INTERNATIONAL HYDROGRAPHIC ORGANIZATION

ENC PRODUCT SPECIFICATION

IHO Publication S-101

Appendix C
Feature Catalogue

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Drafted by DQWG as reference document for review process of S-1xx based Product Specifications

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1 Catalogue header information

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address	
administrativeArea	4b quai Antonie 1er
country	Monaco
electronicMailAddress	info@iho.int
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2 Definition sources

No definition sources in this catalogue.

3 Simple attributes

3.1 Beacon shape

name	Beacon shape
definition	The shape a beacon exhibits
code	beaconShape
remarks	None
alias	BCNSHP
valueType	enumeration

listedValues

label	definition	code
stake, pole, perch, post	An elongated wood or metal pole, driven into the ground or seabed, which serves as a navigational aid or a support for a navigational aid.	1
withy	A tree without roots stuck or spoiled into the bottom of the sea to serve as a navigational aid.	2
beacon tower	A solid structure of the order of 10 metres in height used as a navigational aid.	3
pile beacon	A long heavy timber(s) or section(s) of steel, wood, concrete, etc., forced into the seabed to serve as an aid to navigation or as a support for an aid to navigation.	5
cairn	A mound of stones, usually conical or pyramidal, raised specifically for maritime navigation.	6
buoyant beacon	A tall spar-like beacon fitted with a permanently submerged buoyancy chamber, the lower end of the body is secured to seabed sinker either by a flexible joint or by a cable under tension.	7

3.2 Building shape

name	Building shape
definition	The specific shape of the building.
code	buildingShape
remarks	None
alias	BUISHP
valueType	enumeration

listedValues

label	definition	code
high-rise building	A building having many storeys.	5
pyramid	A polyhedron of which one face is a polygon of any number of sides, and the other faces are triangles with a common vertex.	6
cylindrical	Shaped like a cylinder, which is a solid geometrical figure generated by straight lines fixed in direction and describing with one of its points a closed curve, especially a circle.	7
spherical	Shaped like a sphere, which is a body the surface of which is at all points equidistant from the centre.	8
cubic	A shape the sides of which are six equal squares a regular hexahedron.	9

3.3 Buoy shape

name	Buoy shape
definition	The shape a buoy exhibits
code	buoyShape
remarks	The principal shapes are those recommended in the International Association of Lighthouse Authorities - IALA System.
alias	BOYSHP
valueType	enumeration

listedValues

label	definition	code
conical (nun, ogival)	The upper part of the body above the water-line, or the greater part of the superstructure, has approximately the shape or the appearance of a pointed cone with the point upwards.	1
can (cylindrical)	The upper part of the body above the water-line, or the greater part of the superstructure, has the shape of a cylinder, or a truncated cone that approximates to a cylinder, with a flat end uppermost.	2
spherical	The upper part of the body above the water-line, or the greater part of the superstructure, has the shape of a part of a sphere.	3
pillar	The upper part of the body above the water-line, or the greater part of the superstructure is a narrow vertical structure, pillar or lattice tower.	4
spar (spindle)	The upper part of the body above the water-line, or the greater part of the superstructure, has the form of a pole, or of a very long cylinder, floating upright.	5

barrel (tun)	The upper part of the body above the water-line, or the greater part of the superstructure, has the form of a barrel or cylinder floating horizontally.	6
superbuoy	A very large buoy designed to carry a signal light of high luminous intensity at a high elevation.	7
ice buoy	A specially constructed shuttle shaped buoy which is used in ice conditions.	8

3.4 Buried depth

name	Buried depth
definition	The depth below the sea bed to which an object is buried.
code	buriedDepth
remarks	The unit of measure is defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 ft.
alias	BURDEP
valueType	real

3.5 Call sign

name	Call sign
definition	The designated call-sign of a radio station.
code	callSign
remarks	None
alias	CALSGN
valueType	text

3.6 Category of airport/airfield

name	Category of airport/airfield
definition	Classification of airport/airfield based on the primary aircraft and user group.
code	categoryOfAirportAirfield
remarks	None
alias	CATAIR
valueType	enumeration

listedValues

label	definition	code
military aeroplane airport	A large military airfield usually equipped with a control tower, hangars and accommodation for the receiving and discharging of passengers or cargo.	1
civil aeroplane airport	A large airfield usually equipped with a control tower, hangars and accommodation for the receiving and discharging of passengers or cargo.	2
military heliport	A landing place for helicopters controlled by the military.	3
civil heliport	A landing place for helicopters, often the roof of a building.	4
glider airfield	An area of land set aside for the take-off and landing of gliders.	5
small planes airfield	An area of land set aside for the take-off and landing of small aeroplanes.	6
emergency airfield	An area of land set aside for the take-off and landing of aeroplanes or helicopters in times of emergency.	8
search and rescue airfield	An area of land set aside for the take-off and landing of aeroplanes or helicopters in times of search and rescue.	9

3.7 Category of anchorage

name	Category of anchorage
definition	Classification of an area where diffrent usetypes of vessel can remain static.
code	categoryOfAnchorage
remarks	None
alias	CATACH
valueTType	enumeration

listedValues

label	definition	code
unrestricted anchorage	An area in which vessels anchor or may anchor.	1
deep water anchorage	An area in which vessels of deep draught anchor or may anchor.	2
tanker anchorage	An area in which tankers anchor or may anchor.	3
explosives anchorage	An area set apart for anchored ships discharging or receiving explosives.	4
quarantine anchorage	An area where a vessel anchors when satisfying quarantine regulations.	5

seaplane anchorage	An area in which sea-planes anchor or may anchor.	6
small craft anchorage	An area in which yachts and small boats anchor or may anchor.	7
small craft mooring area	An area in which yachts and small boats moor.	8
anchorage for periods up to 24 hours	An area in which vessels anchor or may anchor for periods of up to 24 hours.	9
anchorage for a limited period of time	An area in which vessels may anchor for a period of time not to exceed a specific limit.	10
waiting anchorage	An area in which vessels anchor or may anchor while waiting, for example, for access to a port or berth.	14
reported anchorage	A location not defined by a regulatory authority that has been reported to be suitable and safe for anchoring.	15

3.8 Category of bridge

name	Category of bridge
definition	Classification of structures spanning and providing passage over a gap or barrier, such as a river or roadway.
code	categoryOfBridge
remarks	None
alias	CATBRG
valueType	enumeration

listedValues

label	definition	code
fixed bridge	A bridge having permanent horizontal and vertical alignment.	1
opening bridge	A bridge that is closed when set for carrying road traffic and open when set to permit marine traffic to pass through the waterway it crosses.	2
swing bridge	A movable bridge (or span thereof) which rotates in a horizontal plane about a vertical pivot to allow the passage of vessels.	3
lifting bridge	A movable bridge (or span thereof) which is capable of being lifted vertically to allow vessels to pass beneath.	4
bascule bridge	A counterpoise bridge rotated in a vertical plane about an axis at one or both ends.	5
pontoon bridge	A fixed floating bridge supported by pontoons.	6
drawbridge	A general name for bridges of which part or the entire span of the bridge may be raised or drawn aside to allow ships to pass through.	7
transporter bridge	A bridge that has towers on each side of the waterway connected by a girder system on which a carriage runs.	8

footbridge	A bridge structure used only for pedestrian traffic.	9
viaduct	A long bridge consisting of a series of beams, spans or girders (of steel, timber or concrete) supported on towers or piers and used to carry a road, railroad, etc.	10
aqueduct	A bridge supporting an artificially elevated channel, for the conveyance of water.	11
suspension bridge	A fixed bridge consisting of either a roadway or a truss suspended from two or more cables which pass over towers and are anchored by backstays to a firm foundation.	12

3.9 Category of built-up area

name	Category of built-up area
definition	Human settlement classification
code	categoryOfBuiltUpArea
remarks	None
alias	CATBUA
valueType	enumeration

listedValues

label	definition	code
urban area	An area predominantly occupied by man-made structures used for residential, commercial, and industrial purposes.	1
settlement	A small collection of dwellings in a remote area.	2
village	A collection of houses in a rural district, usually smaller than a town.	3
town	Any considerable collection of dwellings and other buildings larger than a village, but not incorporated as a city.	4
city	A major town inhabited by a large permanent community with all essential services.	5
holiday village	A collection of smaller houses (cottages, mobile homes etc.) which is mainly populated on a seasonal basis.	6

3.10 Category of cable

name	Category of cable
definition	Classification of the cable based on the services provided.
code	categoryOfCable

remarks	None
alias	CATCBL
valueType	enumeration

listedValues

label	definition	code
power line	A cable used for the supply of electricity.	1
transmission line	Multiple un-insulated cables usually supported by steel lattice towers.	3
telephone	A cable used for the transmission of telephone signals.	4
telegraph	A cable used for the transmission of telegraph signals.	5
mooring cable/chain	A cable or chain used to secure a mooring buoy or other floating structure.	6
ferry	A cable or chain used to facilitate the movement of a ferry	7
Fibre optic cable	A cable made of glass or plastic fiber designed to guide light along its length, fibre optic cables are widely used in fiber-optic communication, which permits transmission over longer distances and at higher data rates than other forms of communication.	8

3.11 Category of canal

name	Category of canal
definition	Classification of an artificial waterway used for travel, drainage, or irrigation.
code	categoryOfCanal
remarks	None
alias	CATCAN
valueType	enumeration

listedValues

label	definition	code
transportation	A canal used for navigation as part of a transport system.	1
drainage	A canal used to drain excess water from surrounding land.	2
irrigation	A canal used to supply water for the purpose of irrigation.	3

3.12 Category of cardinal mark

name	Category of cardinal mark
definition	Cardinal marks are classified according to the quadrant of space they occupy.
code	categoryOfCardinalMark
remarks	Cardinal marks are used in conjunction with the compass to indicate where a mariner will find safe navigable water. Cardinal marks do not have a distinctive shape but are normally pillar or spar. They are always painted in yellow and black horizontal bands and their distinctive double cone top-marks are always black. (Note that such top-marks are encoded as separate TOPMAR objects). Cardinal marks may also have a special system of flashing white lights and if such lights are fitted they are encoded as separate LIGHTS objects.
alias	CATCAM
valueType	enumeration

listedValues

label	definition	code
north cardinal mark	Quadrant bounded by the true bearing NW-NE taken from the point of interest it should be passed to the north side of the mark.	1
east cardinal mark	Quadrant bounded by the true bearing NE-SE taken from the point of interest it should be passed to the east side of the mark.	2
south cardinal mark	Quadrant bounded by the true bearing SE-SW taken from the point of interest it should be passed to the south side of the mark.	3
west cardinal mark	Quadrant bounded by the true bearing SW-NW taken from the point of interest it should be passed to the west side of the mark.	4

3.13 Category of checkpoint

name	Category of checkpoint
definition	Classification of a place where vehicles or travellers are stopped for identification or inspection
code	categoryOfCheckpoint
remarks	None
alias	CATCHP
valueType	enumeration

listedValues

label	definition	code

custom	An office, especially in ports, at which customs dues are collected or administrated.	1

3.14 Category of coastline

name	Category of coastline
definition	Physical condition of the coastline
code	categoryOfCoastline
remarks	None
alias	CATCOA
valueType	enumeration

listedValues

label	definition	code
steep coast	A coast backed by rock or earth cliffs, gives a good radar return and is useful for visual identification from a considerable distance off, where cliffs alternate with low lying coast along the shoreline.	1
flat coast	A level coast with no obvious topographic features.	2
glacier, seaward end	Projecting seaward extension of glacier, usually afloat.	6
mangrove	One of several genera of tropical trees or shrubs which produce many prop roots and grow along low lying coasts into shallow water.	7
marshy shore	A shoreline area made up of spongy land saturated with water.	8
ice coast	A vertical cliff forming the seaward edge of an ice shelf, ranging in height from 2m to 50m or more above sea level.	10

3.15 Category of conveyor

name	Category of conveyor
definition	Classification of conveyor used for moving goods from one location to another.
code	categoryOfConveyor
remarks	None
alias	CATCON
valueType	enumeration

listedValues

label	definition	code
aerial cableway (telepheric)	A conveyor along which material or people are transported by means of overhead cables supporting buckets, cable cars, etc.	1
belt conveyor	A conveyor along which material or people are transported by means of a moving belt.	2
flume	An artificial channel, usually an inclined chute or trough, for carrying water to furnish power, transport logs down a mountainside, etc.	3
lift/elevator	Any of various mechanical devices for raising objects or materials.	4

3.16 Category of crane

name	Category of crane
definition	Classification of machines used for hoisting and moving heavy objects
code	categoryOfCrane
remarks	None
alias	CATCRN
valueType	enumeration

listedValues

label	definition	code
container crane/gantry	A high speed, shore-based crane used in the lift-on/lift-off operation of specially constructed containers.	2
sheerlegs	A tripodal structure used in dockyards and harbours for stepping masts or lifting loads in to and out of vessels.	3
travelling crane	A crane mounted on rails (track) that can move (usually parallel to the wharf face) in order to load and unload cargo vessels.	4
A-frame	A type of crane shaped like the letter 'A'.	5
goliath crane	A powerful travelling crane mounted on a movable gantry of large span.	6

3.17 Category of dam

name	Category of dam
definition	Classification of a structure acting as barrier to water flow
code	categoryOfDam
remarks	None

alias	CATDAM
valueType	enumeration

listedValues

label	definition	code
weir	A dam erected across a river to raise the level of the water. A fence of stakes set in a river or along the shore as a trap for fish.	1
dam	A barrier to check or confine anything in motion particularly one constructed to hold back water and raise its level to form a reservoir, or to prevent flooding.	2
flood barrage	An opening dam across a channel which, when required, is closed to control flood waters.	3

3.18 Category of distance mark

name	Category of distance mark
definition	Classification of fixed and virtual distance marks
code	categoryOfDistanceMark
remarks	None
alias	CATDIS
valueType	enumeration

listedValues

label	definition	code
distance mark not physically installed	A point at which a distance from an origin along a feature is given for information, but at which no specific marker exists.	1
visible mark, pole	A point at which a distance from an origin along a feature is given for information and which is marked by a pole.	2
visible mark, board	A point at which a distance from an origin along a feature is given for information and which is marked by a board.	3
visible mark, unknown shape	A point at which a distance from an origin along a feature is given for information and which is physically marked, but the shape of the mark is not known or not given.	4

3.19 Category of dock

name	Category of dock

definition	Classification of vessel dock
code	categoryOfDock
remarks	None
alias	CATDOC
valueType	enumeration

listedValues

label	definition	code
tidal	A dock which is open to the sea and in which the water level is affected by tides.	1
non-tidal (wet dock)	A dock in which water can be maintained at any level by closing a gate when the water is at the desired level.	2

3.20 Category of dumping ground

name	Category of dumping ground
definition	Classification of an area based on the type of waste being disposed of.
code	categoryOfDumpingGround
remarks	None
alias	CATDPG
valueType	enumeration

listedValues

label	definition	code
chemical waste dumping ground	An area at sea where chemical waste is dumped.	2
nuclear waste dumping ground	An area at sea where nuclear waste is dumped.	3
explosives dumping ground	An area at sea where explosives are dumped.	4
spoil ground	An area at sea where dredged material is deposited	5
vessel dumping ground	An area at sea where disused vessels are scuttled.	6

3.21 Category of fence

name	Category of fence
definition	Classification of a physical boundary.
remarks	None
code	categoryOfFence
alias	CATFNC
valueType	enumeration

listedValues

label	definition	code
fence	A man made barrier used as an enclosure or boundary or for protection.	1
hedge	A continuous growth of shrubbery planted as a fence, a boundary or a wind break.	3
wall	A fence constructed from masonry or stone.	4

3.22 Category of ferry

name	Category of ferry
definition	Classification of the manoeuvrability of the ferry vessel, not the various types of ferry vessel.
code	categoryOfFerry
remarks	The value 'cable ferry' indicates a ferry that follows a fixed route guided by a cable. A cable ferry may hinder the flow of other traffic.
alias	CATFRY
valueType	enumeration

listedValues

label	definition	code
free Moving Ferry	A ferry which may have routes that vary with weather, tide and traffic.	1
cable ferry	A ferry that follows a fixed route guided by a cable.	2
ice ferry	A winter-time ferry which crosses a lead.	3
high speed ferry	A high speed water vessel for civilian use	5

3.23 Category of fishing facility

name	Category of fishing facility
definition	Classification of fishing facility provided based on different fishing methods.
code	categoryOfFishingFacility
remarks	None
alias	CATFIF
valueType	enumeration

listedValues

label	definition	code
fishing stake	A pole or stake placed in shallow water to outline a fishing ground or to catch fish	1
fish trap	A structure (usually portable) for catching fish	2
fish weir	A fence of stakes or stones set in a river or along the shore to trap fish	3
tunny net	A net built at sea for catching tunny	4

3.24 Category of fog signal

name	Category of fog signal
definition	Classification of the various means of generating the fog signal.
code	categoryOfFogSignal
remarks	The classification 'horn' is the generic term for fog signals 'nautophone', 'reed' and 'tyfon'.
alias	CATFOG
valueType	enumeration

listedValues

label	definition	code
explosive	A signal produced by the firing of explosive charges.	1
diaphone	A diaphone uses compressed air and generally emits a powerful low-pitched sound, which often concludes with a brief sound of suddenly lowered pitch, termed the 'grunt'.	2

siren	A siren uses compressed air and exists in a variety of types which differ considerably in their sound and power.	3
nautophone	A horn having a diaphragm oscillated by electricity	4
reed	A reed uses compressed air and emits a weak, high pitched sound.	5
tyfon	A diaphragm horn which operates under the influence of compressed air or steam	6
bell	A ringing sound with a short range.	7
whistle	A distinctive sound made by a jet of air passing through an orifice.	8
gong	A sound produced by vibration of a disc when struck.	9
horn	A horn uses compressed air or electricity to vibrate a diaphragm and exists in a variety of types which differ greatly in their sound and power.	10

3.25 Category of fortified structure

name	Category of fortified structure
definition	Classification of the diffrent types of fortified structure
code	categoryOfFortifiedStructure
remarks	None
alias	CATFOR
valueType	enumeration

listedValues

label	definition	code
castle	A large fortified building or structure	1
fort	A fortified enclosure, building, or position able to be defended against an enemy	2
battery	A fortified structure on which artillery is mounted	3
blockhouse	A concrete structure strengthened to give protection against enemy fire, with apertures to allow defensive gunfire	4
fortified tower	A small circular fort with very thick walls (for example Martello tower).	5
redoubt	An outwork or fieldwork usually square or polygonal and without flanking defences.	6
fortified submarine shelter	A fortified pen to hold submarines	8
rampart	Anything serving as a bulwark or defense.	9

3.26 Category of gate

name	Category of gate
definition	Classification of a structure that can be swung, drawn, or lowered to block an entrance or a passageway
code	categoryOfGate
remarks	None
alias	CATGAT
valueType	enumeration

listedValues

label	definition	code
flood barrage gate	An opening gate used to control flood water.	2
caisson	A steel structure used for closing the entrance of locks, wet and dry docks.	3
lock gate	Lock gates are the massive hinged doors at each end of a lock.	4
dyke gate	An opening gate in a dyke.	5
sluice	A sliding gate or other contrivance for changing the level of a body of water by controlling the flow into or out of it.	6

3.27 Category of harbour facility

name	Category of harbour facility
definition	Classification of harbour use.
code	categoryOfHarbourFacility
remarks	None
alias	CATHAF
valueType	enumeration

listedValues

label	definition	code
RoRo Terminal	A terminal for roll-on roll-off ferries.	1
ferry terminal	A terminal for passenger and vehicle ferries.	3

fishing harbour	A harbour with facilities for fishing boats.	4
yacht harbour/marina	A harbour with facilities for small boats and yachts.	5
naval base	A centre of operations for naval vessels	6
tanker terminal	A terminal for the bulk handling of liquid cargoes.	7
passenger terminal	A terminal for the loading and unloading of passengers.	8
shipyard	A place where ships are built or repaired	9
container terminal	A terminal for container ships.	10
bulk terminal	A terminal for the handling of bulk materials such as iron ore, coal, etc.	11
ship lift	A platform powered by synchronous electric motors (for example syncrolift) used to lift vessels (larger than boats) in and out of the water.	12
straddle carrier	A wheeled vehicle designed to lift and carry containers or vessels within its own framework.	13
service harbour	A harbour within the floating equipment (dredges, tugs...) of harbour services are stationed.	14
pilotage service	The services of a person who directs the movements of a vessel through pilot waters, usually a person who has demonstrated extensive knowledge of channels, aids to navigation, dangers to navigation, etc., in a particular area and is licensed for that area, are available.	15

3.28 Category of hulk

name	Category of hulk
definition	Classification of an old or unseaworthy ship used for a new function.
code	categoryOfHulk
remarks	None
alias	CATHLK
valueType	enumeration

listedValues

label	definition	code
floating restaurant	A permanently moored floating structure, such as an old ship, used as a restaurant.	1
historic ship	A ship of historical interest permanently moored as a tourist attraction.	2
floating museum	A permanently moored floating structure (for example: an old ship) that is used as a museum.	3

floating accommodation	A permanently moored floating structure (for example: an old ship) that is used for accommodation.	4
floating breakwater	A permanently moored floating structure, often constructed from old ships, used as a breakwater.	5
casino	A permanently moored floating structure, such as an old ship, used as a casino boat.	6
training vessel	A permanently moored floating structure, often constructed from old ships, used for training purposes.	7

3.29 Category of ice

name	Category of ice
definition	Classification of ice
code	categoryOfIce
remarks	Ice is the topic of another group and is subject to a future extension to this document.
alias	CATICE
valueType	enumeration

listedValues

label	**definition**	**code**
fast ice	Sea ice which remains fast, generally in the position where originally formed, and which may attain a considerable thickness.	1
glacier	A mass of snow and ice continuously moving from higher to lower ground or, if afloat, continuously spreading.	5
polar ice	Sea ice that is more than one year old (in contrast to winter ice). The WMO code defines polar ice as any sea ice more than one year old and more than 3 metres thick.	8

3.30 Category of installation buoy

name	Category of installation buoy
definition	Classification of fixed installation buoy
code	categoryOfInstallationBuoy
remarks	None
alias	CATINB
valueType	enumeration

listedValues

label	definition	code
catenary anchor leg mooring(CALM)	Incorporates a large buoy which remains on the surface at all times and is moored by 4 or more anchors. Mooring hawsers and cargo hoses lead from a turntable on top of the buoy, so that the buoy does not turn as the ship swings to wind and stream.	1
single buoy mooring (SBM)	A mooring structure used by tankers to load and unload in port approaches or in offshore oil and gas fields.	2

3.31 Category of landmark

name	Category of landmark
definition	Classification of prominent cultural and natural features in the landscape
code	categoryOfLandmark
remarks	None
alias	CATLMK
valueType	enumeration

listedValues

label	definition	code
cairn	A mound of stones, usually conical or pyramidal, raised as a landmark or to designate a point of importance in surveying.	1
cemetery	An area of land for burying the dead.	2
chimney	A vertical structure containing a passage or flue for discharging smoke and gases.	3
dish aerial	A parabolic aerial for the receipt and transmission of high frequency radio signals.	4
flagstaff (flagpole)	A staff or pole on which flags are raised.	5
flare stack	A tall structure used for burning-off waste oil or gas.	6
mast	A straight vertical piece of timber or a hollow cylinder.	7
windsock	A tapered fabric sleeve mounted so as to catch and swing with the wind, thus indicating the wind direction.	8
monument	A structure erected or maintained as a memorial to a person or event.	9
column (pillar)	A cylindrical or slightly tapering body of considerably greater length than diameter erected vertically.	10
memorial plaque	A slab of metal, usually ornamented, erected as a memorial to a person or event.	11

obelisk	A tapering shaft usually of stone or concrete, square or rectangular in section, with a pyramidal apex.	12
statue	A representation of a human, animal or fantasy figure in marble, bronze, etc.	13
cross	A monument, or other structure in form of a cross.	14
dome	A landmark comprising a hemispherical or spheroidal shaped structure	15
radar scanner	A device used for directing a radar beam through a search pattern	16
tower	A relatively tall structure which may be used for observation, support, storage or communication etc.	17
windmill	A wind driven system of vanes attached to a tower like structure (excluding wind-generated power plants).	18
spire/minaret	A tall conical or pyramid-shaped structure often built on the roof or tower of a building, especially a church or mosque.	20
large rock or boulder on land	An isolated rocky formation or a single large stone	21
triangulation mark	A recoverable point on the earth, whose geographic position has been determined by angular methods with geodetic instruments. A triangulation point is a selected point, which has been marked with a station mark, or it is a conspicuous natural or artificial feature.	22
boundary mark	A marker identifying the location of a surveyed boundary line.	23
observation wheel	A bloody big Ferris Wheel	24
torii	A form of decorative gateway or portal, consisting of two upright wooden posts connected at the top by two horizontal crosspieces, commonly found at the entrance to Shinto temples.	25

3.32 Category of land region

name	Category of land region
definition	General terms for describing landscapes.
code	categoryOfLandRegion
remarks	None
alias	CATLND
valueType	enumeration

listedValues

label	definition	code
fen	A type of bog, especially a low-lying area, wholly or partly covered with water and dominated by grasslike plants, grasses, sedges and reeds.	1

marsh	An area of wet, often spongy ground that is subject to frequent flooding or tidal inundations, but not considered to be continually under water. It is characterized by the growth of non woody plants and by the lack of trees.	2
moor/bog	Wet spongy ground consisting of decaying vegetation, which retains stagnant water, too soft to bear the weight of any heavy body.	3
heathland	A tract of wasteland peat bog, usually covered by a low scrubby growth, but may have scattered small open water holes.	4
mountain range	A series of connected and aligned mountains or mountain ridges.	5
lowlands	Low and relatively level land at a lower elevation than adjoining areas.	6
canyon lands	A relatively narrow, deep depression with steep sides, the bottom of which generally has a continuous slope.	7
paddy field	A piece of land set aside for crops which are periodically flooded (e.g. rice paddy).	8
agricultural land	Areas used for cultivation of the soil, the breeding of livestock etc. and general farming.	9
savanna/grassland	A large area of relatively flat natural pasture.	10
parkland	A piece of ground kept for ornament and/or recreation or maintained in its natural state as a public property or area.	11
swamp	An area of spongy land saturated with water. It may have a shallow covering of water, usually with a considerable amount of vegetation appearing above the surface.	12
landslide	(or landslip). The sliding down of a mass of land on a mountain or cliff-side land which has so fallen.	13
lava flow	The substance that results from the cooling of molten rock.	14
salt pan	Shallow pools of brackish water used for the natural evaporation of sea water to obtain salt.	15
moraine	Any accumulation of loose material deposited by a glacier	16
crater	Bowl-shaped cavity, at the summit or on the side of a volcano.	17
cave	A natural subterranean chamber or series of chambers open to the earths surface.	18
rock column or pinnacle	Any high tower or spire-shaped pillar of rock, alone or cresting a summit.	19
cay	A small insular feature usually with scant vegetation usually of sand or coral. Often applied to smaller coral shoals.	20
wadi	A watercourse that is permanently dry or dry except for the rainy season.	21

3.33 Category of lateral mark

name	Category of lateral mark
definition	Classification of lateral buoys

code	categoryOfLateralMark
remarks	There are two international buoyage regions, A and B, between which lateral marks differ. The buoyage region is encoded using the separate attribute MARSYS. When top-marks, retro reflectors and/or lights are fitted to these marks, they are encoded as separate objects.
alias	CATLAM
valueType	enumeration

listedValues

label	definition	code
port-hand lateral mark	indicates the port boundary of a navigational channel or suggested route when proceeding in the 'conventional direction of buoyage'.	1
starboard-hand lateral mark	ndicates the starboard boundary of a navigational channel or suggested route when proceeding in the 'conventional direction of buoyage'.	2
preferred channel to starboard lateral mark	at a point where a channel divides, when proceeding in the 'conventional direction of buoyage', the preferred channel (or primary route) is indicated by a modified port-hand lateral mark.	3
preferred channel to port lateral mark	at a point where a channel divides, when proceeding in the 'conventional direction of buoyage', the preferred channel (or primary route) is indicated by a modified starboard-hand lateral mark.	4

3.34 Category of light

name	Category of light
definition	Classification of diffrent light types
code	categoryOfLight
remarks	Marine light (a light intended primarily for marine navigation) is not included in the above list. All lights are considered to be marine lights unless the attribute 'category of light' indicates otherwise.
alias	CATLIT
valueType	enumeration

listedValues

label	definition	code
leading light	A light associated with other lights so as to form a leading line to be followed.	4
aero light	An aero light is established for aeronautical navigation and may be of higher power than marine lights and visible from well offshore.	5

flood light	A broad beam light used to illuminate a structure or area.	8
strip light	A light whose source has a linear form generally horizontal, which can reach a length of several metres.	9
subsidiary light	A light placed on or near the support of a main light and having a special use in navigation.	10
spotlight	A powerful light focused so as to illuminate a small area.	11
front	Term used with leading lights to describe the position of the light on the lead as viewed from seaward.	12
rear	Term used with leading lights to describe the position of the light on the lead as viewed from seaward.	13
lower	Term used with leading lights to describe the position of the light on the lead as viewed from seaward.	14
upper	Term used with leading lights to describe the position of the light on the lead as viewed from seaward.	15
emergency	A light available as a backup to a main light which will be illuminated should the main light fail.	17
bearing light	A light which enables its approximate bearing to be obtained without the use of a compass.	18
horizontally disposed	A group of lights of identical character and almost identical position, that are disposed horizontally.	19
vertically disposed	A group of lights of identical character and almost identical position, that are disposed vertically.	20

3.35 Category of marine farm/culture

name	Category of marine farm/culture
definition	Classification of an area of water devoted to the raising, breeding, or production of a specific aquatic animal
code	categoryOfMarineFarmCulture
remarks	None
alias	CATMFA
valueType	enumeration

listedValues

label	definition	code
crustaceans	Hard shelled animals, for example crabs or lobsters.	1
edible bivalve molluscs	A two-part hinged external shell covering that contains a soft-bodied invertebrate.	2
fish	Vertebrate cold blooded animal with gills, living in water.	3

| seaweed | The general name for marine plants of the Algae class which grow in long narrow ribbons. | 4 |
| pearl culture farm | An area where pearls are artificially cultivated. | 5 |

3.36 Category of military practice area

name	Category of military practice area
definition	Classification of area by military use.
code	categoryOfMilitaryPracticeArea
remarks	None
alias	CATMPA
valueType	enumeration

listedValues

label	definition	code
torpedo exercise area	An area within which exercises are carried out with torpedoes.	2
submarine exercise area	An area within which submarine exercises are carried out.	3
firing danger area	Areas for bombing and missile exercises.	4
mine-laying practice area	An area within which mine laying exercises are carried out.	5
small arms firing range	An area for shooting pistols, rifles and machine guns etc. at a target.	6

3.37 Category of mooring/warping facility

name	Category of mooring/warping facility
definition	A place or structure to which a vessel can be secured
code	categoryOfMooringWarpingFacility
remarks	None
alias	CATMOR
valueType	enumeration

listedValues

label	definition	code

dolphin	A post or group of posts, which may support a deck, used for mooring or warping a vessel.	1
deviation dolphin	A post or group of posts, which a vessel may swing around for compass adjustment.	2
bollard	Small shaped post, mounted on a wharf or dolphin used to secure ship's lines.	3
tie-up wall	A tie-up wall is a section of wall designated for tying-up vessels awaiting transit. Bollards and mooring devices are available for both large and small ships.	4
post or pile	A long heavy timber or section of steel, wood, concrete, etc., forced into the seabed to serve as a mooring facility.	5
chain/wire/cable	A connection between two independent objects e.g. a buoy and pile or between two buoys used as a mooring facility.	6
mooring buoy	A buoy secured to the bottom by permanent moorings with means for mooring a vessel by use of its anchor chain or mooring lines.	7

3.38 Category of navigation line

name	Category of navigation line
definition	Classification of route guidance given to vessels
code	categoryOfNavigationLine
remarks	None
alias	CATNAV
valueType	enumeration

listedValues

label	definition	code
clearing line	A straight line that marks the boundary between a safe and a dangerous area or that passes clear of a navigational danger.	1
transit line	A line passing through one or more fixed marks.	2
leading line bearing a recommended track	A line passing through one or more clearly defined objects, along the path of which a vessel can approach safely up to a certain distance off.	3

3.39 Category of obstruction

name	Category of obstruction
definition	Classification of objects that impead movement
code	categoryOfObstruction
remarks	None

alias	CATOBS
valueType	enumeration

listedValues

label	definition	code
snag/stump	A tree, branch or broken pile embedded in the ocean floor, river or lake bottom and not visible on the surface, forming thereby a hazard to vessels.	1
wellhead	A submarine structure projecting some distance above the seabed and capping a temporarily abandoned or suspended oil or gas well.	2
diffuser	A structure on an outfall through which liquids are discharged. The structure will usually project above the level of the outfall and can be an obstruction to navigation.	3
crib	A permanent structure set in the water, framed with wooden beams and filled with rocks or boulders. They are used to anchor log booms or support other constructions, e.g. submerged outfalls, diffusers etc. They may always be dry, submerged or cover and uncover.	4
fish haven	Areas established by private interests, usually sport fishermen, to simulate natural reefs and wrecks that attract fish. The reefs are constructed by dumping assorted junk in areas which may be of very small extent or may stretch a considerable distance along a depth contour.	5
foul area	An area of numerous unidentified dangers to navigation. The area serves as a warning to the mariner that all dangers are not identified individually and that navigation through the area may be hazardous. Commonly used to encode areas behind danger lines on navigation charts.	6
ice boom	Floating barriers, anchored to the bottom, used to deflect the path of floating ice in order to prevent the obstruction of locks, intakes, etc., and to prevent damage to bridge piers and other structures.	8
ground tackle	Equipment such as anchors, concrete blocks, chains and cables, etc., used to position floating structures such as trot and mooring buoys etc.	9
boom	A floating barrier used to protect a river or harbour mouth or to create a sheltered area for storage purposes.	10
wave energy device	A device to extract energy from the surface motion of ocean waves or from pressure fluctuations below the surface.	12
subsurface ocean data acquisition system	A submerged device, not being a ship, together with its appurtenant equipment, deployed at sea essentially for the purpose of collecting, storing or transmitting samples or data relating to the marine environment.	13
artificial reef	A reef made of artificial materials to attract sea life.	14
template	A structure placed on the sea floor below a drilling rig to guide the drill.	15

manifold	A large steel structure up to 20 metres in height above the sea floor, or a steel frame secured to the sea floor with piles to anchor the end of a submarine pipeline, for delivery to a production platform.	16
submerged pingo	A hill of soil-covered ice pushed up by hydrostatic pressure in an area of permafrost that is located underwater.	17
remains of platform	The distributed remains of a platform	18
scientific instrument	An instrument used for scientific purposes	19
underwater turbine	Any of various machines having a rotor, usually with vanes or blades, driven by the pressure, momentum, or reactive thrust of a moving fluid, as steam, water, hot gases, or air, either occurring in the form of free jets or as a fluid passing through and entirely filling a housing around the rotor and is located underwater	20

3.40 Category of offshore platform

name	Category of offshore platform
definition	Classification of an offshore raised structure
code	categoryOfOffshorePlatform
remarks	None
alias	CATOFP
valueType	enumeration

listedValues

label	definition	code
oil derrick/rig	A temporary mobile structure, either fixed or floating, used in the exploration stages of oil and gas fields.	1
production platform	A term used to indicate a permanent offshore structure equipped to control the flow of oil or gas. It does not include entirely submarine structures.	2
observation/research platform	A platform from which one's surroundings or events can be observed, noted or recorded such as for scientific study.	3
articulated loading platform (ALP)	A metal lattice tower, buoyant at one end and attached at the other by a universal joint to a concrete filled base on the sea bed. The platform may be fitted with a helicopter platform, emergency accommodation and hawser/hose retrieval.	4
single anchor leg mooring (SALM)	A rigid frame or tube with a buoyancy device at its upper end , secured at its lower end to a universal joint on a large steel or concrete base resting on the sea bed, and at its upper end to a mooring buoy by a chain or wire.	5
mooring tower	A platform secured to the sea bed and surmounted by a turntable to which ships moor.	6

artificial island	A man-made structure usually built for the exploration or exploitation of marine resources, marine scientific research, tidal observations, etc.	7
floating production, storage and off-loading vessel (FPSO)	An offshore oil/gas facility consisting of a moored tanker/barge by which the product is extracted, stored and exported.	8
accommodation platform	A platform used primarily for eating, sleeping and recreation purposes.	9
navigation, communication and control buoy (NCCB)	A floating structure with control room, power and storage facilities, attached to the sea bed by a flexible pipeline and cables.	10
floating oil tank	A floating structure, anchored to the seabed, for storing oil.	11

3.41 Category of offshore production area

name	Category of offshore production area
definition	Classification of an area at sea within which there are production facilities.
code	categoryOfOffshoreProductionArea
remarks	None
alias	CATPRA
valueType	enumeration

listedValues

label	definition	code
offshore wind farm	A collection of wind motors that are collected and are organized as a single power generation unit.	1
wave farm	A collection of collocated devices which harness wave energy and are organized as a single power generation unit.	2
current farm	A collection of collocated devices which harness tidal energy and are organized as a single power generation unit.	3
tank farm	A collection of collocated large-capacity tanks in which petroleum, natural gas, or liquid petrochemicals are stored.	4
seabed material extraction area	An area in which materials forming, or under, the seabed are removed	5

3.42 Category of oil barrier

| name | Category of oil barrier |
| definition | Classification of barriers used to prevent the unwanted spread of oil across the sea surface. |

code	categoryOfOilBarrier
remarks	None
alias	CATOLB
valueType	enumeration

listedValues

label	definition	code
oil retention (high pressure pipe)	A pipe with holes from which air blows. When the air bubbles reach the surface they form a barrier which prevents the spread of oil.	1
floating oil barrier	A floating tube shaped structure, with a curtain (2 metre) hanging under it, below the surface, which prevents the spread of oil.	2

3.43 Category of pile

name	Category of pile
definition	Classification of pile, driven into the earth as a foundation or support for a structure
code	categoryOfPile
remarks	None
alias	CATPLE
valueType	enumeration

listedValues

label	definition	code
stake	An elongated wood or metal pole embedded in the bottom to serve as a marker or support.	1
post	A vertical piece of timber, metal or concrete forced into the earth or sea bed.	3
tripodal	A single structure comprising 3 or more piles held together (sections of heavy timber, steel or concrete), and forced into the earth or sea bed.	4
piling	A number of piles, usually in a straight line, and usually connected or bolted together	5
area of piles	A number of piles, usually in a straight line, but not connected by structural members	6
pipe	A hollow cylinder of metal, wood, or other material, used for the conveyance of water, gas, steam, petroleum, etc.	7

3.44 Category of pilot boarding place

name	Category of pilot boarding place
definition	Classification of pilot boarding method.
code	categoryOfPilotBoardingPlace
remarks	None
alias	CATPIL
valueType	enumeration

listedValues

label	definition	code
boarding by pilot-cruising vessel	Pilot boards from a cruising vessel.	1
boarding by helicopter	Pilot boards by helicopter which comes out from the shore.	2
pilot comes out from shore	Pilot boards from a vessel which comes out from the shore on request.	3

3.45 Category of pipeline/pipe

name	Category of pipeline/pipe
definition	Classification of a pipe systems use
code	categoryOfPipelinePipe
remarks	None
alias	CATPIP
valueType	enumeration

listedValues

label	definition	code
outfall pipe	A pipe (generally a sewer or drainage pipe) discharging in to the sea or a river.	2
intake pipe	A pipe taking water from a river or other body of water, to drive a mill or supply a canal, waterworks, etc.	3
sewer	A pipe in a sewage system for carrying water or sewage to a disposal area.	4
bubbler system	A submerged pipe from which warm water bubbles, preventing the surrounding water from freezing.	5

| supply pipe | A pipe used for supplying of gas or liquid product. | 6 |
| bubble curtain | A high pressure sub-surface pipeline (usually on the sea floor) with holes emitting a curtain of air bubbles. Its uses include: the prevention of acoustic transmission through the water; preventing the spread of surface debris or floating liquids; controlling the movement of fish. Also known as a pneumatic pipe or "bubbler". | 7 |

3.46 Category of preference

name	Category of preference
definition	The selection of a first choice compared to other options.
code	categoryOfPreference
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
primary	The preferred first choice used in normal conditions.	1
alternate	The preferred choice in extraordinary conditions.	2

3.47 Category of production area

name	Category of production area
definition	Classification of an area set aside for heavy industry
code	categoryOfProductionArea
remarks	None
alias	CATPRA
valueType	enumeration

listedValues

label	definition	code
quarry	An excavation in solid rock from which building stone, limestone, etc. is removed.	1
mine	An excavation in the earth for the purpose of extracting earth materials.	2

stockpile	A reserve stock of material, equipment or other supplies.	3
power station area	A stationary plant containing apparatus for large-scale conversion of some form of energy (hydraulic, steam, chemical, nuclear, etc.) into electrical energy.	4
refinery area	A system of process units used to convert crude petroleum into fuels, lubricants and other petroleum-derived products.	5
timber yard	A storage area for wood used for building, carpentry or joinery.	6
factory area	A group of buildings where goods are manufactured.	7
tank farm	An area in which a number of large-capacity storage tanks are located, generally used for crude oil or petroleum products.	8
wind farm	An area in which numerous wind motors are located.	9
slag heap/spoil heap	Hill of refuse from a mine, industrial plant etc. on land	10
production plant	A plant where production takes place	11

3.48 Category of pylon

name	Category of pylon
definition	Classification of the pylon based on the service its supporting.
code	categoryOfPylon
remarks	None
alias	CATPYL
valueType	enumeration

listedValues

label	definition	code
power transmission pylon/pole	A vertical construction consisting, for example, of a steel framework or of pre-stressed concrete, to support a power transmission cable or line.	1
telephone/telegraph pylon/pole	A pylon or pole used to support a telephone or telegraph line.	2
aerial cableway/sky pylon	A tower or pylon supporting steel cables which convey cars, buckets, or other suspended carrier units.	3
bridge pylon/tower	A tower, abutment or pylon from which a bridge deck is suspended.	4
bridge pier	A support in the form of a pillar or pier for the spans of a bridge.	5

3.49 Category of radar station

name	Category of radar station
definition	Classification of radar station based on the services offered.
code	categoryOfRadarStation
remarks	None
alias	CATRAS
valueType	enumeration

listedValues

label	definition	code
radar surveillance station	A radar station established for traffic surveillance.	1
coast radar station	A shore-based station which the mariner can contact by radio to obtain a position.	2

3.50 Category of radar transponder beacon

name	Category of radar transponder beacon
definition	Classification of radar transponder beacon based on fuctionality.
code	categoryOfRadarTransponderBeacon
remarks	None
alias	CATRTB
valueType	enumeration

listedValues

label	definition	code
ramark, radar beacon transmitting continuously	A radar marker beacon which continuously transmits a signal appearing as a radial line on a radar screen, the line indicating the direction of the beacon. Ramarks are intended primarily for marine use. The name 'ramark' is derived from the words radar marker.	1
racon, radar transponder beacon	A radar beacon which returns a coded signal which provides identification of the beacon, as well as range and bearing. The range and bearing are indicated by the location of the first character received on the radar screen. The name 'racon' is derived from the words radar beacon.	2

leading racon/radar transponder beacon	A radar beacon that may be used (in conjunction with at least one other radar beacon) to indicate a leading line.	3

3.51 Category of radio station

name	Category of radio station
definition	Classification of radio services offered by a radio station.
code	categoryOfRadioStation
remarks	A radiobeacon is a radio transmitter which emits a distinctive or characteristic signal on which a bearing may be taken.
alias	CATROS
valueType	enumeration

listedValues

label	definition	code
radio direction-finding station	A radio station intended to determine only the direction of other stations by means of transmission from the latter.	5
differential GNSS	A radiobeacon transmitting DGPS correction signals.	10
Toran	Toran is an electronic position fixing system used mainly by aircraft.	11
Chaika (Chayka)	Chaika is a low frequency electronic position fixing system using pulsed transmissions at 100 Khz.	14
radio telephone station	The equipment needed at one station to carry on two way voice communication by radio waves only.	19
AIS base station	An onshore AIS unit that monitors traffic in the waterways.	20

3.52 Category of recommended track

name	Category of recommended track
definition	Classification of track based on defining navigational marks
code	categoryOfRecommendedTrack
remarks	None
alias	CATTRK
valueType	enumeration

listedValues

label	definition	code
based on a system of fixed marks	A straight route (known as a recommended track, range or leading line), which comprises at least two structures (usually beacons or daymarks) and/or natural features, which may carry lights and/or top-marks. The structures/features are positioned so that when observed to be in line, a vessel can follow a known bearing with safety.	1
not based on a system of fixed marks	A route (known as a recommended track or preferred route) which is not based on a series of structures or features in line.	2

3.53 Category of rescue station

name	Category of rescue station
definition	Classification of aid station based on life saving equipment
code	categoryOfRescueStation
remarks	None
alias	CATRSC
valueType	enumeration

listedValues

label	definition	code
rescue station with lifeboat	A place where equipment for saving life at sea is maintained the type of lifeboat may vary from fast, long distance boats to inflatable inshore boats.	1
rescue station with rocket	Rocket - a pyrotechnic projectile used for signalling or for life-saving purposes.	2
refuge for shipwrecked mariners	Shelter or protection from danger or distress at sea.	4
refuge for intertidal area walkers	Shelter or protection from danger in areas exposed to extreme and sudden tides or tidal streams.	5
lifeboat lying at a mooring	A place where a lifeboat is moored ready for use.	6
aid radio station	A radio station reserved for emergency situations, might also be a public telephone.	7
first aid equipment	A place where first aid equipment is available.	8

3.54 Category of restricted area

name	Category of restricted area
definition	The official legal status of each kind of restricted area defines the kind of restriction(s), e.g., the restriction for a 'game preserve' may be 'entering prohibited', the restriction for an 'anchoring prohibition area' is 'anchoring prohibited'.
code	categoryOfRestrictedArea
remarks	None
alias	CATREA
valueType	enumeration

listedValues

label	definition	code
offshore safety zone	The area around an offshore installation within which vessels are prohibited from entering without permission special regulations protect installations within a safety zone and vessels of all nationalities are required to respect the zone.	1
nature reserve	A tract of land managed so as to preserve it's flora, fauna, physical features, etc.	4
bird sanctuary	A place where birds are bred and protected.	5
game reserve	A place where wild animals or birds hunted for sport or food are kept undisturbed for private use.	6
seal sanctuary	A place where seals are protected.	7
degaussing range	An area, usually about two cables diameter, within which ships' magnetic fields may be measured sensing instruments and cables are installed on the sea bed in the range and there are cables leading from the range to a control position ashore.	8
military area	An area controlled by the military in which restrictions may apply.	9
historic wreck area	An area around certain wrecks of historical importance to protect the wrecks from unauthorized interference by diving, salvage or deposition (including anchoring).	10
navigational aid safety zone	An area around a navigational aid which vessels are prohibited from entering.	12
minefield	An area laid and maintained with explosive mines for defence or practice purposes.	14
swimming area	An area in which people may swim and therefore vessel movement may be restricted.	18
waiting area	An area reserved for vessels waiting to enter a harbour.	19
research area	An area where marine research takes place.	20

dredging area	An area where dredging is taking place.	21
fish sanctuary	A place where fish are protected.	22
ecological reserve	A tract of land managed so as to preserve the relation of plants and living creatures to each other and to their surroundings.	23
no wake area	An area in which a vessels' speed must be reduced in order to reduce the size of the wake it produces.	24
swinging area	An area where vessels turn.	25
environmentally sensitive sea area	A generic term which may be used to describe a wide range of areas, considered sensitive for a variety of environmental reasons.	27
particularly sensitive sea area	An area that needs special protection through action by IMO because of its significance for regional ecological, socio-economic or scientific reasons and because it may be vulnerable to damage by international shipping activities.	28
disengagement area	An area near a fairway where vessels can go to clear the way or make an about turn and possibly return to a waiting area when nautical conditions impose it.	29
port security area	An area in which defence, law and treaty enforcement, and counter-terrorism activities that fall within the port and maritime domain apply.	30
coral sanctuary	A place where coral is protected	31
recreation area	An area within which recreational activities regularly take place and therefore vesselmovement may be restricted.	32

3.55 Category of road

name	Category of road
definition	Classification of a road based on size
code	categoryOfRoad
remarks	None
alias	CATROD
valueType	enumeration

listedValues

label	definition	code
motorway	A main road with separate carriageways and limited access, specially constructed and controlled for fast motor traffic.	1
major road	A hard surfaced (metalled) road a main through route.	2
minor road	A secondary road for local traffic.	3

track/path	Track - a rough path or way formed by use path - a way or track laid down for walking or made by continual treading.	4
major street	A main road, in an urban area, for through traffic.	5
minor street	A secondary road, in an urban area, for local traffic.	6

3.56 Category of runway

name	Category of runway
definition	Classification of runway based on primary aircraft type.
code	categoryOfRunway
remarks	None
alias	CATRUN
valueType	enumeration

listedValues

label	definition	code
aeroplane runway	A level stretch of land where aeroplanes take off and land.	1
helicopter landing pad	A site on which helicopters may land and take off.	2

3.57 category of schedule

name	category of schedule
definition	Describes the type of schedule, e.g., opening, closure, etc.
code	categoryOfSchedule
remarks	None
alias	CATSDL
valueType	enumeration

listedValues

label	definition	code
normal operation	The service, office, is open, fully manned, and operating normally, or the area is accessible as usual.	1
closure	The service, office, or area is closed.	2

unmanned operation	The service is available but not manned.	3

3.58 Category of sea area

name	Category of sea area
definition	Classification of an area based on its physical characteristics
code	categoryOfSeaArea
remarks	
alias	CATSEA
valueType	enumeration

listedValues

label	definition	code
gat	A natural or artificial passage or channel through shoals or steep banks, or across a line of banks lying between two channels.	2
bank	An elevation over which the depth of water is relatively shallow, but normally sufficient for safe surface navigation.	3
deep	In oceanography, an obsolete term which was generally restricted to depths greater than 6,000 m.	4
bay	An indentation in the coastline.	5
trench	A long narrow, characteristically very deep and asymmetrical depression of the sea floor, with relatively steep sides.	6
basin	A depression, characteristically in the deep sea floor, more or less equidimensional in plan and of variable extent.	7
mud flats	A level tract of land, as the bed of a dry lake or an area frequently uncovered at low tide. Usually in plural.	8
reef	Rock lying at or near the sea surface that may constitute a hazard to surface navigation.	9
ledge	A rocky formation continuous with and fringing the shore.	10
canyon	A relatively narrow, deep depression with steep sides, the bottom of which generally has a continuous slope, developed characteristically on some continental slopes.	11
narrows	A navigable narrow part of a bay, strait, river, etc.	12
shoal	An offshore hazard to surface navigation that is composed of unconsolidated material.	13
knoll	A relatively small isolated elevation of a rounded shape.	14

ridge	(a) A long, narrow elevation with steep sides. (b) A long, narrow elevation often separating ocean basins. (c) The linked major mid-oceanic mountain systems of global extent.	15
seamount	A large isolated elevation, greater than 1000m in relief above the sea floor, characteristically of conical form.	16
pinnacle	Any high tower or spire-shaped pillar or rock or coral, alone or cresting a summit. It may extend above the surface of the water. It may or may not be a hazard to surface navigation.	17
abyssal plain	An extensive, flat, gently sloping or nearly level region at abyssal depths.	18
plateau	A flat or nearly flat area of considerable extent, dropping off abruptly on one or more sides.	19
spur	A subordinate elevation, ridge or rise projecting outward from a larger feature.	20
shelf	A zone adjacent to a continent (or around an island) and extending from the low water line to a depth at which there is usually a marked increase of slope towards oceanic depths.	21
trough	A long depression of the sea floor characteristically flat bottomed and steep sided and normally shallower than a trench.	22
saddle	A broad pass, resembling in shape a riding saddle, in a ridge or between contiguous seamounts.	23
abyssal hills	A tract, on occasion extensive, of low (100-500m) elevations on the deep sea floor.	24
apron	A gently dipping featureless surface, underlain primarily by sediment, at the base of any steeper slope.	25
archipelagic apron	A gentle slope with a generally smooth surface on the sea floor, characteristically found around groups of islands or seamounts.	26
borderland	A region adjacent to a continent, normally occupied by or bordering a shelf, that is highly irregular with depths well in excess of those typical of a shelf.	27
continental margin	The zone, generally consisting of shelf, slope and rise, separating the continent from the abyssal plain or deep sea floor.	28
continental rise	A gentle slope rising from the oceanic depths towards the foot of a continental slope.	29
escarpment	An elongated and comparatively steep slope separating or gently sloping areas.	30
fan	A relatively smooth, fan-like, depositional feature normally sloping away from the outer termination of a canyon or canyon system.	31
fracture zone	An extensive linear zone of irregular topography of the sea floor, characterized by steep-sided or asymmetrical ridges, troughs or escarpments.	32
gap	A narrow break in a ridge or a rise.	33
guyot	A seamount having a comparatively smooth flat top.	34
hill	A small isolated elevation (see also abyssal hills).	35

hole	A local depression, often steep sided, of the sea floor.	36
levee	A depositional embankment bordering a canyon, valley or deep-sea channel.	37
median valley	The axial depression of the mid-oceanic ridge system.	38
moat	An annular depression that may not be continuous, located at the base of many seamounts, islands and other isolated elevations.	39
mountains	A large and complex grouping of ridges and seamounts.	40
peak	A prominent elevation either pointed or of a very limited extent across the summit.	41
province	A region identifiable by a group of similar physiographic features whose characteristics are markedly in contrast with surrounding areas.	42
rise	(a) A broad elevation that rises gently and generally smoothly from the sea floor. (b) The linked major mid-oceanic mountain systems of global extent.	43
sea channel	A continuously sloping, elongated narrow depression commonly found in fans or abyssal plains and customarily bordered by levees on one or both sides.	44
seamount chain	Several seamounts in linear or arcuate alignment. Also called: seamounts.	45
shelf-edge	A narrow zone at the seaward margin of a shelf along which is a marked increase of slope.	46
sill	A sea floor barrier of relatively shallow depth restricting water movement between basins.	47
slope	The slope seaward from the shelf edge to the upper edge of a continental rise or the point where there is a general reduction in slope.	48
terrace	A relatively flat horizontal or gently inclined surface, sometimes long and narrow, which is bounded by a steeper ascending slope on one side and by a steeper descending slope on the opposite side.	49
valley	A relatively shallow, wide depression, the bottom of which usually has a continuous gradient. This term is generally not used for features that have canyon-like characteristics for a significant portion of their extent.	50
canal	An artificial water course used for navigation.	51
lake	A large body of water entirely surrounded by land.	52
river	A relatively large natural stream of water.	53
reach	A straight section of a river, especially a navigable river between two bends or an arm of the sea extending into the land	54
intertidal cay	A low, flat island of sand, coral, etc. awash or submerged at high water.	55
submarine volcano	A vent in the earth's crust through which lava, steam, ashes, etc., are expelled, either continuously or at irregular intervals that is located underwater	56

3.59 Category of shoreline construction

name	Category of shoreline construction
definition	Classification of shoreline construction based on use
code	categoryOfShorelineConstruction
remarks	None
alias	CATSLC
valueType	enumeration

listedValues

label	definition	code
breakwater	A structure protecting a shore area, harbour, anchorage, or basin from waves.	1
groyne (groin)	A low artificial wall-like structure of durable material extending from the land to seaward for a particular purpose, such as to prevent coast erosion	2
mole	A form of breakwater alongside which vessels may lie on the sheltered side only in some cases it may lie entirely within an artificial harbour, permitting vessels to lie along both sides.	3
pier (jetty)	A long, narrow structure extending into the water to afford a berthing place for vessels, to serve as a promenade, etc.	4
promenade pier	A pier built only for recreational purposes.	5
wharf (quay)	A structure serving as a berthing place for vessels.	6
training wall	A wall or bank, often submerged, built to direct or confine the flow of a river or tidal current, or to promote a scour action.	7
rip rap	A layer of broken rock, cobbles, boulders, or fragments of sufficient size to resist the erosive forces of flowing water and wave action.	8
revetment	Facing of stone or other material, either permanent or temporary, placed along the edge of a stream, river or canal to stabilize the bank and to protect it from the erosive action of the stream.	9
sea wall	An embankment or wall for protection against waves or tidal action along a shore or water front.	10
landing steps	Steps at the shoreline as the connection between land and water on different levels.	11
ramp	A sloping structure that can either be used, as a landing place, at variable water levels, for small vessels, landing ships, or a ferry boat, or for hauling a cradle carrying a vessel, which may include rails.	12
slipway	The prepared and usually reinforced inclined surface on which keel- and bilge-blocks are laid for supporting a vessel under construction.	13
fender	A protective structure designed to cushion the impact of a vessel and prevent damage.	14

solid face wharf	A wharf consisting of a solid wall of concrete, masonry, wood etc., such that the water cannot circulate freely under the wharf. The type of construction affects ship-handling for example, a solid face wharf may give shelter from tidal streams, but under certain circumstances a cusion of water may build up between such a wharf and a ship attempting to berth at it, causing difficulties in ship handling.	15
open face wharf	A wharf supported on piles or other structures which allow free circulation of water under the wharf.	16
log ramp	An inclined plane used to dump logs into the water for transport, or to haul logs out of the water for processing.	17
swimming facility	An artificial pool or swimming enclosure, especially one in the open air, which may beconstructed of wire mesh or heavy netting supported by cables, buoys or piles, for swimming in.	20

3.60 Category of signal station, traffic

name	Category of signal station, traffic
definition	Classification of station based on the traffic service provided
code	categoryOfSignalStationTraffic
remarks	None
alias	CATSIT
valueType	enumeration

listedValues

label	definition	code
port control	A signal station for the control of vessels within a port.	1
port entry and departure	A signal station for the control of vessels entering or leaving a port.	2
International Port Traffic	A signal station displaying International Port Traffic signals.	3
berthing	A signal station for the control of vessels when berthing.	4
dock	A signal station for the control of vessels entering or leaving a dock.	5
lock	A signal station for the control of vessels entering or leaving a lock.	6
flood barrage	A signal station for the control of vessels wishing to pass through a flood control barrage.	7
bridge passage	A signal station for the control of vessels wishing to pass under a bridge.	8
dredging	A signal station indicating when dredging is in progress.	9
traffic control light	Visual signal lights placed in a waterway to indicate to shipping the movements authorised at the time at which they are shown.	10

3.61 Category of signal station, warning

name	Category of signal station, warning
definition	Classification of station based on the warning service provided
code	categoryOfSignalStationWarning
remarks	None
alias	CATSIW
valueType	enumeration

listedValues

label	definition	code
danger	A signal or message warning of the presence of a danger to navigation.	1
maritime obstruction	A signal or message warning of the presence of a maritime obstruction.	2
cable	A signal or message warning of the presence of a cable.	3
military practice	A signal or message warning of activity in a military practice area.	4
distress	A station that may receive or transmit distress signals.	5
weather	A visual signal displayed to indicate a weather forecast.	6
storm	A signal or message conveying information about storm conditions.	7
ice	A signal or message conveying information about ice conditions.	8
time	An accurate signal marking a specified time or time interval. It is used primarily for determining errors of timepieces. Such signals are usually sent from an observatory by radio or telegraph, but visual signals are used at some ports.	9
tide	A signal or message conveying information on tidal conditions in the area in question.	10
tidal stream	A signal or message conveying information on condition of tidal currents in the area in question.	11
tide gauge	A device for measuring the height of tide. A graduated staff in a sheltered area where visual observations can be made or it may consist of an elaborate recording instrument making a continuous graphic record of tide height against time. Such an instrument is usually actuated by a float in a pipe communicating with the sea through a small hole which filters out shorter waves.	12
tide scale	A visual scale which directly shows the height of the water above chart datum or a local datum.	13
diving	A signal or message warning of diving activity	14
water level gauge	A device for measuring and conveying information about the water level (non-tidal) in the area in question.	15

3.62 Category of silo/tank

name	Category of silo/tank
definition	Classification based on the product for which a silo or tank is used.
code	categoryOfSiloTank
remarks	None
alias	CATSIL
valueType	enumeration

listedValues

label	definition	code
silo in general	A generally cylindrical tower used for storing fodder or grain.	1
tank in general	A fixed structure for storing liquids.	2
grain elevator	A storage building for grain. Usually a tall frame, metal or concrete structure with an especially compartmented interior.	3
water tower	A tower with an elevated container used to hold water.	4

3.63 Category of slope

name	Category of slope
definition	Classification of a stretch of ground forming a natural or artificial incline
code	categoryOfSlope
remarks	None
alias	CATSLO
valueType	enumeration

listedValues

label	definition	code
cutting	An excavation through high ground for a road, canal, etc.	1
embankment	An artificial elevation constructed from earth, stone, etc. carrying a road, railway or similar or serving to dam water.	2
dune	A mound, ridge or hill of drifted material on the sea coast or in a desert.	3

hill	A small isolated elevation, smaller than a mountain.	4
pingo	A dome-shaped hill formed in a permafrost area when the hydrostatic pressure of freezing ground water causes the upheaval of a layer of frozen ground.	5
cliff	Land rising abruptly for a considerable distance above the water or surrounding land.	6
scree	Rocky debris on the side or at the foot of a mountain forming a steep stony slope.	7

3.64 Category of small craft facility

name	Category of small craft facility
definition	Classification of services and facilities for the small craft user
code	categoryOfSmallCraftFacility
remarks	None
alias	CATSCF
valueType	enumeration

listedValues

label	definition	code
visitor's berth	A berth set aside for the use of visiting vessels.	1
nautical club	A club for mariners generally associated with other small craft facilities.	2
boat hoist	A hoist for lifting boats out of the water.	3
sailmaker	A place where sails are made or may be taken for repair.	4
boatyard	A place on shore where boats may be built, stored and repaired.	5
public inn	A public house providing food, drink and accommodation.	6
restaurant	A commercial establishment serving food.	7
chandler	A dealer in ships' supplies.	8
provisions	A place where food and other such supplies are available.	9
doctor	A place where a doctor is available to provide medical attention.	10
pharmacy	A place where medical drugs are dispensed.	11
water tap	A place where fresh water is available.	12
fuel station	A place where fuel is available.	13
electricity	A place where a connection to an electrical supply is available.	14

bottle gas	A place where bottled gas is available.	15
showers	A place where showers are available.	16
launderette	A place where there are facilities for washing clothes.	17
public toilets	A place where toilets are available for public use.	18
post box	A place where mail may be posted.	19
public telephone	A place where a telephone is available for public use.	20
refuse bin	A place where refuse may be dumped.	21
car park	A place where cars may be parked.	22
parking for boats and trailers	A place on shore where boats and/or trailers may be parked.	23
caravan site	A place where caravans may be parked or where caravan accommodation is provided.	24
camping site	A place where visitors may pitch tents and camp.	25
sewerage pump-out station	A place where sewerage may be pumped off a vessel.	26
emergency telephone	A place where a telephone is available for emergency use only.	27
landing/launching place for boats	A place where boats may be landed or launched.	28
visitors mooring	A mooring set aside for the use of visiting vessels.	29
scrubbing berth	A place where vessels may berth for the purpose of careening.	30
picnic area	A place where people may go to eat a picnic.	31
mechanics workshop	A place where mechanical repairs can be undertaken to engines or other vessel equipment.	32
guard and/or security service	A place where a vessel is patrolled by a security service or stored in a secure lockup.	33

3.65 Category of special purpose mark

name	Category of special purpose mark
definition	Classification of an aid to navigation which signifies some special purpose
code	categoryOfSpecialPurposeMark
remarks	A mark may be a beacon, a buoy, a signpost or may take another form.
alias	CATSPM
valueType	enumeration

listedValues

label	definition	code
firing danger mark	A mark used to indicate a firing danger area, usually at sea.	1
target mark	Any object toward which something is directed. The distinctive marking or instrumentation of a ground point to aid its identification on a photograph.	2
marker ship mark	A mark marking the position of a ship which is used as a target during some military exercise.	3
degaussing range mark	A mark used to indicate a degaussing range.	4
barge mark	A mark of relevance to barges.	5
cable mark	A mark used to indicate the position of submarine cables or the point at which they run on to the land.	6
spoil ground mark	A mark used to indicate the limit of a spoil ground	7
outfall mark	A mark used to indicate the position of an outfall or the point at which it leaves the land.	8
ODAS	Ocean Data Acquisition System	9
recording mark	A mark used to record data for scientific purposes.	10
seaplane anchorage mark	A mark used to indicate a seaplane anchorage.	11
recreation zone mark	A mark used to indicate a recreation zone.	12
mooring mark	A mark indicating a mooring or moorings.	14
LANBY	A large buoy designed to take the place of a lightship where construction of an offshore light station is not feasible.	15
leading mark	Aids to navigation or other indicators so located as to indicate the path to be followed. Leading marks identify a leading line when they are in transit.	16
measured distance mark	A mark forming part of a transit indicating one end of a measured distance.	17
notice mark	A notice board or sign indicating information to the mariner.	18
TSS mark	A mark indicating a traffic separation scheme.	19
anchoring prohibited mark	A mark indicating an anchoring prohibited area.	20
berthing prohibited mark	A mark indicating that berthing is prohibited.	21
overtaking prohibited mark	A mark indicating that overtaking is prohibited.	22
two-way traffic prohibited mark	A mark indicating a one-way route.	23
reduced wake' mark	A mark indicating that vessels must not generate excessive wake.	24
speed limit mark	A mark indicating that a speed limit applies.	25

stop mark	A mark indicating the place where the bow of a ship must stop when traffic lights show red.	26
general warning mark	A mark indicating that special caution must be exercised in the vicinity of the mark.	27
sound ship's siren' mark	A mark indicating that a ship should sound its siren or horn.	28
restricted vertical clearance mark	A mark indicating the minimum vertical space available for passage.	29
maximum vessel's draught mark	A mark indicating the maximum draught of vessel permitted.	30
restricted horizontal clearance mark	A mark indicating the minimum horizontal space available for passage.	31
strong current warning mark	A mark warning of strong currents.	32
berthing permitted mark	A mark indicating that berthing is allowed.	33
overhead power cable mark	A mark indicating an overhead power cable.	34
channel edge gradient' mark	A mark indicating the gradient of the slope of a dredge channel edge.	35
telephone mark	A mark indicating the presence of a telephone.	36
ferry crossing mark	A mark indicating that a ferry route crosses the ship route often used with a 'sound ship's siren' mark.	37
pipeline mark	A mark used to indicate the position of submarine pipelines or the point at which they run on to the land.	39
anchorage mark	A mark indicating an anchorage area.	40
clearing mark	A mark used to indicate a clearing line.	41
control mark	A mark indicating the location at which a restriction or requirement exists.	42
diving mark	A mark indicating that diving may take place in the vicinity.	43
refuge beacon	A mark providing or indicating a place of safety.	44
foul ground mark	A mark indicating a foul ground.	45
yachting mark	A mark installed for use by yachtsmen.	46
heliport mark	A mark indicating an area where helicopters may land.	47
GNSS Mark	A mark indicating a location at which a GNSS position has been accurately determined.	48
seaplane landing mark	A mark indicating an area where sea-planes land.	49
entry prohibited mark	A mark indicating that entry is prohibited.	50
work in progress mark	A mark indicating that work (generally construction) is in progress.	51
mark with unknown purpose	A mark whose detailed characteristics are unknown.	52

wellhead mark	A mark indicating a borehole that produces or is capable of producing oil or natural gas.	53
channel separation mark	A mark indicating the point at which a channel divides separately into two channels.	54
marine farm mark	A mark indicating the existence of a fish, mussel, oyster or pearl farm/culture.	55
artificial reef mark	A mark indicating the existence or the extent of an artificial reef.	56
Ice mark	A mark, used year round, that may be submerged when ice passes through the area	57
nature reserve mark	A mark used to define the boundary of a nature reserve.	58
fish aggregating device (FAD)	A fish aggregating (or aggregation) device (FAD) is a man-made object used to attract ocean going pelagic fish such as marlin, tuna and mahi-mahi (dolphin fish). They usually consist of buoys or floats tethered to the ocean floor with concrete blocks.	59
wreck mark	A mark used to indicate the existence of a wreck	60
customs mark	A mark used to indicate the existence of a customs checkpoint.	61
causeway mark	A mark used to indicate the existence of a causeway.	62
wave recorder	A surface following buoy used to measure wave activity.	63

3.66 Category of temporal variation

name	Category of temporal variation
definition	An assessment of the likelihood of change over time.
code	categoryOfTemporalVariation
remarks	None
alias	Not available
valueType	enumeration

listedValues

label	definition	code
extreme event	Indication of the possible impact of a significant event (for example hurricane, earthquake, volcanic eruption, landslide, etc), which is considered likely to have changed the seafloor or landscape significantly.	1
likely to change and significant shoaling expected	Continuous or frequent change (for example river siltation, sand waves, seasonal storms, ice bergs, etc) that is likely to result in new significant shoaling.	2

likely to change but significant shoaling not expected	Continuous or frequent change (for example sand wave shift, seasonal storms, ice bergs, etc) that is not likely to result in new significant shoaling.	3
likely to change	Continuous or frequent change to non-bathymetric features (for example river siltation, glacier creep/recession, sand dunes, buoys, marine farms, etc).	4
unlikely to change	Significant change to the seafloor is not expected.	5
unassessed	Temporal variation not assessed or cannot be determined.	6

3.67 Category of tidal stream

name	Category of tidal stream
definition	Classification of the alternating horizontal movement of water associated with the rise and fall of the tide caused by tide producing forces.
code	categoryOfTidalStream
remarks	None
alias	CAT_TS
valueType	enumeration

listedValues

label	definition	code
flood stream	The horizontal movement of water associated with the rising tide.	1
ebb stream	The horizontal movement of water associated with falling tide.	2
other tidal flow	Any other horizontal movement of water associated with tides, e.g., rotary flow.	3

3.68 Category of traffic separation scheme

name	Category of traffic separation scheme
definition	International classification of Traffic Separation Scheme
code	categoryOfTrafficSeparationScheme
remarks	None
alias	CATTSS
valueType	enumeration

listedValues

label	definition	code
IMO - adopted	A defined Traffic Separation Scheme that has been adopted as an IMO routing measure.	1
not IMO - adopted	A defined Traffic Separation Scheme that has not been adopted as an IMO routing measure.	2

3.69 Category of vegetation

name	Category of vegetation
definition	Classification of the plant life of an area or region
code	categoryOfVegetation
remarks	None
alias	CATVEG
valueType	enumeration

listedValues

label	definition	code
bush	A shrub or clump of shrubs with stems of moderate length.	3
deciduous wood	A wood with trees that shed their leaves annually.	4
coniferous wood	A wood with evergreen trees of a group usually bearing cones, including yews, cedars and redwoods.	5
wood in general (inc mixed wood)	Growing trees densely occupying a tract of land	6
mangroves	One of several genera of tropical trees or shrubs which produce many prop roots and grow along low lying coasts into shallow water.	7
tree in general	A woody perennial plant, having a self supporting main stem or trunk.	13
evergreen tree	A tree which keeps its foliage all year round.	14
coniferous tree	A cone-bearing, needle-leaved or scale-leaved evergreen tree.	15
palm tree	A tropical or sub-tropical tree, shrub or vine having a tall, unbranched, columnar trunk. The trunk is crowned by a tuft or large, pleated fan or feather shaped leaves with stout sheathing and often prickly petioles (stalks), the persistent bases of which frequently clothe the trunk.	16
nipa palm tree	A rare palm tree with regular branching involving equal or sub-equal division of the apex that results in forking.	17
casuarina tree	A tree characterized by slender, green, often drooping branches that are deeply grooved and that bear, at intervals, whorls of tine leaves.	18
eucalypt tree	An instance of a large genus of mostly very large trees (90 metres).	19

deciduous tree	A tree which sheds its foliage for part of the year (generally in winter).	20
mangrove tree	One of several genera of tropical trees or shrubs which produce many prop roots and grow along low lying coasts in to shallow waters.	21
filao tree	A variety of tropical or sub-tropical tree.	22

3.70 Category of water turbulence

name	Category of water turbulence
definition	Classification of an unstable sea state
code	categoryOfWaterTurbulence
remarks	None
alias	CATWAT
valueType	enumeration

listedValues

label	definition	code
breakers	Waves breaking on the shore, over a reef, etc. Breakers may be roughly classified into three kinds, although the categories may overlap: spilling breakers break gradually over a considerable distance plunging breakers tend to curl over and break with a crash and surging breakers peak up, but then instead of spilling or plunging they surge up on the beach face. The French word 'brisant' is also used for the obstacle causing the breaking of the wave.	1
eddies	Circular movements of water usually formed where currents pass obstructions, between two adjacent currents flowing counter to each other, or along the edge of a permanent current.	2
overfalls	Short, breaking waves occurring when a strong current passes over a shoal or other submarine obstruction or meets a contrary current or wind.	3
tide rips	Small waves formed on the surface of water by the meeting of opposing tidal currents or by a tidal current crossing an irregular bottom.	4
bombora	A wave that forms over a submerged offshore reef or rock, sometimes (in very calm weather or at high tide) nearly swelling but in other conditions breaking heavily and producing a dangerous stretch of broken water the reef or rock itself.	5

3.71 Category of weed/kelp

name	Category of weed/kelp
definition	Classification of marine vegetation

code	categoryOfWeedKelp
remarks	None
alias	CATWED
valueType	enumeration

listedValues

label	definition	code
kelp	A giant plant sometimes 60 metres long with no roots, it is anchored by hold-fasts or tendrils up to 10 metres long, that cling to rock. Gas filled bubbles on fronds act as floats keeping the kelp just below the surface.	1
seaweed	General name for marine plants of the algae class which grow in long narrow ribbons.	2
seagrass	Any grasslike marine alga. Eelgrass is one of the best known seagrasses.	3
sargasso	A certain type of sea weed, or more generally, a large floating mass of this sea weed.	4

3.72 Category of wreck

name	Category of wreck
definition	Classification of a wrecked or ruined ship.
code	categoryOfWreck
remarks	None
alias	CATWRK
valueType	enumeration

listedValues

label	definition	code
non-dangerous wreck	A wreck which is not considered to be dangerous to surface navigation.	1
dangerous wreck	A wreck which is considered to be dangerous to surface navigation.	2
distributed remains of wreck	(foul ground) An area over which it is safe to navigate but which should be avoided for anchoring, taking the ground or ground fishing.	3
wreck showing mast/masts	Wreck of which only the mast(s) is visible at the sounding datum indicated.	4

wreck showing any portion of hull or superstructure	wreck of which any portion of the hull or superstructure is visible at the sounding datum indicated.	5

3.73 Colour

name	Colour
definition	The property possessed by an object of producing different sensations on the eye as a result of the way it reflects or emits light.
code	colour
remarks	None
alias	COLOUR
valueType	enumeration

listedValues

label	definition	code
white	None	1
black	None	2
red	None	3
green	None	4
blue	None	5
yellow	None	6
grey	None	7
brown	None	8
amber	None	9
violet	None	10
orange	None	11
magenta	None	12
pink	None	13

3.74 Colour pattern

name	Colour pattern
definition	A regular repeated design containing more than one colour

code	colourPattern
remarks	None
alias	COLPAT
valueType	enumeration

listedValues

label	definition	code
horizontal stripes	straight bands or stripes of differing colours painted horizontally.	1
vertical stripes	straight bands or stripes of differing colours painted vertically.	2
diagonal stripes	straight bands or stripes of differing colours painted diagonally (ie not horizontally or vertically).	3
squared	often referred to as checker plate, where alternate colours are used to create squares similar to a chess or draught board. The pattern may be straight or diagonal.	4
stripes (direction unknown)	straight bands or stripes of differing colours painted in an unknown direction.	5
border stripe	a band or stripe of colour which is displayed around the outer edge of the object, which may also form a border to an inner pattern or plain colour.	6

3.75 Communication channel

name	Communication channel
definition	A channel number assigned to a specific radio frequency, frequencies or frequency band.
code	communicationChannel
remarks	The expected input is the specific VHF-Channel. The attribute 'communication channel' encodes the various VHF-channels used for communication.
alias	COMCHA
valueType	text

3.76 Condition

name	Condition
definition	The various conditions of buildings and other constructions.
code	condition

remarks	The default 'condition' should be considered to be completed, undamaged and working normally. This attribute should, therefore, only be used to indicate objects whose condition is anything other than 'normal'.
alias	CONDTN
valueType	enumeration

listedValues

label	definition	code
under construction	A structure that is in the process of being built.	1
ruined	A structure in a decayed or deteriorated condition resulting from neglect or disuse, or a damaged structure in need of repair.	2
under reclamation	An area of the sea that is being reclaimed as land, usually by the dumping of earth and other material.	3
wingless	A windmill or windmotor from which the turbine blades are missing.	4
planned construction	An area where a future construction is planned.	5

3.77 Contact instructions

name	Contact instructions
definition	Instructions provided on how to contact a particular person, organisation or service.
code	contactInstructions
alias	CONINS
valueType	text

3.78 Data assessment

name	Data assessment
definition	The categorisation of the assessment level of bathymetric data for an area.
code	dataAssessment
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
assessed	The quality of the bathymetric data has been assessed.	1
Assessed (Oceanic)	The quality of oceanic bathymetric data (depths deeper than 200 metres) has been assessed, however details are not required.	2
Unassessed	Not having been assessed	3

3.79 Date disused

name	Date disused
definition	The date that an entity ceases to be used.
code	dateDisused
remarks	None
alias	None
valueType	S100_TruncatedDate

3.80 Date end

name	Date end
definition	The latest date on which an object (for example a buoy) will be present.
code	dateEnd
remarks	The Date End should be encoded using 4 digits for the calendar year (YYYY), 2 digits for the month (MM) (for example April = 04) and 2 digits for the day (DD). When no specific month and/or day is required/known, indication of the month and/or day is omitted, and replaced with dashes (-). When no specific year is required (that is, the event or date range ends at the same time each year) the following two cases may be considered:- same day each year: ----MMDD- same month each year: ----MM--This conforms to ISO 8601: 2004.? Date End indicates the latest date of an event or the end of a date range. It is used to indicate the end of a fixed date range, the end of a periodic date range, or the removal or cancellation of a feature at a specific date in the future.
alias	DATEND
valueType	S100_TruncatedDate

3.81 Date fixed

name	Date fixed
definition	The date of an event

code	dateFixed
remarks	None
alias	None
valueType	S100_TruncatedDate

3.82 Date start

name	Date start
definition	The earliest date on which an object (for example a buoy) will be present.
code	dateStart
remarks	The Date Start should be encoded using 4 digits for the calendar year (YYYY), 2 digits for the month (MM) (for example April = 04) and 2 digits for the day (DD). When no specific month and/or day is required/known, indication of the month and/or day is omitted, and replaced with dashes (-). When no specific year is required (that is, the event or date range ends at the same time each year) the following two cases may be considered:- same day each year: ----MMDD- same month each year: ----MM--This conforms to ISO 8601: 2004.? Date Start indicates the earliest date of an event or the start of a date range. It is used to indicate the start of a fixed date range, the start of a periodic date range, or the deployment or implementation of a feature at a specific date in the future.
alias	DATSTA
valueType	S100_TruncatedDate

3.83 Date variable

name	Date variable
definition	A day which is not fixed in the Gregorian calendar.
code	dateVariable
remarks	Examples: The fourth Thursday in November; new moon day of Kartika (Diwali); Easter Sunday.
alias	None
valueType	text

3.84 Day of week

name	Day of week
definition	Any one of seven days in a week.

code	dayOfWeek
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
Monday	The second day of the week.	1
Tuesday	The third day of the week.	2
Wednesday	The fourth day of the week.	3
Thursday	The fifth day of the week.	4
Friday	The sixth day of the week.	5
Saturday	The seventh day of the week.	6
Sunday	The first day of the week.	7

3.85 Day of week is range

name	Day of week is range
definition	A statement expressing if the days of the week identified define a range or not.
code	dayOfWeekIsRange
remarks	A True value is an indication that the identified days of the week define a range between and inclusive of those days.
alias	None
valueType	boolean

3.86 Default clearance depth

name	Default clearance depth
definition	The depth value determined for an underwater hazard of unknown depth, based on the depth of the surrounding area.
code	defaultClearanceDepth
remarks	None
alias	None

valueType	real

3.87 Depth range maximum value

name	Depth range maximum value
definition	The maximum (deepest) value of a depth range.
code	depthRangeMaximumValue
remarks	Where the area dries, the value is negative. The unit of measure is defined in the DUNI subfield of the DSPM record or in the DUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 fm or 0.1 ft.
alias	DRVAL2
valueType	real

3.88 Depth range minimum value

name	Depth range minimum value
definition	The minimum (shoalest) value of a depth range.
code	depthRangeMinimumValue
remarks	Where the area dries, the value is negative. The unit of measure is defined in the DUNI subfield of the DSPM record or in the DUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 fm or 0.1 ft.
alias	DRVAL1
valueType	real

3.89 Destination

name	Destination
definition	The place or general direction to which a vessel is going or directed.
code	destination
remarks	In addition to a placename of a port, harbour area or terminal, the place could include generalities such as "The north-west", or "upriver".
alias	None
valueType	text

3.90 Display name

name	Display name
definition	A statement expressing if a feature name is to be displayed in certain systemdisplay settings or not.
code	displayName
remarks	Where it is allowable to encode multiple instances of feature name for a single feature instance, only onefeature name instance can indicate that the name is to be displayed (display name set to True).
alias	None
valueType	boolean

3.91 Distance unit of measurement

name	Distance unit of easurement
definition	A specified amount of a quantity, as of length, by comparison with which any other quantity of the same kind is measured or estimated
code	distanceUnitOfMeasurement
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
metres	The fundamental unit of length in the metric system.	1
yards	a common unit of linear measure in English-speaking countries, equal to 3 feet or 36 inches, and equivalent to 0.9144 meter	2
kilometres	A unit of length, the common measure of distances equal to 1000 metres, and equivalent to 3280.8 feet or 0.621 mile.	3
statute miles	The legal name for a mile	4
nautical miles	a unit of distance used chiefly in navigation, equal to 6080.20 feet (1853.25 meters) in the U.S., now replaced by the international nautical mile.	5

3.92 Dredged date

name	Dredged date

definition	The date that dredging occurred.
code	dredgedDate
remarks	Dredged date indicates the latest date of dredging (which may be the latest known date if the dredged area is not maintained), or the date of the latest control survey confirming the depth in a maintained dredged area.
alias	None
valueType	S100_TruncatedDate

3.93 Elevation

name	Elevation
definition	The altitude of the ground level of an object, measured from a specified vertical datum.
code	elevation
remarks	The unit of measure is defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 ft.
alias	ELEVAT
valueType	real

3.94 Estimated range of transmission

name	Estimated range of transmission
definition	The estimated range of a non-optical electromagnetic transmission.
code	estimatedRangeOfTransmission
remarks	The estimated range (distance) assumes 'in vacuo' transmission and a standard antenna height of 5 metres. Thus it gives a hint to the mariner whether they are likely to receive transmission at a certain distance from an object.
alias	ESTRNG
valueType	real

3.95 Exhibition condition of light

name	Exhibition condition of light
definition	The outward display of the light

code	exhibitionConditionOfLight
remarks	None
alias	EXCLIT
valueType	enumeration

listedValues

label	definition	code
light shown without change of character	A light shown throughout the 24 hours without change of character.	1
daytime light	A light which is only exhibited by day.	2
fog light	A light which is exhibited in fog or conditions of reduced visibility.	3
night light	A light which is only exhibited at night.	4

3.96 Exposition of sounding

name	Exposition of sounding
definition	Indicates objects with a 'value of sounding' not within the range of depth of the surrounding depth area.
code	expositionOfSounding
remarks	These objects could be a potential danger for navigation.
alias	EXPSOU
valueType	enumeration

listedValues

label	definition	code
within the range of depth of the surrounding depth area	The depth corresponds to the depth range of the surrounding depth area. i.e. the depth is not shoaler than the minimum depth of the surrounding depth area or deeper than the maximum depth of the surrounding depth area.	1
shoaler than the range of depth of the surrounding depth area	The depth is shoaler than the minimum depth of the surrounding depth area.	2
deeper than the range of depth of the surrounding depth area	The depth is deeper than the maximum depth of the surrounding depth area.	3

3.97 File locator

name	File locator
definition	The location of a fragment of text or other information in a support file.
code	fileLocator
remarks	Application schemas must describe how the associated file is identified. The associated file will commonly be named in a file reference co-attribute of the same complex attribute. Each DCEG must specify requirements for the format of the associated file and the semantics of file locator. For example, the value of file locator may be an HTML ID in an HTML file, line number in a text file) or a bookmark in a PDF file.
valueType	text

3.98 File reference

name	File reference
definition	The file name of an externally referenced text file.
code	fileReference
remarks	None
alias	TXTDSC
valueType	text

3.99 Flare angle

name	Flare angle
definition	The angle about which the light flare symbol is rotated to be displayed in ECDIS.
code	flareAngle
remarks	The flare angle is calculated by ENC production software systems.
alias	None
valueType	integer

3.100 Flare stack

name	Flare stack
definition	A statement expressing whether an offshore platform has a stack used forburning-off waste oil or gas or not.

code	flareStack
remarks	None
alias	None
valueType	boolean

3.101 Flip bearing

name	Flip bearing
definition	The bearing at which text is re-located to the opposite side of a feature whenscreen display is oriented away from true north.
code	flipBearing
remarks	None
alias	None
valueType	integer

3.102 Frequency shore station receives

name	Frequency shore station receives
definition	The shore station receiver frequency expressed in kHz to one decimal place.
code	frequencyShoreStationReceives
remarks	Examples:4379.1 kHz becomes 04379113162.8 kHz becomes 131628
alias	FRQRXV
valueType	integer

3.103 Frequency shore station transmits

name	Frequency shore station transmits
definition	The shore station transmitter frequency expressed in kHz to one decimal place.
code	frequencyShoreStationTransmits
remarks	Examples: 4379.1 kHz becomes 043791 13162.8 kHz becomes 131628
alias	FRQTXM
valueType	integer

3.104 Full seafloor coverage achieved

name	Full seafloor coverage achieved
definition	Expression stating if full seafloor coverage has been achieved in the area covered by hydrographic surveys.
code	fullSeafloorCoverageAchieved
remarks	Full seafloor coverage achieved applies to both the spatial completeness of feature detection and to the spatial completeness of the measurement of the regular seafloor. The former is further specified by the complex attribute features detected, the latter by the attributes depth range maximum value and depth range minimum value
alias	None
valueType	boolean

3.105 Function

name	Function
definition	A specific role that describes a feature
code	function
remarks	None
alias	FUNCTN
valueType	enumeration

listedValues

label	definition	code
harbour-masters office	Local official who has charge of mooring and berthing of vessels, collecting harbour fees, etc.	2
customs office	Serves as a government office where customs duties are collected, the flow of goods are regulated and restrictions enforced, and shipments or vehicles are cleared for entering or leaving a country.	3
health office	The office which is charged with the administration of health laws and sanitary inspections.	4
hospital	An institution or establishment providing medical or surgical treatment for the ill or wounded.	5
post office	The public department, agency or organisation responsible primarily for the collection, transmission and distribution of mail.	6
hotel	An establishment, especially of a comfortable or luxurious kind, where paying visitors are provided with accommodation, meals and other services.	7

railway station	A building with platforms where trains arrive, load, discharge and depart.	8
police station	The office of the local police force.	9
water-police station	The headquarters of a local water-police force.	10
pilot office	The office or headquarters of pilots the place where the services of a pilot may be obtained.	11
pilot lookout	A distinctive structure on shore from which personnel keep watch upon events at sea or along the coast.	12
bank office	An office for custody, deposit, loan, exchange or issue of money.	13
headquarters for district control	The quarters of an executive officer (director, manager, etc.) with responsibility for an administrative area.	14
transit shed/warehouse	A building or part of a building for storage of wares or goods.	15
factory	A building or buildings with equipment for manufacturing a workshop.	16
power station	A stationary plant containing apparatus for large scale conversion of some form of energy (such as hydraulic, steam, chemical or nuclear energy) into electrical energy.	17
administrative	A building for the management of affairs.	18
educational facility	A building concerned with education (e.g. school, college, university, etc.)	19
church	A building for public Christian worship.	20
chapel	A place for Christian worship other than a parish, cathedral or church, especially one attached to a private house or institution.	21
temple	A building for public Jewish worship.	22
pagoda	A Hindu or Buddhist temple or sacred building.	23
shinto shrine	A building for public Shinto worship.	24
buddhist temple	See pagoda.	25
mosque	A Muslim place of worship.	26
marabout	A shrine marking the burial place of a Muslim holy man.	27
lookout	Keeping a watch upon events at sea or along the coast.	28
communication	Transmitting and/or receiving electronic communication signals.	29
television	Broadcast of television signals.	30
radio	Broadcast of radio signals.	31
radar	A method, system or technique of using beamed, reflected, and timed radio waves for detecting, locating, or tracking objects, and for measuring altitudes.	32
light support	Supporting a light	33
microwave	Broadcasting and receiving signals using microwaves.	34

cooling	Dissipating heat.	35
observation	A place from which the surroundings can be observed but at which a watch is not habitually maintained.	36
timeball	A visual time signal in the form of a ball.	37
clock	Visual time signal.	38
control	Used to control the flow of air, rail, or marine traffic.	39
airship mooring	A facility to secure an airship.	40
stadium	A large usually unroofed building with tiers of seats for spectators	41
bus station	A location at which buses arrive and from which they depart.	42
sea rescue control	A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.	44
observatory	A building designed and equipped for making observations of astronomical, meteorological, or other natural phenomena.	45
ore crusher	A building or structure used to crush ore.	46
boathouse	A building or shed, usually built partly over water, for sheltering a boat or boats.	47
pumping station	A facility to move solids, liquids or gases by means of pressure or suction	48

3.106 Headline

name	Headline
definition	Words set at the head of a passage or page to introduce or categorize
code	headline
remarks	None
alias	HEADLN
valueType	text

3.107 Height

name	Height
definition	The value of the vertical distance to the highest point of the object, measured from a specified vertical datum.
code	height

remarks	Height must not be used for floating objects. The unit of measure is defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 ft.
alias	HEIGHT
valueType	real

3.108 Horizontal clearance length

name	Horizontal clearance length
definition	The length of a feature, such as a lock or basin, which is available for safe navigation. This may, or may not, be the same as the total physical length of the feature.
code	horizontalClearanceLength
remarks	None
alias	None
valueType	real

3.109 Horizontal clearance value

name	Horizontal clearance value
definition	The width of an object, such as a canal or a tunnel, which is available for safe navigation. This may, or may not, be the same as the total physical width of the object.
code	horizontalClearanceValue
remarks	The unit of measure is defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 ft.
alias	HORCLR
valueType	real

3.110 Horizontal clearance width

name	Horizontal clearance width
definition	The width of an object, such as a lock or basin, which is available for safe navigation. This may, or may not, be the same as the total physical width of the object
code	horizontalClearanceWidth
remarks	None

alias	HORCLW
valueType	real

3.111 Horizontal distance uncertainty

name	Horizontal distance uncertainty
definition	The best estimate of the horizontal accuracy of horizontal clearances and distances.
code	horizontalDistanceUncertainty
remarks	The error is assumed to be positive and negative. The plus/minus character must not be encoded.
alias	HORACC
valueType	real

3.112 Horizontal length

name	Horizontal length
definition	A measurement of the longer of two linear axis.
code	horizontalLength
remarks	The unit of measure is defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 ft.
alias	HORLEN
valueType	real

3.113 Horizontal width

name	Horizontal width
definition	A measurement of the shorter of two linear axis.
code	horizontalWidth
remarks	The unit of measure is defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 ft.
alias	HORWID
valueType	real

3.114 Ice factor

name	Ice factor
definition	The value of the maximum variation in the vertical clearance of an overhead cable due to an accumulation of ice.
code	iceFactor
remarks	The unit of measure is defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 ft.
alias	ICEFAC
valueType	real

3.115 In dispute

name	In dispute
definition	A statement that expresses if an area is in a jurisdictional dispute.
code	inDispute
remarks	None
alias	None
valueType	boolean

3.116 In the water

name	In the water
definition	An indication if the feature is located in or over navigable water.
code	inTheWater
remarks	A True value is an indication that the feature is to be included in the ECDIS Base Display viewing group.
alias	None
valueType	boolean

3.117 Is MRCC

name	Is MRCC
definition	A statement that expresses if a coastguard station performs the function of a Maritime Rescue and Coordination Centre.

code	isMRCC
remarks	A True value is an indication that an encoded coastguard station performs the function of a Maritime Rescue and Coordination Centre.
alias	None
valueType	boolean

3.118 Jurisdiction

name	Jurisdiction
definition	The jurisdiction applicable to an administrative area.
code	jurisdiction
remarks	None
alias	JRSDTN
valueType	enumeration

listedValues

label	definition	code
international	involving more than one country covering more than one national area.	1
national	an area administered or controlled by a single nation.	2
national sub-division	an area smaller than the nation in which it lies.	3

3.119 Language

name	Language
definition	The method of human communication, either spoken or written, consisting of the use of words in a structured and conventional way.
code	language
remarks	The language is encoded by a 3 character code following ISO 639-2/T.
alias	None
valueType	text

3.120 Least depth of detected features measured

name	Least depth of detected features measured

definition	Expression stating if the least depth ofdetected features in an area was measured.
code	leastDepthOfDetectedFeaturesMeasured
remarks	-A feature in this context is any object, whether manmade or not, projecting above the sea floor, which may be a danger for surface navigation (reference: IHO publication S-44).- least depth of detected features measured does not describe the least depth of features that were actually detected during a hydrographic survey, but the ability of the survey to detect the least depth of features with a maximum uncertainty as defined in IHO publication S-44.
alias	None
valueType	boolean

3.121 Lifting capacity

name	Lifting capacity
definition	The specific safe lifting capacity of an object.
code	liftingCapacity
remarks	None
alias	LIFCAP
valueType	real

3.122 Light characteristic

name	Light characteristic
definition	The typical behaviour associated with the light
code	lightCharacteristic
remarks	A selection of the above characteristics is defined and illustrated diagrammatically in IHO Chart Specifications, M-4, 471.2.
alias	LITCHR
valueType	enumeration

listedValues

label	definition	code
fixed	A signal light that shows continuously, in any given direction, with constant luminous intensity and colour.	1
flashing	A rhythmic light in which the total duration of light in a period is clearly shorter than the total duration of darkness and all the appearances of light are of equal duration.	2

long-flashing	A flashing light in which a single flash of not less than two seconds duration is regularly repeated.	3
quick-flashing	A light exhibiting without interruption very rapid regular alternations of light and darkness.	4
very quick-flashing	A rhythmic light in which flashes are repeated at a rate of not less than 80 flashes per minute but less than 160 flashes per minute. It may be:- Continuous very quick-flashing: A very quick-flashing light in which a flash is regularly repeated.- Group very quick-flashing: A very quick-flashing light in which a group of two or more flashes, which are specified in number, is regularly repeated.	5
continuous ultra quick-flashing	A rhythmic light in which flashes are regularly repeated at a rate of not less than 160 flashes per minute.	6
isophased	A light with all durations of light and darkness equal.	7
occulting	A rhythmic light in which the total duration of light in a period is clearly longer than the total duration of darkness and all the eclipses are of equal duration.	8
interrupted ultra quick-flashing	A light in which the ultra quick flashes (160 or more per minute) are interrupted at regular intervals by eclipses of long duration.	11
morse	A rhythmic light in which appearances of light of two clearly different durations are grouped to represent a character or characters in the Morse code.	12
fixed and flash	A rhythmic light in which a fixed light is combined with a flashing light of higher luminous intensity.	13
flash and long-flash	A rhythmic light in which a flashing light is combined with a long-flashing light of higher luminous intensity.	14
occulting and flash	A rhythmic light in which an occulting light is combined with a flashing light of higher luminous intensity.	15
fixed and long-flash	A rhythmic light in which a fixed light is combined with a long-flashing light of higher luminous intensity.	16
occulting alternating	An alternating light in which the total duration of light in each period is clearly longer than the total duration of darkness and in which the intervals of darkness (occultations) are all of equal duration.	17
long-flash alternating	An alternating single-flashing light in which an appearance of light of not less than two seconds duration is regularly repeated.	18
flash alternating	An alternating rhythmic light in which the total duration of light in a period is clearly shorter than the total duration of darkness and all the appearances of light are of equal duration.	19
quick-flash plus long-flash	A rhythmic light in which a group of quick flashes is followed by one or more long flashes in a regularly repeated sequence with a regular periodicity.	25
very quick-flash plus long-flash	A rhythmic light in which a group of very quick flashes is followed by one or more long flashes in a regularly repeated sequence with a regular periodicity.	26
ultra quick-flash plus long-flash	A rhythmic light in which a group of ultra quick flashes is followed by one or more long flashes in a regularly repeated sequence with a regular periodicity.	27

| alternating | A signal light that shows, in any given direction, two or more colours in a regularly repeated sequence with a regular periodicity. | 28 |
| fixed and alternating flashing | A rhythmic light in which a fixed light is combined with a flashing light of higher luminous intensity and different colour. | 29 |

3.123 Light visibility

name	Light visibility
definition	The specific visibility of a light, with respect to the light's intensity and ease of recognition.
code	lightVisibility
remarks	None
alias	LITVIS
valueType	enumeration

listedValues

label	**definition**	**code**
high intensity	Non-marine lights with a higher power than marine lights and visible from well off shore (often 'Aero' lights).	1
low intensity	Non-marine lights with lower power than marine lights.	2
faint	A decrease in the apparent intensity of a light which may occur in the case of partial obstructions.	3
intensified	A light in a sector is intensified (i.e. has longer range than other sectors).	4
unintensified	A light in a sector is unintensified (i.e. has shorter range than other sectors).	5
visibility deliberately restricted	A light sector is deliberately reduced in intensity, for example to reduce its effect on a built-up area.	6
obscured	Said of the arc of a light sector designated by its limiting bearings in which the light is not visible from seaward.	7
partially obscured	This value specifies that parts of the sector are obscured.	8
visible in line of range	Lights that must in line to be visible	9

3.124 Line spacing maximum

name	Line spacing maximum
definition	The maximum distance between hydrographic survey lines.
code	lineSpacingMaximum

remarks	None
alias	None
valueType	integer

3.125 Line spacing minimum

name	Line spacing minimum
definition	The minimum distance between hydrographic survey lines.
code	lineSpacingMinimum
remarks	None
alias	SDISMN
valueType	integer

3.126 Linkage

name	Linkage
definition	Location (address) for on-line access using a URL/URI address or similar addressing scheme.
code	linkage
remarks	None
alias	LINKGE
valueType	URL

3.127 Magnetic anomaly value maximum

name	Magnetic anomaly value maximum
definition	The maximum value of the deviation from the normal magnetic variation.
code	magneticAnomalyValueMaximum
remarks	The deviation is assumed to be positive and negative. The plus/minus character must not be encoded.
alias	VALLMA
valueType	real

3.128 Magnetic anomaly value minimum

name	Magnetic anomaly value minimum
definition	Negative value of the deviation from the normalmagnetic variation.
code	magneticAnomalyValueMinimum
remarks	The deviation is assumed to be negative.
alias	None
valueType	real

3.129 Major light

name	Major light
definition	A statement expressing if a light is considered to be a major light in terms of ECDIS display in a particular area.
code	majorLight
remarks	The attribute major light is only intended to provide an indication to the ECDIS that the light is consideredto be an important light in terms of its display. As such this is a cartographic attribute to aid the compiler indetermining the most appropriate display for a light; it is not intended to be used as a formal classificationmethod for lights.
alias	None
valueType	boolean

3.130 Marks navigational - system of

name	Marks navigational - system of
definition	The system of navigational buoyage a region complies with.
code	marksNavigationalSystemOf
remarks	None
alias	MARSYS
valueType	enumeration

listedValues

label	definition	code
IALA A	Navigational aids conform to the International Association of Lighthouse Authorities - IALA A system.	1

IALA B	Navigational aids conform to the International Association of Lighthouse Authorities - IALA B system.	2
no system	Navigational aids do not conform to any defined system.	9
CEVNI	CEVNI (European Code for Navigation on Inland Waterways) is the European code for rivers, canals land lakes in most of Europe.	11

3.131 Maximum display scale

name	Maximum display scale
definition	The largest intended viewing scale for the data.
code	maximumDisplayScale
remarks	None
alias	None
valueType	integer

3.132 Maximum permitted draught

name	Maximum permitted draught
definition	The maximum draught of a vessel permitted along a route, in a channel or dock, at a berth, or over a submerged feature.
code	maximumPermittedDraught
remarks	None
alias	None
valueType	real

3.133 Measured distance

name	Measured distance
definition	An accurately defined distance along a course at sea.
code	measuredDistance
remarks	None
alias	None
valueType	integer

3.134 Measurement distance maximum

name	Measurement distance maximum
definition	The maximum spacing of the principal measurement lines of a hydrographic survey.
code	measurementDistanceMaximum
remarks	None
alias	SDISMX
valueType	real

3.135 Measurement distance minimum

name	Measurement distance minimum
definition	The minimum spacing of the principal measurement lines of a hydrographic survey.
code	measurementDistanceMinimum
remarks	None
alias	SDISMN
valueType	real

3.136 Minimum display scale

name	Minimum display scale
definition	The smallest intended viewing scale for the data.
code	minimumDisplayScale
remarks	None
alias	None
valueType	integer

3.137 MMSI Code

name	MMSI Code

definition	The Maritime Mobile Service Identity (MMSI) Code is formed of a series of ninedigits which are transmitted over the radio path in order to uniquely identify ship stations, ship earth stations,coast stations, coast earth stations, and group calls. These identities are formed in such a way that theidentity or part thereof can be used by telephone and telex subscribers connected to the generaltelecommunications network principally to call ships automatically. (Adapted from Appendix 43 of theInternational Telecommunications Union Radio Regulations).
code	mMSICode
remarks	None
alias	None
valueType	text

3.138 Moire effect

name	Moire effect
definition	A short range (up to 2km) type of directional light. Sodium lighting gives ayellow background to a screen on which a vertical black line will be seen by an observer on the centre line.(S-57 Edition 3.1, Appendix A ? Chapter 2, Page 2.49, November 2000).
code	moireEffect
remarks	None
alias	None
valueType	boolean

3.139 Multiplicity known

name	Multiplicity known
definition	The number of features of identical character that exist as a co-locatedgroup is or is not known. (Adapted from S-57 Edition 3.1, Appendix A ? Chapter 2, Page 2.150, November2000).
code	multiplicityKnown
remarks	None
alias	None
valueType	boolean

3.140 Name

name	Name

definition	The individual name of a feature.
code	name
remarks	None
alias	OBJNAM
valueType	text

3.141 Name of resource

name	Name of resource
definition	Name of the online resource.
code	nameOfResource
remarks	None
alias	NAMRES
valueType	text

3.142 Nationality

name	Nationality
definition	Identifier of membership of a particular nation.
code	nationality
remarks	None
alias	NATION
valueType	text

3.143 Nature of construction

name	Nature of construction
definition	The buildings primary construction material
code	natureOfConstruction
remarks	None
alias	NATCON
valueType	enumeration

listedValues

label	definition	code
masonry	Constructed of stones or bricks, usually quarried, shaped, and mortared.	1
concreted	Constructed of concrete, a material made of sand and gravel that is united by cement into a hardened mass used for roads, foundations, etc.	2
loose boulders	Constructed from large stones or blocks of concrete, often placed loosely for protection against waves or water turbulence.	3
hard surfaced	Constructed with a surface of hard material, usually a term applied to roads surfaced with asphalt or concrete.	4
unsurfaced	Constructed with no extra protection, usually a term applied to roads not surfaced with a hard material.	5
wooden	Constructed from wood.	6
metal	Constructed from metal.	7
glass reinforced plastic (GRP)	Constructed from a plastic material strengthened with fibres of glass.	8
latticed	A structure of crossed wooden or metal strips usually arranged to form a diagonal pattern of open spaces between the strips.	11
glass	1. any artificial or natural substance having similar properties and composition, as fused borax, obsidian, or the like.2. something made of such a substance, as a windowpane.	12

3.144 Nature of surface

name	Nature of surface
definition	The general material which the land surface or the sea bed is composed.
code	natureOfSurface
remarks	Mixed bottom: where the seabed comprises a mixture of material, the main constituent is given first e.g., fine sand with mud and shells would be indicated as 4,1,17. Mud, sand, stone, rock are terms used for the general description. Clay, silt, gravel, pebbles, cobbles are more specific terms related to particle size.
alias	NATSUR
valueType	enumeration

listedValues

label	definition	code
mud	Soft, wet earth.	1

clay	(particles of less than 0.002mm) Stiff, sticky earth that becomes hard when baked.	2
silt	(particles of 0.002-0.0625mm) When dried on hand will rub off easily.	3
sand	Loose material consisting of small but easily distinguishable, separate grains, between 0.0625 and 2.000 millimetres in diameter.	4
stone	A general term for rock and rock fragments ranging in size from pebbles and gravel to boulders or large rock masses.	5
gravel	(particles of 2.0-4.0mm) Small stones with coarse sand.	6
pebbles	A small stone worn smooth and rounded by the action of water, sand, ice, etc. ranging in diameter between 4 and 64 millimetres.	7
cobbles	(particles of 64.0-256.0mm) Stones worn round and smooth by water and used for paving.	8
rock	Any formation of natural origin that constitutes an integral part of the lithosphere. The natural occurring material that forms firm, hard, and solid masses.	9
lava	The fluid or semi-fluid matter flowing from a volcano. The substance that results from the cooling of the molten rock. Part of the ocean bed is composed of lava.	11
coral	Hard calcareous skeletons of many tribes of marine polyps.	14
shells	Exoskeletons of various water dwelling animals.	17
boulder	A rounded rock with diameter of 256 mm or larger.	18

3.145 Nature of surface - qualifying terms

name	Nature of surface - qualifying terms
definition	The nature of various forms of natural surface materials in terms of their size, morphology and consistency.
code	natureOfSurfaceQualifyingTerms
remarks	None
alias	NATQUA
valueType	enumeration

listedValues

label	definition	code
fine	Falls within the smallest size continuum for a particular nature of surface term.	1
medium	Falls within the moderate size continuum for a particular nature of surface term.	2

coarse	Falls within the largest size continuum for a particular nature of surface term.	3
broken	Fractured or in pieces.	4
sticky	Having an adhesive or glue like property.	5
soft	Not hard or firm.	6
stiff	Not pliant thick, resistant to flow.	7
volcanic	Composed of or containing material ejected from a volcano.	8
calcareous	Composed of or containing calcium or calcium carbonate.	9
hard	Firm usually refers to an area of the sea floor not covered by unconsolidated sediment.	10

3.146 Number of features

name	Number of features
definition	The number of features of identical character that exist as a co-locatedgroup.
code	numberOfFeatures
remarks	None
alias	None
valueType	real

3.147 Orientation uncertainty

name	Orientation uncertainty
definition	The best estimate of the accuracy of a bearing.
code	orientationUncertainty
remarks	None
alias	None
valueType	real

3.148 Orientation value

name	Orientation value
definition	The angular distance measured from true north to the major axis of the object.
code	orientationValue

remarks	None
alias	ORIENT
valueType	real

3.149 Pictorial representation

name	Pictorial representation
definition	A reference to a pictorial representation of the feature.
code	pictorialRepresentation
remarks	The 'pictorial representation' could be a drawing or a photo. The string encodes the file name of an external graphic file (pixel/vector).
alias	PICREP
valueType	text

3.150 Pilot movement

name	Pilot movement
definition	Classification of pilot activity by arrival, departure, or change of pilot. It may also describe the place where the pilot's advice begins, ends, or is transferred to a different pilot.
code	pilotMovement
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
embarkation	The place where vessels not being navigated according to a pilot's instructions pick up a pilot while in transit from sea to a port or constricted waters for future navigation under pilot instructions.	1
disembarkation	The place where vessels being navigated under a pilot's instructions in transit from sea to a port or constricted waters drop the pilot and proceed without being subject to pilot instructions.	2
pilot change	The place where vessels being navigated under a pilot's instructions drop off the pilot and pick up a different pilot for future navigation under pilot's instructions.	3

3.151 Product

name	Product
definition	The various substances which are transported, stored or exploited.
code	product
remarks	None
alias	PRODCT
valueType	enumeration

listedValues

label	definition	code
oil	A thick, slippery liquid that will not dissolve in water, usually petroleum based in the context of storage tanks.	1
gas	A substance with particles that can move freely, usually a fuel substance in the context of storage tanks.	2
water	A colourless, odourless, tasteless liquid that is a compound of hydrogen and oxygen.	3
stone	A general term for rock fragments.	4
coal	A hard black mineral that is burned as fuel.	5
ore	A solid rock or mineral from which metal is obtained.	6
chemicals	Any substance obtained by or used in a chemical process.	7
drinking water	Water that is suitable for human consumption.	8
milk	A white fluid secreted by female mammals as food for their young.	9
bauxite	A mineral from which aluminum is obtained.	10
coke	A solid substance obtained after gas and tar have been extracted from coal, used as a fuel.	11
iron ingots	An oblong lump of cast iron metal.	12
salt	Sodium chloride obtained from mines or by the evaporation of sea water.	13
sand	Tiny grains of crushed or worn rock.	14
timber	Wood prepared for use in building or carpentry.	15
sawdust/wood chips	Powdery fragments of wood made in sawing timber or coarse chips produced for use in manufacturing pressed board.	16
scrap metal	Discarded metal suitable for being reprocessed.	17
liquefied natural gas (LNG)	Natural gas that has been liquefied for ease of transport by cooling the gas to -162 Celsius.	18

liquefied petroleum gas (LPG)	A compressed gas consisting of flammable light hydrocarbons and derived from petroleum.	19
wine	The fermanted juice of grapes.	20
cement	A substance made of powdered lime and clay, mixed with water.	21
grain	A small hard seed, especially that of any cereal plant such as wheat, rice, corn, rye etc.	22
electricity	Electric charge or current	23
clay	(Particles of less than 0.002mm); stiff, sticky earth that becomes hard when baked.	25

3.152 Quality of horizontal measurement

name	Quality of horizontal measurement
definition	The degree of reliability attributed to a position
code	qualityOfHorizontalMeasurement
remarks	None
alias	QUAPOS
valueType	enumeration

listedValues

label	definition	code
surveyed	The position(s) was(were) determined by the operation of making measurements for determining the relative position of points on, above or beneath the earth's surface. Survey implies a regular, controlled survey of any date.	1
unsurveyed	Survey data is does not exist or is very poor.	2
inadequately surveyed	Position data is of a very poor quality.	3
approximate	A position that is considered to be less than third-order accuracy, but is generally considered to be within 30.5 metres of its correct geographic location. Also may apply to an object whose position does not remain fixed.	4
position doubtful	An object whose position has been reported but which is considered to be doubtful.	5
unreliable	An object's position obtained from questionable or unreliable data.	6
estimated	The most probable position of an object determined from incomplete data or data of questionable accuracy.	9
precisely known	A position that is of a known value, such as the position of an anchor berth or other defined object.	10

calculated	A position that is computed from data.	11

3.153 Quality of vertical measurement

name	Quality of vertical measurement
definition	The reliability of the value of a sounding.
code	qualityOfVerticalMeasurement
remarks	None
alias	QUASOU
valueType	enumeration

listedValues

label	definition	code
depth known	The depth from chart datum to the bottom is a known value.	1
depth or least depth unknown	The depth from chart datum to the bottom is unknown.	2
doubtful sounding	A depth that may be less than indicated.	3
unreliable sounding	A depth that is considered to be an unreliable value.	4
least depth known	The shoalest depth over a feature is of known value.	6
least depth unknown, safe clearance at value shown	The least depth over a feature is unknown, but there is considered to be safe clearance at this depth.	7
value reported (not surveyed)	Depth value obtained from a report, but not fully surveyed.	8
value reported (not confirmed)	Depth value obtained from a report, which it has not been possible to confirm.	9
maintained depth	The depth at which a channel is kept by human influence, usually by dredging.	10
not regularly maintained	Depths may be altered by human influence, but will not be routinely maintained.	11

3.154 Radar band

name	Radar band
definition	The band code character of the electromagnetic spectrum within which radar wave lengths lie.
code	radarBand

remarks	None
alias	None
valueType	text

3.155 Radar conspicuous

name	Radar conspicuous
definition	Relating to a features ability to be detected by radar
code	radarConspicuous
remarks	None
alias	CONRAD
valueType	boolean

3.156 Radius

name	Radius
definition	The vector extending from the centre to the periphery of a circular or spherical object.
code	radius
remarks	The unit of measure is defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 ft.
alias	RADIUS
valueType	real

3.157 Reference location

name	Reference location
definition	Information relating to the point of origin for a measured distance asindicated on a distance mark.
code	referenceLocation
valueType	text

3.158 Reference tide

name	Reference tide

definition	The reference tide to which the series of tidal stream values apply.
code	referenceTide
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
high water	(H.W.). The highest level reached at a place by the water surface in one oscillation. Also called high tide.	1
low water	(L.W.). The lowest level reached at a place by the water surface in one oscillation. Alsocalled low tide.	2

3.159 Reference tide type

name	Reference tide type
definition	The type of tide range (i.e. mean spring tide, mean neap tide or meantide) for which a set of tidal stream rates and directions apply.
code	referenceTideType
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
springs	The tides of increased range occurring near the times of full moon and new moon.	1
neaps	The tides of decreased range occurring near the times of first and last quarter.	2
mean	The tides of mean range occurring between spring and neap tides.	3

3.160 Reference year for magnetic variation

name	Reference year for magnetic variation
definition	The reference calendar year for magnetic variation values.

code	referenceYearForMagneticVariation
remarks	None
alias	RYRMGV
valueType	S100_TruncatedDate

3.161 Regulation citation

name	Regulation citation
definition	The regulation citation for a feature
code	regulationCitation
remarks	None
alias	None
valueType	text

3.162 Reported date

name	Reported date
definition	The date that the item was observed, done, or investigated
code	reportedDate
remarks	None
alias	SORDAT
valueType	S100_TruncatedDate

3.163 Restriction

name	Restriction
definition	The official legal statute of each kind of restricted area.
code	restriction
remarks	Defines the kind of restriction(s), e.g., the restriction for 'a game preserve' may be 'entry prohibited', the restriction for an 'anchoring prohibition' is 'anchoring prohibited'. The complete information about the restriction(s), actually held in handbooks or other publications, may be encoded by the attribute 'TXTDSC'. A short explanation may be given by the use of the attribute 'INFORM'.
alias	RESTRN
valueType	enumeration

listedValues

label	definition	code
anchoring prohibited	An area within which anchoring is not permitted.	1
anchoring restricted	A specified area designated by appropriate authority, within which anchoring is restricted in accordance with certain specified conditions.	2
fishing prohibited	An area within which fishing is not permitted.	3
fishing restricted	A specified area designated by appropriate authority, within which fishing is restricted in accordance with certain specified conditions.	4
trawling prohibited	An area within which trawling is not permitted.	5
trawling restricted	A specified area designated by appropriate authority, within which trawling is restricted in accordance with certain specified conditions.	6
entry prohibited	An area within which navigation and/or anchoring is prohibited.	7
entry restricted	A specified area designated by appropriate authority, within which navigation is restricted in accordance with certain specified conditions.	8
dredging prohibited	An area within which dredging is not permitted.	9
dredging restricted	A specified area designated by appropriate authority, within which dredging is restricted in accordance with certain specified conditions.	10
diving prohibited	An area within which diving is not permitted.	11
diving restricted	A specified area designated by appropriate authority, within which diving is restricted in accordance with certain specified conditions.	12
no wake	Mariners must adjust the speed of their vessels to reduce the wave or wash which may cause erosion or disturb moored vessels.	13
area to be avoided	An IMO designated area to be avoided, defined as a routeing measure.	14
construction prohibited	The erection of permanent or temporary fixed structures or artificial islands is prohibited.	15
discharging prohibited	An area within which discharging or dumping is prohibited	16
discharging restricted	A specified area designated by an appropriate authority, within which discharging or dumping is restricted in accordance with specified conditions.	17
industrial or mineral exploration/development prohibited	An area within which industrial or mineral exploration and development are prohibited.	18
industrial or mineral exploration/development restricted	A specified area designated by an appropriate authority, within which industrial or mineral exploration and development is restricted in accordance with certain specified conditions.	19
drilling prohibited	An area within which excavating a hole on the sea-bottom with a drill is prohibited.	20
drilling restricted	A specified area designated by an appropriate authority, within which excavating a hole on the sea-bottom with a drill is restricted in accordance with certain specified conditions.	21

removal of historical artefacts prohibited	An area within which the removal of historical artifacts is prohibited.	22
cargo transhipment (lightening) prohibited	An area in which cargo transhipment (lightening) is prohibited.	23
dragging prohibited	An area in which the dragging of anything along the bottom, e.g. bottom trawling, is prohibited.	24
stopping prohibited	An area in which a vessel is prohibited from stopping.	25
landing prohibited	An area in which landing is prohibited.	26
speed restricted	An area within which speed is restricted.	27
swimming prohibited	An area in which swimming is prohibited	39

3.164 Scale minimum

name	Scale minimum
definition	The minimum scale at which the object may be used, e.g., for ECDIS presentation.
code	scaleMinimum
remarks	The modulus of the scale is indicated, that is 1:1 250 000 is encoded as 1250000.
alias	SCAMIN
valueType	integer

3.165 Scale value maximum

name	Scale value maximum
definition	The largest scale for the range of survey scale as used in source diagram information.
code	scaleValueMaximum
remarks	The modulus of the scale is indicated, that is 1:25 000 is encoded as 25000.
alias	SCVAL1
valueType	integer

3.166 Scale value minimum

name	Scale value minimum
definition	The smallest scale for the range of survey scale as used in source diagram information.

code	scaleValueMinimum
remarks	The modulus of the scale is indicated, that is 1:250 000 is encoded as 250000.
alias	SCVAL2
valueType	integer

3.167 Sector bearing

name	Sector bearing
definition	A sector is the part of a circle between two straight lines drawn from the centre to the circumference. Sector bearing specifies the limit of the sector.
code	sectorBearing
remarks	A sector is the part of a circle between two straight lines drawn from the centre to the circumference (Advanced Learner's Dictionary, 2nd Edition). The values given to the common limits of adjacent sectors should be identical. The orientation of bearing is from seaward to the central object. This conforms with the method used in 'List of Lights' publications. A generic term such as 'to shore' cannot be used; a specific bearing must be encoded. Where a light sector limit is defined as 'to the shore', it should be encoded using a value that ensures that, when the limit is drawn, it will fall entirely on land.
alias	None
valueType	real

3.168 Sector extension

name	Sector extension
definition	Distance in screen millimeters (mm) by which a sector is extendedfrom its origin.
code	sectorExtension
remarks	The sector extension is calculated by ENC production software systems.
alias	None
valueType	integer

3.169 Sector line length

name	Sector line length
definition	A sector is the part of a circle between two straight lines drawn from the centre to the circumference. Sector line length specifies the displayed length of the line, in ground units, defining the limit of the sector.
code	sectorLineLength

remarks	Sector lines should be displayed such that they cover the area where they are useful to mariners.Sector lines must not extend beyond the nominal range of the light sector.
alias	None
valueType	integer

3.170 Signal duration

name	Signal duration
definition	The time occupied by a single instance of light/sound or eclipse/silence in asignal sequence.
code	signalDuration
remarks	None
alias	None
valueType	real

3.171 Signal frequency

name	Signal frequency
definition	The frequency of a signal.
code	signalFrequency
remarks	None
alias	SIGFRQ
valueType	integer

3.172 Signal generation

name	Signal generation
definition	The mechanism used to generate a fog signal.
code	signalGeneration
remarks	None
alias	SIGGEN
valueType	enumeration

listedValues

label	definition	code
automatically	Signal generation is initiated by a self regulating mechanism such as a timer or light sensor.	1
by wave action	The signal is generated by the motion of the sea surface such as a bell in a buoy.	2
by hand	The signal is generated by a manually operated mechanism such as a hand cranked siren.	3
by wind	The signal is generated by the motion of air such as a wind driven whistle.	4
radio activated	Activated by radio signal	5
call activated	Activated by making a call to a manned station	6

3.173 Signal group

name	Signal group
definition	The number of signals, the combination of signals or the morse character(s) within one period of full sequence.
code	signalGroup
remarks	None
alias	SIGGRP
valueType	text

3.174 Signal period

name	Signal period
definition	The time occupied by an entire cycle of intervals of light and eclipse.
code	signalPeriod
remarks	None
alias	SIGPER
valueType	real

3.175 Signal Status

name	Signal Status
definition	The indication of an element of a signal sequence being a period of light oreclipse.
code	signalStatus

remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
lit/sound	The indication of an element of a signal sequence being a period of light or sound	1
eclipsed/silent	The indication of an element of a signal sequence being a period of eclipse or silence.	2

3.176 Significant features detected

name	Significant features detected
definition	A statement expressing if significant features have or have not been detected in the course of a survey.
code	significantFeaturesDetected
remarks	A feature in this context is any object, whether manmade or not, projecting above the sea floor, which may be a danger for surface navigation (reference: IHO publication S-44). Significant features detected does not describe if significant features were actually detected during a hydrographic survey, but whether the survey had the capacity to detect significant features.
alias	None
valueType	boolean

3.177 Size of features detected

name	Size of features detected
definition	The size of detected bathymetric features in an area.
code	sizeOfFeaturesDetected
remarks	None
alias	None
valueType	real

3.178 Source

name	Source

definition	The publication, document, or reference work from which information comes or is acquired.
code	source
remarks	The attribute source may be populated with the corresponding paper chart Notice to Mariners numbers, although other references are permitted.
alias	None
valueType	text

3.179 Speed limit

name	Speed limit
definition	The maximum allowed rate of travel in an area.
code	speedLimit
remarks	None
alias	None
valueType	real

3.180 Speed maximum

name	Speed maximum
definition	Rate of motion. The terms speed and velocity are often used interchangeably, but speed is a scalar, having magnitude only, while velocity is a vector quantity, having both magnitude and direction.Speed maximum is the maximum rate of travel that can occur.
code	speedMaximum
remarks	None
alias	CURVEL
valueType	real

3.181 Speed minimum

name	Speed minimum
definition	Rate of motion. The terms speed and velocity are often used interchangeably, but speed is a scalar, having magnitude only, while velocity is a vector quantity, having both magnitude and direction.Speed minimum is the minimum rate of travel that can occur.
code	speedMinimum

remarks	None
alias	None
valueType	real

3.182 Station name

name	Station name
definition	Name of DGNSS station
code	stationName
remarks	None
alias	None
valueType	text

3.183 Station Number

name	Station Number
definition	The identification number of the reference tide station with reference waterlevel for tidal stream panel observations.
code	stationNumber
remarks	None
alias	None
valueType	integer

3.184 Status

name	Status
definition	The condition of an object at a given instant in time
code	status
remarks	None
alias	STATUS
valueType	enumeration

listedValues

label	definition	code
permanent	Intended to last or function indefinitely.	1
occasional	Acting on special occasions happening irregularly.	2
recommended	Presented as worthy of confidence, acceptance, use, etc.	3
not in use	No longer used for the purpose intended disused.	4
periodic/intermittent	Recurring at intervals.	5
reserved	Set apart for some specific use.	6
temporary	Meant to last only for a time.	7
private	Not in public ownership or operation.	8
mandatory	Compulsory enforced.	9
extinguished	No longer lit	11
illuminated	Lit by floodlights, strip lights, etc.	12
historic	Famous in history of historical interest.	13
public	Belonging to, available to, used or shared by, the community as a whole and not restricted to private use.	14
synchronized	Occur at a time, coincide in point of time, be contemporary or simultaneous.	15
watched	Looked at or observed over a period of time especially so as to be aware of any movement or change.	16
un-watched	Usually automatic in operation, without any permanently-stationed personnel to superintend it.	17
existence doubtful	An object that has been reported but has not been definitely determined to exist.	18
buoyed	Marked by buoys	28

3.185 Stream depth

name	Stream depth
definition	The depth below the sea surface to which the tidal stream data refers relative to the sounding datum.
code	streamDepth
remarks	None
alias	None
valueType	real

3.186 Surrounding depth

name	Surrounding depth
definition	The depth value determined for seabed around an underwater hazard of unknown depth, based on the depth of the surrounding area.
code	surroundingDepth
remarks	The value for surrounding depth is determined from the attribute depth range minimum value for the surrounding encoded Depth Area. For an area feature covered by more than one deptharea, the surrounding depth is determined as the depth range minimum attribute value of the deeper of the depth areas covering the feature.
alias	None
valueType	real

3.187 Survey authority

name	Survey authority
definition	The authority which was responsible for the survey.
code	surveyAuthority
remarks	The attribute 'survey authority' encodes the name of the source survey authority.(Example: Hydrographic Service, Royal Australian Navy Port of Melbourne Authority)
alias	SURATH
valueType	text

3.188 Survey type

name	Survey type
definition	Classification of the diffrent survey types
code	surveyType
remarks	None
alias	SURTYP
valueType	enumeration

listedValues

label	definition	code

reconnaissance/sketch survey	A survey made to a lower degree of accuracy and detail than the chosen scale would normally indicate.	1
controlled survey	A thorough survey usually conducted with reference to guidelines.	2
examination survey	A survey principally aimed at the investigation of underwater obstructions and dangers.	4
passage survey	A survey where soundings are acquired by vessels on passage.	5
remotely sensed	A survey where features have been positioned and delimited using remote sensing techniques.	6
full coverage	A survey achieving 100% coverage using systematic, controlled techniques providing full seafloor coverage or full coverage to a defined depth and an investigation of all contacts.	7
systematic survey	A controlled survey but full coverage may not have been achieved.	8
non-systematic survey	A survey of lower quality than a full coverage and systematic survey. Such surveys may be further categorized as reconnaissance, sketch, track, passage, remotely sensed and spot-sounding surveys.	9
inadequately surveyed	A survey that is not to modern standards, or which, due to its age, scale, or positional or vertical uncertainties is not suitable to the type of navigation expected in the area.	10
spot-sounding survey	A survey that uses a regular (e.g. grid) or irregular pattern of soundings obtained one at a time, and normally with very wide spacing.	11
acoustically swept survey	A controlled, systematic survey to standard accuracy; using modern survey echo sounderwith sonar sweep.	12
mechanically swept survey	Swept areas where the clearance depth is accurately known but the actual seabed depth is not accurately known.	13

3.189 Swept date

name	Swept date
definition	The date that the area was swept by a survey.
code	sweptDate
remarks	alias
alias	None
valueType	S100_TruncatedDate

3.190 Technique of vertical measurement

name	Technique of vertical measurement
definition	Survey method used to obtain depth information
code	techniqueOfVerticalMeasurement

remarks	None
alias	TECSOU
valueType	enumeration

listedValues

label	definition	code
found by echo-sounder	The depth was determined by using an instrument that determines depth of water by measuring the time interval between emission of a sonic or ultrasonic signal and return of its echo from the bottom.	1
found by side scan sonar	The depth was computed from a record produced by active sonar in which fixed acoustic beams are directed into the water perpendicularly to the direction of travel to scan the seabed and generate a record of the seabed configuration.	2
found by multi-beam	The depth was determined by using a wide swath echo sounder that uses multiple beams to measure depths directly below and transverse to the ship's track.	3
found by diver	The depth was determined by a person skilled in the practice of diving.	4
found by lead-line	The depth was determined by using a line, graduated with attached marks and fastened to a sounding lead.	5
swept by wire-drag	The given area was determined to be free from navigational dangers to a certain depth by towing a buoyed wire at the desired depth by two launches, or a least depth was identified using the same technique.	6
swept by vertical acoustic system	The given area has been swept using a system comprised of multiple echo sounder transducers attached to booms deployed from the survey vessel.	8
found by electromagnetic sensor	The depth was determined by using an instrument that compares electromagnetic signals.	9
photogrammetry	The depth was determined by applying mathematical techniques to photographs.	10
satellite imagery	The depth was determined by using instruments placed aboard an artificial satellite.	11
found by levelling	The depth was determined by using levelling techniques to find the elevation of the point relative to a datum.	12
swept by side scan sonar	The given area was determined to be free from navigational dangers to a certain depth by towing a side scan sonar.	13
found by LIDAR	The depth was measured by using an instrument that measures distance by emitting timed pulses of laser light and measuring the time between emission and reception of the reflected pulses. (Adapted from IHO Dictionary ? S-32).	15
synthetic Aperture Radar	A radar with a synthetic aperture antenna which is composed of a large number of elementary transducing elements. The signals are electronically combined into a resulting signal equivalent to that of a single antenna of a given aperture in a given direction.	16

hyperspectral imagery	Term used to describe the imagery derived from subdividing the electromagnetic spectrum into very narrow bandwidths. These narrow bandwidths may be combined with or subtracted from each other in various ways to form images useful in precise terrain or target analysis. Also called HSI.	17

3.191 Telecommunication identifier

name	Telecommunication identifier
definition	An identifier, such as words, numbers, letters, symbols, or any combination of those used to establish a contact to a particular person, organisation or service.
code	telecommunicationIdentifier
remarks	None
alias	None
valueType	text

3.192 Telecommunication service

name	Telecommunication service
definition	Methods to communicate between involved parties over a distance.
code	telecommunicationService
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
voice	The transfer or exchange of information by using sounds that are being made by mouth and throat when speaking.	1
facsimile	A system of transmitting and reproducing graphic matter (as printing or still pictures) by means of signals sent over telephone lines.	2
SMS	Short Message Service - a form of text messaging communication on phones and mobile phones.	3
data	Facts or information used usually to calculate, analyze, or plan something.	4
streamed data	Data that is constantly received by and presented to an end-user while being delivered by a provider.	5

telex	A system of communication in which messages are sent over long distances by using a telephone system and are printed by using a special machine (called a teletypewriter).	6
telegraph	An apparatus, system or process for communication at a distance by electric transmission over wire.	7
email	Messages and other data exchanged between individuals using computers in a network.	8

3.193 Text

name	Text
definition	A non-formatted digital text string.
code	text
remarks	Should be used, for example, to hold the information that is for short cautionary or explanatory notes. Therefore, text populated in text must not exceed 300 characters. Text may be in English, or in a national language. No formatting of text is possible within text. If formatted text, or text strings exceeding 300 characters, is required, then an alternate concept should be used.
alias	INFORM; NINFOM
valueType	text

3.194 Text justification

name	Text justification
definition	The alignment of text on a page or screen.
code	textJustification
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
left	Of, relating to, or located on or near the side of a person or thing that is turned toward the west when the subject is facing north (opposed to right).	1
centred	Equidistant from all bordering or adjacent areas; situated in the centre.	2

right	Of, relating to, or located on or near the side of a person or thing that is turned toward the east when the subject is facing north (opposed to left).	3

3.195 Text type

name	Text type
definition	The attribute from which a text string is derived
code	textType
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
feature name	The type of attribute that will be passed via the text string.	1
light characteristic	The attribute information that will passed through the text string.	2

3.196 Time of day end

name	Time of day end
definition	The time corresponding to the end of an active period.
code	timeOfDayEnd
remarks	The "time of day end" must be encoded using 2 digits for the hour (hh), 2 digits for the minutes(mm) and 2 digits for the seconds (ss). This conforms to ISO 8601:2004.
alias	None
valueType	time

3.197 Time of day start

name	Time of day start
definition	The time corresponding to the start of an active period.
code	timeOfDayStart

remarks	The "time of day start" must be encoded using 2 digits for the hour (hh), 2 digits for the minutes(mm) and 2 digits for the seconds (ss). This conforms to ISO 8601:2004.
alias	None
valueType	time

3.198 Time relative to tide

name	Time relative to tide
definition	The time difference relative to the reference tide.
code	timeRelativeToTide
remarks	Positive values are time after the referenced tide, negative values are time before the referenced tide.
alias	None
valueType	integer

3.199 Topmark/daymark shape

name	Topmark/daymark shape
definition	The shape a topmark or day mark exhibits
code	topmarkDaymarkShape
alias	TOPSHP
valueType	enumeration

listedValues

label	definition	code
cone, point up	Is where the vertex points up. A cone is a solid figure generated by straight lines drawn from a fixed point (the vertex) to a circle in a plane not containing the vertex. Cones are commonly used as International Association of Lighthouse Authorities - IALA topmarks lateral.	1
cone, point down	Is where the vertex points down. A cone is a solid figure generated by straight lines drawn from a fixed point (the vertex) to a circle in a plane not containing the vertex. Cones are commonly used as International Association of Lighthouse Authorities - IALA topmarks lateral.	2
sphere	A body the surface of which is at all points equidistant from the centre. Spheres are commonly used as International Association of Lighthouse Authorities - IALA topmarks safe water.	3
2 spheres	Two black spheres are commonly used as an International Association of Lighthouse Authorities - IALA topmark (isolated danger).	4

cylinder (can)	A solid geometrical figure generated by straight lines fixed in direction and describing with one of point a closed curve, especially a circle (in which case the figure is circular cylinder, it's ends being parallel circles). Cylinders are commonly used as International Association of Lighthouse Authorities - IALA topmarks lateral.	5
board	Usually of rectangular shape, made from timber or metal and used to provide a contrast with the natural background of a daymark. The actual daymark is often painted on to this board.	6
X-Shaped (St. Andrew's Cross)	Having a shape or a cross-section like the capital letter X. An x-shape as an International Association of Lighthouse Authorities - IALA topmark should be 3 dimensional in shape. It is made of at least three crossed bars.	7
upright cross (St George's Cross)	A cross with one vertical member and one horizontal member, i.e. similar in shape to the character '+'.	8
cube, point up	A cube standing on one of its vertexes. A cube is a solid contained by six equal squares a regular hexahedron (The New Shorter Oxford English Dictionary. 1993. vol 2)	9
2 cones, point to point	2 cones, one above the other, with their vertices together in the centre.	10
2 cones, base to base	2 cones, one above the other, with their bases together in the centre and their vertices pointing up and down.	11
rhombus (diamond)	A plane figure having four equal sides and equal opposite angles (two acute and two obtuse); an oblique equilateral parallelogram.	12
2 cones (points upward)	2 cones, one above the other, with their vertices pointing up.	13
2 cones (points downward)	2 cones, one above the other, with their vertices pointing down.	14
besom, point up (broom or perch)	Besom: a bundle of rods or twigs. perch: a staff placed on top of a buoy, rock or shoal as a mark for navigation.	15
besom, point down (broom or perch)	Besom: a bundle of rods or twigs. perch: a staff placed on top of a buoy, rock or shoal as a mark for navigation.	16
flag	A flag mounted on a short pole.	17
sphere over a rhombus	A sphere located above a rhombus.	18
square	A plane figure with four right angles and four equal straight sides	19
rectangle, horizontal	Where the two longer opposite sides are standing horizontally. A rectangle is a plane figure with four right angles and four straight sides, opposite sides being parallel and equal in length.	20
rectangle, vertical	Where the two longer opposite sides are standing vertically. A rectangle is a plane figure with four right angles and four straight sides, opposite sides being parallel and equal in length	21
trapezium, up	Which stands on its longer parallel side. A trapezium is a quadrilateral having one pair of opposite sides parallel.	22
trapezium, down	Which stands on its shorter parallel side. A trapezium is a quadrilateral having one pair of opposite sides parallel.	23
triangle, point up	A triangle, point up. A triangle is a figure having three angles and three sides.	24

triangle, point down	A triangle, point down. A triangle is a figure having three angles and three sides.	25
circle	A perfectly round plane figure whose circumference is everywhere equidistant from its centre.	26
two upright crosses (one over the other)	Two upright crosses, generally vertically disposed one above the other.	27
T-shape	Having a shape like the capital letter T.	28
triangle pointing up over a circle	A triangle, vertex uppermost, located above a circle.	29
upright cross over a circle	An upright cross located above a circle.	30
rhombus over a circle	A rhombus located above a circle.	31
circle over a triangle pointing up	A circle located over a triangle, vertex uppermost.	32
other shape (see shape information)	An uncommon and/or non-standardized shape as textually described using an associated attribute.	33

3.200 Traffic flow

name	Traffic flow
definition	Direction of vessels passing a reference point.
code	trafficFlow
remarks	The direction of travel.
alias	TRAFIC
valueType	enumeration

listedValues

label	definition	code
inbound	Traffic flow in a general direction toward a port or similar destination.	1
outbound	Traffic flow in a general direction away from a port or similar point of origin.	2
one-way	Traffic flow in one general direction only.	3
two-way	Traffic flow in two generally opposite directions.	4

3.201 Uncertainty fixed

name	Uncertainty fixed

definition	The best estimate of the fixed horizontal or vertical accuracy component for positions, depths, heights, vertical distances and vertical clearances.
code	uncertaintyFixed
remarks	None
alias	POSACC; SOUACC; VERACC
valueType	real

3.202 Uncertainty variable factor

name	Uncertainty variable factor
definition	The factor to be applied to the variable component of an uncertainty equation so as to provide the best estimate of the variable horizontal or vertical accuracy component for positions, depths, heights, vertical distances and vertical clearances.
code	uncertaintyVariableFactor
remarks	None
Alias	None
valueType	real

3.203 Underlying layer

name	Underlying layer
definition	The position of the seabed type within the layers of the seabed.
code	underlyingLayer
remarks	None
alias	None
valueType	integer

3.204 Value of annual change in magnetic variation

name	Value of annual change in magnetic variation
definition	The annual change in magnetic variation values.
code	valueOfAnnualChangeInMagneticVariation
remarks	A positive value, i.e., unsigned, indicates a change in an easterly direction and a negative value indicates a change in a westerly direction. Distinguished from 'value of magnetic variation'.

alias	VALACM
valueType	real

3.205 Value of depth contour

name	Value of depth contour
definition	The depth of a sea bottom contour.
code	valueOfDepthContour
remarks	Drying contours are indicated by a negative value. The unit of measure is defined in the DUNI subfield of the DSPM record or in the DUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 fm or 0.1 ft.
alias	VALDCO
valueType	real

3.206 Value of magnetic variation

name	Value of magnetic variation
definition	The magnetic variation value.
code	valueOfMagneticVariation
remarks	A positive value, i.e., unsigned, indicates variation in an easterly direction and a negative value indicates variation in a westerly direction. Distinguished from 'value of annual change in magnetic variation'.
alias	VALMAG
valueType	real

3.207 Value of maximum range

name	Value of maximum range
definition	The extreme distance at which an object can be seen or a signal detected.
code	valueOfMaximumRange
remarks	This attribute does not apply to lights where the attribute 'value of nominal range' should be used.
alias	VALMXR
valueType	real

3.208 Value of nominal range

name	Value of nominal range
definition	The nominal range at which an object can be seen or a signal detected.
code	valueOfNominalRange
remarks	The nominal range is normally the luminous range of a light in a homogeneous atmosphere in which the meteorological visibility is 10 sea miles (IHO Hydrographic Dictionary, S-32, 5th Edition, 4218).
alias	VALNMR
valueType	real

3.209 Value of sounding

name	Value of sounding
definition	The value of the measurement of a sounding relative to the chart datum.
code	valueOfSounding
remarks	A drying height is indicated by a negative value. The unit of measure is defined in the DUNI subfield of the DSPM record or in the DUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 fm or 0.1 ft.
alias	VALSOU
valueType	real

3.210 Vertical clearance value

name	Vertical clearance value
definition	The vertical clearance measured from the horizontal plane towards the feature overhead.
code	verticalClearanceValue
remarks	None
alias	VERCLR
valueType	real

3.211 Vertical datum

name	Vertical datum

definition	Vertical datum used for measuring elevations of points on the earth's surface. Its the datum to which both heights and soundings are referred.
code	verticalDatum
remarks	When the vertical datum is unknown, such as water areas above locks, the value 'local datum' is to be used, and further details may be encoded using 'INFORM'. The +0.3m approximation quoted in the 'approximate' levels is somehow arbitrary and follows the British example of their definition for 'approximate LAT'.
alias	VERDAT
valueType	enumeration

listedValues

label	definition	code
mean low water springs	(MLWS) - the average height of the low waters of spring tides.	1
mean lower low water springs	(MLLWS) - the average height of lower low water springs at a place.	2
mean sea level	(MSL) - the average height of the surface of the sea at a tide station for all stages of the tide over a 19-year period, usually determined from hourly height readings measured from a fixed predetermined reference level.	3
lowest low water	an arbitrary level conforming to the lowest tide observed at a place, or some what lower.	4
mean low water	(MLW) - the average height of all low waters at a place over a 19-year period.	5
lowest low water springs	an arbitrary level conforming to the lowest water level observed at a place at spring tides during a period of time shorter than 19 years.	6
approximate mean low water springs	an arbitrary level, usually within ' 0.3m from that of mean low water springs (MLWS).	7
Indian spring low water	(ISLW) - an arbitrary tidal datum approximating the level of the mean of the lower low water at spring tides.	8
low water springs	an arbitrary level, approximating that of mean low water springs (MLWS).	9
approximate lowest astronomical tide	an arbitrary level, usually within ' 0.3m from that of lowest astronomical tide (LAT).	10
nearly lowest low water	an arbitrary level approximating the lowest water level observed at a place, usually equivalent to the Indian spring low water (ISLW).	11
mean lower low water	(MLLW) - the average height of the lower low waters at a place over a 19-year period.	12
low water	an approximation of mean low water adopted as the reference level for a limited area, irrespective of better determinations at a later date.	13
approximate mean low water	an arbitrary level, usually within ' 0.3m from that of mean low water (MLW).	14

approximate mean lower low water	an arbitrary level, usually within ' 0.3m from that of mean lower low water (MLLW).	15
mean high water	(MHW) - the average height of all high waters at a place over a 19-year period.	16
mean high water springs	(MHWS) - the average height of the high waters of spring tides.	17
high water	the highest level reached at a place by the water surface in one tidal cycle.	18
approximate mean sea level	an arbitrary level, usually within ' 0.3m from that of mean sea level (MSL).	19
high water springs	an arbitrary level, approximating that of mean high water springs (MHWS).	20
mean higher high water	(MHHW) - the average height of higher high waters at a place over a 19-year period.	21
equinoctial spring low water	the level of low water springs near the time of an equinox.	22
lowest astronomical tide	(LAT) - the lowest tide level which can be predicted to occur under average meterological conditions and under any combination of astronomical conditions.	23
local datum	an arbitrary datum defined by a local harbour authority, from which levels and tidal heights are measured by this authority.	24
international great lakes datum 1985	(IGLD 1985) - a vertical reference system with its zero based on the mean water level at Rimouski/Pointe-au-P??re, Quebec, over the period 1970 to 1988.	25
mean water level	the average of all hourly water levels over the available period of record.	26
lower low water large tide	(LLWLT) - the average of the lowest low waters, one from each of 19 years of observations.	27
Higher High Water Large Tide	Tthe average of the highest high waters, one from each of 19 years of observations.	28
nearly highest high water	an arbitrary level approximating the highest water level observed at a place, usually equivalent to the high water springs.	29
highest Astronomical Tide	The highest tidal level which can be predicted to occur under average meteorological conditions and under any combination of astronomical conditions.	30
baltic Sea Chart Datum 2000	(BSCD2000) - the datum refers to each Baltic countrys realization of the European Vertical Reference System (EVRS) with land-uplift epoch 2000, which is connected to the Normaal Amsterdams Peil (NAP).	44

3.212 Vertical length

name	Vertical length
definition	The total vertical length of an object.
code	verticalLength

remarks	For floating objects: the vertical distance from the surface of water to the highest point of that object. For fixed objects: the vertical distance from seabed or ground to the highest point of that object. For objects on top of other objects: the vertical distance from the lowest to the highest point of that object. Vertical length measurements do not require a datum. The unit of measure is defined in the HUNI subfield of the DSPM record or in the HUNITS attribute of the M_UNIT meta object class, e.g., metre (m). The resolution is 0.1 m or 0.1 ft.
alias	VERLEN
valueType	real

3.213 Vessel class

name	Vessel class
definition	The classification of a vessel, normally as defined by length or gross tonnage.
code	vesselClass
remarks	None
alias	None
valueType	text

3.214 Virtual AIS aid to navigation type

name	Virtual AIS aid to navigation type
definition	A purpose of a virtual AIS Aid to navigation.
code	virtualAISAidToNavigationType
valueType	enumeration

listedValues

label	definition	code
north cardinal	Indicates that it should be passed to the north side of the aid.	1
east cardinal	Indicates that it should be passed to the east side of the aid.	2
south cardinal	Indicates that it should be passed to the south side of the aid.	3
west cardinal	Indicates that it should be passed to the west side of the aid.	4
port lateral	Indicates the port boundary of a navigational channel or suggested route when proceeding in the conventional direction of buoyage.	5

starboard lateral	Indicates the starboard boundary of a navigational channel or suggested route when proceeding in the conventional direction of buoyage.	6
preferred channel to port	At a point where a channel divides, when proceeding in the conventional direction of buoyage, the preferred channel (or primary route) is indicated by a modified port-hand lateral mark.	7
preferred channel to starboard	At a point where a channel divides, when proceeding in the conventional direction of buoyage, the preferred channel (or primary route) is indicated by a modified starboard-hand lateral mark.	8
isolated danger	A mark used alone to indicate a dangerous reef or shoal. The mark may be passed on either hand.	9
safe water	Indicates that there is navigable water around the mark.	10
special purpose	A special purpose aid is primarily used to indicate an area or feature, the nature of which is apparent from reference to a chart, Sailing Directions or Notice to Mariners	11
emergency wreck marking	A mark used to indicate the existence of a recent wreck.	12

3.215 Visually conspicuous

name	Visually conspicuous
definition	Relating to a features ability to be clearly seen and identified
code	visuallyConspicuous
remarks	None
alias	CONVIS
valueType	enumeration

listedValues

label	definition	code
visually conspicuous	Term applied to an object either natural or artificial which is distinctly and notably visible from seaward.	1
not visually conspicuous	An object which is visible from seaward, but is not conspicuous.	2
prominent	An object which is visible from seaward and may be used as a fixing mar, but is not conspicuous	3

3.216 Water level effect

name	Water level effect
definition	The effect of the surrounding water on an object.

code	waterLevelEffect
alias	WATLEV
remarks	None
alias	None
valueType	enumeration

listedValues

label	definition	code
partly submerged at high water	Partially covered and partially dry at high water.	1
always dry	Not covered at high water under average meteorological conditions.	2
always under water/submerged	Remains covered by water at all times under average meteorological conditions.	3
covers and uncovers	Expression intended to indicate an area of a reef or other projection from the bottom of a body of water which periodically extends above and is submerged below the surface. Also referred to as 'dries or uncovers'.	4
awash	Flush with, or washed by the waves at low water under average meteorological conditions.	5
subject to inundation or flooding	An area periodically covered by flood water, excluding tidal waters.	6
floating	Resting or moving on the surface of a liquid without sinking	7

3.217 waterway distance

name	Waterway distance
definition	The distance measured from an origin of a river or canal. The length of the space between two points along a waterway.
code	waterwayDistance
remarks	None
alias	WTWDIS
valueType	real

3.218 Wave length value

name	Wave length value

definition	The distance between two successive peaks (or other points of identicalphase) on an electromagnetic wave.
code	waveLengthValue
remarks	None
alias	None
valueType	real

4 Complex attributes

4.1 Directional character

name	Directional character
definition	A directional light is a light illuminating a sector of very narrow angle and intended to mark a direction to follow.
code	directionalCharacter
remarks	None
alias	None
multiplicity	0..1
attribute ref	moireEffect
multiplicity	1..1
attribute ref	orientation

4.2 Feature name

name	Feature name
definition	The complex attribute provides the name of an entity, defines the national language of the name, and provides the option to display the name at various system display settings.
code	featureName
remarks	None
alias	None
multiplicity	0..1
attribute ref	displayName
multiplicity	0..1
attribute ref	language
multiplicity	0..1
attribute ref	name

4.3 Features detected

name	Features detected
definition	The uniform assessment of detected features.

code	featuresDetected
remarks	A feature in this context is meant to be any object, whether man made or not, projecting above the sea floor, which may be a danger for surface navigation. (Refer IHO document S-44). Features detected does not describe if features were actually detected during a hydrographic survey, but whether the survey had the capacity to detect features.
alias	None
multiplicity	1..1
attribute ref	leastDepthOfDetectedFeaturesMeasured
multiplicity	1..1
attribute ref	significantFeaturesDetected
multiplicity	0..1
attribute ref	sizeOfFeaturesDetected

4.4 Fixed date range

name	Fixed date range
definition	A active period of a single fixed event or occurrence, as the date range between discrete start and end dates.
code	fixedDateRange
remarks	The sub-attributes date start and date end must be encoded in the format YYYYMMDD; using 4 digits for the calendar year (YYYY) and, optionally, 2 digits for the month (MM) (for example April = 04) and 2 digits for the day (DD). When no specific month and/or day is required/known, the values are replaced with dashes (-). The date range of a recurring event or occurrence must be encoded using the attribute periodic data range.
alias	None
multiplicity	0..1
attribute ref	dateEnd
multiplicity	0..1
attribute ref	dateStart

4.5 Frequency pair

name	Frequency pair
definition	A pair of frequencies for transmitting and receiving radio signals. The shore station transmits and receives on the frequencies indicated.
code	frequencyPair

remarks	None
alias	FRQPAR
multiplicity	0..1
attribute ref	frequencyShoreStationReceives
multiplicity	1..1
attribute ref	frequencyShoreStationTransmits

4.6 Horizontal clearance fixed

name	Horizontal clearance fixed
definition	The horizontal clearance measured between two points for a fixed span.
code	horizontalClearanceFixed
remarks	None
alias	None
multiplicity	1..1
attribute ref	horizontalClearanceValue
multiplicity	0..1
attribute ref	horizontalDistanceUncertainty

4.7 Horizontal clearance open

name	Horizontal Clearance Open
definition	The horizontal clearance measured between two points for an opening span.
code	horizontalClearanceOpen
remarks	None
alias	None
multiplicity	1..1
attribute ref	horizontalClearanceValue
multiplicity	0..1
attribute ref	horizontalDistanceUncertainty

4.8 Horizontal position uncertainty

name	Horizontal Position Uncertainty
definition	The best estimate of the accuracy of a position.
code	horizontalPositionUncertainty
remarks	The expected input is the maximum of the two-dimensional error. The error is assumed to be positive and negative.
alias	None
multiplicity	1..1
attribute ref	uncertaintyFixed
multiplicity	0..1
attribute ref	uncertaintyVariableFactor

4.9 Information

name	Information
definition	Textual information about the feature. The information may be provided as a string of text or as a file name of a single external text file that contains the text.
code	information
remarks	At least one of the sub-attributes file reference or text must be populated.The sub-attribute file reference is generally used for long text strings or those that require formatting, however, there is no restriction on the type of text (except for lexical level) that can be held in files referenced by sub-attribute file reference.
alias	INFORM
multiplicity	0..1
attribute ref	fileLocator
multiplicity	0..1
attribute ref	fileReference
multiplicity	0..1
attribute ref	headline
multiplicity	0..1
attribute ref	language
multiplicity	0..1
attribute ref	text

4.10 Light sector

name	Light sector
definition	A sector is the part of a circle between two straight lines drawn from the centre to the circumference.
code	lightSector
remarks	None
alias	None
multiplicity	1..*
permitted values	1, 3, 4, 5, 6, 9, 10, 11
attribute ref	colour
multiplicity	0..1
attribute ref	directionalCharacter
multiplicity	0..*
permitted values	1, 2, 3, 4, 5, 6, 8, 9
attribute ref	lightVisibility
multiplicity	0..1
attribute ref	sectorLimit
multiplicity	0..1
attribute ref	valueOfNominalRange
multiplicity	0..*
attribute ref	sectorInformation
multiplicity	0..1
attribute ref	sectorExtension

4.11 Measured distance value

name	Measured distance value
definition	The distance value indicated on a distance mark, or the distance between two measured distance marks.
code	measuredDistanceValue
remarks	None
alias	None

multiplicity	1..1
permitted values	1, 2, 3, 4, 5
attribute ref	distanceUnitOfMeasurement
multiplicity	0..1
attribute ref	referenceLocation
multiplicity	1..1
attribute ref	waterwayDistance

4.12 Multiplicity of features

name	Multiplicity of Features
definition	The number of features of identical character that exist as a colocated group.
code	multiplicityOfFeatures
remarks	None
alias	None
multiplicity	1..1
attribute ref	multiplicityKnown
multiplicity	0..1
attribute ref	numberOfFeatures

4.13 Online resource

name	Online resource
definition	Information about online sources from which a resource or data can be obtained.
code	onlineResource
remarks	None
alias	ONLRES
multiplicity	0..1
attribute ref	headline
multiplicity	1..1
attribute ref	linkage
multiplicity	0..1

attribute ref	nameOfResource

4.14 Orientation

name	Orientation
definition	The angular distance measured from true north to the major axis of the feature.
code	orientation
remarks	None
alias	None
multiplicity	0..1
attribute ref	orientationUncertainty
multiplicity	1..1
attribute ref	orientationValue

4.15 Periodic date range

name	Periodic date range
definition	The complex attribute describes the active period for a seasonal feature (e.g. a buoy), as the dates between its sub-attributes.
code	periodicDateRange
remarks	None
alias	None
multiplicity	1..1
attribute ref	dateEnd
multiplicity	1..1
attribute ref	dateStart

4.16 Radar wave length

name	Radar wave length
definition	The distance between two successive peaks (or other points of identical phase) on an electromagnetic wave in the radar band of the electromagnetic spectrum.
code	radarWaveLength

remarks	None
alias	None
multiplicity	1..1
attribute ref	radarBand
multiplicity	1..1
attribute ref	waveLengthValue

4.17 Rhythm of light

name	Rhythm of light
definition	The sequence of times occupied by intervals of light/sound and eclipse/silence for all light characteristics or sound signals.
code	rhythmOfLight
remarks	None
alias	None
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 25, 26, 27, 28, 29
attribute ref	lightCharacteristic
multiplicity	0..*
attribute ref	signalGroup
multiplicity	0..*
attribute ref	signalPeriod
multiplicity	0..*
attribute ref	signalSequence

4.18 Schedule by day of week

name	Schedule by day of week
definition	The nature and timings of a daily schedule by days of the week.
code	scheduleByDayOfWeek
remarks	None
alias	None
multiplicity	0..1

permittedValues	1, 2, 3
attribute ref	categoryOfSchedule
multiplicity	1..*
attribute ref	timeIntervalsByDayOfWeek

4.19 Sector characteristics

name	Sector characteristics
definition	The complex attribute describes the characteristics of a light sector.
code	sectorCharacteristics
remarks	None
alias	None
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 11, 12, 13, 14, 15, 16, 17, 18, 19, 25, 26, 27, 28, 29
attribute ref	lightCharacteristic
multiplicity	1..*
attribute ref	lightSector
multiplicity	0..*
attribute ref	signalGroup
multiplicity	0..1
attribute ref	signalPeriod
multiplicity	0..*
attribute ref	signalSequence

4.20 Sector information

name	Sector information
definition	Additional textual information about a light sector.
code	sectorInformation
remarks	None
alias	None
multiplicity	0..1

attribute ref	language
multiplicity	1..1
attribute ref	text

4.21 Sector limit

name	Sector limit
definition	A sector is the part of a circle between two straight lines drawn from the centre to the circumference.The sector limit specifies the limits of the sector In a clockwise direction around the central feature (for example a light).
code	sectorLimit
remarks	None
alias	None
multiplicity	1..1
attribute ref	sectorLimitOne
multiplicity	1..1
attribute ref	sectorLimitTwo

4.22 Sector limit one

name	Sector limit one
definition	A sector is the part of a circle between two straight lines drawn from the centre to the circumference.Sector limit one specifies the first limit of the sector. The order of sector limit one and sector limit two is clockwise around the central feature (for example a light).
code	sectorLimitOne
remarks	None
alias	None
multiplicity	1..1
attribute ref	sectorBearing
multiplicity	0..1
attribute ref	sectorLineLength

4.23 Sector limit two

name	Sector limit two

definition	A sector is the part of a circle between two straight lines drawn from the centre to the circumference.Sector limit two specifies the second limit of the sector. The order of sector limit one and sector limit two is clockwise around the central feature (for example a light).
code	sectorLimitTwo
remarks	None
alias	None
multiplicity	1..1
attribute ref	sectorBearing
multiplicity	0..1
attribute ref	sectorLineLength

4.24 Shape information

name	Shape information
definition	Textual information about the shape of a non-standard topmark.
code	shapeInformation
remarks	No formatting of text is possible within shape information. If formatted text is required, then an associatedtext file referenced by the complex attribute textual description must be used
alias	None
multiplicity	0..1
attribute ref	language
multiplicity	1..1
attribute ref	text

4.25 Signal sequence

name	Signal sequence
definition	The sequence of times occupied by intervals of light and eclipse for all "light characteristics".
code	signalSequence
remarks	None
alias	None
multiplicity	1..1
attribute ref	signalDuration

multiplicity	1..1
permittedValues	1, 2
attribute ref	signalStatus

4.26 Speed

name	Speed
definition	Rate of motion. The terms speed and velocity are often used interchangeably, but speed is a scalar, having magnitude only, while velocity is a vector quantity, having both magnitude and direction.
code	speed
remarks	None
alias	None
multiplicity	1..1
attribute ref	speedMaximum
multiplicity	0..1
attribute ref	speedMinimum

4.27 Surface characteristics

name	Surface characteristics
definition	The general nature of the material of which the land surface or the seabed is composed.
code	surfaceCharacteristics
remarks	None
alias	None
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 14, 17, 18
attribute ref	natureOfSurface
multiplicity	0..3
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
attribute ref	natureOfSurfaceQualifyingTerms
multiplicity	0..1
attribute ref	underlyingLayer

4.28 Survey date range

name	Survey date range
definition	The complex attribute describes the period of the hydrographic survey, as the time between its sub-attributes.
code	surveyDateRange
remarks	The sub-attributes date start and date end must be encoded using 4 digits for the calendar year (YYYY)and, optionally, 2 digits for the month (MM) (e.g. April = 04) and 2 digits for the day (DD). When no specificmonth and/or day is required/known, indication of the month and/or day is replaced with dashes (-).
alias	None
multiplicity	1..1
attribute ref	dateEnd
multiplicity	0..1
attribute ref	dateStart

4.29 Telecommunications

name	Telecommunications
definition	A means or channel of communicating at a distance by electrical or electromagnetic means such as telegraphy, telephony, or broadcasting.
code	telecommunications
remarks	If no value is populated for the sub-attribute telecommunication service, this means the service is by voice communication.If no value is populated for the sub-attribute telecommunication carrier , this means the service is by land line communication.
alias	None
multiplicity	0..1
attribute ref	contactInstructions
multiplicity	1..1
attribute ref	telecommunicationIdentifier
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8
attribute ref	telecommunicationService

4.30 Tidal stream panel values

name	Tidal stream panel values
definition	The direction of the flow and the springs rate from 6 hours before to 6 hours after high water (HW) or low water (LW) at the reference tide station, at hourly or sub-hourly intervals.
code	tidalStreamPanelValues
remarks	None
alias	None
multiplicity	1..1
permittedValues	1, 2
attribute ref	referenceTide
multiplicity	1..1
permittedValues	1, 2, 3
attribute ref	referenceTideType
multiplicity	0..1
attribute ref	streamDepth
multiplicity	1..*
attribute ref	tidalStreamValue

4.31 Tidal stream value

name	Tidal stream value
definition	A measurement of the direction and velocity of a tidal stream at a given time relative to the reference tide.
code	tidalStreamValue
remarks	None
alias	None
multiplicity	1..1
attribute ref	orientation
multiplicity	1..1
attribute ref	speedMaximum
multiplicity	1..1
attribute ref	timeRelativeToTide

4.32 Time intervals by day of week

name	Time intervals by day of week
definition	The regular weekly operation times of a service or schedule.
code	timeIntervalsByDayOfWeek
remarks	None
alias	None
multiplicity	0..7
permittedValues	1, 2, 3, 4, 5, 6, 7
attribute ref	dayOfWeek
multiplicity	0..1
attribute ref	dayOfWeekIsRange
multiplicity	0..*
attribute ref	timeOfDayStart
multiplicity	0..*
attribute ref	timeOfDayEnd

4.33 Topmark

name	Topmark
definition	A characteristic shape secured at the top of a buoy or beacon to aid in its identification.
code	topmark
remarks	None
alias	None
alias	TOPMAR
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26. 27, 28, 29, 30, 31, 32, 33
attribute ref	topmarkDaymarkShape

multiplicity	0..*
attribute ref	shapeInformation

4.34 Update description

name	update description
definition	The textual description of changes included in an update.
code	updateDescription
remarks	The sub-attribute text is populated with a brief description of the changes made when the Update is applied,e.g.: Navigational aids insertedChanges to depths alongside and new pontoons added
alias	None
multiplicity	0..1
attribute ref	language
multiplicity	1..1
attribute ref	text

4.35 Value of local magnetic anomaly

name	Value of local magnetic anomaly
definition	The value of the deviation from the normal magnetic variation.
code	valueOfLocalMagneticAnomaly
remarks	None
alias	None
multiplicity	1..1
attribute ref	magneticAnomalyValueMaximum
multiplicity	0..1
attribute ref	magneticAnomalyValueMinimum

4.36 Vertical clearance closed

name	Vertical clearance closed
definition	The vertical clearance of a feature in closed condition (for example a closed lifting bridge) measured from the horizontal plane towards the feature overhead.

code	verticalClearanceClosed
remarks	None
alias	VERCCL
multiplicity	1..1
attribute ref	verticalClearanceValue
multiplicity	0..1
attribute ref	verticalUncertainty

4.37 Vertical clearance fixed

name	Vertical clearance fixed
definition	The vertical clearance measured from the horizontal plane towards a fixed (non-opening) feature overhead.
code	verticalClearanceFixed
remarks	Vertical clearance fixed must not be used to populate authorized safe clearances.
alias	VERCLR
multiplicity	1..1
attribute ref	verticalClearanceValue
multiplicity	0..1
attribute ref	verticalUncertainty

4.38 Vertical clearance open

name	Vertical clearance open
definition	The vertical clearance of a feature in opened condition (for example an open lifting bridge) measured from the horizontal plane towards the feature overhead.
code	verticalClearanceOpen
remarks	None
alias	VERCOP
multiplicity	1..1
attribute ref	verticalClearanceValue
multiplicity	0..1
attribute ref	verticalUncertainty

4.39 Vertical clearance safe

name	Vertical clearance safe
definition	The safe vertical clearance of a feature measured from the horizontal plane towards the feature overhead.
code	verticalClearanceSafe
remarks	None
alias	VERCSA
multiplicity	1..1
attribute ref	verticalClearanceValue
multiplicity	0..1
attribute ref	verticalUncertainty

4.40 Vertical uncertainty

name	Vertical uncertainty
definition	The best estimate of the vertical accuracy of depths, heights, vertical distances and vertical clearances.
code	verticalUncertainty
remarks	The complex attribute encodes the vertical uncertainty associated with any vertical measurement.
alias	None
multiplicity	1..1
attribute ref	uncertaintyFixed
multiplicity	0..1
attribute ref	uncertaintyVariableFactor

4.41 Vessel speed limit

name	Vessel speed limit
definition	The maximum allowed rate of travel for a vessel in an area in knots.
code	vesselSpeedLimit
remarks	None
alias	None

multiplicity	1..1
attribute ref	speedLimit
multiplicity	0..1
attribute ref	vesselClass

5 Roles

5.1 Defined for

name	Defined for
definition	A pointer to a specific spatial type(s).
code	definedFor

5.2 Defines

name	Defines
definition	A pointer to an information type providing spatial quality information.
code	defines

5.3 Positions

name	Positions
definition	A pointer to a specific cartographically positioned location for text.
code	positions

5.4 Supported by

name	Supported by
definition	a pointer to the master feature that equipment feature(s) are supported by.
code	supportedBy

5.5 Supports

name	Supports
definition	a pointer to the equipment feature(s) supported by a master feature.
code	supports

5.6 Updates

name	Updates

definition	a pointer to a feature that has been updated.
code	updates

5.7 Component of

name	Component of
definition	a pointer to a part in a whole-part relationship.
code	componentOf

5.8 Consists of

name	Consists of
definition	a pointer to the aggregate in a whole-part relationship.
code	consistsOf

5.9 Has auxiliary

name	Has auxiliary
definition	A pointer to a feature to which incidental, secondary or supplementary features are related.
code	hasAuxiliary

5.10 Auxiliary to

name	Auxiliary to
definition	A pointer to incidental, secondary or supplementary features related to the referenced feature.
code	auxiliaryTo

5.11 Information provided for

name	Information provided for
definition	A pointer to a specific feature(s) for which further information is required.
code	informationProvidedFor

5.12 Provides information

name	Provides information
definition	A pointer to an object that provides more information about the referencing feature or information type.
code	providesInformation

5.13 Identifies

name	Identifies
definition	A pointer to a specific feature(s)
code	identifies

6. Associations

Information associations

6.1 Additional information

name	Additional information
definition	An information association for the binding between at least one instance of a geo feature and an instance of an information type.
code	AdditionalInformation
role ref	informationProvidedFor
role ref	providesInformation

6.2 Spatial association

name	Spatial association
definition	Spatial association
code	SpatialAssociation
role ref	defines
role ref	definedFor

Feature associations

6.3 Structure/equipment

name	Structure/equipment
definition	A feature association for the binding between a navigation aid equipment feature and the structure that supports it.
code	StructureEquipment
role ref	supportedBy
role ref	supports

6.4 Updated information

name	Updated information
definition	A feature association for the binding between an update information feature and updated feature(s) that it identifies.
code	UpdatedInformation

role ref	updates
role ref	identifies

6.5 Aids to navigation association

name	Aids to navigation association
definition	A feature association for the binding between navigational aids and the traffic systems (such as routeing measures) that they define.
code	AidsToNavigationAssociation
role ref	componentOf
role ref	consistsOf

6.6 ASL aggregation

name	ASL aggregation
definition	A feature association for the binding between an Archipelagic Sea Lane and its component features.
code	ASLAggregation
role ref	componentOf
role ref	consistsOf

6.7 Bridge aggregation

name	Bridge aggregation
definition	A feature association for the binding between a bridge and its component features.
code	BridgeAggregation
role ref	componentOf
role ref	consistsOf

6.8 Caution area association

name	Caution area association
definition	A feature association for the binding between a caution area and the traffic systems (such as routeing measures) to which the cautionary information applies.

code	CautionAreaAssociation
role ref	componentOf
role ref	consistsOf

6.9 Deep water route aggregation

name	Deep water route aggregation
definition	a feature association for the binding between a Deep Water route and its component features.
code	DeepWaterRouteAggregation
role ref	componentOf
role ref	consistsOf

6.10 Island aggregation

name	Island aggregation
definition	A feature association for the binding between a named group if islands.
code	IslandAggregation
role ref	componentOf
role ref	consistsOf

6.11 Range system aggregation

name	Range system aggregation
definition	A feature association for the binding between navigational tracks and the navigational aids that define the tracks.
code	RangeSystemAggregation
role ref	componentOf
role ref	consistsOf

6.12 Text association

name	Text association
definition	A feature association for the binding between a geo feature and the cartographically positioned location for text.

code	TextAssociation
role ref	identifies
role ref	positions

6.13 Traffic separation scheme aggregation

name	Traffic separation scheme aggregation
definition	A feature association for the binding between a Traffic Separation Scheme or a Traffic Separation Scheme System and its component features.
code	TrafficSeparationSchemeAggregation
role ref	componentOf
role ref	consistsOf

6.14 Two-way route aggregation

name	Two-way route aggregation
definition	A feature association for the binding between a two-way route and its component features.
code	TwoWayRouteAggregation
role ref	componentOf
role ref	consistsOf

6.15 Fairway aggregation

name	Fairway aggregation
definition	A feature association for the binding between related fairways comprising a fairway system.
code	FairwayAggregation
role ref	componentOf
role ref	consistsOf

6.16 Fairway auxiliary

name	Fairway auxiliary
definition	A feature association for the binding between a fairway and related features auxiliary to the fairway.

code	FairwayAuxiliary
role ref	auxiliaryTo
role ref	hasAuxiliary

6.17 Pilotage district association

name	Pilotage District Association
definition	A feature association for the binding between a pilotage gistrict and its component pilot boarding places
code	PilotageDistrictAssociation
role ref	componentOf
role ref	consistsOf

6.18 Mooring trot aggregation

name	Mooring trot aggregation
definition	A feature association for the binding between a mooring trot and its component parts.
code	MooringTrotAggregation
role ref	consistsOf
role ref	componentOf

7. Information types

7.1 Contact details

name	Contact details
definition	Information on how to reach a person or organisation by postal, internet, telephone, telex and radio systems.
code	ContactDetails
multiplicity	0..1
attribute ref	callSign
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..1
attribute ref	contactInstructions
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	frequencyPair
multiplicity	0..1
attribute ref	mMSICode
multiplicity	0..*
attribute ref	onlineResource
multiplicity	0..*
attribute ref	telecommunications

7.2 Service hours

name	Service hours
definition	The time when a service is available and known exceptions.
code	ServiceHours
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange

multiplicity	1..*
attribute ref	scheduleByDayOfWeek
multiplicity	0..*
attribute ref	information

7.3 Non-standard working day

name	Non-standard working day
definition	Days when many services are not available. Often days of festivity or recreation or public holidays when normal working hours are limited, especially a national or religious festival, etc
code	NonStandardWorkingDay
multiplicity	0..*
attribute ref	dateFixed
multiplicity	0..*
attribute ref	dateVariable
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
attribute ref	information

7.4 Nautical information

name	Nautical information
definition	Nautical information about a related area or facility.
code	NauticalInformation
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	1..*

attribute ref	information
multiplicity	0..1
attribute ref	pictorialRepresentation

7.5 Spatial quality

name	Spatial quality
definition	The indication of the quality of the locational information for features in a dataset.
code	SpatialQuality
multiplicity	0..1
attribute ref	horizontalPositionUncertainty
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 9, 10, 11
attribute ref	qualityOfHorizontalMeasurement
multiplicity	0..1
attribute ref	verticalUncertainty

8 Feature types

8.1 Quality of non-bathymetric data

name	Quality of non-bathymetric data
definition	An area within which a uniform assessment of the quality of the non-bathymetric data exists
code	QualityOfNonBathymetricData
remarks	None
alias	M_ACCY
multiplicity	0..1
permittedValues	1, 4
attribute ref	categoryOfTemporalVariation
multiplicity	0..1
attribute ref	horizontalDistanceUncertainty
multiplicity	1..1
attribute ref	horizontalPositionUncertainty
multiplicity	0..1
attribute ref	orientationUncertainty
multiplicity	0..1
attribute ref	surveyDateRange
multiplicity	0..1
attribute ref	verticalUncertainty
featureUseType	meta
permittedPrimitives	surface

8.2 Data coverage

name	Data coverage
definition	A geographical area that describes the coverage and extent of spatial objects.
code	DataCoverage
remarks	This object class is intended to support an indication of coverage.
remarks	None
alias	M_COVR

multiplicity	1..1
attribute ref	maximumDisplayScale
multiplicity	1..1
attribute ref	minimumDisplayScale
featureUseType	meta
permittedPrimitives	surface

8.3 Navigational system of marks

name	Navigational system of marks
definition	An area within which a specific system of navigational marks applies and/or a common direction of buoyage.
code	NavigationalSystemOfMarks
remarks	None
alias	M_NSYS
multiplicity	1..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
featureUseType	meta
permittedPrimitives	surface

8.4 Local direction of buoyage

name	Local Direction of Buoyage
definition	An area within which the navigational system of marks has been established in relation to a specific direction.
code	LocalDirectionOfBuoyage
remarks	None
alias	M_NSYS
multiplicity	1..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	1..1
attribute ref	orientationValue

multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	meta
permittedPrimitives	surface

8.5 Quality of bathymetric data

name	Quality of bathymetric data
definition	An area within which a uniform assessment of the quality of the bathymetric data exists.
code	QualityOfBathymetricData
remarks	None
alias	M_QUAL
multiplicity	1..1
permittedValues	1, 2, 3, 5, 6
attribute ref	categoryOfTemporalVariation
multiplicity	1..1
permittedValues	1, 2, 3
attribute ref	dataAssessment
multiplicity	0..1
attribute ref	depthRangeMaximumValue
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	1..1
attribute ref	featuresDetected
multiplicity	1..1
attribute ref	fullSeafloorCoverageAchieved
multiplicity	1..1
attribute ref	horizontalPositionUncertainty
multiplicity	1..1
attribute ref	surveyDateRange
multiplicity	1..1

attribute ref	verticalUncertainty
featureUseType	meta
permittedPrimitives	surface

8.6 Sounding datum

name	Sounding datum
definition	An area of uniform sounding datum.
code	SoundingDatum
remarks	None
alias	M_SDAT
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 44
attribute ref	verticalDatum
featureUseType	meta
permittedPrimitives	surface

8.7 Vertical datum of data

name	Vertical datum of data
definition	An area of uniform vertical datum.
code	VerticalDatumOfData
remarks	None
alias	M_VDAT
multiplicity	1..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
featureUseType	meta
permittedPrimitives	surface

8.8 Quality of survey

name	Quality of survey

definition	An area within which a uniform assessment of the reliability of source survey information exists.
code	QualityOfSurvey
remarks	None
alias	M_SREL
multiplicity	0..1
attribute ref	depthRangeMaximumValue
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	0..1
attribute ref	featuresDetected
multiplicity	0..1
attribute ref	fullSeafloorCoverageAchieved
multiplicity	0..1
attribute ref	lineSpacingMaximum
multiplicity	0..1
attribute ref	lineSpacingMinimum
multiplicity	0..1
attribute ref	measurementDistanceMaximum
multiplicity	0..1
attribute ref	measurementDistanceMinimum
multiplicity	0..1
permittedValues	3, 4, 6
attribute ref	qualityOfHorizontalMeasurement
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7, 8, 9, 10, 11
attribute ref	qualityOfVerticalMeasuremt
multiplicity	0..1
attribute ref	scaleValueMaximum
multiplicity	0..1
attribute ref	scaleValueMinimum
multiplicity	1..1

attribute ref	surveyAuthority
multiplicity	1..1
attribute ref	surveyDateRange
multiplicity	1..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	surveyType
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
featureUseType	meta
permittedPrimitives	curve
permittedPrimitives	surface

8.9 Update information

name	Update information
definition	Update Information metadata feature is used to represent a change to the information shown.
code	UpdateInformation
remarks	None
alias	None
multiplicity	1..*
atribute ref	updateDescription
multiplicity	0..1
atribute ref	scaleMinimum
multiplicity	0..1
atribute ref	source
featureUseType	meta
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies

featureType ref	AdministrationArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	AirportAirfield
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	AnchorageArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	AnchorBerth
featureBinding roleType	association
multiplicity	0..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	ArchipelagicSeaLaneArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	ArchipelagicSeaLaneAxis

featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BeaconCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BeaconIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BeaconLateral
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BeaconSafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Berth
featureBinding roleType	association

multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Bridge
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Building
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BuiltUpArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BuoyCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BuoyInstallation
featureBinding roleType	association
multiplicity	1..*

association ref	UpdatedInformation
role ref	identifies
featureType ref	BuoyIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BuoyLateral
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BuoySafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	CableArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	CableOverhead
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation

role ref	identifies
featureType ref	CableSubmarine
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Canal
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	CargoTranshipmentArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Causeway
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	CautionArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Checkpoint
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies

featureType ref	CoastguardStation
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Coastline
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	CollisionRegulationsLimit
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	ContiguousZone
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	ContinentalShelfArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Conveyor
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Crane

featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	CurrentNonGravitational
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	CustomZone
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Dam
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Daymark
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DeepWaterRouteCentreline
featureBinding roleType	association

multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DeepWaterRoutePart
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DepthArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DepthContour
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DepthNoBottomFound
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DiscolouredWater
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DistanceMark
featureBinding roleType	association
multiplicity	1..*

association ref	UpdatedInformation
role ref	identifies
featureType ref	DockArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DredgedArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DryDock
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	DumpingGround
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Dyke
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	ExclusiveEconomicZone
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation

role ref	identifies
featureType ref	Fairway
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FenceWall
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FerryRoute
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FisheryZone
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FishingFacility
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies

featureType ref	FishingGround
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FloatingDock
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FogSignal
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FortifiedStructure
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FoulGround
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	FreePortArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Gate

featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Gridiron
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	HarbourAreaAdministrative
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	HarbourFacility
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Hulk
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	IceArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	InformationArea
featureBinding roleType	association

multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	InshoreTrafficZone
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	IslandGroup
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Lake
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LandArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LandElevation
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Landmark
featureBinding roleType	association
multiplicity	1..*

association ref	UpdatedInformation
role ref	identifies
featureType ref	LandRegion
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LightAirObstruction
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LightAllAround
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LightFloat
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LightFogDetector
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LightSectored
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation

role ref	identifies
featureType ref	LightVessel
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LocalMagneticAnomaly
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LockBasin
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	LogPond
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	MagneticVariation
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	MarineFarmCulture
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies

featureType ref	MilitaryPracticeArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	MooringTrot
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	MooringWarpingFacility
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	NavigationLine
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Obstruction
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	OffshorePlatform
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	OffshoreProductionArea

featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	OilBarrier
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Pile
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	PilotageDistrict
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	PilotBoardingPlace
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	PipelineOverhead
featureBinding roleType	association

multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	PipelineSubmarineOnLand
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Pontoon
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	PrecautionaryArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	ProductionStorageArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	PylonBridgeSupport
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RadarLine
featureBinding roleType	association
multiplicity	1..*

association ref	UpdatedInformation
role ref	identifies
featureType ref	RadarRange
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RadarReflector
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RadarStation
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RadarTransponderBeacon
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RadioCallingInPoint
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RadioStation
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation

role ref	identifies
featureType ref	Railway
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Rapids
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RecommendedRouteCentreline
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RecommendedTrack
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RecommendedTrafficLanePart
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies

featureType ref	RescueStation
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RestrictedAreaNavigational
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	RestrictedAreaRegulatory
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Retroreflector
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	River
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Road
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Runway

featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Sandwave
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SeaAreaNamedWaterArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SeabedArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SeaplaneLandingArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	ShorelineConstruction
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SignalStationTraffic
featureBinding roleType	association

multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SignalStationWarning
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SiloTank
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SlopeTopline
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SlopingGround
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SmallCraftFacility
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Sounding
featureBinding roleType	association
multiplicity	1..*

association ref	UpdatedInformation
role ref	identifies
featureType ref	SpanFixed
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SpanOpening
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Spring
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	StraightTerritorialSeaBaseline
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SubmarinePipelineArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	SubmarineTransitLane
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation

role ref	identifies
featureType ref	SweptArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TerritorialSeaArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TidalStreamFloodEbb
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TidalStreamPanelData
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Tideway
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TrafficSeparationLine
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies

featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TrafficSeparationSchemeBoundary
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TrafficSeparationSchemeCrossing
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TrafficSeparationSchemeLanePart
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TrafficSeparationSchemeRoundabout
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TrafficSeparationZone
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Tunnel

featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TwoWayRoute
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	TwoWayRoutePart
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	UnderwaterAwashRock
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	UnsurveyedArea
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Vegetation
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	VesselTrafficServiceArea
featureBinding roleType	association

multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	VirtualAISAidToNavigation
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Waterfall
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	WaterTurbulence
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	WeedKelp
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	WindTurbine
featureBinding roleType	association
multiplicity	1..*
association ref	UpdatedInformation
role ref	identifies
featureType ref	Wreck
permittedPrimitives	point
permittedPrimitives	curve

permittedPrimitives	surface

8.10 Magnetic variation

name	Magnetic variation
definition	The angle between the magnetic and geographic (true) north at a location, expressed in degrees east or west from the direction of true north.
code	MagneticVariation
remarks	None
alias	MAGVAR
multiplicity	1..1
attribute ref	referenceYearForMagneticVariation
multiplicity	1..1
attribute ref	valueOfAnnualChangeInMagneticVariation
multiplicity	1..1
attribute ref	valueOfMagneticVariation
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.11 Local magnetic anomaly

name	Local magnetic anomaly
definition	An anomaly of the magnetic field of the Earth, extending over a relatively small area, due to local magnetic influences.
code	LocalMagneticAnomaly
remarks	None
alias	LOCMAG
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1

attribute ref	reportedDate
multiplicity	1..1
attribute ref	valueOfLocalMagneticAnomaly
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.12 Coastline

name	Coastline
definition	The line where shore and water meet. Although the terminology of coasts and shores is rather confused, shoreline and coastline are generally used as synonyms.
code	Coastline
remarks	None
alias	COALNE
multiplicity	0..1
permittedValues	1, 2, 6, 7, 8, 10
attribute ref	categoryOfCoastline
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7, 8, 11, 13
attribute ref	colour
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 14, 17
attribute ref	natureOfSurface
multiplicity	0..1

attribute ref	radarConspicuous
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
featureUseType	geographic
permittedPrimitives	curve

8.13 Land area

name	Land area
definition	The solid portion of the Earth's surface, as opposed to sea, water.
code	LandArea
remarks	None
alias	LNDARE
multiplicity	0..1
permittedValues	1, 3, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
permittedValues	18
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	IslandAggregation
role ref	componentOf
featureType ref	IslandGroup
permittedPrimitives	point
permittedPrimitives	curve

permittedPrimitives	surface

8.14 Island group

name	Island group
definition	A group of islands, including archipelago's.
code	IslandGroup
remarks	None
alias	C_AGGR
multiplicity	1..*
attribute ref	featureName
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	2..*
association ref	IslandAggregation
role ref	consistsOf
featureType ref	LandArea
featureBinding roleType	aggregation
multiplicity	2..*
association ref	IslandAggregation
role ref	consistsOf
featureType ref	IslandGroup
permittedPrimitives	noGeometry

8.15 Land elevation

name	Land elevation
definition	An elevation is the vertical distance of a point or a level, on, or affixed to, the surface of the earth, measured from a specified vertical datum.
code	LandElevation
remarks	This object class is used to encode both spot heights and land (height) contours.
alias	LNDELV
multiplicity	1..1

attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve

8.16 River

name	River
definition	A relatively large natural stream of water.
code	River
remarks	The object 'river' describes the area of the river, the object 'river bank' its banks.
alias	RIVERS
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
permittedValues	5
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve
permittedPrimitives	surface

8.17 Rapids

name	Rapids

definition	Portions of a stream with accelerated current where it descends rapidly but without a break in the slope of the bed sufficient to form a waterfall. Usually used in the plural.
code	Rapids
remarks	None
alias	RAPIDS
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.18 Waterfall

name	Waterfall
definition	A sudden descent of water over a step in the bed of a river.
code	Waterfall
remarks	In place names commonly shortened to fall or falls, e.g. Niagara Falls.
alias	WATFAL
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum

featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve

8.19 Lake

name	Lake
definition	A large body of water entirely surrounded by land.
code	Lake
remarks	None
alias	LAKARE
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
permittedValues	5
attribute ref	status
featureUseType	geographic
permittedPrimitives	surface

8.20 Land region

name	Land region
definition	An area of natural scenery on land. It is defined by its geographical characteristics and may be known by its proper name.
code	LandRegion
remarks	None
alias	LNDRGN
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21

attribute ref	categoryOfLandRegion
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 14, 17, 18
attribute ref	natureOfSurface
multiplicity	0..1
permittedValues	1, 6
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.21 Vegetation

name	Vegetation
definition	Collections of, or individual plants.
code	Vegetation
remarks	None
alias	VEGATN
multiplicity	1..1
permittedValues	3, 4, 5, 6, 7, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22
attribute ref	categoryOfVegetation
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height

multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.22 Ice area

name	Ice area
definition	An area of ice over land or water.
code	IceArea
remarks	None
alias	ICEARE
multiplicity	1..1
permittedValues	1, 5, 8
attribute ref	categoryOfIce
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	reportedDate

multiplicity	0..*
permittedValues	1, 5, 18
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.23 Sloping ground

name	Sloping ground
definition	An inclined surface.
code	SlopingGround
remarks	None
alias	SLOGRD
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7
attribute ref	categoryOfSlope
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7, 8, 11, 13
attribute ref	colour
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	4, 5, 6, 7, 9, 11
attribute ref	natureOfSurface
multiplicity	0..1

attribute ref	radarConspicuous
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.24 Slope topline

name	Slope topline
definition	The upper marking of a slope, e.g. the ridge line or the separation line between two different gradients.
code	SlopeTopline
remarks	None
alias	SLOTOP
multiplicity	0..1
permittedValues	1, 2, 6
attribute ref	categoryOfSlope
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7, 8, 11, 13
attribute ref	colour
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	4, 5, 6, 7, 9, 11
attribute ref	natureOfSurface
multiplicity	0..1

attribute ref	radarConspicuous
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

8.25 Tideway

name	Tideway
definition	A natural water course in intertidal areas where water flows during the ebb or flow.
code	Tideway
remarks	A channel through which a tidal current runs.
alias	TIDEWY
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve
permittedPrimitives	surface

8.26 Built-up area

name	Built-up area
definition	An area containing a concentration of buildings and the supporting road or rail infrastructure.
code	BuiltUpArea
remarks	None
alias	BUAARE
multiplicity	0..1

permittedValues	1, 2, 3, 4, 5, 6
attribute ref	categoryOfBuiltUpArea
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.27 Building

name	Building
definition	A free-standing self-supporting construction that is roofed, usually walled, and is intended for human occupancy (for example: a place of work or recreation) and/or habitation.
code	Building
remarks	This object class is used to encode single buildings, including those with a particular function or service of major interest.
alias	BUISGL
multiplicity	0..1

permittedValues	5, 6, 7, 8, 9
attribute ref	buildingShape
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47, 48
attribute ref	function
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..*
permittedValues	1, 2, 6, 7, 8, 12
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*

permittedValues	4, 7, 8, 12, 13, 14
attribute ref	status
multiplicity	0..1
attribute ref	verticalClearanceFixed
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	inTheWater
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector

featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
permittedPrimitives	point
permittedPrimitives	surface

8.28 Airport/airfield

name	Airport/airfield
definition	An area containing at least one runway, used for landing, take-off, and movement of aircraft.
code	AirportAirfield
remarks	None
alias	AIRARE
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9
attribute ref	categoryOfAirportAirfield
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition

multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 12, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.29 Runway

name	Runway
definition	A defined rectangular area, on a land aerodrome, prepared for the landing and take-off run of aircraft along its length.
code	Runway
remarks	A site on which helicopters may land and take off (IHO Dictionary, S-32, 5th Edition, 2232).
alias	RUNWAY
multiplicity	0..*
permittedValues	1, 2
attribute ref	categoryOfRunway
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7
attribute ref	natureOfConstruction

multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 12, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.30 Bridge

name	Bridge
definition	A structure erected over a depression or an obstacle such as a body of water, railroad, etc. to provide a roadway for vehicles, pedestrians or to carry utility services.
code	Bridge
remarks	A bridge may consist of portions which cover the land and the water.
alias	BRIDGE
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
attribute ref	categoryOfBridge
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1

permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 12
attribute ref	status
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	1..*
association ref	BridgeAggregation
role ref	consistsOf
featureType ref	SpanFixed
featureBinding roleType	aggregation
multiplicity	1..*
association ref	BridgeAggregation
role ref	consistsOf
featureType ref	SpanOpening
featureBinding roleType	aggregation
multiplicity	1..*
association ref	BridgeAggregation
role ref	consistsOf
featureType ref	PylonBridgeSupport

permittedPrimitives	curve
permittedPrimitives	surface
permittedPrimitives	noGeometry

8.31 Span fixed

name	Span fixed
definition	A fixed component of the deck of a bridge spanning successive bridge piers.
code	SpanFixed
remarks	None
alias	BRIDGE
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	horizontalClearanceFixed
multiplicity	1..1
attribute ref	verticalClearanceFixed
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*

association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	1..1
association ref	BridgeAggregation
role ref	componentOf
featureType ref	Bridge
permittedPrimitives	curve
permittedPrimitives	surface

8.32 Span opening

name	Span opening
definition	An opening component of the deck of a bridge spanning successive bridge piers.
code	SpanOpening
remarks	None
alias	BRIDGE
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1

attribute ref	horizontalClearanceFixed
multiplicity	1..1
attribute ref	verticalClearanceClosed
multiplicity	1..1
attribute ref	verticalClearanceOpen
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
informationBinding roleType	association
multiplicity	0..1
association ref	AdditionalInformation
role ref	providesInformation
informationType ref	NonStandardWorkingDay
informationBinding roleType	association
multiplicity	0..1
association ref	AdditionalInformation
informationBinding roleType	association
multiplicity	0..1
association ref	AdditionalInformation
role ref	providesInformation
informationType ref	ServiceHours
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	1..1
association ref	BridgeAggregation
role ref	componentOf
featureType ref	Bridge
permittedPrimitives	curve
permittedPrimitives	surface

8.33 Conveyor

name	Conveyor
definition	A mechanical apparatus for moving bulk material or people from place to place (as by a moving belt or chain of receptacles).
code	Conveyor
remarks	None
alias	CONVYR

multiplicity	0..1
permittedValues	1, 2, 3, 4
attribute ref	categoryOfConveyor
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	liftingCapacity
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..1
permittedValues	4, 5, 6, 10, 11, 12, 13, 14, 15, 16, 17, 22, 25
attribute ref	product
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	4, 12

attribute ref	status
multiplicity	0..1
attribute ref	verticalClearanceFixed
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*

association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	curve
permittedPrimitives	surface

8.34 Cable overhead

name	Cable Overhead
definition	A single continuous rope-like bundle consisting of multiple strands of fiber, plastic, metal, and/or glass, which is supported by structures such as poles or pylons and passing over or nearby navigable waters.
code	CableOverhead
remarks	The cable supports are encoded as pylon/bridge supports (PYLONS).
alias	CBLOHD
multiplicity	0..1
permittedValues	1, 3, 4, 5
attribute ref	categoryOfCable
multiplicity	0..1
permittedValues	1, 5
attribute ref	condition
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	iceFactor
multiplicity	0..1
attribute ref	featureName
multiplicity	0..1
attribute ref	multiplicityOfFeatures

multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 4, 5, 7, 12, 28
attribute ref	status
multiplicity	0..1
attribute ref	verticalClearanceFixed
multiplicity	0..1
attribute ref	verticalClearanceSafe
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28,29, 30
attribute ref	verticalDatum
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarReflector
permittedPrimitives	curve

8.35 Pipeline overhead

name	Pipeline overhead
definition	A string of interconnected pipes, supported by pylons and passing over or nearby navigable waters, used for the transport of matter, nowadays mainly oil or gas.

code	PipelineOverhead
remarks	A pipeline is a string of interconnected pipes used for the transport of matter, nowadays mainly oil or gas (IHO Dictionary, S-32, 5th Edition, 3857).
alias	PIPOHD
multiplicity	0..1
permittedValues	2, 3, 4, 6
attribute ref	categoryOfPipelinePipe
multiplicity	0..1
permittedValues	1, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..1
permittedValues	1, 2, 3, 7, 8, 9, 18, 19, 20, 22
attribute ref	product
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 4, 7, 12
attribute ref	status
multiplicity	0..1
attribute ref	verticalClearanceFixed
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
multiplicity	0..1

permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	curve

8.36 Pylon/bridge support

name	Pylon/bridge support
definition	A vertical construction consisting, for example, of a steel framework or pre-stressed concrete to carry cables, a bridge, etc.
code	PylonBridgeSupport
remarks	None
alias	PYLONS
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5
attribute ref	categoryOfPylon
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..*
permittedValues	1, 2, 6, 7, 11
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous

multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	4, 12
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction

featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	1..1
association ref	BridgeAggregation
role ref	componentOf
featureType ref	Bridge
permittedPrimitives	point
permittedPrimitives	surface

8.37 Fence/wall

name	Fence/wall
definition	A natural or man-made barrier used as an enclosure or boundary or for protection.
code	FenceWall
remarks	None
alias	FNCLNE
multiplicity	0..*
permittedValues	1, 3, 4
attribute ref	categoryOfFence
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1

permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..*
permittedValues	1, 2, 3, 6, 7, 11
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 7, 12, 13
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

8.38 Railway

name	Railway
definition	A rail or set of parallel rails on which a train or tram runs.
code	Railway
remarks	None
alias	RAILWY
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 4, 6, 12, 13, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

8.39 Road

name	Road
definition	A road is an open way for the passage of vehicles.
code	Road
remarks	None
alias	ROADWY
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6

attribute ref	categoryOfRoad
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	4, 5
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 4, 6, 7, 8, 12, 13, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve
permittedPrimitives	surface

8.40 Tunnel

name	Tunnel
definition	A passage that is open to the atmosphere at both ends, buried under the sea bed or laid over the sea floor or bored under the ground or through mountains.
code	Tunnel
remarks	None
alias	TUNNEL
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*

attribute ref	featureName
multiplicity	0..1
attribute ref	horizontalClearanceFixed
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 3, 4, 6, 8, 14
attribute ref	status
multiplicity	0..1
attribute ref	verticalClearanceFixed
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve
permittedPrimitives	surface

8.41 Landmark

name	Landmark
definition	A prominent object at a fixed location which can be used in determining a location or a direction.
code	Landmark
remarks	None
alias	LNDMRK
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25
attribute ref	categoryOfLandmark
multiplicity	0..*
permittedValues	16, 17, 41

attribute ref	categoryOfSpecialPurposeMark
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 4, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 44, 45, 46, 47, 48
attribute ref	function
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..*
permittedValues	1, 2, 3, 6, 7, 8, 11, 12
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	2, 4, 5, 7, 8, 12, 13, 14

attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	1..1
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	inTheWater
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*

association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.42 Silo/tank

name	Silo/tank
definition	An enclosed container, used for storage.
code	SiloTank
remarks	None
alias	SILTNK
multiplicity	0..1
permittedValues	5, 6, 7, 8, 9
attribute ref	buildingShape
multiplicity	0..1
permittedValues	1, 2, 3, 4
attribute ref	categoryOfSiloTank
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13

attribute ref	colour
multiplicity	0..1
permittedValues	1,, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..*
permittedValues	1, 2, 6, 7, 8
attribute ref	natureOfConstruction
multiplicity	0..*
permittedValues	1, 2, 3, 5, 7, 8, 9, 13, 14, 16, 18, 19, 20, 21, 22, 23
attribute ref	product
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	4, 12, 13
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1

permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	inTheWater
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning

featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
permittedPrimitives	point
permittedPrimitives	surface

8.43 Wind turbine

name	Wind turbine
definition	A tower and associated equipment that generates electrical power from wind. They can be sited offshore and may be either fixed or floating.
code	WindTurbine
remarks	None
alias	LNDMRK (CATLMK = 19)
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 4, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1

attribute ref	height
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..*
permittedValues	2, 6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 12, 13, 14, 28
attribute ref	status
multiplicity	0..1
attribute ref	verticalClearanceFixed
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
permittedValues	2, 7
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	inTheWater
featureUseType	geographic

featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	point

8.44 Fortified structure

name	Fortified structure
definition	A structure for the military defence of a site.
code	FortifiedStructure

remarks	A fortified structure is often disused, decayed or used for non-defence purpose. Such structures range from major castles and forts to minor lookout posts.
alias	FORSTC
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 8, 9
attribute ref	categoryOfFortifiedStructure
multiplicity	0..1
permittedValues	1, 2
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..*
permittedValues	1, 2, 3, 6, 7
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	4, 7, 8, 12, 13, 14, 28
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1

attribute ref	inTheWater
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem

permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.45 Production/storage area

name	Production/storage area
definition	An area on land for the exploitation or storage of natural resources.
code	ProductionStorageArea
remarks	None
alias	PRDARE
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
attribute ref	categoryOfProductionArea
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25
attribute ref	product
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate

multiplicity	0..*
permittedValues	4, 12
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.46 Checkpoint

name	Checkpoint
defintion	An official place to register, declare or check goods and people.
code	Checkpoint
remarks	The object 'checkpoint' does not include facilities such as buildings, gates or other installations.
alias	CHKPNT
multiplicity	0..1
permittedValues	1
attribute ref	categoryOfCheckpoint
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1, 2, 5, 7, 9, 12
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum

featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.47 Hulk

name	Hulk
definition	A permanently moored ship.
code	Hulk
remarks	None
alias	HULKES
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7
attribute ref	categoryOfHulk
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	horizontalLength
multiplicity	0..1
attribute ref	horizontalWidth
multiplicity	0..1
attribute ref	radarConspicuous

multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*

association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	point
permittedPrimitives	surface

8.48 Pile

name	Pile
definition	A long heavy timber or section of steel, wood, concrete, etc. forced into the earth which may serve as a support, as for a pier, or a free standing pole within a marine environment.
code	Pile
remarks	None
alias	PILPNT
multiplicity	0..1
permittedValues	1, 3, 4, 5, 6, 7
attribute ref	categoryOfPile
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height

multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 4, 6, 7, 8, 12, 14
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*

association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	aggregation
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	Bridge
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation

role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.49 Dyke

name	Dyke
definition	A dyke (or dike) is an artificial embankment to contain or hold back water.
code	Dyke
remarks	None
alias	DYKCON
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height

multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve
permittedPrimitives	surface

8.50 Shoreline construction

name	Shoreline construction
definition	A fixed (not afloat) artificial structure between the water and the land, i.e. a man-made coastline.
code	ShorelineConstruction
remarks	None
alias	SLCONS
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20
attribute ref	categoryOfShorelineConstruction
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour

multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	horizontalClearanceFixed
multiplicity	0..1
attribute ref	horizontalLength
multiplicity	0..1
attribute ref	horizontalWidth
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7, 8, 12, 13, 14, 28
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1

permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	SignalStationWarning
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.51 Causeway

name	Causeway
definition	A raised way across low or wet ground or water.
code	Causeway
remarks	None
alias	CAUSWY
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 7, 8, 12, 14
attribute ref	status
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

permittedPrimitives	surface

8.52 Canal

name	Canal
definition	An artificial waterway with no flow, or a controlled flow, used for navigation, or for draining or irrigating land (ditch).
code	Canal
remarks	The object 'canal' describes the area of the canal, the object 'canal bank' describes the banks.
alias	CANALS
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	categoryOfCanal
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	horizontalClearanceFixed
multiplicity	0..1
attribute ref	horizontalWidth
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 3, 4, 5, 6, 8, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic

permittedPrimitives	curve
permittedPrimitives	surface

8.53 Distance mark

name	Distance mark
definition	A distance mark indicates the distance measured from an origin and consists of either a solid visible structure or a distinct location without special installation.
code	DistanceMark
remarks	Usually found on canals.
alias	DISMAR
multiplicity	0..1
permittedValues	1, 2, 3, 4
attribute ref	categoryOfDistanceMark
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	1..1
attribute ref	measuredDistanceValue
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point

8.54 Gate

name	Gate
definition	A structure that may be swung, drawn, or lowered to block an entrance or passageway.
code	Gate
remarks	This object class is used to encode gates that control the flow of water.
alias	GATCON

multiplicity	0..1
permittedValues	2, 3, 4, 5, 6
attribute ref	categoryOfGate
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	horizontalClearanceOpen
multiplicity	0..*
permittedValues	1, 2, 6, 7
attribute ref	natureOfConstruction
multiplicity	0..*
permittedValues	2, 3, 4, 6, 7
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 4, 6, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	verticalClearanceOpen
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic

permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.55 Dam

name	Dam
definition	A barrier to check or confine anything in motion; particularly one constructed to hold back water and raise its level to form a reservoir, or to prevent flooding.
code	Dam
remarks	None
alias	DAMCON
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	categoryOfDam
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*
permittedValues	1, 2, 3, 6, 7

attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 2, 6, 7, 8, 14, 28
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
permittedValues	1, 2, 3, 6
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve
permittedPrimitives	surface

8.56 Crane

name	Crane
definition	A machine for lifting, shifting and lowering objects or materials by means of a swinging boom or with a lifting apparatus supported on an overhead track.
code	Crane
remarks	The position of a sheerlegs or a travelling crane is defined as its resting position.
alias	CRANES
multiplicity	0..1
permittedValues	2, 3, 4, 5, 6
attribute ref	categoryOfCrane
multiplicity	0..*

permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	liftingCapacity
multiplicity	0..1
attribute ref	orientation
multiplicity	0..1
attribute ref	radius
multiplicity	0..*
permittedValues	1, 4, 6, 12
attribute ref	status
multiplicity	0..1
attribute ref	verticalClearanceFixed
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous

multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	inTheWater
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	point
permittedPrimitives	curve

permittedPrimitives	surface

8.57 Berth

name	Berth
definition	A named or numbered place where a vessel is moored at a wharf.
code	Berth
remarks	None
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	1..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	horizontalClearanceLength
multiplicity	0..1
attribute ref	horizontalClearanceWidth
multiplicity	0..1
attribute ref	maximumPermittedDraught
multiplicity	0..*
attribute ref	periodicDateRange
attribute ref	0..*
permittedValues	1, 2
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 2, 5, 7, 9, 12
attribute ref	status
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum

featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	MooringTrotAggregation
role ref	componentOf
featureType ref	MooringTrot
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.58 Mooring/warping facility

name	Mooring/Warping facility
definition	The equipment or structure used to secure a vessel.
code	MooringWarpingFacility
remarks	None
alias	MORFAC
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8
attribute ref	buoyShape
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7
attribute ref	categoryOfMooringWarpingFacility
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition

multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*
permittedValues	1, 2, 6, 7
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	2, 3, 4, 6, 7
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 12, 14,18
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	waterLevelEffect

multiplicity	0.1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	MooringTrotAggregation
role ref	componentOf

featureType ref	MooringTrot
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.59 Dry dock

name	Dry dock
definition	An artificial basin fitted with a gate or caisson, into which vessels can be floated and the water pumped out to expose the vessel's bottom.
code	DryDock
remarks	None
alias	DRYDOC
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	horizontalClearanceLength
multiplicity	0..1
attribute ref	horizontalClearanceWidth
multiplicity	0..1
attribute ref	horizontalLength

multiplicity	0..1
attribute ref	horizontalWidth
multiplicity	0..1
attribute ref	maximumPermittedDraught
multiplicity	0..*
permittedValues	2, 3, 4, 6, 7, 8, 9
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 4, 6, 8, 12, 14
attribute ref	status
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.60 Floating dock

name	Floating dock
definition	A form of dry dock consisting of a floating structure of one or more sections which can be partly submerged by controlled flooding to receive a vessel, then raised by pumping out the water so that the vessel's bottom can be exposed.
code	FloatingDock
remarks	None
alias	FLODOC
mutliplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
mutliplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern

mutliplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
mutliplicity	0..1
attribute ref	depthRangeMinimumValue
mutliplicity	0..*
attribute ref	featureName
mutliplicity	0..1
attribute ref	fixedDateRange
mutliplicity	0..1
attribute ref	horizontalClearanceLength
mutliplicity	0..1
attribute ref	horizontalClearanceWidth
mutliplicity	0..1
attribute ref	horizontalLength
mutliplicity	0..1
attribute ref	horizontalWidth
mutliplicity	0..1
attribute ref	liftingCapacity
mutliplicity	0..1
attribute ref	maximumPermittedDraught
mutliplicity	0..1
attribute ref	radarConspicuous
mutliplicity	0..*
permittedValues	1, 4, 6, 7, 8, 12
attribute ref	status
mutliplicity	0..1
attribute ref	verticalLength
mutliplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous

mutliplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.61 Pontoon

name	Pontoon
definition	A floating structure, usually rectangular in shape which serves as landing, pier head or bridge support.
code	Pontoon
remarks	None
alias	PONTON
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 12, 14
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.62 Dock area

name	Dock area
definition	A dock is an artificially enclosed area within which ships may moor and which may have gates to regulate water level.
code	DockArea
remarks	None

alias	DOCARE
multiplicity	0..1
permittedValues	1, 2
attribute ref	categoryOfDock
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	horizontalClearanceFixed
multiplicity	0..1
attribute ref	horizontalClearanceLength
multiplicity	0..1
attribute ref	horizontalClearanceWidth
multiplicity	0..1
attribute ref	maximumPermittedDraught
multiplicity	0..*
permittedValues	1, 4, 6, 8, 14
attribute ref	status
featureUseType	geographic
permittedPrimitives	surface

8.63 Gridiron

name	Gridiron
definition	A structure in the intertidal zone serving as a support for vessels at low stages of the tide to permit work on the exposed portion of the vessel's hull.
code	Gridiron

remarks	Also called 'careening grid'.
alias	GRIDRN
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	horizontalLength
multiplicity	0..1
attribute ref	horizontalWidth
multiplicity	0..*
permittedValues	1, 2, 6, 7, 11
attribute ref	natureOfConstruction
multiplicity	0..*
permittedValues	1, 4, 6, 8, 14, 28
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 4, 5
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.64 Lock basin

name	Lock basin
definition	A lock basin is a wet dock in a waterway, permitting a ship to pass from one level to another.
code	LockBasin
remarks	None
alias	LOKBSN

multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	horizontalClearanceFixed
multiplicity	0..1
attribute ref	horizontalLength
multiplicity	0..1
attribute ref	horizontalWidth
multiplicity	0..*
permittedValues	1, 4, 6, 8, 13, 14, 16, 17
attribute ref	status
featureUseType	geographic
permittedPrimitives	surface

8.65 Mooring trot

name	Mooring trot
definition	A mooring is a place where a vessel may be secured.A mooring trot is a mooring that is composed of ground tackle, mooring cables, buoys and mooring berths on junction cables.
code	MooringTrot
remarks	None
alias	C_AGGR
multiplicity	0..*
attribute ref	featureName
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	2..*
association ref	MooringTrotAggregation
role ref	consistsOf
featureType ref	Berth

featureBinding roleType	aggregation
multiplicity	2..*
association ref	MooringTrotAggregation
role ref	consistsOf
featureType ref	CableSubmarine
featureBinding roleType	aggregation
multiplicity	2..*
association ref	MooringTrotAggregation
role ref	consistsOf
featureType ref	MooringWarpingFacility
featureBinding roleType	aggregation
multiplicity	2..*
association ref	MooringTrotAggregation
role ref	consistsOf
featureType ref	Obstruction
permittedPrimitives	noGeometry

8.66 Sea area/named water area

name	Sea area/named water area
definition	A geographically defined part of the sea or other navigable waters. It may be specified within its limits by its proper name.
code	SeaAreaNamedWaterArea
remarks	Each sea area is defined independent of any other. Smaller sea areas may be located within larger sea areas.
alias	SEAARE
multiplicity	0..1
permittedValues	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 48, 50, 51, 52, 53, 54, 55, 56
attribute ref	categoryOfSeaArea
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1

attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.67 Tidal stream - flood/ebb

name	Tidal stream - flood/ebb
definition	Approximate tidal stream rates given as discrete rate values for flood and ebb flow during springs.
code	TidalStreamFloodEbb
remarks	A tidal stream (or tidal current) is a horizontal movement of water associated with the rise and fall of the tide caused by tide-producing forces (adapted from IHO Dictionary, S-32, 5th Edition).
multiplicity	1..1
permittedValues	1, 2, 3
attribute ref	categoryOfTidalStream
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	1..1
attribute ref	orientation
multiplicity	1..1
attribute ref	speed
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.68 Current - non-gravitational

name	Current - non-gravitational

definition	Currents (non-gravitational) include either singly or in combination: ocean currents (wind and/or density driven), inter-oceanic equalising currents, currents of navigable rivers, river outflow effects offshore and other non-tidal flows.
code	CurrentNonGravitational
remarks	None
alias	CURENT
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	1..1
attribute ref	orientation
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	1..1
attribute ref	speed
multiplicity	0..1
permittedValues	5
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.69 Water turbulence

name	Water turbulence
definition	The disturbance of water caused by the interaction of any combination of waves, currents, tidal streams, wind, shoal patches and obstructions.
code	WaterTurbulence
remarks	None

alias	WATTUR
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5
attribute ref	categoryOfWaterTurbulence
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.70 Tidal stream panel data

name	Tidal stream panel data
definition	Approximate tidal stream rates given as discrete rate values at a specified interval before or after a high water.
code	TidalStreamPanelData
remarks	A tidal stream (or tidal current) is an alternating horizontal movement of water associated with the rise and fall of the tide caused by tide-producing forces (IHO Dictionary, S-32, 5th Edition, 1169). The object 'tidal stream panel data' encodes data for use in a tidal panel.
alias	TS_PAD
multiplicity	0..*
attribute ref	featureName
multiplicity	1..1
attribute ref	stationName
multiplicity	0..1
attribute ref	stationNumber
multiplicity	1..*
attribute ref	tidalStreamPanelValues
multiplicity	0..1
attribute ref	scaleMinimum

featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.71 Sounding

name	Sounding
definition	A measured water depth or spot which has been reduced to a vertical datum (may be a drying height).
code	Sounding
remarks	Drying heights (drying soundings) are indicated by a negative value.
alias	SOUNDG
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1,3, 4, 8, 9
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..1
permittedValues	18
attribute ref	status
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	pointSet

8.72 Dredged area

name	Dredged area
definition	An area of the bottom of a body of water which has been deepened by dredging.
code	DredgedArea
remarks	None
alias	DRGARE
multiplicity	1..1
attribute ref	depthRangeMinimumValue
multiplicity	0..1
attribute ref	depthRangeMaximumValue
multiplicity	0..1
attribute ref	dredgedDate
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	maximumPermittedDraught
multiplicity	0..1
permitedValues	10, 11
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permitedValues	1, 2, 3, 4, 5, 6, 8, 11, 12, 13, 16, 17, 18, 19, 20, 21, 23, 25, 27, 39
attribute ref	restriction
multiplicity	0..*
permitedValues	1, 2, 3, 6, 8, 9, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	0..1
attribute ref	verticalUncertainty
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary

role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	surface

8.73 Swept area

name	Swept area
definition	An area that has been determined to be clear of navigational dangers to a specified depth.
code	SweptArea
remarks	None
alias	SWPARE
multiplicity	1..1
attribute ref	depthRangeMinimumValue
multiplicity	0..1
attribute ref	sweptDate
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	surface

8.74 Depth contour

name	Depth contour
definition	A line connecting points of equal water depth which is sometimes significantly displaced outside of soundings, symbols and other chart detail for clarity as well as generalization.
code	DepthContour

remarks	Depth contours, therefore, often represent an approximate location of the line of equal depth as related to the surveyed line delineated on the source. Also referred to as depth curve. Drying contours are encoded with negative values.
alias	DEPCNT
multiplicity	1..1
attribute ref	valueOfDepthContour
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

8.75 Depth area

name	Depth area
definition	A depth area is a water area whose depth is within a defined range of values.
code	DepthArea
remarks	Intertidal areas are encoded as depth areas. These do not have to include soundings. The depth range within a depth area is defined by the attributes DRVAL1 and DRVAL2.
alias	DEPARE
multiplicity	1..1
attribute ref	depthRangeMinimumValue
multiplicity	1..1
attribute ref	depthRangeMaximumValue
featureUseType	geographic
permittedPrimitives	surface

8.76 Depth - no bottom found

name	Depth - No Bottom Found
definition	Upon investigation the bottom was not found at this depth.
code	DepthNoBottomFound
remarks	None
alias	SOUNDG (QUASOU = 5)
multiplicity	0..*

permittedValues	1, 2, 3, 5, 6, 8, 9, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	pointSet

8.77 Unsurveyed area

name	Unsurveyed area
definition	An area for which no bathymetric survey information is available.
code	UnsurveyedArea
alias	UNSARE
featureUseType	geographic
permittedPrimitives	surface

8.78 Seabed area

name	Seabed area
definition	An area of the sea where the nature of bottom is homogeneous. The nature of bottom includes the material of which it is composed and its physical characteristics.
code	SeabedArea
remarks	Generally, it is not possible to define a seabed area by its real extent. For that reason, the characteristics of the seabed area may be represented at one single position.
alias	SBDARE
multiplicity	0..*
attribute ref	featureName
multiplicity	1..*
attribute ref	surfaceCharacteristics
multiplicity	0..1
permittedValues	3, 4, 5
attribute ref	waterLevelEffect
multiplicity	0..1

attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.79 Weed/kelp

name	Weed/kelp
definition	Seaweed, any macroscopic marine alge or seagrass (IHO Dictionary, S-32, 5th Edition, 4589). Kelp is one of an order (laminariales) of usually large, blade-shaped or vine-like brown algae (IHO Dictionary, S-32, 5th Edition, 2611).
code	WeedKelp
remarks	Seaweed is the general name for marine plants of the Algae class which grow in long narrow ribbons (International Maritime Dictionary, 2nd Ed.). Kelp is often an indication of the presence of submerged rocks (IHO Chart Specifications M-4).
alias	WEDKLP
multiplicity	0..1
permittedValues	1, 2, 3, 4
attribute ref	categoryOfWeedKelp
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.80 Sandwave

name	Sandwave
definition	A large mobile wave-like sediment feature in shallow water and composed of sand. The wavelength may reach 100 metres, the amplitude may be up to 20 metres.
code	Sandwave

remarks	None
alias	SNDWAV
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.81 Spring

name	Spring
definition	A natural issue of water or other substances from the earth. One on the bottom of the sea is called a 'submarine spring'.
code	Spring
remarks	None
alias	SPRING
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point

8.82 Underwater/awash rock

name	Underwater/awash rock
definition	A concreted mass of stony material or coral which dries, is awash or is below the water surface.
code	UnderwaterAwashRock
remarks	None
alias	UWTROC

multiplicity	0..1
permittedValues	1, 2
attribute ref	expositionOfSounding
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
permittedValues	14
attribute ref	natureOfSurface
multiplicity	0..1
permittedValues	1, 2, 3, 4, 6, 7, 8, 9
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..1
permittedValues	18
attribute ref	status
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	1..1
attribute ref	valueOfSounding
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	1..1
permittedValues	3, 4, 5
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	defaultClearanceDepth
multiplicity	0..1

attribute ref	surroundingDepth
featureUseType	geographic
permittedPrimitives	point

8.83 Wreck

name	Wreck
definition	The ruined remains of a stranded or sunken vessel which has been rendered useless.
code	Wreck
remarks	None
alias	WRECKS
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5
attribute ref	categoryOfWreck
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	expositionOfSounding
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7, 8, 9
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	7, 13, 18
attribute ref	status

multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	0..1
attribute ref	valueOfSounding
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	defaultClearanceDepth
multiplicity	0..1
attribute ref	surroundingDepth
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.84 Obstruction

name	Obstruction
definition	In marine navigation, anything that hinders or prevents movement, particularly anything that endangers or prevents passage of a vessel.
code	Obstruction
remarks	The term is usually used to refer to an isolated danger to navigation.
alias	OBSTRN
multiplicity	0..1

permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20
attribute ref	categoryOfObstruction
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	expositionOfSounding
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..1
attribute ref	maximumPermittedDraught
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 14, 17, 18
attribute ref	natureOfSurface
multiplicity	0..*
permittedValues	1, 2, 3, 8, 23
attribute ref	product
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7, 8, 9
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 4, 5, 7, 8, 13, 18, 28
attribute ref	status
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement

multiplicity	0..1
attribute ref	valueOfSounding
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 7
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	defaultClearanceDepth
multiplicity	0..1
attribute ref	surroundingDepth
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	MooringTrotAggregation
role ref	componentOf
featureType ref	MooringTrot
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.85 Foul ground

name	Foul ground
definition	Areas over which it is safe to navigate but which should be avoided foranchoring, taking the ground or ground fishing.
code	FoulGround
remarks	None

alias	OBSTRN (CATOBS = 7)
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7, 8, 9
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	13, 18, 28
attribute ref	status
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	0..1
attribute ref	valueOfSounding
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
permittedValues	3, 4, 5
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.86 Discoloured water

name	Discoloured water

definition	Unnatural coloured areas in the sea which may or may not indicate the existence of shoals.
code	DiscolouredWater
remarks	None
alias	CTNARE
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.87 Fishing facility

name	Fishing facility
definition	A structure in shallow water for fishing purposes which can be an obstruction to ships in general.
code	FishingFacility
remarks	The position of these structures may vary frequently over time.
alias	FSHFAC
multiplicity	0..1
permittedValues	1, 2, 3, 4
attribute ref	categoryOfFishingFacility
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	reportedDate

multiplicity	0..*
permittedValues	1, 4, 5, 6, 7, 8, 12, 18, 28
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarReflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.88 Marine farm/culture

name	Marine farm/culture
definition	An assemblage of cages, nets, rafts and floats or posts where fish, including shellfish, are artificially cultivated.
code	MarineFarmCulture
remarks	None
alias	MARCUL
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5
attribute ref	categoryOfMarineFarmCulture
multiplicity	0..1
permittedValues	1, 2
attribute ref	expositionOfSounding
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7, 8, 9

attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 14, 16, 17, 28
attribute ref	status
multiplicity	0..1
attribute ref	valueOfSounding
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 7
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.89 Offshore platform

name	Offshore platform
definition	A permanent offshore structure, either fixed or floating, used in the production of oil or natural gas.
code	OffshorePlatform
remarks	None
alias	OFSPLF

multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
attribute ref	categoryOfOffshorePlatform
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	flareStack
multiplicity	0..1
attribute ref	height
multiplicity	0..*
permittedValues	1, 2, 3, 18, 19, 23
attribute ref	product
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 7, 8, 12, 28
attribute ref	status
multiplicity	0..1

attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	1..1
permittedValues	2, 7
attribute ref	waterLevelEffect
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAirObstruction
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*

association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	point
permittedPrimitives	surface

8.90 Cable submarine

name	Cable submarine
definition	An assembly of wires or fibres, or a wire rope or chain which has been laid underwater or buried beneath the seabed.
code	CableSubmarine
remarks	None
alias	CBLSUB
multiplicity	0..1
attribute ref	buriedDepth
multiplicity	0..1
permittedValues	1, 6, 7, 8
attribute ref	categoryOfCable
multiplicity	0..1
permittedValues	1, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 4, 13, 18
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic

featureBinding roleType	aggregation
multiplicity	0..1
association ref	MooringTrotAggregation
role ref	componentOf
featureType ref	MooringTrot
featureUseType	geographic
permittedPrimitives	curve

8.91 Cable area

name	Cable area
definition	An area which contains one or more submarine cables.
code	CableArea
remarks	None
alias	CBLARE
multiplicity	0..*
permittedValues	1, 7, 8
attribute ref	categoryOfCable
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 16, 17, 18, 20, 23, 24, 25, 27, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 7, 13
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.92 Pipeline submarine/on land

name	Pipeline submarine/on land
definition	A connected set of pipes for conveying liquids, slurries, or gases.
code	PipelineSubmarineOnLand
remarks	A pipeline is a string of interconnected pipes used for the transport of matter, nowadays mainly oil or gas (IHO Dictionary, S-32, 5th Edition, 3857). It must be assumed that the pipes are vulnerable to damage from anchoring or trawling. They may be a potential danger to navigation (IHO Chart Specifications, M-4).
alias	PIPSOL
multiplicity	0..1
attribute ref	buriedDepth
multiplicity	0..*
permittedValues	2, 3, 4, 5, 6, 7
attribute ref	categoryOfPipelinePipe
multiplicity	0..1
permittedValues	1, 5
attribute ref	condition
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	0..1
attribute ref	depthRangeMaximumValue
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..*
permittedValues	1, 2, 3, 7, 8, 9, 18, 19
attribute ref	product
multiplicity	0..1

attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 3, 4, 5, 8, 9, 11, 12, 13, 14, 16, 17, 18, 20, 23, 24, 25, 26, 27, 39
attribute ref	restriction
attribute ref	0..*
permittedValues	1, 4, 7, 12
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

8.93 Submarine pipeline area

name	Submarine pipeline area
definition	An area containing one or more pipelines.
code	SubmarinePipelineArea
remarks	None
alias	PIPARE
multiplicity	0..*
permittedValues	2, 3, 4, 5, 6
attribute ref	categoryOfPipelinePipe
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 7, 8, 18, 19
attribute ref	product
multiplicity	0..*

permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 4, 7
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.94 Offshore production area

name	Offshore production area
definition	An area at sea within which there are production facilities.
code	OffshoreProductionArea
remarks	None
alias	OSPARE
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5
attribute ref	categoryOfOffshoreProductionArea
multiplicity	0..1
permittedValues	1, 2, 4, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*

permittedValues	1, 2, 4, 6, 10, 14, 23
attribute ref	product
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 4, 7, 8, 12, 28
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.95 Navigation line

name	Navigation line
definition	A navigation line is a straight line extending towards an area of navigational interest and generally generated by two navigational aids or one navigational aid and a bearing.
code	NavigationLine
remarks	The extent of the navigation line depends on the visibility of the navigational aid(s). The attribute 'orientation' (ORIENT) specifies the orientation of the navigation line measured from the water towards the navigational aid(s). The recommended track is that portion of a 'navigation line' that a ship should use for navigation.

alias	NAVLNE
multiplicity	1..1
permittedValues	1, 2, 3
attribute ref	categoryOfNavigationLine
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	measuredDistance
multiplicity	1..1
attribute ref	orientation
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 5, 7, 8, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
permittedPrimitives	curve

8.96 Recommended track

name	Recommended track
defintion	A track recommended to all or only certain vessels.
code	RecommendedTrack

remarks	Recommended tracks include all channels recommended for hydrographic reasons to lead safely between shoal depths. The use of such tracks is generally left to the discretion of the mariner and will depend on the vessel's draught, the state of the tide, adequacy of navigational aids and so on (IHO Chart Specifications, M-4). The recommended track is that portion of a 'navigation line' that a ship should use for navigation.In the case of a two-way recommended track only one value of orientation is encoded (in the attribute ORIENT); the other value can be deduced (i.e. the value in ORIENT + 180 degrees).
alias	RECTRC
multiplicity	1..1
permittedValues	1, 2
attribute ref	categoryOfRecommendedTrack
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	maximumPermittedDraught
multiplicity	1..1
attribute ref	orientationValue
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 6
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 2, 5, 7, 9, 12, 16, 17
attribute ref	status
multiplicity	0..*
permittedValues	1, 2, 3, 6, 8, 9, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	1..1

permittedValues	1, 2, 3, 4
attribute ref	trafficFlow
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	curve

8.97 Range System

name	Range System
definition	Navigation system limited in their positioning capability to coastal regions, or those systems limited to making landfall
code	RangeSystem
remarks	None
alias	C_AGGR
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	maximumPermittedDraught
featureUseType	geographic
featureBinding roleType	aggregation

multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	BeaconCardinal
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	BeaconIsolatedDanger
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	BeaconLateral
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	BeaconSafeWater
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	Building
featureBinding roleType	aggregation
multiplicity	1..*

association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	Daymark
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	FortifiedStructure
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	Landmark
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	LightAllAround
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	LightSectored
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	MooringWarpingFacility
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation

role ref	consistsOf
featureType ref	NavigationLine
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	Pile
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	RecommendedRouteCentreline
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	RecommendedTrack
featureBinding roleType	aggregation
multiplicity	1..*
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	SiloTank
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	noGeometry

8.98 Fairway

name	Fairway

definition	That part of a river, harbour and so on, where the main navigable channel for vessels of larger size lies.
code	Fairway
remarks	It is also the usual course followed by vessels entering or leaving harbours, called 'ship channel'.
alias	FAIRWY
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	maximumPermittedDraught
multiplicity	0..1
attribute ref	orientationValue
multiplicity	0..*
permittedValues	1, 2, 6
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 3, 6, 7, 9, 28
attribute ref	status
multiplicity	0..1
permittedValues	1, 2, 3, 4
attribute ref	trafficFlow
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum

featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAggregation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BeaconCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BeaconIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BeaconLateral
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BeaconSafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BeaconSpecialPurposeGeneral

featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BuoyCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BuoyIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BuoyLateral
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BuoySafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	association

multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	CautionArea
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	Daymark
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	DredgedArea
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	LightFloat
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	LightVessel
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	Landmark
featureBinding roleType	association
multiplicity	1..*

association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	Pile
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	RecommendedRouteCentreline
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	RecommendedTrack
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	RestrictedAreaNavigational
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary
role ref	hasAuxiliary
featureType ref	RestrictedAreaRegulatory
featureBinding roleType	association
multiplicity	1..*
association ref	FairwayAuxiliary

role ref	hasAuxiliary
featureType ref	SweptArea
permittedPrimitives	surface

8.99 Fairway system

name	Fairway system
definition	That part of a river, harbour and so on, where the main navigable channel for vessels of larger size lies. It is also the usual course followed by vessels entering or leaving harbours, called "ship channel". A fairway system is an aggregation of connected fairway features making up a complex fairway system.
code	FairwaySystem
remarks	A fairway system is composed of two or more Fairway features that comprise a complex fairway routeing system, for instance a long fairway comprising several bends.
alias	C_AGGR
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	maximumPermittedDraught
multiplicity	0..*
attribute ref	periodicDateRange
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	2..*
association ref	FairwayAggregation
role ref	consistsOf
featureType ref	Fairway
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf

featureType ref	BeaconCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconLateral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconSafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyEmergencyWreckMarking

featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyLateral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoySafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Daymark
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	LightFloat
featureBinding roleType	association

multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	LightVessel
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Landmark
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Pile
permittedPrimitives	noGeometry

8.100 Recommended route centreline

name	Recommended route centreline
definition	A recommended route centreline indicates the 'centreline' of a recommended route.
code	RecommendedRouteCentreline
remarks	A recommended route is a route of undefined width, for the convenience of ships in transit, which is often marked by centerline buoys (IHO Dictionary, S-32, 5th Edition, 4448). A recommended route describes the regulation of navigation for non-hydrographic reasons such as the prevention of collision or the avoidance of pollution risks. It is generally laid down by a national or international authority other than the hydrographic authority. (IHO Chart Specifications, M-4)
alias	RCRTCL
multiplicity	1..1
permittedValues	1, 2
attribute ref	categoryOfRecommendedTrack
multiplicity	0..1
attribute ref	depthRangeMinimumValue

multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	orientationValue
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 5, 6, 9
attribute ref	status
multiplicity	0..*
permittedValues	1, 3, 6, 8, 9, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	0..1
permittedValues	1, 2, 3, 4
attribute ref	trafficFlow
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	consistsOf
featureType ref	RangeSystem
featureBinding roleType	aggregation

multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	curve

8.101 Two-way route part

name	Two-way route part
definition	A two-way route part is an area of a two-way route within which traffic flow is generally along one bearing (and possibly its reciprocal).
code	TwoWayRoutePart
remarks	A two-way route is a route within defined limits inside which two-way traffic is established, aimed at providing safe passage of ships through waters where navigation is difficult or dangerous (IHO Dictionary, S-32, 5th Edition, 5712). The complete two-way route consists of one or more parts depending on the shape of the two-way route. The orientation of the two-way route part is defined by its centerline and is related to the general direction of the two-way route.
alias	TWRTPT
multiplicity	0..1
permittedValues	1, 2
attribute ref	categoryOfRecommendedTrack
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	1..1
attribute ref	orientationValue
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 3, 6, 9
attribute ref	status

multiplicity	0..*
permittedValues	1, 3, 5, 6, 8, 9, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	1..1
permittedValues	1, 2, 3, 4
attribute ref	trafficFlow
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TwoWayRouteAggregation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	surface

8.102 Two-way route

name	Two-way route
definition	A route within defined limits inside which two way traffic is established,aimed at providing safe passage of ships through waters where navigation is difficult or dangerous.
code	TwoWayRoute
remarks	None
alias	C_AGGR
multiplicity	0..*

attribute ref	featureName
multiplicity	0..1
attribute ref	maximumPermittedDraught
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	2..*
association ref	TwoWayRouteAggregation
role ref	consistsOf
featureType ref	TwoWayRoutePart
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconLateral
featureBinding roleType	association
multiplicity	1..*

association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconSafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyLateral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation

role ref	consistsOf
featureType ref	BuoySafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Daymark
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	LightFloat
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	LightVessel
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Landmark
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf

featureType ref	Pile
permittedPrimitives	noGeometry

8.103 Recommended traffic lane part

name	Recommended traffic lane part
definition	An optional part of an IMO-adopted routing measure.
code	RecommendedTrafficLanePart
remarks	Several Hydrographic Offices, in consultation with their Ministries of Transport, have added recommended directions in areas such as the outer approaches to major ports in order to show the best routes for crossing traffic or to minimize head-on encounters.(IHO Chart Specifications, M-4). The object 'recommended traffic lane part' indicates the recommended traffic flow e.g., between two TSS, in the entrance areas of a TSS, beside a deep water route. The complete recommended traffic lane consists of one or more parts depending on the various shapes of the recommended traffic lane. The orientation of the recommended traffic lane part is defined by the middle-line of the recommended traffic lane part relating to the general direction of the recommended traffic lane part.
alias	RCTLPT
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	1..1
attribute ref	orientationValue
multiplicity	0..*
permittedValues	1, 6, 9
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.104 Deep water route centreline

name	Deep water route centreline
definition	A Deep Water route centreline indicates the centreline of a route, the width of which is not explicitly defined.

code	DeepWaterRouteCentreline
remarks	A deep water route is a route in a designated area, within defined limits, which has been accurately surveyed for clearance of sea bottom and submerged obstacles to a minimum indicated depth of water (IHO Dictionary, S-32, 5th Edition, 1280). Additional information can be found in IHO Technical Resolution A1.17.
alias	DWRTCL
multiplicity	1..1
permittedValues	1, 2
attribute ref	categoryOfRecommendedTrack
multiplicity	0..1
permittedValues	1, 2
attribute ref	categoryOfTrafficSeparationScheme
multiplicity	0..1
attribute ref	depthRangeMinimumValue
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	1..1
attribute ref	orientationValue
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 3, 6, 9
attribute ref	status
multiplicity	0..*
permittedValues	1, 3, 5, 6, 8, 9, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	1..1
permittedValues	1, 2, 3, 4
attribute ref	trafficFlow

multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	DeepWaterRouteAggregation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	curve

8.105 Deep water route part

name	Deep water route part
definition	A part of a deep water route.
code	DeepWaterRoutePart
remarks	A deep water route is a route in a designated area, within defined limits, which has been accurately surveyed for clearance of sea bottom and submerged obstacles to a minimum indicated depth of water (IHO Dictionary, S-32, 5th Edition, 1280). The complete deep water route consists of one or more parts depending on the shape of the deep water route. The orientation of the route part is defined by the middle line of the part relating to the general direction of the deep water route. Additional information can be found in IHO Technical Resolution A1.17.
alias	DWRTPT
multiplicity	0..1
permittedValues	1, 2
attribute ref	categoryOfTrafficSeparationScheme
multiplicity	1..1

attribute ref	depthRangeMinimumValue
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	1..1
attribute ref	orientationValue
multiplicity	0..*
permittedValues	1, 2, 3, 4, 6, 7
attribute ref	qualityOfVerticalMeasurement
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 3, 6, 9, 28
attribute ref	status
multiplicity	0..*
permittedValues	1, 3, 5, 6, 8, 9, 13, 15, 16, 17
attribute ref	techniqueOfVerticalMeasurement
multiplicity	1..1
permittedValues	1, 2, 3, 4
attribute ref	trafficFlow
multiplicity	0..1
attribute ref	verticalUncertainty
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	DeepWaterRouteAggregation
role ref	componentOf

featureType ref	DeepWaterRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	surface

8.106 Deep water route

name	Deep water route
definition	A route within defined limits which has been accurately surveyed for clearance of sea bottom and submerged obstacles as indicated on the chart.
code	DeepWaterRoute
remarks	A complete Deep Water route (DW) system are composed of the features Deep Water Route Centreline, Deep Water Route Part and any associated navigation aids that comprise a complex Deep Water Route system.
alias	C_AGGR
multiplicity	0..1
permittedValues	1, 2
attribute ref	categoryOfTrafficSeparationScheme
multiplicity	0..*
attribute ref	featureName
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	2..*
association ref	DeepWaterRouteAggregation
role ref	consistsOf
featureType ref	DeepWaterRouteCentreline
featureBinding roleType	aggregation
multiplicity	2..*
association ref	DeepWaterRouteAggregation
role ref	consistsOf

featureType ref	DeepWaterRoutePart
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconLateral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconSafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconSpecialPurposeGeneral

featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyInstallation
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyLateral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoySafeWater
featureBinding roleType	association

multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Daymark
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	LightFloat
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	LightVessel
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Landmark
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Pile
permittedPrimitives	noGeometry

8.107 Inshore traffic zone

name	Inshore traffic zone
definition	A routeing measure comprising a designated area between the landward boundary of a traffic separation scheme and the adjacent coast, to be used in accordance with the provisions of the International Regulations for Preventing Collisions at Sea.
code	InshoreTrafficZone
remarks	None
alias	ISTZNE
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 3, 6, 9, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	surface

8.108 Precautionary area

name	Precautionary area
definition	A routeing measure comprising an area within defined limits where ships must navigate with particular caution and within which the direction of traffic flow may be recommended.
code	PrecautionaryArea

remarks	None
alias	PRCARE
multiplicity	0..1
permittedValues	1, 2
attribute ref	categoryOfTrafficSeparationScheme
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 9, 28
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
informationBinding roleType	association
multiplicity	0..1
association ref	AdditionalInformation
role ref	providesInformation
informationType ref	NauticalInformation
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	point
permittedPrimitives	surface

8.109 Traffic separation scheme lane part

name	Traffic separation scheme lane part
definition	A traffic separation scheme lane part is an area of a traffic lane in which the direction of flow of traffic is uniform.
code	TrafficSeparationSchemeLanePart
remarks	A traffic separation scheme is a scheme which aims to reduce the risk of collision in congested and/or converging areas by separating traffic moving in opposite, or nearly opposite, directions (IHO Dictionary, S-32, 5th Edition, 5585). A traffic lane is an area within defined limits in which one-way traffic flow is established (IMO Ships Routeing, 6th Edition). The complete traffic lane may consist of one or more lane parts depending on the shape of the lane.
alias	TSSLPT
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	orientationValue
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 3, 6, 9, 28
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	surface

8.110 Traffic separation zone

name	Traffic separation zone
definition	A traffic separation zone is a zone separating the lanes in which ships are proceeding in opposite or nearly opposite directions; or separating traffic lanes designated for particular classes of ships proceeding in the same direction.
code	TrafficSeparationZone
remarks	None
alias	TSEZNE
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 3, 9, 28
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	surface

8.111 Traffic separation line

name	Traffic separation line
definition	A traffic separation scheme is a scheme which aims to reduce the risk of collision in congested and/or converging areas by separating traffic moving in opposite, or nearly opposite, directions.
code	TrafficSeparationLine
remarks	None
alias	TSELNE
multiplicity	0..1

attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 3, 9, 28
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	curve

8.112 Traffic separation scheme boundary

name	Traffic separation scheme boundary
definition	The boundary of a traffic separation scheme is the outer limit of a traffic lane part or a traffic separation scheme roundabout.
code	TrafficSeparationSchemeBoundary
remarks	A traffic separation scheme is a scheme which aims to reduce the risk of collision in congested and/or converging areas by separating traffic moving in opposite, or nearly opposite, directions (IHO Dictionary, S-32, 5th Edition, 5585).
alias	TSSBND
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 3, 9, 28
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation

multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	curve

8.113 Traffic separation scheme crossing

name	Traffic separation scheme crossing
definition	A traffic separation scheme crossing is a defined area where traffic lanes cross.
code	TrafficSeparationSchemeCrossing
remarks	A traffic separation scheme is a scheme which aims to reduce the risk of collision in congested and/or converging areas by separating traffic moving in opposite, or nearly opposite, directions (IHO Dictionary, S-32, 5th Edition, 5585).
alias	TSSCRS
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 3, 6, 9
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	surface

8.114 Traffic separation scheme roundabout

name	Traffic separation scheme roundabout
definition	A roundabout is a traffic separation scheme in which traffic moves in a counter-clockwise direction around a specified point or zone.
code	TrafficSeparationSchemeRoundabout
remarks	A traffic separation scheme is a scheme which aims to reduce the risk of collision in congested and/or converging areas by separating traffic moving in opposite, or nearly opposite, directions (IHO Dictionary, S-32, 5th Edition, 5585).
alias	TSSRON
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 3, 6, 9
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
permittedPrimitives	surface

8.115 Traffic separation scheme

name	Traffic separation scheme

definition	A scheme which aims to reduce the risk of collision in congested and/or converging areas by separating traffic moving in opposite, or nearly opposite, directions.
code	TrafficSeparationScheme
remarks	None
alias	C_AGGR
multiplicity	0..1
permittedValues	1, 2
attribute ref	categoryOfTrafficSeparationScheme
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	maximumPermittedDraught
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	BeaconCardinal
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	BeaconIsolatedDanger
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	BeaconLateral
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation

role ref	consistsOf
featureType ref	BeaconSafeWater
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	BuoyCardinal
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	BuoyIsolatedDanger
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	BuoyLateral
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf

featureType ref	BuoySafeWater
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	DeepWaterRoute
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	DeepWaterRouteCentreline
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	Daymark
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	DeepWaterRoutePart
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	InshoreTrafficZone

featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	Landmark
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	LightFloat
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	LightVessel
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	Pile
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	PrecautionaryArea
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	RestrictedAreaNavigational
featureBinding roleType	aggregation

multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	RestrictedAreaRegulatory
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	TrafficSeparationLine
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	TrafficSeparationSchemeBoundary
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	TrafficSeparationSchemeCrossing
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	TrafficSeparationSchemeLanePart
featureBinding roleType	aggregation
multiplicity	1..*

association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	TrafficSeparationSchemeRoundabout
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	TrafficSeparationZone
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	1..*
association ref	TrafficSeparationSchemeAggregation
role ref	consistsOf
featureType ref	TwoWayRoutePart
featureBinding roleType	association
multiplicity	0..*
association ref	CautionAreaAssociation
role ref	consistsOf
featureType ref	CautionArea
permittedPrimitives	noGeometry

8.116 Archipelagic sea lane area

name	Archipelagic sea lane area

definition	Article 53 of the United Nations Convention on the Law of the Sea (UNCLOS) states that:'an archipelagic State may designate sea lanes ..., suitable for the continuous and expeditious passage of foreign ships ... through ... its archipelagic waters and the adjacent territorial sea. ... All ships ... enjoy the right of archipelagic sea lanes passage in such sea lanes ... [which] include all normal passage routes used as routes for international navigation … through archipelagic waters'.(Note: references to aircraft and air routes in UNCLOS have been omitted in these extracts from Article 53).
code	ArchipelagicSeaLaneArea
remarks	The object class Archipelagic sea lane encodes the area of an Archipelagic sea lane.
alias	ARCSLN
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	1..1
attribute ref	nationality
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	ASLAggregation
role ref	componentOf
feattureType ref	ArchipelagicSeaLane
permittedPrimitives	surface

8.117 Archipelagic sea lane axis

name	Archipelagic sea lane axis

definition	The reference line used to determine the maximum extents of an Archipelagic Sea Lane. It may not indicate the deepest water nor any recommended route or track.Article 53 of the United Nations Convention on the Law of the Sea (UNCLOS) states that:'an archipelagic State may designate sea lanes ..., suitable for the continuous and expeditious passage of foreign ships ... through ... its archipelagic waters and the adjacent territorial sea. ..... All ships ... enjoy the right of archipelagic sea lanes passage in such sea lanes ... [which] include all normal passage routes used as routes for international navigation … through archipelagic waters'.(Note: references to aircraft and air routes in UNCLOS have been omitted in these extracts fromArticle 53).
code	ArchipelagicSeaLaneAxis
remarks	None
alias	ASLXIS
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	1..1
attribute ref	nationality
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	ASLAggregation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
permittedPrimitives	curve

8.118 Archipelagic sea lane

name	Archipelagic Sea Lane
definition	Sea lanes designated by an archipelagic State for the passage of ships and aircraft.
code	ArchipelagicSeaLane
remarks	None
alias	C_AGGR

multiplicity	0..*
attribute ref	featureName
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	1..*
association ref	ASLAggregation
role ref	consistsOf
featureType ref	ArchipelagicSeaLaneArea
featureBinding roleType	aggregation
multiplicity	1..*
association ref	ASLAggregation
role ref	consistsOf
featureType ref	ArchipelagicSeaLaneAxis
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconLateral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation

role ref	consistsOf
featureType ref	BeaconSafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyCardinal
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyInstallation
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoyIsolatedDanger
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf

featureType ref	BuoyLateral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoySafeWater
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Daymark
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	LightFloat
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	LightVessel
featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Landmark

featureBinding roleType	association
multiplicity	1..*
association ref	AidsToNavigationAssociation
role ref	consistsOf
featureType ref	Pile
featureBinding roleType	association
multiplicity	1..*
association ref	CautionAreaAssociation
role ref	consistsOf
featureType ref	CautionArea
permittedPrimitives	noGeometry

8.119 Radio calling-in point

name	Radio calling-in point
definition	On passing a radio callin-in point or crossing a defined line vessels are required to report on VHF to a Traffic Control Centre. The attribute 'orientation' (ORIENT) encodes the orientation of the traffic flow at that point.
code	RadioCallingInPoint
remarks	Radio calling-in points are established in certain busy waterways and port approaches to assist traffic control.
alias	RDOCAL
multiplicity	0..1
attribute ref	callSign
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..2
attribute ref	orientationValue
multiplicity	0..*

attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 3, 4, 5, 6, 7, 9
attribute ref	status
multiplicity	1..1
permittedValues	1, 2, 3, 4
attribute ref	trafficFlow
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve

8.120 Ferry route

name	Ferry route
definition	A route in a body of water where a ferry crosses from one shoreline to another.
code	FerryRoute
remarks	None
alias	FERYRT
multiplicity	1..*
permittedValues	1, 2, 3, 5
attribute ref	categoryOfFerry
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 9, 14
attribute ref	status

multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve
permittedPrimitives	surface

8.121 Radar line

name	Radar line
definition	A track along which ships may be guided by coastal radar stations in the event of bad visibility. Also known as a radar guided track.
code	RadarLine
remarks	None
alias	RADLNE
multiplicity	0..*
attribute ref	featureName
multiplicity	1..1
attribute ref	orientationValue
multiplicity	0..*
permittedValues	1, 2, 3, 4, 7
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

8.122 Radar range

name	Radar range
definition	Indicates the coverage of a sea area by a radar surveillance station. Inside this area a vessel may request shore-based radar assistance, particularly in poor visibility.
code	RadarRange

remarks	Many large ports have a radar surveillance system covering their approaches to provide guidance for vessels, particularly in poor visibility. The maximum range of the system forms an arc or series of overlapping arcs (IHO Chart Specifications, M-4).
alias	RADRNG
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 2, 4, 7
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.123 Radar station

name	Radar station
definition	A station with a transmitter emitting pulses of ultra-high frequency radio waves which are reflected by solid objects and are detected upon their return to the sending station.
code	RadarStation
remarks	The object 'radar station' is used to encode the technical equipment itself independent of the building or structure where it is installed. This building or structure, e.g. mast, tower, building, radar dome is a different object.
alias	RADSTA
multiplicity	0..1
attribute ref	callSign
multiplicity	0..*
permittedValues	1, 2
attribute ref	categoryOfRadarStation

multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	height
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 4, 7, 8
attribute ref	status
multiplicity	0..1
attribute ref	valueOfMaximumRange
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point

8.124 Anchorage area

name	Anchorage area
definition	An area in which vessels anchor or may anchor.
code	AnchorageArea
remarks	None
alias	ACHARE
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 14, 15
attribute ref	categoryOfAnchorage
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange

multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 23, 24, 27, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 2, 3, 5, 6, 7, 8, 9, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.125 Anchor berth

name	Anchor berth
deefinition	A designated area of water where a single vessel, sea plane, etc., may anchor.
code	AnchorBerth
remarks	In general the anchor berth is defined by the centre point and a swinging circle.
alias	ACHBRT
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 14
attribute ref	categoryOfAnchorage
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1

attribute ref	radius
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.126 Seaplane landing area

name	Seaplane landing area
definition	A designated portion of water for the landing and take-off of seaplanes.
code	SeaplaneLandingArea
remarks	None
alias	SPLARE
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point

permittedPrimitives	surface

8.127 Dumping ground

name	Dumping ground
definition	A sea area where dredged material or other potentially more harmful material, e.g. explosives, chemical waste, is deliberately deposited.
code	DumpingGround
remarks	None
alias	DMPGRD
multiplicity	0..*
permittedValues	2, 3, 4, 5, 6
attribute ref	categoryOfDumpingGround
multiplicity	0..1
attribute ref	dateDisused
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 17, 18, 19, 20, 21, 23, 24, 25, 27
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 2, 4, 6, 7
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.128 Military practice area

name	Military practice area

definition	An area within which naval, military or aerial exercises are carried out. Also called an 'exercise area'.
code	MilitaryPracticeArea
remarks	None
alias	MIPARE
multiplicity	0..*
permittedValues	2, 3, 4, 5, 6
attribute ref	categoryOfMilitaryPracticeArea
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	nationality
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 2, 5, 6, 7, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.129 Administration area

name	Administration area
definition	A defined area within which a jurisdiction applies. It may or may not be named.

code	AdministrationArea
remarks	None
alias	ADMARE
multiplicity	0..1
attribute ref	inDispute
multiplicity	1..1
permittedValues	1, 2, 3
attribute ref	jurisdiction
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
attribute ref	nationality
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.130 Cargo transhipment area

name	Cargo transhipment area
definition	An area designated for the transfer of cargo from one vessel to another.
code	CargoTranshipmentArea
remarks	The transhipment of cargo is often known as 'lightering' and the area may be known as 'lightering area' or 'cargo transfer area'.
alias	CTSARE
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*

permittedValues	2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 22, 24, 27, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 2, 3, 5, 6, 7, 9
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.131 Caution area

name	Caution area
definition	Generally, an area where the mariner has to be made aware of circumstances influencing the safety of navigation.
code	CautionArea
remarks	This object class may be required to identify:a danger, a risk, a rule, or advice -- which is not directly related to a specific object.
alias	CTNARE
multiplicity	0..1
permittedValues	1, 3, 5
attribute ref	condition
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..1
permittedValues	5, 7
attribute ref	status
multiplicity	0..1

attribute ref	scaleMinimum
informationBinding roleType	association
multiplicity	0..1
association ref	AdditionalInformation
role ref	providesInformation
informationType ref	NauticalInformation
featureUseType	geographic
featureBinding roleType	association
multiplicity	0..1
association ref	CautionAreaAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	CautionAreaAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	CautionAreaAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point
permittedPrimitives	surface

8.132 Information area

name	Information area
definition	An area for which general information regarding navigation, but not directly related to safety of navigation, is available.
code	InformationArea
remarks	None
alias	M_NPUB
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..1
attribute ref	scaleMinimum
informationBinding roleType	association
multiplicity	0..1
association ref	AdditionalInformation
role ref	providesInformation
informationType ref	NauticalInformation
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	curve
permittedPrimitives	surface

8.133 Contiguous zone

name	Contiguous zone
definition	A zone contiguous to a coastal State's territorial sea, which may not extend beyond 24 nautical miles from the baselines from which the breadth of the territorial sea is measured.

code	ContiguousZone
remarks	The coastal state may exercise certain control in this zone subject to the provisions of International Law.
multiplicity	0..1
attribute ref	inDispute
multiplicity	1..*
attribute ref	nationality
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.134 Continental shelf area

name	Continental shelf area
definition	The continental shelf of a coastal State comprises the sea bed and subsoil of the submarine areas that extend beyond its territorial sea throughout the natural prolongation of its land territory to the outer edge of the continental margin, or to a distance of 200 nautical miles from the baselines from which the breadth of the territorial sea is measured where the outer edge of the continental margin does not extend out to that distance.
code	ContinentalShelfArea
remarks	None
alias	COSARE
multiplicity	0..*
attribute ref	featureName
multiplicity	1..*
attribute ref	nationality
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.135 Custom zone

name	Custom zone
definition	The area within which national custom regulations are in force.
code	CustomZone
remarks	None
alias	CUSZNE
multiplicity	1..1
attribute ref	nationality
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.136 Exclusive economic zone

name	Exclusive economic zone
definition	An area, not exceeding 200 nautical miles from the baselines from which the breadth of the territorial sea is measured, subject to a specific legal regime established in the United Nations Convention on the Law of the Sea under which the coastal state has certain rights and jurisdiction.
code	ExclusiveEconomicZone
remarks	None
alias	EXEZNE
multiplicity	0..1
attribute ref	inDispute
multiplicity	1..*
attribute ref	nationality
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.137 Fishery zone

name	Fishery zone
definition	The offshore zone in which exclusive fishing rights and management are held by the coastal nation.
code	FisheryZone
remarks	The fishery zone commonly coincides with other zones such as: Continental Shelf, Exclusive Economic Zone.
alias	FSHZNE
multiplicity	0..1
attribute ref	featureName
multiplicity	1..1
attribute ref	nationality
multiplicity	0..*
permittedValues	1, 5, 6, 7
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.138 Fishing ground

name	Fishing ground
definition	A water area in which fishing is frequently carried on.
code	FishingGround
remarks	None
alias	FSHGRD
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 8, 9, 10,11,12,15,16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 39
attribute ref	restriction

multiplicity	0..*
permittedValues	1, 5, 6, 7, 8, 14, 16, 17, 28
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.139 Free port area

name	Free port area
definition	A port where certain import and export duties are waived (unless goods pass into the country) to facilitate reshipment to other countries.
code	FreePortArea
remarks	None
alias	FRPARE
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1, 6, 8, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.140 Harbour area (administrative)

name	Harbour area (administrative)
definition	The area over which a harbour authority has jurisdiction.
code	HarbourAreaAdministrative
remarks	None
alias	HRBARE

multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
permittedValues	1, 4, 6, 8, 14
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.141 Log pond

name	Log pond
definition	A maritime area enclosed with connected floating timbers used as a staging area for sawn logs.
code	LogPond
remarks	None
alias	LOGPON
multiplicity	0..*
attribute ref	featureName
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 5, 6, 7, 8
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.142 Oil barrier

name	Oil barrier
definition	A construction to dam oil flow on water.
code	OilBarrier
remarks	None
alias	OILBAR
multiplicity	0..1
permittedValues	1, 2
attribute ref	categoryOfOilBarrier
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

8.143 Straight territorial sea baseline

name	Straight territorial sea baseline
definition	Straight baselines are a system of straight lines joining specified or discrete points on the low-water line, usually known as straight baseline turning points.
code	StraightTerritorialSeaBaseline

remarks	A baseline is the line from which the outer limits of the territorial sea and certain other outer limits are measured (IHO Dictionary, S-32, 5th Edition, 390).
alias	STSLNE
multiplicity	1..1
attribute ref	nationality
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

8.144 Territorial sea area

name	Territorial sea area
definition	The territorial sea is a belt of water of a defined breadth but not exceeding 12 nautical miles measured seaward from the territorial sea baseline.
code	TerritorialSeaArea
remarks	None
alias	TESARE
multiplicity	0..1
attribute ref	inDispute
multiplicity	1..*
attribute ref	nationality
multiplicity	0..*
permittedValues	2, 4, 6, 8, 9, 10, 12, 17, 18, 19, 20, 21, 22, 23, 24, 27
attribute ref	restriction
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.145 Submarine transit lane

name	Submarine transit lane

definition	An area where submarines may navigate under water or at the surface.
code	SubmarineTransitLane
remarks	None
alias	SUBTLN
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	nationality
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27
attribute ref	restriction
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	surface

8.146 Pilotage district

name	Pilotage district
definition	An area within which a pilotage direction exists. Such directions areregulated by a competent harbour authority which dictates circumstances under which they apply.
code	PilotageDistrict
remarks	None
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	association
multiplicity	1..*

association ref	PilotageDistrictAssociation
role ref	consistsOf
featureType ref	PilotBoardingPlace
permittedPrimitives	surface

8.147 Collision regulations limit

name	Collision regulations limit
definition	Convention on the International Regulations forPreventing Collisions at Sea, 1972 (COLREGs). The demarcation line between inland navigation rules andinternational navigation rules.
code	CollisionRegulationsLimit
remarks	None
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	regulationCitation
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	curve

8.148 Restricted area navigational

name	Restricted area navigational
definition	A navigational restricted area is an area where the restrictions have a direct impact on the navigation of a vessel in the area.
code	RestrictedAreaNavigational
remarks	None
alias	RESARE

multiplicity	0..*
permittedValues	1, 4, 5, 6, 7, 8, 9, 10, 12, 14, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32
attribute ref	categoryOfRestrictedArea
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	1..*
permittedValues	1, 2, 7, 8, 13, 14, 25, 26, 27
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 9, 18, 28
attribute ref	status
multiplicity	0..*
attribute ref	vesselSpeedLimit
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	surface

8.149 Restricted area regulatory

name	Restricted area regulatory
definition	A regulatory restricted area is an area where the restrictions have no direct impact on the navigation of a vessel in the area, but impact on the activities that can take place within the area.
code	RestrictedAreaRegulatory
remarks	None
alias	RESARE
multiplicity	0..*
permittedValues	1, 4, 5, 6, 7, 8, 9, 10, 12, 14, 18, 19, 20, 21, 22, 23, 25, 27, 28, 29, 30, 31, 32
attribute ref	categoryOfRestrictedArea
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	3, 4, 5, 6, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 39
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 9, 18, 28
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme

featureBinding roleType	association
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	surface

8.150 Light all around

name	Light all around
definition	An all around light is a light that is visible over the whole horizon of interest to marine navigation and having no change in the characteristics of the light.
code	LightAllAround
remarks	None
alias	LIGHTS
multiplicity	0..*
permittedValues	4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20
attribute ref	categoryOfLight
multiplicity	1..*
permittedValues	1, 3, 4, 5, 6, 9, 10, 11
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4
attribute ref	exhibitionConditionOfLight
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
permittedValues	1, 2

attribute ref	lightVisibility
multiplicity	0..1
attribute ref	majorLight
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	1..1
attribute ref	rhythmOfLight
multiplicity	0..1
permittedValues	5, 6
attribute ref	signalGeneration
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 11, 14, 15, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	valueOfNominalRange
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	flareAngle
featureUseType	geographic
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation

role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyLateral

featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FishingFacility
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightFloat
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightVessel
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	MooringWarpingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipelineOverhead
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pontoon
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	ShorelineConstruction
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane

featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	Bridge
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
permittedPrimitives	point

8.151 Light sectored

name	Light sectored
definition	A sectored light is a light having one or more sectors, which have different characteristics across, and sometimes within, each sector.

code	LightSectored
remarks	None
alias	LIGHTS
multiplicity	0..*
permittedValues	4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19, 20
attribute ref	categoryOfLight
multiplicity	0..1
permittedValues	1, 2, 4
attribute ref	exhibitionConditionOfLight
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	1..*
attribute ref	sectorCharacteristics
multiplicity	0..1
permittedValues	5, 6
attribute ref	signalGeneration
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 11, 14, 15, 16, 17
attribute ref	status
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum

multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	BuoyLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FishingFacility

featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightSectored
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightFloat
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightVessel
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	MooringWarpingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipelineOverhead
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pontoon
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	ShorelineConstruction
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	WindTurbine
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	aggregation
multiplicity	0..1
association ref	TrafficSeparationSchemeAggregation
role ref	componentOf

featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	Bridge
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute

permittedPrimitives	point

8.152 Light fog detector

name	Light fog detector
definition	A fog detector light is a light used to automatically determine conditions of visibility which warrant the turning on or off of a sound signal.
code	LightFogDetector
remarks	None
alias	LIGHTS
multiplicity	0..*
permittedValues	1, 3, 4, 5, 6, 9, 10, 11
attribute ref	colour
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	rhythmOfLight
multiplicity	0..1
permittedValues	5, 6
attribute ref	signalGeneration
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 11, 14, 15, 16, 17
attribute ref	status
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30
attribute ref	verticalDatum

multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	flareAngle
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	FishingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightFloat
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	LightVessel
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	MooringWarpingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipelineOverhead
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pontoon
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport

featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	ShorelineConstruction
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine
permittedPrimitives	point

8.153 Light air obstruction

name	Light Air Obstruction
definition	An air obstruction light is a light marking an obstacle which constitutes a danger to air navigation.

code	LightAirObstruction
remarks	None
alias	LIGHTS
multiplicity	0..*
permittedValues	1, 3, 4, 5, 6, 9, 10, 11
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4
attribute ref	exhibitionConditionOfLight
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9
attribute ref	lightVisibility
multiplicity	0..1
attribute ref	multiplicityOfFeatures
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	rhythmOfLight
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8, 11, 14, 15, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	valueOfNominalRange
multiplicity	0..1
permittedValues	3, 16, 17, 18, 19, 20, 21, 24, 25, 26, 28, 29, 30

attribute ref	verticalDatum
multiplicity	0..1
attribute ref	scaleMinimum
multiplicity	0..1
attribute ref	flareAngle
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark

featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine
permittedPrimitives	point

8.154 Buoy lateral

name	Buoy lateral
definition	A lateral buoy is used to indicate the port or starboard hand side of the route to be followed. They are generally used for well defined channels and are used in conjunction with a conventional direction of buoyage.

code	BuoyLateral
remarks	buoy is a floating object moored to the bottom in a particular place, as an aid to navigation or for other specific purposes. (IHO Dictionary, S-32, 5th Edition, 565). Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BOYLAT
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8
attribute ref	buoyShape
multiplicity	1..1
permittedValues	1, 2, 3, 4
attribute ref	categoryOfLateralMark
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*

permittedValues	1, 2, 5, 7, 8, 18
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*

association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation

role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.155 Buoy cardinal

name	Buoy cardinal
definition	A cardinal buoy is used in conjunction with the compass to indicate where the mariner may find the best navigable water. It is placed in one of the four quadrants (North, East, South and West), bounded by inter-cardinal bearings from the point marked.
code	BuoyCardinal

remarks	A buoy is a floating object moored to the bottom in a particular place, as an aid to navigation or for other specific purposes. (IHO Dictionary S-32 5th Edition, 565). Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BOYCAR
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8
attribute ref	buoyShape
multiplicity	1..1
permittedValues	1, 2, 3, 4
attribute ref	categoryOfCardinalMark
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 2, 5, 7, 8, 18

attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf

featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.156 Buoy isolated danger

name	Buoy isolated danger
definition	A isolated danger buoy is a buoy moored on or above an isolated danger of limited extent, which has navigable water all around it.
code	BuoyIsolatedDanger
remarks	A buoy is a floating object moored to the bottom in a particular place, as an aid to navigation or for other specific purposes. (IHO Dictionary, S-32, 5th Edition, 565). Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BOYISD

multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8
attribute ref	buoyShape
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 2, 5, 7, 8, 18
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1

attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAidsToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem

featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.157 Buoy safe water

name	Buoy safe water
definition	A safe water buoy is used to indicate that there is navigable water around the mark.
code	BuoySafeWater
remarks	A buoy is a floating object moored to the bottom in a particular place, as an aid to navigation or for other specific purposes. (IHO Dictionary, S-32, 5th Edition, 565). Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BOYSAW
multiplicity	1..1
permittedValues	1, 2. 3, 4, 5, 6, 7, 8
attribute ref	buoyShape
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour

multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 2, 5, 7, 8, 18
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RetroReflector

featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association

multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.158 Buoy special purpose/general

name	Buoy special purpose/general
definition	A special purpose buoy is primarily used to indicate an area or feature, the nature of which is apparent from reference to a chart, Sailing Directions or Notices to Mariners.
code	BuoySpecialPurposeGeneral
remarks	A buoy is a floating object moored to the bottom in a particular place, as an aid to navigation or for other specific purposes. (IHO Dictionary, S-32, 5th Edition, 565). Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BOYSPP
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8
attribute ref	buoyShape
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 42, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63
attribute ref	categoryOfSpecialPurposeMark
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1

permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 2, 5, 7, 8, 18
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark

featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1

association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.159 Buoy emergency wreck marking

name	Buoy emergency wreck marking
definition	An emergency wreck marking buoy is a buoy moored on or above a new wreck, designed to provide aprominent (both visual and radio) and easily identifiable temporary (24-72 hours) first response.
code	BuoyEmergencyWreckMarking
remarks	None
alias	BOYSPP
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8
attribute ref	buoyShape
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1

permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*

association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	point

8.160 Buoy installation

name	Buoy installation
definition	An installation buoy is a buoy used for loading tankers with gas or oil.
code	BuoyInstallation
remarks	A buoy is a floating object moored to the bottom in a particular place, as an aid to navigation or for other specific purposes. (IHO Dictionary, S-32, 5th Edition, 565).
alias	BOYINB
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8
attribute ref	buoyShape
multiplicity	0..1
permittedValues	1, 2
attribute ref	categoryOfInstallationBuoy
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	7, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
permittedValues	1, 2, 18, 19
attribute ref	product

multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 18
attribute ref	status
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector

featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
permittedPrimitives	point

8.161 Beacon lateral

name	Beacon lateral
definition	A lateral beacon is used to indicate the port or starboard hand side of the route to be followed. They are generally used for well defined channels and are used in conjunction with a conventional direction of buoyage.

code	BeaconLateral
remarks	A beacon is a prominent specially constructed object forming a conspicuous mark as a fixed aid to navigation or for use in hydrographic survey (IHO Dictionary, S-32, 5th Edition, 420). Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BCNLAT
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7
attribute ref	beaconShape
multiplicity	1..1
permittedValues	1, 2, 3, 4
attribute ref	categoryOfLateralMark
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*

permittedValues	1, 2, 6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 12, 18
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal

featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1

association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.162 Beacon cardinal

name	Beacon cardinal
definition	A cardinal beacon is used in conjunction with the compass to indicate where the mariner may find the best navigable water. It is placed in one of the four quadrants (North, East, South and West), bounded by inter-cardinal bearings from the point marked.
code	BeaconCardinal
remarks	A beacon is a prominent specially constructed object forming a conspicuous mark as a fixed aid to navigation or for use in hydrographic survey (IHO Dictionary, S-32, 5th Edition, 420). Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BCNCAR
multiplicity	1..1
permittedValues	1, 2, 3, 5, 6, 7
attribute ref	beaconShape
multiplicity	1..1
permittedValues	1, 2, 3, 4
attribute ref	categoryOfCardinalMark
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern

multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	1, 2, 6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 12, 18
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1

permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1

association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.163 Beacon isolated danger

name	Beacon isolated danger
definition	An isolated danger beacon is a beacon erected on an isolated danger of limited extent, which has navigable water all around it.
code	BeaconIsolatedDanger

remarks	A beacon is a prominent specially constructed object forming a conspicuous mark as a fixed aid to navigation or for use in hydrographic survey (IHO Dictionary, S-32, 5th Edition, 420). Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BCNISD
multiplicity	1..1
permittedValues	1, 2, 3, 5, 6, 7
attribute ref	beaconShape
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	1, 2, 6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange

multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 12, 18
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning

featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation

multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.164 Beacon safe water

name	Beacon safe water
definition	A safe water beacon is a prominent specially constructed object forming a conspicuous mark as a fixed aid to navigation or for use in hydrographic survey.
code	BeaconSafeWater
remarks	A safe water beacon may be used to indicate that there is navigable water around the mark. (UKHO NP 735, 5th Edition) Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BCNSAW
multiplicity	1..1
permittedValues	1, 2, 3, 5, 6, 7
attribute ref	beaconShape
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1

attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	1, 2, 6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 12, 18
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem

featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.165 Beacon special purpose/general

name	Beacon special purpose/general
definition	A special purpose beacon is primarily used to indicate an area or feature, the nature of which is apparent from reference to a chart, Sailing Directions or Notices to Mariners.
code	BeaconSpecialPurposeGeneral
remarks	A beacon is a prominent specially constructed object forming a conspicuous mark as a fixed aid to navigation or for use in hydrographic survey (IHO Dictionary, S-32, 5th Edition, 420). Topmark, light, fog signal, radar reflector and retro-reflector are separate objects.
alias	BCNSPP
multiplicity	1..1
permittedValues	1, 2, 3, 5, 6, 7
attribute ref	beaconShape
multiplicity	1..*

permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63
attribute ref	categoryOfSpecialPurposeMark
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
permittedValues	1, 2, 5
attribute ref	condition
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..1
permittedValues	1, 2, 9, 11
attribute ref	marksNavigationalSystemOf
multiplicity	0..*
permittedValues	1, 2, 6, 7, 8, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..1

attribute ref	reportedDate
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 12, 18
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*

association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation

role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo

featureType ref	Fairway
permittedPrimitives	point

8.166 Daymark

name	Daymark
definition	The identifying characteristics of an aid to navigation which serve to facilitate its recognition against a daylight viewing background.
code	Daymark
remarks	On those structures that do not by themselves present an adequate viewing area to be seen at the required distance, the aid is made more visible by affixing a daymark to the structure. A daymark so affixed has a distinctive colour and shape depending on the purpose of the aid.
alias	DAYMAR
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63
attribute ref	categoryOfSpecialPurposeMark
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
attribute ref	elevation
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*
permittedValues	1, 2, 6, 7, 8, 11

attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 4, 5, 7, 8, 12
attribute ref	status
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33
attribute ref	topmarkDaymarkShape
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..*
attribute ref	shapeInformation
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment

role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightSectored
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	SignalStationWarning
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Bridge

featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyLateral
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FishingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightFloat
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightVessel
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	MooringWarpingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipelineOverhead
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pontoon
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	ShorelineConstruction
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute

featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.167 Light float

name	Light float
definition	A boat-like structure used instead of a light buoy in waters where strong streams or currents are experienced, or when a greater elevation than that of a light buoy is necessary.
code	LightFloat
remarks	The light of a light float is a separate object, handled as with buoys, beacons, etc.
alias	LITFLT
multiplicity	1..*

permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	horizontalLength
multiplicity	0..1
attribute ref	horizontalWidth
multiplicity	0..*
permittedValues	6, 7, 11
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 14, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	topmark
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1

attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports

featureType ref	RadarTransponderBeacon
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute

featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.168 Light vessel

name	Light vessel
definition	A distinctively marked vessel anchored or moored at a charted point, to serve as an aid to navigation. By night, it displays a characteristic light(s) and is usually equipped with other devices, such as fog signal, submarine sound signal, and radio-beacon, to assist navigation.
code	LightVessel
remarks	Also called 'light ship'. The light(s), fog signal etc. of a light vessel is a separate object, handled as with buoys, beacons, etc.
alias	LITVES
multiplicity	1..*

permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	horizontalLength
multiplicity	0..1
attribute ref	horizontalWidth
multiplicity	0..*
permittedValues	6, 7
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	radarConspicuous
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 14, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	verticalLength
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	visuallyConspicuous
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic

featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Daymark
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	FogSignal
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightAllAround
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	LightFogDetector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	RadarTransponderBeacon
featureBinding roleType	composition

multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	Retroreflector
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationTraffic
featureBinding roleType	composition
multiplicity	0..*
association ref	StructureEquipment
role ref	supports
featureType ref	SignalStationWarning
featureBinding roleType	aggregation
multiplicity	0..1
association ref	RangeSystemAggregation
role ref	componentOf
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	ArchipelagicSeaLane
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	DeepWaterRoute
featureBinding roleType	association
multiplicity	0..1

association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TrafficSeparationScheme
featureBinding roleType	association
multiplicity	0..1
association ref	AidsToNavigationAssociation
role ref	componentOf
featureType ref	TwoWayRoute
featureBinding roleType	aggregation
multiplicity	0..1
association ref	FairwayAuxiliary
role ref	auxiliaryTo
featureType ref	Fairway
permittedPrimitives	point

8.169 Retroreflector

name	Retroreflector
definition	A means of distinguishing unlighted marks at night. Retro-reflective material is secured to the mark in a particular pattern to reflect back light.
code	Retroreflector
remarks	The body carrying the retro-reflector is a separate feature.
alias	RETRFL
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13
attribute ref	colour
multiplicity	0..1

permittedValues	1, 2, 3, 4, 5, 6
attribute ref	colourPattern
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 4, 8
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FishingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightFloat

featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightVessel
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	MooringWarpingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipeLineOverhead
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pontoon
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	ShorelineConstruction
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine
permittedPrimitives	point

8.170 Radar reflector

name	Radar reflector
definition	A device capable of, or intended for, reflecting radar signals.
code	RadarReflector
remarks	A radar reflector is usually a tetrahedron or pentagonal corner reflector to facilitate reflection towards the sender.(International Maritime Dictionary, 2nd Ed.). The object 'radar reflector' is only used to encode a device specifically intended to reflect radar signals. If any other object, e.g. topmark, buoy, beacon, etc. is radar conspicuous, because of its construction, the attribute 'CONRAD' must be used.
alias	RADRFL
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	height
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 4, 8
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleTyp	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureUseType	CableOverhead
permittedPrimitives	point

8.171 Fog signal

name	Fog signal
definition	A warning signal transmitted by a vessel, or aid to navigation, during periods of low visibility. Also, the device producing such a signal.

code	FogSignal
remarks	None
alias	FOGSIG
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
attribute ref	categoryOfFogSignal
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
attribute ref	signalFrequency
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6
attribute ref	signalGeneration
multiplicity	0..1
attribute ref	signalGroup
multiplicity	0..1
attribute ref	signalPeriod
multiplicity	0..*
attribute ref	signalSequence
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 15
attribute ref	status
multiplicity	0..1
attribute ref	valueOfMaximumRange
multiplicity	0..1
attribute ref	scaleMinimum
informationBinding roleType	association

multiplicity	0..1
association ref	AdditionalInformation
role ref	providesInformation
informationType ref	ContactDetails
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FishingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightFloat
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightVessel
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	MooringWarpingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipeLineOverhead
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pontoon
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	Shorelineconstruction
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine
permittedPrimitives	point

8.172 Physical AIS aid to navigation

name	Physical AIS aid to navigation
definition	An Automatic Identification System (AIS) message 21 transmitted from a physical Aid to Navigation, or transmitted from an AIS station for an Aid to Navigation which does or does not physically exist.
code	PhysicalAISAidToNavigation
remarks	None
multiplicity	0..1

attribute ref	estimatedRangeOfTransmission
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	mMSICode
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 5, 7
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FishingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	LightFloat
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightVessel
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	MooringWarpingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipeLineOverhead
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	Pontoon
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Shorelineconstruction
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine

permittedPrimitives	point

8.173 Virtual AIS aid to navigation

name	Virtual AIS aid to navigation
definition	An Automatic Identification System (AIS) message 21 transmitted from an AIS station to simulate on navigation systems an Aid to Navigation which does or does not physically exist.
code	VirtualAISAidToNavigation
alias	NEWOBJ
remarks	None
multiplicity	0..1
attribute ref	estimatedRangeOfTransmission
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	mMSIcode
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
permittedValues	1, 5, 7
attribute ref	status
multiplicity	1..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
attribute ref	virtualAISAidToNavigationType
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point

8.174 Radio station

name	Radio station
definition	A place equipped to transmit radio waves.
code	RadioStation
remarks	Such a station may be either stationary or mobile, and may also be provided with a radio receiver. In British terminology, also called 'w/t station'. The transmission of a radio station may serve to provide mariners with a line of position (IHO Chart Specifications, M-4). The object 'radio station' is used to encode the point of transmission of the signal.
alias	RDOSTA
multiplicity	0..1
attribute ref	callSign
multiplicity	0..1
permittedValues	5, 10, 11, 14, 19, 20
attribute ref	categoryOfRadioStation
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..1
attribute ref	estimatedRangeOfTransmission
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	frequencyPair
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic

permittedPrimitives	point

8.175 Radar transponder beacon

name	Radar transponder beacon
definition	A transponder beacon transmitting a coded signal on radar frequency, permitting an interrogating craft to determine the bearing and range of the transponder.
code	RadarTransponderBeacon
remarks	The object class 'radar transponder beacon' is only used to encode the technical equipment independent of the structure on which it is located (e.g. a beacon, light-vessel or tower).
alias	RTPBCN
multiplicity	1..1
permittedValues	1, 2, 3
attribute ref	categoryOfRadarTransponderBeacon
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..2
attribute ref	radarWaveLength
multiplicity	0..1
attribute ref	sectorLimit
multiplicity	0..1
attribute ref	signalGroup
multiplicity	0..*
attribute ref	signalSequence
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8
attribute ref	status
multiplicity	0..1

attribute ref	valueOfMaximumRange
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	BuoyLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FishingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightFloat
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightVessel
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	MooringWarpingFacility

featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipeLineOverhead
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pontoon
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Shorelineconstruction
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine
permittedPrimitives	point

8.176 Pilot boarding place

name	Pilot Boarding Place
definition	The meeting place to which the pilot comes out.
code	PilotBoardingPlace
remarks	None
alias	PILBOP
multiplicity	0..1
permittedValues	1, 2, 3
attribute ref	categoryOfPilotBoardingPlace
multiplicity	0..1

permittedValues	1, 2
attribute ref	categoryOfPreference
multiplicity	0..*
attribute ref	destination
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 3
attribute ref	pilotMovement
multiplicity	0..*
permittedValues	1, 2, 5, 6, 9, 16, 17, 28
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
informationBinding roleType	association
multiplicity	0..1
association ref	AdditionalInformation
role ref	providesInformation
informationType ref	ContactDetails
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	PilotageDistrictAssociation
role ref	componentOf
featureType ref	PilotageDistrict
permittedPrimitives	point
permittedPrimitives	surface

8.177 Vessel traffic service area

name	Vessel traffic service area
definition	The area of any service implemented by a relevant authority primarily designed to improve safety and efficiency of traffic flow and the protection of the environment. It may range from simple information messages, to extensive organisation of the traffic involving national or regional schemes.
code	VesselTrafficServiceArea
remarks	None
alias	ADMARE
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	scaleMinimum
informationBinding roleType	association
multiplicity	0..1
association ref	AdditionalInformation
role ref	providesInformation
informationType ref	ContactDetails
featureUseType	geographic
permittedPrimitives	surface

8.178 Coastguard station

name	Coastguard station
definition	Watch keeping stations at which a watch is kept either continuously, or at certain times only.
code	CoastguardStation
remarks	This object class is used to describe the function of the coastguard rather than the building in which the coastguard is sited.
alias	CGUSTA
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..*

attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..1
attribute ref	isMRCC
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 4, 5, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.179 Signal station warning

name	Signal station warning
definition	A warning signal station is a place on shore from which warning signals are made to ships at sea.
code	SignalStationWarning
alias	SISTAW
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
attribute ref	categoryOfSignalStationWarning
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange

multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 12, 14, 15, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FishingFacility

featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightFloat
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightVessel
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	MooringWarpingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipeLineOverhead
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pontoon
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	Shorelineconstruction
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine
permittedPrimitives	point
permittedPrimitives	surface

8.180 Signal station traffic

name	Signal station traffic
definition	A traffic signal station is a place on shore from which signals are made to regulate the movement of traffic.
code	SignalStationTraffic

remarks	A signal station is a place on shore from which signals are made to ships at sea (IHO Dictionary, S-32, 5th Edition).
alias	SISTAT
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10
attribute ref	categoryOfSignalStationTraffic
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 12, 14, 15, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BeaconSpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Bridge
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Building
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyCardinal
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment

role ref	supportedBy
featureType ref	BuoyEmergencyWreckMarking
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyInstallation
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyIsolatedDanger
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoyLateral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySafeWater
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy

featureType ref	Crane
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Conveyor
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FishingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FloatingDock
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	FortifiedStructure
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Hulk
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Landmark

featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightFloat
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	LightVessel
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	MooringWarpingFacility
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	OffshorePlatform
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pile
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PipeLineOverhead
featureBinding roleType	composition

multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Pontoon
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	PylonBridgeSupport
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	Shorelineconstruction
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SiloTank
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanFixed
featureBinding roleType	composition
multiplicity	0..1
association ref	StructureEquipment
role ref	supportedBy
featureType ref	SpanOpening
featureBinding roleType	composition
multiplicity	0..1

association ref	StructureEquipment
role ref	supportedBy
featureType ref	WindTurbine
permittedPrimitives	point
permittedPrimitives	surface

8.181 Rescue station

name	Rescue station
definition	A place at which life saving equipment is held.
code	RescueStation
remarks	This object encodes the service available at this location. The structure housing the service should be coded separately.
alias	RSCSTA
multiplicity	0..*
permittedValues	1, 2, 4, 5, 6, 7, 8
attribute ref	categoryOfRescueStation
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 4, 5, 7, 8, 14, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point

permittedPrimitives	surface

8.182 Harbour facility

name	Harbour facility
definition	A harbour installation with a service or commercial operation of public interest.
code	HarbourFacility
remarks	None
alias	HRBFAC
multiplicity	1..*
permittedValues	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
attribute ref	categoryOfHarbourFacility
multiplicity	0..*
attribute ref	communicationChannel
multiplicity	0..1
permittedValues	1, 2, 3, 5
attribute ref	condition
multiplicity	0..*
attribute ref	featureName
multiplicity	0..1
attribute ref	fixedDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 6, 7
attribute ref	natureOfConstruction
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..1
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 25
attribute ref	product
multiplicity	0..1
attribute ref	reportedDate
multiplicity	0..*

permittedValues	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19, 20, 21, 23, 24, 27
attribute ref	restriction
multiplicity	0..*
permittedValues	1, 4, 5, 6, 7, 8, 9, 12, 13, 14, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point
permittedPrimitives	surface

8.183 Small craft facility

name	Small craft facility
definition	A place at which a service generally of interest to small craft or pleasure boats is available.
code	SmallCraftFacility
remarks	This object class encodes the service available at this location. The structure housing the service should be encoded separately.
alias	SMCFAC
multiplicity	1..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33
attribute ref	categoryOfSmallCraftFacility
multiplicity	featureName
multiplicity	0..*
attribute ref	periodicDateRange
multiplicity	0..*
permittedValues	1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 14, 16, 17
attribute ref	status
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
permittedPrimitives	point

permittedPrimitives	surface

8.184 Text placement

name	Text placement
definition	The Text Placement feature is used in association with the Feature Name attribute or a light description to optimize text positioning in ECDIS.
remarks	None
code	TextPlacement
multiplicity	0..1
attribute ref	flipBearing
multiplicity	1..1
permittedValues	1, 2, 3
attribute ref	textJustification
multiplicity	0..1
attribute ref	text
multiplicity	0..1
permittedValues	1, 2
attribute ref	textType
multiplicity	0..1
attribute ref	scaleMinimum
featureUseType	geographic
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	MagneticVariation
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	LocalMagneticAnomaly

featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Coastline
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Landarea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	IslandGroup
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	LandElevation
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	River
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Rapids
featureBinding roleType	association

multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Waterfall
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Lake
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	LandRegion
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Vegetation
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	IceArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SlopingGround
featureBinding roleType	association
multiplicity	1..1

association ref	TextAssociation
role ref	positions
featureType ref	SlopeTopLine
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Tideway
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	BuiltUpArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Building
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	AirportAirfield
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Runway
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation

role ref	positions
featureType ref	Bridge
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SpanFixed
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SpanOpening
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Conveyor
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	CableOverhead
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	PipeLineOverhead
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions

featureType ref	PylonBridgeSupport
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	FenceWall
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Railway
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Road
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Tunnel
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Landmark
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SiloTank

featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Windturbine
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	FortifiedStructure
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	ProductionStorageArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Checkpoint
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Hulk
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Pile
featureBinding roleType	association

multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Dyke
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	ShoreLineConstruction
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Causeway
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Canal
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	DistanceMark
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Gate
featureBinding roleType	association
multiplicity	1..1

association ref	TextAssociation
role ref	positions
featureType ref	Dam
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Crane
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Berth
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	MooringWarpingFacility
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	MooringTrot
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Drydock
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation

role ref	positions
featureType ref	FloatingDock
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Pontoon
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	DockArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Gridiron
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	LockBasin
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SeaAreaNamedWaterArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions

featureType ref	TidalStreamFloodEbb
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	CurrentNonGravitational
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Waterturbulence
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	TidalStreamPanelData
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Sounding
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	DredgedArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SweptArea

featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Depthcontour
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	DepthArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	DepthNoBottomFound
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	UnsurveyedArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SeabedArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Weedkelp
featureBinding roleType	association

multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Sandwave
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Spring
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	UnderwaterAwashRock
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Wreck
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	Obstruction
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	FoulGround
featureBinding roleType	association
multiplicity	1..1

association ref	TextAssociation
role ref	positions
featureType ref	DiscolouredWater
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	FishingFacility
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	MarineFarmCulture
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	OffshorePlatform
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	CableSubmarine
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	CableArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation

role ref	positions
featureType ref	PipeLineSubmarineOnLand
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SubmarinePipeLineArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	OffshoreProductionArea
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	NavigationLine
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	RecommendedTrack
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	RangeSystem
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions

featureType ref	Fairway
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	FairwaySystem
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
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featureType ref	RecommendedRouteCentreline

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featureType ref	InshoreTrafficZone
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featureType ref	PrecautionaryArea
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featureType ref	ArchipelagicSeaLane
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featureType ref	RadioCallingInPoint
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featureType ref	FerryRoute
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featureType ref	RadarLine
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featureType ref	SeaplaneLandingArea
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featureType ref	CargoTranshipmentArea
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featureType ref	CautionArea
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featureType ref	InformationArea
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featureType ref	CustomZone

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featureType ref	ExclusiveEconomicZone
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featureType ref	FisheryZone
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featureType ref	FishingGround
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featureType ref	HarbourAdministrative
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featureType ref	LogPond
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featureType ref	StraightTerritorialSeaBaseline
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featureType ref	TerritorialSeaArea
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featureType ref	SubmarineTransitLane
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featureType ref	PilotageDistrict
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featureType ref	CollisionRegulationsLimit
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association ref	TextAssociation
role ref	positions
featureType ref	LightSectored
featureBinding roleType	association
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association ref	TextAssociation
role ref	positions
featureType ref	LightFogDetector
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	LightAirObstruction
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role ref	positions
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featureType ref	BuoyCardinal
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featureType ref	BuoyIsolatedDanger
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	BuoySafeWater
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	BuoySpecialPurposeGeneral
featureBinding roleType	association
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association ref	TextAssociation
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featureType ref	BuoyEmergencyWreckMarking
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featureType ref	BuoyInstallation
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featureType ref	BeaconCardinal
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featureType ref	BeaconSafeWater
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featureType ref	Daymark

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featureType ref	RadarReflector
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featureType ref	FogSignal
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association ref	TextAssociation
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featureType ref	PhysicalAISAidToNavigation
featureBinding roleType	association

multiplicity	1..1
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featureType ref	VirtualAISAidToNavigation
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featureType ref	RadioStation
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association ref	TextAssociation
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featureType ref	RadarTransponderBeacon
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association ref	TextAssociation
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featureType ref	PilotBoardingPlace
featureBinding roleType	association
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association ref	TextAssociation
role ref	positions
featureType ref	VesselTrafficServiceArea
featureBinding roleType	association
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role ref	positions
featureType ref	CoastguardStation
featureBinding roleType	association
multiplicity	1..1

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role ref	positions
featureType ref	SignalStationWarning
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SignalStationTraffic
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	RescueStation
featureBinding roleType	association
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association ref	TextAssociation
role ref	positions
featureType ref	HarbourFacility
featureBinding roleType	association
multiplicity	1..1
association ref	TextAssociation
role ref	positions
featureType ref	SmallCraftFacility
permittedPrimitives	point