river	RIVERS.STATUS=5	353.3
22		Rapids, Waterfalls	RAPIDS WATFAL	353.5
23		Lakes	LAKARE	353.6
24		Salt pans	LNDRGN.CATLND=15	353.7
25		Glacier	ICEARE.CATICE=5 COALNE.CATCOA=6	353.8
26		Lava flow	LNDRGN.CATLND=14	355




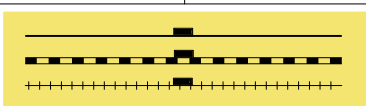
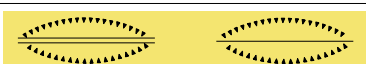
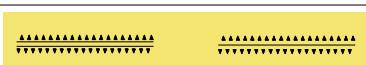
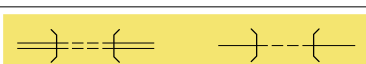
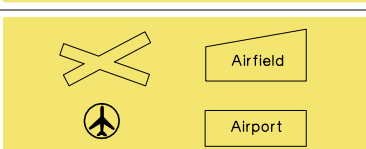
Natural Features C


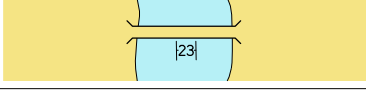
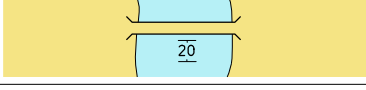

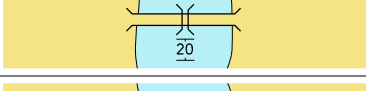
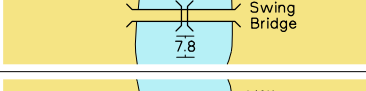
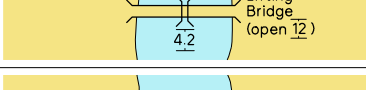
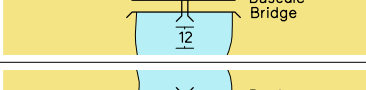
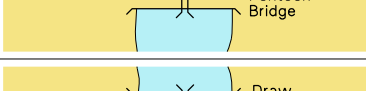
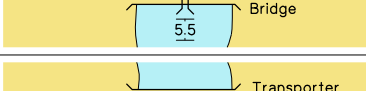
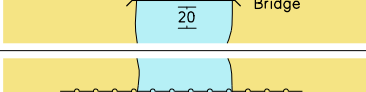
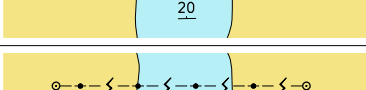
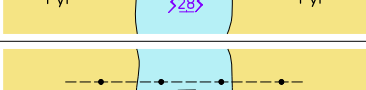
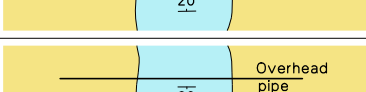

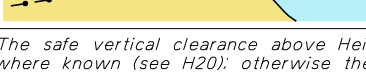
Vegetation					
30		Wooded	<i>Woods in general</i>	VEGATN . CATVEG=6	354.1
31			<i>Prominent trees (Isolated or in groups)</i>	VEGATN . CATVEG=6 . CONVIS	354.2
31.1			<i>Deciduous tree, unknown or unspecified tree</i>	VEGATN . CATVEG=20	
31.2			<i>Evergreen (except conifer)</i>	VEGATN . CATVEG=14	
31.3			<i>Conifer</i>	VEGATN . CATVEG=15	
31.4			<i>Palm</i>	VEGATN . CATVEG=16	
31.5			<i>Nipa palm</i>	VEGATN . CATVEG=17	
31.6			<i>Casuarina</i>	VEGATN . CATVEG=18	
31.7			<i>Filao</i>	VEGATN . CATVEG=22	
31.8			<i>Eucalypt</i>	VEGATN . CATVEG=19	
32			<i>Mangrove</i>	COALNE . CATCOA=7 . *QUAPOS=4 VEGATN . CATVEG=7	312.4
33			<i>Marsh, Swamp, Salt marsh</i>	LNDGRN . CATLND=2 / 12 COALNE . CATCOA=8 . *QUAPOS=4	312.2

* Geometry Attributes

D Cultural Features


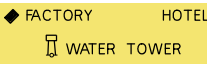




Settlements, Buildings		<i>Height of objects</i> → E	<i>Landmarks</i> → E
1		<i>Urban area</i>	BUAARE.CATBUA=1 370.3 370.4
2		<i>Settlement with scattered buildings</i>	BUAARE.CATBUA=2 370.5
3		<i>Settlement (on medium and small-scale charts)</i>	BUAARE.CATBUA=2 370.7
4		<i>Inland village</i>	BUAARE.CATBUA=3 370.6
5		<i>Building</i>	BUISGL 370.5
6		<i>Important building in built-up area</i>	BUISGL.OBJNAM.CONVIS.FUNCTN 370.3
7		<i>Street name. Road name</i>	ROADWY.CATROD.OBJNAM 371
8		<i>Ruin. Ruined landmark</i>	LNDMRK.CATLMK.CONDTN BUISGL.CONDTN=2 378 378.2













Roads, Railways, Airfields			
10		<i>Motorway</i>	ROADWY.CATROD=1 365.1
11		<i>Road (hard surfaced)</i>	ROADWY.CATROD 365.2
12		<i>Track. Path (loose or unsurfaced)</i>	ROADWY.CATROD=4 365.3
13		<i>Railway, with station</i>	RAILWY BUISGL.FUNCTN=8 328.4 362.1 362.2
14		<i>Cutting</i>	SLOTOP.CATSLO=1 363.2
15		<i>Embankment</i>	SLOTOP.CATSLO=2 364.1
16		<i>Tunnel</i>	TUNNEL 363.1
17		<i>Airport. Airfield</i>	AIRARE.CATAIR 366.1 366.2

Other Cultural Features		Plane of Reference for Heights → H		
20		Vertical clearance above Height Datum (in parentheses when displaced for clarity)	BRIDGE.CATBRG.VERCLR	380.1 380.2
21		Horizontal clearance	BRIDGE.CATBRG. HORCLR	380.3
22.1		Fixed bridge with vertical clearance	BRIDGE.CATBRG=1.VERCLR	381.1 302.2 380.1
22.2		Safe vertical clearance	BRIDGE.CATBRG=1.VERCSA	
23.1		Opening bridge (in general) with vertical clearance	BRIDGE.CATBRG=2. VERCCL.VERCOP	381.3
23.2		Swing bridge with vertical clearance	BRIDGE.CATBRG=3.VERCCL	
23.3		Lifting bridge with vertical clearance (closed and open)	BRIDGE.CATBRG=4. VERCCL.VERCOP	
23.4		Bascule bridge with vertical clearance	BRIDGE.CATBRG=5. VERCCL.VERCOP	
23.5		Pontoon bridge	BRIDGE.CATBRG=6.VERCLR	
23.6		Draw bridge with vertical clearance	BRIDGE.CATBRG=7.VERCLR	
24		Transporter bridge with vertical clearance between Height Datum and lower part of structure	BRIDGE.CATBRG=8.VERCLR	
25		Overhead transporter, Aerial cableway with vertical clearance	CONVYR.CATCON=1.VERCLR	382.1
26		Power transmission line with pylons and safe vertical clearance (see Note below D29)	CBLOHD.CATCBL=1/3. VERCSA.VERCLR PYLONS.CATPYL=1	382 382.2
27		Overhead cable, Telephone line, Telegraph line with vertical clearance	CBLOHD.CATCBL=4.5. VERCSA.VERCLR	383
28		Overhead pipe with vertical clearance	PIPOHD.CATPIP.VERCLR	377
29		Pipeline on land	PIPSOL.CATPIP.PRODCT	




























Note: The safe vertical clearance above Height Datum, as defined by the responsible authority, is given in magenta where known (see H20); otherwise the physical vertical clearance is shown in black as in D20

E Landmarks

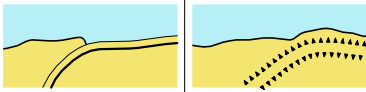
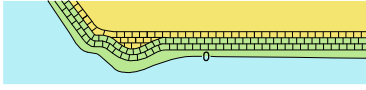


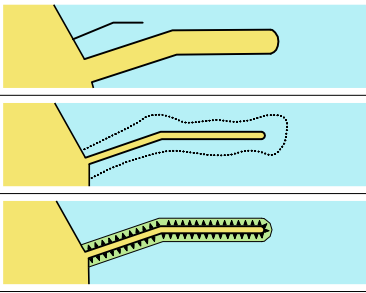
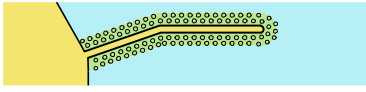
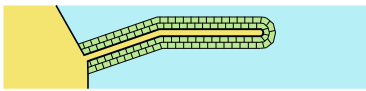
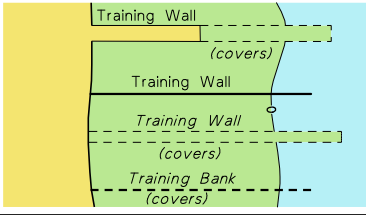

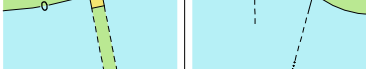

General	Plane of Reference for Heights → H	Lighthouses → P	Beacons → Q
1		Examples of landmarks	LNDMRK.CATLMK.FUNCTN 340.1 340.2 340.5
2		Examples of conspicuous landmarks. A legend in capital letters indicates that a feature is conspicuous	LNDMRK.CATLMK.CONVIS=1 340.1 340.2 340.3 340.5
3.1		Pictorial symbols (in true position)	LNDMRK.CATLMK.CONVIS.PICREP 340.7 373.1 390 456.5 457.3
3.2		Sketches. Views (out of position)	LNDMRK.CATLMK.CONVIS.PICREP
4		Height of top of a structure above height datum	LNDMRK.CATLMK.CONVIS.HEIGHT 302.3
5		Height of top of a structure above ground level	LNDMRK.CATLMK.CONVIS.VERLEN 303





Landmarks				
10.1		Ch	Church, Cathedral	BUISGL.FUNCTN=20 373.1 373.2
10.2		Tr	Church tower	LNDMRK.CATLMK=17. FUNCTN=20.CONVIS 373.2
10.3		Sp	Church spire	LNDMRK.CATLMK=20. FUNCTN=20.CONVIS 373.2
10.4		Cup	Church cupola	LNDMRK.CATLMK=15. FUNCTN=20.CONVIS 373.2
11			Chapel	BUISGL.FUNCTN=21
12			Cross, Calvary	LNDMRK.CATLMK=14.CONVIS
13			Temple	BUISGL.FUNCTN=22 373.3
14			Pagoda	BUISGL.FUNCTN=23 373.3
15			Shinto shrine, Joss house	BUISGL.FUNCTN=24 373.3
16		 #	Buddhist temple or shrine	BUISGL.FUNCTN=25 373.3
17			Mosque, Minaret	BUISGL.FUNCTN=26 LNDMRK.CATLMK=20.FUNCTN=26 373.4
18			Marabout	BUISGL.FUNCTN=27 373.5
19			Cemetery (all religions)	LNDMRK.CATLMK=2.CONVIS 373.6

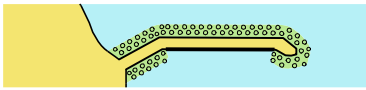

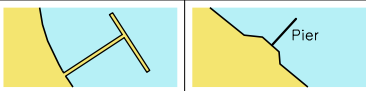







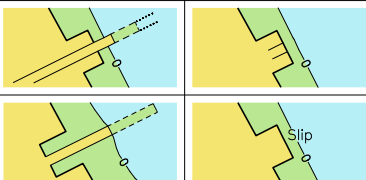
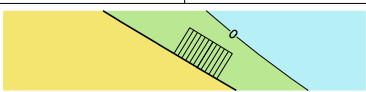
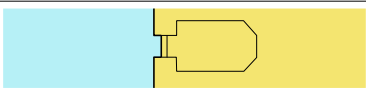
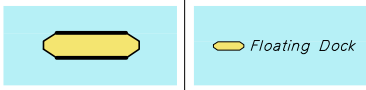
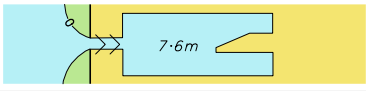
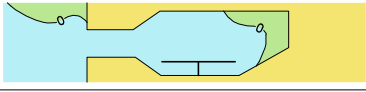
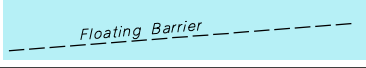
Landmarks E

20		Tr	<i>Tower</i>	LNDMRK.CATLMK=17.CONVIS	374.3
21			<i>Water tower. Water tank on a tower</i>	SILTNK.CATSIL=4.PRODCT=3/8	374.2 376
22		Chy	<i>Chimney</i>	LNDMRK.CATLMK=3.CONVIS	374.1
23			<i>Flare stack (on land)</i>	LNDMRK.CATLMK=6.CONVIS	374.1
24		Mon	<i>Monument (including column, pillar, obelisk, statue)</i>	LNDMRK.CATLMK=9.12.13. CONVIS	374.4
25.1			<i>Windmill</i>	LNDMRK.CATLMK=18.CONVIS	374.5
25.2			<i>Windmill (without sails)</i>	LNDMRK.CATLMK=18. CONVIS.CONDTN=4	378.2
26.1			<i>Wind turbine. Windmotor</i>	LNDMRK.CATLMK=19.CONVIS	374.6
26.2			<i>Wind farm</i>	PRDARE.CATPRA=9	374.6
27		FS	<i>Flagstaff. Flagpole</i>	LNDMRK.CATLMK=5.CONVIS	374.7
28			<i>Radio mast. Television mast. Mast</i>	LNDMRK.CATLMK=7. CONVIS.FUNCTN=30/31	375.1
29			<i>Radio tower. Television tower</i>	LNDMRK.CATLMK=17. CONVIS.FUNCTN=30/31	375.2
30.1			<i>Radar mast</i>	LNDMRK.CATLMK=7. CONVIS.FUNCTN=32	487.3
30.2			<i>Radar tower</i>	LNDMRK.CATLMK=17. CONVIS.FUNCTN=32	
30.3			<i>Radar scanner</i>	LNDMRK.CATLMK=16.CONVIS	
30.4			<i>Radome</i>	LNDMRK.CATLMK=15. CONVIS.FUNCTN=32	
31			<i>Dish aerial</i>	LNDMRK.CATLMK=4.CONVIS	375.4
32		Tanks	<i>Tanks</i>	SILTNK.CATSIL=2 PRDARE.CATPRA=8	376.1 376.2
33		Silo	<i>Silo</i>	SILTNK.CATSIL=1	376.3
34.1			<i>Fortified structure (on large - scale charts)</i>	FORSTC.CATFOR	379.1
34.2			<i>Castle. Fort. Blockhouse (on smaller scale charts)</i>	FORSTC.CATFOR=1.2.4	379.2
34.3			<i>Battery. Small fort (on smaller scale charts)</i>	FORSTC.CATFOR=2.3	379.2
35.1			<i>Quarry (on large - scale charts)</i>	PRDARE.CATPRA=1	367.1
35.2			<i>Quarry (on smaller scale charts)</i>	PRDARE.CATPRA=1	367.2
36			<i>Mine</i>	PRDARE.CATPRA=2	367.2
37.1			<i>Caravan site</i>	SMCFAC.CATSCF=24	368
37.2			<i>Camping site</i>	SMCFAC.CATSCF=25	368



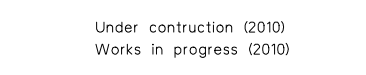




F Port


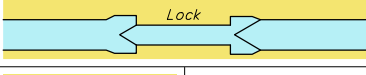


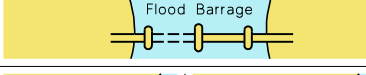

Protection Structures					
1		<i>Dyke, Levee, Berm</i>	DYKCON SEAARE.CATSEA=37	313.1	
2.1		<i>Seawall (on large-scale charts)</i>	SLCONS.CATSLC=10	313.2	
2.2		<i>Seawall (on smaller scale charts)</i>	SLCONS.CATSLC=10		
3		<i>Causeway</i>	CAUSWY. WATLEV	313.3	
4.1		<i>Breakwater (in general)</i>	SLCONS.CATSLC=1 WATLEV=2.4	322.1	
4.2		<i>Breakwater (loose boulders, tetrapods, etc)</i>	SLCONS.CATSLC=1.NATCON=3		
4.3		<i>Breakwater (slope of concrete or masonry)</i>	SLCONS.CATSLC=1. NATCON=1/2 WATLEV=4		
5		<i>Training wall</i>	SLCONS.CATSLC=7 WATLEV=2.3.4	322.2	
6.1		<i>Groyne (always dry)</i>	SLCONS.CATSLC=2.WATLEV=2	313.4 324	
6.2		<i>Groyne (intertidal)</i>	SLCONS.CATSLC=2.WATLEV=4		
6.3		<i>Groyne (always underwater)</i>	SLCONS.CATSLC=2.WATLEV=3		

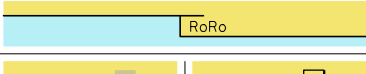

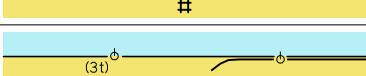
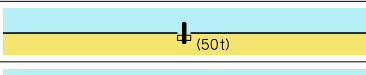
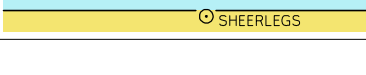

Harbour Installations <i>Depths</i> → I <i>Anchorage, Limits</i> → N <i>Beacons and other fixed marks</i> → Q <i>Marina</i> → U					
10		<i>Fishing Harbour</i>	HRBFAC.CATHAF=4	320.1	
11.1		<i>Yacht harbour, Marina</i>	HRBFAC.CATHAF=5	320.2	
11.2		<i>Yacht berths without facilities</i>	HRBFAC.CATHAF=5.INFORM		
11.3		<i>Yacht club, Sailing club</i>	SMCFAC.CATSCF=2		






12		Mole (with berthing facility)	SLCONS.CATSLC=3	3213
13		Quay. Wharf	SLCONS.CATSLC=6	3211
14		Pier. Jetty	SLCONS.CATSLC=4	3212 3214
15		Promenade pier	SLCONS.CATSLC=5	3212
16		Pontoon	PONTON	3269
17		Landing for boats	SLCONS.CATSLC=4.11 WATLEV=2.4	3242
18		Steps. Landing stairs	SLCONS.CATSLC=11 WATLEV=1	
19.1		Designation of berth	BERTHS.OBJNAM	3231
19.2		Visitors' berth	SMCFAC.CATSCF=1	3232
20		Dolphin	MORFAC.CATMOR=1 WATLEV=2	3271
21		Deviation dolphin	MORFAC.CATMOR=2 WATLEV=2	3272
22		Minor post or pile	MORFAC.CATMOR=5 PILPNT.CATPLE=3	3273
23		Slipway. Patent slip. Ramp	SLCONS.CATSLC=12.13 WATLEV=2.3.4	3241
24		Gridiron. Scrubbing grid	GRIDRN WATLEV=4	3268
25		Dry dock. Graving dock	DRYDOC	3261
26		Floating dock	FLODOC	3262
27		Non - tidal basin. Wet dock	DOCARE.CATDOC=2	3263
28		Tidal basin. Tidal harbour	DOCARE.CATDOC=1	3264
29.1		Floating oil barrier	OILBAR.CATOLB=2	449.2
29.2		Oil retention barrier (high pressure pipe)	OILBAR.CATOLB=1	

F Ports

30		<i>Dock under construction (2010)</i>	<i>Works on land, with year date</i>	DOCARE.CONDTN=1.INFORM	329.1
31		<i>Being reclaimed (2010)</i>	<i>Works at sea. Area under reclamation, with year date</i>	SLCONS.CONDTN=3.INFORM	329.2
32		<i>Under construction (2010) Works in progress (2010)</i>	<i>Works under construction, with year date</i>	RESARE.RESTRN=14.INFORM CONDTN=1	329 329.4
33.1		<i>Ruin</i>		SLCONS.CONDTN=2	378.1
33.2		<i>Ruined pier Partly submerged at high water</i>		SLCONS.CATSLC=4.CONDTN=2	
34		<i>Hulk</i>		HULKES.CATHLK	
a		<i>Bollard</i>		MORFAC.CATMOR=3	

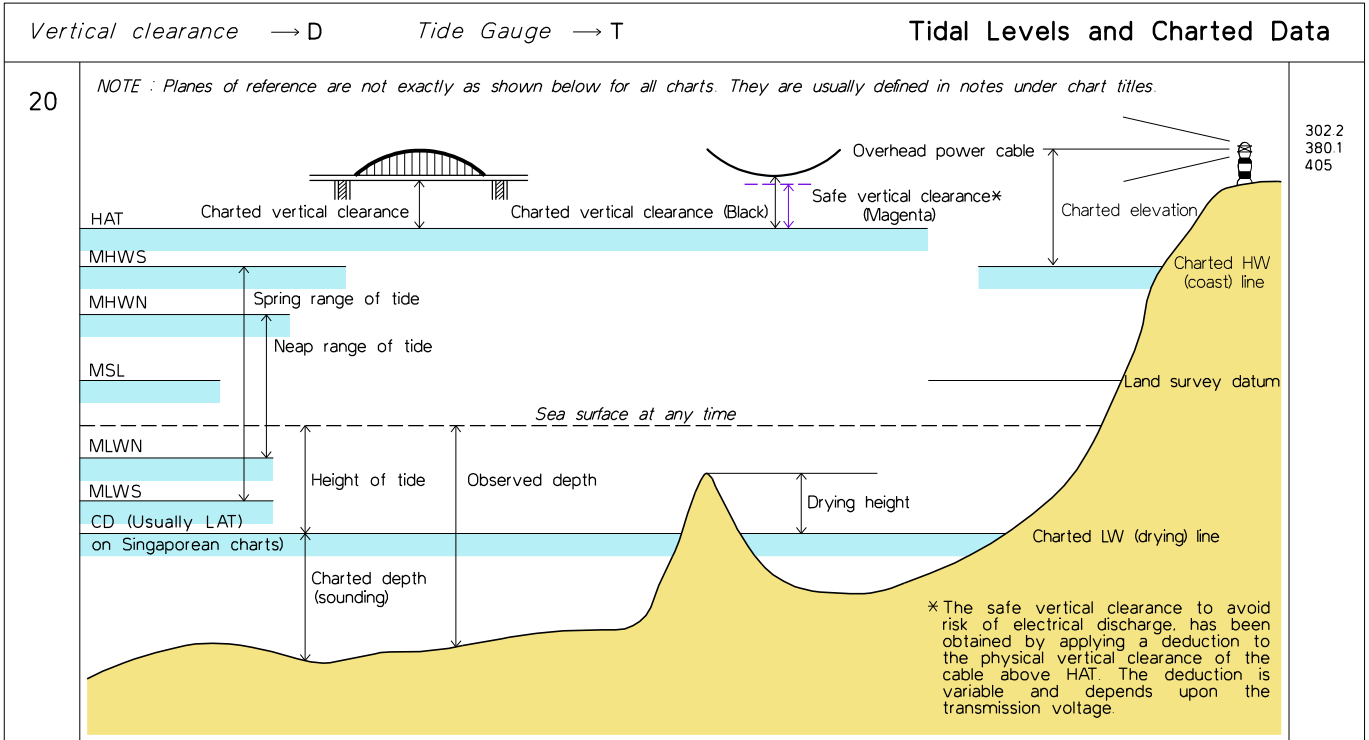
Rivers, Canals, Barrages		<i>Clearances</i> → D	<i>Signal Station</i> → T	<i>Cultural Features</i> → D	
40		<i>Canal</i>		CANALS.CATCAN DISMAR.CATDIS.INFORM	361.6
41.1		<i>Lock (on large scale charts)</i>		LOKBSN	326.6 361.6
41.2		<i>Lock (on smaller scale charts)</i>		LOKBSN	
42		<i>Caisson Gate</i>		GATCON.CATGAT=3	326.5
43		<i>Flood barrage</i>		GATCON.CATGAT=2 DAMCON.CATDAM=3	326.7
44		<i>Dam, Weir → Direction of flow</i>		DAMCON.CATDAM=1.2	364.2

Transshipment Facilities		<i>Roads</i> → D	<i>Railways</i> → D	<i>Tanks</i> → E	
50		<i>Roll-on, Roll-off (RoRo) Ferry Terminal</i>		HRBFAC.CATHAF=1	321.5
51		<i>Transit shed, Warehouse (with designation)</i>		BUISGL.FUNCTN=15	328.1
52		<i>Timber yard</i>		PRDARE.CATPRA=6	328.2
53.1		<i>Crane (with lifting capacity) Travelling crane on railway</i>		CRANES.CATCRN=4.LIFCAP	328.3
53.2		<i>Container crane (with lifting capacity)</i>		CRANES.CATCRN=2.LIFCAP	
53.3		<i>Sheerlegs (conspicuous)</i>		CRANES.CATCRN=3.LIFCAP CONVIS	

Public Buildings				
60		<i>Harbour Master's office</i>	BUISGL.FUNCTN=2	325.1
61		<i>Custom office</i>	BUISGL.FUNCTN=3	325.2
62.1		<i>Health office. Quarantine building</i>	BUISGL.FUNCTN=4.INFORM	325.3
62.2	 Hospital	<i>Hospital</i>	BUISGL.FUNCTN=5	
63		<i>Post office</i>	BUISGL.FUNCTN=6	372.1

H Tides, Currents

Terms Relating to Tidal Levels				
1	CD	<i>Chart Datum Datum for sounding reduction</i>		405
2	LAT	<i>Lowest Astronomical Tide</i>		405.3
3	HAT	<i>Highest Astronomical Tide</i>		
4	MLW	<i>Mean Low Water</i>		
5	MHW	<i>Mean High Water</i>		
6	MSL	<i>Mean Sea Level</i>		
7		<i>Land survey datum</i>		
8	MLWS	<i>Mean Low Water Springs</i>		
9	MHWS	<i>Mean High Water Springs</i>		
10	MLWN	<i>Mean Low Water Neaps</i>		
11	MHWN	<i>Mean High Water Neaps</i>		
12	MLLW	<i>Mean Lower Low Water</i>		
13	MHHW	<i>Mean Higher High Water</i>		
14	MHLW	<i>Mean Higher Low Water</i>		
15	MLHW	<i>Mean Lower High Water</i>		
16	Sp	<i>Spring tide</i>		
17	Np	<i>Neap tide</i>		
a		<i>High Water</i>		
b		<i>Low Water</i>		
c		<i>Mean Tide Level</i>		
d		<i>Ordnance Datum</i>		



Tide Tables

30 *Tabular statement of semi - diurnal or diurnal tides*

406.2
406.3
406.4
406.5

Tidal Levels referred to Datum of Soundings

Place	Lat.	Long	Heights in metres/feet above datum				Datum and Remarks
	N/S	E/W	MHWS	MHWN	MLWN	MLWS	
			MHHW	MLHW	MHLW	MLLW	





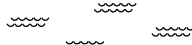
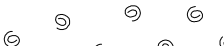


31 *Tidal stream table*




407.2
407.3

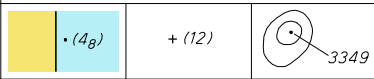
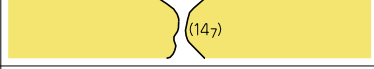
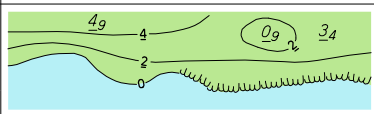
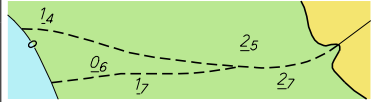
Tidal streams referred to...

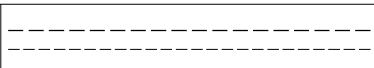
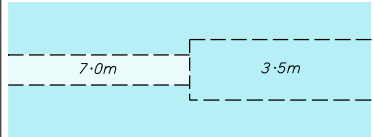
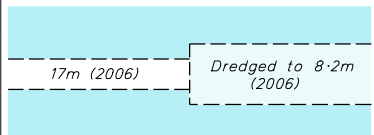
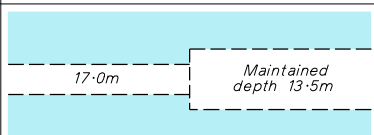
Hours	Geographical Position	A				B				C				D				E			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	No			
6	Before High Water High Water After High Water Directions of streams (degrees) Rates at spring tides (knots) Rates at neap tides (knots)	-6																For predictions, use Admiralty/Singapore Tide Tables			
5		-5																			
4		-4																			
3		-3																			
2		-2																			
1		-1																			
0		0																			
1		+1																			
2		+2																			
3		+3																			
4		+4																			
5		+5																			
6	+6																				

H Tides, Currents

Tidal Streams and Currents		Breakers → D	Tide Gauge → T
40		<i>Flood tide stream (with mean spring rate)</i>	TS_FEB.CAT_TS=1. CURVEL.ORIENT 407.4 408.2
41		<i>Ebb tide stream (with mean spring rate)</i>	TS_FEB.CAT_TS=2. CURVEL.ORIENT 407.4 408.2
42		<i>Current in restricted waters</i>	CURRENT.CURVEL.ORIENT 408.2
43		<i>Ocean current. Details of current strength and seasonal variations may be shown</i>	CURRENT.CURVEL. ORIENT.INFORM 408.3
44		<i>Overfalls, tide rips, races</i>	WAT TUR.CAT WAT = 3/4 423.1
45		<i>Eddies</i>	WAT TUR.CAT WAT = 2 423.3
46		<i>Position of tabulated tidal stream data with designation</i>	TS_PAD.TS_TSP 407.2
47		<i>Offshore position for which tidal levels are tabulated</i>	406.5
e		<i>Wave recorder</i>	BCNSPP CATSPM=10
f		<i>Current meter</i>	

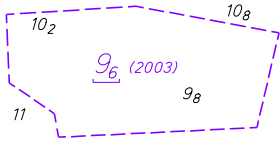
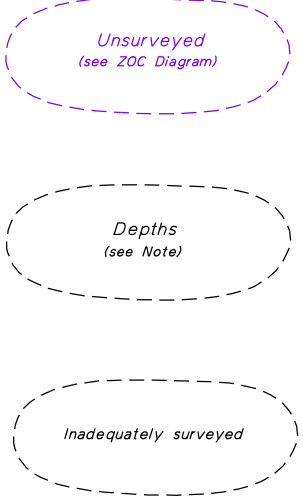
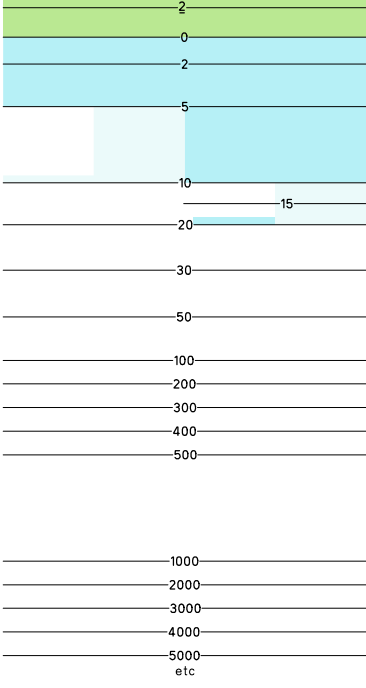
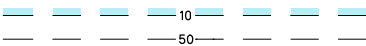
General				
1	<i>ED</i>	<i>Existence doubtful</i>	STATUS=18	417 424.3
2	 <i>SD</i>	<i>Sounding of doubtful depth</i>	SOUNDG.QUASOU=3	417 424.4
3.1	<i>Rep</i>	<i>Reported, but not confirmed</i>	*QUAPOS=8	417 424.5
3.2	<i>Rep (1973)</i>	<i>Reported, with year of report, but not confirmed</i>	*QUAPOS=8.INFORM	
4	 	<i>Reported, but not confirmed, sounding or danger (on small-scale charts only)</i>	SOUNDG.QUASOU=9.*QUAPOS=8	M-4 Part C 404.3
a		<i>Unexamined</i>	*QUAPOS=2	

Soundings and Drying Heights <i>Plane of Reference for Depths → H</i> <i>Plane of Reference for Heights → H</i>				
10	12 9 ₂	<i>Sounding in true position</i>	SOUNDG.QUASOU=1 VALSOU	403.1 410/412 412.1
11		<i>Sounding out of position</i>	SOUNDG.VALSOU QUASOU=1	412 412.1 412.2
12		<i>Least depth in narrow channel</i>	SOUNDG.QUASOU=6 VALSOU	412 412.1 412.2
13	$\frac{\cdot}{330}$	<i>No bottom found at depth shown</i>	SOUNDG.QUASOU=5. VALSOU	412.3
14	12 9 ₁	<i>Soundings taken from old or smaller scale sources shown in upright, hairline figures</i>	SOUNDG.QUASOU=4 VALSOU	412.4 417.3
15		<i>Drying heights and contours above chart datum</i>	SOUNDG.QUASOU=1	413 413.1 413.2
16		<i>Natural watercourse (in intertidal area)</i>	TIDEWY	413.3

Depths in Fairways and Areas <i>Plane of Reference for Depths → H</i>				
20		<i>Limit of dredged channel or area (major and minor)</i>	DRGARE.DRVAL1.QUASOU=10,11	414.3
21		<i>Dredged channel or area with depth of dredging in metres and decimetres</i>	DRGARE.DRVAL1	414
22		<i>Dredged channel or area with depth of dredging and year of the latest control survey</i>	DRGARE.DRVAL1.INFORM	414.1
23		<i>Dredged channel or area with depth regularly maintained</i>	DRGARE.DRVAL1.QUASOU=10	414.2

* Geometry Attributes

I Depths

24		<p>Area swept by wire drag. The depth is shown at Chart Datum. (The latest date of sweeping may be shown in parentheses)</p>	SWPARE.DRVAL1.TECSOU=6.8.13	415 415.1
25		<p>Unsurveyed or inadequately surveyed area: area with inadequate depth information</p>	UNSARE	410 417 417.6 417.7
Depth Contours				
30		<p>Drying contour Low Water (LW) Line. Chart Datum (CD)</p> <p>Blue tint, in one or more shades, and tint ribbons, are shown to different limits according to the scale and purpose of the chart and the nature of the bathymetry.</p> <p>On some charts, the standard set of contours is augmented by additional contours in order to delimit particular bathymetric features or for the benefit of particular categories of shipping. However, in some instances where the provision of additional contours would be helpful, the survey data available does not permit it.</p> <p>On some charts, contours and labels are printed in blue.</p>	DEPCNT.VALDCO	404.2 410 411
31		<p>Approximate depth contours (length of dashes may vary)</p>	DEPCNT.VALDCO.*QUAPOS=4	411.2 417.5


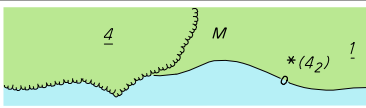
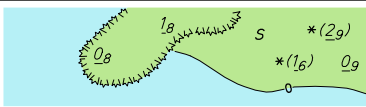
* Geometry Attributes

Nature of the Seabed J

Types of Seabed			Rocks → K	
1	<i>S</i>	<i>Sand</i>	SBDARE.NATSUR=4	425 427
2	<i>M</i>	<i>Mud</i>	SBDARE.NATSUR=1	
3	<i>Cy</i>	<i>Clay</i>	SBDARE.NATSUR=2	
4	<i>Si</i>	<i>Silt</i>	SBDARE.NATSUR=3	
5	<i>St</i>	<i>Stones</i>	SBDARE.NATSUR=5	
6	<i>G</i>	<i>Gravel</i>	SBDARE.NATSUR=6	
7	<i>P</i>	<i>Pebbles</i>	SBDARE.NATSUR=7	
8	<i>Cb</i>	<i>Cobbles</i>	SBDARE.NATSUR=8	
9.1	<i>R</i>	<i>Rock, Rocky</i>	SBDARE.NATSUR=9	421.2
9.2	<i>Bo</i>	<i>Boulder(s)</i>	SBDARE.NATSUR=18	
10	<i>Co</i>	<i>Coral</i>	SBDARE.NATSUR=14	
11	<i>Sh</i>	<i>Shells</i>	SBDARE.NATSUR=17	
12.1	<i>S/M</i>	<i>Two layers e.g. Sand over Mud</i>	SBDARE.NATSUR=4.1	425.8
12.2	<i>IS.M.Sh</i>	<i>Mixed: where the seabed comprises a mixture of materials, the main constituent is given first, e.g. fine Sand with Mud and Shells</i>	SBDARE.NATSUR=4.1.17. NATQUA=1..	425.9
13.1	<i>Wd</i>	<i>Weed (including Kelp)</i>	WEDKLP.CATWED=2	425.5
13.2		<i>Kelp</i>	WEDKLP.CATWED=1	428.2
14		<i>Sandwaves</i>	SNDWAV	428.1
15		<i>Spring in seabed</i>	SPRING	428.3
a		<i>Ground</i>		
b		<i>Ooze</i>		
c		<i>Marl</i>		
d		<i>Shingle</i>		
e		<i>Chalk</i>		
f		<i>Quartz</i>		
g		<i>Madrepore</i>		
h		<i>Basalt</i>		
i		<i>Lava</i>	SBDARE. NATSUR=11	
j		<i>Pumice</i>		
k		<i>Tufa</i>		
l		<i>Scoriae</i>		
m		<i>Cinders</i>		

J Nature of the Seabed

n		Manganese		
o		Glauconite		
p		Oysters		
q		Mussels		
r		Sponge		
s		Algae		
t		Foraminifera		
u		Globigerina		
v		Diatoms		
w		Radiolaria		
x		Pteropods		
y		Polychaeta		

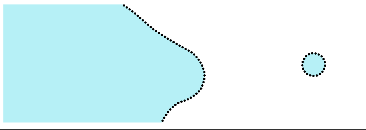
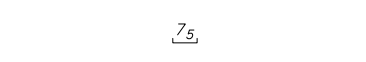

Intertidal Areas				
20		Area of sand and mud with patches of stones or gravel	SBDARE.NATSUR=4/5/6 WATLEV=4	426.1
21		Rocky area	SBDARE.NATSUR=9, WATLEV=4	426.2
22		Coral reef	SBDARE.NATSUR=14, WATLEV=4	426.3

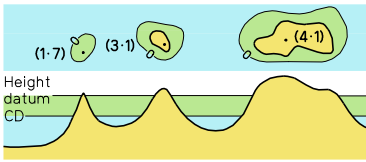
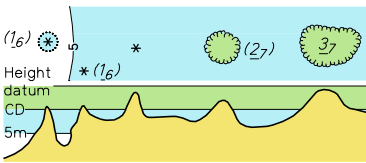
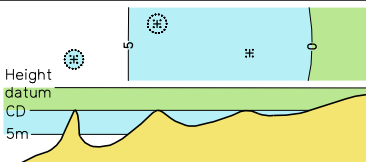
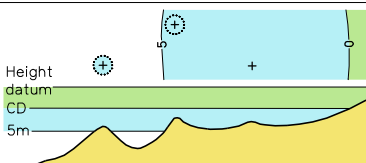
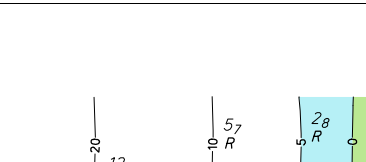
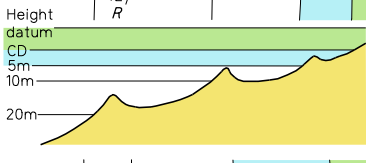
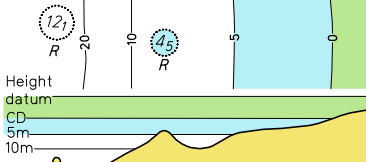
Qualifying Terms					
30	<i>f</i>	Fine	} only used in relation to sand	SBDARE.NATQUA=1	425 427
31	<i>m</i>	Medium		SBDARE.NATQUA=2	
32	<i>c</i>	Coarse		SBDARE.NATQUA=3	
33	<i>bk</i>	Broken	SBDARE.NATQUA=4		
34	<i>sy</i>	Sticky	SBDARE.NATQUA=5		
35	<i>so</i>	Soft	SBDARE.NATQUA=6		
36	<i>st</i>	Stiff	SBDARE.NATQUA=7		
37	<i>v</i>	Volcanic	SBDARE.NATQUA=8		
38	<i>ca</i>	Calcareous	SBDARE.NATQUA=9		
39	<i>h</i>	Hard	SBDARE.NATQUA=10	425.5 425.7	

Nature of the Seabed J

aa		<i>Small</i>		
ab		<i>Large</i>		
ac		<i>Glacial</i>		
ad		<i>Speckled</i>		
ae		<i>White</i>	SBDARE.COLOUR=1	
af		<i>Black</i>	SBDARE.COLOUR=2	
ag		<i>Blue</i>	SBDARE.COLOUR=5	
ah		<i>Green</i>	SBDARE.COLOUR=4	
ai		<i>Yellow</i>	SBDARE.COLOUR=6	
aj		<i>Red</i>	SBDARE.COLOUR=3	
ak		<i>Brown</i>	SBDARE.COLOUR=8	
al		<i>Chocolate</i>		
am		<i>Grey</i>	SBDARE.COLOUR=7	
an		<i>Light</i>		
ao		<i>Dark</i>		

K Rocks, Wrecks, Obstructions






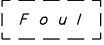

General				
1		<i>Dangerline: A danger line draws attention to a danger which would not stand out clearly enough if represented solely by its symbol (e.g. isolated rock) or delimits an area containing numerous dangers, through which it is unsafe to navigate</i>	OBSTRN.WATLEV CATOBS=6	411.4 420.1
2		<i>Depth cleared by wire drag sweep or diver. The symbol may be used with other symbols. e.g. wrecks, obstructions, wells</i>	OBSTRN.TECSOU=4/6	415 422.3 422.9
3		<i>Safe clearance depth. Obstruction over which the exact depth is unknown, but which is considered to have a safe clearance at the depth shown. The symbol may be used with other symbols. e.g. wrecks, wells, turbines</i>	OBSTRN.QUASOU=7	422.5 422.9

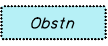










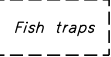
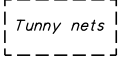
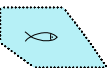

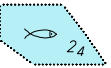





Rocks		Plane of Reference for Heights → H	Plane of Reference for Depths → H	
10		<i>Rock (islet) which does not cover. height above height datum</i>	LNDARE LNDELV.ELEVAT	421.1
11		<i>Rock which covers and uncovers. height above Chart Datum, where known</i>	UWTROC.VALSOU.WATLEV=4 NATSUR=9.QUASOU=1 SBDARE.NATSUR=9 WATLEV=4	421.2
12		<i>Rock awash at the level of Chart Datum</i>	UWTROC.NATSUR=9 WATLEV=5.VALSOU=0	421.3
13		<i>Underwater rock over which the depth is unknown, but which is considered dangerous to surface navigation</i>	UWTROC.NATSUR=9 WATLEV=3.QUASOU=2	421.4
14		<i>Underwater rock of known depth:</i>		421.4
14.1		<i>inside the corresponding depth area</i>	UWTROC.VALSOU NATSUR=9.QUASOU=1 EXPSOU=1	
14.2		<i>outside the corresponding depth area. dangerous to surface navigation</i>	UWTROC.VALSOU NATSUR=9.QUASOU=1 EXPSOU=2	
or				

Rocks, Wrecks, Obstructions K






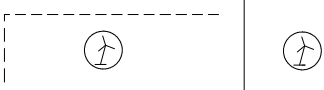
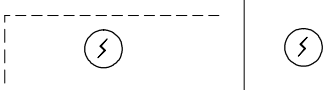
14	<p>14.1 Height datum CD 5m 10m 20m + (12₁) + (5₇) + (2₈)</p> <p>14.2 Height datum CD 5m 10m 20m (12₁) (4₅)</p>	<p><i>Underwater rock of known depth:</i></p> <p><i>inside the corresponding depth area</i></p> <p><i>outside the corresponding depth area. dangerous to surface navigation</i></p>	<p>UWTROC.VALSOU NATSUR=9,QUASOU=1 EXPSOU=1</p> <p>UWTROC.VALSOU NATSUR=9,QUASOU=1 EXPSOU=2</p>	4214
15	35 R	<i>Underwater rock of known depth. not dangerous to surface navigation</i>	UWTROC.VALSOU,NATSUR=9 WATLEV=3,SBDARE,QUASOU=1	4214
16	<p>+ Co + Co 5_B</p>	<i>Coral reef which is always covered</i>	OBSTRN.CATOBS=6 WATLEV=3,NATSUR=14 QUASOU=2	4215
17	<p>18 5_B Br 19</p>	<i>Breakers</i>	WAT TUR.CATWAT=1	423.2
d		<i>Discoloured water</i>	CTNARE.INFORM	424.6
<p>Wrecks and Fouls <i>Hulk</i> → F <i>Planes of Reference for Depths</i> → H <i>Historic Wreck</i> → N</p>				
20		<i>Wreck, hull never covers. on large - scale charts</i>	WRECKS.CATWRK=5 WATLEV=2	422.1
21		<i>Wreck, hull covers and uncovers. on large - scale charts</i>	WRECKS.CATWRK=4/5 WATLEV=4	
22	<p>5_{Wk} 6.5_{Wk}</p>	<i>Submerged wreck, depth known. on large - scale charts</i>	WRECKS.CATWRK=2 WATLEV=3,VALSOU,QUASOU=1	422.1
23	<p>Wk</p>	<i>Submerged wreck, depth unknown. on large - scale charts</i>	WRECKS.CATWRK=2 WATLEV=3,QUASOU=2	422.1
24		<i>Wreck showing any part of hull or superstructure at the level of Chart Datum</i>	WRECKS.CATWRK=5 WATLEV=4	422.2
25	<p>Masts</p>	<i>Wreck of which the mast(s) only are visible at Chart Datum</i>	WRECKS.CATWRK=4 WATLEV=4	422.2
26	<p>4₆ Wk 25₃ Wk</p>	<i>Wreck over which the depth has been obtained by sounding but not by wire sweep</i>	WRECKS.CATWRK=2 WATLEV=3,VALSOU QUASOU=6	422.4








K Rocks, Wrecks, Obstructions

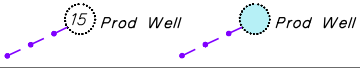



27	 	Wreck, least depth obtained by wire sweep or diver	WRECKS.CATWRK=2 WATLEV=3,VALSOU QUASOU=6,TECSOU=6	422.3
28		Wreck, depth unknown, which is considered potentially dangerous to surface navigation	WRECKS.CATWRK=2 WATLEV=3,QUASOU=2	422.5
29		Wreck, in over 200m or depth unknown, which is considered not dangerous to surface navigation. For information about depth criteria, which may vary, see NP100, The Mariner's Handbook	WRECKS.CATWRK=1 WATLEV=3,QUASOU=2	422.6
30		Wreck over which the exact depth is unknown, but which is considered to have a safe clearance at the depth shown	WRECKS.CATWRK=1/2 WATLEV=3,VALSOU QUASOU=7	422.5 422.7
31	 	Foul area, not dangerous to surface navigation, but to be avoided by vessels anchoring, trawling, etc (eg remains of wreck, cleared platform)	OBSTRN.CATOBS=7 WATLEV=3	422.8

Obstructions				
Plane of Reference for Depths → H		Kelp, Seaweed → J	Underwater Installations → L	
40	 	Obstruction or danger to navigation the exact nature of which is not specified or has not been determined, depth unknown	OBSTRN.WATLEV=3 QUASOU=2	422.9
41	 	Obstruction, depth obtained by sounding but not wire sweep	OBSTRN.WATLEV=3 VALSOU,QUASOU=6	422.9
42	 	Obstruction, least depth obtained by wire sweep or diver	OBSTRN.WATLEV=3 VALSOU,QUASOU=6 TECSOU=4,6	422.9
43.1	 	Stumps of posts or piles, wholly submerged	OBSTRN.CATOBS=1 WATLEV=3	327.5
43.2		Submerged pile, stake, snag or stump (with exact position)	OBSTRN.CATOBS=1 WATLEV=3,VALSOU	
44.1		Fishing stakes	FSHFAC.CATFIF=1	447.1
44.2		Fish trap, fish weir, tunny nets	FSHFAC.CATFIF=2/3/4	447.2
45	 	Fish trap area, tunny nets area	FSHFAC.CATFIF=2/4	447.3
46.1	 	Fish haven	OBSTRN.CATOBS=5 WATLEV=3,QUASOU=2	447.5
46.2	 	Fish haven, with minimum depth	OBSTRN.CATOBS=5 WATLEV=3,VALSOU QUASOU=1	
47		Shellfish beds, with no obstruction to navigation	MARCUL.CATMFA=2 WATLEV=3	447.4
48.1		Marine farm (on large - scale charts)	MARCUL.CATMFA=3 WATLEV	447.6
48.2	 	Marine farm (on small - scale charts)	MARCUL.WATLEV CATMFA=3	






Offshore Installations L

General		Combined symbols → K (General)	Areas, Limits → N
1	<i>EKOFISK</i> <i>OILFIELD</i>	Name of oilfield or gasfield	OSPARE.PRODCT=1/2.OBJNAM 445.3
2		Platform with designation/name	OFSPLF.CATOFF=2.OBJNAM 445.3
3		Limit of safety zone around offshore installation	RESARE.CATREA=1.RESTRN=8 439.2 445.2
4		Limit of development area	445.7
5.1		Wind turbine, floating wind turbine, vertical clearance under blade	PRDARE.CATPRA=9 445.8
5.2		Wind farm	PRDARE.CATPRA=9 445.9
		Wind farm (floating)	
6		Wave farm	PRDARE, INFORM 445.12

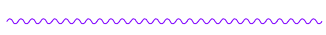
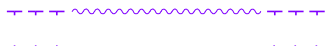

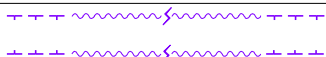

Platforms and Moorings		Mooring Buoys → Q
10		Production platform, Platform, Oil derrick OFSPLF.CATOFF=1/2 445.2
11		Flare stack (at sea) LNDMRK.CATLMK=6 OFSPLF.CATOFF=2 445.2
12		Fixed Single Point Mooring, including Single Anchor Leg Mooring (SALM), Articulated Loading Column (ALC) OFSPLF.CATOFF=4/5 445.2 445.4
13		Observation / research platform (with name) OFSPLF.CATOFF=3
14		Disused platform OFSPLF.CATOFF=2.STATUS=4 445.2
15		Artificial Island OFSPLF.CATOFF=7
16		Floating Single Point Mooring, including Catenary Anchor Leg Mooring (CALM), Single Buoy Mooring (SBM) BOYIND.BOYSHP=7.COLOUR CATINB=1/2 445.4
17		Moored storage tanker including FSU and FPSO OFSPLF.CATOFF=8 445.5
18		Mooring ground tackle for fixing floating structures OBSTRN.CATOBS=9 431.6

Underwater Installations		Plane of Reference for Depths → H	Obstructions → K
20		Production well, with depth where known	OBSTRN.CATOBS=2.WATLEV=3 VALSOU 445.5
21.1		Suspended well (wellhead and pipes projecting from the seabed) over which the depth is unknown	OBSTRN.CATOBS=2 WATLEV=3.QUASOU=2 445.1
21.2		Suspended well over which the depth is known	OBSTRN.CATOBS=2 WATLEV=3.VALSOU QUASOU=6 445.1
21.3		Suspended well with height of wellhead above the sea floor	OBSTRN.CATOBS=2.VALSOU WATLEV=3

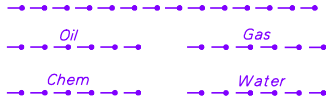
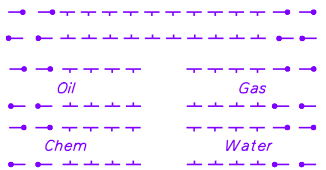
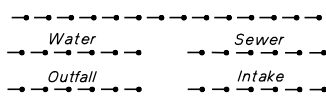
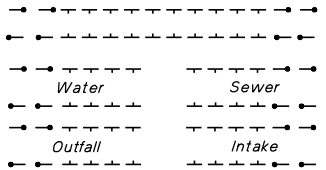


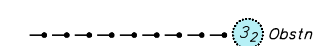
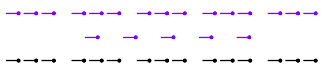
L Offshore Installations

22	#	Site of cleared platform	OBSTRN.CATOBS=6 WATLEV=3	422.8
23	 Pipe 	Above - water wellhead (lit and unlit). The drying height or height above height datum is charted if known	OBSTRN.CATOBS=2 WATLEV=2/4.HEIGHT	445.1
24	 Turbine 	Underwater turbine	OBSTRN.INFORM	445.10
25	 ODAS	Subsurface Ocean(ographic) Data Acquisition System (ODAS)	OBSTRN.INFORM	448.4

Submarine Cables

30.1		Submarine cable	CBLSUB.CATCBL	443.1
30.2		Submarine cable area	CBLARE.CATCBL RESARE.RESTRN	443.2 439.3
31.1		Submarine power cable	CBLSUB.CATCBL=1	443.2
31.2		Submarine power cable area	CBLARE.CATCBL=1 RESARE.RESTRN	443.2 439.3
32		Disused submarine cable	CBLSUB.STATUS=4	443.7

Submarine Pipelines

40.1		Supply pipeline: unspecified, oil, gas, chemicals, water	PIPSOL.CATPIP=6 PRODCT=1/2/3/7	444 444.1
40.2		Supply pipeline area: unspecified, oil, gas, chemicals, water	PIPARE.CATPIP=6 PRODCT=1/2/3/7 RESARE.RESTRN	444.3 439.3
41.1		Outfall and intake: unspecified, water, sewer, outfall, intake	PIPSOL.CATPIP=2/3/4 PRODCT=3	444 444.2
41.2		Outfall and intake area: unspecified, water, sewer, outfall, intake	PIPARE.CATPIP=2/3/4 PRODCT=3 RESARE.RESTRN	444.3 439.3
42.1		Buried pipeline / pipe (with nominal depth to which buried)	PIPSOL.BURDEP	444.5
42.2		Pipeline Tunnel	PIPSOL.INFORM	
43		Diffuser, crib	OBSTRN.CATOBS=3/4 WATLEV=3.VALSOU	444.8
44		Disused pipeline / pipe	PIPSOL.STATUS=4	444.7

Tracks		Tracks Marked by Lights → P	Leading Beacons → Q
1		Leading line (means "in line", the continuous line is the track to be followed)	NAVLNE.CATNAV=3 ORIENT RECTRC.CATTRK=1 ORIENT.TRAFIC 433.1 433.2 433.3
2		Transit (other than leading line). Clearing line	NAVLNE.CATNAV=1/2 433.4 433.5
3		Recommended track based on a system of fixed marks ‡	RECTRC.CATTRK=2 ORIENT.TRAFIC 434.1 434.2
4		Recommended track not based on a system of fixed marks ‡	RECTRC.CATTRK=2 ORIENT.TRAFIC 434.1 434.2
5.1		One-way track and DW track based on a system of fixed marks	RECTRC.CATTRK=1 ORIENT.TRAFIC TXTDSC.INFORM 432.3
5.2		One-way track and DW track not based on a system of fixed marks	RECTRC.CATTRK=2 ORIENT.TRAFIC
6		Recommended track with maximum authorised draught ‡	RECTRC.CATTRK ORIENT.TRAFIC=4 INFORM 432.4 434.3 434.4

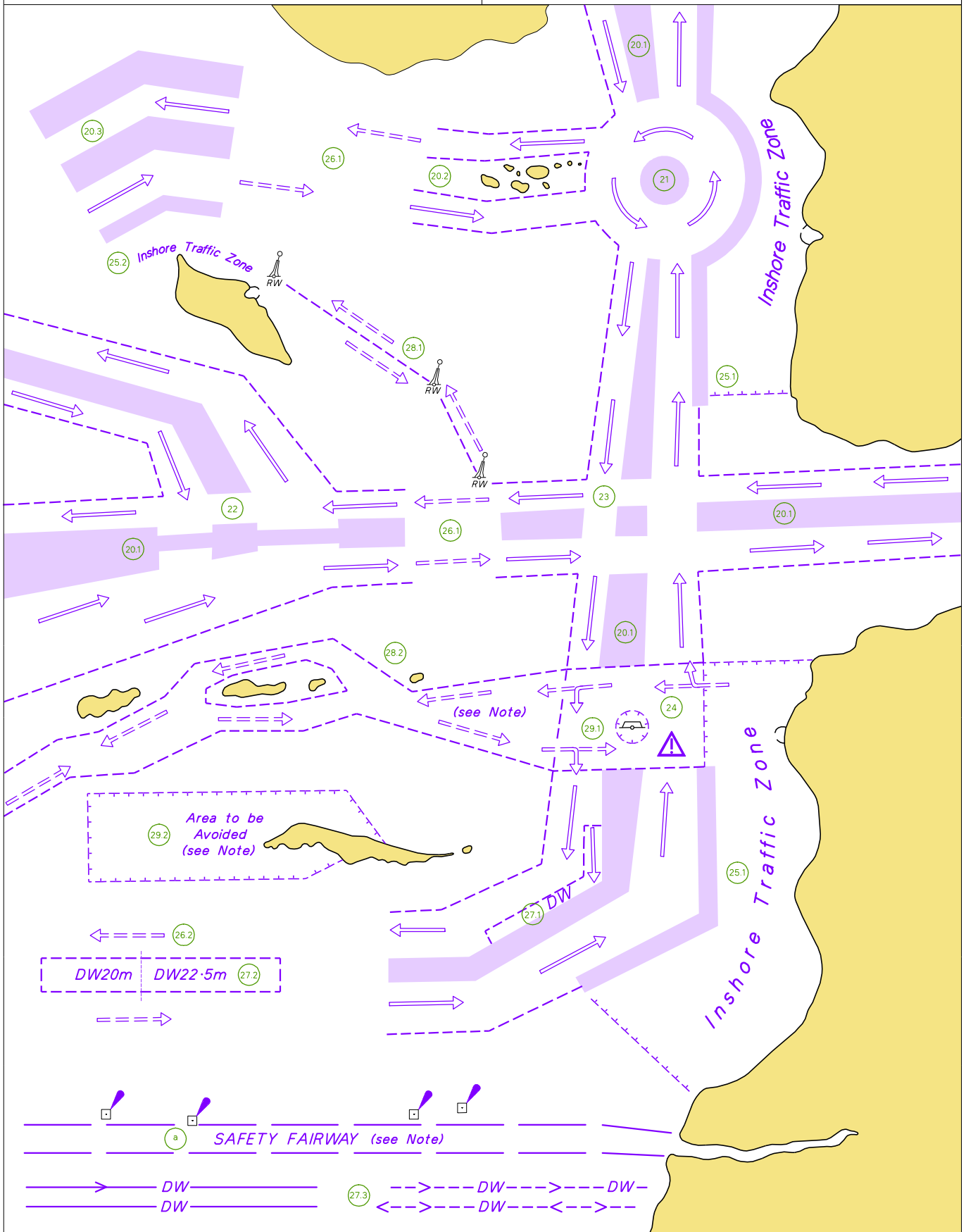
Routeing Measures - Basic Symbols			
10		Established (mandatory) direction of traffic flow	TSSLPT.ORIENT 435.1
11		Recommended direction of traffic flow ‡	TSSLPT.ORIENT.STATUS 435.5
12		Separation line (large-scale, small-scale)	TSELNE 435.1 436.3
13		Separation zone	TSEZNE 435.1 436.3
14		Limit of restricted routing measure (e.g. Inshore Traffic Zone. Area to be Avoided)	ISTZNE 435.1 436.3 439.2
15		Limit of routing measure	TSSBND 435.1 436.3
16		Precautionary area	PRCARE.INFORM.TXTDSC 435.2
17		Archipelagic Sea Lane: axis line and limit beyond which vessels shall not navigate	ARCSLN 435.10
18		Fairway, designated by regulatory authority: with minimum depth with maximum authorised draught	FAIRWY.DRVAL1 434.5

‡ The term 'recommended' in connection with tracks and routeing measures does not imply recommendation by the Maritime and Port Authority of Singapore. It is usually by a regulatory authority, but may be established by precedent.

M Tracks, Routes

Examples of Routeing Measures

DWRTPT . I STZNE . PRCARE , RESARE , TSELNE .
TSEZNE . TSSBND . TSSCRS . TSSLPT . TSSRON


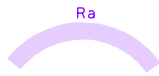
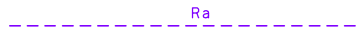
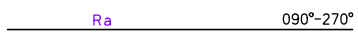


Examples of Routeing Measures (see diagram on page 34)


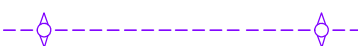
20.1	Traffic separation scheme (TSS), traffic separated by separation zone	435.1
20.2	Traffic separation scheme, traffic separated by natural obstructions	435.1
20.3	Traffic separation scheme, with outer separation zone, separating traffic using scheme from traffic not using it	435.1
21	Traffic separation scheme, roundabout	435.1
22	Traffic separation scheme with "crossing gates"	435.1
23	Traffic separation schemes crossing, without designated precautionary area	435.1
24	Precautionary area	435.2
25.1	Inshore traffic zone (ITZ), with defined end limits	435.1
25.2	Inshore traffic zone, without defined end limits	435.1
‡ 26.1	Recommended direction of traffic flow, between traffic separation schemes	435.5
‡ 26.2	Recommended direction of traffic flow, for ships not needing a deep water route	435.5
27.1	Deep water route (DW), as part of one-way traffic lane	435.3
27.2	Two-way deep water route, with minimum depth stated	435.3
27.3	Deep water route, centre line shown as recommended one-way or two-way track	435.3
‡ 28.1	Recommended route (often marked by centre line buoys)	435.4
28.2	Two-way route with one-way sections	435.6
29.1	Area to be avoided (ATBA), around navigational aid	435.7
29.2	Area to be avoided, because of danger of stranding	435.7
a	Safety fairway	432.2

‡ The term 'recommended' in connection with tracks and routeing measures does not imply recommendation by the Maritime and Port Authority of Singapore. It is usually by a regulatory authority, but may be established by precedent.



Radar Surveillance System

30	 Radar Surveillance Station	Radar surveillance station	RADSTA.CATRAS=1	487 487.3
31	 Ra	Radar range	RADRNG	487.1
32.1	 Ra	Radar reference line	RADLNE.ORIENT	487.2
32.2	 Ra 090°-270°	Radar reference line coinciding with a leading line	RADLNE.ORIENT NAVLNE.CATNAV=3 RECTRC.CAT TRK ORIENT.TRAFFIC	

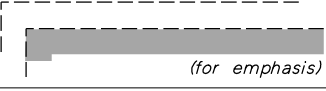
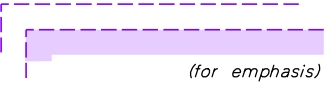
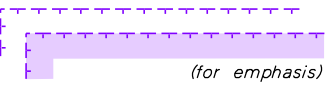

Radar Reporting





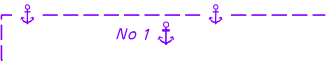
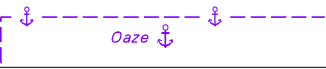
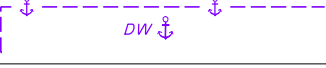
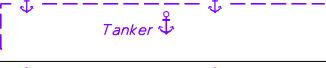
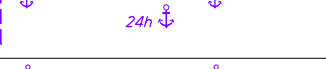


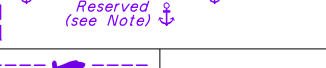
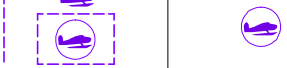

40.1		Radio calling-in point, way point, or reporting point (with designation, if any) showing direction(s) of vessel movement	RDOCAL.ORIENT.TRAFFIC	488
40.2		Radio reporting line (with designation, if any) showing direction(s) of vessel movement	TRAFIC.ORIENT	488.1






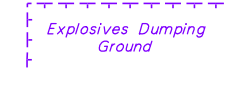

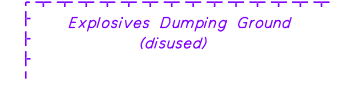
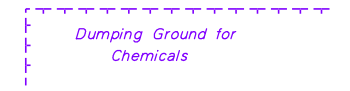
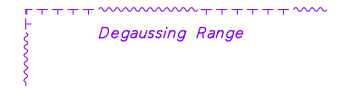


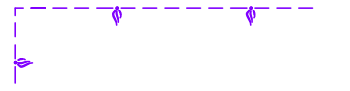



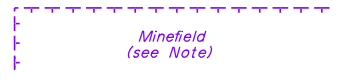
Ferries

50		Ferry	FERYRT.CATFRY=1	438.1
51		Cable Ferry	FERYRT.CATFRY=2	438.2

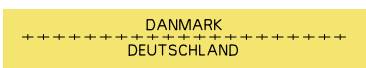

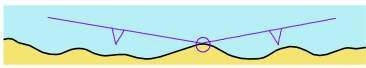
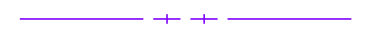
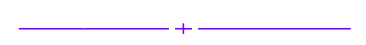
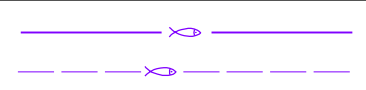



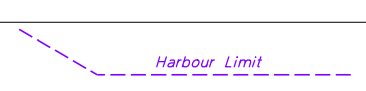
N Areas, Limits

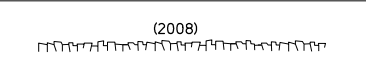
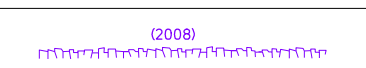
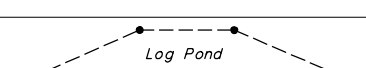
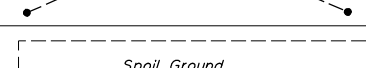
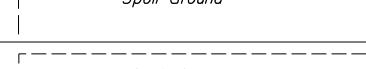

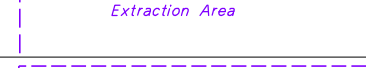
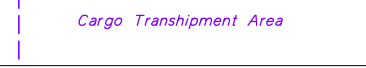
General		Dredged and Swept Areas → I	Submarine Cables, Submarine Pipelines → L	Tracks Routes → M
1.1		Maritime limit in general, usually implying permanent physical obstructions	CTNARE.TXTDSC	439.1 439.6
1.2		Maritime limit in general, usually implying no permanent physical obstructions	CTNARE.TXTDSC	
2.1		Limit of restricted area	RESARE.RESTRN=8.CATREA	439.2 439.3 439.6 441.6
2.2		Limit of area into which entry is prohibited	RESARE.RESTRN=7	

Anchorages, Anchorage Areas				
10		Reported anchorage (no defined limits)	ACHARE.CATACH=1	431.1
11.1		Anchor berths	ACHBRT.OBJNAM CATACH=1	431.2
11.2		Anchor berths with swinging circle shown	ACHBRT.RADIUS.OBJNAM CATACH	
12.1		Anchorage area in general	ACHARE.CATACH=1	431.3
12.2		Numbered anchorage area	ACHARE.OBJNAM CATACH=1	
12.3		Named anchorage area	ACHARE.OBJNAM CATACH=1	
12.4		Deep water anchorage area, anchorage area for deep draught vessels	ACHARE.CATACH=2	
12.5		Tanker anchorage area. This symbol may be adapted for other types of vessel, e.g. small craft	ACHARE.CATACH=3	
12.6		Anchorage area for periods up to 24 hours	ACHARE.CATACH=9	
12.7		Explosives anchorage area	ACHARE.CATACH=4	
12.8		Quarantine anchorage area	ACHARE.CATACH=5	
12.9		Reserved anchorage area	ACHARE TXTDSC	
13		Seaplane operating area	SPLARE	
14		Anchorage for seaplanes	ACHARE.CATACH=6	449.6

Restricted Areas				
20		<i>Anchoring prohibited</i>	RESARE.RESTRN=1	431.4 439.3 439.4
21		<i>Fishing prohibited</i>	RESARE.RESTRN=3	439.3 439.4
22	<p><i>Example</i></p>  <p><i>Examples</i></p>  	<p><i>Environmentally Sensitive Sea Areas:</i> Limit of marine reserve, national park, non-specific nature reserve</p> <p><i>Bird sanctuary, seal sanctuary (other animal silhouettes may be used for specialized areas)</i></p> <p><i>Particularly Sensitive Sea Area (coloured tint band may vary in width between 1 and 5mm)</i></p>	RESARE.CATREA=4/5 RESTRN.INFORM.TXTDSC	437.3 437.6 437.7
23.1	 	<i>Explosives dumping ground. Individual mine or explosive</i>	DMPGRD.CATDPG=4	442.1 442.2 442.3 442.4
23.2		<i>Explosives dumping ground (disused). Foul (explosives)</i>	DMPGRD.CATDPG=4. STATUS=4	
24		<i>Dumping ground for chemical waste</i>	DMPGRD.CATDPG=2	442.1 442.2 442.3
25		<i>Degaussing range</i>	RESARE.CATREA=8	448.1 448.2
26		<i>Historic wreck and restricted area</i>	RESARE.CATREA=10,RESTRN	449.5
27		<i>Maximum speed</i>	RESARE.RESTRN=27	430.2
a		<i>Seabed operations dangerous/prohibited</i>	RESARE.RESTRN=14.INFORM	
b		<i>Diving prohibited</i>	RESARE.RESTRN=11	
Military Practice Areas				
30		<i>Firing practice area</i>	MIPARE.CATMPA=4	441.1 441.2 441.3
31		<i>Military restricted area, entry prohibited</i>	RESARE.CATREA=9 RESTRN=7	441.6
32		<i>Mine-laying (and counter-measures) practice area</i>	MIPARE.CATMPA=5	441.4
33		<i>Submarine transit lane and exercise area</i>	MIPARE.CATMPA=3 SUBTLN	441.5
34		<i>Minefield</i>	RESARE.CATREA=14	441.8

N Areas, Limits

International Boundaries and National Limits				
40		<i>International boundary on land</i>	ADMARE.JRSDTN=1 NATION	440.1
41		<i>International maritime boundary</i>	TESARE.NATION	440.3
42		<i>Straight territorial sea baseline with base point</i>	STSLNE.NATION	440.4
43		<i>Seaward limit of Territorial Sea</i>	TESARE.NATION	440.5
44		<i>Seaward limit of Contiguous Zone</i>	CONZNE.NATION	440.6
45		<i>National fishery limits</i>	FSHZNE.NATION	440.7
46		<i>Limit of Continental Shelf</i>	COSARE.NATION	440.8
47		<i>Limit of Exclusive Economic Zone</i>	EXEZNE.NATION	440.9
48		<i>Customs limit</i>	CUSZNE.NATION	440.2
49		<i>Harbour limit</i>	HRBARE.OBJNAM	430.1

Various Limits				
60.1		<i>Limit of fast ice, ice front (with date)</i>	ICEARE.CATICE=1	449.1
60.2		<i>Limit of sea ice (pack ice) seasonal (with date)</i>	ICEARE.CATICE	
61		<i>Floating barrier, including log ponds, security barriers, ice booms, shark nets</i>	LOGPON	449.2
62.1		<i>Spoil ground</i>	DMPGRD.CATDPG=5	446.1 446.2
62.2		<i>Spoil ground (disused)</i>	DMPGRD.CATDPG=5 STATUS=4	
63		<i>Extraction (dredging) area</i>	RESARE.CATREA=21	446.4
64		<i>Cargo transshipment area</i>	CTSARE	449.4
65		<i>Incineration area</i>	ICNARE	449.3

Hydrographic Terms **O**

1	<i>Ocean</i>	29	<i>Pinnacle</i>
2	<i>Sea</i>	30	<i>Ridge</i>
3	<i>Gulf</i>	31	<i>Rise</i>
4	<i>Bay</i>	32	<i>Mountain</i>
5	<i>Fjord</i>	33	<i>Seamount</i>
6	<i>Sea Loch. Lough. Arm of Sea</i>	34	<i>Seamount chain</i>
7	<i>Creek</i>	35	<i>Peak</i>
8	<i>Lagoon</i>	36	<i>Knoll</i>
9	<i>Cove</i>	37	<i>Abyssal hill</i>
10	<i>Inlet</i>	38	<i>Tablemount</i>
11	<i>Strait</i>	39	<i>Plateau</i>
12	<i>Sound</i>	40	<i>Terrace</i>
13	<i>Passage</i>	41	<i>Spur</i>
14	<i>Channel</i>	42	<i>Continental shelf</i>
15	<i>Narrows</i>	43	<i>Shelf edge</i>
16	<i>Entrance</i>	44	<i>Slope</i>
17	<i>Estuary</i>	45	<i>Continental slope</i>
18	<i>Delta</i>	46	<i>Continental rise</i>
19	<i>Mouth</i>	47	<i>Continental borderland</i>
20	<i>Roads. Roadstead</i>	48	<i>Basin</i>
21	<i>Anchorage</i>	49	<i>Abyssal plain</i>
22	<i>Approach</i>	50	<i>Hole</i>
23	<i>Bank</i>	51	<i>Trench</i>
25	<i>Shoal</i>	52	<i>Trough</i>
26	<i>Reef. Coral reef</i>	53	<i>Valley</i>
27	<i>Sunken rock</i>	54	<i>Median valley</i>
28	<i>Ledge</i>	55	<i>Canyon</i>
		56	<i>Sea channel</i>


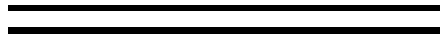


















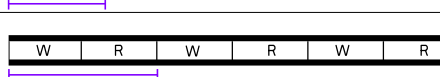
O Hydrographic Terms


57	<i>Moat. Sea moat</i>	64	<i>Saddle</i>
58	<i>Fan</i>	65	<i>Levee</i>
59	<i>Apron</i>	66	<i>Province</i>
60	<i>Fracture zone</i>	67	<i>Tideway. Tidal gully</i>
61	<i>Scarp. Escarpment</i>	68	<i>Side arm</i>
62	<i>Sill</i>	69	<i>Turning basin. Turning area. Turning circle</i>
63	<i>gap</i>		

Other Terms			
80	<i>projected</i>	87	<i>closed</i>
81	<i>lighted</i>	88	<i>partly</i>
82	<i>buoyed</i>	89	<i>approximate</i>
83	<i>marked</i>	90	<i>submerged</i>
84	<i>ancient</i>	91	<i>shoaled</i>
85	<i>distant</i>	92	<i>experimental</i>
86	<i>lesser</i>	93	<i>destroyed</i>

Light Structures, Major Floating Lights			<i>Beacons</i> → Q	
1		<i>Major light, minor light †, light, lighthouse</i>	LNDMRK.CATLMK.CONVIS LIGHTS.COLOUR.LITCHR	470.2
2		<i>Lighted offshore platform</i>	OFSPLF LIGHTS.COLOUR.LITCHR	445.2
3		<i>Lighted beacon tower †</i>	BCNXXX.BCNSHP=3.COLOUR LIGHTS.COLOUR.LITCHR TOPMAR.TOPSHP	456.4 457.1 457.2
4		<i>Lighted beacon † On smaller scale charts, where navigation within recognition range of the daymark is unlikely, lighted beacons are charted solely as lights</i>	BCNXXX.BCNSHP.COLOUR LIGHTS.COLOUR.LITCHR TOPMAR.TOPSHP	457.1 457.2
5		<i>Lighted buoyant beacon, resilient beacon †</i>	BCNXXX.BCNSHP=7.COLOUR LIGHTS.COLOUR.LITCHR TOPMAR.TOPSHP	459.1 459.2
6		<i>Major floating light (light vessel, major light float, Large Automatic Navigational Buoy (LANBY))</i>	LITFLT.COLOUR LIGHTS.COLOUR.LITCHR LITVES.COLOUR	462.9 474
† Minor lights, fixed and floating, usually conform to IALA Maritime Buoyage System characteristics				
7		<i>Navigation lights on landmarks or other structures</i>	LNDMRK	470.5
8		<i>Light off chart limits</i>		470.8

P Lights

Light Characters		Light Characters on Light Buoys → Q		471.2
	Abbreviation International	Class of Light	Illustration	Period shown 
10.1	F	Fixed		LIGHTS.LITCHR=1
10.2	<i>Occulting (total duration of light longer than total duration of darkness)</i>			
	Oc	Single-occulting		LIGHTS.LITCHR=8
	Oc(2) Example	Group-occulting		LIGHTS.LITCHR=8 SIGGRP=(2)
	Oc(2+3) Example	Composite group-occulting		LIGHTS.LITCHR=8 SIGGRP=(2+3)
10.3	<i>Isophase (duration of light and darkness equal)</i>			
	Iso	Isophase		LIGHTS.LITCHR=7
10.4	<i>Flashing (total duration of light shorter than total duration of darkness)</i>			
	Fl	Single-flashing		LIGHTS.LITCHR=2 SIGGRP=(1)
	Fl(3) Example	Group-flashing		LIGHTS.LITCHR=2 SIGGRP=(3)
	Fl(2+1) Example	Composite group-flashing		LIGHTS.LITCHR=2 SIGGRP=(2+1)
10.5	LFI	Long-flashing (flash 2s or longer)		LIGHTS.LITCHR=3 SIGPER
10.6	<i>Quick (repetition rate of 50 to 79 - usually either 50 or 60 - flashes per minute)</i>			
	Q	Continuous quick		LIGHTS.LITCHR=4
	Q(3) Example	Group quick		LIGHTS.LITCHR=4 SIGGRP=(3)
	IQ	Interrupted quick		LIGHTS.LITCHR=9
10.7	<i>Very quick (repetition rate of 80 to 159 - usually either 100 or 120 - flashes per minute)</i>			
	VQ	Continuous very quick		LIGHTS.LITCHR=5
	VQ(3) Example	Group very quick		LIGHTS.LITCHR=5 SIGGRP=(3)
	IVQ	Interrupted very quick		LIGHTS.LITCHR=10
10.8	<i>Ultra quick (repetition rate of 160 or more - usually 240 to 300 - flashes per minute)</i>			
	UQ	Continuous ultra quick		LIGHTS.LITCHR=6
	IUQ	Interrupted ultra quick		LIGHTS.LITCHR=11
10.9	Mo(K) Example	Morse Code		LIGHTS.LITCHR=12 SIGGRP=(K)
10.10	FFI	Fixed and flashing		LIGHTS.LITCHR=13
10.11	AlWR Example	Alternating		LIGHTS.LITCHR=28

Colours of Lights and Marks						
11.1	W	<i>White (for lights, only on sector and alternating lights)</i>		LIGHTS.COLOUR=1	450.2 450.3 470.4 470.6 471.4 475.1	
11.2	R	<i>Red</i>		LIGHTS.COLOUR=3		
11.3	G	<i>Green</i>		LIGHTS.COLOUR=4		
11.4	Bu	<i>Blue</i>		LIGHTS.COLOUR=5		
11.5	Vi	<i>Violet</i>		LIGHTS.COLOURr=10		
11.6	Y	<i>Yellow</i>		LIGHTS.COLOUR=6		
11.7	Y	Or	<i>Orange</i>	LIGHTS.COLOUR=11		
11.8	Y	Am	<i>Amber</i>	LIGHTS.COLOUR=9		
				<i>Colours of lights shown on:</i> <i>standard charts</i> <i>on multicoloured charts</i> <i>on multicoloured charts at sector lights</i>		

Period					
12	90s	<i>Examples</i> 2.5s	<i>Period in seconds and tenths of a second</i>	LIGHTS.SIGPER	4715

Elevation <i>Plane of Reference for Heights → H Tidal Levels → H</i>					
13	12m	<i>Example</i>	<i>Elevation of light given in metres</i>	LIGHTS.HEIGHT	4716

Range <i>Note: Charted ranges are nominal ranges given in sea miles</i>					
14	15M	<i>Example</i>	<i>Light with single range</i>	LIGHTS.VALNMR	4717 4719 475.5
	15/10M	<i>Example</i>	<i>Light with two different ranges</i>	LIGHTS.VALNMR	
	15-7M	<i>Example</i>	<i>Light with three or more ranges</i>	LIGHTS.VALNMR	

Disposition					
15	(hor)	<i>Horizontally disposed</i>		LIGHTS.CATLIT=19	4718
	(vert)	<i>Vertically disposed</i>		LIGHTS.CATLIT=20	
	(△) (▽)	<i>Triangular disposed</i>			





Example of a full Light Description 4719				
16	<p>Example of a light description on a metric chart using international abbreviations: ★ F(3)WRG:15s13m7-5M</p> <p>F(3) <i>Class or character of light: in this example a group-flashing light, regularly repeating a group of three flashes.</i></p> <p>WRG: <i>Colours of light: white, red and green, exhibiting the different colours in defined sectors.</i></p> <p>15s <i>Period of light in seconds, i.e., the time taken to exhibit one full sequence of 3 flashes and eclipses: 15 seconds.</i></p> <p>13m <i>Elevation of focal plane above height datum: 13 metres.</i></p> <p>7-5M <i>Luminous range in sea miles: the distance at which a light of a particular intensity can be seen in 'clear' visibility, taking no account of earth curvature. In those countries (eg United Kingdom) where the term 'clear' is defined as a meteorological visibility of 10 sea miles, the range may be termed "nominal". In this example the ranges of the colours are: white 7 miles, green 5 miles, red between 7 and 5 miles.</i></p>			





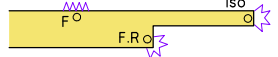

P Lights

Lights marking Fairways		Note: Quoted bearings are always from seaward		
Leading Lights and Lights in line				
20.1		Leading lights with leading line (the firm line is the track to be followed) and arcs of visibility	LIGHTS(x2).CATLIT SECTR1.SECTR2 NAVLNE.CATNAV=3.ORIENT RECTRC.CATTRK=1 ORIENT.TRAFIC	433 433.1 433.2 433.3 475.1 475.6
20.2		Leading lights (# means "in line": the firm line is the track to be followed; the light descriptions will be at the light stars or on the leading line, not usually both).	LIGHTS(x2).CATLIT=4.12/4.13 LITCHR=8.COLOUR=1.3 NAVLNE.CATNAV=3.ORIENT RECTRC.CATTRK=1	433.2 433.3 475.6
20.3		Leading lights on small-scale charts	LIGHTS.CATLIT=4 LITCHR.COLOUR	433.1 475.6
21		Lights in line (marking the sides of a channel)	LIGHTS(x4).CATLIT=4 LITCHR.COLOUR NAVLNE(x2).CATNAV=1 ORIENT	433.4 475.6
22	Rear Lt or Upper Lt	Rear or upper light	LIGHTS.CATLIT=13/15	470.7
23	Front Lt or Lower Lt	Front or lower light	LIGHTS.CATLIT=12/14	470.7
Direction Lights				
30.1		Direction light with narrow sector and course to be followed, flanked by darkness or unintensified light	LIGHTS.CATLIT=1.ORIENT SECTR1.SECTR2.LITCHR COLOUR.SIGPER.SIGGRP LITVIS	
30.2		Direction light with course to be followed, uncharted sector is flanked by darkness or unintensified light	LIGHTS(x2).CATLIT=1.ORIENT LITCHR.COLOUR SIGPER.SIGGRP LITVIS.VALNMR RECTRC.CATTRK ORIENT.TRAFIC NAVLNE.CATNAV=3.ORIENT	471.3 471.9 475 475.1 475.5 475.7
30.3		Direction light with narrow fairway sector flanked by light sectors of different characters on standard charts	LIGHTS(x5).CATLIT=1.ORIENT SECTR1.SECTR2.LITCHR COLOUR.VALNMR	
30.4		Direction light with narrow fairway sector flanked by light sectors of different characters on multicoloured charts	LIGHTS(x5).CATLIT=1.ORIENT SECTR1.SECTR2.LITCHR COLOUR.SIGPER.VALNMR	
31		Moiré effect light (day and night), variable arrow mark. Arrows show when course alteration needed	LIGHTS.CATLIT=16.ORIENT	475.8


Sector Lights				
40.1		<i>Sector light on standard charts</i>	LIGHTS(X3).CATLIT.ORIENT SECTR1.SECTR2.LITCHR COLOUR.SIGPER.SIGGRP HEIGHT.VALNMR	
40.2		<i>Sector light on multicoloured charts</i>	LIGHTS(X3).CATLIT.ORIENT SECTR1.SECTR2.LITCHR COLOUR.SIGPER.SIGGRP HEIGHT.VALNMR	475 475.1 475.2 475.5
41.1		<i>Sector lights on standard charts. the white sector limits marking the sides of the fairway</i>	LIGHTS(X9).CATLIT SECTR1.SECTR2.LITCHR COLOUR.SIGPER.SIGGRP FAIRWY	475 475.1 475.5 470.4
41.2		<i>Sector lights on multicoloured charts. the white sector limits marking the sides of the fairway</i>	LIGHTS(X9).CATLIT SECTR1.SECTR2.LITCHR COLOUR.SIGPER.SIGGRP FAIRWY	
42		<i>Main light visible all-round with red subsidiary light seen over danger</i>	LIGHTS.CATLIT=10 SECTR1.SECTR2.LITCHR COLOUR.SIGPER.SIGGRP HEIGHT.VALNMR	4718 475.4
43		<i>All round light with obscured sector</i>	LIGHTS.LITVIS=7 SECTR1.SECTR2.LITCHR COLOUR.SIGPER HEIGHT.VALNMR	475.3
44		<i>Light with arc of visibility deliberately restricted</i>	LIGHTS(X5).CATLIT SECTR1.SECTR2.LITCHR COLOUR.LITVIS=6	475.3
45		<i>Light with faint sector</i>	LIGHTS.LITVIS=3 LITCHR.ORIENT.COLOUR HEIGHT.VALNMR	475.3
46		<i>Light with intensified sector</i>	LIGHTS.LITVIS=4 SECTR1.SECTR2.LITCHR COLOUR.SIGPER.SIGGRP VALNMR	475.5


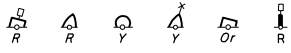


P Lights



Lights with limited Times of Exhibition				
50	 F.R(occas)	Lights exhibited only when specially needed (e.g. for fishing vessels, ferries) and some private lights	LIGHTS.STATUS=2 LITCHR=1.COLOUR	473.2
51	 Fl.10s40m27M (F.37m11MDay)	Daytime light (charted only where the character shown by day differs from that shown at night)	LIGHTS.EXCLIT=2/4 LITCHR.COLOUR. HEIGHT.VALNMR	473.4
52	 Q.WRG.5m10-3M (Fl.5s Fog)	Fog light (exhibited only in fog, or character changes in fog)	LIGHTS.EXCLIT=3. LITCHR.COLOUR. HEIGHT.VALNMR. LIGHTS.EXCLIT=2/3 LITCHR=2.COLOUR. SIGPER.SIGGRP	473.5
53	 Fl.5s(U)	Unwatched (unmanned) light with no standby or emergency arrangements	LIGHTS.STATUS=17	473.1
54	(temp)	Temporary	LIGHTS.STATUS=7	
55	(exting)	Extinguished	LIGHTS.STATUS=11	
a		Synchronized (synchronous or sequential)	LIGHTS.STATUS=15	

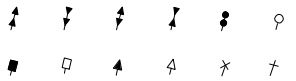


Special Lights				
Flare Stack (at Sea) → L Flare Stack (on Land) → E Signal Stations → T				
60	 AeroAl.FI.WG.7-5s11M	Aero light (may be unreliable)	LIGHTS.CATLIT=5. LITCHR.COLOUR. SIGPER.SIGGRP.VALNMR	476.1
61.1	 AeroF.R.353m11M RADIO MAST (353)	Air obstruction light of high intensity	LIGHTS.CATLIT=6. LITVIS=1.LITCHR. COLOUR.HEIGHT.VALNMR LNDMRK.CATLMK=7. CONVIS.FUNCTN=31.HEIGHT	476.2
61.2	† (89)  (R Lts)	Air obstruction light of low intensity	LIGHTS.CATLIT=6 LITVIS=2.COLOUR LNDMRK.CATLMK=7. CONVIS.HEIGHT	476.2
62	Fog Det Lt	Fog detector light	LIGHTS.CATLIT=7	477
63	 (illuminated) <i>Symbol in yellow on multicoloured charts</i>	Floodlit, floodlighting of a structure	LIGHTS.CATLIT=8. STATUS=12	478.2
64		Strip light	LIGHTS.CATLIT=9. LITCHR.COLOUR.	478.5
65	 F.R (priv)	Private light other than one exhibited occasionally	LIGHTS.CATLIT. STATUS=8.LITCHR. COLOUR	473.2
66	(sync)	Synchronized light		478.3

Buoys and Beacons *IALA Maritime Buoyage System, which includes Beacons* → Q 130

General			
1		<i>Position of buoy or beacon</i>	455.3 460.1 462.1








Colour of Buoys and Beacons Topmarks		<i>Abbreviations for colours (lights)</i> → P 11	
2		<i>Single colour: green (G) and black (B)</i>	BOYXXX TOPMAR.TOPSHP.COLOUR=4/2
3		<i>Single colour other than green and black: red (R), yellow (Y), orange (Or)</i>	BOYXXX TOPMAR.TOPSHP.COLOUR
4		<i>Multiple colours in horizontal bands: the colour sequence is from top to bottom</i>	BOYXXX.COLPAT.COLOUR TOPMAR.TOPSHP.COLOUR
5		<i>Multiple colours in vertical or diagonal stripes: the darker colour is given first. In these examples, red(R), white(W).</i>	BOYXXX.COLPAT.COLOUR TOPMAR.TOPSHP
6		<i>Retroreflecting material may be fitted to some unlit marks. Charts do not usually show it. Black bands will appear dark blue under a spotlight</i>	464



Lighted Marks		<i>Marks with Fog Signals</i> → R	
7		<i>Lighted marks on standard charts (examples)</i>	BCNXXX BOYXXX
8		<i>Lighted marks on multicoloured charts (examples)</i>	BCNXXX BOYXXX



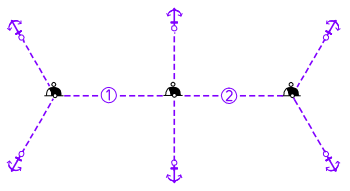



Topmarks and Radar Reflectors		<i>For Application of Topmarks within the IALA System</i> → Q 130 <i>Radar reflector</i> → S	
9		<i>IALA System buoy topmarks (beacon topmarks shown upright)</i>	TOPMAR.TOPSHP
10		<i>Beacon with topmark, colour, radar reflector and designation (example)</i>	COLOUR.BCNSHP.OBJNAM TOPMAR.TOPSHP.COLOUR CONRAD=3
11		<i>Buoy with topmark, colour, radar reflector and designation (example) Radar reflectors are not generally charted on IALA System buoys</i>	BOYXXX.CONRAD=3 COLOUR.BOYSHP.OBJNAM TOPMAR.TOPSHP.COLOUR CONRAD=3

Q Buoys, Beacons












Buoys	Features Common to Beacons and Buoys → Q 1-11
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

Shapes				
20		<i>Conical buoy, nun buoy, ogival buoy</i>	BOYXXX.BOYSHP=1	462.2
21		<i>Can buoy, cylindrical buoy</i>	BOYXXX.BOYSHP=2	462.3
22		<i>Spherical buoy</i>	BOYXXX.BOYSHP=3	462.4
23		<i>Pillar buoy</i>	BOYXXX.BOYSHP=4	462.5
24		<i>Spar buoy, spindle buoy</i>	BOYXXX.BOYSHP=5	462.6
25		<i>Barrel buoy, tun buoy</i>	BOYXXX.BOYSHP=6	462.7
26		<i>Superbuoy Superbuoys are very large buoys, e.g. a LANBY (P6) is a navigational aid mounted on a circular hull of about 5m diameter. Oil or gas installation buoys (L16) and ODAS buoys (Q58), of similar size, are shown by variations of the superbuoy symbol</i>	BOYXXX.BOYSHP=7	445.4 460.4 462.9 474

Minor Light Floats				
30		<i>Light float as part of IALA System</i>	LITFLT.COLOUR	462.8
31		<i>Light float not part of IALA System</i>	LITFLT.MARSYS=9	462.8

Mooring Buoys		<i>Oil or Gas Installation Buoy → L</i>	<i>Visitors' (Small Craft) Mooring → U</i>	
40		<i>Mooring buoy</i>	MORFAC.CATMOR=7.BOYSHP	431.5
41		<i>Lighted mooring buoy (example)</i>	MORFAC.CATMOR=7 BOYSHP=6 LIGHTS.LITCHR.COLOUR SIGPER.SIGGRP	431.5 466.1 466.2 466.3 466.4
42		<i>Trot, mooring buoys with ground tackle and berth numbers</i>	MORFAC(X3).CATMOR=7 BOYSHP=6 OBS TRN.CATOBS=9.WAT LEV CBL SUB(X6).CATCBL=6 BERTHS(X2)	323.1 431.6
43		<i>Mooring buoy with telegraphic or telephonic communications</i>	MORFAC.CATMOR=7 CBL SUB.CATCBL=4.5	431.5
44		<i>Numerous moorings (example)</i>	ACHARE.CATACH=8	431.7
45		<i>Visitors' mooring</i>	SMCFAC.CATSCF=29	431.5








Buoys, Beacons Q








Special Purposes Buoys		<i>The symbols shown below are examples: shapes of buoys may differ; lateral or cardinal buoys may be used in some situations; the use of the cross topmark is optional.</i>		
50	 DZ	Firing danger area (Danger Zone) buoy	BOYSPP.CATSPM=1.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	441.2
51	 Target	Target	BOYSPP.CATSPM=2.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	
52	 Marker Ship	Marker Ship	BOYSPP.CATSPM=3.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	
53	 Barge	Barge	BOYSPP.CATSPM=5.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	
54	 DG	Degaussing Range buoy	BOYSPP.CATSPM=4.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	448.2
55	 Cable	Cable buoy	BOYSPP.CATSPM=6.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	443.6
56		Spoil ground buoy	BOYSPP.CATSPM=7.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	446.3
57		Buoy marking outfall	BOYSPP.CATSPM=8.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	444.4
58	 ODAS	Data collection buoy (Ocean Data Acquisition System) of superbuoy size	BOYSPP.CATSPM=9.BOYSHP=7	462.9
59		Buoy marking wave recorder or current meter	BOYSPP.CATSPM=10.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	
60		Seaplane anchorage buoy	BOYSPP.CATSPM=11.BOYSHP	
61		Buoy marking traffic separation scheme	BOYSPP.CATSPM=19.BOYSHP	
62		Buoy marking recreation zone	BOYSPP.CATSPM=12.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	






Seasonal Buoys				
70	 (priv)	Buoy privately maintained (example)	BOYSPP.STATUS=8.BOYSHP=3 COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6	
71	 (Apr-Oct)	Seasonal buoy (the example shows a yellow spherical buoy on station between April and October)	BOYSPP.PRESTA.PEREND BOYSHP=3.COLOUR=6 TOPMAR.TOPSHP=7 COLOUR=6.STATUS=5	460.5








Q Buoys, Beacons

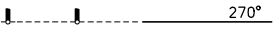
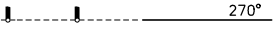
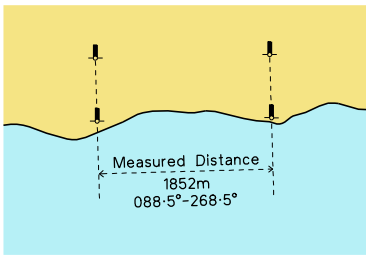



Beacons	<i>Lighted Beacons</i> → P	<i>Features Common to Beacons and Buoys</i> → Q 1-11
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General				
80	 	<i>Beacon in general. characteristics unknown or chart scale too small to show</i>	BCNXXX.BCNSHP.COLOUR	455.5
81	 BW	<i>Beacon with colour. no distinctive topmark (example)</i>	BCNXXX.BCNSHP.COLOUR	455.4 456 456.3
82	 R  BY  BRB	<i>Beacon with colour and topmark (examples)</i>	BCNXXX.BCNSHP.COLOUR TOPMAR.TOPSHP.COLOUR	455.4 456 463 463.1
83	 BRB	<i>Beacon on submerged rock (topmark and colours as appropriate)</i>	BCNISD.BCNSHP.COLOUR	455.6
e		<i>Beacon which does not conform with the IALA system</i>	BCNXXX.MARSYS=10	

Minor Impermanent Marks usually in Drying Areas (Lateral Mark for Minor Channel)					<i>Minor Pile</i> → F
90		<i>Stake. pole</i>	BCNXXX.BCNSHP=1	456.1	
91	PORT HAND	STARBOARD HAND	Perch. stake	456.1	BCNLAT.BCNSHP=1 CATLAM=1/2
					
92			<i>Withy</i>	456.1	BCNLAT.BCNSHP=2 CATLAM=1/2
					







Minor Marks, usually on Land					<i>Landmarks</i> → E
100		<i>Cairn</i>	BCNSPP.BCNSHP=6.CATSPM LNDMRK.CATLMK=1.CONVIS	456.2	
101	 Mk	<i>Coloured or white mark</i>	DAYMAR.TOPSHP.COLOUR	456.2	
102.1	 RW 	<i>Coloured topmark (colour known or unknown) with function of a beacon</i>	DAYMAR.TOPSHP=1.24.CATSPM COLOUR	456.3	
102.2					

Beacon Towers					
110	 R  G  R  G  BY  BRB	<i>Beacons towers with out and with topmarks and colours (examples)</i>	BCNXXX.BCNSHP=3.COLOUR	456.4	
111		<i>Lattice beacon</i>	BCNXXX.BCNSHP=4	456.4	

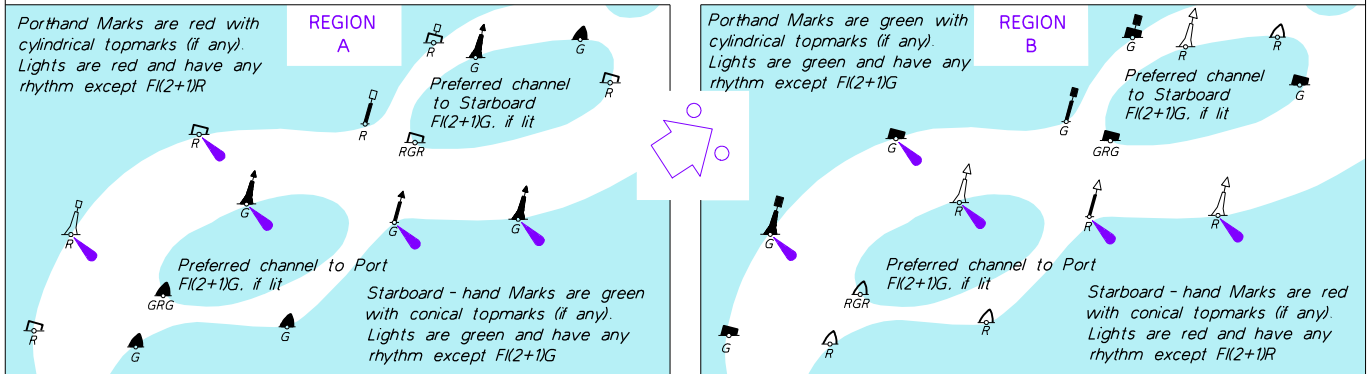
Special Purpose Beacons		Leading Lines, Clearing Lines → M		
<i>Note: Topmarks and colours are shown where scale permits</i>				
120		<i>Leading beacons (the firm line is the track to be followed)</i>	BCNSPP,BCNSHP CATSPM=16	458
121		<i>Beacons marking a clearing line or transit</i>	BCNSPP,BCNSHP CATSPM=41	458
122		<i>Beacons marking measured distance with quoted bearings. The track is shown as a firm line if it is to be followed precisely</i>	BCNSPP,BCNSHP CATSPM=17	458
123		<i>Cable landing beacon (example)</i>	BCNSPP,BCNSHP CATSPM=6.COLOUR	443.5 458
124		<i>Refuge beacon</i>	BCNSPP,BCNSHP CATSPM=44	456.4
125		<i>Firing practice area beacons</i>	BCNSPP,BCNSHP CATSPM=1.COLOUR	
126		<i>Notice board</i>	BCNSPP,BCNSHP CATSPM=18	456.2

Q Buoys, Beacons

130	IALA Maritime Buoyage System	IALA International Association of Marine Aids to Navigation and Lighthouse Authorities	M_LNSYS MARSYS=1.2	NP 735
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Where in force, the IALA System applies to all fixed and floating marks except landfall lights, leading lights and marks, sectored lights and major floating lights. The standard buoy shapes are cylindrical (can) , conical , spherical , pillar , and spar , but variations may occur, for example: minor light floats . In the illustrations below, only the standard buoy shapes are used. In the case of fixed beacons (lit or unlit) only the shape of the topmark is of navigational significance.

130.1 Lateral marks are generally for well-defined channels. There are two international Buoyage Regions - A and B - where Lateral marks differ.



A preferred channel buoy may also be a pillar or a spar. All preferred channel marks have three horizontal bands of colour.

BOYLAT, BOYSHP, CATLAM, COLOUR, COLPAT, LIGHTS, COLOUR, LITCHR, SIGGRP, SIGPER

130.2



Symbol showing direction of buoyage where not obvious.



Symbol showing direction of buoyage where not obvious, on multicoloured charts (red and green circles coloured as appropriate).

130.3 Cardinal Marks indicating navigable water to the named side of the marks. Cardinal marks have the same meaning in Regions A and B. BOYCAR

UNLIT MARKS	LIGHTED MARKS	
<p>Topmark: 2 black cones</p> <p>North Mark Black above yellow</p> <p>West Mark</p> <p>East Mark</p> <p>South Mark Yellow above black</p> <p>Point of Interest</p>	<p>White Light</p> <p>North Mark VO or Q</p> <p>East Mark VO(3)5s or Q(3)10s</p> <p>South Mark VO(6)+LFI.10s or Q(6)+LFI.15s</p> <p>West Mark VO(9)10s or Q(9)15s</p> <p>Time (seconds) 0 5 10 15 Period shown</p>	<p>BOYCAR, BOYSHP CATCAM, COLOUR COLPAT</p> <p>TOPMAR, TOPSHP COLOUR</p> <p>LIGHTS, COLOUR LITCHR, SIGGRP SIGPER</p>
<p>The same abbreviations are used for lights on spar buoys and beacons. The periods, 5s, 10s and 15s, may not always be charted.</p>		

130.4 Isolated Danger Marks, stationed over dangers with navigable water around them. BOYISD, BOYSHP

Body: black with red horizontal band(s)
Topmark: 2 black spheres



White Light

COLOUR=2.3.2, COLPAT=1
TOPMAR, TOPSHP=4
COLOUR=2

130.5 Safe Water Marks, such as mid-channel and landfall marks. BOYSAW, BOYSHP

Body: red and white vertical stripes
Topmark (if any): red sphere



White Light

COLOUR=3.1, COLPAT=2
TOPMAR, TOPSHP=3
COLOUR=3

130.6 Special Marks, not primarily to assist navigation but to indicate special features. BOYSPP, BOYSHP


Body: (shape optional): yellow
Topmark (if any): yellow X





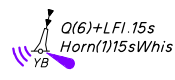
Yellow Light

COLOUR=6
TOPMAR, TOPSHP=7
COLOUR=6






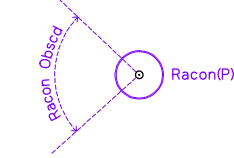
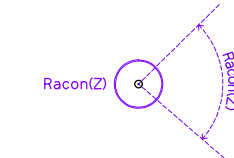
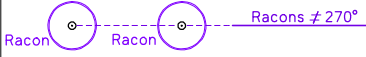
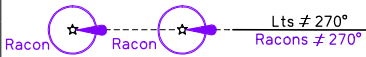
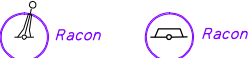


Fog Signals R

General		Fog Detector Light → P	Fog Light → P
1		Position of fog signal. Type of fog signal not stated	FOGSIG.CATFOG 451 451.2 452.8


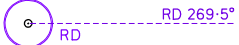
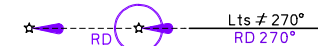








Types of Fog Signals, Abbreviations				
10		Explosive	FOGSIG.CATFOG=1	452.1
11		Diaphone	FOGSIG.CATFOG=2	452.2
12		Siren	FOGSIG.CATFOG=3	452.3
13		Horn (nautophone, reed, tyfon)	FOGSIG.CATFOG=10 FOGSIG.CATFOG=4 FOGSIG.CATFOG=5 FOGSIG.CATFOG=6	452.4
14		Bell	FOGSIG.CATFOG=7	452.5
15		Whistle	FOGSIG.CATFOG=8	452.6
16		Gong	FOGSIG.CATFOG=9	452.7


Examples of Fog Signal Descriptions				
20		Siren at a lighthouse, giving a long blast followed by a short one (N), repeated every 60 seconds	FOGSIG.CATFOG=3. SIGPER.SIGGRP.SIGGEN LIGHTS.LITCHR.COLOUR. SIGPER.HEIGHT.VALNMR	452.3 453.3
21		Wave - actuated bell buoy. The provision of a legend indicating number of emissions, and sometimes the period, distinguishes automatic bell or whistle buoys from those actuated by waves	FOGSIG.CATFOG=7.SIGGEN=2	452.5 453 454.1
22		Light buoy, with horn giving a single blast every 15 seconds, in conjunction with a wave - actuated whistle	FOGSIG.CATFOG=10.SIGPER SIGGRP.SIGGEN FOGSIG.CATFOG=8.SIGGEN LIGHTS.LITCHR.COLOUR. SIGPER.SIGGRP	452.4 453.1 454.3
‡ The Fog Signal symbol (R1) will usually be omitted when associated with another navigation aid (e.g. light or buoy) when a description of the signal is given				

S Radar, Radio, Satellite Navigation Systems

Radar	Radar Structures Forming Landmarks → E	Radar Surveillance Systems → M		
1	 Ra	Coast radar station providing range and bearing from station on request	RADSTA.CATRAS=2	485.1
2	 Ramark	Ramark, radar beacon transmitting continuously	RTPBCN.CATRIB=1	486.1
3.1	 Racon(Z) (3cm)	Radar transponder beacon, with morse identification, responding within the 3cm (X) band	RTPBCN.CATRIB=2 RADWAL=0.03-X.SIGGRP=(Z)	486.2 486.3
3.2	 Racon(Z) (10cm)	Radar transponder beacon, with morse identification, responding within the 10cm (S) band	RTPBCN.CATRIB=2 RADWAL=0.10-S.SIGGRP=(Z)	486.3
3.3	 Racon(Z)	Radar transponder beacon, with morse identification, responding within the 3cm (X) and the 10cm (S) bands (or band unknown)	RTPBCN.CATRIB=2 RADWAL=0.03-X.0.10-S SIGGRP=(Z)	
3.4	 Racon(P)	Radar transponder beacon with sector of obscured reception	RTPBCN.CATRIB=3 RADWAL.SIGGRP=(P) SECTR1 SECTR2	486.4
	 Racon(Z)	Radar transponder beacon with sector of reception	RTPBCN.CATRIB=2 SIGGRP.SECTR1.SECTR2	
3.5	 Racons ≠ 270°	Leading radar transponder beacons (≠ and ≠ mean "in line")	RTPBCN.CATRIB=3	486.5 433.3
	 Lts ≠ 270° Racons ≠ 270°	Leading radar transponder beacons coincident with leading lights	RTPBCN.CATRIB=3	
3.6	 Racon Racon	Radar transponder beacons on floating marks (examples)	RTPBCN.CATRIB=2	486.2
4		Radar reflector (not usually charted on IALA System buoys and buoyant beacons)	CONRAD=3 RADRFL	460.3 465
5		Radar conspicuous feature	CONRAD=1	485.2

Radar, Radio, Satellite Navigation Systems S

Radio Structures Forming Landmarks → E		Radio Reporting (Calling-in or way) Points → M		Radio
10	 Name RC	Non-directional marine or aero marine radiobeacon	RDOSTA.CATROS=1.OBJNAM	4811 480.1
11	 RD 269° 5' RD	Directional radiobeacon with bearing line	RDOSTA.CATROS=2.ORIENT	4812
	 Lts ≠ 270° RD 270° RD	Directional radiobeacon coincident with leading lights	RDOSTA.CATROS=2.ORIENT	
12	 RW	Rotating pattern radiobeacon	RDOSTA.CATROS=3	4811
13	 Consol	Consol beacon	RDOSTA.CATROS=4	481.3
14	 RG	Radio direction-finding station	RDOSTA.CATROS=5	483
15	 R †	Coast radio station providing OTG service	RDOSTA.CATROS=6	484
16	 Aero RC	Aeronautical radiobeacon	RDOSTA.CATROS=7	482
17.1	 AIS	Automatic Identification System transmitter	RDOSTA	489.1
17.2	 AIS  AIS	Automatic Identification System transmitters on floating marks (examples)	RDOSTA	489.1

Satellite Navigation Systems					
50	WGS	WGS72	WGS84	World Geodetic System. 1972 or 1984	201
<p>Note: A note may be shown to indicate the shifts of latitude and longitude, to one, two or three decimal places of a minute, depending on the scale of the chart, which should be made to satellite-derived positions (which are referred to WGS84) to relate them to the chart. See Admiralty Annual Notice to Mariners No.19.</p>					202
51	 DGPS	Station providing Differential Global Positioning System corrections	RDOSTA.CATROS=10	4815	











T Services

Pilotage					
1.1			<i>Pilot boarding place. position of pilot cruising vessel</i>	PILBOP.CATPIL=1	4911 4912 4916
1.2			<i>Pilot boarding place. position of pilot cruising vessel. with name (e.g. District. Port)</i>	PILBOP.CATPIL=1.OBJNAM	
1.3			<i>Pilot boarding place. position of pilot cruising vessel. with note (e.g. Tanker. Disembarkation)</i>	PILBOP.CATPIL=1.INFORM TXTDSC	
1.4			<i>Pilots transferred by helicopter</i>	PILBOP.CATPIL=2	
2		†	<i>Pilot office with Pilot lookout. Pilot lookout station</i>	LNDMRK.FUNCTN=12 BUISGL.FUNCTN=12	4913
3			<i>Pilot office</i>	LNDMRK.FUNCTN=11 BUISGL.FUNCTN=11	4914
4			<i>Port with pilotage service (boarding place not shown)</i>	PILBOP PILDST	4915




Coastguard. Rescue					
10			<i>Coastguard station</i>	CGUSTA	492 492.1 492.2
11			<i>Coastguard station with Rescue station</i>	RSCSTA.CATRSC CGUSTA	493.3
12			<i>Rescue station. Lifeboat station. Rocket station</i>	RSCSTA.CATRSC=1/2	493 493.1
13			<i>Lifeboat lying at a mooring</i>	RSCSTA.CATRSC=6	493.2
14			<i>Refuge for shipwrecked mariners</i>	RSCSTA.CATRSC=4	456.4

Stations				
20	⊙ SS	<i>Signal station in general</i>	SISTAW.CATSIW	490.3
21	⊙ SS(INT)	<i>Signal station showing International Port Traffic Signals</i>	SISTAT.CATSIT=3	495.5
22	⊙ SS(Traffic)	<i>Traffic signal station. Port entry and departure signals</i>	SISTAT.CATSIT=2	495.1
23	⊙ SS(Port Control)	<i>Port control signal station</i>	SISTAT.CATSIT=1	495.1
24	⊙ SS(Lock)	<i>Lock signal station</i>	SISTAT.CATSIT=6	495.2
25.1	⊙ SS(Bridge)	<i>Bridge passage signal station</i>	SISTAT.CATSIT=8	495.3
25.2	†  Traffic-Sig	<i>Bridge lights including traffic signals</i>	SISTAT.CATSIT=8.10	495.4
26	⊙ SS	<i>Distress signal station</i>	SISTAW.CATSIW=5	497
27	⊙ SS	<i>Telegraph station</i>	SISTAT SISTAW	497.1
28	⊙ SS(Storm)	<i>Storm signal station</i>	SISTAW.CATSIW=7	494.1
29	⊙ SS(Weather)	<i>Weather signal station. Wind signal station</i>	SISTAW.CATSIW=6	494.1
30	⊙ SS(Ice)	<i>Ice signal station</i>	SISTAW.CATSIW=8	494.1
31	⊙ SS(Time)	<i>Time signal station</i>	SISTAW.CATSIW=9	494.2
32.1	‡	<i>Tide scale or gauge</i>	SISTAW.CATSIW=12.13	496.1
32.2	⊙ Tide gauge	<i>Automatically recording tide gauge</i>	SISTAW.CATSIW=12	
33	⊙ SS(Tide)	<i>Tide signal station</i>	SISTAW.CATSIW=10	496.2
34	⊙ SS(Stream)	<i>Tidal stream signal station</i>	SISTAW.CATSIW=11	496.3
35	⊙ SS(Danger)	<i>Danger signal station</i>	SISTAW.CATSIW=1	490.1
36	⊙ SS(Firing)	<i>Firing practice signal station</i>	SISTAW.CATSIW=4	490.1

U Small Craft (Leisure) Facilities

Small Craft (Leisure) Facilities		Transport Features, Bridges → D	Pilots, Coastguard, Rescue, Signal Stations → T	Public Buildings, Cranes → F
1		Public slipway		SMCFAC.CATSCF=28 SLCON.CATSLC=13
2		Boat hoist		SMCFAC.CATSCF=3
3		Public landing. Steps. Ladder		SMCFAC.CATSCF=28
4		Sailmaker		SMCFAC.CATSCF=4
5		Boatyard		SMCFAC.CATSCF=5
6		Public house. Inn		SMCFAC.CATSCF=6
7		Restaurant		SMCFAC.CATSCF=7
8		Chandler		SMCFAC.CATSCF=8
9		Provisions		SMCFAC.CATSCF=9
10		Bank. Bureau de change		SMCFAC.CATSCF FUNCTN=13
11		Physician. Doctor		SMCFAC.CATSCF=10
12		Pharmacy. Chemist		SMCFAC.CATSCF=11
13		Water tap		SMCFAC.CATSCF=12
14		Fuel Station (Petrol. Diesel)		SMCFAC.CATSCF=13
15		Electricity		SMCFAC.CATSCF=14
16		Bottled gas		SMCFAC.CATSCF=15
17		Showers		SMCFAC.CATSCF=16
18		Laundrette		SMCFAC.CATSCF=17
19		Public toilets		SMCFAC.CATSCF=18
20		Post box		SMCFAC.CATSCF=19

Small Craft (Leisure) Facilities U

21		Public telephone		SMCFAC.CATSCF=20	
22		Refuse bin		SMCFAC.CATSCF=21	
23		Public car park		SMCFAC.CATSCF=22	
24		Parking for boats and trailers		SMCFAC.CATSCF=23	
25		Water police		BUISGL.FUNCTN=10	

26

MARINA FACILITIES & SERVICES

	Boat Hoist	Bottle Gas	Chandlery	Diesel	Electricity	Launching Slip	Laundrette	Repair Yard	Restaurant	Showers	VHF Radio	Telephone Number	Fax Number
Admiral Marina and Leisure Club			●	●	●		●	●		●	●	(60) 6647 0888	(60) 6647 0880
Changi Sailing Club						●				●	●	(65) 6545 2876	(65) 6542 4235
Marina Country Club				●	●	●		●	●	●	●	(65) 6389 1123	(65) 6389 1123
Republic of Singapore Yacht Club	●			●	●	●	●	●	●	●	●	(65) 6768 9239	(65) 6768 9230

Marina Facilities may be tabulated on harbour charts and large scale coastal charts.

● indicates that the facility is available at the marina itself. Laundrettes etc. located outside the marina are not included. The facilities may not be available outside normal working hours. All marinas have water, toilets and rubbish disposal.

Corrections

Information on small craft (leisure) facilities will be updated as charts are revised by New Edition. The Hydrographic Department, Maritime and Port Authority of Singapore would be pleased to receive reports of alterations or additions to small craft facilities.

V Abbreviations of Principal English Terms

CURRENT FORM	TERM	REFERENCES	CURRENT FORM	TERM	REFERENCES
A					
abt	About	—	Dir	Direction	—
Aero	Aeronautical	P 60, 61.1	Dir	Directional light	P 30-31
	Algae	J s	Discol	Discoloured water	K e
Al.	Alternating light	P 10.11	discont	Discontinued	—
ALC	Articulated Loading Column	L12	dist	Distant	O 85
ALL	Admiralty List of Lights and Fog Signals	—	dm	Decimetre(s)	B 42
ALRS	Admiralty List of Radio Signals	—	Dn, Dns	Dolphin(s)	F 20
Am	Amber	P 11.8	dr	Dries	K b
Anch.	Anchorage	O 21	DW	Deep—water, Deep—draught	M 27, N 12.4
	Ancient	O 84	dwt	Deadweight tonnage	—
ANM	Annual Summary of Admiralty Notices to Mariners	—	DZ	Danger Zone	Q 50
Annly	Annually	—	E		
Appr.	Approach	O 22	E	East	B 10
approx	Approximate	O 89	ED	Existence doubtful	I 1
Apr	April	—	EEZ	Exclusive Economic Zone	N 47
ASD	Admiralty Sailing Directions	—		Electric fog horn	R 13
ASL	Archipelagic Sea Lane	M17	Ent.	Entrance	O 16
	Astronomical	—		Equinoctial	—
ATBA	Area to be Avoided	M 29	ESSA	Environmentally Sensitive Sea Area	N 22
ATT	Admiralty Tide Tables	—	Est.	Estuary	O 17
Aug	August	—		Establishment	—
				Every	—
B			exper	Experimental	O 92
B.	Bay	O 4	explos	Explosive	R 10
B	Black	J af, Q 2	(exting)	Extinguished	P 55
	Basalt	J h	F		
	Battery	E 34.3	f	Fine	J 30
Bk.	Bank	O 23	F	Fixed light	P 10.1
bk	Broken	J 33	FAD	Fish Aggregating Device	—
Bldg	Building	D 5	F Racon	Fixed frequency radar transponder beacon	S 3.4
	Bench Mark	B 23	Feb	February	—
Bn, Bns	Beacon(s)	M 1-2, P 4 - 5, Q 80-81	FFL	Fixed and flashing light	P 10.10
	Beacon Tower	P 3, Q 110	Fj.	Fjord	O 5
BnTr	Boulders	J 9.2		Fishing light	P 50
Bol	Bollard	F a	Fl	Flashing light	P 10.4
Br	Breakers	K 17		Flood	—
	Brown	J ak	Fla	Flare stack (at sea)	L 11
Bu	Blue	J ag, P 11.4,	fm, fms	Fathom, fathoms	B 48
			Fog Det Lt	Fog detector light	P 62
C				Fog signal station	R 1
c	Coarse	J 32		Radio fog signal	—
ca	Calcareous	J 38	FPSO	Floating Production and Storage Offtake Vessel	L 17
CALM	Catenary Anchor Leg Mooring	L 16		Foraminifera	J t
Cas	Castle	E34.2	FS	Flagstaff, Flagpole	E 27
	Cathedral	E 10.1	FSO	Floating Storage and Offtake Vessel	L17
Cb	Cobbles	J 8		Fort	E 34.2
cd	Candela	B 54	ft	Foot, feet	B 47, P13
CD	Chart Datum	H 1	G		
	Cemetery	E 19	G	Gravel	J 6
CG	Coastguard station	T 10-11	G	Green	J ah, P 11.3, Q 2
Ch	Church, chapel	E 10.1, E11	G.	Gulf	O 3
	Chocolate	J al		Glacial	J ac
Chan.	Channel	O 14		Glaucanite	J o
Chem	Chemical	L40		Ground	J a
	Chalk	J e		Globigerina	J u
Chy	Chimney	E 22	Gp.	Government House	—
	Cinders	J m		Group (of islands)	—
cm	Centimetre(s)	B 43		Group—flashing light	P 10.4
Co	Coral	J 10, K16		Group—occluding light	P 10.2
	Column, pillar, obelisk	E 24	GPS	Global Positioning System	—
	Conspicuous	E 2	grt	Gross Register Tonnage	—
const	Construction	F 32		Great	—
cov	Covers	K c		Great Trigonometrical Survey Station (India)	J am, Q a
Cr.	Creek	O 7	GT	Grey	—
Cup	Cupola	E 10.4		Gross Tonnage	—
Cy	Clay	J 3	H		
			h	Hard	J 39
D				Headway	D 20, D 26-27
	Doubtful	—	H	Helicopter transfer (Pilots)	T 1.4
	Dark	J ao	h	Hour	B 49
Dec	December	—	HAT	Highest Astronomical Tide	H 3
decrq	Decreasing	B 64	(hor)	Horizontally disposed	P 15
dest	Destroyed	O 93	Hosp	Hospital	F 62.2
Det	(see Fog Det Lt)	—		Higher	—
DG,DG Range	Degaussing Range	N 25, Q 54			
DGPS	Differential Global Positioning System	S 51			
	Diatoms	J v			
Dia	Diaphone	R 11			

Abbreviations of Principal English Terms **V**

CURRENT FORM	TERM	REFERENCES	CURRENT FORM	TERM	REFERENCES
Hr Mr	Harbour Master	F 60	min	Minute(s) of time	B 50
	Height	—	Mk	Mark	Q 101
HW	High Water	Ha		Marl	J c
	High Water Full and Change	—	MLHW	Mean Lower High Water	H 15
	High Water Ordinary Springs	—	MLLW	Mean Lower Low Water	H 12
			MLW	Mean Low Water	H 4
			MLWN	Mean Low Water Neaps	H 10
			MLWS	Mean Low Water Springs	H 8
I			mm	Millimetres(s)	B 44
IALA	International Association of Lighthouse Authorities	Q 130	Mo	Morse code	P10.9, R 20
IHO	International Hydrographic Organization	—	Mon	Monument	E 24
(illum)	Illuminated	P 63		Mussels	J q
IMO	International Maritime Organization	—	MSL	Mean Sea Level	H 6
	Inch, inches	—	Mth.	Mouth	O 19
incrg	Increasing	B 65	MTL	Mean Tide Level	H c
INT	International	A 3, T 21	N		
Intens	Intensified	P 46	N	North	B 9
IQ	Interrupted quick-flashing light	P 10.6		Nautophone	R 13
	Irregular	—	NB	Notice Board	Q 126
	Indian Spring Low Water	—	NE	North-east	B 13
Iso	Isophase light	P 10.3	NM	Notice(s) to Mariners	—
ITZ	Inshore Traffic Zone	—	n mile	International Nautical Mile	B 45
IUQ	Interrupted ultra quick- flashing light	P10.8	No	Number	N 12.2
IVQ	Interrupted very quick- flashing light	P 10.7	Nov	November	—
			Np	Neap Tides	H 17
J			nrt	Nett register tonnage	—
Jan	January	—	NT	Net Tonnage	—
Jul	July	—	NW	North-west	B 15
			NZ	New Zealand	—
K			O		
km	Kilometre(s)	B 40, F 40		Observation Spot	B 21
kn	Knot(s)	B 52, H 40-41	Obscd	Obscured	P 43
			Obstn	Obstruction, Diffuser	K 40 - 43, L 43
L			Oc	Occulting light	P 10.2
L.	Loch, Lough	O 6	(occas)	Occasional	P 50
	Large	J ab	Oct	October	—
Lag.	Lagoon	O 8	OD	Ordnance Datum	H d
LANBY	Large Automatic Navigational Buoy	P 6	ODAS	Ocean Data-Acquisition System	Q 58, L 25
LAT	Lowest Astronomical Tide	H 2	Or	Orange	P 11.7, Q 3
Lat	Latitude	B 1		Ordinary	—
	Lifeboat station	T 12		Oysters	J p
Ldg	Leading	P 20.3		Ooze	J b
Le.	Ledge	O 28	P		
LFI	Long-flashing light	P 10.5	P	Pebbles	J 7
	Little	—	(P)	Preliminary (NM)	—
	Floodlit	P 63	PA	Position approximate	B 7
LL	List of Lights	—	Pag	Pagoda	E 14
Lndg.	Landing place	F 17	Pass.	Passage	O 13
LOA	Length overall	—	PD	Position doubtful	B 8
LoLo	Load-on, Load-off	—		Pumice	J k
Long	Longitude	B 2	PO	Post Office	F 63
	Lower	P 23		Polyzoa	J y
	Lifesaving station	—	pos	Position	—
Lt	Light	J an, P 1	(priv)	Private	P 50, P 65, Q 70
Lts	Lights	P 20.1, 61.2	Prod Well	Production Well	L 20
LtHo	Lighthouse	P 1	prohib	Prohibited	N2.2, N31
Lt V	Light-vessel	P 6	proj	Projected	O 80
	Lava	J i	prom	Prominent	—
LW	Low Water	H b		Provisional	—
	Low Water Full and Change	—	PSSA	Particularly Sensitive Sea Area	—
	Low Water Ordinary Springs	—		Pteropods	J x
			Pyl	Pylon	D 26
M			Q		
M	Mud	J 2	Q	Quick-flashing light	P 10.6
M	Sea Mile(s)	B 45, P 14		Quarter	—
m	Medium	J 31		Quartz	J f
m	Metre(s)	B 41, P 13	R		
	Madrepore	J g	R	Red	J aj, P 11.2, Q 3
Mag	Magnetic	B 61	R.	River	—
	Magazine	—	R	Rock	J 9.1, K 15
	Manganese	J n	R	Coast Radio Station providing QTG service	S 15
Mar	March	—			
MHHW	Mean Higher High Water	H 13			
MHLW	Mean Higher Low Water	H 14			
MHW	Mean High Water	H 5			
MHWN	Mean High Water Neaps	H 11			
MHWS	Mean High Water Springs	H 9			

V Abbreviations of Principal English Terms

CURRENT FORM	TERM	REFERENCES	CURRENT FORM	TERM	REFERENCES
Ra	Radar Range, Radar Reference Line, Coast Radar Station	M 31-32, S 1	U	Unwatched, unmanned (light)	P 53
	Radar conspicuous object	S 5	ULCC	Ultra Large Crude Carrier	—
	Radar Reflector	Q 10-11, S 4	uncov	Uncovers	K d
Racon	Radar Transponder Beacon	S 3	unexam	Unexamined	I a
	Radiolaria	J w			
Ramark	Radar Beacon	S 2	Unintens	Unintensified	P a
RC	Non-directional Radio- beacon	S 10		Upper	P 22
RD	Directional Radiobeacon	S 11	UQ	Ultra quick-flashing light	P 10.8
Rds.	Roads, Roadstead	O 20	UTC	Co-ordinated Universal Time	—
Ref	Refuge	Q 124, T 14	UTM	Universal Transverse Mercator	—
Refl	Retroreflecting material	Q 6	V		
	Remarkable	—	v	Volcanic	J 37
Rep	Reported	L 3		Villa	—
Rf.	Reef	O 26	Var	Variation	B 60
RG	Radio Direction-Finding Station	S 14		Varying	—
(R Lts)	Air Obstruction Lights (low intensity)	P 61.2	Vel	Velocity	—
	Railway	D 13	(vert)	Vertically disposed	P 15
	Radiobeacon in general	S 10	Vi	Violet	P 11.5
RoRo	Roll-on Roll-off ferry terminal	F 50		Visible	—
	Rocket station	—	VQ	Very quick-flashing light	P 10.7
Ru, (ru)	Ruins	D 8, E25.2,	VTS	Vessel Traffic Service	—
RW	Rotating Pattern Radiobeacon	S 12			
S			W		
S	Sand	J 1	W	West	B 12
S	South	B 11	W	White	J ae, P 11.1, Q a
s	Second(s) of time	B 51, P 12	Water Tr	Water tower	E 21
SALM	Single Anchor Leg Mooring	L 12	Wd	Weed	J 13.1
SBM	Single Buoy Mooring	L 16	WGS	World Geodetic System	S 50
SC	Sailing Club	F 11.3	Whf	Wharf	F 13
	Scoria	J l	Whis	Whistle	R 15
Sc	Scanner	E 30.3	Wk	Wreck	K 20-30
SD	Sailing Directions	—		Radio (Wireless/Telegraphy)	—
SD	Sounding of doubtful depth	L 2	Y		
Sd.	Sound	O 12	Y	Yellow, amber, orange	J ai, P 11, I Q3
SE	South-east	B14	YC	Yacht Club	F 11.3
	Semaphore	—		Yard(s)	—
Sep	September	—			
sf	Stiff	J 36			
Sh	Shells	J11			
Sh.	Shoal	O 25			
Si	Silt	J 4			
Sig	Signal	R 1, T 25.2			
	Speckled	J ad			
	Small	J aa			
SMt	Seamount	O 33			
	Shingle	J d			
so	Soft	J 35			
Sp	Spire	E 10.3			
	Sponge	J r			
Sp	Spring Tides	H 16			
SPM	Single Point Mooring	L 12			
SS	Signal Station	T 20-36			
St	Stones	J 5			
Sta	Station	D 13			
	Storm Signal Station	T 28			
Str.	Strait	O 11			
subm	Submerged	O 90			
SW	South--west	B 16			
SWOPS	Single Well Oil Production System	L c			
sy	Sticky	J 34			
T					
	Tufa	J k			
(T)	Temporary (NM)	—			
t	Ton, tonne	B 53, F 53			
	Elevation of top of trees	C 14			
(temp)	Temporary	N b, P 54			
Tr	Tower	E10.2, E 20			
TSS	Traffic Separation Scheme	—			
TV Tr	Television Tower	E 28--29			

International Abbreviations **W**

A			G		
Aero	Aeronautical light	P 60, 61.1	G	Gravel	J 6
Aero RC	Aeronautical radiobeacon	S 16	G	Green	P 11.3, Q2
AIS	Automatic Identification System	S 17	GPS	Global Positioning System	
Al	Alternating	P 10.11	grt	Gross Register Tonnage	
ALC	Articulated Loading Column	L 12	GT	Gross Tonnage	
Am	Amber	P 11.8	H		
ASL	Archipelagic Sea Lane	M 17	h	Hard	J 39
B			h	Hour	B 49
B	Black	Q 2, 81	H	Helicopter	T 1.4
bk	Broken	J 33	hor	Horizontally disposed	P 15
Bn	Beacon	P 4, 5, Q 80	I		
BnTr	Beacon tower	P 3, Q 110	INT	International	A 2, T21
Bo	Boulder(s)	J 9.2	Intens	Intensified	P 46
Br	Breakers	K 17	IQ	Interrupted quick	P 10.6
Bu	Blue	P 11.4	Iso	Isophase	P 10.3
C			IUQ	Interrupted ultra quick	P 10.8
c	Coarse	J 32	IVQ	Interrupted very quick	P 10.7
ca	Calcareous	J 38	K		
CALM	Catenary Anchor Leg Mooring	L 16	km	Kilometre(s)	B 40
Cb	Cobbles	J 8	kn	Knot(s)	B 52
cd	Candela	B 54	L		
CG	Coastguard	T 10, 11	LANBY	Large Automatic Navigational Buoy	P 6, Q 26
Ch	Church	E 10.1	Lat	Latitude	B 1
Chy	Chimney	E 22	Ldg	Leading	P 20.3
cm	Centimetre(s)	B 43	LFI	Long-flashing	P 10.5
Co	Coral	J 10, K 16	Lndg	Landing for boats	F 17
Consol	Consol Beacon	S 13	Long	Longitude	B 2
Cy	Clay	J 3	Lt	Light	P 1
D			M		
DGPS	Differential Global Positioning System	S 51	m	Medium	J 31
Dia	Diaphone	R 11	m	Metres (s)	B 41
Dir	Direction light	P 30, 31	m	Minute(s) of time	B 50
dm	Decimetre(s)	B 42	M	Mud	J 2
Dn, Dns	Dolphin(s)	F 20	M	International Nautical mile(s)	
DW	Deep Water route	M 27, N 12.4		(1852 m) or sea mile(s)	B 45
dwt	Dead Weight Tonnage		min	Minute(s) of time	B 50
DZ	Danger Zone	Q 50	Mk	Mark	Q 101
E			mm	Millimetre(s)	B 44
E	East	B 10	Mo	Morse Code	P 10.9, R20
ED	Existence Doubtful	I 1	Mon	Monument	E 24
Explos	Explosive	R 10	MR	Marine Reserve	N 22
exting	Extinguished	P 55	N		
F			N	North	B 9
f	Fine	J 30	NE	North-east	B 13
F	Fixed	P 10.1	No	Number	N 12.2
FFI	Fixed and Flashing	P 10.10	NT	Net Tonnage	
Fl	Flashing	P 10.4	NW	North-west	B 15
Fla	Flare stack	L 11			
Fog Det Lt	Fog detector light	P 62			
FS	Flagstaff, flagpole	E 27			
ft	Foot/feet	B 47			

W International Abbreviations

O			T		
Obscd	Obscured	P 43	t	Ton(s), Tonne(s) or tonnage	B 53, F 53
Obstn	Obstruction	K 40-43, L 43	temp	Temporary	P 54
Oc	Occulting	P 10.2	Tr	Tower	E 10.2,20
occas	Occasional	P 50	U		
ODAS	Ocean Data Acquisition System	Q 58	UQ	Ultra Quick	P 10.8
Or	Orange	P 11.7, Q 3	UTC	Universal Time Co-ordinated	
P			UTM	Universal Transverse Mercator	
P	Pebbles	J 7	V		
PA	Position approximate	B 7	v	Volcanic	J 37
PD	Position doubtful	B 8	vert	Vertically disposed	P 15
priv	Private	P 65, Q 70	Vi	Violet	P 11.5
Prod Well	Submerged production well	L 20	VQ	Very Quick	P 10.7
PSSA	Particularly Sensitive Sea Area	N 22	VTS	Vessel Traffic Service	
Pyl	Pylon	D 26	W		
Q			W	West	B 12
Q	Quick	P 10.6	W	White	P 11.1, Q 130.5
R			Wd	Weed	J 13.1
R	Coast radio stations QTG service	S 15	Well	Wellhead	L 21
R	Red	P 11.2, Q3	WGS	World Geodetic System	S 50
R	Rock	J 9, K 15	Whis	Whistle	R 15
Ra	Radar	M 31,32, S 1	Wk; Wks	Wreck(s)	K 20-30
Racon	Radar transponder beacon	S 3.1-3.6	Y		
RC	Circular marine radiobeacon	S 10	Y	Amber	P 11.8
RD	Directional radiobeacon	S 11	Y	Orange	P 11.7
Ref	Refuge	Q 124, T 14	Y	Yellow	P 11.6, Q3
Rep	Reported, but not confirmed	I 3.1			
RG	Radio direction-finding station	S 14			
RoRo	Roll-on, Roll-off Ferry				
	(RoRo Terminal)	F 50			
Ru	Ruin	D 8, E25.2, F 33			
RW	Rotating-pattern radiobeacon	S 12			
S					
S	Sand	J 1			
s	Second(s) of time	B 51, P 12			
S	South	B 11			
SALM	Single Anchor Leg Mooring	L 12			
SBM	Single Buoy Mooring	L 16			
SD	Sounding doubtful	I 2			
SE	South-east	B 14			
sec	Second(s) of time	B 51			
sf	Stiff	J 36			
Sh	Shells (skeletal remains)	J 11			
Si	Silt	J 4			
Sig	Signal	T 25.2			
SMt	Seamount	O 33			
so	Soft	J 35			
Sp	(Church) spire	E 10.3			
SPM	Single Point Mooring	L 12			
SS	Signal station	T 20-31, T33-36			
St	Stones	J 5			
SW	South-west	B 16			
sy	Sticky	J 34			

See also Section V for Abbreviations of principal English Terms and Section W for International Abbreviations.

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Abyssal plain O 49
Aerial, dish E 31
Aerial cableway D 25
Aero light P 60
Aeronautical radiobeacon S 16
Airfield, airport D 17
Air obstruction light P 61
ALS S 17.1-17.2
Algae J s
Alternating light P 10.11
Amber P 11.8
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Anchorage N 10, O 21
Anchorage area N 12.1-12.9
Anchoring prohibited N 20
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Barrage, flood F 43
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Benchmark B 23
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Blockhouse E 34.2
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Border scale, linear A 14
Bottled gas U 16
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Bridges D 22-24
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Brown J ak
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Cairn Q 100
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Calcareous J 38
Calling-in point M 40.1
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Canal distance mark F 40
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Cinders J m
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Clearing line M 2
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Corner coordinates A 9
Cove O 9
Crane F 53
Creek O 7
Cross E 12
Crossing gates, traffic separation M 22
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Diving prohibited.....	N b	Flat coast.....	C 5	boundary.....	N 40-41
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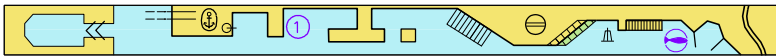
B Positions, Distances, Directions, Compass 

TOPOGRAPHY

C Natural Features 

D Cultural Features 

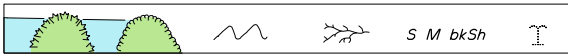
E Landmarks 


F Ports 

HYDROGRAPHY

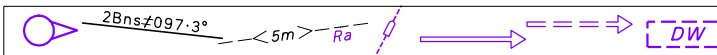
H Tides, Currents 

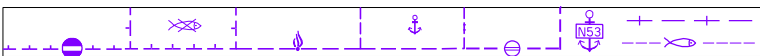
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K Rocks, Wrecks, Obstructions 

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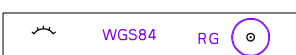
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R Fog Signals 

S Radar, Radio, Satellite Navigation Systems 

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U Small Craft (Leisure) Facilities 

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