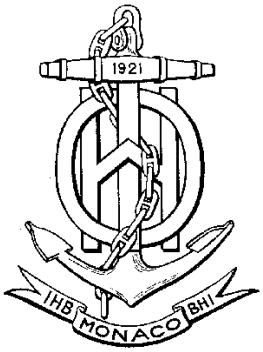
INTERNATIONAL HYDROGRAPHIC ORGANIZATION



Special Publication No. 52, Appendix 2

COLOUR & SYMBOL SPECIFICATIONS FOR ECDIS

Edition 4.2 – March 2004

and its Annex A

IHO ECDIS PRESENTATION LIBRARY

Edition 3.3 – March 2004
becoming
Edition 3.4 – January 2008 by application of this document

C & S MAINTENANCE DOCUMENT

Number 5 – July 2007

IMMEDIATE AMENDMENT 5

DEFERRED AMENDMENT 7

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4, Quai Antoine 1er
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Principauté de Monaco
Telefax: (377) 93 10 81 40
E-mail: info@ihb.mc
Web-site: www.iho.shom.fr

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Introduction

Amendments to S-52 Appendix 2 affect primarily the ECDIS manufacturers, though the mariners will benefit from the improvements made. The procedures for amending S-52 Appendix 2 include both immediate and deferred amendments. Definitions and procedures for these amendments are given in S-52 App.2 “Colour & Symbol Specifications for ECDIS” (C&S Specs), section 1.2.4.1, but are as follows:

An amendment in general may be of the following two different types:

- a deferred amendment may contain either:
  - (a) clarifications and deferred correction items, or
  - (b) extension items, which are distributed separately.

- an immediate amendment which contains only items to be applied urgently,

A deferred amendment is not included in any S-52 Appendix 2 document until the new edition which is identified as bringing the deferred amendments into force. However OEMs may apply such deferred amendments at any time after their publication and do not have to wait for the implementation date of the new edition.

An immediate amendment is issued only in exceptional cases. It applies solely to corrections and extensions which directly affect safety of navigation. Immediate amendments have to be implemented to ECDIS under production and in the field at the earliest opportunity. An immediate amendment to the C&S Specs or Presentation Library (PresLib) changes the Edition number. It applies only to corrections, which must not depend on any deferred amendment.

The item number of each amendment item gives the edition number of the C&S Specs or the PresLib to which the amendment item applies. This Edition number will change once an immediate amendment is applied, but does not change for a deferred amendment.

At the end of each immediate amendment, there is a reminder of the current Edition number after the amendment is applied.

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S-52 APP. 2 – DEFERRED AMENDMENT 7

July 2007

NOTES

1. These amendments are intended to remind users of S-52 Appendix 2 of the changes approved at meetings CSMWG 15 and 16 and to point out how these changes affect C&S Specifications Edition 4.2 and PresLib Edition 3.3 in detail.

2. CHANGE HISTORY OF S-52 APP.2 FROM CSMWG SPECS 4.0 --> 4.2 AND PRESLIB 3.0-->3.3 FROM 1997 TO 2007

   'MD' stands for IHO Maintenance Document; 'IA' stands for Immediate Amendment; and 'DA' stands for Deferred Amendment:

   Colours & Symbols Specifications (S-52 Appendix 2)

   - Edition 4.0 (July 1997) + MD1 IA i01 --> Edition 4.1 (January 1999)
   - Edition 4.1 + MD2 DA d02 + MD4 DA d6 --> Edition 4.2 (March 2004)
   - Edition 4.2 + MD5 DA d7 → Edition 4.3 (January 2008)

   Presentation Library (Annex A to S-52 Appendix 2)

   - Edition 3.0 (July 1997) + MD1 IA i01 → Edition 3.1 (January 1999)
   - Edition 3.1 + MD 3 IA i04 --> Edition 3.2 (May 2000)
   - Edition 3.2 + MD2 DA d02 + MD3 DA d05 + MD4 DA d6 → Edition 3.3 (2004)
   - Edition 3.3 + MD5 IA i5 + MD5 DA d7 → Edition 3.4 (2008)
   - Digital versions:
     - PRSLIB03.dai (July 1997),
     - PSLB03_1.dai (December 1998),
     - PSLB03_2.dai (May 2000),
     - PSLB03_2.dai (March 2004).
   - Temporary digital files: PSTY03_0.dai (June 1999), PSTY3_2b.dai (October 2001) (see amendment d05.cl.005)
   - Paper based description of symbols: Addendum to Part I, Users' Manual (2003)

   Edition 4.2 of the CSMWG Specs and Edition 3.3 of the PresLib, issued in March 2004, brought all outstanding deferred amendments to Editions 4.1 of the CSMWG Specs (issued January 1999) and 3.2 of the PresLib (issued May 2000) into effect. Edition 4.3 of the CSMWG Specs does not contain substantial changes compared to the preceding version with the exception of the reference to Edition 3.4 of the PresLib, which was triggered by the introduction of new objects, object attributes and attribute values in S-57 Supplement No. 1, issued in January 2007. Edition 4.3 of the PresLib itself is to be set in force in conjunction with the S-57 Supplement No. 1 by 1. January **2008**.

Note that although this MD5 is published in July 2007, OEMs have until 1 January 2008 to fully implement ALL of these amendments.

INDEX OF ITEMS IN IMMEDIATE AMENDMENT 5

INDEX OF ITEMS IN DEFFERED AMENDMENT 7

S-52 APP. 2 – IMMEDIATE AMENDMENT 5

*Throughout this amendment changes to the CSMWG Specs. and the PresLib. are indicated by ~~strikethrough~~ text for deletions and **bold text** for additions.*

Item No.PL03.3.i5.ad.1 Addition of symbols for new S-57 Supplement Number 1 (Edition 3.1.1) features - **Symbolization of RESARE (ESSA and PSSA), ARCSLN, ASLXIS, NEWOBJ**

According to the enhancements of the ENC Product Specification by S-57 Supplement No. 1 issued in January 2007, ESSAs and PSSAs must be encoded as individual objects of class RESARE. The following entries into the look up tables for ESSAs and PSSAs are introduced as immediate amendment to the Presentation Library.

Lookup table entry ESSA

11.3 Look-up Table Listing for Object Type Area 'A'
"RESARE","CATREA27","SY(ESSATEXT);LC(ESSARE01)","5","S","STANDARD","26010"

Lookup table entry PSSA

11.3 Look-up Table Listing for Object Type Area 'A'
"RESARE","CATREA28","SY(PSSATEXT);LC(ESSARE01)","5","S","STANDARD","26010"

Presentation example of ESSA and PSSA

These new look up table entries for ESSA and PSSA would result into the display presentation as shown in Fig. 1. The symbol definition to be added to the PresLib is shown in Fig. 1 A, Fig. 1 B and Fig. 1 C.

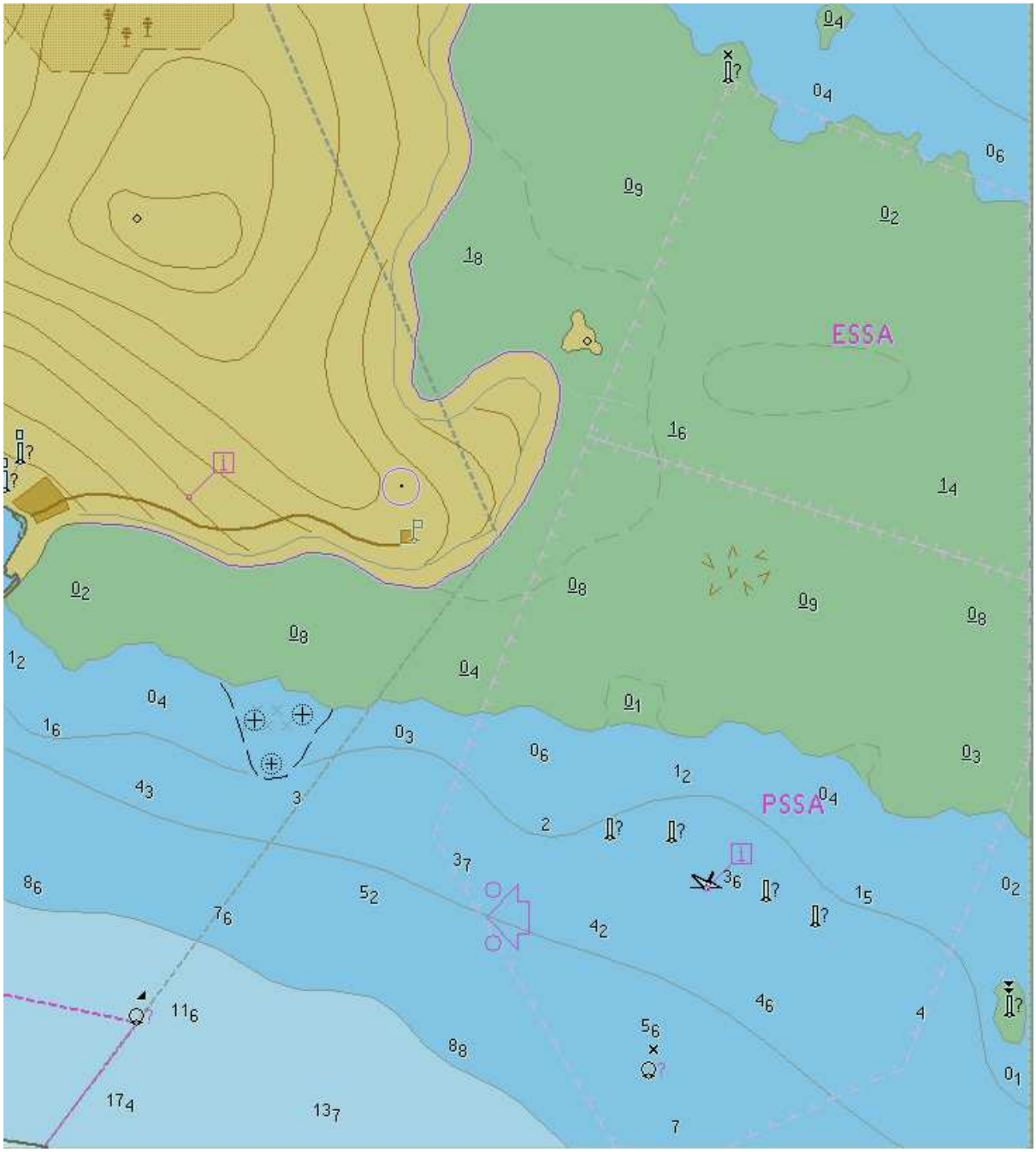


Fig 1. ESSA and PSSA (Centred Symbol and Boundary) at day light display

Symbol definition PSSA

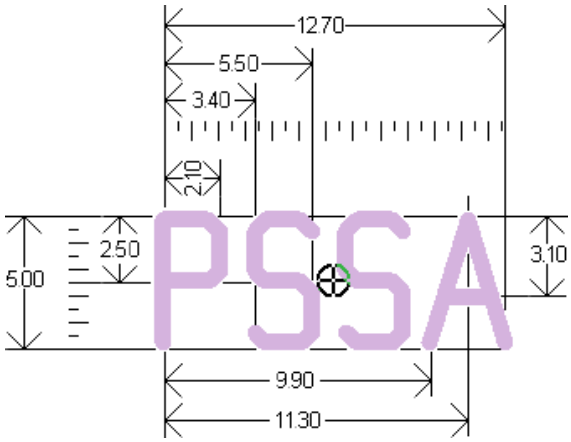
Symbol Name:	SY(**PSSARE01**)	RN: 519

Symbol Explanation: PSSA - centred symbol

Look up table affected: CSP …

Pivot Point Column: 6.35
Pivot Point Row: 6.35

Width of Bounding Box: 12.70
Height of Bounding Box: 5.00



Symbol Colours: CHMGF

Comments: Line weight 0.6 mm

Examples on ENC: N/A

References:

S57 E3.1.1	INT 1	
RESARE, CATREA 28	N22	PSSA PSSA

Figure 1 A: Symbol definition of centred Symbol for PSSA (Addition to Users' Manual Addendum)

Symbol definition ESSA

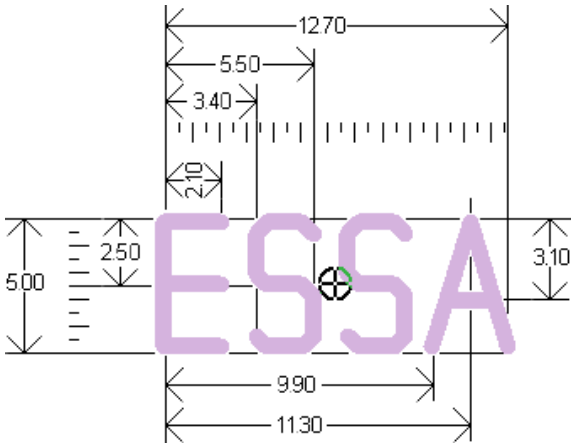
Symbol Name:	SY(**ESSARE01**)	RN: 523

Symbol Explanation: ESSA - centred symbol

Look up table affected: CSP …

Pivot Point Column: 6.35
Pivot Point Row: 6.35

Width of Bounding Box: 12.70
Height of Bounding Box: 5.00



Symbol Colours: CHMGF

Comments: Line weight 0.6 mm

Examples on ENC: N/A

References:

S57 E3.1.1	INT 1	
RESARE, CATREA 27	N22	

Figure 1 B: Symbol definition of centred Symbol for ESSA (Addition to Users' Manual Addendum)

Boundary symbol definition PSSA/ESSA

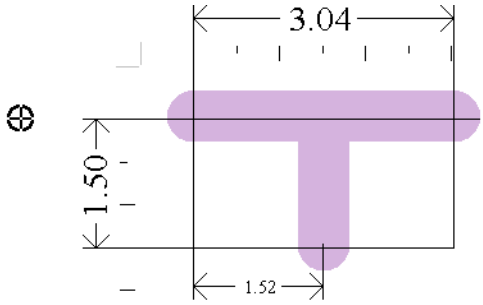
Symbol Name:	LC(**ESSARE01**)	RN: 524

Symbol Explanation: boundary of an ESSA or PSSA

Look up table affected: area symbols with symbolized boundaries

Pivot Point Column: -2.00
Pivot Point Row: 0.00

Width of Bounding Box: 3.00
Height of Bounding Box: 1.50



Symbol Colours: CHMGF

Comments: Line weight 0.3 mm

Examples on ENC: N/A

References:

S57 E3.1.1	INT 1	
RESARE, CATREA 27 or 28	N22	

Figure 1 C: Symbol definition of boundary of PSSA/ESSA (Addition to Users' Manual Addendum)

Presentation of Archipelagic Sea Lanes (ASL)

The proposal for the display of ASL on ECDIS follows the IHO Chart Specification for ASLs (M-4, B-435.10) and revised BSH INT1 (M 17) November 2005 for paper charts. The resulting look up table entry reads as follows:

Archipelagic Sea Lane Axis

11.2 Look-up Table Listing for Object Type Line 'L'

"ASLXIS","","LS(DASH,2,CHMGF)","5","S","STANDARD","26260"

Archipelagic Sea Lane

11.3 Look-up Table Listing for Object Type Area 'A'

"ARCSLN","","LC(ARCSLN01)","5","S","STANDARD","26260"

Presentation example of ASL

These new look up table entries for ASL would result into the display presentation as shown in Fig. 2. The symbol definition to be added to the PresLib is shown in Fig. 2 A.

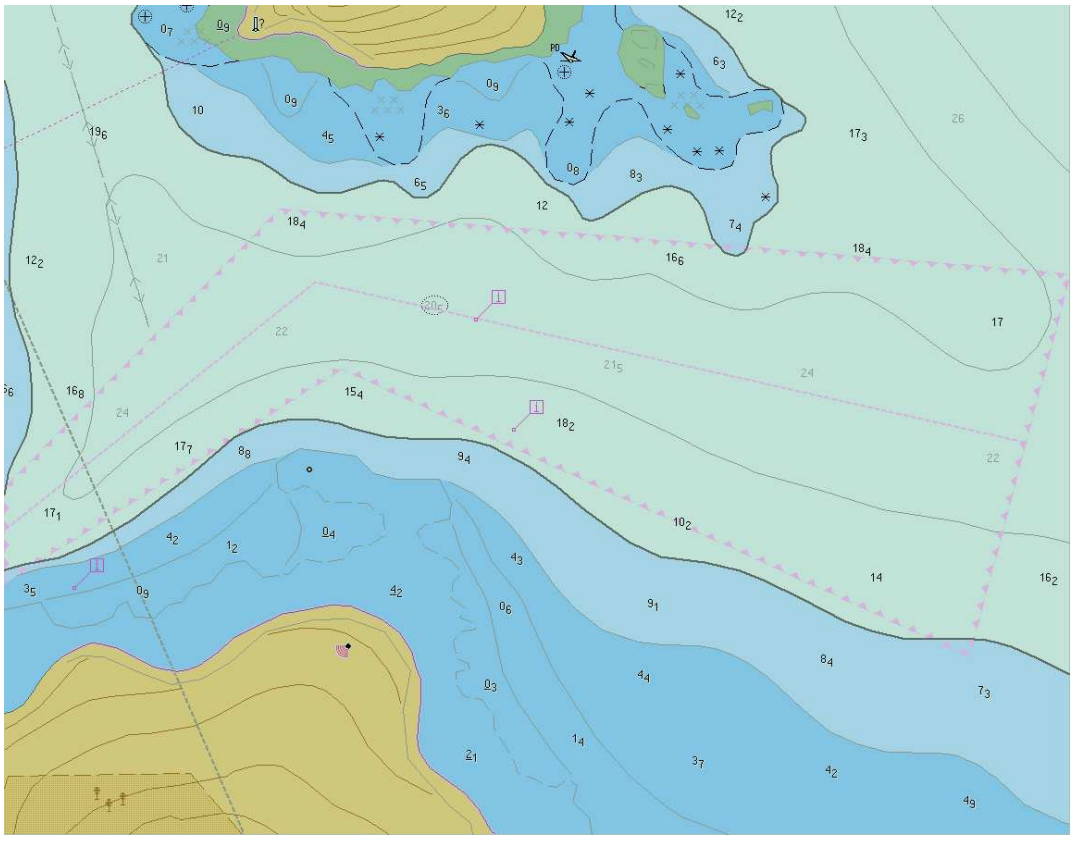


Fig. 2 ASL symbolisation (Boundary and Axis Line) at day light display

Boundary symbol definition ASL

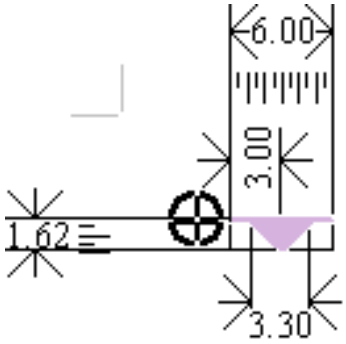
Symbol Name:	LC(**ARCSLN01**)	RN: 520

Symbol Explanation: boundary of archipelago sea lane

Look up table affected: area symbols with plain boundaries
area symbols with symbolized boundaries

Pivot Point Column: -2.00
Pivot Point Row: 0.00

Width of Bounding Box: 6.00
Height of Bounding Box: 1.62



Symbol Colours: CHMGF

Comments: Line weight 0.3 mm

Examples on ENC: N/A

References:

S57 E3.1.1	INT 1	
ARCSLN	M17	

Figure 2 A: Symbol definition of boundary of archipelagic sea lane (Addition to Users' Manual Addendum)

8.3.3.11 Presentation of New Object NEWOBJ

For the presentation of objects of class NEWOBJ two alternative presentation options are provided by the PresLib which do not rule each other out. On the contrary, both solutions cover different options of application.

8.3.3.11a Default symbol for NEWOBJ

Because there may be very little information available (beside the values of the attributes INFORM and/or TXTDSC), a well known attention grabbing symbol seems to be appropriate as the default symbolisation. To distinguish a new object symbol from the standard "Non ENC object" symbol (magenta question mark), an exclamation mark shaped in a magenta filled circle has been developed. The new symbol is named 'NEWOBJ01'. This symbol is called by Look-up table entries to by found under 11.1, 11.2 and 11.3.

The entries into the look up tables for new objects of point, line and area type are as follows:

11.1.1 Look-up Table for paper chart point symbolization
11.1.2 Look-up Table for simplified point symbolisation
"NEWOBJ","","SY(NEWOBJ 01)","6","S","STANDARD","21020"

11.2 Look-up Table Listing for Object Type Line 'L'
"NEWOBJ","","LC(NEWOBJ 01)","6","S","STANDARD","21020"

11.3 Look-up Table Listing for Object Type Area 'A'
"NEWOBJ","","SY(NEWOBJ 01);LS(DASH,2,CHMGD)","6","S","STANDARD","21020"

Presentation examples of New Objects - default symbolization

These new look up table entries for NEWOBJ according to this approach would result in the display presentation as shown in Fig. 3. The symbol definition to be added to the PresLib is shown in Fig. 3 A and Fig 3 B.

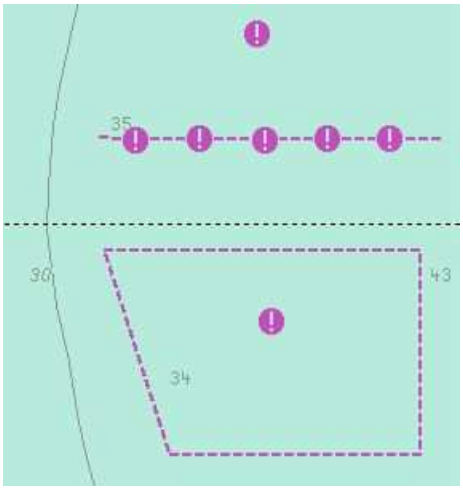


Fig. 3 NEWOBJ (New object)

Default Symbol Definition NEWOBJ

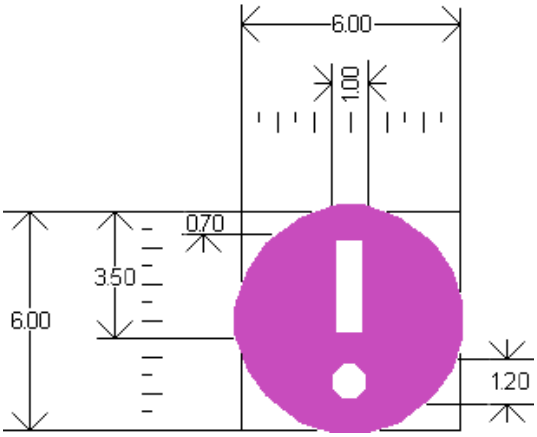
Symbol Name:	SY(**NEWOBJ01**)	RN: 522

Symbol Explanation: unknown object

Look up table affected: paper chart point symbols
area symbols with plain boundaries
simplified point symbols
area symbols with symbolized boundaries

Pivot Point Column: 3.00
Pivot Point Row: 3.00

Width of Bounding Box: 6.00
Height of Bounding Box: 6.00



Symbol Colours: CHMGD

Comments: Line weight 0.3 mm

Examples on ENC: N/A

References:

S57 E3.1.1	INT 1	
NEWOBJ	N/A	

Figure 3 A: Default Symbol definition of new object symbol (Addition to Users' Manual Addendum)

Default Boundary Definition NEWOBJ

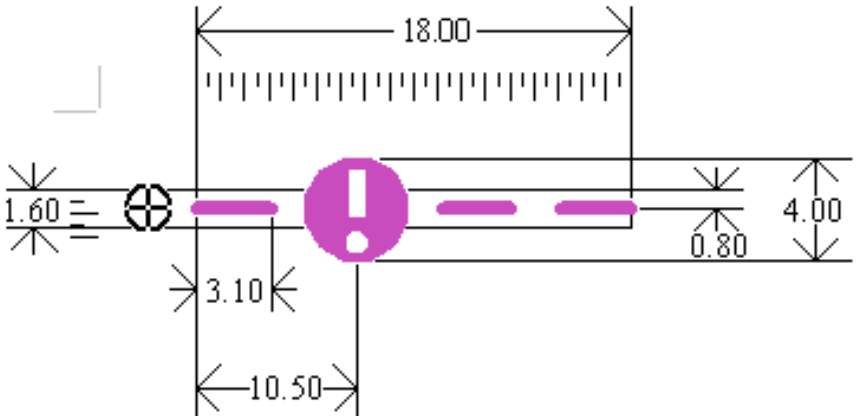
Symbol Name:	LC(**NEWOBJ01**)	RN: 521

Symbol Explanation: unknown object

Look up table affected: line symbols

Pivot Point Column: -2.00
Pivot Point Row: 0.00

Width of Bounding Box: 20.00
Height of Bounding Box: 1.60



Symbol Colours: CHMGD

Comments: Line weight 0.6 mm

Examples on ENC: N/A

References:

S57 E3.1.1	INT 1	
NEWOBJ	N/A	

Figure 3 B: Default symbol definition of boundary of new object symbol (Addition to Users' Manual Addendum)

8.3.3.11b Encoded symbolization for NEWOBJ

As stated for the use of NEWOBJ01 to depict the NEWOBJ, its visualisation is a generic one, which means that the symbol is not self-explanatory but has been designed to grab attention. The user must select the pick report if he wants to learn more about the nature and designation of this object. To visualize such objects in a more meaningful way, the concept of cartographic objects from earlier editions of S-57 (Version 2.0) and the S-52 PresLib has been re-introduced. This "encoded symbolization is given as second alternative option die visualize NEWOBJ. This method effectively binds a direct call of a symbol by its dedicated PresLib symbol name to the encoded object. This call is activated by a new optional attribute called symbol instruction (SYMINS). If this new attribute is populated with a valid symbol name (to be taken from the PresLib, Edition 3.4 Addendum), the specified symbol will be displayed on ECDIS. If this new attribute is not populated, or populated with an invalid symbol name, the default symbology as described under "First option" will be displayed by default. This approach provides encoders with an option to select the symbol they consider best reflects the nature of the feature.

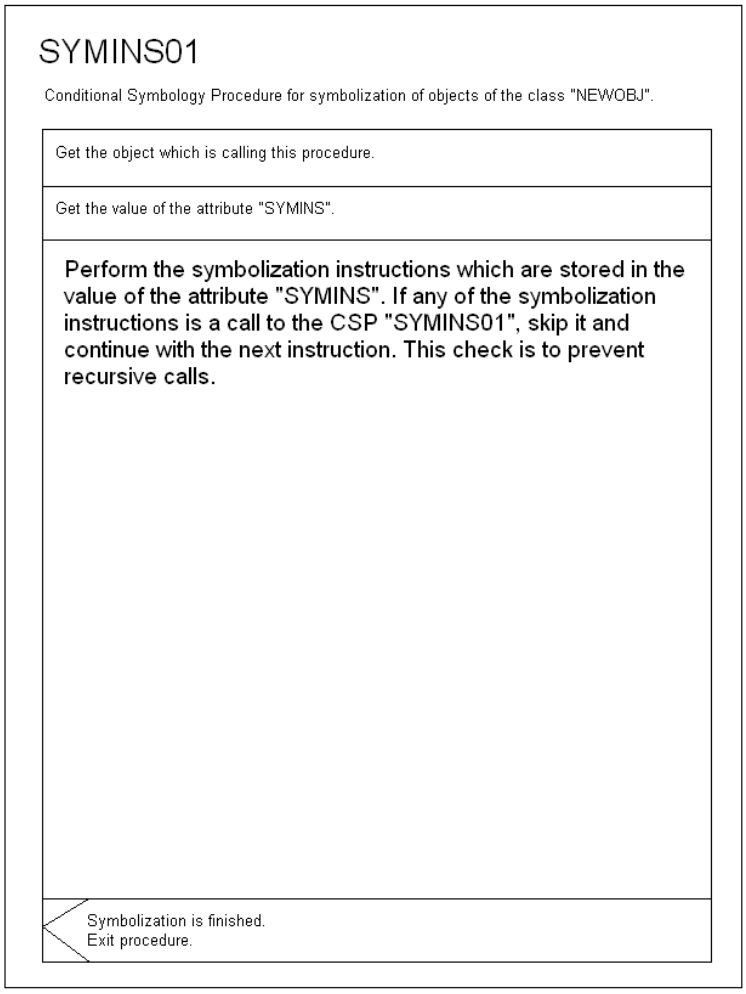
The entries into the look up tables for new objects of point, line and area type are as follows:

11.1.1 Look-up Table for paper chart point symbolization
11.1.2 Look-up Table for simplified point symbolisation
"NEWOBJ","","SY(NEWOBJ01)","6","S","STANDARD","21020"
"NEWOBJ","SYMINS","CS(SYMINS01)","6","S","STANDARD","21020"

11.2 Look-up Table Listing for Object Type Line 'L'
"NEWOBJ","","LC(NEWOBJ01)","6","S","STANDARD","21020"
"NEWOBJ","SYMINS","CS(SYMINS01)","6","S","STANDARD","21020"

11.3 Look-up Table Listing for Object Type Area 'A'
"NEWOBJ","","SY(NEWOBJ01);LS(DASH,2,CHMGD)","6","S","STANDARD","21020"
"NEWOBJ","SYMINS","CS(SYMINS01)","6","S","STANDARD","21020"

Item No.PL03.3.i5.ad.2 Addition to PresLib CSP **Symbolization of object of the class “NEWOBJ”**



End of immediate amendment applying to Edition 3.3 – March 2004
becoming Edition 3.4 – January 2008 by application of this amendment

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S-52 APP. 2 – DEFFERED AMENDMENT 7

*Throughout this amendment changes to the CSMWG Specs. and the PresLib. are indicated by ~~strikethrough~~ text for deletions and **bold text for additions.***

Item No. CS04.2.d7.co.1 Correction to PresLib Part1 (Users' Manual), section 8.1, second paragraph **Display of any valid attribute information for unknown objects**

S-52 Presentation Library Edition 3.3, Part 1, section 8.1, second paragraph:

Feature objects must be of an officially adopted object class. If feature objects are of proprietary ~~(~~non-IHO**ENC~~)~~** classes **(i.e. not included in S-57 Product Specifications for ENC)** they will be treated as members of unknown object classes. There will be no appropriate entry in the look-up tables **but even in that case they must** be presented on the ECDIS screen **in accordance with 8.3.3.7a below**. ~~Instead t~~**The occurrence of such an object should be recorded during transformation from ENC to SENC as an anomaly** ~~should be a message on the interface~~ and the unknown objects should ~~show up~~ **be displayed** ~~as~~ **by means of** '?'-symbols.

8.3.3.7a Symbolizing an object of ~~unknown / unidentified~~ <u>non-ENC</u> object class

If there is no look-up table line matching the object at all, the look-up table is incomplete or the object is of an unknown object class. If this happens, a caution should be shown on the mariners' interface and a '?'-symbol ('QUESMRK1'-symbol, pattern or line style) should be shown as fail-safe presentation, which on cursor **inquiry of attributes INFORM and or TXTDSC** would **display tex**t ~~and if possible~~ explain**ing** the object in the SENC. **All standard S-57 attributes permitted for ENCs that have been populated, must also be available for cursor enquiry.** For an area use SY(QUESMRK1) as a centred symbol and for the areas with symbolized boundaries use LC(QUESMRK1) to symbolize the boundary.. Display priority is 5, over radar, IMO category is 'standard', and viewing group is 21010.

8.3.3.7b Symbolizing an object with ~~unknown / unidentified~~ <u>non-ENC</u> attributes or <u>non-ENC</u> attribute values

Closely following section**s** 8.3.3.2 and 8.3.3.3 ~~in detail~~ will result in a fail-safe symbolization of the object by the default symbolization for that object class.~~"~~ **For a non-ENC attribute, apply default symbology for the valid object class. For a non-ENC attribute value, apply default symbology for the valid object class/attribute combination. INFORM and or TXTDSC attributes (and any other valid attributes that have been populated) must be available to the mariner in every case by Pick Reports.**

Item No. CS04.2.d7.co.2 Correction to PresLib Part 1 (Users' Manual), Glossary **Display of unknown objects**

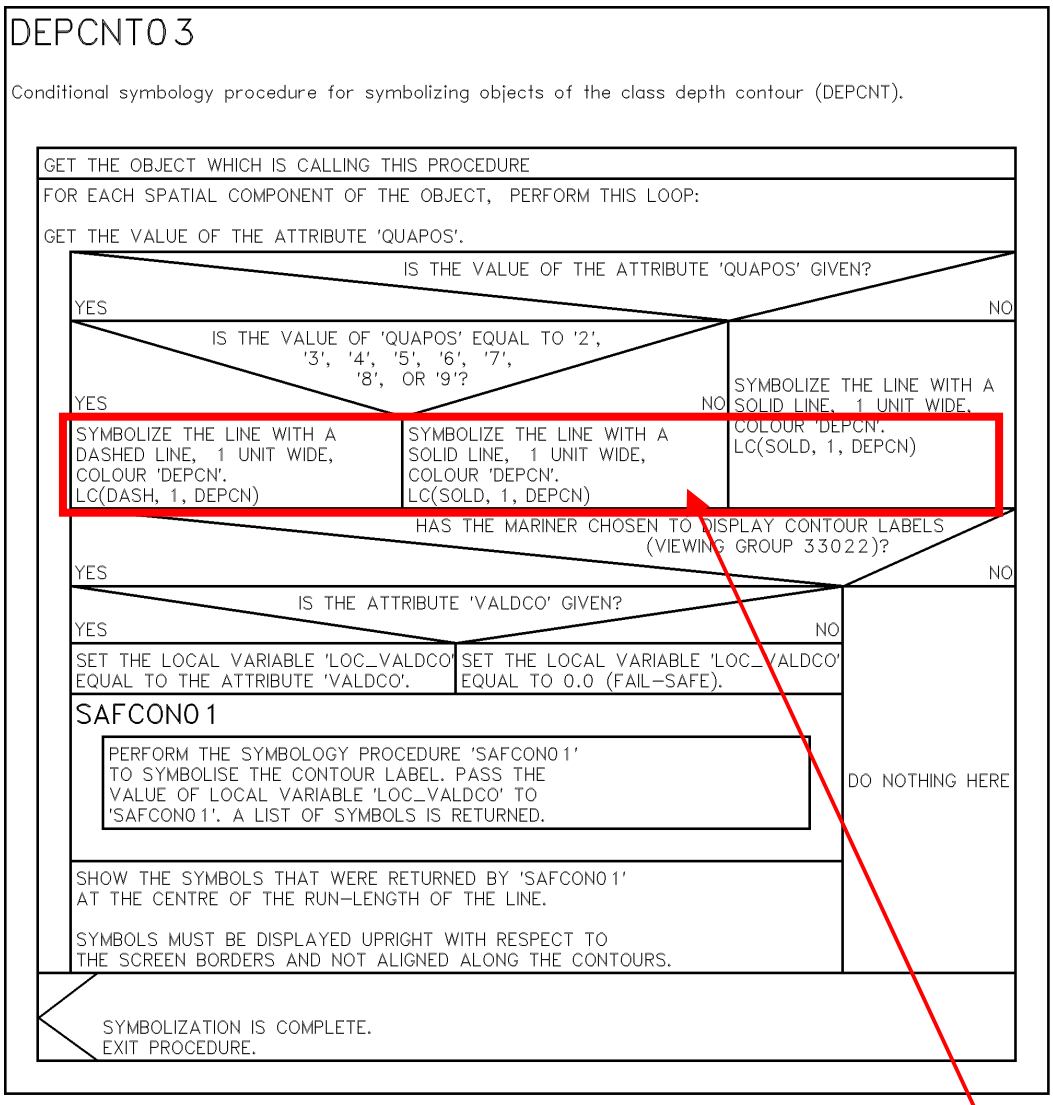
17. Glossary

Unknown Object:	**If an object-class is not listed in the look-up table, the ECDIS should advice the mariner that an unknown object exists in the display area, and symbolize all such objects with '?'.**

Item No. CS04.2.d7.co.3 - Correction to PresLib section 12.2.2 (subsection 4.2, paragraph 4) **- typographical error to display scale**

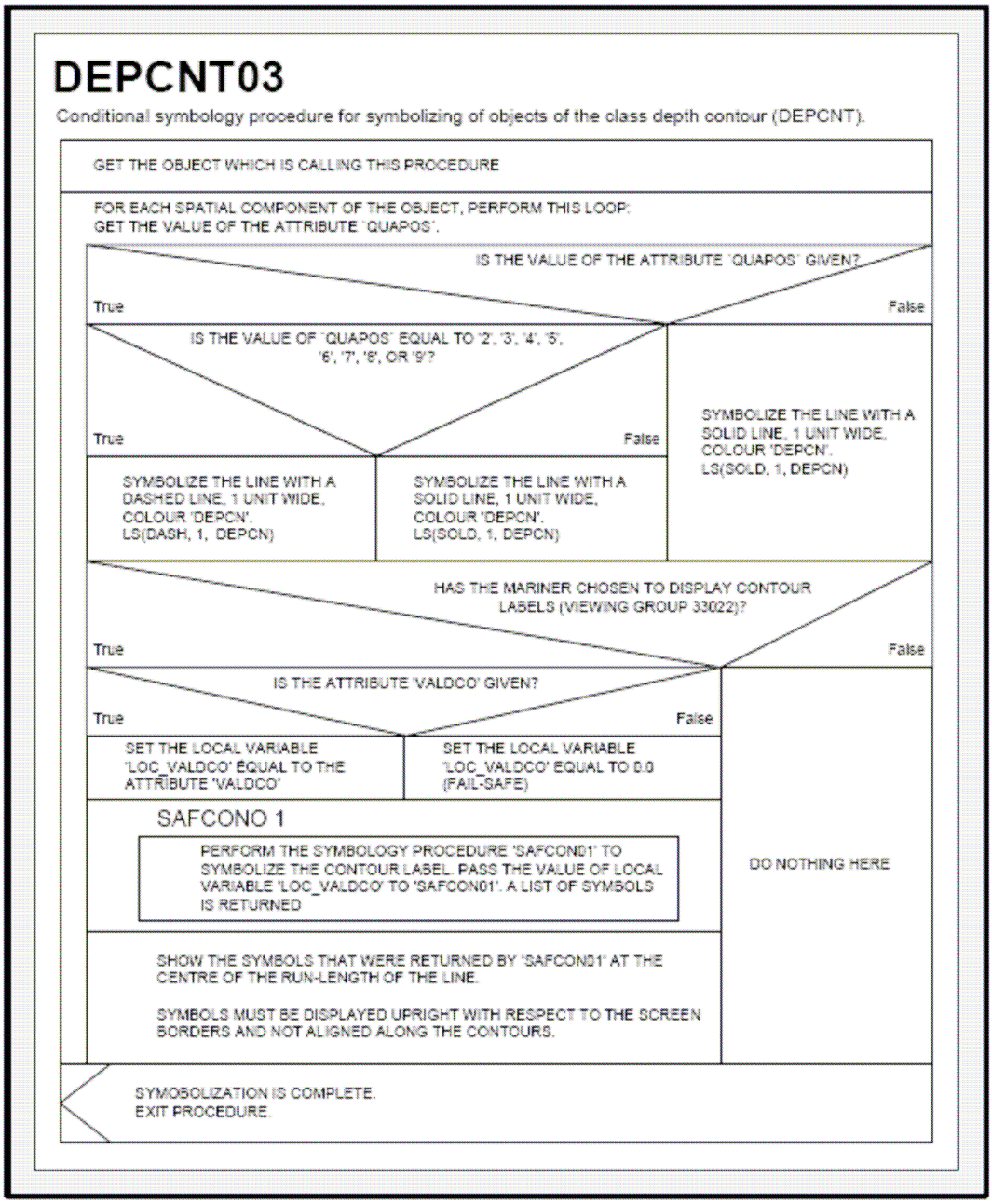
Note that in this situation the pattern AP(OVERSC01) should ONLY be shown on the area compiled from the smaller scale ENC. If the area from the larger scale ENC is also overscale, this should be indicated by the "overscale indication" of sub-section 4.1 above. The pattern AP(OVERSC01) should not be shown on the part of the display taken from the larger scale ENC. For example if the display scale of the situation in figure 7 was 1/3,50**0** the area of compilation scale 1/12,500 would have an overscale indication of X 3.6 but would have no pattern AP(OVERSC01).

Item No. PL03.3.d7.co.4 Correction to PresLib CSP - **Depth Contour Procedure**

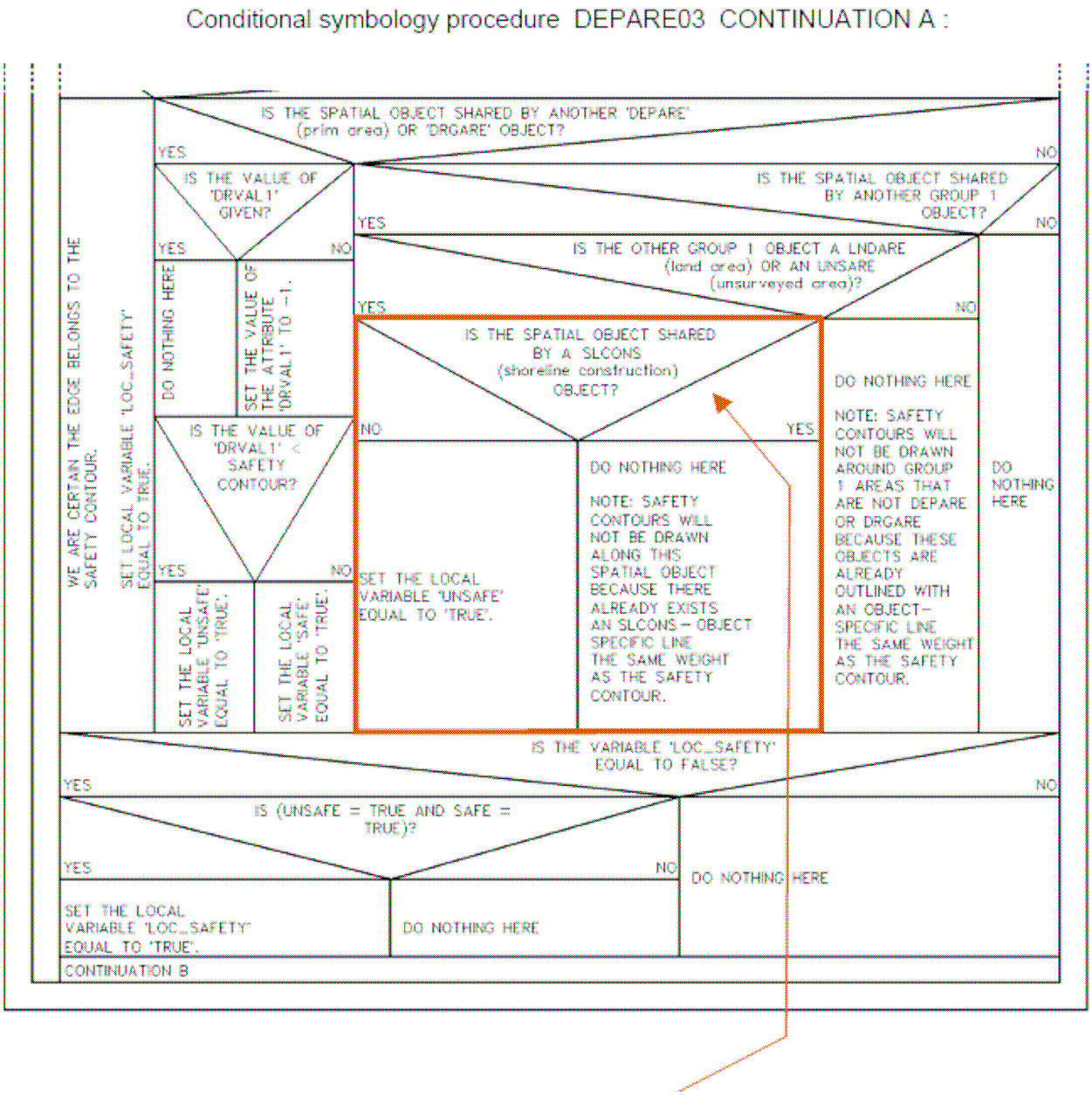


Required modification of this conditional branch: The portrayal instruction "LC" must be replaced by the portrayal instruction "LS".

The diagram DEPCNT03 below corrects the PresLib and substitutes DEPCNT03 of PL 3.3:

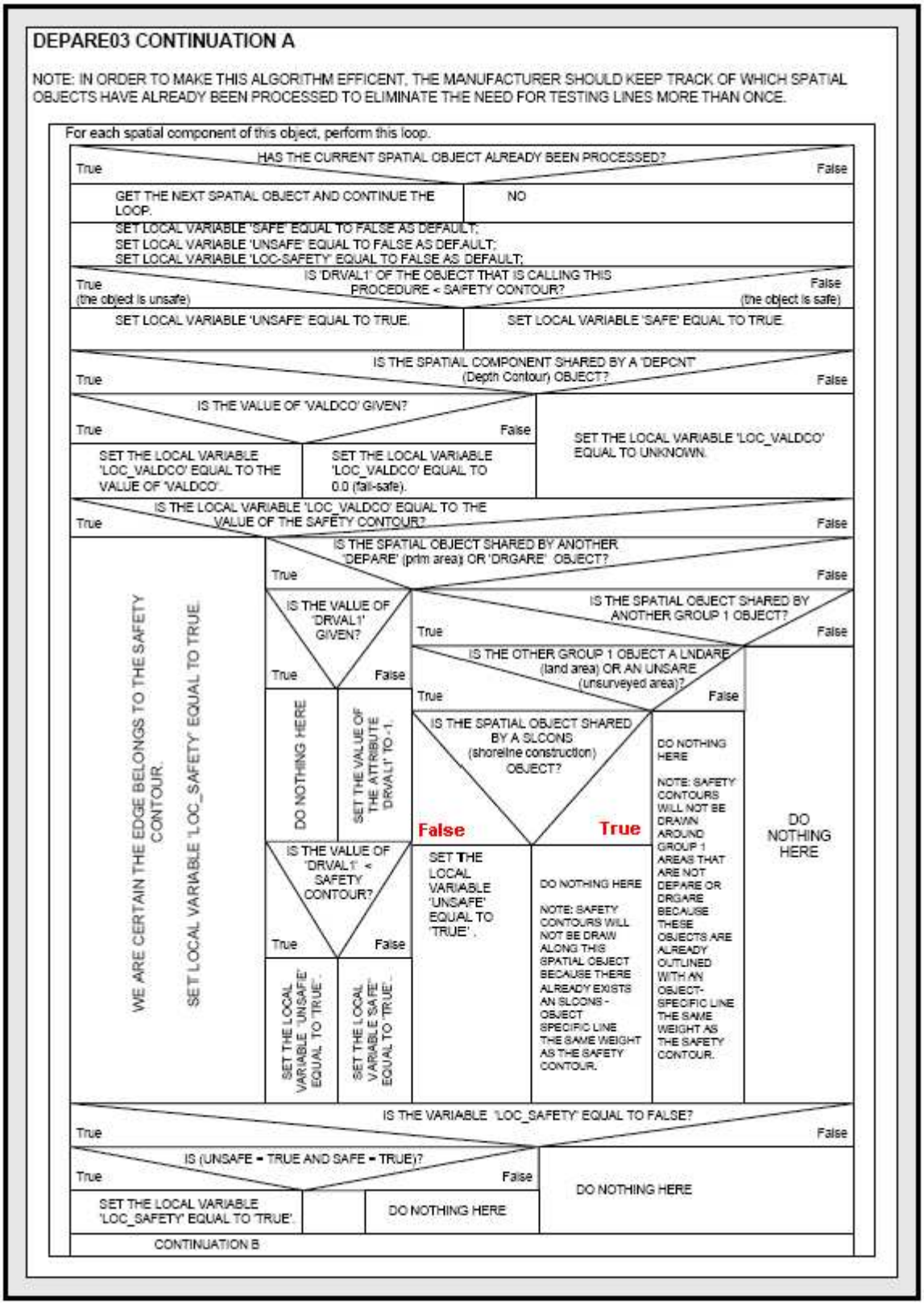


Item No.PL03.3.d7.co.5 Correction to PresLib CSP - **Safety contour detection method**



Modification of this conditional branch: If there are no SLCONS objects which are sharing the same edge, then the answer is NO and the local variable ´UNSAFE´ is set to ´TRUE´.
The old additional checking for sharing of RIVERS, LAKARE, CANALS or DOCARE is not necessary because this edge is shared by LNDARE or UNSARE and therefore the condition is definitely ´unsafe´ in this case.
If there is a SLCONS object sharing the same edge, then the answer is YES and this edge will not be displayed as part of the safety contour, but will be displayed by the conditional symbology procedure ´SLCONS03´ which always belongs to the DISPLAY BASE category.

The diagram DEPARE CONTINUATION A below corrects the PresLib and substitutes DEPARE CONTINUATION A of PL 3.3:



Item No. PL03.3.d7.co.6 Correction to PresLib CSP - **Visualization of soundings over wrecks**

As a result of the revision of IHO M-4 in 2006, the visualization of soundings over wrecks must be changed in order to give the mariner the maximum useful information about the least depth over the wreck.

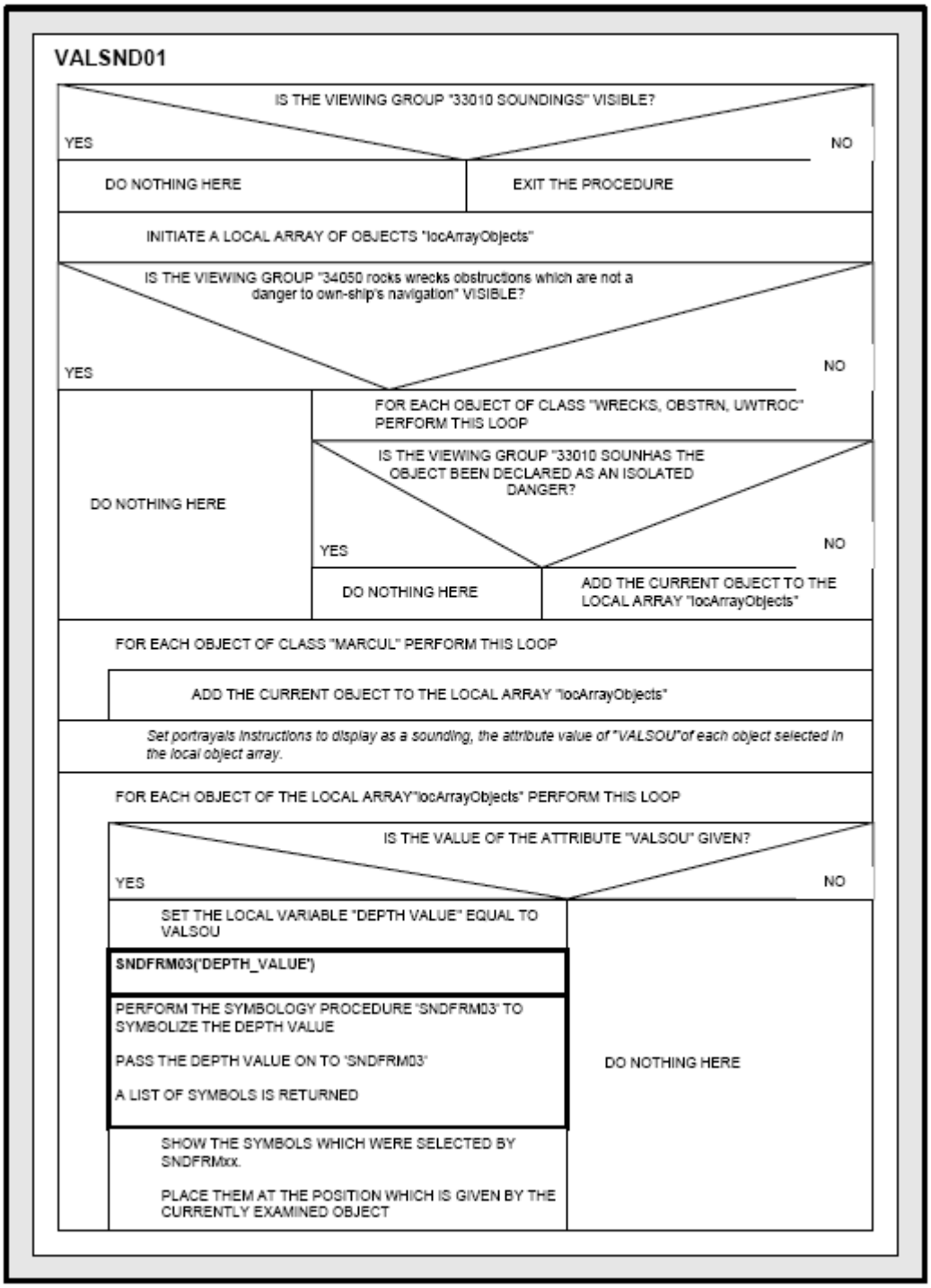
12.1.2 List of Procedures

The following flow charts and narrative descriptions of conditional symbology procedures are presented:

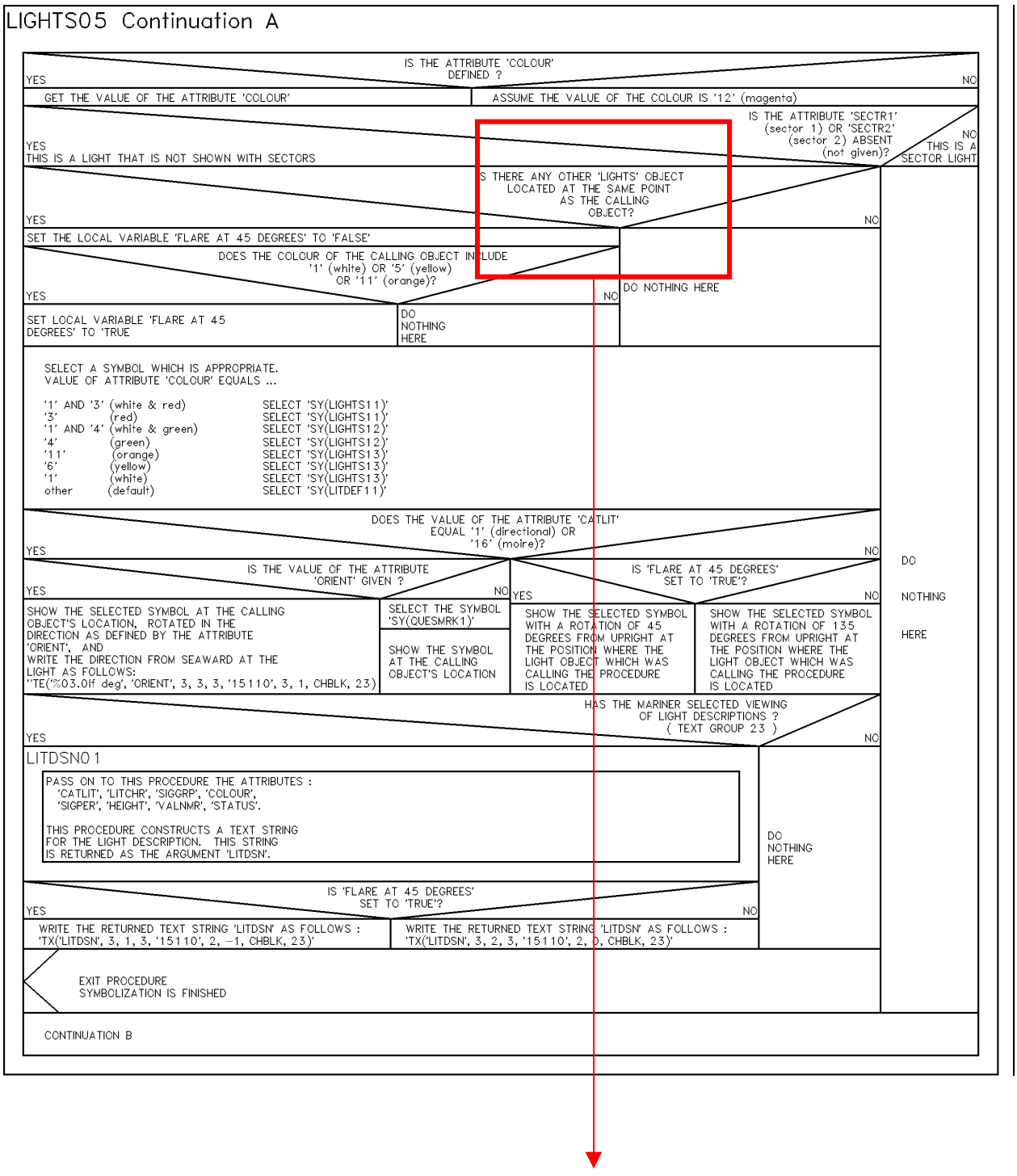
(12.2.24)	Isolated dangers in general that endanger own ship (S-57)	UDWHAZ04
(12.2.24a)	**Visualisation of soundings over wrecks (S-57)**	**VALSND01**
(12.2.25)	Vessel other than own ship (mariners' navigational object)	* VESSEL02
(12.2.26)	Symbolizing VRMs and EBLs (mariners' navigational object)	* VRMEBL02
(12.2.27)	Wrecks (S-57)	WRECKS03

12.2.24a Conditional Symbology Procedure 'VALSNDnn'

Call from:	**SOUNDGnn Conditional procedure**
Applies to:	**All underwater hazards with attribute "VALSOU":**
	S-57 Object Class "obstruction" (OBSTRN)
	S-57 Object Class "under water rock" (UWTROC)
	S-57 Object Class "marine culture" (MARCUL)
	S-57 Object Class "wreck" (WRECKS)
Spatial Object(s):	**Point, Area**
Attribute(s) used:	**"value of sounding" (VALSOU)**
Parameter(s):	**Examined object (to be symbolized from SENC)**
Defaults:	**Display Priority given by look-up table**
	OVERRADAR priority given by look-up table
	Display Category given by look-up table
	Viewing Group given by look-up table
Remarks:	**Display attribute value of sounding ("VALSOU") associated to objects WRECKS,OBSTRN,UWTROC,MARCUL as soon as the viewing group "33010 SOUNDINGS".**
	For WRECKS,OBSTRN,UWTROC class , we don't display the value of sounding as a sounding for objects qualified as an isolated danger by WRECKSxx and OBSTRNxx.
	For WRECKS,OBSTRN,UWTROC class , we rely on WRECKSxx and OBSTRNxx to display the value of sounding as a sounding when the associated viewing group "34050 rocks wrecks obstructions which are not a danger to own-ship's navigation " is set to on.

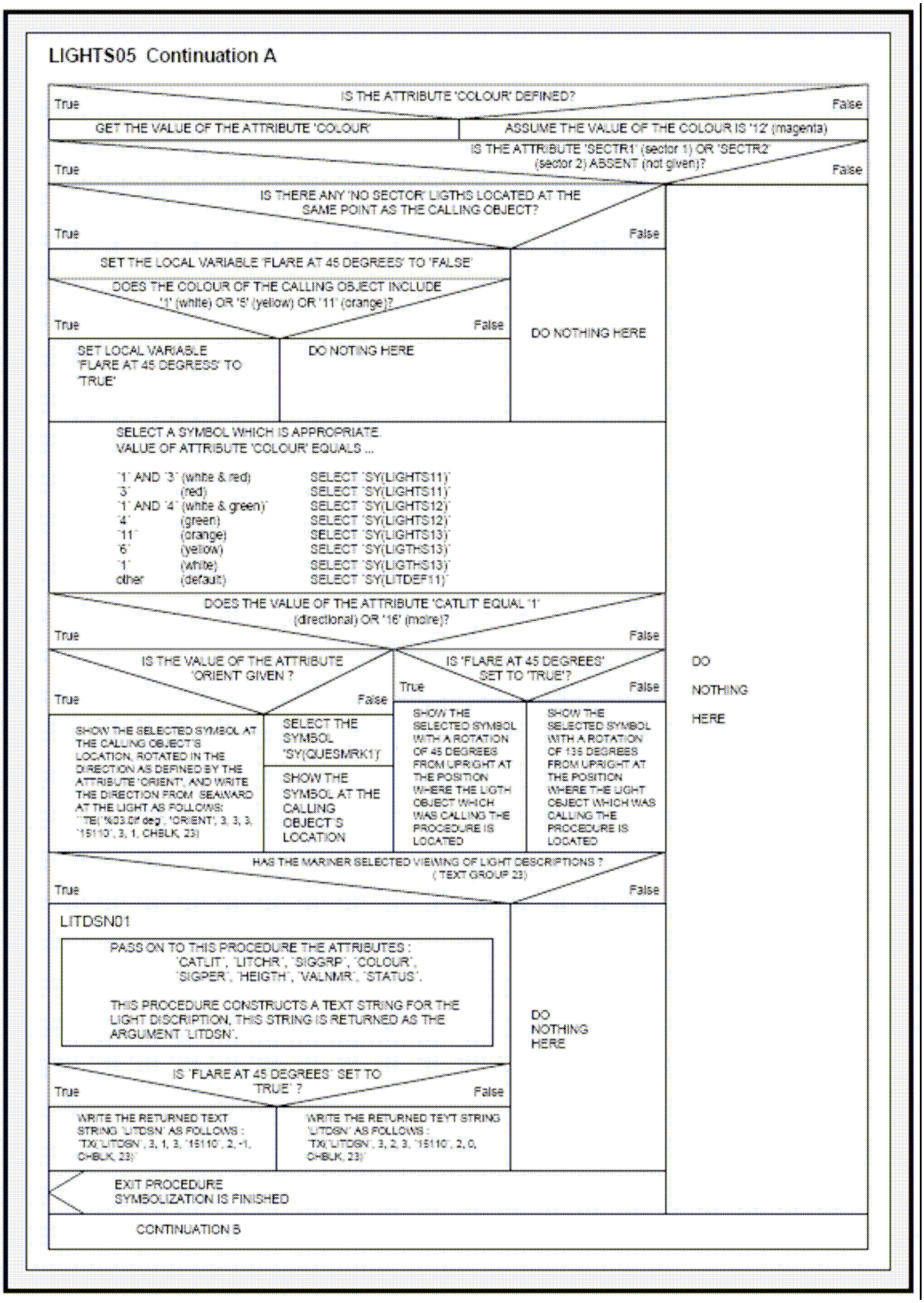

VALSND01
IS THE VIEWING GROUP "33010 SOUNDINGS" VISIBLE?
YES
NO
DO NOTHING HERE
EXIT THE PROCEDURE
INITIATE A LOCAL ARRAY OF OBJECTS "locArrayObjects"
IS THE VIEWING GROUP "34050 rocks wrecks obstructions which are not a danger to own-ship's navigation" VISIBLE?
YES
NO
FOR EACH OBJECT OF CLASS "WRECKS, OBSTRN, UWTROC" PERFORM THIS LOOP
DO NOTHING HERE
IS THE VIEWING GROUP "33010 SOUNHAS THE OBJECT BEEN DECLARED AS AN ISOLATED DANGER?
YES
NO
DO NOTHING HERE
ADD THE CURRENT OBJECT TO THE LOCAL ARRAY "locArrayObjects"
FOR EACH OBJECT OF CLASS "MARCUL" PERFORM THIS LOOP
ADD THE CURRENT OBJECT TO THE LOCAL ARRAY "locArrayObjects"
Set portrayals instructions to display as a sounding, the attribute value of "VALSOU"of each object selected in the local object array.
FOR EACH OBJECT OF THE LOCAL ARRAY"locArrayObjects" PERFORM THIS LOOP
IS THE VALUE OF THE ATTRIBUTE "VALSOU" GIVEN?
YES
NO
SET THE LOCAL VARIABLE "DEPTH VALUE" EQUAL TO VALSOU
SNDFRM03('DEPTH_VALUE')
PERFORM THE SYMBOLOGY PROCEDURE 'SNDFRM03' TO SYMBOLIZE THE DEPTH VALUE
PASS THE DEPTH VALUE ON TO 'SNDFRM03'
A LIST OF SYMBOLS IS RETURNED
DO NOTHING HERE
SHOW THE SYMBOLS WHICH WERE SELECTED BY SNDFRMxx.
PLACE THEM AT THE POSITION WHICH IS GIVEN BY THE CURRENTLY EXAMINED OBJECT

Item No. PL03.3.d7.co.7 Correction to PresLib CSP - **Visualization of two non-sectored lights at the same location**



Modification of this conditional branch:The question "Is there any other 'lights' object located at the same point as the calling object "?" must be replaced by "**is there any 'non-sectored' light located at the same point as the calling object ?** "

The diagram LIGHTS05 CONTINUATION A below corrects the PresLib and substitutes LIGHTS05 CONTINUATION A of PL 3.3:



Item No. PL03.3.d7.co.8 Correction to PresLib Look-up table - **Revised Look-up table entry for tideway**

11.3.1 Look-up Table for areas with symbolized boundaries

~~"TIDEWY","","TX(OBJNAM,1,2,3,'15110',0,0,CHBLK,25)","7","S","OTHER","32070"~~

"TIDEWY","","LS(DASH,1,CHGRF);TX(OBJNAM,1,2,3,'15110',0,0,CHBLK,25)","7","S","OTHER","32070"

11.3.2 Look-up Table for areas with plain boundaries

~~"TIDEWY","","TX(OBJNAM,1,2,3,'15110',0,0,CHBLK,25)","7","S","OTHER","32070"~~

"TIDEWY","","LS(DASH,1,CHGRF);TX(OBJNAM,1,2,3,'15110',0,0,CHBLK,25)","7","S","OTHER","32070"

Item No. PL03.3.d7.co.9 Correction to PresLib Look-up table - **Revised Look-up table for LNDARE point features to display OBJNAM**

11.1.1 Look-up Table for paper chart point symbolization

~~"LNDARE","","SY(LNDARE01); CS(QUAPOS01)","4","O","DISPLAYBASE","12010"~~

"LNDARE","","SY(LNDARE01); **TX(OBJNAM,1,2,2,'15110',0, 1,CHBLK,26);**CS(QUAPOS01)","4","O","DISPLAYBASE","12010"

11.1.2 Look-up Table for simplified point symbolisation

~~"LNDARE","","SY(LNDARE01); CS(QUAPOS01)","4","O","DISPLAYBASE","12010"~~

"LNDARE","","SY(LNDARE01); TX(OBJNAM,1,2,2,'15110',0, 1,CHBLK,26);CS(QUAPOS01)","4","O","DISPLAYBASE","12010"

11.2 Look-up Table Listing for Object Type Line 'L'

"LNDARE","","CS(QUAPOS01);TX(OBJNAM,1,1,2,'15110',0,1,CHBLK,26)","8","O", "DISPLAYBASE","12010"

Item No. PL03.3.d7.co.10 Correction to PresLib Look-up table - **Revised Look-up table entry for rivers**

The Display Category and Viewing Group of class "RIVERS" should be modified to "DISPLAY BASE". and will when become identical to those used for objects of class "CANALS":

11.2 Look-up Table Listing for Object Type Line 'L'

"RIVERS","","LS(SOLD,1,CHBLK)","2","O","~~STANDARD~~**DISPLAYBASE**","12420"

11.3.1 Look-up Table for areas with symbolized boundaries

"RIVERS","","AC(DEPVS);LS(SOLD,1,CHBLK)","2","S","~~STANDARD~~**DISPLAYBASE**","12420"

11.3.2 Look-up Table for areas with plain boundaries

"RIVERS","","AC(DEPVS);LS(SOLD,1,CHBLK)","2","S","~~STANDARD~~**DISPLAYBASE**","12420"

Item No. PL03.3.d7.co.11 Correction to PresLib Look-up table - **Revised Look-up table entry for UNSARE objects**

The display priority for UNSARE should be altered from 3 to **1**:

11.3.1 Look-up Table for areas with symbolized boundaries

~~"UNSARE","","AC(NODTA);AP(NODATA03);LS(SOLD,2,CHGRD)","3","S","DISPLAYBASE","11050"~~

"UNSARE","","AC(NODTA);AP(NODATA03);LS(SOLD,2,CHGRD)","~~3~~**1**","S","DISPLAYBASE","11050"

Item No. PL03.3.d7.ad.12 Addition to PresLib symbolisation - **DGPS reference stations**

A new entry must be added immediately after the default entry for RDOSTA . This new entry is for look up point tables "simplified and paper chart ".

11.1.1 Look-up Table for paper chart point symbolization
11.1.2 Look-up Table for simplified point symbolisatiion

"RDOSTA","","SY(RDOSTA02)","4","O","OTHER","38010"
"RDOSTA","CATROS14","SY(DGPS01)","4","O","OTHER","38010"

Item No.PL03.3.d7.ad.13 Addition to PresLib symbol description (Users' Manual Addendum) **DGPS reference station symbol**

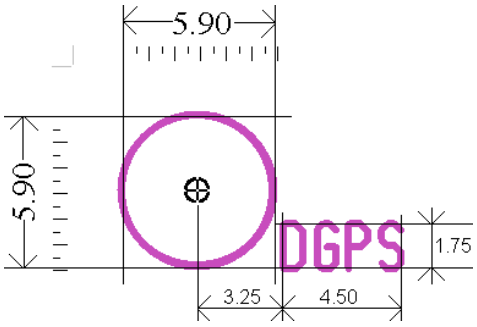
Symbol Name:	SY(**DRFSTA01**)	RN:

Symbol Explanation: DGPS reference station

Look up table affected: paper chart point symbols
simplified point symbols

Pivot Point Column: 3.00
Pivot Point Row: 3.00

Width of Bounding Box: 10.75
Height of Bounding Box: 6.00



Symbol Colours: CHMGD

Comments: Line weight 0.3 mm; circle diameter 5.9 mm

Examples on ENC: N/A

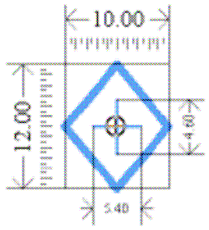
References:

S57	INT 1	
RDOSTA	S 51	(S 10) 

Item No. PL03.3.d7.ad.14 Addition to PresLib symbol description (Users' Manual Addendum) - **AIS symbology**

Symbol Name:	SY(**AISATN01**)	RN: 584

Symbol Explanation:	AIS based aid to navigation
Look up table affected:	N/A
Called by CSP etc.:	CSP VESSEL02
Pivot Point Column: Pivot Point Row:	5.00 6.00
Width of Bounding Box: Height of Bounding Box:	10.00 12.00

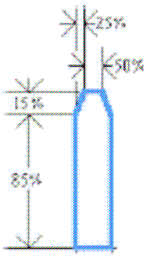


Symbol Colours:	RESBL
Comments:	Diamond line weight 0.9 mm; Cross line weight 0.3 mm
Examples on ENC:	N/A
References:	IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57	INT 1

Symbol Name:	SY(**AISTSO01**)	RN: 585

Symbol Explanation:	AIS target – true scale outline
Look up table affected:	N/A
Called by CSP etc.:	CSP VESSEL02
Pivot Point Column: Pivot Point Row:	relative to reported position and according to reported position offsets
Width of Bounding Box: Height of Bounding Box:	scaled according to reported beam and length



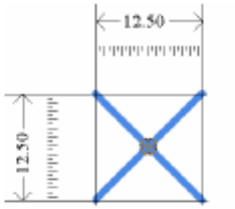
Symbol Colours:	RESBL
Comments:	Line weight 0.6 mm
Examples on ENC:	N/A
References:	IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57	INT 1

Item No. PL03.3.d7.co.15 Correction to PresLib symbol description (Users' Manual Addendum) - **AIS symbology**

Symbol Name:	SY(**AISLST01**)	RN: 580

Symbol Explanation:	Lost AIS target
Look up table affected:	N/A
Called by CSP etc.:	CSP VESSEL02
Pivot Point Column: Pivot Point Row:	6.25 6.25
Width of Bounding Box: Height of Bounding Box:	12.50 12.50

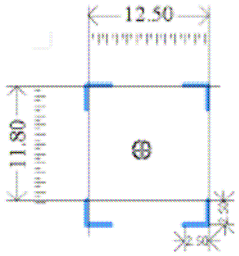


Symbol Colours:	RESBL
Comments:	Line weight 0.9 mm
Examples on ENC:	N/A
References:	IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57	INT 1	
	S17	**AIS**

Symbol Name:	SY(AISSEL01)	RN: 581

Symbol Explanation:	selected AIS target
Look up table affected:	N/A
Called by CSP etc.:	CSP VESSEL02
Pivot Point Column: Pivot Point Row:	5.75 6.75
Width of Bounding Box: Height of Bounding Box:	12.50 11.80

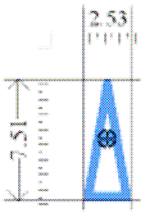


Symbol Colours:	RESBL
Comments:	Line weight 0.6 mm
Examples on ENC:	N/A
References:	IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57	INT 1

Symbol Name:	SY(AISSLP01)	RN: 11

Symbol Explanation:	sleeping AIS target
Look up table affected:	N/A
Called by CSP etc.:	CSP VESSEL02
Pivot Point Column: Pivot Point Row:	1.27 3.64
Width of Bounding Box: Height of Bounding Box:	2.53 7.51

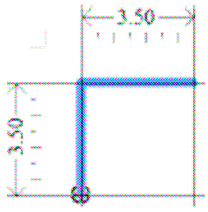


Symbol Colours:	RESBL
Comments:	Point diameter 0.92 mm Line weight 0.6 mm
Examples on ENC:	N/A
References:	IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57	INT 1

Symbol Name:	SY(**AISTRN01**)	RN: 582

Symbol Explanation:	AIS target turning to starboard
Look up table affected:	N/A
Called by CSP etc.:	CSP VESSEL02
Pivot Point Column: Pivot Point Row:	0.00 3.50
Width of Bounding Box: Height of Bounding Box:	3.50 3.50

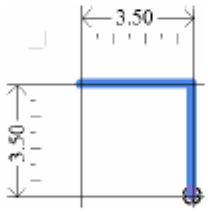


Symbol Colours:	RESBL
Comments:	Line weight 0.3 mm
Examples on ENC:	N/A
References:	IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57	INT 1

Symbol Name:	SY(**AISTRN02**)	RN: 583

Symbol Explanation:	AIS target turning to port
Look up table affected:	N/A
Called by CSP etc.:	CSP VESSEL02
Pivot Point Column: Pivot Point Row:	3.50 3.50
Width of Bounding Box: Height of Bounding Box:	3.50 3.50

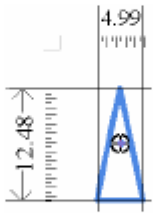


Symbol Colours:	RESBL
Comments:	Line weight 0.3 mm
Examples on ENC:	N/A
References:	IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57	INT 1

Symbol Name:	SY(**AISVES01**)	RN: 12

Symbol Explanation:	active AIS target showing vector and/or heading
Look up table affected:	N/A
Called by CSP etc.:	CSP VESSEL02
Pivot Point Column: Pivot Point Row:	2.50 6.24
Width of Bounding Box: Height of Bounding Box:	4.99 12.48



Symbol Colours:	RESBL
Comments:	Line weight 0.6 mm Point diameter 0.92 mm
Examples on ENC:	N/A
References:	IMO Guidelines for the presentation of navigation-related symbols, terms and abbreviations SN/Circ.243 15.December 2004

S57	INT 1

Item No. PL03.3.d7.co.16 Correction to Preslib 3.3 – **Deletion of single unit complex line style**

S-52 Presentation Library Edition 3.3, Part 1, section 5.1:

5.2 Usage of a Complex Line Style

5.2.1 A complex linestyle is formed from a repeating symbol. The symbol definition for a line style is very similar to the symbol definition for a point symbol. The linestyle symbol has its own pivot point around which it is rotated. The orientation is given by the direction between the two vertices of the segment of the line object that the symbol will represent on the ECDIS display.

~~The Presentation Library uses two types of complex linestyle symbol (see figures 3a and 3b):~~

~~(i) The single unit type of complex linestyle is one in which the linestyle unit is described as a whole and is fitted as a string of units between the two vertices of the entire line object, using one orientation (figure 3a).~~

~~(ii) However the single unit type of complex linestyle will only symbolize a straight line.~~ To symbolize all lines, straight or curved, a composite type of complex linestyle is used, in which the unit is composed of a series of horizontal lines and symbols, strung together along the line object to form the linestyle unit, using a continually changing orientation if the line object is a curve (figure 3~~b~~).

~~5.2.2 For the single unit type of complex linestyle, the orientation is given by the direction between two vertices of the line object that will be presented on the ECDIS display. The linestyle symbol is placed with its pivot point on the geometry of the line. The pivot point of the following symbol is placed where the run length of the preceding symbol ends. The run length is calculated by subtracting the largest x-coordinate of the symbol definition from the x-coordinate of the pivot point. If the run length of a linestyle symbol does not fit between two vertices of a line object, a simple linestyle should be used to join the vertices. A dashed line is preferred, but a solid line may be used. The colour and line width are taken from the last drawing instruction within the linestyle definition of the preceding symbol.~~

For further information about linestyle definitions, see section 10.7

5.2.3 For the composite type of complex linestyle, locate the start and end position of each horizontal line in the complex linestyle along the edge to be symbolized. Then draw the complex line along the edge between the start and end positions. If a symbol needs to be drawn, then determine the angle of rotation by calculating the slope of the tangent of the edge at the location where the symbol is to be drawn. The symbol will then be rotated 90 degrees to the slope of the tangent. Figure 3~~b~~ shows how the composite symbol is created from the linestyle and the embedded symbols.

Delete figure 3 and rename figure 3b to become figure 3.

Item No. PL03.3.d7.co.17 Correction to Preslib 3.3 - **Reference of Addendum to Users' Manual**

The paper based description of symbology contained in the PresLib was compiled in form of an Addendum to Appendix 2, Annex A, Part I, Users' Manual and issued first in 2003.

Addendum to Appendix 2, Annex A, Part I, Users' Manual, Page 1:

IHO Publication S-52 Appendix 2

ADDENDUM TO ~~THE IHO ECDIS PRESENTATION LIBRARY~~ **ANNEX A, PART I, USERS' MANUAL (2003)**

SYMBOL LIBRARY FOR USE ON ECDIS

Note: ~~For the introduction to the Symbol Library, see section 14 of the Presentation Library, Part I.~~ **A full explanation of application and use of the described symbols of the ECDIS symbol library can be found in the S-52 Presentation Library, Appendix 2, Annex A, Part I, Users' Manual in section 14.**

Item No. PL03.3.d7.co.18 Correction to Preslib 3.3 - **Definition of Linestyles**

Addendum to Appendix 2, Annex A, Part I, Users' Manual, Paragraph 2, Page 503:

2. Complex Linestyles

Linestyles

There are two types of line styles available in the Presentation Library: simple line styles and complex line styles. Complex line styles are composed from repeating symbols.

Simple line-styles are used to allow for a variety of basic line-styles without having them defined in the format of complex line-styles. Simple line-styles are based on a solid, dashed or dotted line that can be modified in width and colour. A full explanation of line Styles can be found in the S-52 Presentation Library, Appendix 2, Annex A, Part I, Users' Manual in section 7.3.

Line Width

The line-width is given in units of the line-spacing (pixel size) specified in section 9 of S-52. This is currently 0.32 mm. If the pixel-diameter or line-spacing is grossly smaller, the line-width should be compensated by drawing the line in an appropriate width. If possible the "Display Generator" should smooth line ends with a width of more than 0.6 mm.

Item No. PL03.3.d7.co.19 Correction to Preslib 3.3 - **Revised CSPs OBSTRN06 and WRECKS04 to portray depths over dangers.**

1. PURPOSE

This development is required as a result of action item 37 of the minutes of the 16th meeting of the IHO Colours and Symbols Maintenance Working Group (CSMWG) held in Monaco in 2006. It is aimed at visualizing the values of soundings belonging to a wreck or another obstruction lying on the sea bed, by modifying the relevant Conditional Symbology Procedures (CSPs)

At present when the mariner selects viewing group 33010 (soundings) the display shows only the depths of the soundings in object class SOUNDG. To see the depths over rocks, wrecks or obstructions as well, the mariner must make cursor-picks of the objects individually. Or he can select viewing group 34050 (non-dangerous rocks, wrecks and obstructions) for display, but this would bring in all such objects whether they had a sounding value or not and so cause clutter.

This amendment sets up a new viewing group 34051 (non-dangerous rocks, wrecks and obstructions which have a VALSOU attribute), and CSPs OBSTRNnn and WRECKSnn have been revised to assign all non-dangerous rocks, wrecks and obstructions which have a VALSOU attribute to this group. Also, because at present these CSPs only display depths of less than 20 metres they have been revised to display all depths. The sounding will always be shown whenever the objects in this group are on the display

Note however that Isolated Dangers to ownship (rocks, wrecks and obstructions whose depth is less than the safety contour and which lie in water deeper than the safety contour) will continue to be symbolised only with the "Isolated Danger" symbol SY(ISODGR01), whose shape was not designed for showing a depth value clearly.

The revised versions of CSPs OBSTRNnn and WRECKSnn are included in this amendment together with a revision to the Viewing Groups and a discussion on displaying the depth over Isolated Dangers.

2. NEW VIEWING GROUP

A new viewing group (34051) for non-dangerous rocks (UWTROC), wrecks (WRECKS) and obstructions (OBSTRN) which have a VALSOU attribute has been added.

Update to section 13.2 VIEWING GROUPS for Other Chart Information:

J, K, L SEABED, OBSTRUCTIONS, PIPELINES	
34000	Seabed Information: rocks, wrecks & obstns, pipes & cables
34010	nature of seabed (SBDARE)
34020	spring (SPRING), sea weed (WEDKLP)
34030	na
34040	fish haven (FSHHAV), fishing stakes, etc. (FSHFAC)
34050	rocks (UWTROC), wrecks (WRECKS), obstructions (OBSTNS), which are not a danger to own-ship's navigation (these are all Display Base if a danger to own-ship)
34051	**non-dangerous rocks (UWTROC), wrecks (WRECKS) and obstructions (OBSTRN) which have a VALSOU attribute and are not a danger to own-ship's navigation (these objects are all Display Base if a danger to own-ship)**
34060	na
34070	submarine cable (CBLSUB), submarine pipeline (PIPSOL)

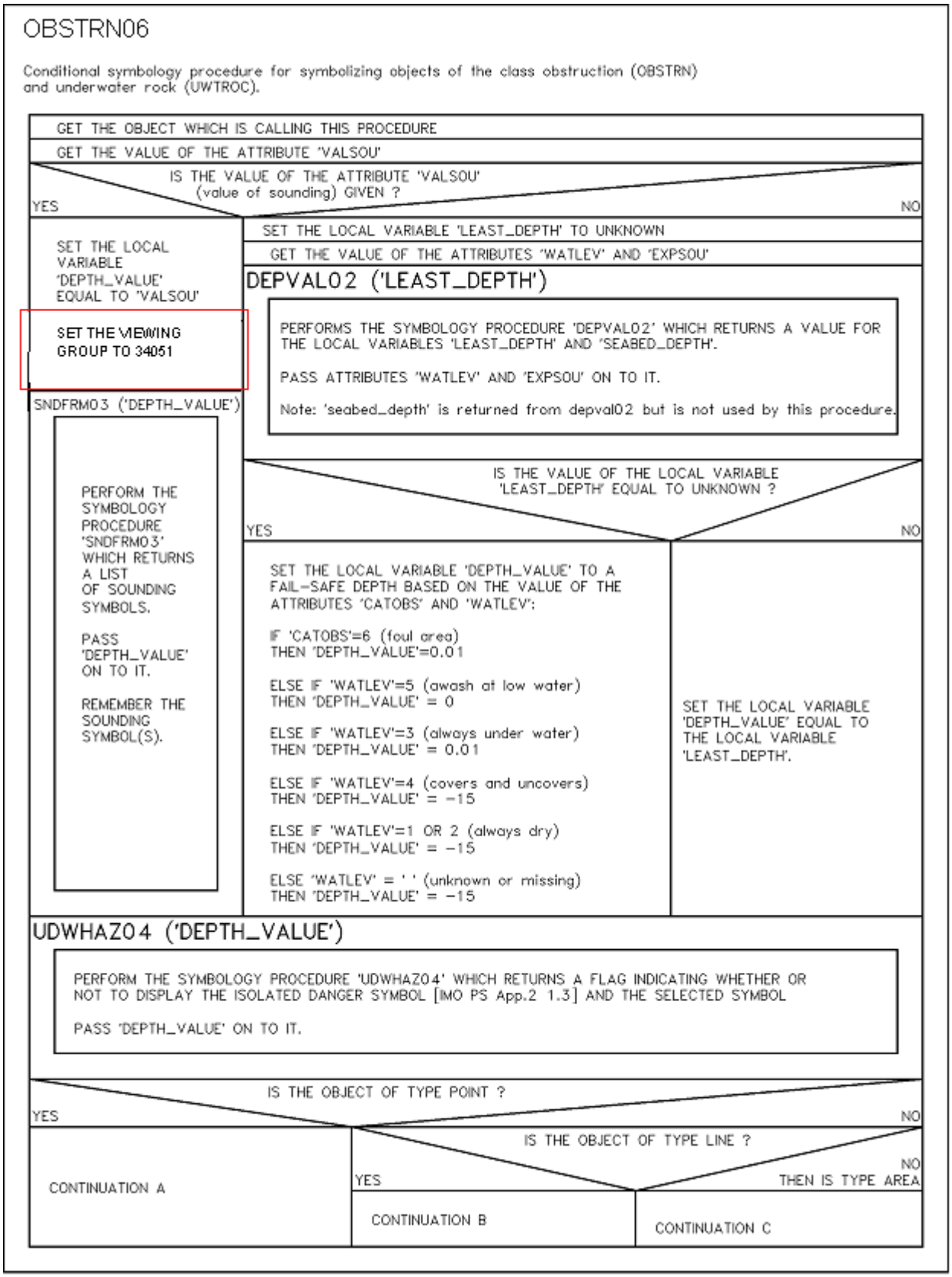
By means of this new viewing group, the Mariner can view all of the obstructions and wrecks lying on the sea bed that have the attribute VALSOU set, along with soundings, by choosing the viewing group 34051 and 33010 (soundings). If viewing group 34050 is not selected, then those obstructions and wrecks lying on the seafloor which do not have the attribute VALSOU set will not be displayed.

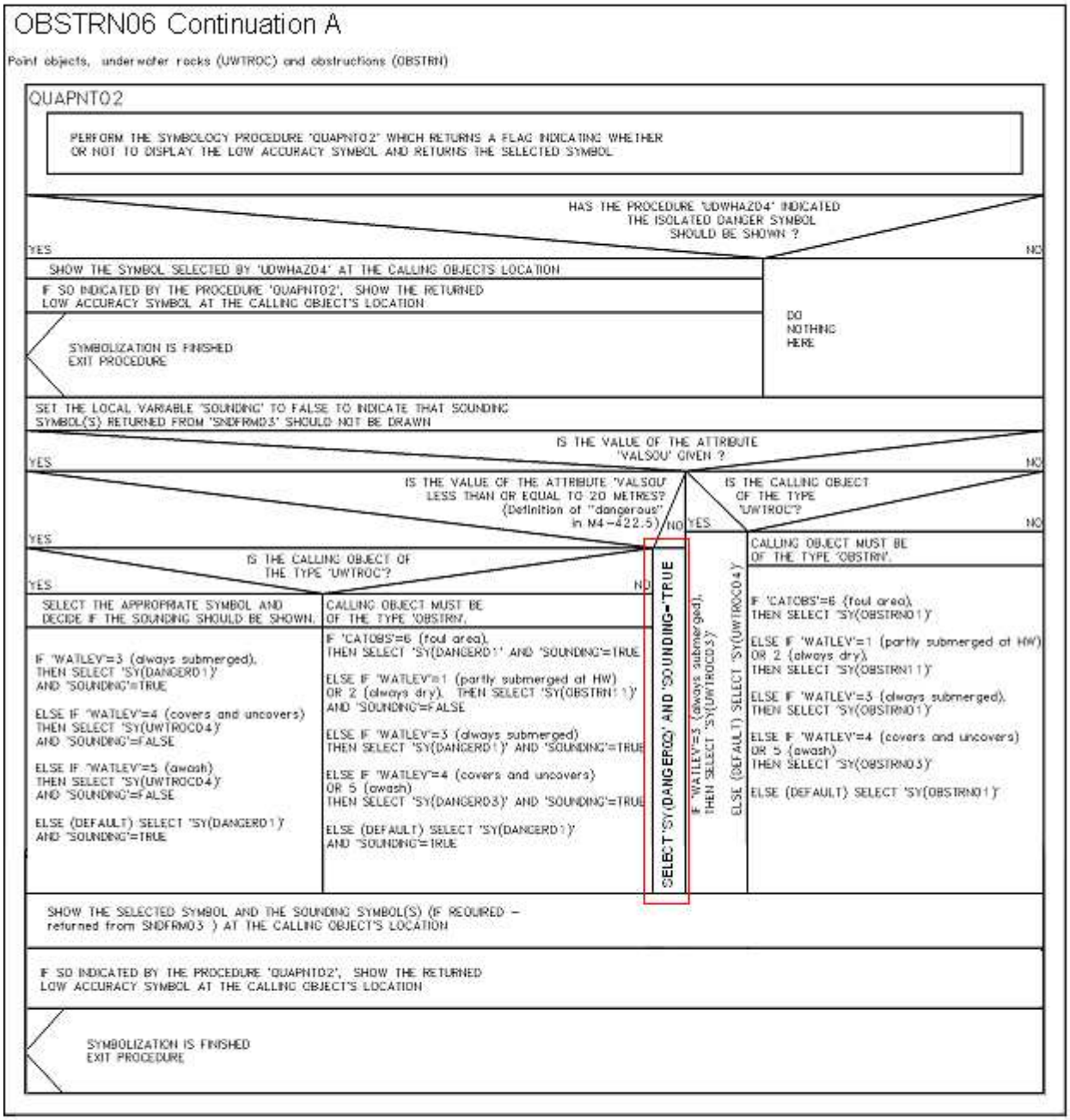
3. REVISED CSPs OBSTRN06 and WRECKS04

The versions with the changes marked are given immediately below. The un-marked versions are given at the end of this amendment.

12.2.9 Conditional Symbology Procedure 'OBSTRN06'

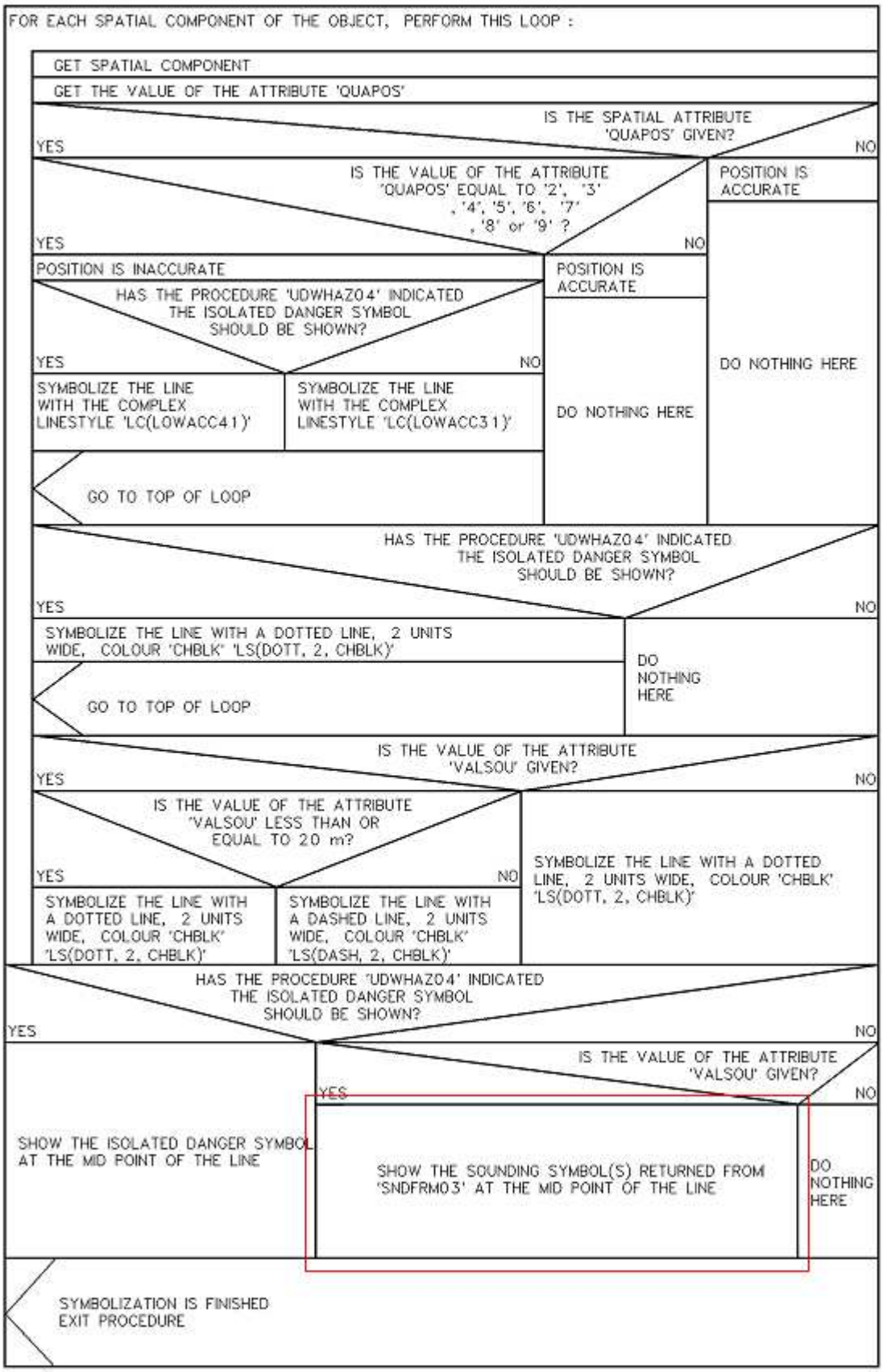
Applies to:	S-57 Object Class "obstruction" (OBSTRN) S-57 Object Class "under water rock" (UWTROC)
Spatial Object(s):	Point, Line, Area.
Attribute(s) used:	"value of sounding" (VALSOU) "water level" (WATLEV) "exposure of sounding" (EXPSOU)
Parameter(s):	Object to be symbolized from SENC
Defaults:	Display Priority given by look-up table OVERRADAR priority given by look-up table Display Category given by look-up table Viewing Group given by look-up table Area Color fill from underlying 'DEPARE' or 'UNSARE'
Remarks:	Obstructions or isolated underwater dangers of depths less than the safety contour which lie within the safe waters defined by the safety contour are to be presented by a specific isolated danger symbol and put in IMO category "DISPLAY BASE" (see IMO Performance Standard for ECDIS, App.2, 1.3). This task is performed by the most recent edition of sub-procedure UDWHAZnn which is called by this symbology procedure. Objects of the class "under water rock" are handled by this routine as well to ensure a consistent symbolization of isolated dangers on the seabed. The current UDWHAZnn also allows the mariner the option of displaying isolated dangers in the waters between the safety contour and the zero metre line. In the case that the value of attribute VALSOU for this object is unknown, the most recent edition of sub-procedure DEPVALnn is called. This will provide a default 'least_depth' from the DRVAL1 of the underlying depth area on condition that the value of attribute EXPSOU is not 2 (shoaler than the depth area), and the value of attribute WATLEV is 3 (always underwater).


OBSTRN06
Conditional symbology procedure for symbolizing objects of the class obstruction (OBSTRN) and underwater rock (UWTROC).
GET THE OBJECT WHICH IS CALLING THIS PROCEDURE
GET THE VALUE OF THE ATTRIBUTE 'VALSOU'
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' (value of sounding) GIVEN ?
YES
NO
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO 'VALSOU'
SET THE VIEWING GROUP TO 34051
SNDFRM03 ('DEPTH_VALUE')
PERFORM THE SYMBOLOGY PROCEDURE 'SNDFRM03' WHICH RETURNS A LIST OF SOUNDING SYMBOLS.
PASS 'DEPTH_VALUE' ON TO IT.
REMEMBER THE SOUNDING SYMBOL(S).
SET THE LOCAL VARIABLE 'LEAST_DEPTH' TO UNKNOWN
GET THE VALUE OF THE ATTRIBUTES 'WATLEV' AND 'EXPSOU'
DEPVAL02 ('LEAST_DEPTH')
PERFORMS THE SYMBOLOGY PROCEDURE 'DEPVAL02' WHICH RETURNS A VALUE FOR THE LOCAL VARIABLES 'LEAST_DEPTH' AND 'SEABED_DEPTH'.
PASS ATTRIBUTES 'WATLEV' AND 'EXPSOU' ON TO IT.
Note: 'seabed_depth' is returned from depval02 but is not used by this procedure.
IS THE VALUE OF THE LOCAL VARIABLE 'LEAST_DEPTH' EQUAL TO UNKNOWN ?
YES
NO
SET THE LOCAL VARIABLE 'DEPTH_VALUE' TO A FAIL-SAFE DEPTH BASED ON THE VALUE OF THE ATTRIBUTES 'CATOBS' AND 'WATLEV':
IF 'CATOBS'=6 (foul area) THEN 'DEPTH_VALUE'=0.01
ELSE IF 'WATLEV'=5 (awash at low water) THEN 'DEPTH_VALUE' = 0
ELSE IF 'WATLEV'=3 (always under water) THEN 'DEPTH_VALUE' = 0.01
ELSE IF 'WATLEV'=4 (covers and uncovers) THEN 'DEPTH_VALUE' = -15
ELSE IF 'WATLEV'=1 OR 2 (always dry) THEN 'DEPTH_VALUE' = -15
ELSE 'WATLEV' = ' ' (unknown or missing) THEN 'DEPTH_VALUE' = -15
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO THE LOCAL VARIABLE 'LEAST_DEPTH'.
UDWHAZ04 ('DEPTH_VALUE')
PERFORM THE SYMBOLOGY PROCEDURE 'UDWHAZ04' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE ISOLATED DANGER SYMBOL [IMO PS App.2 1.3] AND THE SELECTED SYMBOL
PASS 'DEPTH_VALUE' ON TO IT.
IS THE OBJECT OF TYPE POINT ?
YES
NO
IS THE OBJECT OF TYPE LINE ?
YES
NO
THEN IS TYPE AREA
CONTINUATION A
CONTINUATION B
CONTINUATION C


OBSTRN06 Continuation A
Point objects, underwater rocks (UWTROC) and obstructions (OBSTRN)
QUAPNT02
PERFORM THE SYMBOLOGY PROCEDURE 'QUAPNT02' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE LOW ACCURACY SYMBOL AND RETURNS THE SELECTED SYMBOL
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN ?
YES
NO
SHOW THE SYMBOL SELECTED BY 'UDWHAZ04' AT THE CALLING OBJECTS LOCATION
IF SO INDICATED BY THE PROCEDURE 'QUAPNT02', SHOW THE RETURNED LOW ACCURACY SYMBOL AT THE CALLING OBJECT'S LOCATION
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE
DO NOTHING HERE
SET THE LOCAL VARIABLE 'SOUNDING' TO FALSE TO INDICATE THAT SOUNDING SYMBOL(S) RETURNED FROM 'SNDFRM03' SHOULD NOT BE DRAWN
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' GIVEN ?
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' LESS THAN OR EQUAL TO 20 METRES? (Definition of "dangerous" in M4-422.5)
IS THE CALLING OBJECT OF THE TYPE 'UWTROC'?
IS THE CALLING OBJECT OF THE TYPE 'UWTROC'?
SELECT THE APPROPRIATE SYMBOL AND DECIDE IF THE SOUNDING SHOULD BE SHOWN.
IF 'WATLEV'=3 (always submerged), THEN SELECT 'SY(DANGERD1)' AND 'SOUNDING'=TRUE
ELSE IF 'WATLEV'=4 (covers and uncovers) THEN SELECT 'SY(UWTROCD4)' AND 'SOUNDING'=FALSE
ELSE IF 'WATLEV'=5 (awash) THEN SELECT 'SY(UWTROCD4)' AND 'SOUNDING'=FALSE
ELSE (DEFAULT) SELECT 'SY(DANGERD1)' AND 'SOUNDING'=TRUE
CALLING OBJECT MUST BE OF THE TYPE 'OBSTRN'.
IF 'CATOBS'=6 (foul area), THEN SELECT 'SY(DANGERD1' AND 'SOUNDING'=TRUE
ELSE IF 'WATLEV'=1 (partly submerged at HW) OR 2 (always dry), THEN SELECT 'SY(OBSTRN11)' AND 'SOUNDING'=FALSE
ELSE IF 'WATLEV'=3 (always submerged) THEN SELECT 'SY(DANGERD1)' AND 'SOUNDING'=TRUE
ELSE IF 'WATLEV'=4 (covers and uncovers) OR 5 (awash) THEN SELECT 'SY(DANGERD3)' AND 'SOUNDING'=TRUE
ELSE (DEFAULT) SELECT 'SY(DANGERD1)' AND 'SOUNDING'=TRUE
SELECT 'SY(DANGERD2)' AND 'SOUNDING'=TRUE
IF 'WATLEV'=5 (always submerged), THEN SELECT 'SY(UWTROCD3)'
ELSE (DEFAULT) SELECT 'SY(UWTROCD4)'
CALLING OBJECT MUST BE OF THE TYPE 'OBSTRN'.
IF 'CATOBS'=6 (foul area), THEN SELECT 'SY(OBSTRN01)'
ELSE IF 'WATLEV'=1 (partly submerged at HW) OR 2 (always dry), THEN SELECT 'SY(OBSTRN11)'
ELSE IF 'WATLEV'=3 (always submerged), THEN SELECT 'SY(OBSTRN01)'
ELSE IF 'WATLEV'=4 (covers and uncovers) OR 5 (awash) THEN SELECT 'SY(OBSTRN03)'
ELSE (DEFAULT) SELECT 'SY(OBSTRN01)'
SHOW THE SELECTED SYMBOL AND THE SOUNDING SYMBOL(S) (IF REQUIRED - returned from SNDFRM03) AT THE CALLING OBJECT'S LOCATION
IF SO INDICATED BY THE PROCEDURE 'QUAPNT02', SHOW THE RETURNED LOW ACCURACY SYMBOL AT THE CALLING OBJECT'S LOCATION
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE

OBSTRN06 Continuation B

Line objects, obstructions (OBSTRN)



OBSTRN06 Continuation C

Area objects, obstructions (OBSTRN)

QUAPNT02

PERFORM THE SYMBOLOGY PROCEDURE 'QUAPNT02' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE LOW ACCURACY SYMBOL AND RETURNS THE SELECTED SYMBOL

HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN ?

YES

PRESENT THE AREA OBJECT WITH AN OPAQUE COLOUR FILL WITH THE COLOUR 'DEPVS', AND THE AREA PATTERN 'FOULAR01'

SYMBOLIZE THE AREA BOUNDARY AS A DOTTED LINE, 2 UNITS WIDE, IN THE COLOUR 'CHBLK' LS(DOTT, 2, CHBLK)

SHOW THE SYMBOL RETURNED BY 'UDWHAZ04' IN THE CENTRE OF THE AREA.

IF SO INDICATED BY THE PROCEDURE 'QUAPNT02', SHOW THE RETURNED LOW ACCURACY SYMBOL IN THE CENTRE OF THE AREA

SYMBOLIZATION IS FINISHED
EXIT PROCEDURE

NO

DO NOTHING HERE

IS THE VALUE OF THE ATTRIBUTE 'VALSOU' GIVEN ?

YES

IS THE VALUE OF THE ATTRIBUTE 'VALSOU' LESS THAN OR EQUAL TO 20m.?

YES

SYMBOLIZE THE AREA BOUNDARY WITH A DOTTED LINE, 2 UNITS WIDE, COLOUR 'CHBLK' 'LS(DOTT, 2, CHBLK)'

NO

SYMBOLIZE THE AREA BOUNDARY AS LS(DASH, 2, CHGRD)

SHOW THE SOUNDING SYMBOL(S) RETURNED FROM 'SNDFRM03' IN THE CENTRE OF THE AREA.

NO

SELECT THE APPROPRIATE SYMBOL AS THE DEFAULT SYMBOLIZATION

IF 'CATOBS'=6 (foul area),
THEN SELECT 'AP(FOULAR01);LS(DOTT, 2, CHBLK)'

ELSE IF 'WATLEV'=1 (partly submerged at HW)
THEN SELECT 'AC(CHBRN);LS(SOLD, 2, CSTLN)'

ELSE IF 'WATLEV'=2 (always dry)
THEN SELECT 'AC(CHBRN);LS(SOLD, 2, CSTLN)'

ELSE IF 'WATLEV'=4 (covers and uncovers)
THEN SELECT 'AC(DEPIT);LS(DASH , 2, CSTLN)'

ELSE IF 'WATLEV'=5 (awash)
THEN SELECT 'AC(DEPVS);LS(DOTT, 2, CHBLK)'

ELSE IF 'WATLEV'=3 (always submerged)
THEN SELECT 'AC(DEPVS);LS(DOTT, 2, CHBLK)'

ELSE (DEFAULT) SELECT
'AC(DEPVS);LS(DOTT, 2, CHBLK)'

IF SO INDICATED BY THE PROCEDURE 'QUAPNT02', SHOW THE RETURNED LOW ACCURACY SYMBOL AT THE CENTRE OF THE AREA

SYMBOLIZATION IS FINISHED
EXIT PROCEDURE

12.2.27 Conditional Symbology Procedure 'WRECKS04'

Applies to: S-57 Object Class "wrecks" (WRECKS)

Spatial Object(s): Point, Area

Attribute(s) used: "value of sounding" (VALSOU)
"category of wreck" (CATWRK)
"water level" (WATLEV)

Parameter(s): Object to be symbolized from SENC

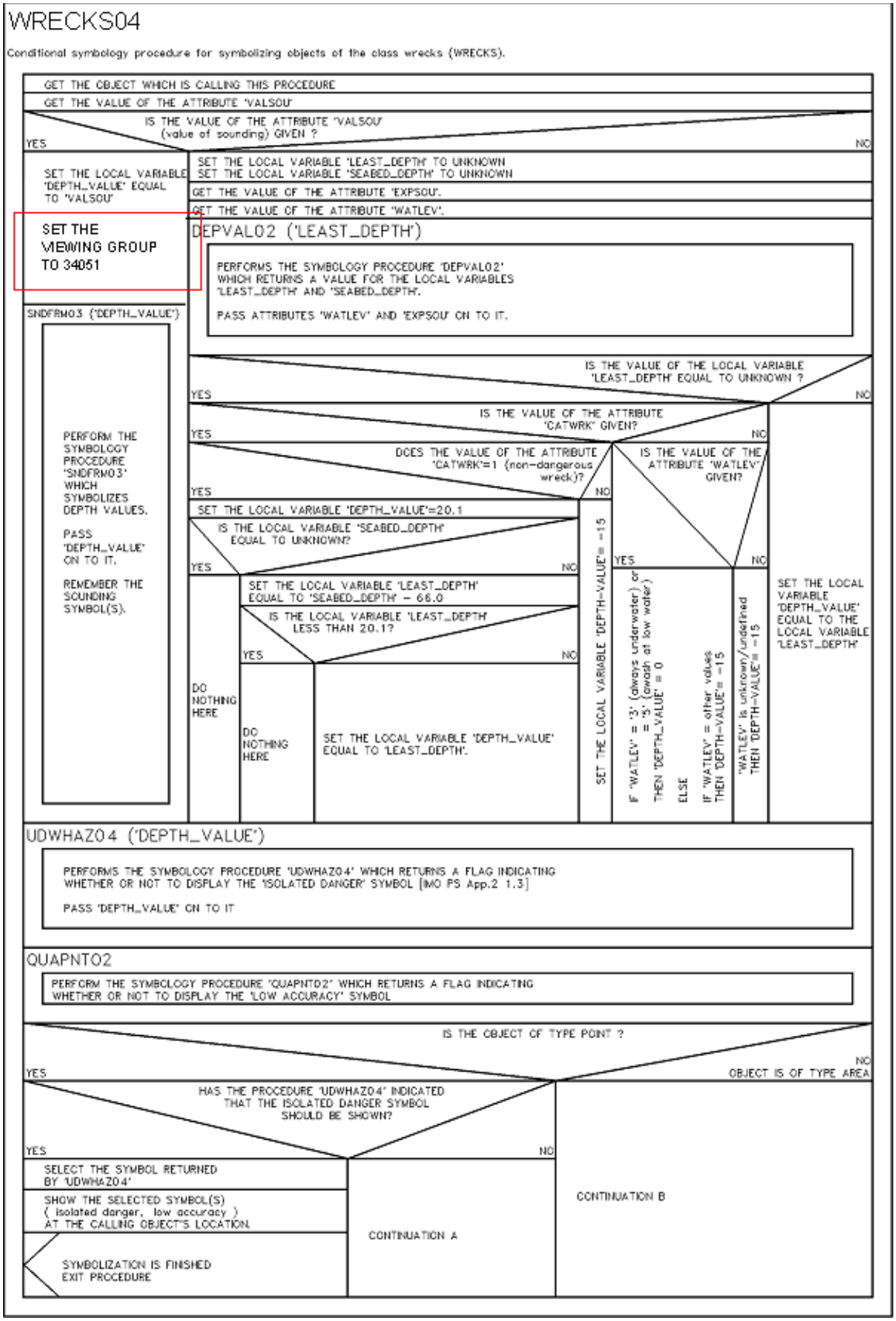
Defaults: Display Priority given by look-up table
OVERRADAR priority given by look-up table
Display Category given by look-up table
Viewing Group given by look-up table
Area colour fill from underlying DEPARE or UNSARE

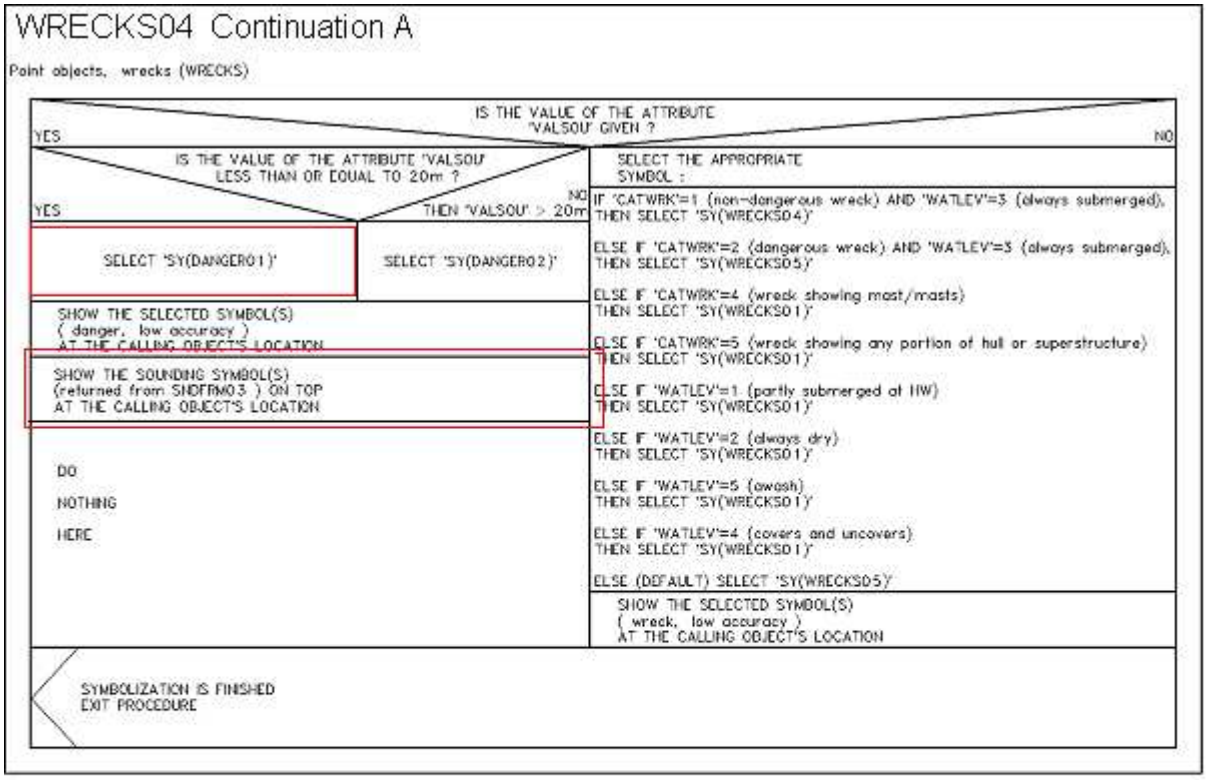
Remarks: Wrecks of depths less than the safety contour which lie within the safe waters defined by the safety contour are to be presented by a specific isolated danger symbol and put in IMO category “DISPLAY BASE” (see App.2, 1.3, of the IMO Performance Standards for ECDIS). This task is performed by the sub-procedure “UDWHAZnn” which is called by this symbology procedure.

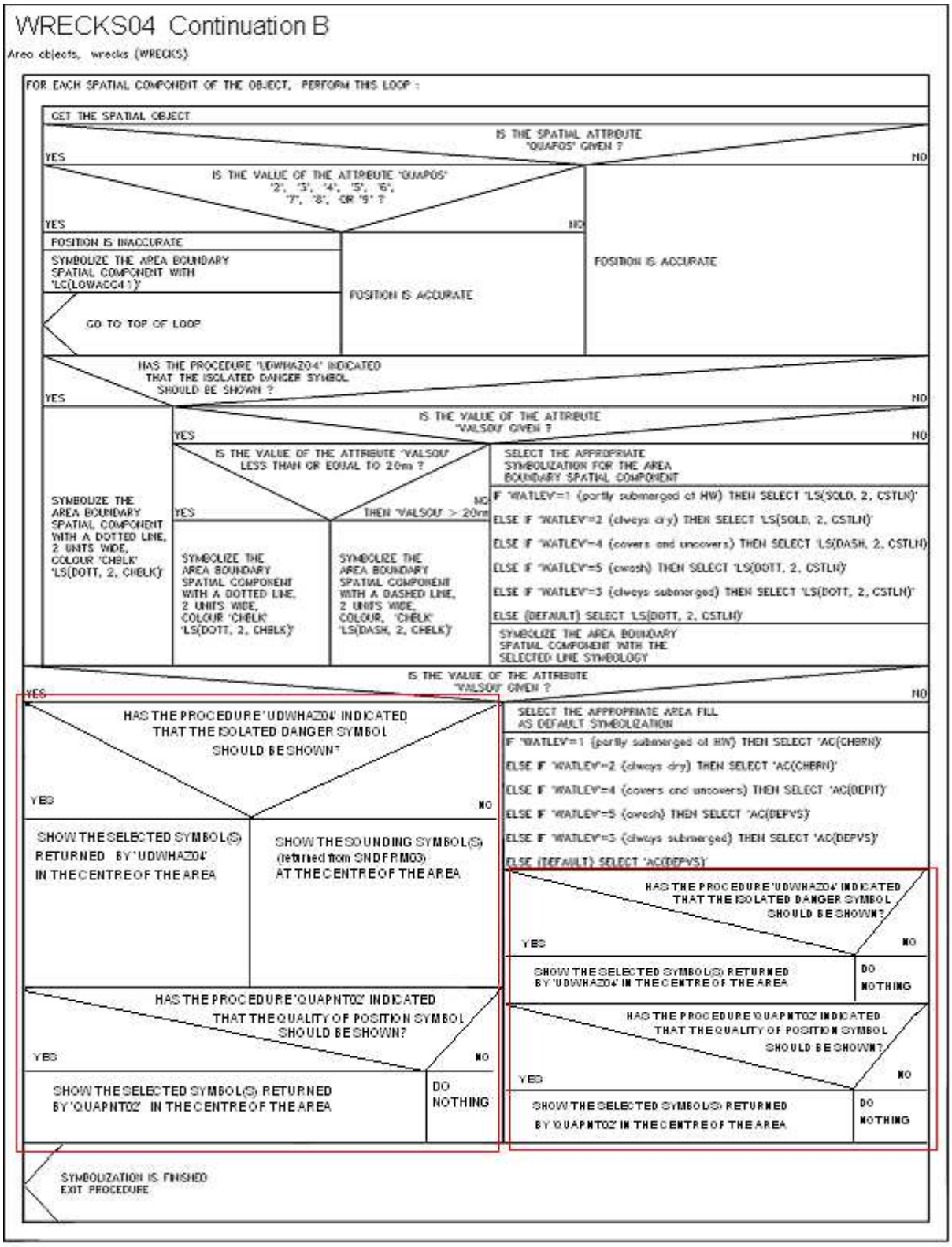
CSP "UDWHAZ" also allows the mariner the option of displaying isolated dangers in the waters between the safety contour and the zero metre line.

In the case that the value of attribute VALSOU for the wreck is unknown, sub-procedure "DEPVAL' is called. This will provide as default 'LEAST_DEPTH' the DRVAL1 of the underlying depth area, but only on condition that the value of attribute EXPSOU is not 2 (shoaler than the depth area), and the value of attribute WATLEV is 3 (always underwater).

For the case that a wreck of unknown VALSOU lies in deep water, sub-procedure 'DEPVAL' also provides the DRVAL1 of the underlying depth area as the 'SEABED_DEPTH' for use in calculating a 'safe clearance depth' over the wreck in accordance with IHO publication M-4 appendix to specification B-422.7.


WRECKS04
Conditional symbology procedure for symbolizing objects of the class wrecks (WRECKS).
GET THE OBJECT WHICH IS CALLING THIS PROCEDURE
GET THE VALUE OF THE ATTRIBUTE 'VALSOU'
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' (value of sounding) GIVEN ?
YES
NO
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO 'VALSOU'
SET THE LOCAL VARIABLE 'LEAST_DEPTH' TO UNKNOWN
SET THE LOCAL VARIABLE 'SEABED_DEPTH' TO UNKNOWN
GET THE VALUE OF THE ATTRIBUTE 'EXPSOU'.
GET THE VALUE OF THE ATTRIBUTE 'WATLEV'.
SET THE VIEWING GROUP TO 34051
DEPVAL02 ('LEAST_DEPTH')
PERFORMS THE SYMBOLOGY PROCEDURE 'DEPVAL02' WHICH RETURNS A VALUE FOR THE LOCAL VARIABLES 'LEAST_DEPTH' AND 'SEABED_DEPTH'.
PASS ATTRIBUTES 'WATLEV' AND 'EXPSOU' ON TO IT.
SNDFRM03 ('DEPTH_VALUE')
PERFORM THE SYMBOLOGY PROCEDURE 'SNDFRM03' WHICH SYMBOLIZES DEPTH VALUES.
PASS 'DEPTH_VALUE' ON TO IT.
REMEMBER THE SOUNDING SYMBOL(S).
IS THE VALUE OF THE LOCAL VARIABLE 'LEAST_DEPTH' EQUAL TO UNKNOWN ?
IS THE VALUE OF THE ATTRIBUTE 'CATWRK' GIVEN?
DOES THE VALUE OF THE ATTRIBUTE 'CATWRK'=1 (non-dangerous wreck)?
IS THE VALUE OF THE ATTRIBUTE 'WATLEV' GIVEN?
SET THE LOCAL VARIABLE 'DEPTH_VALUE'=20.1
IS THE LOCAL VARIABLE 'SEABED_DEPTH' EQUAL TO UNKNOWN?
SET THE LOCAL VARIABLE 'LEAST_DEPTH' EQUAL TO 'SEABED_DEPTH' - 66.0
IS THE LOCAL VARIABLE 'LEAST_DEPTH' LESS THAN 20.1?
DO NOTHING HERE
DO NOTHING HERE
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO 'LEAST_DEPTH'.
SET THE LOCAL VARIABLE 'DEPTH_VALUE' = -15
IF 'WATLEV' = '3' (always underwater) or '5' (awash at low water) THEN 'DEPTH_VALUE' = 0
ELSE
IF 'WATLEV' = other values THEN 'DEPTH_VALUE' = -15
'WATLEV' is unknown/undefined THEN 'DEPTH_VALUE' = -15
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO THE LOCAL VARIABLE 'LEAST_DEPTH'
UDWHAZ04 ('DEPTH_VALUE')
PERFORMS THE SYMBOLOGY PROCEDURE 'UDWHAZ04' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE 'ISOLATED DANGER' SYMBOL [IMO PS App.2 1.3]
PASS 'DEPTH_VALUE' ON TO IT
QUAPNT02
PERFORM THE SYMBOLOGY PROCEDURE 'QUAPNT02' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE 'LOW ACCURACY' SYMBOL
IS THE OBJECT OF TYPE POINT ?
OBJECT IS OF TYPE AREA
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN?
SELECT THE SYMBOL RETURNED BY 'UDWHAZ04'
SHOW THE SELECTED SYMBOL(S) (isolated danger, low accuracy) AT THE CALLING OBJECT'S LOCATION
SYMBOLIZATION IS FINISHED EXIT PROCEDURE
CONTINUATION A
CONTINUATION B


WRECKS04 Continuation A
Point objects, wrecks (WRECKS)
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' GIVEN ?
YES
NO
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' LESS THAN OR EQUAL TO 20m ?
YES
NO
THEN 'VALSOU' > 20m
SELECT 'SY(DANGER01)'
SELECT 'SY(DANGER02)'
SHOW THE SELECTED SYMBOL(S)
(danger, low accuracy)
AT THE CALLING OBJECT'S LOCATION
SHOW THE SOUNDING SYMBOL(S)
(returned from SNDFRM03) ON TOP
AT THE CALLING OBJECT'S LOCATION
DO
NOTHING
HERE
SELECT THE APPROPRIATE SYMBOL :
IF 'CATWRK'=1 (non-dangerous wreck) AND 'WATLEV'=3 (always submerged),
THEN SELECT 'SY(WRECKS04)'
ELSE IF 'CATWRK'=2 (dangerous wreck) AND 'WATLEV'=3 (always submerged),
THEN SELECT 'SY(WRECKS05)'
ELSE IF 'CATWRK'=4 (wreck showing mast/masts)
THEN SELECT 'SY(WRECKS01)'
ELSE IF 'CATWRK'=5 (wreck showing any portion of hull or superstructure)
THEN SELECT 'SY(WRECKS01)'
ELSE IF 'WATLEV'=1 (partly submerged at HW)
THEN SELECT 'SY(WRECKS01)'
ELSE IF 'WATLEV'=2 (always dry)
THEN SELECT 'SY(WRECKS01)'
ELSE IF 'WATLEV'=5 (awash)
THEN SELECT 'SY(WRECKS01)'
ELSE IF 'WATLEV'=4 (covers and uncovers)
THEN SELECT 'SY(WRECKS01)'
ELSE (DEFAULT) SELECT 'SY(WRECKS05)'
SHOW THE SELECTED SYMBOL(S)
(wreck, low accuracy)
AT THE CALLING OBJECT'S LOCATION
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE


WRECKS04 Continuation B
Area objects, wrecks (WRECKS)
FOR EACH SPATIAL COMPONENT OF THE OBJECT, PERFORM THIS LOOP :
GET THE SPATIAL OBJECT
IS THE SPATIAL ATTRIBUTE 'QUAPOS' GIVEN ?
YES
NO
IS THE VALUE OF THE ATTRIBUTE 'QUAPOS' '2', '3', '4', '5', '6', '7', '8', OR '9' ?
YES
NO
POSITION IS INACCURATE
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH 'LC(LOWACC41)'
GO TO TOP OF LOOP
POSITION IS ACCURATE
POSITION IS ACCURATE
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN ?
YES
NO
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH A DOTTED LINE, 2 UNITS WIDE, COLOUR 'CHBLK' 'LS(DOTT, 2, CHBLK)'
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' GIVEN ?
YES
NO
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' LESS THAN OR EQUAL TO 20m ?
YES
NO
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH A DOTTED LINE, 2 UNITS WIDE, COLOUR 'CHBLK' 'LS(DOTT, 2, CHBLK)'
THEN 'VALSOU' > 20m
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH A DASHED LINE, 2 UNITS WIDE, COLOUR, 'CHBLK' 'LS(DASH, 2, CHBLK)'
SELECT THE APPROPRIATE SYMBOLIZATION FOR THE AREA BOUNDARY SPATIAL COMPONENT
IF 'WATLEV'=1 (partly submerged at HW) THEN SELECT 'LS(SOLD, 2, CSTLN)'
ELSE IF 'WATLEV'=2 (always dry) THEN SELECT 'LS(SOLD, 2, CSTLN)'
ELSE IF 'WATLEV'=4 (covers and uncovers) THEN SELECT 'LS(DASH, 2, CSTLN)'
ELSE IF 'WATLEV'=5 (awash) THEN SELECT 'LS(DOTT, 2, CSTLN)'
ELSE IF 'WATLEV'=3 (always submerged) THEN SELECT 'LS(DOTT, 2, CSTLN)'
ELSE (DEFAULT) SELECT 'LS(DOTT, 2, CSTLN)'
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH THE SELECTED LINE SYMBOLOGY
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' GIVEN ?
YES
NO
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN?
YES
NO
SHOW THE SELECTED SYMBOL(S) RETURNED BY 'UDWHAZ04' IN THE CENTRE OF THE AREA
SHOW THE SOUNDING SYMBOL(S) (returned from SNDFRM03) AT THE CENTRE OF THE AREA
HAS THE PROCEDURE 'QUAPNT02' INDICATED THAT THE QUALITY OF POSITION SYMBOL SHOULD BE SHOWN?
YES
NO
SHOW THE SELECTED SYMBOL(S) RETURNED BY 'QUAPNT02' IN THE CENTRE OF THE AREA
DO NOTHING
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE
SELECT THE APPROPRIATE AREA FILL AS DEFAULT SYMBOLIZATION
IF 'WATLEV'=1 (partly submerged at HW) THEN SELECT 'AC(CHBRN)'
ELSE IF 'WATLEV'=2 (always dry) THEN SELECT 'AC(CHBRN)'
ELSE IF 'WATLEV'=4 (covers and uncovers) THEN SELECT 'AC(DEPIT)'
ELSE IF 'WATLEV'=5 (awash) THEN SELECT 'AC(DEPVS)'
ELSE IF 'WATLEV'=3 (always submerged) THEN SELECT 'AC(DEPVS)'
ELSE (DEFAULT) SELECT 'AC(DEPVS)'
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN?
YES
NO
SHOW THE SELECTED SYMBOL(S) RETURNED BY 'UDWHAZ04' IN THE CENTRE OF THE AREA
DO NOTHING
HAS THE PROCEDURE 'QUAPNT02' INDICATED THAT THE QUALITY OF POSITION SYMBOL SHOULD BE SHOWN?
YES
NO
SHOW THE SELECTED SYMBOL(S) RETURNED BY 'QUAPNT02' IN THE CENTRE OF THE AREA
DO NOTHING

Exceptions to writing the depth on the symbols and the one problem case

(Note that this discussion is NOT part of the amendment but is for explanation only)

There are three instances when OBSTRN, UWTROC or WRECKS features with a value set for the attribute VALSOU will not have a sounding displayed using these revised symbolization procedures:

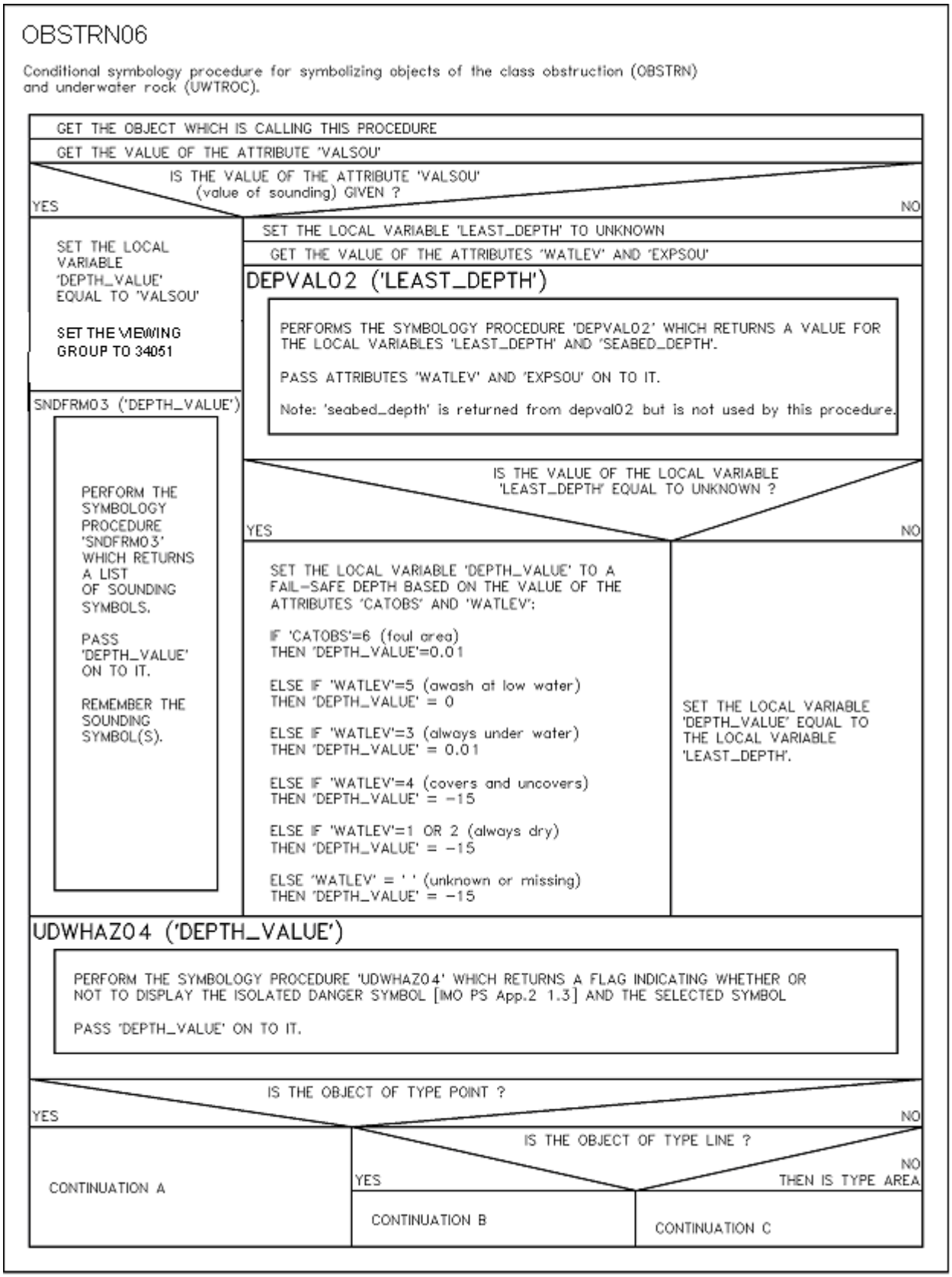
1. Features that have been flagged by procedure UDWHAZnn as Isolated Dangers to ownship .The Isolated Danger symbol does not support the display of a clearly readable sounding on top. If the CSMWG determines that the Mariner will want to display soundings over the Isolated Danger symbols, the following steps could be taken:
   Design a new 'Isolated Danger to ownship' symbol that could support the display of soundings on top. Note that this symbol may have to be larger in size and to avoid unnecessary clutter it should only be used if the feature is to have a sounding written on top..
   Add a new viewing group xxxxx for dangerous hazards with VALSOU set. This would match with the present proposal for adding a new viewing group for non-dangerous hazards with VALSOU set.
   Procedure UDWHAZnn would set the viewing group to the new viewing group xxxxxx if the calling feature has VALSOU set and the feature is a danger to ownship.
   Procedure UDWHAZnn would choose the new symbol only if the calling feature is a danger to ownship and has VALSOU set.
   Add a recommendation to the title pages of the WRECKS and OBSTRN procedures: “It is recommended that whenever viewing group 33010 is displayed, viewing group xxxxxx should also be displayed".
   This will ensure that depths over isolated dangers are displayed as well as those from object class soundings.

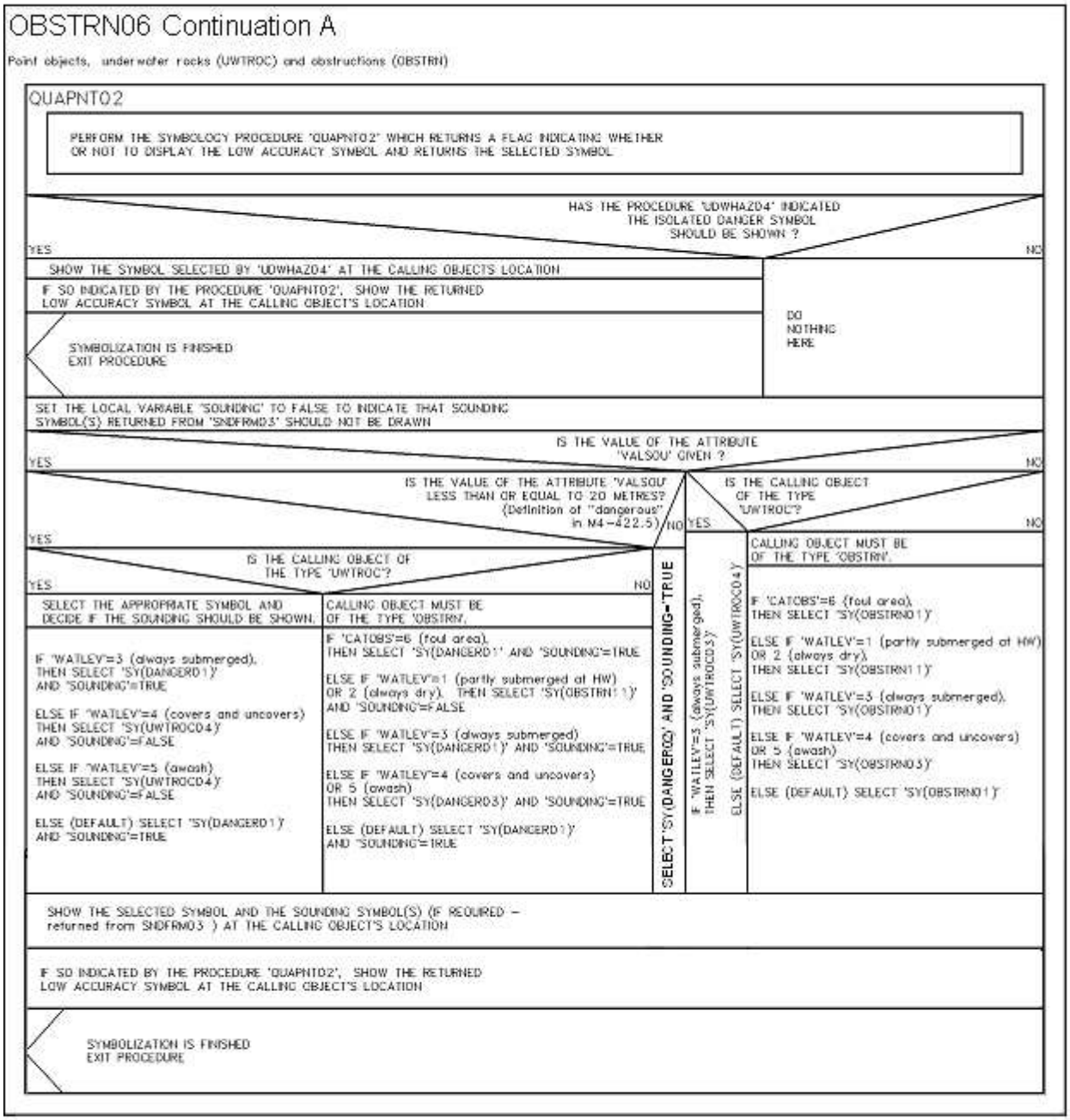
2. UWTROC features with VALSOU set and WATLEV=4 (covers and uncovers) or WATLEV=5 (awash) display the UWTROC04 symbol, which is a star and will not support the display of a sounding over the top of the symbol.

3. OBSTRN features with VALSOU set and WATLEV=1 (partly submerged at high water) or WATLEV=2 (always dry) displays the OBSTRN11 symbol, which is a small box with a black outline and land area colour fill. A sounding symbol cannot be displayed on top of this symbol.

Drawing of soundings symbols on top of OBSTRN/UWTROC features (points, lines and areas) was tested and one problem case was found. For point and area features, the sounding symbols are displayed clearly. However the line OBSTRN feature is symbolized with a dashed black line and the sounding value is difficult (if not impossible) to interpret. It will be necessary to review this symbolization instruction. Possibly, the procedure used in labelling depth contours could be adapted to fit this case.

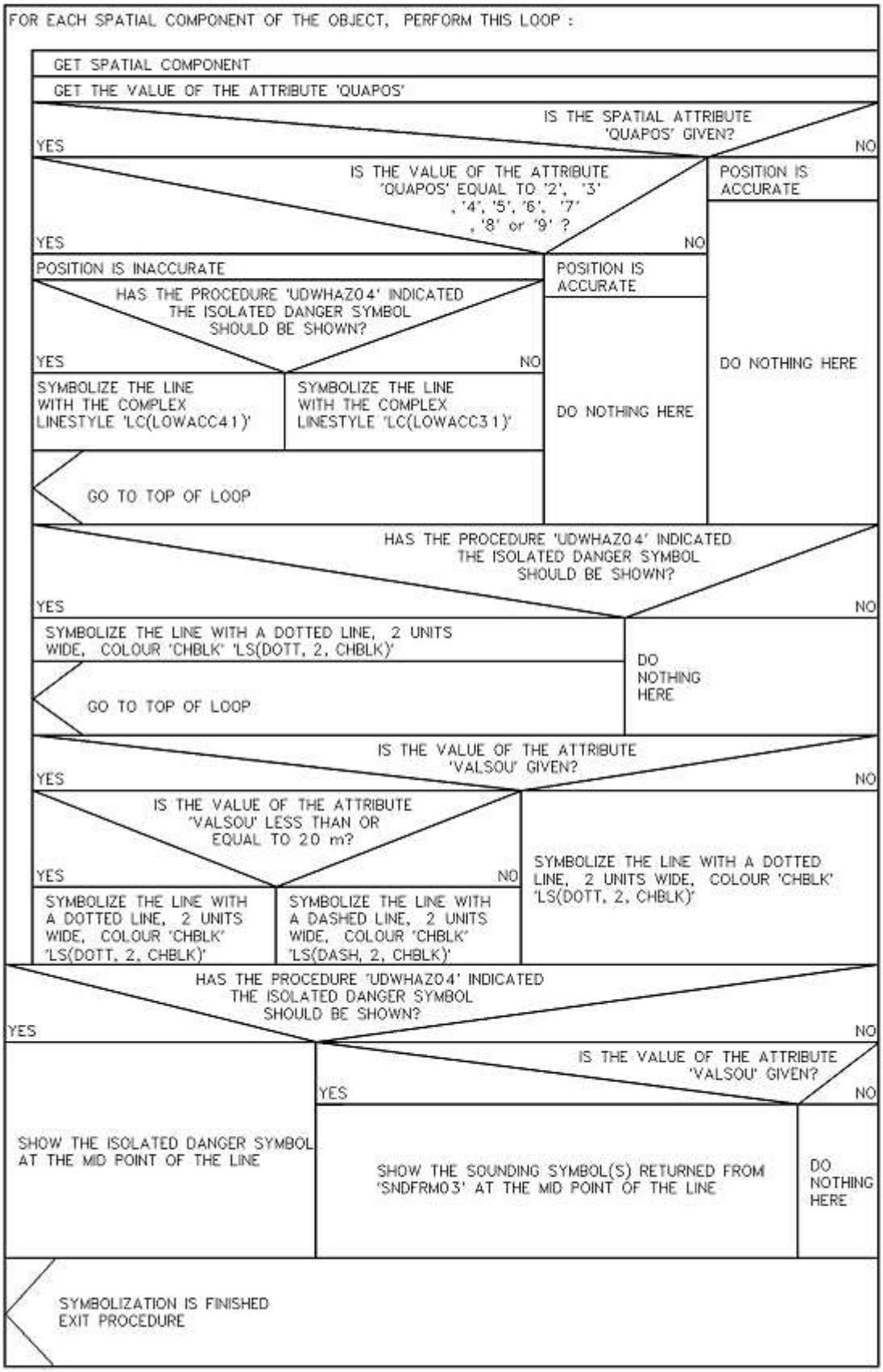
UN-MARKED VERSIONS OF THE CSPs FOLLOW

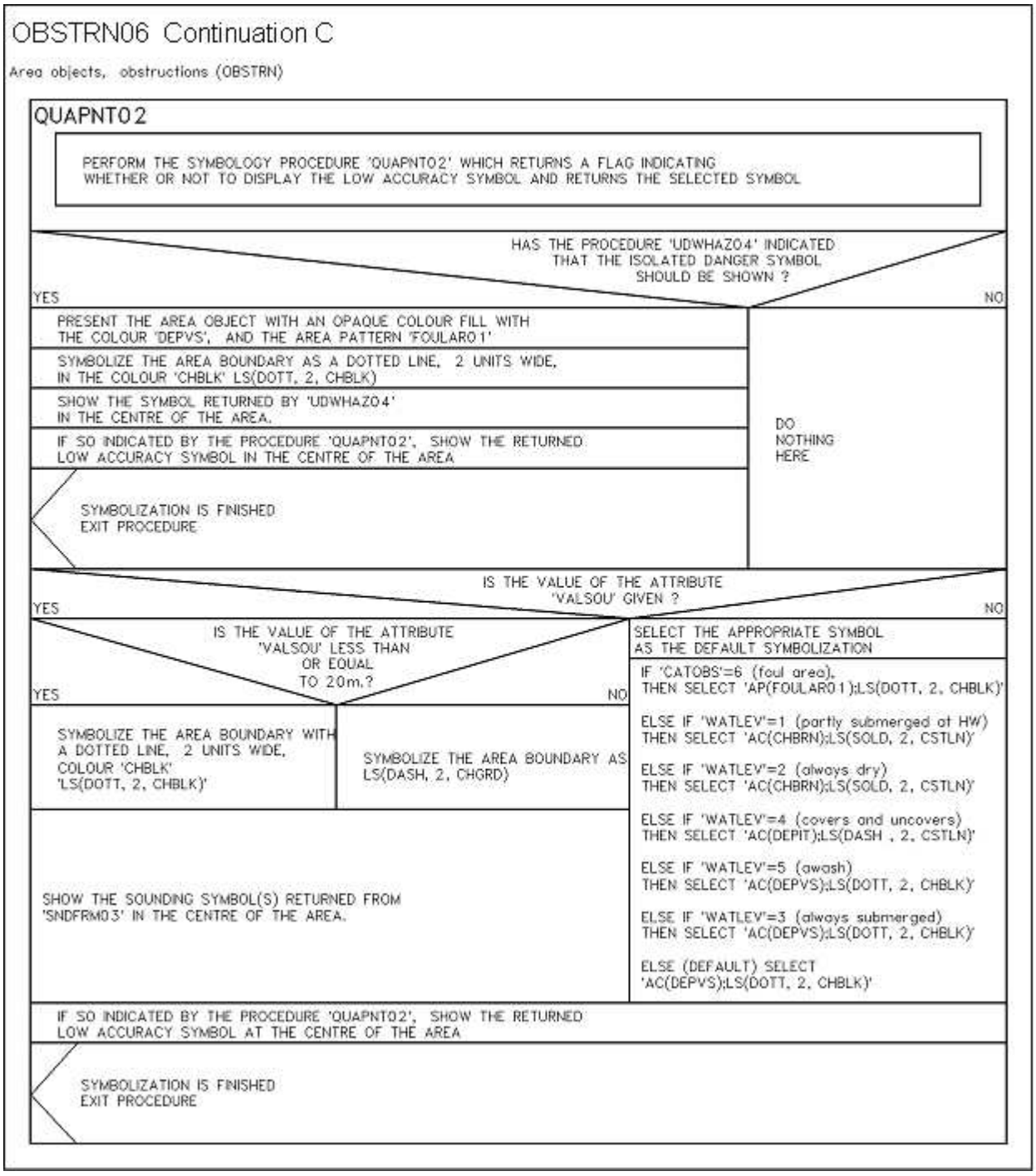

OBSTRN06
Conditional symbology procedure for symbolizing objects of the class obstruction (OBSTRN) and underwater rock (UWTROC).
GET THE OBJECT WHICH IS CALLING THIS PROCEDURE
GET THE VALUE OF THE ATTRIBUTE 'VALSOU'
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' (value of sounding) GIVEN ?
YES
NO
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO 'VALSOU'
SET THE VIEWING GROUP TO 34051
SET THE LOCAL VARIABLE 'LEAST_DEPTH' TO UNKNOWN
GET THE VALUE OF THE ATTRIBUTES 'WATLEV' AND 'EXPSOU'
DEPVAL02 ('LEAST_DEPTH')
PERFORMS THE SYMBOLOGY PROCEDURE 'DEPVAL02' WHICH RETURNS A VALUE FOR THE LOCAL VARIABLES 'LEAST_DEPTH' AND 'SEABED_DEPTH'.
PASS ATTRIBUTES 'WATLEV' AND 'EXPSOU' ON TO IT.
Note: 'seabed_depth' is returned from depval02 but is not used by this procedure.
SNDFRM03 ('DEPTH_VALUE')
PERFORM THE SYMBOLOGY PROCEDURE 'SNDFRM03' WHICH RETURNS A LIST OF SOUNDING SYMBOLS.
PASS 'DEPTH_VALUE' ON TO IT.
REMEMBER THE SOUNDING SYMBOL(S).
IS THE VALUE OF THE LOCAL VARIABLE 'LEAST_DEPTH' EQUAL TO UNKNOWN ?
YES
NO
SET THE LOCAL VARIABLE 'DEPTH_VALUE' TO A FAIL-SAFE DEPTH BASED ON THE VALUE OF THE ATTRIBUTES 'CATOBS' AND 'WATLEV':
IF 'CATOBS'=6 (foul area) THEN 'DEPTH_VALUE'=0.01
ELSE IF 'WATLEV'=5 (awash at low water) THEN 'DEPTH_VALUE' = 0
ELSE IF 'WATLEV'=3 (always under water) THEN 'DEPTH_VALUE' = 0.01
ELSE IF 'WATLEV'=4 (covers and uncovers) THEN 'DEPTH_VALUE' = -15
ELSE IF 'WATLEV'=1 OR 2 (always dry) THEN 'DEPTH_VALUE' = -15
ELSE 'WATLEV' = ' ' (unknown or missing) THEN 'DEPTH_VALUE' = -15
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO THE LOCAL VARIABLE 'LEAST_DEPTH'.
UDWHAZ04 ('DEPTH_VALUE')
PERFORM THE SYMBOLOGY PROCEDURE 'UDWHAZ04' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE ISOLATED DANGER SYMBOL [IMO PS App.2 1.3] AND THE SELECTED SYMBOL
PASS 'DEPTH_VALUE' ON TO IT.
IS THE OBJECT OF TYPE POINT ?
YES
NO
IS THE OBJECT OF TYPE LINE ?
YES
NO
THEN IS TYPE AREA
CONTINUATION A
CONTINUATION B
CONTINUATION C

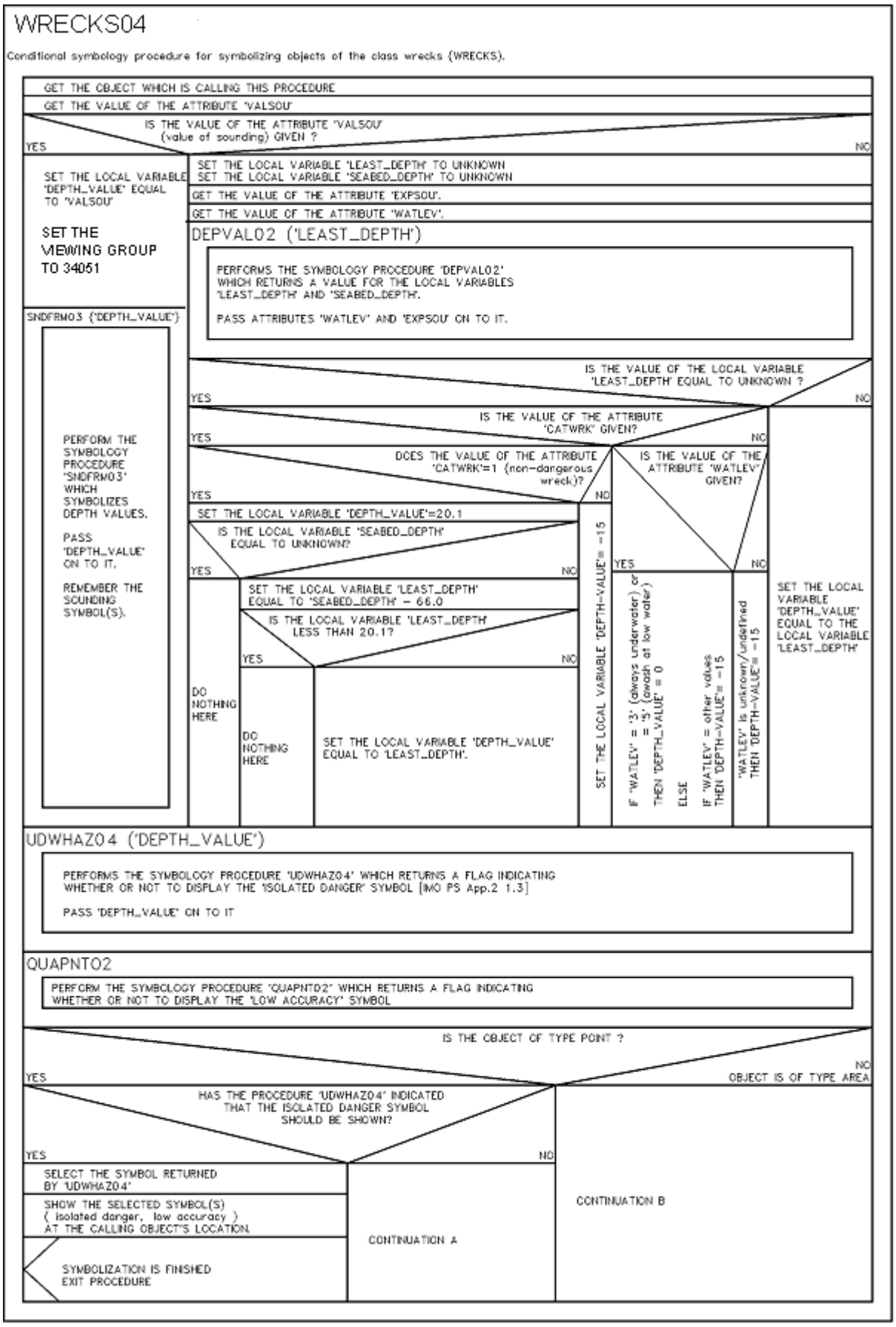

OBSTRN06 Continuation A
Point objects, underwater rocks (UWTROC) and obstructions (OBSTRN)
QUAPNT02
PERFORM THE SYMBOLOGY PROCEDURE 'QUAPNT02' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE LOW ACCURACY SYMBOL AND RETURNS THE SELECTED SYMBOL
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN ?
YES
NO
SHOW THE SYMBOL SELECTED BY 'UDWHAZ04' AT THE CALLING OBJECTS LOCATION
IF SO INDICATED BY THE PROCEDURE 'QUAPNT02', SHOW THE RETURNED LOW ACCURACY SYMBOL AT THE CALLING OBJECT'S LOCATION
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE
DO NOTHING HERE
SET THE LOCAL VARIABLE 'SOUNDING' TO FALSE TO INDICATE THAT SOUNDING SYMBOL(S) RETURNED FROM 'SNDFRM03' SHOULD NOT BE DRAWN
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' GIVEN ?
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' LESS THAN OR EQUAL TO 20 METRES? (Definition of "dangerous" in M4-422.5)
IS THE CALLING OBJECT OF THE TYPE 'UWTROC'?
IS THE CALLING OBJECT OF THE TYPE 'UWTROC'?
SELECT THE APPROPRIATE SYMBOL AND DECIDE IF THE SOUNDING SHOULD BE SHOWN.
IF 'WATLEV'=3 (always submerged), THEN SELECT 'SY(DANGERD1)' AND 'SOUNDING'=TRUE
ELSE IF 'WATLEV'=4 (covers and uncovers) THEN SELECT 'SY(UWTROCD4)' AND 'SOUNDING'=FALSE
ELSE IF 'WATLEV'=5 (awash) THEN SELECT 'SY(UWTROCD4)' AND 'SOUNDING'=FALSE
ELSE (DEFAULT) SELECT 'SY(DANGERD1)' AND 'SOUNDING'=TRUE
CALLING OBJECT MUST BE OF THE TYPE 'OBSTRN'.
IF 'CATOBS'=6 (foul area), THEN SELECT 'SY(DANGERD1' AND 'SOUNDING'=TRUE
ELSE IF 'WATLEV'=1 (partly submerged at HW) OR 2 (always dry), THEN SELECT 'SY(OBSTRN11)' AND 'SOUNDING'=FALSE
ELSE IF 'WATLEV'=3 (always submerged) THEN SELECT 'SY(DANGERD1)' AND 'SOUNDING'=TRUE
ELSE IF 'WATLEV'=4 (covers and uncovers) OR 5 (awash) THEN SELECT 'SY(DANGERD3)' AND 'SOUNDING'=TRUE
ELSE (DEFAULT) SELECT 'SY(DANGERD1)' AND 'SOUNDING'=TRUE
SELECT 'SY(DANGERDQ)' AND 'SOUNDING'=TRUE
IF 'WATLEV'=5 (always submerged), THEN SELECT 'SY(UWTROCD3)'
ELSE (DEFAULT) SELECT 'SY(UWTROCD4)'
CALLING OBJECT MUST BE OF THE TYPE 'OBSTRN'.
IF 'CATOBS'=6 (foul area), THEN SELECT 'SY(OBSTRN01)'
ELSE IF 'WATLEV'=1 (partly submerged at HW) OR 2 (always dry), THEN SELECT 'SY(OBSTRN11)'
ELSE IF 'WATLEV'=3 (always submerged), THEN SELECT 'SY(OBSTRN01)'
ELSE IF 'WATLEV'=4 (covers and uncovers) OR 5 (awash) THEN SELECT 'SY(OBSTRN03)'
ELSE (DEFAULT) SELECT 'SY(OBSTRN01)'
SHOW THE SELECTED SYMBOL AND THE SOUNDING SYMBOL(S) (IF REQUIRED - returned from SNDFRM03) AT THE CALLING OBJECT'S LOCATION
IF SO INDICATED BY THE PROCEDURE 'QUAPNT02', SHOW THE RETURNED LOW ACCURACY SYMBOL AT THE CALLING OBJECT'S LOCATION
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE

OBSTRN06 Continuation B

Line objects, obstructions (OBSTRN)

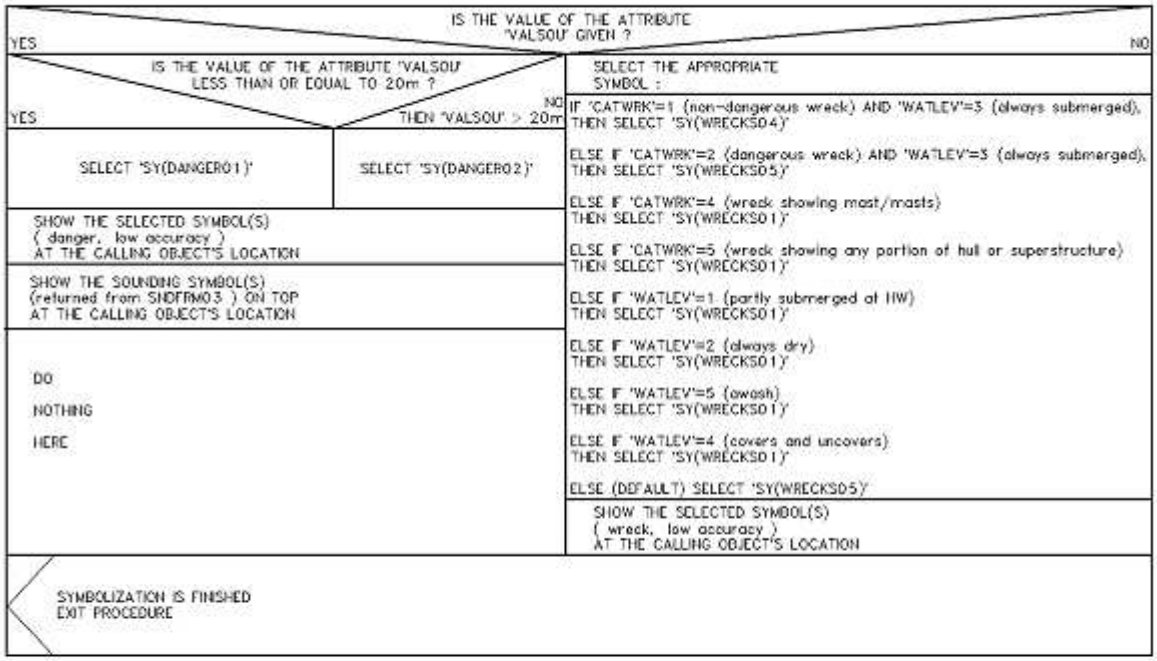


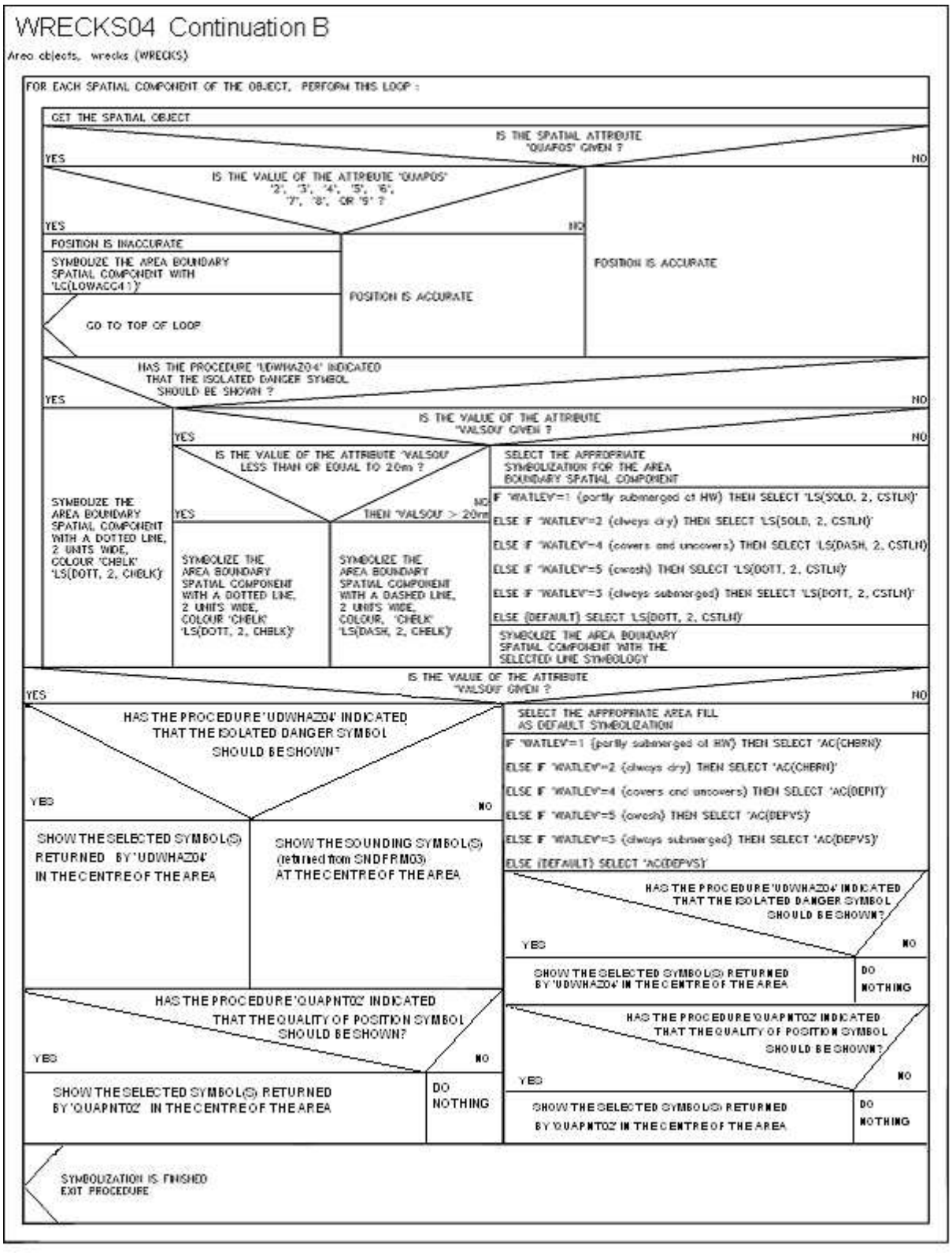

OBSTRN06 Continuation C
Area objects, obstructions (OBSTRN)
QUAPNT02
PERFORM THE SYMBOLOGY PROCEDURE 'QUAPNT02' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE LOW ACCURACY SYMBOL AND RETURNS THE SELECTED SYMBOL
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN ?
YES
NO
PRESENT THE AREA OBJECT WITH AN OPAQUE COLOUR FILL WITH THE COLOUR 'DEPVS', AND THE AREA PATTERN 'FOULAR01'
SYMBOLIZE THE AREA BOUNDARY AS A DOTTED LINE, 2 UNITS WIDE, IN THE COLOUR 'CHBLK' LS(DOTT, 2, CHBLK)
SHOW THE SYMBOL RETURNED BY 'UDWHAZ04' IN THE CENTRE OF THE AREA.
IF SO INDICATED BY THE PROCEDURE 'QUAPNT02', SHOW THE RETURNED LOW ACCURACY SYMBOL IN THE CENTRE OF THE AREA
DO NOTHING HERE
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' GIVEN ?
YES
NO
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' LESS THAN OR EQUAL TO 20m.?
YES
NO
SYMBOLIZE THE AREA BOUNDARY WITH A DOTTED LINE, 2 UNITS WIDE, COLOUR 'CHBLK' 'LS(DOTT, 2, CHBLK)'
SYMBOLIZE THE AREA BOUNDARY AS LS(DASH, 2, CHGRD)
SHOW THE SOUNDING SYMBOL(S) RETURNED FROM 'SNDFRM03' IN THE CENTRE OF THE AREA.
SELECT THE APPROPRIATE SYMBOL AS THE DEFAULT SYMBOLIZATION
IF 'CATOBS'=6 (foul area), THEN SELECT 'AP(FOULAR01);LS(DOTT, 2, CHBLK)'
ELSE IF 'WATLEV'=1 (partly submerged at HW) THEN SELECT 'AC(CHBRN);LS(SOLD, 2, CSTLN)'
ELSE IF 'WATLEV'=2 (always dry) THEN SELECT 'AC(CHBRN);LS(SOLD, 2, CSTLN)'
ELSE IF 'WATLEV'=4 (covers and uncovers) THEN SELECT 'AC(DEPIT);LS(DASH , 2, CSTLN)'
ELSE IF 'WATLEV'=5 (awash) THEN SELECT 'AC(DEPVS);LS(DOTT, 2, CHBLK)'
ELSE IF 'WATLEV'=3 (always submerged) THEN SELECT 'AC(DEPVS);LS(DOTT, 2, CHBLK)'
ELSE (DEFAULT) SELECT 'AC(DEPVS);LS(DOTT, 2, CHBLK)'
IF SO INDICATED BY THE PROCEDURE 'QUAPNT02', SHOW THE RETURNED LOW ACCURACY SYMBOL AT THE CENTRE OF THE AREA
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE


WRECKS04
Conditional symbology procedure for symbolizing objects of the class wrecks (WRECKS).
GET THE OBJECT WHICH IS CALLING THIS PROCEDURE
GET THE VALUE OF THE ATTRIBUTE 'VALSOU'
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' (value of sounding) GIVEN ?
YES
NO
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO 'VALSOU'
SET THE VIEWING GROUP TO 34051
SET THE LOCAL VARIABLE 'LEAST_DEPTH' TO UNKNOWN
SET THE LOCAL VARIABLE 'SEABED_DEPTH' TO UNKNOWN
GET THE VALUE OF THE ATTRIBUTE 'EXPSOU'.
GET THE VALUE OF THE ATTRIBUTE 'WATLEV'.
DEPVAL02 ('LEAST_DEPTH')
PERFORMS THE SYMBOLOGY PROCEDURE 'DEPVAL02' WHICH RETURNS A VALUE FOR THE LOCAL VARIABLES 'LEAST_DEPTH' AND 'SEABED_DEPTH'.
PASS ATTRIBUTES 'WATLEV' AND 'EXPSOU' ON TO IT.
SNDFRM03 ('DEPTH_VALUE')
PERFORM THE SYMBOLOGY PROCEDURE 'SNDFRM03' WHICH SYMBOLIZES DEPTH VALUES.
PASS 'DEPTH_VALUE' ON TO IT.
REMEMBER THE SOUNDING SYMBOL(S).
IS THE VALUE OF THE LOCAL VARIABLE 'LEAST_DEPTH' EQUAL TO UNKNOWN ?
IS THE VALUE OF THE ATTRIBUTE 'CATWRK' GIVEN?
DOES THE VALUE OF THE ATTRIBUTE 'CATWRK'=1 (non-dangerous wreck)?
IS THE VALUE OF THE ATTRIBUTE 'WATLEV' GIVEN?
SET THE LOCAL VARIABLE 'DEPTH_VALUE'=20.1
IS THE LOCAL VARIABLE 'SEABED_DEPTH' EQUAL TO UNKNOWN?
SET THE LOCAL VARIABLE 'LEAST_DEPTH' EQUAL TO 'SEABED_DEPTH' - 66.0
IS THE LOCAL VARIABLE 'LEAST_DEPTH' LESS THAN 20.1?
DO NOTHING HERE
DO NOTHING HERE
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO 'LEAST_DEPTH'.
SET THE LOCAL VARIABLE 'DEPTH_VALUE'= -15
IF 'WATLEV' = '3' (always underwater) or = '5' (awash at low water) THEN 'DEPTH_VALUE' = 0
ELSE
IF 'WATLEV' = other values THEN 'DEPTH_VALUE'= -15
'WATLEV' is unknown/undefined THEN 'DEPTH_VALUE'= -15
SET THE LOCAL VARIABLE 'DEPTH_VALUE' EQUAL TO THE LOCAL VARIABLE 'LEAST_DEPTH'
UDWHAZ04 ('DEPTH_VALUE')
PERFORMS THE SYMBOLOGY PROCEDURE 'UDWHAZ04' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE 'ISOLATED DANGER' SYMBOL [IMO PS App.2 1.3]
PASS 'DEPTH_VALUE' ON TO IT
QUAPNT02
PERFORM THE SYMBOLOGY PROCEDURE 'QUAPNT02' WHICH RETURNS A FLAG INDICATING WHETHER OR NOT TO DISPLAY THE 'LOW ACCURACY' SYMBOL
IS THE OBJECT OF TYPE POINT ?
OBJECT IS OF TYPE AREA
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN?
SELECT THE SYMBOL RETURNED BY 'UDWHAZ04'
SHOW THE SELECTED SYMBOL(S) (isolated danger, low accuracy) AT THE CALLING OBJECT'S LOCATION
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE
CONTINUATION A
CONTINUATION B

WRECKS04 Continuation A

Point objects, wrecks (WRECKS)




WRECKS04 Continuation B
Area objects, wrecks (WRECKS)
FOR EACH SPATIAL COMPONENT OF THE OBJECT, PERFORM THIS LOOP :
GET THE SPATIAL OBJECT
IS THE SPATIAL ATTRIBUTE 'QUAPOS' GIVEN ?
YES
NO
IS THE VALUE OF THE ATTRIBUTE 'QUAPOS' '2', '3', '4', '5', '6', '7', '8', OR '9' ?
YES
NO
POSITION IS INACCURATE
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH 'LC(LOWACC41)'
GO TO TOP OF LOOP
POSITION IS ACCURATE
POSITION IS ACCURATE
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN ?
YES
NO
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' GIVEN ?
YES
NO
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' LESS THAN OR EQUAL TO 20m ?
YES
NO
THEN 'VALSOU' > 20m
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH A DOTTED LINE, 2 UNITS WIDE, COLOUR 'CHBLK' 'LS(DOTT, 2, CHBLK)'
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH A DOTTED LINE, 2 UNITS WIDE, COLOUR 'CHBLK' 'LS(DOTT, 2, CHBLK)'
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH A DASHED LINE, 2 UNITS WIDE, COLOUR 'CHBLK' 'LS(DASH, 2, CHBLK)'
SELECT THE APPROPRIATE SYMBOLIZATION FOR THE AREA BOUNDARY SPATIAL COMPONENT
IF 'WATLEV'=1 (partly submerged at HW) THEN SELECT 'LS(SOLD, 2, CSTLN)'
ELSE IF 'WATLEV'=2 (always dry) THEN SELECT 'LS(SOLD, 2, CSTLN)'
ELSE IF 'WATLEV'=4 (covers and uncovers) THEN SELECT 'LS(DASH, 2, CSTLN)'
ELSE IF 'WATLEV'=5 (awash) THEN SELECT 'LS(DOTT, 2, CSTLN)'
ELSE IF 'WATLEV'=3 (always submerged) THEN SELECT 'LS(DOTT, 2, CSTLN)'
ELSE (DEFAULT) SELECT 'LS(DOTT, 2, CSTLN)'
SYMBOLIZE THE AREA BOUNDARY SPATIAL COMPONENT WITH THE SELECTED LINE SYMBOLOGY
IS THE VALUE OF THE ATTRIBUTE 'VALSOU' GIVEN ?
YES
NO
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN ?
YES
NO
SHOW THE SELECTED SYMBOL(S) RETURNED BY 'UDWHAZ04' IN THE CENTRE OF THE AREA
SHOW THE SOUNDING SYMBOL(S) (returned from SNDFRM03) AT THE CENTRE OF THE AREA
SELECT THE APPROPRIATE AREA FILL AS DEFAULT SYMBOLIZATION
IF 'WATLEV'=1 (partly submerged at HW) THEN SELECT 'AC(CHBRN)'
ELSE IF 'WATLEV'=2 (always dry) THEN SELECT 'AC(CHBRN)'
ELSE IF 'WATLEV'=4 (covers and uncovers) THEN SELECT 'AC(DEPIT)'
ELSE IF 'WATLEV'=5 (awash) THEN SELECT 'AC(DEPVS)'
ELSE IF 'WATLEV'=3 (always submerged) THEN SELECT 'AC(DEPVS)'
ELSE (DEFAULT) SELECT 'AC(DEPVS)'
HAS THE PROCEDURE 'UDWHAZ04' INDICATED THAT THE ISOLATED DANGER SYMBOL SHOULD BE SHOWN?
YES
NO
SHOW THE SELECTED SYMBOL(S) RETURNED BY 'UDWHAZ04' IN THE CENTRE OF THE AREA
DO NOTHING
HAS THE PROCEDURE 'QUAPNT02' INDICATED THAT THE QUALITY OF POSITION SYMBOL SHOULD BE SHOWN?
YES
NO
SHOW THE SELECTED SYMBOL(S) RETURNED BY 'QUAPNT02' IN THE CENTRE OF THE AREA
DO NOTHING
HAS THE PROCEDURE 'QUAPNT02' INDICATED THAT THE QUALITY OF POSITION SYMBOL SHOULD BE SHOWN?
YES
NO
SHOW THE SELECTED SYMBOL(S) RETURNED BY 'QUAPNT02' IN THE CENTRE OF THE AREA
DO NOTHING
SYMBOLIZATION IS FINISHED
EXIT PROCEDURE

(end of amendment d7.co.19)