EuroRegionalMap

Pan-European Dataset at Medium Scale

Specification

- Version for ERM **2023** -

Product Manager:	EuroGeographics Association
Production Manager:	Federal Agency for Cartography and Geodesy (Germany)
Regional Coordinators:	- Cadastre, Land Registry and Mapping Agency (The Netherlands) - National Institute of Geographic and Forest Information (France) - National Center of Remote Sensing and Geoinformatics "GIS-Centras" (Lithuania) - Federal Office of Metrology and Surveying (Austria) - Agency for Land Relations and Cadastre of the Republic of Moldova (Republic of Moldova)

Change history

Version:	Date:	Author:	Comments
ERM 2020	04.2020	Regine Elling, Alexander Reichelt	
ERM 2021	02.2021	Regine Elling, Alexander Reichelt	Complete revision of the specification, update according changes to feature catalogue
ERM 2022	03.2021	Alexander Reichelt	
ERM 2022	07.2022	Alexander Reichelt	
ERM 2023	03.2023	Tim Trautmann	
ERM 2023	05.2023	Tim Trautmann	Update on coverage

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1 Scope

This document defines the content and structure of European topographic and administrative reference data at regional level of detail based on requirements set at the European level. It facilitates the production of a seamless[1] and harmonised data set that is produced in cooperation by the National Mapping and Cadastral Agencies (NMCAs), using the official national databases.

The product defined is referred to as EuroRegionalMap (ERM).

The purpose of these specification is to provide a description of the content, accuracy, data format and design philosophy of ERM. Conformance to this specification will insure uniformity among all NMCAs engaged in a co-coordinated production and maintenance program for the product range.

2 Overview

2.1 Name and acronyms

The name of the specified product (version) is EuroRegionalMap **2023** (ERM **2023**).

2.2 Information about the creation of the specification

This document has been designed according to ISO 19131 to provide all information needed to use the ERM product.

The document has been checked before issuing it, and every effort has been made to ensure that the contents are accurate. If you find an error, omission, or have a suggestion about how it can be improved, please contact EuroGeographics at the address shown below.

If you have problems using ERM or any questions related to the dataset or its use please contact EuroGeographics:

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A first set of specifications has been elaborated during the PETIT Project. Starting from the specifications of the military product VMAP Level 1 (Vector Smart Map), they were adapted to civilian needs according the market study. PETIT specifications have then been revised taking into account of production constraints of mapping agencies. Nomenclatures used for attributes and features come from the DIGEST FACC (Feature Attribute Coding Catalogue). The theoretical model is also DIGEST compliant.

Since its start ERM has evolved in terms of content and coverage.

[1] The term "seamless" means that there are no gaps between graphical objects initially derived from different sources.

2.3 Normative references

The following specifications and standards form a part of this document to the extent specified herein.

NIMA	United States Department of Defence MIL-V-8083 Vector Smart Map (VMAP) Level 1, 1 June 1995
DIGEST	The Digital Geographic Information Exchange Standard, Edition 2.1 September 2000, DGIWG: https://www.dgiwg.org/DIGEST
EuroGeographics	PETIT Project: EUROMAP Product Specifications, Aug 99, REF: IMP/3035/WP6/MEG/004

The documents listed in this section have served as a reference for concepts applicable this specification.

EuroGeographics	EuroBoundaryMap, Product Specification for EBM
EuroGeographics	EuroGlobalMap, Product Specification for EGM
IUCN publication	Guidelines of the International Union for Conservation of Nature (IUCN) for Applying Protected Area Management Categories: https://portals.iucn.org/library/sites/library/files/documents/PAG-021.pdf
ESDIN	Small and Medium Scale Data Specifications (EuroGeographics project)
INSPIRE	INSPIRE Data Specifications https://inspire.ec.europa.eu/data-specifications
ISO 19115	Geographic Information – Metadata
ISO 19131	Geographic Information – Data product specifications
ISO 19157	Geographic Information – Data quality
ISO 3166	Codes for the Representation of Names of Countries
ISO 639-2/B	3-character Language Code

2.4 Terms and definitions

Terms and definitions necessary for understanding this document are defined in ISO 19131, Geographic Information – Data product specifications.

2.5 Informal description of the data product

2.5.1 Content and purpose

ERM is a pan-European seamless topographic database at regional level of detail at the scale 1:250 000. It is a vector-based product and is designed to support GIS applications and background display.

The dataset is compiled from data supplied by NMCAs and harmonized by means of a uniform specification developed and continuously improved according to user needs by ERM Production Management Team.

2.5.2 Spatial and temporal extent

ERM at scale 1:250 000 covers Europe. The reference dates are those of the different sets of national data sources.

2.5.3 Data sources and maintenance

Data required by EuroGeographics for maintenance of ERM is processed by the NMCAs of their most suitable geometric and semantic quality to meet the specification set up for ERM. EuroGeographics and the NMCAs contributing to ERM have made every effort to ensure that data supplied are free from errors and omissions. The quality checking of the data is made by ERM Production Management Team. Possible exceptions from ERM specifications are described in the Metadata.

3 Specification scopes

3.1 Coverage and extent

ERM data are collected at a density of detail that approximates the medium scale product range (from 1:200 000 to 1:300 000). Portrayal criteria mentioned in chapter Feature catalogue are general guidelines. It is up to NMCAs to settle in detail its own portrayal criteria.

The primary data sources used for ERM are the national data collections of the NMCAs possibly at similar spatial resolution. Secondary data sources internal or external to the NMCAs may also be used to fulfil the information.

The extent of the data set is limited to Europe, EU Outermost regions (OMR) and EU Overseas countries and territories (OCT).

3.2 Level description

The hierarchy level (MD_ScopeCode) of ERM is dataset.

4 Data product identification

4.1 Title and purpose

The title of the specified data product (version) is EuroRegionalMap **2023** (ERM **2023**).

ERM is ideal for a wide range of uses, including spatial analysis, cartographic publishing and backdrop visualisation, or in combination with other datasets for marketing planning and socio-economic analysis, environmental analysis, and transport management.

4.2 Geographic description

The release ERM **2023** covers: 24 EU member states, 4 EFTA states, Georgia, Moldova, North Macedonia, Ukraine, United Kingdom as well as Andorra (included with Spain), Liechtenstein (included with Switzerland), Monaco (included with France), Vatican City and San Marino (included with Italy), Faroe Islands, Isle of Man and French overseas departments/collectivities, see Figure 1.

Additionally, ERM **2023** includes placeholders for some countries and territories: Belarus, Guernsey, Jersey, Sint Maarten and Turkey. The outlines of these countries and territories have been adopted from freely available small scale data.

Figure 1: Geographic extent of ERM (overview)

4.3 Spatial resolution

Unit of measure is provided in metric measurement system.

The appropriate scale for hard-copy output is 1:250 000. Geometric data resolution in the density of vertices on an edge should be as low as possible keeping a realistic size and shape of the feature.

Geometric data resolution according to generalisation criteria should have minimum tolerance values. The following shows the tolerance values for geometric resolution in ground distance.

- The minimum accepted area size is 0.06 km²
- The matching tolerance of the geometry is 5 m (weed and fuzzy tolerance)
- The minimum length of an edge between two connected points should be 50 m

If connected points distances are less than 50 m, they have to be combined into one.

Exceptions are:

The connected points are assigned to a feature.

The edges associated to the connected point compose features having different attributes.

5 Data content and structure

5.1 Basic notions

5.1.1 Terminology

Table 1: Terminology in EuroRegionalMap

Area feature:	A geographic entity that encloses a region; for example, a lake, administrative area, or state.
Connected node:	One of the two primitive types used to represent linked features that are zero dimensional at a particular scale. Connected nodes are always found at the ends of edges and are topologically linked to the edges. Connected nodes are used in two ways: (1) to define edges topologically (always) and (2) to represent point features that are found at a juncture of linear features, such as overpasses, locks in a canal, or underground utility access points. Under the first usage, the connected nodes are referred to as start and end nodes. Under the second usage, attributes will be associated with the point features related to the connected nodes.
Edge:	A one-dimensional curve primitive joining two (possibly the same) nodes used to represent the location of a linear feature and/or the borders of faces. Depending upon the level of topology, edges may be topologically linked to nodes, edges, and faces. Edges are located by an ordered collection of two or more coordinate tuples (pairs or triplets). At least two of the coordinate tuples must be distinct. The orientation of an edge can be recognized by the ordering of the coordinate tuples.
Face	A region enclosed by an edge or set of edges. Faces are topologically linked to their surrounding edges as well as to the other faces that surround them. Faces are always non-overlapping.
Feature	A geographic entity related in some way to the Earth’s surface. It may be either a Simple Feature or a Complex Feature. A Simple or Complex Feature has a specific set of Attribute values. A Complex Feature consists of a number of Features (Simple and/or Complex).
Feature class:	A set of features that shares a homogeneous set of attributes. A feature class consists of a set of tables that includes one or more primitive tables and one or more attribute tables. A feature class has the same columns of attribute information for each feature. Every feature class has one and only one feature table. The type of EuroRegionalMap feature classes is the simple feature class. The subtypes of the simple feature classes are the point feature class, line feature class, area feature class, and text feature class.
Feature code:	A unique identifier assigned to a feature. The code is composed of five characters. The first is a letter indicating the category, the second is a letter indicating the sub-category and the last three characters (numeric) indicate a serial number in the sub-category.
Geometric primitive:	The basic geometric units of representation, specifically, nodes, edges and faces.
Isolated node:	One of the two node primitive types used to represent isolated features that are zero dimensional at a particular scale. An isolated node is never used as a start or end node. An isolated node is topologically linked to its containing face when faces are present and cannot occur on an edge. This is also known as an "Entity Node".
Layer:	A layer consists of a consistent set of data of the same type. For vector data, a layer is a pre-defined collection of geographical features, grouped by theme, contained within a single specified level of topology (following the rules of that level topology, e.g., if it is planar graph there are no crossing lines). Layers will be composed of one or more area, line, or point features as defined by specification. A layer can also be referred to as coverage.

Line feature:	A geographic entity that defines a linear (one-dimensional) structure; for example, a river, road, or a state boundary.
Node:	A zero-dimensional geometric primitive that is composed of a single coordinate tuple. There are two types of nodes: isolated nodes and connected nodes. Only one node can occupy a single geographic location.
Point feature:	A geographic entity that defines a zero-dimensional location; for example, a building.

5.1.2 Core feature attribution

Each feature class will be composed of a core basic attribution which is:

Table 2: EuroRegionalMap core attributes

Attribut	Definition and description
FCSubtype	Name of the Feature Type
inspireId	External identifier of the spatial object, defined by INSPIRE
beginLifespanVersion	Date and time at which this version of the spatial object was inserted or changed in the spatial data set, defined by INSPIRE
F_CODE	The Feature CODE using the DIGEST coding, i.e. “AP030” identifying the road feature.
ICC	The 2-char country code defining the EuroGeographics country dataset to which the feature is belonging. In case of more than one country, the codes are delimited by # and set in alphabetical order. In case of no country responsible (no-man’s land), the ICC code is set to “XX”. For further information see CountryCodes table holding the relation between the country codes of ISO, EU and EuroGeographics.
SN	Symbol Number, a numeric identifier that will be used for easy viewing purpose.

The INSPIRE attribute endLifespanVersion is not used, because ERM doesn’t contain outdated objects.

Those attributes are not systematically listed and described in the Feature catalogue (definition of feature and attributes) but are well recorded in the ERM Data Model.

5.1.3 Missing attribute values

If information is missing for any reason (e.g. information doesn’t exist or the information exists but has not been collected by the data producer) then a default value is used to indicate this.

Missing information for attributes will be populated according to the attribute type:

Table 3: Missing attribute information

Attribute type	Value for missing attribute information
Text	UNK
Integer (coded or actual value)	-32768

5.1.4 ERM concept for mandatory and optional data content

The main objective is to reach as most as possible a seamless dataset where information indicated in the specification are available for whole Europe, harmonized and produced according to the portrayal criteria and quality criteria mentioned in the specification. However it is difficult to reach such a level for the complete dataset. Therefore the data content according to what is of basic importance and what is optional has been weighted, see List of Features classes, their attributes, obligations and responsibilities.

The selection criteria to decide which features and attributes are of basic or optional importance have been done according to their rate of importance for users and the rate to be commonly supported by NMCAs.

The basic or core content of the ERM dataset has to be available for the whole dataset extent and is composed of the most important features and information asked by users or the most commonly supported features and information among NMCAs. The optional content is not necessarily available for the whole dataset extent and gathers information of minor importance for users or being too specific to be supported by a majority of NMCAs. However, when an optional feature is populated, the mandatory attributes have to be populated too.

5.1.5 Naming convention

Handling of names

The specification provides several possibilities to store the names of the geographical features by mean of several name attributes.

The name is put in two types of attribute using a different method of spelling: A first attribute type (the NAMN series) storing the name spelled in national characters using Unicode encoding (UTF-8 or UTF-16) and a second attribute type (the NAMA series) storing the name in ASCII encoding (Latin-1 alphabet / ISO 8859-1) characters without diacritical marks. A documented transliteration is provided in the lineage information.

- The Unicode character set suits all the European characters used in national language. However some vector data formats or GIS platform are not able to display the Unicode Character but effectively use a certain code page instead. Therefore it is important to indicate which character ISO code can be used to be able to read properly the names in attribute without using the Unicode character set.
- The 7-bit ASCII letters are from 0 to 128 of the ISO 8859-1 character set.

The information on the ISO code will be stored in a related language code table ERM_CHR.

The naming convention of a name in attribute is to put the first letter of the name in upper case and the other letters in lower case.

Exception: Names that consist of several words are written out like Stoke-on-Trent, North Walsham, Le Havre, and Lytham-St. Annes.

Handling of languages

When a geographical feature is named in several languages, these languages have to be the official languages administratively used and spoken in this area. No more than two languages are allowed for a name.

The NAMN1 and NAMA1 attributes store the name of the feature in the official primary language spoken. The NAMN2 and NAMA2 attributes store the name of the feature in the official secondary language spoken.

To translate names from national character to ASCII ones, some languages use transliteration rules according to national standard or recommendation by UN, especially for non-Latin alphabets. Those rules must be applied and need to be described in the metadata / lineage information.

5.2 Data Model

5.2.1 Theoretical Data Model

The ERM vector data model is based on the DIGEST vector data model, which adheres to the georelational data model. Feature entities are real items that can be identified on the earth, such as a river or a tower, or they are abstract items such as political boundaries. Attributes may be ascribed to the features. Features may be either of Point, Line, Area or Text type. The spatial extent of features is described in terms of Isolated or Connected Node, Edge and Face elements. These primitive elements carry positional attributes.

In the ERM data model, the one-way relationship from simple features to primitives is restricted to many-to-one relationship. A simple feature is composed of only one primitive. A simple line feature is composed of only one edge, a simple point feature is composed of only one node and a simple area feature is composed of only one face. But several simple features can share the same primitive. For example, an island (simple feature area) is fully covered by swamp (another feature area) and has identical area. Therefore island and swamp share the same face.

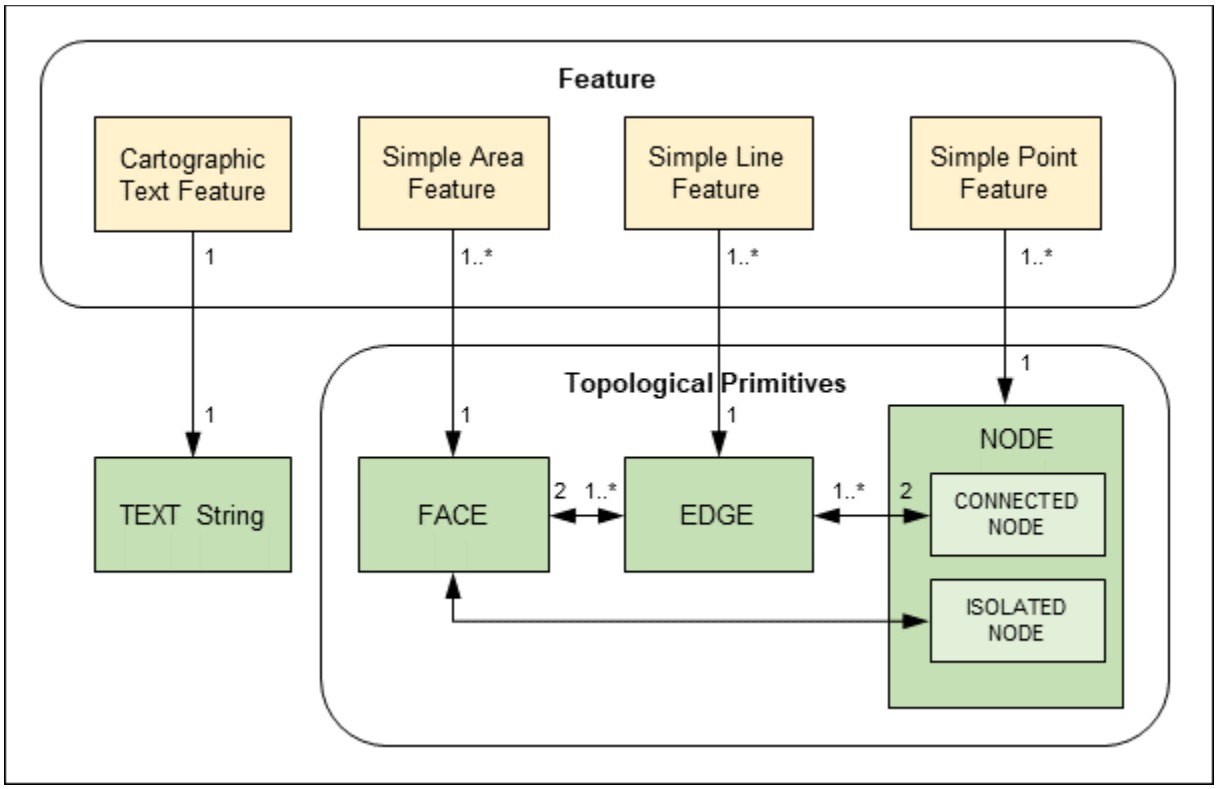

Figure 2: EuroRegionalMap Theoretical Data Model

5.3 Feature catalogue

The ERM data is hold in thematic themes:

- Administrative Boundaries (BND)
- Hydrography (HYDRO)
- Named Location (NAME)
- Miscellaneous (MISC)
- Settlement (POP)
- Transportation (TRANS)
- Vegetation and Soils (VEG)

The feature catalogue is structured according to these themes.

5.3.1 Theme: Administrative Boundaries (BND)

Administrative Boundary	**FA000**
Definition:	A line of demarcation between controlled areas.
Feature class:	POLBNDL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Boundary of an entity controlled by an administrative authority, this entity can be composed of several areas; international boundary and national subdivisions up to the lowest level (municipality level). In sea area boundaries are only portrayed if they are official (legally set up in international treaties) boundaries. (Some countries do not portray legal boundaries on sea, which does not mean that they do not exist.)
Quality criteria:	International boundaries have to be geometrically consistent with topographical features mainly the hydrographical ones. Geometrical consistency is recommended at lower level.

Attributes:

BST	Boundary Status Type	
	Data type:	Short integer
	Domain:	Coded value
	1	Definite
	2	Indefinite
	3	In dispute
	9	Technical line
USE	Usage	
	Data type:	Short integer
	Domain:	Coded value
	1	1st order (country level)
	2	2nd order
	3	3rd order
	4	4th order
	5	5th order
	6	6th order
	9	For all lines closing the polygons of administrative units in those cases, where the international boundary is not portrayed in the dataset
ABID	Unique identifier for all administrative boundaries in ERM	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
LEN	Length	
	Data type:	Double
	Measurement units:	0.001 km
	Domain:	Actual value

Administrative Area	**FA001**
Definition:	An area controlled by an administrative authority.
Feature class:	POLBNDA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	National territory and all national subdivisions up to sixth order.
Quality criteria:	

Attributes:

SHN0	EBM Hierarchical Number (1st Order, country level)	
	Data type:	Character (refers to ISO 3166)
	Domain:	Actual value
		14 characters
SHN1	EBM Hierarchical Number (2nd Order)	
	Data type:	Character (refers to ISO 3166)
	Domain:	Actual value
		14 characters
SHN2	EBM Hierarchical Number (3rd Order)	
	Data type:	Character (refers to ISO 3166)
	Domain:	Actual value
		14 characters
SHN3	EBM Hierarchical Number (4th Order)	
	Data type:	Character (refers to ISO 3166)
	Domain:	Actual value
		14 characters
SHN4	EBM Hierarchical Number (5th Order)	
	Data type:	Character (refers to ISO 3166)
	Domain:	Actual value
		14 characters
SHN5	EBM Hierarchical Number (6th Order)	
	Data type:	Character (refers to ISO 3166)
	Domain:	Actual value
		14 characters
TAA	Type of Administrative Area	
	Data type:	Short integer
	Domain:	Coded value
	1	Main area
	3	Branch area
	4	Special area
	5	Coastal water
	7	Inland water
	8	In dispute area
NUTS3	Unique code of NUTS 3 region as defined and published by Eurostat	
	Data type:	Character
	Domain:	Actual Value
		5 characters
	UNK	Unknown, unpopulated, not applicable, no value
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km^2
	Domain:	Actual value

Related Tables: EBM_NAM and EBM_ISN must be provided with the Administrative Boundaries theme (see description in chapter Related tables).

5.3.2 Theme: Hydrography (HYDRO)

Well	**AA050**
Definition:	A hole drilled or dug into the earth or seabed for the extraction of liquids or gases.
Feature class:	WELLP
Feature type:	Point
Primitive type:	Isolated Node
Portrayal criteria:	Water, permanent hole considered as vital for the environment and/or considered as landmark by its location or its size.
Quality criteria:	

Attributes: None

Coastline / Shoreline	**BA010**
Definition:	The line where a land mass is in contact with a body of water.
Feature class:	COASTL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	The vertical datum for the shoreline should be mean sea high water in tidal maritime zone or normal water.
Quality criteria:	

Attributes: None

Foreshore	**BA020**
Definition:	The part of the shore or beach which lies between the low water mark and the coastline / shoreline. The same condition may exist in non-contiguous offshore areas.
Feature class:	COASTA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Foreshore area where the average horizontal distance between MLW and MHW is more than 250 metres. Tidal channels can fragment the foreshore area.
Quality criteria:	

Attributes:

MCC	Material Composition Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	8	Boulders
	16	Clay
	46	Gravel
	65	Mud
	84	Rock / rocky
	88	Sand
	98	Shingle
	108	Stone
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Island	**BA030**
Definition:	A land mass smaller than a continent and surrounded by water.
Feature class:	ISLANDA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4 km² for islands in seawater. Smaller islands in inland water area can be portrayed if considered as landmark.
Quality criteria:	At least all islands ≥ 0.4 km² have to be named when existing.

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value

Water (except inland)	**BA040**
Definition:	An area of water that normally has tidal fluctuations.
Feature class:	SEAA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Usually the sea or ocean area.
Quality criteria:	

Attributes: None

Shoreline Construction	**BB081**
Definition:	An artificial structure attached to land bordering a body of water and fixed in position. It is usually fixed to the waterbody bottom (for example: a mole) but may occasionally be fixed in position (for example: attached to the shore at one end and held between pilings at the other), but floating. Shoreline constructions are normally used for berthing and/or protection.
Feature class:	SEASTRTL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Length ≥ 125 metres. Important or prominent shoreline construction considered as landmark. Shoreline can be coincident with foreshore flat boundaries or coastline. In that case, consistent geometry has to be applied.
Quality criteria:	All the Shoreline Construction Types (PWC) don't have to be necessarily portrayed.

Attributes:

PWC	Shoreline Construction Type	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	4	Breakwater
	5	Groin
	7	Recreational Pier
	8	Training Wall
	11	Seawall

Aqueduct	**BH010**
Definition:	A pipe or artificial channel designed for water supply from a remote source, usually by gravity.
Feature class:	AQUEDCTL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Length ≥ 1600 metres only suspended and elevated above ground or water surface. If connected to the water network, shorter aqueducts can be collected.
Quality criteria:	

Attributes:

EXS	Existence Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	5	Under construction
	6	Abandoned / disused
	28	Operational

Lake / Pond	**BH080**
Definition:	A body of water surrounded by land.
Feature class:	LAKERESA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Water with area ≥ 0.4 km². Smaller lakes or ponds can be portrayed when significant to determine land occupation. Lakes being part of the water network have to be topologically connected to watercourses.
Quality criteria:	At least all lakes ≥ 0.4 km² have to be named when existing. ZV2 attribute has not to be necessarily populated for smaller lakes.

Attributes:

HYP	Hydrological Persistence	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Perennial
	2	Intermittent
	3	Ephemeral
	4	Dry
HydroID	Hydrologic Identifier	
	Data type:	Character
	Domain:	Actual value
NHI	National Hydrological Identification code	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

TID	Tidal/ Non-Tidal Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Non-tidal
	2	Tidal / tidal fluctuating
ZV2	Highest Z-Value	
	Data type:	Short integer
	Measurement units:	1 metre
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value

Reservoir	**BH130**
Definition:	A man-made enclosure or area formed for the storage of water.
Feature class:	LAKERESA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4 km² Reservoirs being part of the water network have to be topologically connected to watercourses.
Quality criteria:	All reservoirs should be named.

Attributes[2]:

HYP	Hydrological Persistence	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Perennial
	2	Intermittent
	3	Ephemeral
	4	Dry
HydroID	Hydrologic Identifier	
	Data type:	Character
	Domain:	Actual value
NHI	National Hydrological Identification code	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

[2] As BH130 shares the same list of attributes like BH080, all non-assigned attributes get the “unknown, unpopulated, not applicable, no value”.

ZV2	Highest Z-Value	
	Data type:	Short integer
	Measurement units:	1 metre
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value

Spring / Water Hole	**BH170**
Definition:	A natural outflow of water from below the ground surface.
Feature class:	SPRINGP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Springs that are considered as landmark by their location or size, or have a tourist interest.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
SWT	Well/Spring Feature Type	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Geyser
	2	Hot spring
	3	Fumaroles
	999	Other

Spring / Water Hole	**BH170**
Definition:	A natural outflow of water from below the ground surface.
Feature class:	SPRINGC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	Springs that are considered as landmark by their location or size, or have a tourist interest and connected to the water network.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
SWT	Well/Spring Feature Type	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Geyser
	2	Hot spring
	3	Fumaroles
	999	Other

Waterfall	**BH180**
Definition:	A vertical or nearly vertical descent of water.
Feature class:	RAPIDSC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	Major waterfalls of national or tourist interest or being obstruction to navigation, located on watercourse portrayed as line feature.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Waterfall	**BH180**
Definition:	A vertical or nearly vertical descent of water.
Feature class:	RAPIDSL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Major waterfalls of national or tourist interest or being obstruction to navigation located on watercourses portrayed as area feature.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Inland Shoreline	**BH210**
Definition:	The land-water boundary of an inland body of water.
Feature class:	SHOREL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	The boundary where any inland water (watercourse, lake, and reservoir) represented in ERM touches land (including islands).
Quality criteria:	

Attributes: None

Watercourse	**BH502**
Definition:	A natural or man-made flowing watercourse or stream.
Feature class:	WATRCRSA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Watercourses that form up a logical water network with width ≥ 125 m.
Quality criteria:	All watercourses should be named. The HydroID should be populated at least for watercourses with drainage basin ≥ 500 km².

Attributes:

NVS	Navigability Information Code	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	3	Navigable
	5	Not Navigable
HOC	Hydrographical Origin Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	4	Man-made
	5	Natural
HYP	Hydrological Persistence	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Perennial
	2	Intermittent
	3	Ephemeral
	4	Dry
HydroID	Hydrologic Identifier	
	Data type:	Character
	Domain:	Actual value
NHI	National Hydrological Identification code	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TID	Tidal/ Non-Tidal Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Non-tidal
	2	Tidal / tidal fluctuating
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value

Watercourse	**BH502**
Definition:	A natural or man-made flowing watercourse or stream.
Feature class:	WATRCRSL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Watercourses that form up a logical water network with width < 125 m.
Quality criteria:	Full connection of the water network requires to portray fictitious axis or underground watercourses. All watercourses should be named. The HydroID should be populated at least for watercourses, with drainage basin ≥ 500 km².

Attributes:

NVS	Navigability Information Code	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	3	Navigable
	5	Not Navigable
HOC	Hydrographical Origin Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	4	Man-made
	5	Natural
HYP	Hydrological Persistence	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Perennial
	2	Intermittent
	3	Ephemeral
	4	Dry
LDV	Link Direction Value	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Both directions
	2	In direction
	3	In opposite direction
LOC	Location Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	8	On ground surface
	25	Suspended or elevated above ground or water surface (bridge)
	40	Underground
	984	Fictitious axis through water area
HydroID	Hydrologic Identifier	
	Data type:	Character
	Domain:	Actual value
NHI	National Hydrological Identification code	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part of TEN-T network
	2	Not part of TEN-T network
TENTEC_ID	TEN Identifier	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TID	Tidal/ Non-Tidal Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Non-tidal
	2	Tidal / tidal fluctuating
WCH	National Watercourse Hierarchy	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Main / first
	2	Second
	3	Third
	4	Fourth
	5	Fifth
	9	All other watercourses

WD7	Width Lower Range	
	Data type:	Short integer
	Measurement units:	1 metre
	Domain:	Range value, ≥ 1
	-32768	Unknown, unpopulated, not applicable, no value
WD8	Width Upper Range	
	Data type:	Short integer
	Measurement units:	1 metre
	Domain:	Range value, ≤ 125
	-32768	Unknown, unpopulated, not applicable, no value
LEN	Length	
	Data type:	Double
	Measurement units:	0.001 km
	Domain:	Actual value

Hydrographic Network Node	**BH503**
Definition:	A node within the hydrographic network.
Feature class:	HYNODEC
Feature type:	Point
Primitive type:	Connected Node
Portrayal criteria:	Start and end points of watercourses as well as confluences (confluence, source, mouth, and boundary).
Quality criteria:	

Attributes:

HydroID	Hydrologic Identifier	
	Data type:	Character
	Domain:	Actual value
HNC	Hydro Node Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Boundary
	4	Junction
	5	Outlet
	6	Source

Dam / Weir	**BI020**
Definition:	A permanent barrier across a watercourse used to impound water or to control its flow.
Feature class:	DAML
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	All dams bordering a reservoir or on watercourse portrayed as area feature (having more than 125m wide).
Quality criteria:	Dam bordering reservoir has to be coincident to reservoir boundary. Duplicating geometry is avoided.

Attributes:

HydroID	Hydrologic Identifier	
	Data type:	Character
	Domain:	Actual value
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Dam / Weir	**BI020**
Definition:	A permanent barrier across a watercourse used to impound water or to control its flow.
Feature class:	DAMC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	All dams on watercourse portrayed as a single line (< 125m).
Quality criteria:	

Attributes:

HydroID	Hydrologic Identifier	
	Data type:	Character
	Domain:	Actual value
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Lock	**BI030**
Definition:	An enclosure with a pair or series of gates used for raising or lowering vessels as they pass from one water level to another.
Feature class:	DAML
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	All locks, when located on a watercourse portrayed as area feature (having more than 125m wide).
Quality criteria:	

Attributes:

HydroID	Hydrologic Identifier	
	Data type:	Character
	Domain:	Actual value
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Lock	**BI030**
Definition:	An enclosure with a pair or series of gates used for raising or lowering vessels as they pass from one water level to another.
Feature class:	DAMC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	All locks on watercourse portrayed as a single line (< 125m).
Quality criteria:	

Attributes:

HydroID	Hydrologic Identifier	
	Data type:	Character
	Domain:	Actual value
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Glacier	**BJ030**
Definition:	A large mass of snow and ice moving slowly down a slope or valley from above the snowline.
Feature class:	LANDICEA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4 km²
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value

Snow Field / Ice Field	**BJ100**
Definition:	A large area permanently covered by snow or ice over land or water.
Feature class:	LANDICEA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4 km²
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value

Wetland	**ED010**
Definition:	A poorly drained or periodically flooded area where the soil is saturated with water and vegetation is supported, e.g. marsh/swamp, bog/moor.
Feature class:	SWAMPA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4 km². Smaller wetland areas can be portrayed when significant to determine land occupation.
Quality criteria:	Wetland being part of the water network have to be topologically connected to watercourses. Bogs are usually open bogs.

Attributes:

TID	Tidal/ Non-Tidal Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Non-tidal
	2	Tidal / tidal fluctuating

Sea Limit	**XX500**
Definition:	The delineation of the seaward boundary of estuaries.
Feature class:	COASTL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	The sea limit feature represents a closing line indicating the delineation of inland water bodies and the sea area. In natural zone, the sea limit will be continuity with the natural coastline/shoreline. In man-made zone, the sea limit is determined by maritime locks or dams, or similar structure closing the estuary.
Quality criteria:	

Attributes: None

Landmask Area	**XX501**
Definition:	The landmass that covers the European continent and all islands of relevant size.
Feature class:	LANDMASKA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	The landmask area is enclosed by the coastline/shoreline and sea limit. It must not depict any lakes or other inland waters. Landmask area serves as reference layer for geometrical coherence between layers.
Quality criteria:	

Attributes: None

5.3.3 Theme: Miscellaneous (MISC)

Mine	**AA010**
Definition:	An excavation, made in the earth for the purpose of extracting natural deposits.
Feature class:	EXTRACTP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Mine and quarry larger than 0.4 km² or being considered as landmark.
Quality criteria:	Not all mining and/or product categories have to be portrayed.

Attributes:

EXS	Existence Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	6	Abandoned / disused
	28	Operational
MINE	Mining Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	2	Horizontal shaft
	3	Open pit
	4	Placer
	5	Prospect
	6	Strip
	7	Vertical shaft
	8	Peat cuttings
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

PRO	Product Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	16	Clay
	17	Coal
	23	Copper
	42	Gold
	46	Gravel
	51	Iron
	54	Lead
	84	Rock / rocky
	87	Salt
	88	Sand
	100	Silver
	112	Uranium
	118	Zinc
	119	Bauxite
	999	Other

Disposal Site / Waste Pile	**AB000**
Definition:	An area for the collecting / disposing of refuse or discarded material.
Feature class:	INDPRODP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Landmark feature or larger than 0.4 km².
Quality criteria:	All product categories have not to be necessarily portrayed.

Attributes:

PRO	Product Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	101	Slag
	127	Tailings
	128	Refuse

Processing Plant / Treatment Plant	**AC000**
Definition:	A site used for changing or refining a particular material.
Feature class:	INDPRODP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Landmark feature or larger than 0.4 km².
Quality criteria:	All product categories have not to be necessarily portrayed.

Attributes:

PRO	Product Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	13	Chemical
	67	Oil
	95	Sewage
	116	Water

Power Station	**AD010**
Definition:	The building(s) and equipment necessary for the generation of electric power.
Feature class:	POWERP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Landmark feature, major power stations.
Quality criteria:	All power plant categories have not to be necessarily portrayed.

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
PPC	Power Plant Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Hydro-electric
	2	Nuclear
	3	Solar
	4	Thermal
	5	Wind
	6	Tidal
	7	Internal combustion

Fortification	**AH050**
Definition:	A facility constructed for the military defence of a site.
Feature class:	LANDMRKP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	A site or fortress usually composed of walls, ditches, or defensive works or citadel. Prominent ones of national or tourist interest or larger than 0.4 km².
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Amusement Park	**AK030**
Definition:	A predominately man-made facility equipped with recreational devices.
Feature class:	LANDMRKP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Area ≥ 0.4 km²
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Race Track	**AK130**
Definition:	A course of racing.
Feature class:	LANDMRKP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Race tracks (cars, cycles, horses ...) considered as a landmark or important by its location, size or tourist interest.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Stadium / Amphitheatre	**AK160**
Definition:	An arena for holding and viewing events.
Feature class:	LANDMRKP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Permanent landmark structure or have national interest.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Monument	**AL130**
Definition:	A structure erected or maintained as a memorial to a person or event.
Feature class:	LANDMRKP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Landmark feature or have national or tourist interests.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Ruins	**AL200**
Definition:	The deteriorated remains of an unspecified structure.
Feature class:	LANDMRKP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Landmark feature or have national or tourist interest.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Building	**AL015**
Definition:	A relatively permanent structure roofed and usually walled and designed for some particular use.
Feature class:	BUILDP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Landmark feature or be of national or tourist interest.
Quality criteria:	All building function categories have not to be necessarily portrayed.

Attributes:

BFC	Building Function Category	
	Data type:	Short integer
	Domain:	Coded value
	2	Government building
	4	Castle
	6	Hospital
	9	Museum
	10	Observatory
	11	Palace
	12	Police Station
	15	School
	18	Cemetery building
	19	Farm building
	50	Church
	82	Lighthouse
	83	Power generation
	114	Non-Christian place of worship
	152	Mountain hut / refuge
	153	Historic windmill
	999	Other
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Tower (non-communication)	**AL0240**
Definition:	A relatively tall structure which may be used for observation, support, storage, etc.
Feature class:	TOWERP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Landmark feature
Quality criteria:	

Attributes:

TTC	Tower Type Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	6	Water tower
	8	Cooling tower
	18	Chimney / smokestack
	19	Grain bin / silo
	20	Tank
	999	Other

Pipeline / Pipe	**AQ113**
Definition:	A tube for the conveyance of solids, liquids or gases.
Feature class:	INDPRODL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Length ≥ 1600 metres and considered as landmark. Pipe for water conveyance is portrayed as BH010 "Aqueduct".
Quality criteria:	

Attributes:

LOC	Location Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	8	On ground surface
	25	Suspended or elevated above ground or water surface
PRO	Product Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	13	Chemical
	38	Gas
	39	Gasoline
	50	Heat
	67	Oil

Pumping Station	**AQ116**
Definition:	A facility to move solids, liquids or gases by means of pressure or suction.
Feature class:	INDPRODP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Major pumping station that can be considered as landmark.
Quality criteria:	

Attributes:

PRO	Product Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	13	Chemical
	38	Gas
	39	Gasoline
	50	Heat
	67	Oil
	116	Water

Power Transmission Line	**AT030**
Definition:	A system of above ground wires, including their supports, which transmits electricity over distance.
Feature class:	POWERL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Length ≥ 1600 metres, high voltage transmission line, which can be considered as aerial obstruction. When several transmission lines are close to each other, they may be portrayed into one single line. In that case, they will be mentioned as multiple.
Quality criteria:	

Attributes:

FCO	Feature Configuration	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	2	Multiple
	3	Single

Communication Tower	**AT080**
Definition:	A relatively tall structure used for transmitting and/or receiving electronic communication signals.
Feature class:	CTOWERP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Major ones that can be considered as a landmark feature.
Quality criteria:	

Attributes:

NST	Navigation System Type (Primary system)	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	12	Radio
	15	TV
	16	Microwave
	999	Other

Bluff / Cliff / Escarpment	**DB010**
Definition:	A steep, vertical or overhanging face of rock or earth.
Feature class:	PHYSL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Length ≥ 1600 metres and height ≥ 50 metres
Quality criteria:	

Attributes[3]: None

Cave	**DB030**
Definition:	A natural subterranean chamber or series of chambers open to the Earth's surface.
Feature class:	PHYSP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Prominent ones of national or tourist interest.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

[3] As DB010 shares the same list of attributes like DB090, all non-assigned attributes get the “unknown, unpopulated, not applicable, no value”.

Embankment / Fill	**DB090**
Definition:	A raised long mound of earth or other material.
Feature class:	PHYSL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Length ≥ 1600 metres and height ≥ 3 metres
Quality criteria:	

Attributes:

PFH	Predominant Feature Height	
	Data type:	Short integer
	Measurement units:	1 decimetre
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value
USE	Usage	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	69	Levee / dike
	127	As a causeway
	136	As a fill
VRR	Vertical Reference Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Above surface / does not cover (at high water)
	8	Covers and uncovers

National Park	**FA080**
Definition:	Extensive area of a particular nature that has been defined by law and that is to be protected as a whole. It meets the prerequisites of a nature reserve for the largest part and has been influenced by man at most only to a small extent.
Feature class:	PARKA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4km² The area should contain a representative sample of major natural regions, features or scenery, where plant and animal species, habitats and geomorphologic sites are of special spiritual, scientific, educational, recreational and tourist significance. The classification name stores categories settled in the IUNC publication “Guidelines for Protected Area Management Categories”.
Quality criteria:	All the national parks have to be named.

Attributes:

NA3	Classification Name	
	Data type:	Character
	Domain:	Coded value
	UNK	Unknown, unpopulated, not applicable, no value
	CAT II	National Park
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Nature Reserve	**FA081**
Definition:	An area that has been legally defined and whose nature and landscape requires special protection, be it in part or as a whole in order to preserve symbioses or biotypes of specific wildlife animals or plants, for scientific reasons or reasons of natural or geographic history, or because of their rareness, uniqueness or outstanding beauty.
Feature class:	PARKA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4km² The classification name stores categories settled in the IUNC publication “Guidelines for Protected Area Management Categories”.
Quality criteria:	All the national reserves have to be named.

Attributes:

NA3	Classification Name	
	Data type:	Character
	Domain:	Coded value
	UNK	Unknown, unpopulated, not applicable, no value
	CAT I	Strict nature reserve / wilderness area
	CAT III	Natural monument / natural landmark
	CAT IV	Habitat / species, management area
	CAT V	Protected landscape / seascape
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

5.3.4 Theme: Named Location (NAME)

Named Location	**ZD040**
Definition:	A geographic place on earth having a name that requires to be placed on a map.
Feature class:	GNAMEL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Cartographic text needed for named place at scale 1:250 000 that cannot be put into attributes. Named locations specially required are regions e.g. Mountain range, Valley, Peak, Gorge, Bay, Sea, Fjord, Inlet/cape, Sandbank, Beach, Headland/Peninsula, Sea water and forest name. Each geographical name is represented by a line feature
Quality criteria:	

Attributes:

CNL	Category Code for the named location	
	Data type:	Short integer
	Domain:	Coded value
	10	Boundaries
	20	Hydrography
	21	Sea or part of sea
	22	Bay
	23	Fjord
	24	Part of lake
	25	Marsh / swamp or wetland
	26	Sandbank, sea area
	27	Beach
	30	Miscellaneous
	40	Settlement and named location
	41	Settlement
	42	Mountain range
	43	Highland
	44	Plain
	45	Valley
	46	Name of region
	47	Headland / peninsular
	48	Gorge
	49	Peak
	50	Transportation and infrastructure
	60	Vegetation and soil
	61	Ground Surface element
	62	Agricultural area, plantation
	63	Woods / forest
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character

	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
SID	Symbol Identification (Refers to SYMBOL.RAT for selection of values))	
	Data type:	Short integer
	Domain:	Coded value
	1	Machine default, Kern, 4 points, Black
	2	Machine default, Kern, 5 points, Black
	3	Machine default, Kern, 6 points, Black
	4	Machine default, Kern, 7 points, Black
	5	Machine default, Kern, 8 points, Black
	6	Machine default, Kern, 9 points, Black
	7	Machine default, Kern, 10 points, Black
	8	Machine default, Kern, 12 points, Black
	9	Machine default, Kern, 14 points, Black
	10	Machine default, Constant, 16 points, Black
	11	Machine default, Kern, 4 points, Blue
	12	Machine default, Kern, 5 points, Blue
	13	Machine default, Kern, 6 points, Blue
	14	Machine default, Kern, 7 points, Blue
	15	Machine default, Kern, 8 points, Blue
	16	Machine default, Kern, 9 points, Blue
	17	Machine default, Kern, 10 points, Blue
	18	Machine default, Kern, 12 points, Blue
	20	Machine default, Constant, 16 points, Blue
	23	Machine default, Kern, 6 points, Brown
	25	Machine default, Kern, 8 points, Brown
	34	Machine default, Kern, 7 points, Magenta

Related Table: SYMBOL_RAT must be provided with the Named Location theme (see description in chapter Related tables).

5.3.5 Theme: Settlement (POP)

Built-up Area	**AL020**
Definition:	A named area where people live and/or work containing a concentration of buildings and other structures. For example a city, a town or a village.
Feature class:	BUILTUPA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4 km² or population ≥ 5000 inhabitants. When a seamless built-up area forms a conurbation of several important cities, it can be split into separate polygons with common borderlines, each polygon referring to a distinct city.
Quality criteria:	Each built-up area is identified by a unique PopulatedPlaceID. This is the link to the populated place point inside.

Attributes:

Populated-PlaceID	Populated Place Identifier	
	Data type:	Character
	Domain:	Actual value
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value

Built-up Area	**AL020**
Definition:	A named area where people live and/or work containing a concentration of buildings and other structures. For example a city, a town or a village.
Feature class:	BUILTUPP
Feature type:	Point
Primitive type:	Isolated Node
Portrayal criteria:	Area < 0.4 km² or population >100 but < 5000 inhabitants. All municipalities and other built-up areas estimated to be important by their number of inhabitants and/or their outstanding localisation. Those built-up areas, which have less than 100 inhabitants but are main villages or cities of the regional/local administrative units, are included. The NAMN1 attribute stores the name of the populated place in the official primary language spoken in that populated place. The NAMN2 attribute stores the name of the populated place in the official secondary language spoken in that populated place.
Quality criteria:	Each built-up area is identified by a unique PopulatedPlaceID. All built-up areas have to be named. The capital of a country has to be identified (USE = 1). In the case that PPL is populated (including 'unknown' value for some exceptions), the PP1 and the PP2 attributes get the 'unknown' value (-32768). In case that PP1 and PP2 class limits are used, these could be chosen individually in general.

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
PPL	Population Place Category	
	Data type:	Long integer
	Measurement units:	1 inhabitant
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value
PP1	Population Lower Range	
	Data type:	Long integer
	Measurement units:	1 inhabitant
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value

PP2	Population Upper Range	
	Data type:	Long integer
	Measurement units:	1 inhabitant
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value
USE	Usage	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	1st order (country level)
	2	2nd order
	3	3rd order
	4	4th order
	5	5th order
	6	6th order
Populated-PlaceID	Populated Place Identifier	
	Data type:	Character
	Domain:	Actual value

Populated Place	**AL022**
Definition:	A named area where people live and/or work containing a concentration of buildings and other structures. For example a city, a town or a village.
Feature class:	BUILTUPP
Feature type:	Point
Primitive type:	Isolated Node
Portrayal criteria:	The point representation of a built-up area (BUILTUPA) used for labelling and reference. The NAMN1 attribute stores the name of the populated place in the official primary language spoken in that populated place. The NAMN2 attribute stores the name of the populated place in the official secondary language spoken in that populated place.
Quality criteria:	Each populated place is identified by a unique PopulatedPlaceID. The populated place point is inside and holds all attribute information from the built-up area it represents. All populated places have to be named. The capital of a country has to be identified (USE = 1). In the case that PPL is populated (including 'unknown' value for some exceptions), the PP1 and the PP2 attributes get the 'unknown' value (-32768). In case that PP1 and PP2 class limits are used, these could be chosen individually in general.

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
PPL	Population Place Category	
	Data type:	Long integer
	Measurement units:	1 inhabitant
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value
PP1	Population Lower Range	
	Data type:	Long integer
	Measurement units:	1 inhabitant
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value

PP2	Population Upper Range	
	Data type:	Long integer
	Measurement units:	1 inhabitant
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value
USE	Usage	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	1st order (country level)
	2	2nd order
	3	3rd order
	4	4th order
	5	5th order
	6	6th order
Populated-PlaceID	Populated Place Identifier	
	Data type:	Character
	Domain:	Actual value

Named Location	**ZD040**
Definition:	A geographic place on the earth, not normally appearing as a feature on a map, but having a name that is required to be placed on a map.
Feature class:	URBANP
Feature type:	Point
Primitive type:	Isolated Node
Portrayal criteria:	A named place that cannot be represented by a built-up area. This can be a minor city, which is included into the built-up area of a major city. This can also be a municipality resulting from the merging of several populated places identified by their own names.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

5.3.6 Theme: Transportation (TRANS)

Railway	**AN010**
Definition:	A rail or set of parallel rails on which a train or tram runs.
Feature class:	RAILRDL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Railway routes used for regular transportation of goods and passengers. Railway yards, siding railways are allowed if they are landmarks and are classified as branch lines. They are usually generalised (not all the tracks have to be portrayed). Specific lines reaching harbour or industrial zone can be portrayed and are also classified as branch lines. The length selection is min. 1600 metres. Metro lines (= underground urban railways), tramlines or streetcar lines inside city areas are excluded. Railways are portrayed by one line regardless the number of tracks.
Quality criteria:	All main lines must have the mandatory attributes populated. Branch lines can allow attribution populated as unknown because they are considered as landmark information only.

Attributes:

EXS	Existence Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	5	Under construction
	6	Abandoned / disused
	28	Operational
FCO	Feature Configuration	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	2	Multiple
	3	Single
	11	Double
	12	Juxtaposition
GAW	Gauge Width	
	Data type:	Short integer
	Measurement unit:	1 cm
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value (also for “monorails”)
LLE	Location Level	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	-9	Underground (unknown level)
	-2	Underground (second level)
	-1	Underground (first level)
	1	On ground surface
	2	Suspended or elevated (first level)
	3	Suspended or elevated (second level)
	9	Suspended or elevated (unknown level)

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
RCO	Railroad Code	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
RGC	Railroad Gauge	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Broad
	2	Narrow
	3	Normal
RRA	Railroad Power Source	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Electrified track
	3	Overhead electrified
	4	Non-electrified
RRC	Railroad Categories	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	16	Main line
	17	Branch line
	999	Other
RSD	Railway Speed Class	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Conventional Railway Line
	2	Upgraded high-speed railway line (order of 250 km/h)
	3	Dedicated high-speed railway line (> 250 km/h)

RSU	Seasonal availability	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	All year
	2	Seasonal
TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part of TEN-T network
	2	Not part of TEN-T network
TENTEC_ID	TEN Identifier	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TUC	Transportation Use Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	25	Cargo/Freight
	26	Passenger
	45	General
LEN	Length	
	Data type:	Double
	Measurement units:	0.001 km
	Domain:	Actual value

Railway Network Link	**AN500**
Definition:	A railway network link represents a logical connection between the railway and another transport mode; to allow people and/or cargo/freight to change from railway transport mode to another.
Feature class:	RAILRDL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Railway network link is part of the railway network and is used to connect the railway network with other transportation modes usually a transport terminal like the ferry station, an airport or a port.
Quality criteria:	

Attributes[4]: None, but TEN and TENTEC_ID

TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part of TEN-T network
	2	Not part of TEN-T network
TENTEC_ID	TEN Identifier	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

[4] As AN500 shares the same list of attributes like AN010, all non-assigned attributes get the “unknown, unpopulated, not applicable, no value”.

Interchange	**AP020**
Definition:	A connection designed to provide traffic access from one road to another.
Feature class:	INTERCC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	Restricted to roads connected at different level crossing as i.e. at intersections of motorways or at exits of motorways.
Quality criteria:	All exits of highways and interchanges on highways have to be portrayed and named when existing.

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
RJC	Road Junction Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Interchange (between motorways)
	2	Access/exit (from motorway road)
	3	Mixed

Road	**AP030**
Definition:	An open way maintained for vehicular use.
Feature class:	ROADL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	All European roads (E-roads) and all roads connecting built-up areas, additionally, other roads can be included when it is needed to reach full connectivity of the transportation network (e.g. direct link between two built-up areas) or only way to reach a built-up area or isolated places (harbours, airports). Inside built-up areas only main roads (e.g. through roads) are portrayed. Roads are represented by one line regardless of the number of lanes or carriageways.
Quality criteria:	

Attributes:

COR	Category of Road	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Motorway
	2	Road inside built-up area
	999	Other road (outside built-up area)
EXS	Existence Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	5	Under construction
	28	Operational
LLE	Location Level	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	-9	Underground (unknown level)
	-2	Underground (second level)
	-1	Underground (first level)
	1	On ground surface
	2	Suspended or elevated (first level)
	3	Suspended or elevated (second level)
	9	Suspended or elevated (unknown level)
LTN	Lane Track Number	
	Data type:	Short integer
	Measurement unit:	1 lane
	Domain:	Actual value, ≥ 1
	-32768	Unknown, unpopulated, not applicable, no value
MED	Median Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	With median
	2	Without median
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
RST	Road Surface Type	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Paved
	2	Unpaved
RSU	Seasonal availability	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	All year
	2	Seasonal
RTE	Route Number (International)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
RTN	Route Number (National)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
RTT	Route Intended Use	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	14	Primary route
	15	Secondary route
	16	National motorway
	984	Local route
TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part of TEN-T network
	2	Not part of TEN-T network
TENTEC_ID	TEN Identifier	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

TOL	Toll Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Road generally free of charge
	2	Toll road
	3	Vignette
TUC	Transportation Use Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	7	Through route
	36	Slip road / access road
LEN	Length	
	Data type:	Double
	Measurement units:	0.001 km
	Domain:	Actual value

Road Network Link	**AP500**
Definition:	A road network link represents a logical connection between a road and another transport mode; to allow people, goods to change from road transport mode to another.
Feature class:	ROADL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Road network link is part of the road network and is used to connect the road network with other transportation modes usually a transport terminal like the ferry station, a railway station, an airport or a port.
Quality criteria:	

Attributes[5]: None, but TEN and TENTEC_ID

TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part of TEN-T network
	2	Not part of TEN-T network
TENTEC_ID	TEN Identifier	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

[5] As AP500 shares the same list of attributes like AP030, all non-assigned attributes get the “unknown, unpopulated, not applicable, no value”.

Control Tower	**AQ060**
Definition:	A tower-like structure that houses the persons and equipment used to control the flow of air, rail or marine traffic.
Feature class:	MISAEROP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Landmark feature
Quality criteria:	

Attributes: None

Level Crossing	**AQ062**
Definition:	The location where a railway and a road transportation routes intersect or cross at the same vertical level.
Feature class:	LEVELCC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	A point where a railway crosses a road at the same level. The level crossing will be associated both to the road and railway network.
Quality criteria:	

Attributes: None

Road Intersection	**AQ063**
Definition:	The location where road transportation routes intersect or cross at the same vertical level.
Feature class:	LEVELCC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	A point where two or more roads intersect or cross at the same vertical level.
Quality criteria:	

Attributes: None

Ferry Crossing	**AQ070**
Definition:	A route in a body of water where a ferry crosses from one shoreline to another.
Feature class:	FERRYL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Length ≥ 125 metres. Have to be connected to a ferry station. The FerryID is the unique identification number of the ferry line.
Quality criteria:	

Attributes:

DEST1	Destination 1 (FStationID1 = Ferry Station Identifier of start / end of ferry line)	
	Data type:	Character
	Domain:	Actual value
DEST2	Destination 2 (FStationID2 = Ferry Station Identifier of start / end of ferry line)	
	Data type:	Character
	Domain:	Actual value
FerryID	Ferry line Identifier	
	Data type:	Character
	Domain:	Actual value
RSU	Seasonal availability	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	All year
	2	Seasonal
TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part of TEN-T network
	2	Not part of TEN-T network
USE	Usage	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	4	National
	23	International

Ferry Station	**AQ080**
Definition:	A point where a ferry takes on or discharges its load.
Feature class:	FERRYC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	The ferry station shall be identified for each ferry line and connected to it. There can be several ferry lines connected to one ferry station. The ferry station will possibly connect railway or road and the corresponding ferry line. The FStationID is the unique identification number of the ferry station.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
FStationID	Ferry Station Identifier	
	Data type:	Character
	Domain:	Actual value

Entrance / Exit	**AQ090**
Definition:	A point of entrance or exit.
Feature class:	EXITC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	A point where a road or a railway goes across an international boundary and traffic across the boundary is allowed and there is a real customs or other kind of official facility. Node for representing border-crossing point is placed at the international boundary. Used outside Schengen area only.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Railway Station	**AQ125**
Definition:	A stopping place for the transfer of passengers and/or freight.
Feature class:	RAILRDC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	All the stations and stopping places used for passenger traffic and/or freight traffic.
Quality criteria:	All stations and stopping places should be named. Each railway station must have a unique railway station identifier.

Attributes:

TFC	Transportation Facility Type	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	15	Railway Station
	31	Joint Railway Station
	32	Halt
	33	Marshalling Yard
	34	Intermodal Rail Transport Terminal
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
RStationID	Railway station Identifier	
	Data type:	Character
	Domain:	Actual value
TUC	Transportation Use Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	25	Cargo/Freight
	26	Passenger
	45	General

Vehicle Stopping Area / Rest Area	**AQ135**
Definition:	A roadside place usually having facilities for people and/or vehicles.
Feature class:	RESTC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	Mainly on motorways.
Quality criteria:	

Attributes:

AFA	Available Facilities	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	9	Fuel station
	999	Other (no fuel)
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Port	**BB009**
Definition:	A place provided with terminal and transfer facilities for loading and discharging cargo or passengers.
Feature class:	HARBORA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4 km² All TEN ports and all statistical ports according to Commission Decision 2005/366/EC of 4 March 2005 (Reference: GISCO Port database).
Quality criteria:	

Attributes:

HID	Harbour Identification Code (UN Locode)	
	Data type:	Character
	Domain:	Actual value (5 character)
	UNK	Unknown, unpopulated, not applicable, no value
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value

Port	**BB009**
Definition:	A place provided with terminal and transfer facilities for loading and discharging cargo or passengers.
Feature class:	HARBORC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	Area ≥ 0.4 km² The point representation of a port collected as an area feature that provides the intermodal connection to the road or railway network.
Quality criteria:	

Attributes:

HID	Harbour Identification Code (UN Locode)	
	Data type:	Character
	Domain:	Coded value (5 character)
	UNK	Unknown, unpopulated, not applicable, no value
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part of TEN-T network
	2	Not part of TEN-T network
TENTEC_ID	TEN Identifier	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TUC	Transportation Use Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	12	Maritime
	34	(Inland) waterway

Port	**BB009**
Definition:	A place provided with terminal and transfer facilities for loading and discharging cargo or passengers.
Feature class:	HARBORP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Area ≥ 0.4 km² All TEN ports and all statistical ports according to Commission Decision 2005/366/EC of 4 March 2005 (Reference: GISCO Port database).
Quality criteria:	

Attributes:

HID	Harbour Identification Code (UN Locode)	
	Data type:	Character
	Domain:	Coded value (5 character)
	UNK	Unknown, unpopulated, not applicable, no value
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part of TEN-T network
	2	Not part of TEN-T network
TENTEC_ID	TEN Identifier	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TUC	Transportation Use Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	12	Maritime
	34	(Inland) waterway

Pier / Wharf / Quay	**BB190**
Definition:	A structure primarily used as berthing places for vessels.
Feature class:	HARBORL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Prominent pier in harbour.
Quality criteria:	

Attributes: None

Airport / Airfield	**GB005**
Definition:	A defined area of land or water used for landing, take-off, and movement of aircraft including associated buildings and facilities.
Feature class:	AIRFLDA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Military, commercial and leisure airports and airfields with area ≥ 0.4 km² (Reference: GISCO Airport database).
Quality criteria:	All existing TEN-T airports should be included.

Attributes:

IKO	ICAO Code	
	Data type:	Character
	Domain:	Coded value (4 character)
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value

Airport / Airfield	**GB005**
Definition:	A defined area of land or water used for landing, take-off, and movement of aircraft including associated buildings and facilities.
Feature class:	AIRFLDC
Feature type:	Point
Primitive type:	Connected node
Portrayal criteria:	The point representation of an airport/airfield collected as an area feature that provides the intermodal connection to the road or railway network.
Quality criteria:	

Attributes:

CAA	Controlling Authority	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	5	Military
	7	Joint Military/Civilian
	16	Civilian
EXS	Existence Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	5	Under construction
	6	Abandoned/Disused
	28	Operational
FUC	Functional Use Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value (also for military)
	2	Commercial
	13	Recreational
IAT	IATA Code	
	Data type:	Character
	Domain:	Coded value (3 character)
	UNK	Unknown, unpopulated, not applicable, no value
IKO	ICAO Code	
	Data type:	Character
	Domain:	Coded value (4 character)
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part ofTEN-T network
	2	Not part of TEN-T network
TENTEC_ID	TEN Identifier	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TUC	Transportation Use Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value (also for military)
	25	Cargo/Freight
	26	Passenger
	45	General
USE	Usage	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	4	National
	23	International
	113	Regional
ZV3	Airfield Elevation	
	Data type:	Short integer
	Measurement units:	1 metre
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value

Airport / Airfield	**GB005**
Definition:	A defined area of land or water used for landing, take-off, and movement of aircraft including associated buildings and facilities.
Feature class:	AIRFLDP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	Area < 0.4 km² Military, commercial and leisure airfields (Reference: GISCO Airport database).
Quality criteria:	All existing TEN-T airports should be included.

Attributes:

CAA	Controlling Authority	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	5	Military
	7	Joint Military/Civilian
	16	Civilian
EXS	Existence Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	5	Under construction
	6	Abandoned/Disused
	28	Operational
FUC	Functional Use Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value (also for military)
	2	Commercial
	13	Recreational
IAT	IATA Code	
	Data type:	Character
	Domain:	Coded value (3 character)
	UNK	Unknown, unpopulated, not applicable, no value
IKO	ICAO Code	
	Data type:	Character
	Domain:	Coded value (4 character)
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TEN	TransEuropean Transport Network	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	1	Part ofTEN-T network
	2	Not part of TEN-T network
TENTEC_ID	TEN Identifier	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
TUC	Transportation Use Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value (also for military)
	25	Cargo/Freight
	26	Passenger
	45	General
USE	Usage	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	4	National
	23	International
	113	Regional
ZV3	Airfield Elevation	
	Data type:	Short integer
	Measurement units:	1 metre
	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value

Heliport	**GB035**
Definition:	A place designated for the landing and take-off of helicopters, including its buildings and facilities.
Feature class:	HELIP
Feature type:	Point
Primitive type:	Isolated node
Portrayal criteria:	All the heliports listed in official data sources such as the civilian and military national AIP (Aeronautical Information Publication) documents provided for each country.
Quality criteria:	

Attributes:

IAT	IATA Code	
	Data type:	Character
	Domain:	Coded value (3 character)
	UNK	Unknown, unpopulated, not applicable, no value
IKO	ICAO Code	
	Data type:	Character
	Domain:	Coded value (4 character)
NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

Runway	**GB055**
Definition:	A defined area, usually rectangular, used for the conventional landing and take-off of aircraft.
Feature class:	RUNWAYL
Feature type:	Line
Primitive type:	Edge
Portrayal criteria:	Only operational hard paved runways of airports (portrayed as an area feature) are portrayed. Runways cannot be portrayed stand-alone without the airport they belong to. Runway is portrayed only with line feature. The length of the line feature should correspond to the real length of the runway. Length may include overrun / stop way.
Quality criteria:	

Attributes:

LEN	Length	
	Data type:	Double
	Measurement units:	0.001 km
	Domain:	Actual value

5.3.7 Theme: Vegetation and Soils (VEG)

Ground Surface Element	**DA010**
Definition:	The surface soil characteristics of the earth.
Feature class:	SOILA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Open rocks, sand area, sand banks, and sand dunes with area ≥ 0.4 km². Smaller areas can be portrayed when significant to determine land occupation.
Quality criteria:	

Attributes:

MCC	Material Composition	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	84	Rocky
	88	Sand

Agricultural area	**EA015**
Definition:	Land used for growing agricultural crops and land used as pasture.
Feature class:	VEGA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	If the agriculture area covers a minor part of the land coverage and can be considered as remarkable in the landscape. Area ≥ 0.4 km².
Quality criteria:	

Attributes[6]: None

[6] As EA015 shares the same list of attributes like EA045 and EC050, all non-assigned attributes get the "unknown, unpopulated, not applicable, no value".

Plantation	**EA045**
Definition:	An area covered by systematic plantings of fruit trees, nuts, vine or other products.
Feature class:	VEGA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4 km². Normally fruit and/or nut orchards or vine or other products which are remarkable in the landscape. Smaller areas can be portrayed when significant to determine land occupation.
Quality criteria:	

Attributes:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
PRO	Product Category	
	Data type:	Short integer
	Domain:	Coded value
	-32768	Unknown, unpopulated, not applicable, no value
	124	Common fruits and/or nuts
	152	Vine
	153	Hops

Woods/Forest	**EC050**
Definition:	An area covered by trees including temporarily open forest areas.
Feature class:	VEGA
Feature type:	Area
Primitive type:	Face
Portrayal criteria:	Area ≥ 0.4 km². Smaller areas can be portrayed when significant to determine land occupation.
Quality criteria:	

Attributes[7]:

NAMN1	Name in first national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMN2	Name in second national language	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA1	Name in first national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA2	Name in second national language (ASCII-7bit)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN1	ISO 639-2/B 3-Char Language Code for NAMN1	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN2	ISO 639-2/B 3-Char Language Code for NAMN2	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value

[7] As EC050 shares the same list of attributes like EA015 and EA045, all non-assigned attributes get the “unknown, unpopulated, not applicable, no value”.

5.3.8 Related tables

EBM_NAM	
Definition:	Names related to administrative units via SHN codes.
Table name:	EBM_NAM
Relationship:	The EBM_NAM table is related to the POLBNDA feature class using the SHNx/SHN attribute as primary key item.
Portrayal criteria:	All administrative areas from feature class POLBNDA as well as all units on the upper administrative levels must have a corresponding record in EBM_NAM.

Attributes:

ICC	Two-character country code according to ISO 3166	
	Data type:	Character
	Domain:	Actual value
SHN	Unique identifier for all European administrative units	
	Data type:	Character
	Domain:	Actual value
		14 characters
USE	Administrative hierarchy level	
	Data type:	Short integer
	Domain:	Coded value
	1	1st order (country level)
	2	2nd order
	3	3rd order
	4	4th order
	5	5th order
	6	6th order
ISN	Unique structure identifier for all European administrative hierarchical levels	
	Data type:	Short integer
	Domain:	Coded value
NAMN	Geographical (official national) name of the administrative unit given in national characters (Unicode-UTF8). In case of more than one official language the names are delimited by # starting with the primary official name	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NAMA	Geographical name of the administrative unit (NAMN) converted to ASCII characters without diacritical characters	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
NLN	ISO 639-2/B 3-Char Language Code of the geographical name (NAMN)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
SHNupper	SHN code of the upper level unit which administers the administrative unit	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
ROA	Identifier of the residence of authority	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
PPL	Population	
	Data type:	Integer

	Domain:	Actual value
	-32768	Unknown, unpopulated, not applicable, no value
ARA	Area	
	Data type:	Double
	Measurement units:	0.01 km²
	Domain:	Actual value
effectiveDate	Official entry into force date of the administrative unit	
	Data type:	Date
	Domain:	Actual value

EBM_ISN	
Definition:	Designation of administrative hierarchical levels.
Table name:	EBM_ISN
Relationship:	The EBM_ISN table is related to the EBM_NAM table using ISN attribute as primary key item
Portrayal criteria:	All administrative units of all national hierarchical levels have a corresponding record in this table. The relation to the referring feature classes and tables is established based on the ISN codes.

Attributes:

ICC	Two-character country code according to ISO 3166	
	Data type:	Character
	Domain:	Actual value
ISN	Unique structure identifier for all European administrative hierarchical levels	
	Data type:	Short integer
	Domain:	Coded value
USE	Administrative hierarchy level	
	Data type:	Short integer
	Domain:	Coded value
	1	1st order (country level)
	2	2nd order
	3	3rd order
	4	4th order
	5	5th order
	6	6th order
DESN	Designation of the national administrative hierarchy level given in national characters (Unicode-UTF8). In case of more than one official language the designations are delimited by #	
	Data type:	Character
	Domain:	Actual value
DESA	Designation of the national administrative hierarchy level (DESN) converted to ASCII characters without diacritical characters	
	Data type:	Character
	Domain:	Actual value
NLN	ISO 639-2/B 3-Char Language Code of the designations (DESN)	
	Data type:	Character
	Domain:	Actual value
	UNK	Unknown, unpopulated, not applicable, no value
SHNdigit	Number of digits of the SHN code which are significant for the hierarchical level	
	Data type:	Short integer
	Domain:	Coded value

ERM_CHR	
Definition:	This table stores the ISO code of the character set that can be used to read properly geographical names without using the Unicode character set. For non-Latin languages the transliteration scheme is given.
Table name:	ERM_CHR
Relationship:	
Portrayal criteria:	Each data producer must provide the ISO code of all the official languages used for the NAMNx attributes when Unicode is not available.

Attributes:

NLN	ISO 639-2/B 3-Char Language Code used for NAMNx	
	Data type:	Character
	Domain:	Actual value
LNM	Language Name (in English)	
	Data type:	Character
	Domain:	Actual value
ISC	ISO Character Code Set	
	Data type:	Short integer
	Domain:	Coded value
	1	ISO 8859-1
	2	ISO 8859-2
	3	ISO 8859-3
	4	ISO 8859-4
	5	ISO 8859-5 (Cyrillic)
	6	ISO 8859-6 (Arabic)
	7	ISO 8859-7 (Greek)
	8	ISO 8859-8 (Hebrew)
	9	ISO 8859-9 (Latin 5)
	10	ISO 8859-10 (Latin 6)
	13	ISO 8859-13 (Latin 7)
	14	ISO 8859-14 (Latin 8)
	15	ISO 8859-15 (Latin 9)
TLS	Transliteration Scheme	
	Data type:	Character
	Domain:	Actual value
ICC	Two-character country code according to ISO 3166	
	Data type:	Character
	Domain:	Actual value

CountryCodes	
Definition:	Country code combinations of EuroGeographics, ISO and EU.
Table name:	CountryCodes
Relationship:	
Portrayal criteria:	Within the EuroGeographics products, all countries have unique country codes (ICC). In some cases these differ from the view of ISO or EU. There are also differences between ISO and EU. This table holds all combinations and it can be joined by using the attributes “ICC” and “EuroGeographics_Country_Code”.

Attributes:

EuroGeographics_Country_Code	Country code of EuroGeographics	
	Data type:	Character
	Domain:	Actual value
name_national	Country name in national characters	
	Data type:	Character
	Domain:	Actual value
name_english	Long term of country name in English	
	Data type:	Character
	Domain:	Actual value
name_english_short	Short term of country name in English	
	Data type:	Character
	Domain:	Actual value
EU_Country_Code	Country code of European Commission	
	Data type:	Character
	Domain:	Actual value
ISO_Country_Code	Country code of ISO	
	Data type:	Character
	Domain:	Actual value

5.3.9 Domains

Domains are widely used in ERM. Domains, which are used are described in the corresponding attributes section of the feature class.

5.3.10 Relationships

Relationships define the associations between objects in one class (feature class or related table) and objects in another based on identifiers. The following Table 4 provides an overview of the main ERM relationships.

Table 4: ERM relationship classes

Name of relationship class	Origin class		Destination class		Cardinality
	Class name	Identifier	Class name	Identifier	
EBM_ISN_to_EBM_NAM	EBM_ISN	ISN	EBM_NAM	ISN	1 : n
SHN[0..5]_to_EBM_NAM	EBM_NAM	SHN	PolbndA	SHN[0..5]	1 : n
AirfldC_AirfldA	AirfldC	IKO	AirfldA	IKO	1 : n
BuiltupP_BuiltupA	BuiltupP	PopulatedPlaceID	BuiltupA	PopulatedPlaceID	1 : n
FerryL_Dest1_FerryC	FerryL	DEST1	FerryC	FStationID	1 : 1
FerryL_Dest2_FerryC	FerryL	DEST2	FerryC	FStationID	1 : 1
HarborC_HarborA	HarborC	HID	HarborA	HID	1 : n

6 Reference systems

6.1 Spatial reference system

ERM data is stored in two-dimensional geographical coordinates, degrees (longitude, latitude) with decimal fraction. The spatial reference system is ETRS89 (WGS84) with ellipsoid GRS80. Difference between ETRS89 and WGS84 coordinate systems is negligible. ETRS89 is defined for the Eurasian Plate. Although ERM contains data outside this plate, the probable deviations are not of importance for the ERM reference scale 1:250 000.

ERM is provided without a specific map projection. If required, it is recommended to apply one of the European map projections proposed by INSPIRE:

- Lambert Azimuthal Equal Area projection,
  see http://www.opengis.net/def/crs/EPSG/0/3035
- Lambert Conformal Conic projection,
  see http://www.opengis.net/def/crs/EPSG/0/3034

6.2 Temporal reference system

Following ISO 19108, the Gregorian calendar is used as temporal reference system for the ERM **2023** product.

7 Data quality

Information on the quality of topographic data allows a user to validate how well a dataset meets the criteria set forth in its product specification and assists a data user in determining a product's ability to satisfy the requirements for their particular application.

The ERM database is compiled from national datasets provided by NMCAs. The source data is of the most suitable geometric and semantic quality which is described in more detail in the provided Metadata.

7.1 Temporal quality

Due to the production process of ERM, each theme has its own reference date, described in the lineage information of the Metadata.

7.2 Positional accuracy

Due to the fact that ERM is compiled of national contributions, the positional accuracy depends on the accuracy of the national source databases. ERM is intended to be used in map scale 1:250 000. For that scale a positional accuracy of about 125 m is suitable. All NMCAs were asked to deliver their data with that value of accuracy.

7.3 Logical consistency

7.3.1 Conceptual, domain and format consistency

The adherence with the conceptual schema of ERM is given, because all data is stored in a database template which was created based on the ERM specification. This consistency includes:

- General structure of the dataset,
- Spatial reference system is ETRS89,
- Spatial features have a valid geometry,
- Compliance of feature attributes with attribute domains,
- Linkage between feature classes and tables.

7.3.2 Connectivity

Because of the potential use of the ERM dataset for advanced spatial analysis, a transport network and water network reaching full topological and geometrical connectivity is necessary in order to have a continuous network. Full connectivity means that the topological rules have to be respected and that there is no geometric interruption in the network.

7.3.3 Continuity

Continuity means that there are no gaps or overlaps in and between the countries. In case of unresolved discontinuity, this will be documented in the metadata / lineage information of the respective countries.

7.3.4 Topological Rules

These topological rules of the graph theory are used only within the production process to ensure data quality

- No two nodes may occupy the same coordinate point (in general).
- No two edges may have the same geometry.
- A node will intersect edges only at their start/end point.
- No edge will intersect nor overlap any other edge, or itself.
- No two faces overlap (in general).
- A face may contain any number of isolated nodes.
- No isolated node can be located on an edge; it has to be a connected node.

The implementation of these rules is described in Annex B.

8 Data product delivery

The ERM **2023** product will be provided as ArcGIS File Geodatabase format, ESRI Shapefiles or Geopackage.

For further details please see

https://www.mapsforeurope.org/datasets/euro-regional-map/

9 Metadata

The metadata files are in accordance with the ISO 19115/19139 standards. All core metadata elements defined in the standards and additional ones are included. The metadata files are also compliant with the INSPIRE Metadata Implementing Rules.

Metadata are available for

- FullEurope ERM dataset: ERM_**2023**_Metadata.xml
- At country level (e.g. DE_ERM_**2023**_Metadata.xml)

The lineage files describe the production process, data quality and completeness of the data.

Lineage files are available for

- FullEurope ERM dataset: ERM_**2023**_Lineage.pdf
- At country level (e.g. DE_ERM_**2023**_Lineage.pdf)

Annex A: Lists

List of Features classes and features codes

Theme	Feature class name	Feature class type	Feature codes
BND	POLBNDA	Area	FA001
	POLBNDL	Line	FA000
HYDRO	AQUEDCTL	Line	BH010
	COASTA	Area	BA020
	COASTL	Line	BA010, XX500
	DAMC	Point	BI020, BI030
	DAML	Line	BI020, BI030
	HYNODEC	Point	BH503
	ISLANDA	Area	BA030
	LAKERESA	Area	BH080, BH130
	LANDICEA	Area	BJ030,BJ100
	LANDMASKA	Area	XX501
	RAPIDSC	Point	BH180
	RAPIDSL	Line	BH180
	SEAA	Area	BA040
	SEASTRTL	Line	BB081
	SHOREL	Line	BH210
	SPRINGC	Point	BH170
	SPRINGP	Point	BH170
	SWAMPA	Area	ED010
	WATRCRSA	Area	BH502
	WATRCRSL	Line	BH502
	WELLP	Point	AA050
MISC	BUILDP	Point	AL015
	CTOWERP	Point	AT080
	EXTRACTP	Point	AA010
	INDPRODL	Line	AQ113
	INDPRODP	Point	AB000, AC000, AQ116
	LANDMRKP	Point	AH050, AK030, AK130, AK160, AL130, AL200
	PARKA	Area	FA080, FA081
	PHYSL	Line	DB010, DB090
	PHYSP	Point	DB030
	POWERL	Line	AT030
	POWERP	Point	AD010
	TOWERP	Point	AL240
NAME	GNAMEL	Line	ZD040
POP	BUILTUPA	Area	AL020
	BUILTUPP	Point	AL020, AL022
	URBANP	Point	ZD040
TRANS	AIRFLDA	Area	GB005
	AIRFLDC	Point	GB005
	AIRFLDP	Point	GB005
	EXITC	Point	AQ090
	FERRYC	Point	AQ080
	FERRYL	Line	AQ070
	HARBORA	Area	BB009
	HARBORC	Point	BB009

Theme	Feature class name	Feature class type	Feature codes
	HARBORL	Line	BB190
	HARBORP	Point	BB009
	HELIP	Point	GB035
	INTERCC	Point	AP020
	LEVELCC	Point	AQ062, AQ063
	MISAEROP	Point	AQ060
	RAILRDC	Point	AQ125
	RAILRDL	Line	AN010, AN500
	RESTC	Point	AQ135
	ROADL	Line	AP030, AP500
	RUNWAYL	Line	GB055
VEG	SOILA	Area	DA010
	VEGA	Area	EA015, EA045, EC050

List of Features classes, their attributes, obligations and responsibilities

This list holds all the features and attributes of the EuroRegionalMap data set.

The column “Obligation” shows if an element (feature, attribute) is mandatory (M) or optional (O) or conditional (C).

Mandatory means that the elements must be provided if they are available.

Optional means that the elements can be provided. If no information is provided for the feature, the mandatory attributes are also left empty. If an information is provided for the feature, at least the mandatory attributes must be filled in.

Conditional means that of two possible attributes, at least one attribute has to be filled in or, if one attribute is provided, the other attribute must also be provided.

The column “Responsibility” indicates if an element is created at European level by the ERM Production Management Team during the final data assembly (A) of the EuroRegionalMap production. All other elements have to be collected and provided by the data producers according to the given obligation.

Theme	Feature class	Attribute	Attribute meaning	Obligation	Responsibility
BND	**POLBNDL**	**FA000**	**Administrative boundary**	**M**	
		BST	Boundary Status Type	M	
		USE	Usage	M	
		ABID	Unique identifier for all administrative boundaries	M	A
		LEN	Length	M	A
BND	**POLBNDA**	**FA001**	**Administrative Area**	**M**	
		SHN0	EBM Hierarchical Number	M	
		SHN1	EBM Hierarchical Number	M	
		SHN2	EBM Hierarchical Number	M	
		SHN3	EBM Hierarchical Number	M	
		SHN4	EBM Hierarchical Number	M	
		SHN5	EBM Hierarchical Number	M	
		TAA	Type of administrative area	M	
		NUTS3	Unique code of NUTS 3 region	M	A
		ARA	Area	M	A
HYDRO	**WELLP**	**AA050**	**Well**	**O**	
HYDRO	**COASTL**	**BA010**	**Coastline / Shoreline**	**M**	
HYDRO	**COASTA**	**BA020**	**Foreshore**	**M**	
		MCC	Material Composition Category	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
HYDRO	**ISLANDA**	**BA030**	**Island**	**M**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	

Theme	Feature class	Attribute	Attribute meaning	Obliga-tion	Res-ponsi-bility
		ARA	Area	M	A
HYDRO	**SEAA**	**BA040**	**Water (Except Inland)**	**M**	A
HYDRO	**SEASTRTL**	**BB081**	**Shoreline Construction**	**O**	
		PWC	Shoreline Construction Type	M	
HYDRO	**AQUEDCTL**	**BH010**	**Aqueduct**	**O**	
		EXS	Existence Category	O	
HYDRO	**LAKERESA**	**BH080**	**Lake/Pond**	**M**	
		HYP	Hydrological Persistence	M	
		HydroID	Hydrologic Identifier	M	
		NHI	National Hydrological Identification Code	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		TID	Tidal/Non-Tidal Category	M	
		ZV2	Highest Z-Value	O	
		ARA	Area	M	A
HYDRO	**LAKERESA**	**BH130**	**Reservoir**	**M**	
		HYP	Hydrological Persistence	M	
		HydroID	Hydrologic Identifier	M	
		NHI	National Hydrological Identification Code	M	
		NAMN1	Name in first national language	M	
		NAMN2	Name in second national language	M	
		NAMA1	Name in first national language (ASCII-7bit)	M	
		NAMA2	Name in second national language (ASCII 7bit)	M	
		NLN1	3-Char Language Code	M	
		NLN2	3-Char Language Code	M	
		ZV2	Highest Z-Value	O	
		ARA	Area	M	A
HYDRO	**SPRINGC, SPRINGP**	**BH170**	**Spring / Water Hole**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		SWT	Well/Spring Feature Type	M	
HYDRO	**RAPIDSC, RAPIDSL**	**BH180**	**Waterfall**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	

Theme	Feature class	Attribute	Attribute meaning	Obligation	Responsibility
		NLN2	3-Char Language Code	O	
HYDRO	**SHOREL**	**BH210**	**Inland Shoreline**	**M**	**A**
HYDRO	**WATRCRSA**	**BH502**	**Watercourse**	**M**	
		NVS	Navigability Information Code	M	
		HOC	Hydrographical Origin Category	M	
		HYP	Hydrological Persistence	M	
		HydroID	Hydrologic Identifier	M	
		NHI	National Hydrological Identification Code	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		TID	Tidal/Non-Tidal Category	M	
		ARA	Area	M	A
HYDRO	**WATRCRSL**	**BH502**	**Watercourse**	**M**	
		NVS	Navigability Information Code	M	
		HOC	Hydrographical Origin Category	M	
		HYP	Hydrological Persistence	M	
		LDV	Link Direction Value	O	(A)
		LOC	Location Category	M	
		HydroID	Hydrologic Identifier	M	
		NHI	National Hydrological Identification Code	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		TEN	TransEuropean Transport Network	M	
		TENTEC_ID	TEN Identifier	C (M if TEN populated)	
		TID	Tidal/Non-Tidal Category	M	
		WCH	National Watercourse Hierarchy	O	
		WD7	Width Lower Range	M	
		WD8	Width Upper Range	M	
		LEN	Length	M	A
HYDRO	**HYNODEC**	**BH503**	**Hydrographic Network Node**	**M**	
		HydroID	Hydrologic Identifier	M	
		HNC	Hydro node category	M	
HYDRO	**DAMC, DAML**	**BI020**	**Dam / Weir**	**M**	
		HydroID	Hydrologic Identifier	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	

Theme	Feature class	Attribute	Attribute meaning	Obliga-tion	Res-ponsi-bility
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
HYDRO	**DAMC, DAML**	**BI030**	**Lock**	**M**	
		HydroID	Hydrologic Identifier	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
HYDRO	**LANDICEA**	**BJ030**	**Glacier**	**M**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		ARA	Area	M	A
HYDRO	**LANDICEA**	**BJ100**	**Snow field/Ice field**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		ARA	Area	M	A
HYDRO	**SWAMPA**	**ED010**	**Wetland**	**M**	
		TID	Tidal/Non-Tidal Category	O	
HYDRO	**COASTL**	**XX500**	**Sea Limit**	**M**	
HYDRO	**LANDMASKA**	**XX501**	**Landmask Area**	**M**	**A**
NAME	**GNAMEL**	**ZD040**	**Named Location**	**M**	
		CNL	Category Code for the named location	M	
		NAMN1	Name in first national language	M	
		NAMN2	Name in second national language	M	
		NAMA1	Name in first national language (ASCII-7bit)	M	
		NAMA2	Name in second national language (ASCII 7bit)	M	
		NLN1	3-Char Language Code	M	
		NLN2	3-Char Language Code	M	
		SID	Symbol Identification	M	
MISC	**EXTRACTP**	**AA010**	**Mine**	**O**	
		EXS	Existence Category	O	
		MINE	Mining Category	O	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	

Theme	Feature class	Attribute	Attribute meaning	Obligation	Responsibility
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		PRO	Product Category	O	
MISC	**INDPRODP**	**AB000**	**Disposal Site/Waste Pile**	**O**	
		PRO	Product Category	O	
MISC	**INDPRODP**	**AC000**	**Processing Plant/Treatment Plant**	**O**	
		PRO	Product Category	O	
MISC	**POWERP**	**AD010**	**Power Station**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		PPC	Power Plant Category	O	
MISC	**LANDMRKP**	**AH050**	**Fortification**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
MISC	**LANDMRKP**	**AK030**	**Amusement Park**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
MISC	**LANDMRKP**	**AK130**	**Race Track**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
MISC	**LANDMRKP**	**AK160**	**Stadium / Amphitheatre**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	

Theme	Feature class	Attribute	Attribute meaning	Obliga-tion	Res-ponsi-bility
MISC	**LANDMRKP**	**AL130**	**Monument**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
MISC	**LANDMRKP**	**AL200**	**Ruins**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
MISC	**BUILDP**	**AL015**	**Building**	**M**	
		BFC	Building Function Category	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
MISC	**TOWERP**	**AL240**	**Tower (non-communication)**	**O**	
		TTC	Tower Type Category	M	
MISC	**INDPRODL**	**AQ113**	**Pipeline / Pipe**	**O**	
		LOC	Location Category	O	
		PRO	Product Category	O	
MISC	**INDPRODP**	**AQ116**	**Pumping Station**	**O**	
		PRO	Product Category	O	
MISC	**POWERL**	**AT030**	**Power Transmission Line**	**O**	
		FCO	Feature Configuration	O	
MISC	**CTOWERP**	**AT080**	**Communication Tower**	**O**	
		NST	Navigation System Type	O	
MISC	**PHYSL**	**DB010**	**Bluff / Cliff / Escarpment**	**O**	
MISC	**PHYSP**	**DB030**	**Cave**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
MISC	**PHYSL**	**DB090**	**Embankment / Fill**	**O**	
		PFH	Predominant Feature Height (decimetres)	O	
		USE	Usage	O	
		VRR	Vertical Reference Category	O	
MISC	**PARKA**	**FA080**	**National Park**	**M**	
		NA3	Classification Name	M	

Theme	Feature class	Attribute	Attribute meaning	Obligation	Responsibility
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
MISC	**PARKA**	**FA081**	**Nature Reserve**	**M**	
		NA3	Classification Name	M	
		NAMN1	Name in first national language	O	
		NAMN2	Second Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
POP	**BUILTUPA**	**AL020**	**Built-up area**	**M**	
		Populated PlaceID	Populate place identifier	M	
		ARA	Area	M	A
POP	**BUILTUPP**	**AL020**	**Built-up area**	**M**	
		NAMN1	Name in first national language	M	
		NAMN2	Second Name in second national language	M	
		NAMA1	Name in first national language (ASCII-7bit)	M	
		NAMA2	Name in second national language (ASCII 7bit)	M	
		NLN1	3-Char Language Code	M	
		NLN2	3-Char Language Code	M	
		PPL	Population Place Category	C (M if PP1 & PP2 not populated)	
		PP1	Population Lower Range	C (M if PPL not populated)	
		PP2	Population Upper Range	C (M if PPL not populated)	
		USE	Usage	M for country capitals, O for others	
		Populated PlaceID	Populate place identifier	M	
POP	**BUILTUPP**	**AL022**	**Populated Place**	**M**	
		NAMN1	Name in first national language	M	
		NAMN2	Second Name in second national language	M	

Theme	Feature class	Attribute	Attribute meaning	Obligation	Responsibility
		NAMA1	Name in first national language (ASCII-7bit)	M	
		NAMA2	Name in second national language (ASCII 7bit)	M	
		NLN1	3-Char Language Code	M	
		NLN2	3-Char Language Code	M	
		PPL	Population Place Category	C (M if PP1 & PP2 not populated)	
		PP1	Population Lower Range	C (M if PPL not populated)	
		PP2	Population Upper Range	C (M if PPL not populated)	
		USE	Usage	M for country capitals, O for others	
		Populated PlaceID	Populate place identifier	M	
POP	**URBANP**	**ZD040**	**Named Location**	**O**	
		NAMN1	Name in first national language	M	
		NAMN2	Name in second national language	M	
		NAMA1	Name in first national language (ASCII-7bit)	M	
		NAMA2	Name in second national language (ASCII 7bit)	M	
		NLN1	3-Char Language Code	M	
		NLN2	3-Char Language Code	M	
TRANS	**RAILRDL**	**AN010**	**Railway**	**M**	
		EXS	Existence Category	M	
		FCO	Feature Configuration	M	
		GAW	Gauge Width	M	
		LLE	Location Level	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		RCO	Railroad Code	O	
		RGC	Railroad Gauge Category	M	
		RRA	Railroad Power Source	M	
		RRC	Railroad Categories	M	
		RSD	Railway Speed Class	M	
		RSU	Seasonal availability	O	
		TEN	TransEuropean Transport Network	M	
		TENTEC_ID	TEN Identifier	C	

Theme	Feature class	Attribute	Attribute meaning	Obligation	Responsibility
				(M if TEN populated)	
		TUC	Transportation Use Category	M	
		LEN	Length	M	A
TRANS	**RAILRDL**	**AN500**	**Railway Network Link**	**M**	
		TEN	TransEuropean Transport Network	M	
		TENTEC_ID	TEN Identifier	C (M if TEN populated)	
TRANS	**INTERCC**	**AP020**	**Interchange**	**M**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		RJC	Road Junction Type	M	
TRANS	**ROADL**	**AP030**	**Road**	**M**	
		COR	Category of Road	M	
		EXS	Existence Category	M	
		LLE	Location Level	M	
		LTN	Lane/Track Number	M	
		MED	Median Category	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		RST	Road Surface Type	M	
		RSU	Seasonal availability	O	
		RTE	Route Number (Int.)	M	
		RTN	Route Number (Nat.)	M	
		RTT	Route Intended Use	M	
		TEN	TransEuropean Transport Network	M	
		TENTEC_ID	TEN Identifier	C (M if TEN populated)	
		TOL	Toll Category	M	
		TUC	Transportation Use Category	M	
		LEN	Length	M	A
TRANS	**ROADL**	**AP500**	**Road Network Link**	**M**	
		TEN	TransEuropean Transport Network	M	
		TENTEC_ID	TEN Identifier	C (M if TEN populated)	
TRANS	**MISAEROP**	**AQ060**	**Control Tower**	**O**	
TRANS	**LEVELCC**	**AQ062**	**Level Crossing**	**M**	
TRANS	**LEVELCC**	**AQ063**	**Road Intersection**	**M**	
TRANS	**FERRYL**	**AQ070**	**Ferry Crossing**	**M**	
		DEST1	Destination 1 (FStationID1)	M	
		DEST2	Destination 2 (FStationID2)	M	
		FerryID	Ferry line Identifier	M	

Theme	Feature class	Attribute	Attribute meaning	Obligation	Responsibility
		RSU	Seasonal availability	O	
		USE	Usage	M	
		TEN	TransEuropean Transport Network	M	
TRANS	**FERRYC**	**AQ080**	**Ferry Station**	**M**	
		NAMN1	Name in first national language	O	
		NAMN2	Second Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		FStationID	Ferry Station Identifier	M	
TRANS	**EXITC**	**AQ090**	**Entrance / Exit**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Second Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
TRANS	**RAILRDC**	**AQ125**	**Railway Station**	**M**	
		TFC	Transportation Facility Type	M	
		NAMN1	Name in first national language	O	
		NAMN2	Second Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		RStationID	Railway Station Identifier	M	
		TUC	Transportation Use Category	M	
TRANS	**RESTC**	**AQ135**	**Vehicle stopping Area/ Rest Area**	**M**	
		AFA	Available Facilities	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
TRANS	**HARBORA**	**BB009**	**Port**	**M**	
		HID	Harbor Identification Code	M	
		ARA	Area	M	A
TRANS	**HARBORC, HARBORP**	**BB009**	**Port**	**M**	
		HID	Harbor Identification Code	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	

Theme	Feature class	Attribute	Attribute meaning	Obligation	Responsibility
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		TEN	TransEuropean Transport Network	M	
		TENTEC_ID	TEN Identifier	C (M if TEN populated)	
		TUC	Transportation Use Category	M	
TRANS	**HARBORL**	**BB190**	**Pier/Wharf/Quay**	**O**	
TRANS	**AIRFLDA**	**GB005**	**Airport / Airfield**	**M**	
		IKO	ICAO designator	M	
		ARA	Area	M	A
TRANS	**AIRFLDC, AIRFLDP**	**GB005**	**Airport / Airfield**	**M**	
		CAA	Controlling Authority	M	
		EXS	Existence Category	O	
		FUC	Functional Use Category	O	
		IAT	IATA code	M	
		IKO	ICAO designator	M	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		TEN	TransEuropean Transport Network	M	
		TENTEC_ID	TEN Identifier	C (M if TEN populated)	
		TUC	Transportation Use Category	M	
		USE	Usage	M	
		ZV3	Airfield elevation	M	
TRANS	**HELIP**	**GB035**	**Heliport**	**O**	
		IAT	IATA code	O	
		IKO	ICAO designator	O	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
TRANS	**RUNWAYL**	**GB055**	**Runway**	**M**	
		LEN	Length	M	A
VEG	**SOILA**	**DA010**	**Ground Surface Element**	**O**	
		MCC	Material Composition Category	M	
VEG	**VEGA**	**EA015**	**Agricultural Area**	**O**	
VEG	**VEGA**	**EA045**	**Plantation**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	

Theme	Feature class	Attribute	Attribute meaning	Obligation	Responsibility
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	
		PRO	Product Category	O	
VEG	**VEGA**	**EC050**	**Woods/Forest**	**O**	
		NAMN1	Name in first national language	O	
		NAMN2	Name in second national language	O	
		NAMA1	Name in first national language (ASCII-7bit)	O	
		NAMA2	Name in second national language (ASCII 7bit)	O	
		NLN1	3-Char Language Code	O	
		NLN2	3-Char Language Code	O	

Annex B: Topological rules

This annex describes topological relationships at feature level that is considered for quality assurance.

Theme: Administrative Boundaries (BND)

These topological relationships are set up for validation at feature class level.

Feature class	Topology rule	Related feature class	Description
POLBNDA	Must be single part		Administrative areas as polygon must be single part
POLBNDA	Must not overlap		Administrative areas as polygon must not overlap
POLBNDA	Must not self-overlap		Administrative areas as polygon must not self-overlap
POLBNDA	No adjacent faces with same attributes		No adjacent administrative areas as polygon with same attributes
POLBNDL	Have no pseudo node		Administrative boundaries as line do not have pseudo nodes
POLBNDL	Must be covered by edge of	POLBNDA	Administrative boundaries as line must be covered by edge of administrative areas as polygon
POLBNDL	Must be single part		Administrative boundaries as line must be single part
POLBNDL	Must not have isolated start node and/or end node		Administrative boundaries lines must touch one other administrative boundary line and cannot be isolated
POLBNDL	Must not intersect or touch interior		Administrative boundaries as line can only touch at their ends and must not overlap each other
POLBNDL	Must not self-intersect		Administrative boundaries as line must not self-intersect

Theme: Hydrography (HYDRO)

These topological relationships are set up for validation at feature class level.

Feature class	Topology rule	Related feature class	Description
AQUEDCTL	Have no pseudo node		Aqueduct as line do not have pseudo nodes
AQUEDCTL	Must be single part		Aqueduct as line must be single part
AQUEDCTL	Must not intersect or touch interior		Aqueduct as line can only touch at their ends and must not overlap each other
AQUEDCTL	Must not intersect with	COASTL DAML RAPIDSL WATRCRSL	Aqueduct as line must not intersect with sea limit / coastline / shoreline, dam / weir / lock, waterfall and watercourse as line
AQUEDCTL	Must not self-intersect		Aqueduct as line must not self-intersect
COASTA	Must be single part		Foreshore as polygon must be single part
COASTA	Must not have adjacent faces with same attributes		No adjacent foreshore as polygon with same attributes
COASTA	Must not have gaps that sliver		Foreshore as polygon must not have gaps that sliver
COASTA	Must not have gaps with adjacent faces that sliver	ISLANDA LAKERESA LANDICEA SWAMPA	Foreshore as polygon must not have gaps with adjacent island, lake / pond / reservoir, snow field / ice field and wetland as polygon that sliver
COASTA	Must not overlap		Foreshore as polygon must not overlap
COASTA	Must not overlap with	ISLANDA LAKERESA LANDICEA SWAMPA	Foreshore as polygon must not overlap with island, lake / pond / reservoir, snow field / ice field and wetland as polygon
COASTA	Must not self-overlap		Foreshore as polygon must not self-overlap
COASTA	Must overlap with	SEAA WATRCRSA	Foreshore as polygon must overlap with water (except inland) or watercourse as polygon
COASTL	Have no pseudo node		Sea limit / coastline / shoreline as line do not have pseudo nodes
COASTL	Must be single part		Sea limit / coastline / shoreline as line must be single part
COASTL	Must not have gaps		Sea limit / coastline / shoreline as line must not have gaps
COASTL	Must not intersect or touch interior		Sea limit / coastline / shoreline as line can only touch at their ends and must not overlap each other
COASTL	Must not self-intersect		Sea limit / coastline / shoreline as line must not self-intersect
COASTL, BA010	Must be covered by edge of	COASTA	Coastline / shoreline as line must be covered by edge of foreshore as polygon, if foreshore exists
COASTL, BA010	Must be covered by edge of	LANDMASKA SEAA	Coastline / shoreline as line must be covered by edge of landmask area and water (except inland) as polygon
COASTL, XX500	Must be covered by edge of	SEAA WATRCRSA	Sea limit as line must be covered by edge of water (except inland) and watercourse as polygon
COASTL, XX500	Must not intersect with	AQUEDCTL RAPIDSL WATRCRSL	Sea limit as line must not intersect with aqueduct, waterfall and watercourse as line

Feature class	Topology rule	Related feature class	Description
COASTL, BA010	Must not intersect with	AQUEDCTL DAML RAPIDSL SEASTRTL WATRCRSL	Coastline / shoreline as line must not intersect with aqueduct, dam / weir / lock, waterfall, shoreline construction and watercourse as line
DAMC	Must be covered by end node of	WATRCRSL	Dam / weir / lock as connected node must be covered by end node of a watercourse as line
DAMC	Must be outside of	LAKERESA LANDICEA SEAA WATRCRSA	Dam / weir / lock as connected node must be outside of lake / pond / reservoir, snow field / ice field, water (except inland) and watercourse as polygon
DAMC	Must not intersect with	RAPIDSC SPRINGC SPRINGP WELLP	Dam / weir / lock as connected node must not intersect with waterfall, spring / water hole and well as node or connected node
DAMC	Must not intersect		Dam / weir / lock as connected node must not intersect each other
DAML	Have no pseudo node		Dam / weir / lock as line do not have pseudo nodes
DAML	Must be single part		Dam / weir / lock as line must be single part
DAML	Must not intersect or touch interior		Dam / weir / lock as line can only touch at their ends and must not overlap each other
DAML	Must not intersect with	AQUEDCTL COASTL, BA010 RAPIDSL SEASTRTL WATRCRSL	Dam / weir / lock as line must not intersect with aqueduct, coastline / shoreline, waterfall, shoreline construction and watercourse as line
DAML	Must not self-intersect		Dam / weir / lock as line must not self-intersect
DAML, BI020	Must be covered by edge of	LAKERESA (BH130) or WATRCRSA	Dam / weir as line must be covered by edge of reservoir or watercourse as polygon
DAML, BI030	Must be covered by edge of	WATRCRSA	Lock as line must be covered by edge of watercourse as polygon
HYNODEC	Must be covered by end node of	WATRCRSL	Hydrographic network node as connected node must be covered by end node of a watercourse as line
HYNODEC	Must not intersect		Hydrographic network node as connected node must not intersect each other
ISLANDA	Must be single part		Island as polygon must be single part
ISLANDA	Must not have adjacent faces with same attributes		No adjacent island as polygon with same attributes
ISLANDA	Must not have gaps that sliver		Island as polygon must not have gaps that sliver
ISLANDA	Must not have gaps with adjacent faces that sliver	COASTA LAKERESA LANDICEA SEAA WATRCRSA	Island as polygon must not have gaps with adjacent foreshore, lake / pond / reservoir, snow field / ice field, water (except inland) and watercourse as polygon that sliver
ISLANDA	Must not overlap		Island as polygon must not overlap

Feature class	Topology rule	Related feature class	Description
ISLANDA	Must not overlap with	COASTA LAKERESA LANDICEA SEAA WATRCRSA	Island as polygon must not overlap with foreshore, lake / pond / reservoir, snow field / ice field, water (except inland) and watercourse as polygon
ISLANDA	Must not self-overlap		Island as polygon must not self-overlap
LAKERESA	Must be single part		Lake / pond / reservoir as polygon must be single part
LAKERESA	Must not have adjacent faces with same attributes		No adjacent lake / pond / reservoir as polygon with same attributes
LAKERESA	Must not have gaps that sliver		Lake / pond / reservoir as polygon must not have gaps that sliver
LAKERESA	Must not have gaps with adjacent faces that sliver	COASTA ISLANDA LANDICEA SEAA SWAMPA WATRCRSA	Lake / pond / reservoir as polygon must not have gaps with adjacent foreshore, island, snow field / ice field, water (except inland), wetland and watercourse as polygon that sliver
LAKERESA	Must not overlap		Lake / pond / reservoir as polygon must not overlap
LAKERESA	Must not overlap with	COASTA ISLANDA LANDICEA SEAA SWAMPA WATRCRSA	Lake / pond / reservoir as polygon must not overlap with foreshore, island, snow field / ice field, water (except inland), wetland and watercourse as polygon
LAKERESA	Must not self-overlap		Lake / pond / reservoir as polygon must not self-overlap
LANDICEA	Must be single part		Snow field / ice field as polygon must be single part
LANDICEA	Must not have adjacent faces with same attributes		No adjacent snow field / ice field as polygon with same attributes
LANDICEA	Must not have gaps that sliver		Snow field / ice field as polygon must not have gaps that sliver
LANDICEA	Must not have gaps with adjacent faces that sliver	ISLANDA LAKERESA SEAA SWAMPA WATRCRSA	Snow field / ice field as polygon must not have gaps with adjacent island, lake / pond / reservoir, water (except inland), wetland and watercourse as polygon that sliver
LANDICEA	Must not overlap		Snow field / ice field as polygon must not overlap
LANDICEA	Must not overlap with	COASTA ISLANDA LAKERESA SEAA SWAMPA WATRCRSA	Snow field / ice field as polygon must not overlap with foreshore, island, lake / pond / reservoir, water (except inland), wetland and watercourse as polygon
LANDICEA	Must not self-overlap		Snow field / ice field as polygon must not self-overlap
LANDMASKA	Must be single part		Landmask area as polygon must be single part
LANDMASKA	Must not have adjacent faces with same attributes		No adjacent landmask area as polygon with same attributes
LANDMASKA	Must not have gaps with adjacent faces that sliver	SEAA	Landmask area as polygon must not have gaps with adjacent water (except inland) as polygon that sliver

Feature class	Topology rule	Related feature class	Description
LANDMASKA	Must not overlap		Landmask area as polygon must not overlap
LANDMASKA	Must not overlap with	SEAA	Landmask area as polygon must not overlap with water (except inland) as polygon
LANDMASKA	Must not self-overlap		Landmask area as polygon must not self-overlap
RAPIDSC	Must be covered by end node of	WATRCRSL	Waterfall as connected node must be covered by end node of a watercourse as line
RAPIDSC	Must be outside of	LAKERESA LANDICEA SEAA WATRCRSA	Waterfall as connected node must be outside of lake / pond / reservoir, snow field / ice field, water (except inland) and watercourse as polygon
RAPIDSC	Must not intersect with	DAMC SPRINGC SPRINGP WELLP	Waterfall as connected node must not intersect with dam / weir / lock, spring / water hole and well as node or connected node
RAPIDSC	Must not intersect		Waterfall as connected node must not intersect each other
RAPIDSL	Have no pseudo node		Waterfall as line do not have pseudo nodes
RAPIDSL	Must be covered by edge of	WATRCRSA	Waterfall as line must be covered by edge of watercourse as polygon
RAPIDSL	Must be single part		Waterfall as line must be single part
RAPIDSL	Must not intersect or touch interior		Waterfall as line can only touch at their ends and must not overlap each other
RAPIDSL	Must not intersect with	AQUEDCTL COASTL DAML SEASTRTL WATRCRSL	Waterfall as line must not intersect with aqueduct, sea limit / coastline / shoreline, dam / weir / lock, shoreline construction and watercourse as line
RAPIDSL	Must not self-intersect		Waterfall as line must not self-intersect
SEAA	Must be single part		Water (except inland) as polygon must be single part
SEAA	Must not have gaps that sliver		Water (except inland) as polygon must not have gaps that sliver
SEAA	Must not have gaps with adjacent faces that sliver	ISLANDA LAKERESA LANDICEA LANDMASKA SWAMPA WATRCRSA	Water (except inland) as polygon must not have gaps with adjacent island, lake / pond / reservoir, snow field / ice field, landmask area, wetland and watercourse as polygon that sliver
SEAA	Must not overlap		Water (except inland) as polygon must not overlap
SEAA	Must not overlap with	ISLANDA LAKERESA LANDICEA LANDMASKA SWAMPA WATRCRSA	Water (except inland) as polygon must not overlap with island, lake / pond / reservoir, snow field / ice field, landmask area, wetland and watercourse as polygon
SEAA	Must not self-overlap		Water (except inland) as polygon must not self-overlap
SEASTRTL	Have no pseudo node		Shoreline construction as line do not have pseudo nodes
SEASTRTL	Must be single part		Shoreline construction as line must be single part

Feature class	Topology rule	Related feature class	Description
SEASTRTL	Must not intersect or touch interior		Shoreline construction as line can only touch at their ends and must not overlap each other
SEASTRTL	Must not intersect with	AQUEDCTL COASTL, BA010 DAML RAPIDSL WATRCRSL	Shoreline construction as line must not intersect with aqueduct, coastline / shoreline, dam / weir / lock, waterfall and watercourse as line
SEASTRTL	Must not self-intersect		Shoreline construction as line must not self-intersect
SHOREL	Have no pseudo node		Inland shoreline as line do not have pseudo nodes
SHOREL	Must be covered by edge of	ISLANDA LAKERESA WATRCRSA	Inland shoreline as line must be covered by edge of island, lake / pond / reservoir and watercourse as polygon
SHOREL	Must be single part		Inland shoreline as line must be single part
SHOREL	Must not intersect or touch interior		Inland shoreline as line can only touch at their ends and must not overlap each other
SHOREL	Must not self-intersect		Inland shoreline as line must not self-intersect
SPRINGC	Must be covered by end node of	WATRCRSL	Spring / water hole as connected node must be covered by end node of a watercourse as line
SPRINGP, SPRINGC	Must be outside of	LAKERESA LANDICEA SEAA WATRCRSA	Spring / water hole as node or connected node must be outside of lake / pond / reservoir, snow field / ice field, water (except inland) and watercourse as polygon
SPRINGP, SPRINGC	Must not intersect with	DAMC RAPIDSC WELLP	Spring / water hole as node or connected node must not intersect with dam / weir / lock, waterfall and well as node or connected node
SPRINGP, SPRINGC	Must not intersect		Spring / water hole as node or connected node must not intersect each other
SWAMPA	Must be single part		Wetland as polygon must be single part
SWAMPA	Must not have adjacent faces with same attributes		No adjacent wetland as polygon with same attributes
SWAMPA	Must not have gaps that sliver		Wetland as polygon must not have gaps that sliver
SWAMPA	Must not have gaps with adjacent faces that sliver	COASTA LAKERESA LANDICEA SEAA WATRCRSA	Wetland as polygon must not have gaps with adjacent foreshore, lake / pond / reservoir, snow field / ice field, water (except inland) and watercourse as polygon that sliver
SWAMPA	Must not overlap		Wetland as polygon must not overlap
SWAMPA	Must not overlap with	COASTA LAKERESA LANDICEA SEAA WATRCRSA	Wetland as polygon must not overlap with foreshore, lake / pond / reservoir, snow field / ice field, water (except inland) and watercourse as polygon
SWAMPA	Must not self-overlap		Wetland as polygon must not self-overlap
WATRCRSA	Must be single part		Watercourse as polygon must be single part

Feature class	Topology rule	Related feature class	Description
WATRCRSA	Must not have adjacent faces with same attributes → Exception: WATRCRSA separated by DAML		No adjacent watercourse as polygon with same attributes → Exception: Watercourse as polygon separated by dam / weir / lock as line
WATRCRSA	Must not have gaps that sliver		Watercourse as polygon must not have gaps that sliver
WATRCRSA	Must not have gaps with adjacent faces that sliver	ISLANDA LAKERESA LANDICEA SEAA SWAMPA	Watercourse as polygon must not have gaps with adjacent island, lake / pond / reservoir, snow field / ice field, water (except inland) and wetland as polygon that sliver
WATRCRSA	Must not overlap		Watercourse as polygon must not overlap
WATRCRSA	Must not overlap with	ISLANDA LAKERESA LANDICEA SEAA SWAMPA	Watercourse as polygon must not overlap with island, lake / pond / reservoir, snow field / ice field, water (except inland) and wetland as polygon
WATRCRSA	Must not self-overlap		Watercourse as polygon must not self-overlap
WATRCRSL	Have no pseudo node		Watercourse as line do not have pseudo nodes
WATRCRSL	Must be single part		Watercourse as line must be single part
WATRCRSL	Must not intersect or touch interior		Watercourse as line can only touch at their ends and must not overlap each other
WATRCRSL	Must not intersect with	AQUEDCTL COASTL DAML RAPIDSL SEASTRTL	Watercourse as line must not intersect with aqueduct, sea limit / coastline / shoreline, dam / weir / lock, waterfall and shoreline construction as line
WATRCRSL	Must not self-intersect		Watercourse as line must not self-intersect
WELLP	Must be outside of	LAKERESA LANDICEA SEAA WATRCRSA	Well as node must be outside of lake / pond / reservoir, snow field / ice field, water (except inland) and watercourse as polygon
WELLP	Must not intersect with	DAMC RAPIDSC SPRINGC SPRINGP	Well as node must not intersect with dam / weir / lock, waterfall and spring / water hole as node or connected node
WELLP	Must not intersect		Well as node must not intersect each other

Theme: Miscellaneous (MISC)

These topological relationships are set up for validation at feature class level.

Feature class	Topology rule	Related feature class	Description
BUILDP	Must not intersect with	CTOWERP EXTRACTP INDPRODP LANDMRKP PHYSP POWERP TOWERP	Building as node must not intersect with communication tower, mine, disposal site / processing plant / pumping station, landmark, cave, power station and tower as node
BUILDP	Must not intersect		Building as node must not intersect each other
CTOWERP	Must not intersect with	BUILDP EXTRACTP INDPRODP LANDMRKP PHYSP POWERP TOWERP	Communication tower as node must not intersect with building, mine, disposal site / processing plant / pumping station, landmark, cave, power station and tower as node
CTOWERP	Must not intersect		Communication tower as node must not intersect each other
EXTRACTP	Must not intersect with	BUILDP CTOWERP INDPRODP LANDMRKP PHYSP POWERP TOWERP	Mine as node must not intersect with building, communication tower, disposal site / processing plant / pumping station, landmark, cave, power station and tower as node
EXTRACTP	Must not intersect		Mine as node must not intersect each other
INDPRODL	Have no pseudo node		Pipeline/pipe as line do not have pseudo nodes
INDPRODL	Must be single part		Pipeline/pipe as line must be single part
INDPRODL	Must not intersect or touch interior		Pipeline/pipe as line can only touch at their ends and must not overlap each other
INDPRODL	Must not intersect with	PHYSL POWERL	Pipeline/pipe as line must not intersect with cliff / embankment and power transmission line as line
INDPRODL	Must not self-intersect		Pipeline/pipe as line must not self-intersect
INDPRODP	Must not intersect with	BUILDP CTOWERP EXTRACTP LANDMRKP PHYSP POWERP TOWERP	Disposal site / processing plant / pumping station as node must not intersect with building, communication tower, mine, landmark, cave, power station and tower as node
INDPRODP	Must not intersect		Disposal site / processing plant / pumping station as node must not intersect each other

Feature class	Topology rule	Related feature class	Description
LANDMRKP	Must not intersect with	BUILDP CTOWERP EXTRACTP INDPRODP PHYSP POWERP TOWERP	Landmark as node must not intersect with building, communication tower, mine, disposal site / processing plant / pumping station, cave, power station and tower as node
LANDMRKP	Must not intersect		Landmark as node must not intersect each other
PARKA	Must be single part		National parks and nature reserves as polygon must be single part
PARKA	Must not overlap		National parks and nature reserves as polygon must not overlap
PARKA	Must not self-overlap		National parks and nature reserves as polygon must not self-overlap
PARKA	No adjacent faces with same attributes		No adjacent national parks and nature reserves as polygon with same attributes
PHYSL	Have no pseudo node		Cliff / embankment as line do not have pseudo nodes
PHYSL	Must be single part		Cliff / embankment as line must be single part
PHYSL	Must not intersect or touch interior		Cliff / embankment as line can only touch at their ends and must not overlap each other
PHYSL	Must not intersect with	INDPRODL POWERL	Cliff / embankment as line must not intersect with pipeline and power transmission line as line
PHYSL	Must not self-intersect		Cliff / embankment as line must not self-intersect
PHYSP	Must not intersect with	BUILDP CTOWERP EXTRACTP INDPRODP LANDMRKP POWERP TOWERP	Cave as node must not intersect with building, communication tower, mine, disposal site / processing plant / pumping station, landmark, power station and tower as node
PHYSP	Must not intersect		Cave as node must not intersect each other
POWERL	Have no pseudo node		Power transmission line as line do not have pseudo nodes
POWERL	Must be single part		Power transmission line as line must be single part
POWERL	Must not intersect or touch interior		Power transmission line as line can only touch at their ends and must not overlap each other
POWERL	Must not intersect with	INDPRODL PHYSL	Power transmission line as line must not intersect with pipeline and cliff / embankment as line
POWERL	Must not self-intersect		Power transmission line as line must not self-intersect
POWERP	Must not intersect with	BUILDP CTOWERP EXTRACTP INDPRODP LANDMRKP PHYSP TOWERP	Power station as node must not intersect with building, communication tower, mine, disposal site / processing plant / pumping station, landmark, cave and tower as node
POWERP	Must not intersect		Power station as node must not intersect each other

Feature class	Topology rule	Related feature class	Description
TOWERP	Must not intersect with	BUILDP CTOWERP EXTRACTP INDPRODP LANDMRKP PHYSP POWERP	Tower as node must not intersect with building, communication tower, mine, disposal site / processing plant / pumping station, landmark, cave and power station as node
TOWERP	Must not intersect		Tower as node must not intersect each other

Theme: Named Location (NAME)

There are no topological relationships set up at feature class level.

Theme: Settlement (POP)

These topological relationships are set up for validation at feature class level.

Feature class	Topology rule	Related feature class	Description
BUILTUPA	Must be single part		Built-up area as polygon must be single part
BUILTUPA	Must not have adjacent faces with same attributes		No adjacent built-up area as polygon with same attributes
BUILTUPA	Must not overlap		Built-up area as polygon must not overlap
BUILTUPA	Must not self-overlap		Built-up area as polygon must not self-overlap
BUILTUPP	Must not overlap with	URBANP	Built-up area / populated place as node must not overlap with named location as node
BUILTUPP	Must not intersect		Built-up area / populated place as node must not intersect each other
BUILTUPP, AL020	Must be well outside of	BUILTUPA	Built-up area as node must be well outside of a built-up area as polygon
BUILTUPP, AL022	Must be inside	BUILTUPA	Populated place as node must be inside the corresponding built-up area as polygon
URBANP	Must be inside	BUILTUPA	Named location as node must be inside a built-up area as polygon
URBANP	Must not overlap with	BUILTUPP	Named location as node must not overlap with built-up area / populated place as node
URBANP	Must not intersect		Named location as node must not intersect each other

Theme: Transportation (TRANS)

These topological relationships are set up for validation at feature class level.

Feature class	Topology rule	Related feature class	Description
AIRFLDA	Must be single part		Airport/airfield as polygon must be single part
AIRFLDA	Must not overlap		Airport/airfield as polygon must not overlap
AIRFLDA	Must not overlap with	HARBORA	Airport/airfield as polygon must not overlap with port as polygon
AIRFLDA	Must not self-overlap		Airport/airfield as polygon must not self-overlap
AIRFLDA	No adjacent faces with same attributes		No adjacent airport/airfield as polygon with same attributes
AIRFLDC	Must be covered by end node of	RAILRDL or ROADL	Airport/airfield as connected node must be covered by end node of a railway or a road as line
AIRFLDC	Must be inside	AIRFLDA	Airport/airfield as connected node must be inside the correspondent airport/airfield as polygon
AIRFLDC, AIRFLDP	Must not intersect with	EXITC FERRYC HARBORC HARBORP HELIP INTERCC LEVELCC MISAEROP RAILRDC RESTC	Airport/airfield as node or connected node must not intersect with entrance/exit, ferry station, port, heliport, interchange, level crossing / road intersection, control tower, railway station and rest area as node or connected node
AIRFLDC, AIRFLDP	Must not intersect		Airport/airfield as node or connected node must not intersect each other
AIRFLDP	Must be outside of	AIRFLDA	Airport/airfield as node must be outside of an airport/airfield as polygon
EXITC	Must be covered by end node of	RAILRDL or ROADL	Entrance/exit as connected node must be covered by end node of a railway or a road as line
EXITC	Must not intersect with	AIRFLDC AIRFLDP FERRYC HARBORC HARBORP HELIP INTERCC LEVELCC MISAEROP RAILRDC	Entrance/exit as connected node must not intersect with airport/airfield, ferry station, port, heliport, interchange, level crossing / road intersection, control tower and railway station as node or connected node
EXITC	Must not intersect		Entrance/exit as connected node must not intersect each other
FERRYC	Must be covered by end node of	FERRYL	Ferry station as connected node must be covered by end node of a ferry line
FERRYC	Must be covered by end node of	RAILRDL or ROADL	Ferry station as connected node must be covered by end node of a road or a railway as line

Feature class	Topology rule	Related feature class	Description
FERRYC	Must not intersect with	AIRFLDC AIRFLDP EXITC HELIP INTERCC LEVELCC MISAEROP RAILRDC RESTC	Ferry station as node must not intersect with airport/airfield, entrance/exit, heliport, interchange, level crossing / road intersection, control tower, railway station and rest area as node or connected node
FERRYC	Must not intersect		Ferry station as node must not intersect each other
FERRYL	End node must be covered by	FERRYC	End node of ferry line as line must be covered by ferry station as node.
FERRYL	Have no pseudo node		Ferry line as line do not have pseudo nodes
FERRYL	Must be single part		Ferry line as line must be single part
FERRYL	Must not intersect with	RAILRDL ROADL RUNWAYL	Ferry line as line must not intersect with railway, road and runway as line
FERRYL	Must not self-intersect		Ferry line as line must not self-intersect
HARBORA	Must be single part		Port as polygon must be single part
HARBORA	Must not overlap		Port as polygon must not overlap
HARBORA	Must not overlap with	AIRFLDA	Port as polygon must not overlap with airport/airfield as polygon
HARBORA	Must not self-overlap		Port as polygon must not self-overlap
HARBORA	No adjacent faces with same attributes		No adjacent port as polygon with same attributes
HARBORC	Must be covered by end node of	RAILRDL or ROADL	Port as connected node must be covered by end node of a railway or a road as line
HARBORC	Must be inside	HARBORA	Port as connected node must be inside the correspondent port as polygon
HARBORC, HARBORP	Must not intersect with	AIRFLDC AIRFLDP EXITC HELIP INTERCC LEVELCC MISAEROP RAILRDC RESTC	Port as node or connected node must not intersect with airport/airfield, entrance/exit, port, heliport, interchange, level crossing / road intersection, control tower, railway station and rest area as node or connected node
HARBORC, HARBORP	Must not intersect		Port as node or connected node must not intersect each other
HARBORL	Have no pseudo node		Pier/wharf/quay as line do not have pseudo nodes
HARBORL	Must be single part		Pier/wharf/quay as line must be single part
HARBORL	Must not intersect or touch interior		Pier/wharf/quay as line can only touch at their ends and must not overlap each other
HARBORL	Must not intersect with	RAILRDL ROADL RUNWAYL	Pier/wharf/quay must not intersect with railway, road and runway as line
HARBORL	Must not self-intersect		Pier/wharf/quay as line must not self-intersect
HARBORP	Must be outside of	HARBORA	Port as node must be outside of a port as polygon

Feature class	Topology rule	Related feature class	Description
HELIP	Must not intersect with	AIRFLDC AIRFLDP EXITC FERRYC HARBORC HARBORP INTERCC LEVELCC MISAEROP RAILRDC RESTC	Heliport as node must not intersect with airport/airfield, entrance/exit, ferry station, port, interchange, level crossing / road intersection, control tower, railway station and rest area as node or connected node
HELIP	Must not intersect		Heliport as node must not intersect each other
INTERCC	Must be covered by end node of	ROADL	Interchange as connected node must be covered by end node of a road
INTERCC	Must not intersect with	AIRFLDC AIRFLDP EXITC FERRYC HARBORC HARBORP HELIP LEVELCC MISAEROP RAILRDC RESTC	Interchange as connected node must not intersect with airport/airfield, entrance/exit, ferry station, port, heliport, level crossing / road intersection, control tower, railway station and rest area as node or connected node
INTERCC	Must not intersect		Interchange as connected node must not intersect each other
LEVELCC	Must not intersect with	AIRFLDC AIRFLDP EXITC FERRYC HARBORC HARBORP HELIP INTERCC MISAEROP RAILRDC RESTC	Level crossing / road intersection as connected node must not intersect with airport/airfield, entrance/exit, ferry station, port, heliport, interchange, control tower, railway station and rest area as node or connected node
LEVELCC	Must not intersect		Level crossing / road intersection as connected node must not intersect each other
LEVELCC, AQ062	Must be covered by end node of	RAILRDL and ROADL	Level crossing as connected node must be covered by end node of a railway and a road as line
LEVELCC, AQ063	Must be covered by end node of	ROADL	Road intersection as connected node must be covered by end node of a road as line
MISAEROP	Must not intersect with	AIRFLDC AIRFLDP EXITC FERRYC HARBORC HARBORP HELIP INTERCC LEVELCC RAILRDC RESTC	Control tower as node must not intersect with airport/airfield, entrance/exit, ferry station, port, heliport, interchange, level crossing / road intersection, railway station and rest area as node or connected node

Feature class	Topology rule	Related feature class	Description
MISAEROP	Must not intersect		Control tower as node must not intersect each other
RAILRDC	Must be covered by end node of	RAILRDL and ROADL	Railroad station as connected node must be covered by end node of a railway and a road as line
RAILRDC	Must not intersect with	AIRFLDC AIRFLDP EXITC FERRYC HARBORC HARBORP HELIP INTERCC LEVELCC MISAEROP RESTC	Railway station as connected node must not intersect with airport/airfield, entrance/exit, ferry station, port, heliport, interchange, level crossing / road intersection, control tower and rest area as node or connected node
RAILRDC	Must not intersect		Railway station as connected node must not intersect each other
RAILRDL	Have no pseudo node		Railway as line do not have pseudo nodes
RAILRDL	Must be single part		Railway as line must be single part
RAILRDL	Must not intersect or touch interior		Railway as line can only touch at their ends and must not overlap each other
RAILRDL	Must not intersect with	FERRYL HARBORL ROADL RUNWAYL	Railway as line must not intersect with ferry line, pier/wharf/quay, road and runway as line
RAILRDL	Must not self-intersect		Railway as line must not self-intersect
RESTC	Must be covered by end node of	ROADL	Rest area as connected node must be covered by end node of a road
RESTC	Must not intersect with	AIRFLDC AIRFLDP FERRYC HARBORC HARBORP HELIP INTERCC LEVELCC MISAEROP RAILRDC	Rest area as connected node must not intersect with airport/airfield, ferry station, port, heliport, interchange, level crossing / road intersection, control tower and railway station as node or connected node
RESTC	Must not intersect		Rest area as connected node must not intersect each other
ROADL	Have no pseudo node		Road as line do not have pseudo nodes
ROADL	Must be single part		Road as line must be single part
ROADL	Must not intersect or touch interior		Road as line can only touch at their ends and must not overlap each other
ROADL	Must not intersect with	FERRYL HARBORL RAILRDL RUNWAYL	Road as line must not intersect with ferry line, pier/wharf/quay, railway and runway as line
ROADL	Must not self-intersect		Road as line must not self-intersect
RUNWAYL	Have no pseudo node		Runway line as line do not have pseudo nodes
RUNWAYL	Must be inside	AIRFLDA	Runway line as line must be inside the correspondent airport/airfield as polygon
RUNWAYL	Must be single part		Runway line as line must be single part
RUNWAYL	Must not intersect or touch interior		Runway line as line can only touch at their ends and must not overlap each other

Feature class	Topology rule	Related feature class	Description
RUNWAYL	Must not intersect with	FERRYL HARBORL RAILRDL ROADL	Runway line as line must not intersect with ferry line, pier/wharf/quay, railway and road as line
RUNWAYL	Must not self-intersect		Runway line as line must not self-intersect

Theme: Vegetation and Soils (VEG)

These topological relationships are set up for validation at feature class level.

Feature class	Topology rule	Related feature class	Description
SOILA	Must be single part		Soil as polygon must be single part
SOILA	Must not overlap		Soil as polygon must not overlap
SOILA	Must not overlap with	VEGA	Soil as polygon must not overlap with vegetation as polygon
SOILA	Must not self-overlap		Soil as polygon must not self-overlap
SOILA	No adjacent faces with same attributes		No adjacent soil as polygon with same attributes
VEGA	Must be single part		Vegetation as polygon must be single part
VEGA	Must not overlap		Vegetation as polygon must not overlap
VEGA	Must not overlap with	SOILA	Vegetation as polygon must not overlap with soil as polygon
VEGA	Must not self-overlap		Vegetation as polygon must not self-overlap
VEGA	No adjacent faces with same attributes		No adjacent vegetation as polygon with same attributes

Topological associations needed for quality control and good consistency between features

The following topological matrices refer to topological relationships between features for better consistency in the dataset.

Table 5: Topological association: Area to area

AREA / AREA	COASTA	LAKERESA	LANDICEA	LANDMASKA	ISLANDA	SEAA	SWAMPA	WATRCRSA	PARKA	BUILTUPA	AIRFLDA	HARBORA	SOILA	VEGA
COASTA														
LAKERESA														
LANDICEA														
LANDMASKA														
ISLANDA														
SEAA														
SWAMPA														
WATRCRSA														
PARKA														
BUILTUPA														
AIRFLDA														
HARBORA														
SOILA														
VEGA														

Meaning of colours:

Area must not overlap with area of another theme (nice to have)

Area must not overlap with area of same theme
(required as mentioned in the tables above)

Table 6: Topological association: Point to area

POINT \ AREA	COASTA	LAKERESA	LANDICEA	LANDMASKA	ISLANDA	SEAA	SWAMPA	WATRCRSA	PARKA	BUILTUPA	AIRFLDA	HARBORA	SOILA	VEGA
DAMC														
HYNODEC														
SPRINGP, SPRINGC														
RAPIDSC														
WELLP														
BUILDP														
CTOWERP														
EXTRACTP														
INDPRODP														
LANDMRKP														
PHYSP														
POWERP														
TOWERP														
BUILTUPPAL020														
BUILTUPPAL022														
URBANP														
AIRFLDP														
AIRFLDC														
HARBORP														
HARBORC														
HELIP														
FERRYC														
MISAEROP														
INTERCC														
LEVELCC														
RAILRDC														
RESTC														
EXITC														

Meaning of colours:

- Point must not be properly inside area of another theme (nice to have)
- Point must not be properly inside area of same theme (required as mentioned in the tables above)
- Point must be properly inside area of same theme (required as mentioned in the tables above)

Table 7: Topological association: Line to area

LINE \ AREA	COASTA	LAKERESA	LANDICEA	LANDMASKA	ISLANDA	SEAA	SWAMPA	WATRCRSA	PARKA	BUILTUPA	AIRFLDA	HARBORA	SOILA	VEGA
RAPIDSL														
DAML														
COASTL														
SEASTRTL														
SHOREL														
AQUEDCTL														
WATRCRSL														
INDPRODL														
PHYSL														
POWERL														
FERRYL														
HARBORL														
RAILRDL														
ROADL														
RUNWAYL														

Meaning of colours:

Line must not touch interior of area of another theme (nice to have)

Line must not touch interior of area of same theme
(required as mentioned in the tables above)

Line must be inside of area of same theme
(required as mentioned in the tables above)

Table 8: Topological association: Line to line

LINE / LINE	RAPIDSL	AQUEDCTL	COASTL	SEASTRTL	SHOREL	DAML	WATRCRSL	INDPRODL	PHYSL	POWERL	FERRYL	HARBORL	RAILRDL	ROADL	RUNWAYL
RAPIDSL															
AQUEDCTL															
COASTL															
SEASTRTL															
SHOREL															
DAML															
WATRCRSL															
INDPRODL															
PHYSL															
POWERL															
FERRYL															
HARBORL															
RAILRDL															
ROADL															
RUNWAYL															

Meaning of colours:

Line must not overlap with line of another theme (nice to have)

Line must not overlap with line of same theme
(required as mentioned in the tables above)

Table 9: Topological association: Isolated point to line

POINT \ LINE	RAPIDSL	AQUEDCTL	COASTL	SEASTRTL	SHOREL	DAML	WATRCRSL	INDPRODL	PHYSL	POWERL	FERRYL	HARBORL	RAILRDL	ROADL	RUNWAYL
SPRINGP															
WELLP															
BUILDP															
CTOWERP															
EXTRACTP															
INDPRODP															
LANDMRKP															
PHYSP															
POWERP															
TOWERP															
BUILTUPP															
URBANP															
AIRFLDP															
HARBORP															
HELIP															
MISAEROP															

Meaning of colours:

- Isolated point must not be covered by line of another theme (nice to have)
- Isolated point must not be covered by line of same theme (required as mentioned in the tables above)
- Isolated point must be connected to line

Table 10: Topological association: Point to point

POINT / POINT	DAMC	SPRINGP, SPRINGC	HYNODEC	RAPIDSC	WELLP	BUILDP	CTOWERP	EXTRACTP	INDPRODP	LANDMRKP	PHYSP	POWERP	TOWERP	BUILTUPP	URBANP	AIRFLDP	AIRFLDC	HARBORP, HABRORC	HELIP	MISAEROP	INTERCC	LEVELCC	RAILRDC	RESTC	EXITC	FERRYC
DAMC																										
SPRINGP, SPRINGC																										
HYNODEC																										
RAPIDSC																										
WELLP																										
BUILDP																										
CTOWERP																										
EXTRACTP																										
INDPRODP																										
LANDMRKP																										
PHYSP																										
POWERP																										
TOWERP																										
BUILTUPP																										
URBANP																										
AIRFLDP																										
AIRFLDC																										
HARBORP, HARBORC																										
HELIP																										
MISAEROP																										
INTERCC																										
LEVELCC																										
RAILRDC																										
RESTC																										
EXITC																										
FERRYC																										

Meaning of colours:

Point must not be covered by point of another theme (nice to have)

Point must not be covered by point of same theme
(required as mentioned in the tables above)